INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC2 **Date:** 27-Jun-00
Chemical: dZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,518	21	27	2	0.00	0.00	0.00
SD:	330	27	9	2	1.00	1.00	1.00
CV:	0.01	1.30	0.34	0.97			
Min:	33,376	4	12	0.4	-0.64	-1.64	-0.82
Max:	34,955	102	52	9	3.06	2.80	2.90
Median:	34,524	7	26	1	-0.52	-0.08	-0.43

dZn CC2 **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.148) update r2 0.15 0.148 r2: 0.027 0.00003

r2 Q,[COC]:	0.15	[dZn]	Q		m: -0.0132	0.00002
slope, m:	-0.1	29	3.6		b: 477	1.83
intercept, b:	29.5	26	20.6			
N: 34		15	102			

LnConc. = mLn{Q}+b (r2=0.125) update r2 0.12 0.125

r2 lnQ,ln[COC]:	0.12	ln[dZn]	ln Q	[dZn]	Q
slope, m:	-0.13	3.38	1.27	29	4
intercept, b:	3.55	3.15	3.02	23	21
N: 34		2.94	4.63	19	102

for graph
dZn 0
CC2

N= 36

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	*18-May-91*	*99.3*			4.60			2.95		
MFG	*5-Oct-91*	*3.56*			1.27			-0.64		
IDEQ	27-Oct-93	5.77	21.7	0.7	1.75	3.08	-0.40	-0.55	-0.56	-0.72
IDEQ	30-Nov-93	5.07	25.1	0.7	1.62	3.22	-0.38	-0.58	-0.18	-0.72
IDEQ	17-Dec-93	5.07	21.7	0.6	1.62	3.08	-0.52	-0.58	-0.56	-0.76
IDEQ	17-Dec-93	4.53	21.7	0.5	1.51	3.08	-0.64	-0.60	-0.56	-0.79
IDEQ	20-Jan-94	5.48	22.8	0.7	1.70	3.13	-0.40	-0.57	-0.44	-0.72
IDEQ	20-Jan-94	4.47	22.8	0.5	1.50	3.13	-0.60	-0.60	-0.44	-0.78
IDEQ	18-Feb-94	5.07	36	1.0	1.62	3.58	-0.02	-0.58	1.03	-0.58
IDEQ	18-Feb-94	4.06	36	0.8	1.40	3.58	-0.24	-0.62	1.03	-0.67
IDEQ	8-Mar-94	9.82	36	1.9	2.28	3.58	0.64	-0.40	1.03	-0.16
IDEQ	23-Mar-94	9.55	17	0.9	2.26	2.83	-0.14	-0.41	-1.08	-0.63
IDEQ	7-Apr-94	21.77	26	3.0	3.08	3.26	1.11	0.04	-0.08	0.36
IDEQ	7-Apr-94	27.41	26	3.8	3.31	3.26	1.34	0.26	-0.08	0.71
IDEQ	4-May-94	61.38	22	7.3	4.12	3.09	1.98	1.53	-0.53	2.27
IDEQ	19-May-94	82.71	13	5.8	4.42	2.56	1.76	2.33	-1.53	1.60
IDEQ	8-Jun-94	59.6	27	8.7	4.09	3.30	2.16	1.46	0.03	2.90
IDEQ	23-Jun-94	15.59	35	2.9	2.75	3.56	1.08	-0.19	0.92	0.31
IDEQ	25-Jul-94	6.76	28	1.0	1.91	3.33	0.02	-0.52	0.14	-0.56
IDEQ	16-Aug-94	5.77	37	1.1	1.75	3.61	0.14	-0.55	1.14	-0.50
IDEQ	16-Aug-94	6.4	37	1.3	1.86	3.61	0.24	-0.53	1.14	-0.45
IDEQ	13-Sep-94	5.48	29	0.9	1.70	3.37	-0.16	-0.57	0.25	-0.64
IDEQ	6-Oct-94	5.2	16	0.4	1.65	2.77	-0.80	-0.58	-1.20	-0.82
IDEQ	16-Nov-94	6.08	17	0.6	1.81	2.83	-0.59	-0.54	-1.08	-0.77
IDEQ	13-Dec-94	6.25	40	1.3	1.83	3.69	0.30	-0.54	1.47	-0.42
IDEQ	10-Jan-95	9.3	28	1.4	2.23	3.33	0.34	-0.42	0.14	-0.39
IDEQ	9-Feb-95	18.41	52	5.2	2.91	3.95	1.64	-0.08	2.80	1.31
IDEQ	22-Mar-95	48.52	21	5.5	3.88	3.04	1.70	1.05	-0.64	1.46
IDEQ	12-Apr-95	16.94	21	1.9	2.83	3.04	0.65	-0.14	-0.64	-0.16
IDEQ	25-Apr-95	21	12	1.4	3.04	2.48	0.30	0.02	-1.64	-0.41
IDEQ	13-Jun-95	102.19	12	6.6	4.63	2.48	1.89	3.06	-1.64	1.97
IDEQ	27-Jun-95	24.36	31	4.1	3.19	3.43	1.40	0.14	0.47	0.82
IDEQ	11-Jul-95	10.93	26	1.5	2.39	3.26	0.42	-0.36	-0.08	-0.33
IDEQ	25-Jul-95	6.76	42	1.5	1.91	3.74	0.42	-0.52	1.69	-0.33
IDEQ	14-Aug-95	5.77	28	0.9	1.75	3.33	-0.14	-0.55	0.14	-0.63
IDEQ	13-Sep-95	4.57	23	0.6	1.52	3.14	-0.57	-0.60	-0.42	-0.77

dZn

Concentration over time analysis r2 Slope, m

dZn CC2 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.0001** **-0.00002**

	Time	Ln[COC]	[COC]
first:	18-May-91	3.25	26
mid:	9-Jul-94	3.23	25
last:	13-Sep-95	3.22	25

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
13-Sep-95	0.00	1

Load over time analysis

dZn CC2 **Load over time**

LnLoad=mTime+b All data r2, m: **0.052** **0.00096**

	Time	LnLoad	Load
first:	18-May-91	-0.74	0
mid:	9-Jul-94	0.36	1
last:	13-Sep-95	0.77	2

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
13-Sep-95	0.00	1

max r2: 0.376 max r2: 0.911

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.000	-0.00002	3.87	0.052	0.00096	-32.72
0.000	-0.00002	3.87	0.052	0.00096	-32.72
0.000	-0.00002	3.87	0.052	0.00096	-32.72
0.001	-0.00006	5.15	0.038	0.00084	-28.58
0.001	-0.00006	5.36	0.026	0.00071	-23.98
0.003	-0.00010	6.81	0.014	0.00052	-17.40
0.007	-0.00015	8.59	0.003	0.00025	-8.28
0.010	-0.00020	10.03	0.000	0.00003	-0.43
0.015	-0.00025	11.82	0.005	-0.00031	11.35
0.007	-0.00017	9.07	0.012	-0.00052	18.50
0.001	-0.00007	5.62	0.032	-0.00085	30.07
0.001	0.00005	1.48	0.035	-0.00093	32.92
0.002	-0.00009	6.30	0.067	-0.00132	46.45
0.001	-0.00009	6.19	0.058	-0.00128	45.09
0.001	-0.00008	6.04	0.040	-0.00112	39.40
0.004	-0.00016	8.76	0.011	-0.00057	20.48
0.046	-0.00056	22.77	0.000	0.00002	-0.14
0.050	-0.00062	24.95	0.038	0.00106	-36.33
0.030	-0.00051	21.14	0.089	0.00170	-58.78
0.027	-0.00053	21.75	0.075	0.00168	-58.01
0.008	-0.00030	13.73	0.068	0.00172	-59.50
0.000	0.00008	0.46	0.068	0.00191	-66.15
0.007	0.00034	-8.68	0.038	0.00159	-54.83
0.003	-0.00027	12.59	0.000	-0.00019	7.08
0.049	-0.00113	42.47	0.090	-0.00265	92.94
0.005	-0.00041	17.37	0.209	-0.00469	164.02
0.001	-0.00015	8.52	0.448	-0.00815	284.74
0.220	0.00327	-110.90	0.366	-0.00851	297.29
0.279	0.00443	-151.29	0.222	-0.00708	247.52
0.376	0.00641	-220.54	0.304	-0.01032	360.67
0.103	0.00401	-136.80	0.911	-0.02633	919.57
0.218	-0.00348	125.01	0.887	-0.02286	798.49

update for EV, CV:

dZn **CC2**

LN Analysis **dZn**

Load **Load Data, EV=2.26 lbs/day CV=0.975**

Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**2**			
SD:	**2**	3	2.9	19
CV:	**0.97**	0	0.48	2
Min:	**0.4**	-3	-1.97	0.1
Max:	**9**			
Median:	**1**			
		2	2.26	
		0.97	0.975	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.948, EV=2.38lbs/day CV=1.29; max r2=0.99**

r2 u,lnLoad:	0.948	u	lnLoad	Load		
slope, m:	1.012	3	3.34	28		
intercept, b:	-0.383	0	0.38	1		
N: 34		-3	-2.59	0.1		
E[Load]:	2.4	Parameter Estimates			0.948	0.948
SD[Load]:	3	from LN regression			2.4	2.38
CV[Load]:	1.29	update graph label			1.3	1.29
					max r2	
					0.989	

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
		N: 36				
update and rank for new data						
5-Oct-91		1	0.0172	-2.114		
6-Oct-94	0.4	2	0.0448	-1.697	-0.804	0.948
17-Dec-93	0.5	3	0.0724	-1.458	-0.637	0.952
20-Jan-94	0.5	4	0.1000	-1.282	-0.601	0.958
16-Nov-94	0.6	5	0.1276	-1.138	-0.587	0.961
13-Sep-95	0.6	6	0.1552	-1.014	-0.570	0.962
17-Dec-93	0.6	7	0.1828	-0.905	-0.524	0.961
20-Jan-94	0.7	8	0.2103	-0.805	-0.397	0.959
27-Oct-93	0.7	9	0.2379	-0.713	-0.395	0.958
30-Nov-93	0.7	10	0.2655	-0.626	-0.379	0.955
18-Feb-94	0.8	11	0.2931	-0.544	-0.240	0.951
13-Sep-94	0.9	12	0.3207	-0.466	-0.157	0.947
14-Aug-95	0.9	13	0.3483	-0.390	-0.140	0.944
23-Mar-94	0.9	14	0.3759	-0.316	-0.135	0.939
18-Feb-94	1.0	15	0.4034	-0.244	-0.018	0.933
25-Jul-94	1.0	16	0.4310	-0.174	0.018	0.927
16-Aug-94	1.1	17	0.4586	-0.104	0.139	0.919
16-Aug-94	1.3	18	0.4862	-0.035	0.242	0.911
13-Dec-94	1.3	19	0.5138	0.035	0.296	0.902
25-Apr-95	1.4	20	0.5414	0.104	0.304	0.891
10-Jan-95	1.4	21	0.5690	0.174	0.337	0.879
25-Jul-95	1.5	22	0.5966	0.244	0.424	0.867
11-Jul-95	1.5	23	0.6241	0.316	0.425	0.854
8-Mar-94	1.9	24	0.6517	0.390	0.643	0.856
12-Apr-95	1.9	25	0.6793	0.466	0.649	0.851
23-Jun-94	2.9	26	0.7069	0.544	1.077	0.914
7-Apr-94	3.0	27	0.7345	0.626	1.114	0.910
7-Apr-94	3.8	28	0.7621	0.713	1.344	0.945
27-Jun-95	4.1	29	0.7897	0.805	1.402	0.944
9-Feb-95	5.2	30	0.8172	0.905	1.639	0.987
18-May-91		31	0.8448	1.014		
22-Mar-95	5.5	32	0.8724	1.138	1.701	0.989
19-May-94	5.8	33	0.9000	1.282	1.755	
13-Jun-95	6.6	34	0.9276	1.458	1.887	
4-May-94	7.3	35	0.9552	1.697	1.983	
8-Jun-94	8.7	36	0.9828	2.114	2.158	

update for EV, CV:

dZn		**CC2**		27	26.8
LN Analysis		**dZn**		0.34	0.336
Concentration		**Conc. Data, EV=26.8 ug/L CV=0.336**			
Avg:	**27**	**Data-based LN**			
SD:	**9**	u	ln[dZn]	[dZn]	
CV:	**0.34**	3	4.2	68	
Min:	**12**	0	3.23	25	
Max:	**52**	-3	2.25	10	
Median:	**26**				

					0.953	0.953
u=mLn{Conc.}+b:					26.2	26.2
update for r2, EV, CV:	**r2=0.953, EV=26.2 ug/L CV=0.429; max r2=0.98**				0.429	0.429
	r2 u,lnConc:	0.953	u	lnConc.	Conc.	
	slope, m:	2.432	3	4.42	83	
	intercept, b:	-7.738	0	3.18	24	
	N: 34		-3	1.95	7	
	E[Conc]:	26.2	Parameter Estimates			
	SD[Conc]:	11	from LN regression			
	CV[Conc]:	0.43	update graph label			

						max r2
	dZn	N: 36				0.975
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
5-Oct-91		1	0.0172	-2.114		
18-May-91		2	0.0448	-1.697		
25-Apr-95	12	3	0.0724	-1.458	2.485	0.953
13-Jun-95	12	4	0.1000	-1.282	2.485	0.951
19-May-94	13	5	0.1276	-1.138	2.565	0.958
6-Oct-94	16	6	0.1552	-1.014	2.773	0.971
23-Mar-94	17	7	0.1828	-0.905	2.833	0.971
16-Nov-94	17	8	0.2103	-0.805	2.833	0.970
22-Mar-95	21	9	0.2379	-0.713	3.045	0.974
12-Apr-95	21	10	0.2655	-0.626	3.045	0.975
27-Oct-93	21.7	11	0.2931	-0.544	3.077	0.973
17-Dec-93	21.7	12	0.3207	-0.466	3.077	0.973
17-Dec-93	21.7	13	0.3483	-0.390	3.077	0.971
4-May-94	22	14	0.3759	-0.316	3.091	0.969
20-Jan-94	22.8	15	0.4034	-0.244	3.127	0.966
20-Jan-94	22.8	16	0.4310	-0.174	3.127	0.962
13-Sep-95	23	17	0.4586	-0.104	3.135	0.959
30-Nov-93	25.1	18	0.4862	-0.035	3.223	0.957
7-Apr-94	26	19	0.5138	0.035	3.258	0.953
7-Apr-94	26	20	0.5414	0.104	3.258	0.949
11-Jul-95	26	21	0.5690	0.174	3.258	0.943
8-Jun-94	27	22	0.5966	0.244	3.296	0.937
25-Jul-94	28	23	0.6241	0.316	3.332	0.928
10-Jan-95	28	24	0.6517	0.390	3.332	0.918
14-Aug-95	28	25	0.6793	0.466	3.332	0.907
13-Sep-94	29	26	0.7069	0.544	3.367	0.902
27-Jun-95	31	27	0.7345	0.626	3.434	0.903
23-Jun-94	35	28	0.7621	0.713	3.555	0.893
18-Feb-94	36	29	0.7897	0.805	3.584	0.897
18-Feb-94	36	30	0.8172	0.905	3.584	0.924
8-Mar-94	36	31	0.8448	1.014	3.584	0.945
16-Aug-94	37	32	0.8724	1.138	3.611	0.954
16-Aug-94	37	33	0.9000	1.282	3.611	
13-Dec-94	40	34	0.9276	1.458	3.689	
25-Jul-95	42	35	0.9552	1.697	3.738	
9-Feb-95	52	36	0.9828	2.114	3.951	

update for EV, CV:

dZn		**CC2**			21	20.6	**Secondary Scale For LN graphs**		
LN Analysis		**dZn**			1.30	1.3	**u**	**Cumulative**	
Discharge, Q		**Q Data, EV=20.6 cfs CV=1.3**						**Frequecny**	**Candidate**
Avg:	**21**	**Q Data-based LN**						secondary y-axi	x-axis positi
SD:	**27**	u	lnQ	Q			**-4.00**	**0.00003**	10000
CV:	**1.30**	3	5.5	247			**-3.00**	**0.00135**	10000
Min:	**4**	0	2.53	13			**-2.00**	**0.02275**	10000
Max:	**102**	-3	-0.45	1			**-1.00**	**0.15866**	10000
Median:	**7**						**0.00**	**0.50000**	10000
							1.00	**0.84134**	10000
					0.863	0.863	**2.00**	**0.97725**	10000
					21.2	21.2	**3.00**	**0.99865**	10000
	u=mLn{Q}+b:				1.56	1.56	**4.00**	**0.99997**	10000

update for r2, EV, CV: **r2=0.863, EV=21.2 cfs CV=1.56; max r2=0.96**

r2 u,lnQ:	0.863	u	lnQ	Q
slope, m:	0.901	3	5.77	319
intercept, b:	-2.195	0	2.44	11
N: 36		-3	-0.89	0.4
E[Q]:	21.2	Parameter Estimates		
SD[Q]:	33	from LN regression		
CV[Q]:	1.56	update graph label		

max r2
0.963

N: 36

Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2 forward**
update and rank for new data						
5-Oct-91	*3.56*	1	0.0172	-2.114	1.270	0.863
18-Feb-94	4.06	2	0.0448	-1.697	1.401	0.884
20-Jan-94	4.47	3	0.0724	-1.458	1.497	0.898
17-Dec-93	4.53	4	0.1000	-1.282	1.511	0.912
13-Sep-95	4.57	5	0.1276	-1.138	1.520	0.922
30-Nov-93	5.07	6	0.1552	-1.014	1.623	0.929
17-Dec-93	5.07	7	0.1828	-0.905	1.623	0.939
18-Feb-94	5.07	8	0.2103	-0.805	1.623	0.946
6-Oct-94	5.2	9	0.2379	-0.713	1.649	0.951
20-Jan-94	5.48	10	0.2655	-0.626	1.701	0.955
13-Sep-94	5.48	11	0.2931	-0.544	1.701	0.959
27-Oct-93	5.77	12	0.3207	-0.466	1.753	0.961
16-Aug-94	5.77	13	0.3483	-0.390	1.753	0.963
14-Aug-95	5.77	14	0.3759	-0.316	1.753	0.963
16-Nov-94	6.08	15	0.4034	-0.244	1.805	0.961
13-Dec-94	6.25	16	0.4310	-0.174	1.833	0.959
16-Aug-94	6.4	17	0.4586	-0.104	1.856	0.955
25-Jul-94	6.76	18	0.4862	-0.035	1.911	0.950
25-Jul-95	6.76	19	0.5138	0.035	1.911	0.945
10-Jan-95	9.3	20	0.5414	0.104	2.230	0.941
23-Mar-94	9.55	21	0.5690	0.174	2.257	0.934
8-Mar-94	9.82	22	0.5966	0.244	2.284	0.926
11-Jul-95	10.93	23	0.6241	0.316	2.392	0.919
23-Jun-94	15.59	24	0.6517	0.390	2.747	0.913
12-Apr-95	16.94	25	0.6793	0.466	2.830	0.900
9-Feb-95	18.41	26	0.7069	0.544	2.913	0.883
25-Apr-95	21	27	0.7345	0.626	3.045	0.862
7-Apr-94	21.77	28	0.7621	0.713	3.081	0.835
27-Jun-95	24.36	29	0.7897	0.805	3.193	0.801
7-Apr-94	27.41	30	0.8172	0.905	3.311	0.769
22-Mar-95	48.52	31	0.8448	1.014	3.882	0.864
8-Jun-94	59.6	32	0.8724	1.138	4.088	0.826
4-May-94	61.38	33	0.9000	1.282	4.117	
19-May-94	82.71	34	0.9276	1.458	4.415	
18-May-91	*99.3*	35	0.9552	1.697	4.598	
13-Jun-95	102.19	36	0.9828	2.114	4.627	

x-axis positions

tion

1000
1000
1000
1000
1000
1000
1000
1000
1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC2 **Date:** 27-Jun-00
Chemical: tZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,518	21	30	5	0.00	0.00	0.00
SD:	330	27	29	17	1.00	1.00	1.00
CV:	0.01	1.30	0.97	3.39			
Min:	33,376	4	14	0.4	-0.64	-0.56	-0.27
Max:	34,955	102	200	107	3.06	5.77	5.86
Median:	34,524	7	26	1	-0.52	-0.16	-0.23

tZn **CC2** **: Concentration v. Discharge, Q**

Conc. = mQ+b (r2=0.173)	update r2	0.17	0.173		**Q = mTime +b**	**LnQ = mTime +b**	
r2 Q,[COC]:	0.17	[tZn]	Q		r2:	0.027	0.00003
slope, m:	0.5	23	3.6		m:	-0.0132	0.00002
intercept, b:	20.9	30	20.6		b:	477	1.83
N: 36		68	102				
LnConc. = mLn{Q}+b (r2=0.0128)	update r2		0.01	0.0128			
r2 lnQ,ln[COC]:	0.01	ln[tZn]	ln Q	[tZn]	Q		
slope, m:	0.05	3.21	1.27	25	4		
intercept, b:	3.14	3.29	3.02	27	21		
N: 36		3.37	4.63	29	102		

for graph
tZn 0

N= 36

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	CC2 Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	18-May-91	99.3	200	106.8	4.60	5.30	4.67	2.95	5.77	5.86
MFG	5-Oct-91	3.56	22	0.4	1.27	3.09	-0.86	-0.64	-0.28	-0.27
IDEQ	27-Oct-93	5.77	20.5	0.6	1.75	3.02	-0.45	-0.55	-0.33	-0.26
IDEQ	30-Nov-93	5.07	22.8	0.6	1.62	3.13	-0.47	-0.58	-0.26	-0.26
IDEQ	17-Dec-93	5.07	27.4	0.7	1.62	3.31	-0.29	-0.58	-0.10	-0.25
IDEQ	17-Dec-93	4.53	27.4	0.7	1.51	3.31	-0.40	-0.60	-0.10	-0.26
IDEQ	20-Jan-94	5.48	34.2	1.0	1.70	3.53	0.01	-0.57	0.13	-0.24
IDEQ	20-Jan-94	4.47	34.2	0.8	1.50	3.53	-0.20	-0.60	0.13	-0.25
IDEQ	18-Feb-94	5.07	28	0.8	1.62	3.33	-0.27	-0.58	-0.08	-0.25
IDEQ	18-Feb-94	4.06	28	0.6	1.40	3.33	-0.49	-0.62	-0.08	-0.26
IDEQ	8-Mar-94	9.82	28	1.5	2.28	3.33	0.39	-0.40	-0.08	-0.21
IDEQ	23-Mar-94	9.55	14	0.7	2.26	2.64	-0.33	-0.41	-0.56	-0.25
IDEQ	7-Apr-94	21.77	22	2.6	3.08	3.09	0.95	0.04	-0.28	-0.15
IDEQ	7-Apr-94	27.41	22	3.2	3.31	3.09	1.18	0.26	-0.28	-0.11
IDEQ	4-May-94	61.38	19	6.3	4.12	2.94	1.84	1.53	-0.39	0.07
IDEQ	19-May-94	82.71	16	7.1	4.42	2.77	1.96	2.33	-0.49	0.12
IDEQ	8-Jun-94	59.6	17	5.5	4.09	2.83	1.70	1.46	-0.45	0.02
IDEQ	23-Jun-94	15.59	35	2.9	2.75	3.56	1.08	-0.19	0.16	-0.13
IDEQ	25-Jul-94	6.76	16	0.6	1.91	2.77	-0.54	-0.52	-0.49	-0.26
IDEQ	16-Aug-94	5.77	29	0.9	1.75	3.37	-0.11	-0.55	-0.05	-0.24
IDEQ	16-Aug-94	6.4	29	1.0	1.86	3.37	0.00	-0.53	-0.05	-0.24
IDEQ	13-Sep-94	5.48	23	0.7	1.70	3.14	-0.39	-0.57	-0.25	-0.26
IDEQ	6-Oct-94	5.2	24	0.7	1.65	3.18	-0.40	-0.58	-0.22	-0.26
IDEQ	16-Nov-94	6.08	18	0.6	1.81	2.89	-0.53	-0.54	-0.42	-0.26
IDEQ	13-Dec-94	6.25	36	1.2	1.83	3.58	0.19	-0.54	0.19	-0.23
IDEQ	10-Jan-95	9.3	29	1.5	2.23	3.37	0.37	-0.42	-0.05	-0.21
IDEQ	9-Feb-95	18.41	31	3.1	2.91	3.43	1.12	-0.08	0.02	-0.12
IDEQ	22-Mar-95	48.52	26	6.8	3.88	3.26	1.92	1.05	-0.15	0.10
IDEQ	12-Apr-95	16.94	31	2.8	2.83	3.43	1.04	-0.14	0.02	-0.13
IDEQ	25-Apr-95	21	20	2.3	3.04	3.00	0.82	0.02	-0.35	-0.16
IDEQ	13-Jun-95	102.19	20	11.0	4.63	3.00	2.40	3.06	-0.35	0.34
IDEQ	27-Jun-95	24.36	31	4.1	3.19	3.43	1.40	0.14	0.02	-0.06
IDEQ	11-Jul-95	10.93	23	1.4	2.39	3.14	0.30	-0.36	-0.25	-0.22
IDEQ	25-Jul-95	6.76	45	1.6	1.91	3.81	0.49	-0.52	0.50	-0.20
IDEQ	14-Aug-95	5.77	19	0.6	1.75	2.94	-0.53	-0.55	-0.39	-0.26
IDEQ	13-Sep-95	4.57	25	0.6	1.52	3.22	-0.49	-0.60	-0.18	-0.26

tZn

Concentration over time analysis r2 Slope, m

tZn CC2 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.163** **-0.00053**

	Time	Ln[COC]	[COC]
first:	18-May-91	3.87	48
mid:	9-Jul-94	3.26	26
last:	13-Sep-95	3.03	21

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
13-Sep-95	0.00	1

Load over time analysis

tZn CC2 **Load over time**

LnLoad=mTime+b All data r2, m: **0.022** **-0.00051**

	Time	LnLoad	Load
first:	18-May-91	1.06	3
mid:	9-Jul-94	0.47	2
last:	13-Sep-95	0.25	1

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
13-Sep-95	0.00	1

max r2: 0.163 max r2: 0.808

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.163	-0.00053	21.47	0.022	-0.00051	18.08
0.018	0.00013	-1.22	0.122	0.00114	-39.16
0.012	0.00014	-1.69	0.071	0.00112	-38.28
0.007	0.00011	-0.52	0.054	0.00100	-34.25
0.005	0.00009	-0.07	0.039	0.00086	-29.41
0.008	0.00012	-1.08	0.028	0.00074	-25.29
0.012	0.00016	-2.31	0.016	0.00057	-19.18
0.031	0.00026	-5.64	0.010	0.00048	-16.10
0.064	0.00037	-9.75	0.004	0.00031	-10.21
0.085	0.00044	-12.20	0.000	0.00010	-2.77
0.114	0.00053	-15.28	0.002	-0.00025	9.16
0.151	0.00064	-18.85	0.004	-0.00035	12.59
0.098	0.00049	-13.97	0.019	-0.00074	26.18
0.092	0.00050	-14.27	0.015	-0.00069	24.63
0.087	0.00052	-14.67	0.008	-0.00052	18.70
0.061	0.00045	-12.33	0.000	0.00003	-0.61
0.020	0.00026	-5.69	0.020	0.00084	-28.61
0.000	0.00004	1.87	0.081	0.00172	-59.41
0.020	0.00026	-5.97	0.149	0.00248	-85.88
0.001	-0.00006	5.23	0.104	0.00216	-74.53
0.000	0.00002	2.53	0.082	0.00205	-70.70
0.005	0.00015	-1.94	0.063	0.00199	-68.56
0.000	0.00003	2.37	0.022	0.00127	-43.79
0.002	-0.00012	7.29	0.000	-0.00003	1.78
0.098	-0.00092	35.38	0.060	-0.00244	85.85
0.028	-0.00054	22.13	0.175	-0.00482	168.78
0.015	-0.00047	19.70	0.382	-0.00847	295.92
0.000	0.00005	1.44	0.482	-0.01172	409.62
0.001	0.00013	-1.37	0.377	-0.01138	397.43
0.053	0.00156	-51.35	0.439	-0.01517	529.86
0.000	-0.00008	6.08	0.808	-0.03042	1062.45
0.102	-0.00345	123.67	0.765	-0.02283	797.15

update for EV, CV:

tZn **CC2**

LN Analysis **tZn**

Load **Load Data, EV=5.12 lbs/day CV=3.39**

Load Data-based LN

		u	ln tZn Load	tZn Load
Avg:	**5**			
SD:	**17**	u	ln tZn Load	tZn Load
CV:	**3.39**	3	5.1	170
Min:	**0.4**	0	0.37	1
Max:	**107**	-3	-4.40	0.01
Median:	**1**			
		5	5.12	
		3.39	3.39	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.835, EV=3.64lbs/day CV=2.03; max r2=0.93**

r2 u,lnLoad:	0.835	u	lnLoad	Load		
slope, m:	0.782	3	4.31	75		
intercept, b:	-0.370	0	0.47	2		
N: 36		-3	-3.36	0.03		
E[Load]:	3.6	Parameter Estimates			0.835	0.835
SD[Load]:	7	from LN regression			3.6	3.64
CV[Load]:	2.03	update graph label			2.0	2.03
					max r2	
		N: 36			0.928	

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
5-Oct-91	**0.4**	1	0.0172	-2.114	-0.864	0.835
25-Jul-94	**0.6**	2	0.0448	-1.697	-0.541	0.851
16-Nov-94	**0.6**	3	0.0724	-1.458	-0.530	0.872
14-Aug-95	**0.6**	4	0.1000	-1.282	-0.528	0.887
18-Feb-94	**0.6**	5	0.1276	-1.138	-0.492	0.898
13-Sep-95	**0.6**	6	0.1552	-1.014	-0.487	0.907
30-Nov-93	**0.6**	7	0.1828	-0.905	-0.475	0.914
27-Oct-93	**0.6**	8	0.2103	-0.805	-0.452	0.920
17-Dec-93	**0.7**	9	0.2379	-0.713	-0.404	0.923
6-Oct-94	**0.7**	10	0.2655	-0.626	-0.398	0.927
13-Sep-94	**0.7**	11	0.2931	-0.544	-0.388	0.928
23-Mar-94	**0.7**	12	0.3207	-0.466	-0.329	0.928
17-Dec-93	**0.7**	13	0.3483	-0.390	-0.291	0.927
18-Feb-94	**0.8**	14	0.3759	-0.316	-0.270	0.925
20-Jan-94	**0.8**	15	0.4034	-0.244	-0.195	0.921
16-Aug-94	**0.9**	16	0.4310	-0.174	-0.105	0.917
16-Aug-94	**1.0**	17	0.4586	-0.104	-0.001	0.912
20-Jan-94	**1.0**	18	0.4862	-0.035	0.008	0.907
13-Dec-94	**1.2**	19	0.5138	0.035	0.191	0.899
11-Jul-95	**1.4**	20	0.5414	0.104	0.302	0.893
10-Jan-95	**1.5**	21	0.5690	0.174	0.372	0.887
8-Mar-94	**1.5**	22	0.5966	0.244	0.392	0.879
25-Jul-95	**1.6**	23	0.6241	0.316	0.493	0.867
25-Apr-95	**2.3**	24	0.6517	0.390	0.815	0.853
7-Apr-94	**2.6**	25	0.6793	0.466	0.947	0.849
12-Apr-95	**2.8**	26	0.7069	0.544	1.039	0.849
23-Jun-94	**2.9**	27	0.7345	0.626	1.077	0.852
9-Feb-95	**3.1**	28	0.7621	0.713	1.122	0.851
7-Apr-94	**3.2**	29	0.7897	0.805	1.177	0.844
27-Jun-95	**4.1**	30	0.8172	0.905	1.402	0.828
8-Jun-94	**5.5**	31	0.8448	1.014	1.696	0.818
4-May-94	**6.3**	32	0.8724	1.138	1.836	0.841
22-Mar-95	**6.8**	33	0.9000	1.282	1.915	
19-May-94	**7.1**	34	0.9276	1.458	1.963	
13-Jun-95	**11.0**	35	0.9552	1.697	2.397	
18-May-91	**106.8**	36	0.9828	2.114	4.671	

update for EV, CV:

tZn		**CC2**	30	30.3
LN Analysis		**tZn**	0.97	0.969

Concentration

Conc. Data, EV=30.3 ug/L CV=0.969

Data-based LN

		u	ln[tZn]	[tZn]
Avg:	**30**			
SD:	**29**			
CV:	**0.97**	3	5.5	250
Min:	**14**	0	3.08	22
Max:	**200**	-3	0.64	2
Median:	**26**			

				0.723	0.723
	u=mLn{Conc.}+b:			30.0	30
update for r2, EV, CV:	**r2=0.723, EV=30 ug/L CV=0.564; max r2=0.82**			0.564	0.564
r2 u,lnConc:	0.723	u	lnConc.	Conc.	
slope, m:	1.903	3	4.84	126	
intercept, b:	-6.209	0	3.26	26	
N: 36		-3	1.69	5	
E[Conc]:	30.0	Parameter Estimates			
SD[Conc]:	17	from LN regression			
CV[Conc]:	0.56	update graph label			

						max r2
		N: 36				0.815
Date	**tZn Concentration ug/L Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	r2 forward
update and rank for new data						
23-Mar-94	14	1	0.0172	-2.114	2.639	0.723
19-May-94	16	2	0.0448	-1.697	2.773	0.711
25-Jul-94	16	3	0.0724	-1.458	2.773	0.705
8-Jun-94	17	4	0.1000	-1.282	2.833	0.693
16-Nov-94	18	5	0.1276	-1.138	2.890	0.683
4-May-94	19	6	0.1552	-1.014	2.944	0.674
14-Aug-95	19	7	0.1828	-0.905	2.944	0.669
25-Apr-95	20	8	0.2103	-0.805	2.996	0.661
13-Jun-95	20	9	0.2379	-0.713	2.996	0.656
27-Oct-93	20.5	10	0.2655	-0.626	3.020	0.648
5-Oct-91	22	11	0.2931	-0.544	3.091	0.640
7-Apr-94	22	12	0.3207	-0.466	3.091	0.638
7-Apr-94	22	13	0.3483	-0.390	3.091	0.634
30-Nov-93	22.8	14	0.3759	-0.316	3.127	0.628
13-Sep-94	23	15	0.4034	-0.244	3.135	0.623
11-Jul-95	23	16	0.4310	-0.174	3.135	0.618
6-Oct-94	24	17	0.4586	-0.104	3.178	0.609
13-Sep-95	25	18	0.4862	-0.035	3.219	0.604
22-Mar-95	26	19	0.5138	0.035	3.258	0.602
17-Dec-93	27.4	20	0.5414	0.104	3.311	0.604
17-Dec-93	27.4	21	0.5690	0.174	3.311	0.614
18-Feb-94	28	22	0.5966	0.244	3.332	0.623
18-Feb-94	28	23	0.6241	0.316	3.332	0.635
8-Mar-94	28	24	0.6517	0.390	3.332	0.646
16-Aug-94	29	25	0.6793	0.466	3.367	0.655
16-Aug-94	29	26	0.7069	0.544	3.367	0.670
10-Jan-95	29	27	0.7345	0.626	3.367	0.684
9-Feb-95	31	28	0.7621	0.713	3.434	0.694
12-Apr-95	31	29	0.7897	0.805	3.434	0.719
27-Jun-95	31	30	0.8172	0.905	3.434	0.743
20-Jan-94	34.2	31	0.8448	1.014	3.532	0.762
20-Jan-94	34.2	32	0.8724	1.138	3.532	0.815
23-Jun-94	35	33	0.9000	1.282	3.555	
13-Dec-94	36	34	0.9276	1.458	3.584	
25-Jul-95	45	35	0.9552	1.697	3.807	
18-May-91	200	36	0.9828	2.114	5.298	

update for EV, CV:

tZn		**CC2**			21	20.6
LN Analysis		**tZn**			1.30	1.3
Discharge, Q		**Q Data, EV=20.6 cfs CV=1.3**				
Avg:	**21**	**Q Data-based LN**				
SD:	**27**	u	lnQ	Q		
CV:	**1.30**	3	5.5	247		
Min:	**4**	0	2.53	13		
Max:	**102**	-3	-0.45	1		
Median:	**7**					

					0.863	0.863
					21.2	21.2
u=mLn{Q}+b:					1.56	1.56
update for r2, EV, CV:	**r2=0.863, EV=21.2 cfs CV=1.56; max r2=0.96**					
r2 u,lnQ:	0.863	u	lnQ	Q		
slope, m:	0.901	3	5.77	319		
intercept, b:	-2.195	0	2.44	11		
N: 36		-3	-0.89	0.4		
E[Q]:	21.2	Parameter Estimates				
SD[Q]:	33	from LN regression				
CV[Q]:	1.56	update graph label				

						max r2
		N: 36				0.963
Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
5-Oct-91	3.56	1	0.0172	-2.114	1.270	0.863
18-Feb-94	4.06	2	0.0448	-1.697	1.401	0.884
20-Jan-94	4.47	3	0.0724	-1.458	1.497	0.898
17-Dec-93	4.53	4	0.1000	-1.282	1.511	0.912
13-Sep-95	4.57	5	0.1276	-1.138	1.520	0.922
30-Nov-93	5.07	6	0.1552	-1.014	1.623	0.929
17-Dec-93	5.07	7	0.1828	-0.905	1.623	0.939
18-Feb-94	5.07	8	0.2103	-0.805	1.623	0.946
6-Oct-94	5.2	9	0.2379	-0.713	1.649	0.951
20-Jan-94	5.48	10	0.2655	-0.626	1.701	0.955
13-Sep-94	5.48	11	0.2931	-0.544	1.701	0.959
27-Oct-93	5.77	12	0.3207	-0.466	1.753	0.961
16-Aug-94	5.77	13	0.3483	-0.390	1.753	0.963
14-Aug-95	5.77	14	0.3759	-0.316	1.753	0.963
16-Nov-94	6.08	15	0.4034	-0.244	1.805	0.961
13-Dec-94	6.25	16	0.4310	-0.174	1.833	0.959
16-Aug-94	6.4	17	0.4586	-0.104	1.856	0.955
25-Jul-94	6.76	18	0.4862	-0.035	1.911	0.950
25-Jul-95	6.76	19	0.5138	0.035	1.911	0.945
10-Jan-95	9.3	20	0.5414	0.104	2.230	0.941
23-Mar-94	9.55	21	0.5690	0.174	2.257	0.934
8-Mar-94	9.82	22	0.5966	0.244	2.284	0.926
11-Jul-95	10.93	23	0.6241	0.316	2.392	0.919
23-Jun-94	15.59	24	0.6517	0.390	2.747	0.913
12-Apr-95	16.94	25	0.6793	0.466	2.830	0.900
9-Feb-95	18.41	26	0.7069	0.544	2.913	0.883
25-Apr-95	21	27	0.7345	0.626	3.045	0.862
7-Apr-94	21.77	28	0.7621	0.713	3.081	0.835
27-Jun-95	24.36	29	0.7897	0.805	3.193	0.801
7-Apr-94	27.41	30	0.8172	0.905	3.311	0.769
22-Mar-95	48.52	31	0.8448	1.014	3.882	0.864
8-Jun-94	59.6	32	0.8724	1.138	4.088	0.826
4-May-94	61.38	33	0.9000	1.282	4.117	
19-May-94	82.71	34	0.9276	1.458	4.415	
18-May-91	99.3	35	0.9552	1.697	4.598	
13-Jun-95	102.19	36	0.9828	2.114	4.627	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC2 **Date:** 27-Jun-00
Chemical: tPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,518	21	7	1	0.00	0.00	0.00
SD:	330	27	3	1	1.00	1.00	1.00
CV:	0.01	1.30	0.39	1.40			
Min:	33,376	4	2	0.04	-0.64	-1.79	-0.69
Max:	34,955	102	11	4	3.06	1.76	2.43
Median:	34,524	7	6	0.3	-0.52	-0.22	-0.49

tPb CC2 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.00	update r2	0.00	0.00033		**Q = mTime +b**	**LnQ = mTime +b**	
r2 Q,[COC]:	0.0003	[tPb]	Q		r2:	0.027	0.000
slope, m:	0.001	7	3.6		m:	-0.0132	0.00002
intercept, b:	6.5	7	20.6		b:	477	1.83
N: 11		7	102				
LnConc. = mLn{Q}+b (r2=0.00952)	update r2		0.01	0.00952			
nQ,ln[COC]:	0.01	ln[tPb]	ln Q	[tPb]	Q		
slope, m:	0.04	1.75	1.27	6	4		
intercept, b:	1.70	1.81	3.02	6	21		
N: 11		1.87	4.63	6	102		

for graph
tPb 0
CC2

N= 36

	Sampling Date	Q Discharge	tPb Concentration	tPb Load	Ln Q	Ln tPb	Ln tPb	Standardized Values = (x - Avg)/SD		
update for new data		cfs	ug/L	lbs/day		Conc.	Load	Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	18-May-91	99.3	8	4.27	4.60	2.08	1.45	2.95	0.57	2.43
MFG	5-Oct-91	3.56	2	0.04	1.27	0.69	-3.26	-0.64	-1.79	-0.69
IDEQ	*27-Oct-93*	*5.77*			1.75			-0.55		
IDEQ	30-Nov-93	5.07	7	0.19	1.62	1.95	-1.66	-0.58	0.18	-0.58
IDEQ	17-Dec-93	5.07	11	0.30	1.62	2.40	-1.20	-0.58	1.76	-0.49
IDEQ	17-Dec-93	4.53	11	0.27	1.51	2.40	-1.32	-0.60	1.76	-0.52
IDEQ	*20-Jan-94*	*5.48*			1.70			-0.57		
IDEQ	*20-Jan-94*	*4.47*			1.50			-0.60		
IDEQ	*18-Feb-94*	*5.07*			1.62			-0.58		
IDEQ	*18-Feb-94*	*4.06*			1.40			-0.62		
IDEQ	*8-Mar-94*	*9.82*			2.28			-0.40		
IDEQ	*23-Mar-94*	*9.55*			2.26			-0.41		
IDEQ	7-Apr-94	21.77	5	0.59	3.08	1.61	-0.54	0.04	-0.61	-0.28
IDEQ	7-Apr-94	27.41	5	0.74	3.31	1.61	-0.30	0.26	-0.61	-0.17
IDEQ	*4-May-94*	*61.38*			4.12			1.53		
IDEQ	*19-May-94*	*82.71*			4.42			2.33		
IDEQ	*8-Jun-94*	*59.6*			4.09			1.46		
IDEQ	*23-Jun-94*	*15.59*			2.75			-0.19		
IDEQ	*25-Jul-94*	*6.76*			1.91			-0.52		
IDEQ	*16-Aug-94*	*5.77*			1.75			-0.55		
IDEQ	*16-Aug-94*	*6.4*			1.86			-0.53		
IDEQ	*13-Sep-94*	*5.48*			1.70			-0.57		
IDEQ	6-Oct-94	5.2	6	0.17	1.65	1.79	-1.78	-0.58	-0.22	-0.59
IDEQ	16-Nov-94	6.08	5	0.16	1.81	1.61	-1.81	-0.54	-0.61	-0.60
IDEQ	*13-Dec-94*	*6.25*			1.83			-0.54		
IDEQ	*10-Jan-95*	*9.3*			2.23			-0.42		
IDEQ	*9-Feb-95*	*18.41*			2.91			-0.08		
IDEQ	*22-Mar-95*	*48.52*			3.88			1.05		
IDEQ	*12-Apr-95*	*16.94*			2.83			-0.14		
IDEQ	25-Apr-95	21	6	0.68	3.04	1.79	-0.39	0.02	-0.22	-0.22
IDEQ	13-Jun-95	102.19	6	3.30	4.63	1.79	1.19	3.06	-0.22	1.71
IDEQ	*27-Jun-95*	*24.36*			3.19			0.14		
IDEQ	*11-Jul-95*	*10.93*			2.39			-0.36		
IDEQ	*25-Jul-95*	*6.76*			1.91			-0.52		
IDEQ	*14-Aug-95*	*5.77*			1.75			-0.55		
IDEQ	*13-Sep-95*	*4.57*			1.52			-0.60		

tPb

Concentration over time analysis r2 Slope, m

tPb CC2 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.052** **0.00022**

	Time	**Ln[COC]**	**[COC]**
first:	18-May-91	1.58	5
mid:	9-Jul-94	1.84	6
last:	13-Sep-95	1.93	7

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
13-Sep-95	0.00	1

Load over time analysis

tPb CC2 **Load over time**

LnLoad=mTime+b All data r2, m: **0.009** **0.00027** update fo

	Time	**LnLoad**	**Load**
first:	18-May-91	-1.13	0.3
mid:	9-Jul-94	-0.82	0.4
last:	13-Sep-95	-0.71	0.5

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
13-Sep-95	0.00	1

max r2: 0.950 max r2: 0.896

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.052	0.00022	-5.79	0.009	0.00027	-10.15
0.246	0.00063	-19.76	0.570	0.00237	-82.63
0.257	-0.00073	27.26	0.277	0.00237	-82.72
0.257	-0.00073	27.26	0.277	0.00237	-82.72
0.271	-0.00082	30.08	0.216	0.00217	-75.62
0.117	-0.00046	17.85	0.192	0.00225	-78.42
0.594	0.00042	-12.84	0.135	0.00224	-78.13
0.594	0.00042	-12.84	0.135	0.00224	-78.13
0.594	0.00042	-12.84	0.135	0.00224	-78.13
0.594	0.00042	-12.84	0.135	0.00224	-78.13
0.594	0.00042	-12.84	0.135	0.00224	-78.13
0.594	0.00042	-12.84	0.135	0.00224	-78.13
0.594	0.00042	-12.84	0.135	0.00224	-78.13
0.494	0.00041	-12.42	0.210	0.00332	-115.74
0.203	0.00034	-10.04	0.892	0.01110	-386.35
0.203	0.00034	-10.04	0.892	0.01110	-386.35
0.203	0.00034	-10.04	0.892	0.01110	-386.35
0.203	0.00034	-10.04	0.892	0.01110	-386.35
0.203	0.00034	-10.04	0.892	0.01110	-386.35
0.203	0.00034	-10.04	0.892	0.01110	-386.35
0.203	0.00034	-10.04	0.892	0.01110	-386.35
0.203	0.00034	-10.04	0.892	0.01110	-386.35
0.203	0.00034	-10.04	0.892	0.01110	-386.35
0.950	0.00094	-30.91	0.896	0.01301	-452.94

update for EV, CV:

tPb		**CC2**		
LN Analysis		**tPb**		
Load		**Load Data, EV=0.973 lbs/day CV=1.4**		
Avg:	**1.0**	**Load Data-based LN**		
SD:	**1.4**	u	ln tPb Load	tPb Load
CV:	**1.40**	3	2.6	13
Min:	**0.0**	0	-0.57	1
Max:	**4**	-3	-3.69	0.02
Median:	**0.3**			
		1	0.973	
		1.40	1.4	

u=mLn{Load}+ b:

or r2, EV, CV:	**r2=0.944, EV=0.434lbs/day CV=4.08; max r2=0.94**					upda
r2 u,lnLoad:	0.944	u	lnLoad	Load		
slope, m:	0.590	3	2.81	17		
intercept, b:	1.339	0	-2.27	0.1		
N:	11	-3	-7.35	0.001		
E[Load]:	0.4	Parameter Estimates			0.944	0.944
SD[Load]:	2	from LN regression			0.4	0.434
CV[Load]:	4.08	update graph label			4.1	4.08
					max r2	
	tPb	N: 36			0.944	
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
18-Feb-94		1	0.0172	-2.114		
20-Jan-94		2	0.0448	-1.697		
13-Sep-95		3	0.0724	-1.458		
18-Feb-94		4	0.1000	-1.282		
20-Jan-94		5	0.1276	-1.138		
13-Sep-94		6	0.1552	-1.014		
5-Oct-91	**0.04**	7	0.1828	-0.905	-3.262	0.944
27-Oct-93		8	0.2103	-0.805		
16-Aug-94		9	0.2379	-0.713		
14-Aug-95		10	0.2655	-0.626		
13-Dec-94		11	0.2931	-0.544		
16-Aug-94		12	0.3207	-0.466		
25-Jul-94		13	0.3483	-0.390		
25-Jul-95		14	0.3759	-0.316		
10-Jan-95		15	0.4034	-0.244		
23-Mar-94		16	0.4310	-0.174		
8-Mar-94		17	0.4586	-0.104		
11-Jul-95		18	0.4862	-0.035		
23-Jun-94		19	0.5138	0.035		
12-Apr-95		20	0.5414	0.104		
9-Feb-95		21	0.5690	0.174		
16-Nov-94	**0.16**	22	0.5966	0.244	-1.811	0.940
27-Jun-95		23	0.6241	0.316		
6-Oct-94	**0.17**	24	0.6517	0.390	-1.785	0.936
30-Nov-93	**0.19**	25	0.6793	0.466	-1.656	0.923
17-Dec-93	**0.27**	26	0.7069	0.544	-1.316	0.901
17-Dec-93	**0.30**	27	0.7345	0.626	-1.204	0.882
22-Mar-95		28	0.7621	0.713		
8-Jun-94		29	0.7897	0.805		
4-May-94		30	0.8172	0.905		
19-May-94		31	0.8448	1.014		
7-Apr-94	**0.59**	32	0.8724	1.138	-0.535	0.863
25-Apr-95	**0.68**	33	0.9000	1.282	-0.389	
7-Apr-94	**0.74**	34	0.9276	1.458	-0.305	
13-Jun-95	**3.30**	35	0.9552	1.697	1.194	
18-May-91	**4.27**	36	0.9828	2.114	1.453	

update for EV, CV:

tPb		**CC2**		7	6.55	
LN Analysis		**tPb**		0.39	0.387	
Concentration		**Conc. Data, EV=6.55 ug/L CV=0.387**				
Avg:	**7**	**Data-based LN**				
SD:	**3**	u	ln[tPb]	[tPb]		
CV:	**0.39**	3	2.9	19		
Min:	**2**	0	1.81	6		
Max:	**11**	-3	0.69	2		
Median:	**6**					

					0.734	0.734	
	u=mLn{Conc.}+b:				3.2	3.21	
ate for r2, EV, CV:	**r2=0.734, EV=3.21 ug/L CV=1.57; max r2=0.93**				1.567	1.57	update f
	r2 u,lnConc:	0.734	u	lnConc.	Conc.		
	slope, m:	0.898	3	3.89	49		
	intercept, b:	-0.492	0	0.55	2		
	N: 11		-3	-2.79	0.1		
	E[Conc]:	3.2	Parameter Estimates				
	SD[Conc]:	5	from LN regression				
	CV[Conc]:	1.57	update graph label				

						max r2
	tPb	N: 36				0.933
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
27-Oct-93		1	0.0172	-2.114		
20-Jan-94		2	0.0448	-1.697		
20-Jan-94		3	0.0724	-1.458		
18-Feb-94		4	0.1000	-1.282		
18-Feb-94		5	0.1276	-1.138		
8-Mar-94		6	0.1552	-1.014		
23-Mar-94		7	0.1828	-0.905		
4-May-94		8	0.2103	-0.805		
19-May-94		9	0.2379	-0.713		
8-Jun-94		10	0.2655	-0.626		
23-Jun-94		11	0.2931	-0.544		
25-Jul-94		12	0.3207	-0.466		
16-Aug-94		13	0.3483	-0.390		
16-Aug-94		14	0.3759	-0.316		
13-Sep-94		15	0.4034	-0.244		
13-Dec-94		16	0.4310	-0.174		
10-Jan-95		17	0.4586	-0.104		
9-Feb-95		18	0.4862	-0.035		
22-Mar-95		19	0.5138	0.035		
12-Apr-95		20	0.5414	0.104		
27-Jun-95		21	0.5690	0.174		
11-Jul-95		22	0.5966	0.244		
25-Jul-95		23	0.6241	0.316		
14-Aug-95		24	0.6517	0.390		
13-Sep-95		25	0.6793	0.466		
5-Oct-91	2	26	0.7069	0.544	0.693	0.734
7-Apr-94	5	27	0.7345	0.626	1.609	0.933
7-Apr-94	5	28	0.7621	0.713	1.609	0.928
16-Nov-94	5	29	0.7897	0.805	1.609	0.914
6-Oct-94	6	30	0.8172	0.905	1.792	0.892
25-Apr-95	6	31	0.8448	1.014	1.792	0.884
13-Jun-95	6	32	0.8724	1.138	1.792	0.848
30-Nov-93	7	33	0.9000	1.282	1.946	
18-May-91	8	34	0.9276	1.458	2.079	
17-Dec-93	11	35	0.9552	1.697	2.398	
17-Dec-93	11	36	0.9828	2.114	2.398	

update for EV, CV:

tPb		**CC2**			21	20.6
LN Analysis		**tPb**			1.30	1.3
Discharge, Q		**Q Data, EV=20.6 cfs CV=1.3**				
Avg:	**21**	**Q Data-based LN**				
SD:	**27**	u	lnQ	Q		
CV:	**1.30**	3	5.5	247		
Min:	**4**	0	2.53	13		
Max:	**102**	-3	-0.45	1		
Median:	**7**					

					0.863	0.863
					21.2	21.2
	u=mLn{Q}+b:				1.56	1.56
for r2, EV, CV:	**r2=0.863, EV=21.2 cfs CV=1.56; max r2=0.96**					
	r2 u,lnQ:	0.863	u	lnQ	Q	
	slope, m:	0.901	3	5.77	319	
	intercept, b:	-2.195	0	2.44	11	
	N: 36		-3	-0.89	0.4	
	E[Q]:	21.2	Parameter Estimates			
	SD[Q]:	33	from LN regression			
	CV[Q]:	1.56	update graph label			

						max r2
	Q	N: 36				0.963
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
5-Oct-91	3.56	1	0.0172	-2.114	1.270	0.863
18-Feb-94	*4.06*	2	0.0448	-1.697	1.401	0.884
20-Jan-94	*4.47*	3	0.0724	-1.458	1.497	0.898
17-Dec-93	4.53	4	0.1000	-1.282	1.511	0.912
13-Sep-95	*4.57*	5	0.1276	-1.138	1.520	0.922
30-Nov-93	5.07	6	0.1552	-1.014	1.623	0.929
17-Dec-93	5.07	7	0.1828	-0.905	1.623	0.939
18-Feb-94	*5.07*	8	0.2103	-0.805	1.623	0.946
6-Oct-94	5.2	9	0.2379	-0.713	1.649	0.951
20-Jan-94	*5.48*	10	0.2655	-0.626	1.701	0.955
13-Sep-94	*5.48*	11	0.2931	-0.544	1.701	0.959
27-Oct-93	*5.77*	12	0.3207	-0.466	1.753	0.961
16-Aug-94	*5.77*	13	0.3483	-0.390	1.753	0.963
14-Aug-95	*5.77*	14	0.3759	-0.316	1.753	0.963
16-Nov-94	6.08	15	0.4034	-0.244	1.805	0.961
13-Dec-94	*6.25*	16	0.4310	-0.174	1.833	0.959
16-Aug-94	*6.4*	17	0.4586	-0.104	1.856	0.955
25-Jul-94	*6.76*	18	0.4862	-0.035	1.911	0.950
25-Jul-95	*6.76*	19	0.5138	0.035	1.911	0.945
10-Jan-95	*9.3*	20	0.5414	0.104	2.230	0.941
23-Mar-94	*9.55*	21	0.5690	0.174	2.257	0.934
8-Mar-94	*9.82*	22	0.5966	0.244	2.284	0.926
11-Jul-95	*10.93*	23	0.6241	0.316	2.392	0.919
23-Jun-94	*15.59*	24	0.6517	0.390	2.747	0.913
12-Apr-95	*16.94*	25	0.6793	0.466	2.830	0.900
9-Feb-95	*18.41*	26	0.7069	0.544	2.913	0.883
25-Apr-95	21	27	0.7345	0.626	3.045	0.862
7-Apr-94	21.77	28	0.7621	0.713	3.081	0.835
27-Jun-95	*24.36*	29	0.7897	0.805	3.193	0.801
7-Apr-94	27.41	30	0.8172	0.905	3.311	0.769
22-Mar-95	*48.52*	31	0.8448	1.014	3.882	0.864
8-Jun-94	*59.6*	32	0.8724	1.138	4.088	0.826
4-May-94	*61.38*	33	0.9000	1.282	4.117	
19-May-94	*82.71*	34	0.9276	1.458	4.415	
18-May-91	99.3	35	0.9552	1.697	4.598	
13-Jun-95	102.19	36	0.9828	2.114	4.627	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC276 **Date:** 25-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,720	20	1	0.1	0.00	0.00	0.00
SD:	636	21	0.1	0.04	1.00	1.00	1.00
CV:	0.02	1.06	0.21	0.67			
Min:	33,376	6	0.4	0.0	-0.65	-2.09	-0.91
Max:	36,402	103	1.0	0.2	3.95	2.13	3.85
Median:	34,562	12	0.7	0.0	-0.37	0.06	-0.46

dCd CC276 **: Concentration v. Discharge, Q**

Conc. = mQ+b (r2=0.24) update r2				**Q = mTime +b**	**LnQ = mTime +b**	
r2 Q,[COC]:	0.24	[dCd]	Q	r2:	0.006	0.016
slope, m:	-0.004	1	6.3	m:	0.0027	0.00014
intercept, b:	0.8	1	19.9	b:	-73	-2.10
N: 37		0	103			

LnConc. = mLn{Q}+b (r2=0.26) update r2					
lnQ,ln[COC]:	0.26	ln[dCd]	ln Q	[dCd]	Q
slope, m:	-0.18	-0.25	1.84	1	6
intercept, b:	0.08	-0.45	2.99	1	20
N: 37		-0.75	4.63	0.5	103

for graph
dCd 0
CC276

N= 41

update for new data	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	18-May-91	101	0.4	0.22	4.62	-0.92	-1.53	3.85	-2.02	3.85
MFG	5-Oct-91	6.48	0.9	0.03	1.87	-0.11	-3.46	-0.64	1.44	-0.72
IDEQ	27-Oct-93	9.12	0.8	0.04	2.21	-0.22	-3.24	-0.51	0.75	-0.53
IDEQ	30-Nov-93	8.15	0.7	0.03	2.10	-0.36	-3.48	-0.56	0.06	-0.74
IDEQ	17-Dec-93	8.15	0.7	0.03	2.10	-0.36	-3.48	-0.56	0.06	-0.74
IDEQ	17-Dec-93	8.06	0.7	0.03	2.09	-0.36	-3.49	-0.56	0.06	-0.75
IDEQ	20-Jan-94	9.12	0.8	0.04	2.21	-0.22	-3.24	-0.51	0.75	-0.53
IDEQ	20-Jan-94	8.8	0.8	0.04	2.17	-0.22	-3.27	-0.53	0.75	-0.56
IDEQ	18-Feb-94	8.46	0.8	0.04	2.14	-0.22	-3.31	-0.54	0.75	-0.60
IDEQ	18-Feb-94	7.9	0.8	0.03	2.07	-0.22	-3.38	-0.57	0.75	-0.66
IDEQ	8-Mar-94	12.85	0.8	0.06	2.55	-0.22	-2.89	-0.33	0.75	-0.14
IDEQ	24-Mar-94	14.43	1	0.08	2.67	0.00	-2.56	-0.26	2.13	0.41
IDEQ	7-Apr-94	18.22	0.6	0.06	2.90	-0.51	-2.83	-0.08	-0.63	-0.05
IDEQ	7-Apr-94	21.84	0.6	0.07	3.08	-0.51	-2.65	0.09	-0.63	0.24
IDEQ	4-May-94	38.88	0.5	0.10	3.66	-0.69	-2.26	0.90	-1.33	1.08
IDEQ	19-May-94	47.69	0.5	0.13	3.86	-0.69	-2.05	1.32	-1.33	1.66
IDEQ	7-Jun-94	33.06	0.6	0.11	3.50	-0.51	-2.24	0.63	-0.63	1.13
IDEQ	23-Jun-94	17.53	0.6	0.06	2.86	-0.51	-2.87	-0.11	-0.63	-0.10
IDEQ	25-Jul-94	11.9	0.8	0.05	2.48	-0.22	-2.97	-0.38	0.75	-0.24
IDEQ	16-Aug-94	11.9	0.7	0.04	2.48	-0.36	-3.11	-0.38	0.06	-0.39
IDEQ	16-Aug-94	10.39	0.7	0.04	2.34	-0.36	-3.24	-0.45	0.06	-0.53
IDEQ	13-Sep-94	9.84	0.7	0.04	2.29	-0.36	-3.30	-0.48	0.06	-0.58
IDEQ	6-Oct-94	8.78	0.8	0.04	2.17	-0.22	-3.28	-0.53	0.75	-0.57
IDEQ	16-Nov-94	9.12	0.5	0.02	2.21	-0.69	-3.71	-0.51	-1.33	-0.89
IDEQ	13-Dec-94	9.12	0.7	0.03	2.21	-0.36	-3.37	-0.51	0.06	-0.65
IDEQ	10-Jan-95	12.37	1	0.07	2.52	0.00	-2.71	-0.36	2.13	0.14
IDEQ	9-Feb-95	18.95	0.7	0.07	2.94	-0.36	-2.64	-0.04	0.06	0.26
IDEQ	8-Mar-95	18.22	0.6	0.06	2.90	-0.51	-2.83	-0.08	-0.63	-0.05
IDEQ	22-Mar-95	26	0.9	0.13	3.26	-0.11	-2.07	0.29	1.44	1.60
IDEQ	12-Apr-95	20.5	0.8	0.09	3.02	-0.22	-2.43	0.03	0.75	0.67
IDEQ	25-Apr-95	24.01	0.7	0.09	3.18	-0.36	-2.40	0.20	0.06	0.73
IDEQ	13-Jun-95	43.93	0.6	0.14	3.78	-0.51	-1.95	1.14	-0.63	1.99
IDEQ	11-Jul-95	12.85	0.5	0.03	2.55	-0.69	-3.36	-0.33	-1.33	-0.64
IDEQ	25-Jul-95	8.46	0.6	0.03	2.14	-0.51	-3.60	-0.54	-0.63	-0.82
IDEQ	14-Aug-95	7.56	0.6	0.02	2.02	-0.51	-3.71	-0.58	-0.63	-0.89
IDEQ	13-Sep-95	6.27	0.7	0.02	1.84	-0.36	-3.75	-0.65	0.06	-0.91
URS	10-Nov-97	20.1	0.39	0.04	3.00	-0.94	-3.17	0.01	-2.09	-0.46
URS	*12-Nov-98*	*8.09*			2.09			-0.56		
USGS	*8-Jul-99*	*103*			4.63			3.95		
USGS	*5-Aug-99*	*22*			3.09			0.10		
USGS	*30-Aug-99*	*12*			2.48			-0.37		

dCd

Concentration over time analysis r2 Slope, m

dCd CC276 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.036** **-0.00011**

	Time	Ln[COC]	[COC]
first:	18-May-91	-0.26	0.8
mid:	16-Aug-94	-0.39	0.7
last:	30-Aug-99	-0.60	0.6

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

Load over time analysis

dCd CC276 **Load over time**

LnLoad=mTime+b All data r2, m: **0.025** **-0.00023**

	Time	LnLoad	Load
first:	18-May-91	-2.70	0.07
mid:	16-Aug-94	-2.97	0.05
last:	30-Aug-99	-3.39	0.03

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

max r2: 1.000 max r2: 1.000

Forward time Regression on Ln Concentration(t) **Forward time Regression on Ln Load(t)**

only on >4 data points: delete last 4 rows only on >4 data points: delete last 4 rows

r2	slope	intercept	r2	slope	intercept
0.036	-0.00011	3.41	0.025	-0.00023	4.96
0.251	-0.00031	10.42	0.008	0.00013	-7.61
0.215	-0.00034	11.25	0.000	0.00001	-3.29
0.202	-0.00033	11.03	0.000	-0.00002	-2.17
0.205	-0.00034	11.36	0.002	-0.00009	0.12
0.208	-0.00035	11.69	0.008	-0.00016	2.61
0.212	-0.00036	12.07	0.017	-0.00025	5.56
0.198	-0.00035	11.77	0.025	-0.00030	7.36
0.183	-0.00034	11.41	0.036	-0.00036	9.63
0.167	-0.00033	10.98	0.050	-0.00044	12.19
0.150	-0.00031	10.48	0.074	-0.00053	15.58
0.132	-0.00030	9.88	0.078	-0.00056	16.52
0.097	-0.00024	7.87	0.068	-0.00053	15.51
0.112	-0.00026	8.71	0.068	-0.00055	16.03
0.131	-0.00029	9.72	0.061	-0.00053	15.42
0.201	-0.00036	12.05	0.041	-0.00043	11.93
0.302	-0.00044	14.71	0.017	-0.00027	6.36
0.354	-0.00048	16.35	0.004	-0.00012	1.28
0.416	-0.00053	18.21	0.002	-0.00010	0.35
0.395	-0.00053	17.87	0.002	-0.00009	0.07
0.400	-0.00054	18.47	0.003	-0.00011	0.82
0.407	-0.00056	19.23	0.006	-0.00017	3.02
0.412	-0.00059	19.97	0.013	-0.00026	6.04
0.385	-0.00057	19.40	0.023	-0.00035	9.39
0.556	-0.00067	23.01	0.063	-0.00057	17.04
0.564	-0.00069	23.77	0.102	-0.00073	22.51
0.581	-0.00061	20.99	0.095	-0.00072	22.20
0.571	-0.00062	21.09	0.083	-0.00068	20.96
0.621	-0.00066	22.56	0.081	-0.00069	21.23
0.659	-0.00058	19.93	0.043	-0.00046	13.19
0.687	-0.00052	17.78	0.018	-0.00029	6.85
0.671	-0.00049	16.47	0.000	-0.00002	-2.65
0.660	-0.00049	16.66	0.579	0.00051	-21.35
0.889	-0.00058	19.85	0.923	0.00063	-25.67
0.919	-0.00063	21.42	0.993	0.00070	-28.15
1.000	-0.00074	25.56	1.000	0.00074	-29.44

update for EV, CV:

dCd **CC276**

LN Analysis **dCd**

Load **Load Data, EV=0.06 lbs/day CV=.67**

Avg:	**0.06**	**Load Data-based LN**		
SD:	**0.04**	u	ln dCd Load	dCd Load
CV:	**0.67**	3	-1.2	0.31
Min:	**0.02**	0	-2.99	0.05
Max:	**0.22**	-3	-4.81	0.01
Median:	**0.04**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.943, EV=0.1 lbs/day CV=0.73; max r2=0.987**

r2 u,lnLoad:	0.943	u	lnLoad	Load
slope, m:	1.538	3	-1.02	0
intercept, b:	4.573	0	-2.97	0.051
N: 37		-3	-4.92	0.007
E[Load]:	0.06	Parameter Estimates		
SD[Load]:	0.05	from LN regression		
CV[Load]:	0.73	update graph label		

						max r2
	dCd	N: 41				0.987
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
12-Nov-98		1	0.0152	-2.166		
13-Sep-95	0.02	2	0.0394	-1.758	-3.746	0.943
14-Aug-95	**0.02**	3	0.0636	-1.525	-3.713	0.949
16-Nov-94	0.02	4	0.0879	-1.354	-3.708	0.953
25-Jul-95	0.03	5	0.1121	-1.215	-3.601	0.953
17-Dec-93	0.03	6	0.1364	-1.097	-3.495	0.956
30-Nov-93	0.03	7	0.1606	-0.992	-3.484	0.963
17-Dec-93	0.03	8	0.1848	-0.897	-3.484	0.969
5-Oct-91	0.03	9	0.2091	-0.810	-3.462	0.973
30-Aug-99		10	0.2333	-0.728		
18-Feb-94	0.03	11	0.2576	-0.651	-3.381	0.976
13-Dec-94	0.03	12	0.2818	-0.577	-3.371	0.980
11-Jul-95	0.03	13	0.3061	-0.507	-3.365	0.982
18-Feb-94	0.04	14	0.3303	-0.439	-3.313	0.983
13-Sep-94	0.04	15	0.3545	-0.373	-3.295	0.985
6-Oct-94	0.04	16	0.3788	-0.309	-3.276	0.987
20-Jan-94	0.04	17	0.4030	-0.246	-3.273	0.987
16-Aug-94	0.04	18	0.4273	-0.183	-3.241	0.987
27-Oct-93	0.04	19	0.4515	-0.122	-3.238	0.986
20-Jan-94	0.04	20	0.4758	-0.061	-3.238	0.985
10-Nov-97	**0.04**	21	0.5000	0.000	-3.166	0.983
16-Aug-94	0.04	22	0.5242	0.061	-3.105	0.982
25-Jul-94	0.05	23	0.5485	0.122	-2.972	0.980
8-Mar-94	0.06	24	0.5727	0.183	-2.895	0.978
23-Jun-94	0.06	25	0.5970	0.246	-2.872	0.979
7-Apr-94	0.06	26	0.6212	0.309	-2.833	0.978
8-Mar-95	0.06	27	0.6455	0.373	-2.833	0.977
5-Aug-99		28	0.6697	0.439		
10-Jan-95	0.07	29	0.6939	0.507	-2.710	0.972
7-Apr-94	0.07	30	0.7182	0.577	-2.652	0.968
9-Feb-95	0.07	31	0.7424	0.651	-2.640	0.963
24-Mar-94	0.08	32	0.7667	0.728	-2.556	0.954
12-Apr-95	0.09	33	0.7909	0.810	-2.428	0.941
25-Apr-95	0.09	34	0.8152	0.897	-2.403	0.931
4-May-94	0.10	35	0.8394	0.992	-2.258	0.907
7-Jun-94	0.11	36	0.8636	1.097	-2.238	0.903
22-Mar-95	0.13	37	0.8879	1.215	-2.072	0.861
19-May-94	0.13	38	0.9121	1.354	-2.053	
13-Jun-95	0.14	39	0.9364	1.525	-1.953	
18-May-91	0.22	40	0.9606	1.758	-1.526	
8-Jul-99		41	0.9848	2.166		

update for EV, CV:

dCd **CC276**

LN Analysis **dCd**

Concentration

Conc. Data, EV=0.69 ug/L CV=.21

Data-based LN

		u	ln[dCd]	[dCd]
Avg:	**0.69**			
SD:	**0.14**			
CV:	**0.21**	3	0.2	1.3
Min:	**0.39**	0	-0.39	0.7
Max:	**1.00**	-3	-1.01	0.4
Median:	**0.70**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.956, EV=0.68 ug/L CV=.23; max r2=0.956**

		u	lnConc.	Conc.
r2 u,lnConc:	0.956			
slope, m:	4.319	3	0.28	1.3
intercept, b:	1.786	0	-0.41	0.7
N: 37		-3	-1.11	0.3
E[Conc]:	0.68	Parameter Estimates		
SD[Conc]:	0.2	from LN regression		
CV[Conc]:	0.23	update graph label		

N: 41

max r2 0.956

Date	dCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
10-Nov-97	0.39	1	0.0152	-2.166	-0.942	0.956
18-May-91	0.4	2	0.0394	-1.758	-0.916	0.948
4-May-94	0.5	3	0.0636	-1.525	-0.693	0.951
19-May-94	0.5	4	0.0879	-1.354	-0.693	0.946
16-Nov-94	0.5	5	0.1121	-1.215	-0.693	0.939
11-Jul-95	0.5	6	0.1364	-1.097	-0.693	0.932
12-Nov-98		7	0.1606	-0.992		
8-Jul-99		8	0.1848	-0.897		
5-Aug-99		9	0.2091	-0.810		
30-Aug-99		10	0.2333	-0.728		
7-Apr-94	0.6	11	0.2576	-0.651	-0.511	0.924
7-Apr-94	0.6	12	0.2818	-0.577	-0.511	0.921
7-Jun-94	0.6	13	0.3061	-0.507	-0.511	0.915
23-Jun-94	0.6	14	0.3303	-0.439	-0.511	0.909
8-Mar-95	0.6	15	0.3545	-0.373	-0.511	0.901
13-Jun-95	0.6	16	0.3788	-0.309	-0.511	0.894
25-Jul-95	0.6	17	0.4030	-0.246	-0.511	0.888
14-Aug-95	0.6	18	0.4273	-0.183	-0.511	0.885
30-Nov-93	0.7	19	0.4515	-0.122	-0.357	0.894
17-Dec-93	0.7	20	0.4758	-0.061	-0.357	0.895
17-Dec-93	0.7	21	0.5000	0.000	-0.357	0.895
16-Aug-94	0.7	22	0.5242	0.061	-0.357	0.892
16-Aug-94	0.7	23	0.5485	0.122	-0.357	0.886
13-Sep-94	0.7	24	0.5727	0.183	-0.357	0.878
13-Dec-94	0.7	25	0.5970	0.246	-0.357	0.866
9-Feb-95	0.7	26	0.6212	0.309	-0.357	0.851
25-Apr-95	0.7	27	0.6455	0.373	-0.357	0.833
13-Sep-95	0.7	28	0.6697	0.439	-0.357	0.815
27-Oct-93	0.8	29	0.6939	0.507	-0.223	0.809
20-Jan-94	0.8	30	0.7182	0.577	-0.223	0.827
20-Jan-94	0.8	31	0.7424	0.651	-0.223	0.843
18-Feb-94	0.8	32	0.7667	0.728	-0.223	0.857
18-Feb-94	0.8	33	0.7909	0.810	-0.223	0.867
8-Mar-94	0.8	34	0.8152	0.897	-0.223	0.869
25-Jul-94	0.8	35	0.8394	0.992	-0.223	0.860
6-Oct-94	0.8	36	0.8636	1.097	-0.223	0.830
12-Apr-95	0.8	37	0.8879	1.215	-0.223	0.765
5-Oct-91	0.9	38	0.9121	1.354	-0.105	
22-Mar-95	0.9	39	0.9364	1.525	-0.105	
24-Mar-94	1	40	0.9606	1.758	0.000	
10-Jan-95	1	41	0.9848	2.166	0.000	

update for EV, CV:

dCd **CC276**

LN Analysis **dCd**

Discharge, Q **Q Data, EV=20 cfs CV=1.06**

Q Data-based LN

Avg:	**20**	u	lnQ	Q
SD:	**21**	3	5.2	184
CV:	**1.06**	0	2.61	14
Min:	**6**	-3	0.01	1
Max:	**103**			
Median:	**12**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.878, EV=19.6 cfs CV=0.88; max r2=0.967**

r2 u,lnQ:	0.878	u	lnQ	Q
slope, m:	1.326	3	4.95	142
intercept, b:	-3.565	0	2.69	15
N: 41		-3	0.43	2
E[Q]:	19.6	Parameter Estimates		
SD[Q]:	17	from LN regression		
CV[Q]:	0.88	update graph label		

max r2
0.967

N: 41

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
13-Sep-95	6.27	1	0.0152	-2.166	1.836	0.878
5-Oct-91	6.48	2	0.0394	-1.758	1.869	0.895
14-Aug-95	7.56	3	0.0636	-1.525	2.023	0.902
18-Feb-94	7.9	4	0.0879	-1.354	2.067	0.914
17-Dec-93	8.06	5	0.1121	-1.215	2.087	0.925
12-Nov-98	*8.09*	6	0.1364	-1.097	2.091	0.934
30-Nov-93	8.15	7	0.1606	-0.992	2.098	0.942
17-Dec-93	8.15	8	0.1848	-0.897	2.098	0.948
18-Feb-94	8.46	9	0.2091	-0.810	2.135	0.953
25-Jul-95	8.46	10	0.2333	-0.728	2.135	0.957
6-Oct-94	8.78	11	0.2576	-0.651	2.172	0.960
20-Jan-94	8.8	12	0.2818	-0.577	2.175	0.963
27-Oct-93	9.12	13	0.3061	-0.507	2.210	0.965
20-Jan-94	9.12	14	0.3303	-0.439	2.210	0.967
16-Nov-94	9.12	15	0.3545	-0.373	2.210	0.967
13-Dec-94	9.12	16	0.3788	-0.309	2.210	0.966
13-Sep-94	9.84	17	0.4030	-0.246	2.286	0.964
16-Aug-94	10.39	18	0.4273	-0.183	2.341	0.962
25-Jul-94	11.9	19	0.4515	-0.122	2.477	0.960
16-Aug-94	11.9	20	0.4758	-0.061	2.477	0.961
30-Aug-99	*12*	21	0.5000	0.000	2.485	0.961
10-Jan-95	12.37	22	0.5242	0.061	2.515	0.959
8-Mar-94	12.85	23	0.5485	0.122	2.553	0.956
11-Jul-95	12.85	24	0.5727	0.183	2.553	0.953
24-Mar-94	14.43	25	0.5970	0.246	2.669	0.948
23-Jun-94	17.53	26	0.6212	0.309	2.864	0.943
7-Apr-94	18.22	27	0.6455	0.373	2.903	0.946
8-Mar-95	18.22	28	0.6697	0.439	2.903	0.949
9-Feb-95	18.95	29	0.6939	0.507	2.942	0.949
10-Nov-97	20.1	30	0.7182	0.577	3.001	0.949
12-Apr-95	20.5	31	0.7424	0.651	3.020	0.948
7-Apr-94	21.84	32	0.7667	0.728	3.084	0.944
5-Aug-99	*22*	33	0.7909	0.810	3.091	0.938
25-Apr-95	24.01	34	0.8152	0.897	3.178	0.925
22-Mar-95	26	35	0.8394	0.992	3.258	0.906
7-Jun-94	33.06	36	0.8636	1.097	3.498	0.878
4-May-94	38.88	37	0.8879	1.215	3.660	0.836
13-Jun-95	43.93	38	0.9121	1.354	3.783	
19-May-94	47.69	39	0.9364	1.525	3.865	
18-May-91	101	40	0.9606	1.758	4.615	
8-Jul-99	*103*	41	0.9848	2.166	4.635	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC276 **Date:** 26-May-00
Chemical: dPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,720	20	4	0.3	0.00	0.00	0.00
SD:	636	21	1	0.2	1.00	1.00	1.00
CV:	0.02	1.06	0.28	0.7			
Min:	33,376	6	2	0.1	-0.65	-1.94	-0.95
Max:	36,402	103	7	1.2	3.95	2.52	3.74
Median:	34,562	12	4	0.2	-0.37	-0.11	-0.32

dPb CC276 : Concentration v. Discharge, Q

					Q = mTime +b	LnQ = mTime +b
Conc. = mQ+b (r2=0.06)		update r2			r2: 0.006	0.0165
r2 Q,[COC]:	0.06	[dPb]	Q		m: 0.0027	0.00014
slope, m:	-0.02	4	6.3		b: -73	-2.10
intercept, b:	4.5	4	19.9			
N: 32		2	103			
LnConc. = mLn{Q}+b (r2=0.16)		update r2				
2 lnQ,ln[COC]:	0.16	ln[dPb]	ln Q	[dPb]	Q	
slope, m:	-0.17	1.52	1.84	5	6	
intercept, b:	1.83	1.33	2.99	4	20	
N: 33		1.05	4.63	3	103	

N= 41

	Sampling Date	Q Discharge	dPb Concentration	dPb Load	Ln Q	Ln dPb Conc.	Ln dPb Load	dPb CC276 Standardized Values = (x - Avg)/SD Q	for graph 0 Conc	Load
update for new data		cfs	ug/L	lbs/day						
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	*18-May-91*	*101*			4.62	1.10	-2.26	3.85		
MFG	5-Oct-91	6.48	3	0.10	1.87	1.79	-1.22	-0.64	-0.99	-0.95
IDEQ	27-Oct-93	9.12	6	0.29	2.21	1.79	-1.22	-0.51	1.64	-0.12
IDEQ	30-Nov-93	8.15	5	0.22	2.10	1.61	-1.52	-0.56	0.77	-0.45
IDEQ	17-Dec-93	8.15	6	0.26	2.10	1.79	-1.34	-0.56	1.64	-0.26
IDEQ	17-Dec-93	8.06	6	0.26	2.09	1.79	-1.35	-0.56	1.64	-0.27
IDEQ	20-Jan-94	9.12	4	0.20	2.21	1.39	-1.63	-0.51	-0.11	-0.55
IDEQ	20-Jan-94	8.8	4	0.19	2.17	1.39	-1.66	-0.53	-0.11	-0.58
IDEQ	18-Feb-94	8.46	5	0.23	2.14	1.61	-1.48	-0.54	0.77	-0.41
IDEQ	18-Feb-94	7.9	5	0.21	2.07	1.61	-1.55	-0.57	0.77	-0.48
IDEQ	8-Mar-94	12.85	3	0.21	2.55	1.10	-1.57	-0.33	-0.99	-0.50
IDEQ	24-Mar-94	14.43	4	0.31	2.67	1.39	-1.17	-0.26	-0.11	-0.05
IDEQ	*7-Apr-94*	*18.22*			2.90			-0.08		
IDEQ	*7-Apr-94*	*21.84*			3.08			0.09		
IDEQ	4-May-94	38.88	4	0.84	3.66	1.39	-0.18	0.90	-0.11	2.24
IDEQ	19-May-94	47.69	3	0.77	3.86	1.10	-0.26	1.32	-0.99	1.95
IDEQ	7-Jun-94	33.06	3	0.53	3.50	1.10	-0.63	0.63	-0.99	0.92
IDEQ	23-Jun-94	17.53	4	0.38	2.86	1.39	-0.97	-0.11	-0.11	0.24
IDEQ	25-Jul-94	11.9	7	0.45	2.48	1.95	-0.80	-0.38	2.52	0.55
IDEQ	16-Aug-94	11.9	5	0.32	2.48	1.61	-1.14	-0.38	0.77	-0.01
IDEQ	16-Aug-94	10.39	5	0.28	2.34	1.61	-1.27	-0.45	0.77	-0.19
IDEQ	13-Sep-94	9.84	4	0.21	2.29	1.39	-1.55	-0.48	-0.11	-0.48
IDEQ	6-Oct-94	8.78	5	0.24	2.17	1.61	-1.44	-0.53	0.77	-0.38
IDEQ	16-Nov-94	9.12	3	0.15	2.21	1.10	-1.92	-0.51	-0.99	-0.76
IDEQ	13-Dec-94	9.12	3	0.15	2.21	1.10	-1.92	-0.51	-0.99	-0.76
IDEQ	*10-Jan-95*	*12.37*			2.52			-0.36		
IDEQ	*9-Feb-95*	*18.95*			2.94			-0.04		
IDEQ	*8-Mar-95*	*18.22*			2.90			-0.08		
IDEQ	22-Mar-95	26	4	0.56	3.26	1.39	-0.58	0.29	-0.11	1.03
IDEQ	12-Apr-95	20.5	3	0.33	3.02	1.10	-1.11	0.03	-0.99	0.04
IDEQ	25-Apr-95	24.01	3	0.39	3.18	1.10	-0.95	0.20	-0.99	0.28
IDEQ	13-Jun-95	43.93	5	1.18	3.78	1.61	0.17	1.14	0.77	3.74
IDEQ	11-Jul-95	12.85	4	0.28	2.55	1.39	-1.29	-0.33	-0.11	-0.20
IDEQ	25-Jul-95	8.46	4	0.18	2.14	1.39	-1.70	-0.54	-0.11	-0.61
IDEQ	14-Aug-95	7.56	3	0.12	2.02	1.10	-2.10	-0.58	-0.99	-0.87
IDEQ	13-Sep-95	6.27	4	0.13	1.84	1.39	-2.00	-0.65	-0.11	-0.82
URS	10-Nov-97	20.1	1.92	0.21	3.00	0.65	-1.57	0.01	-1.94	-0.50
URS	12-Nov-98	8.09	3.2	0.14	2.09	1.16	-1.97	-0.56	-0.82	-0.80
USGS	*8-Jul-99*	*103*			4.63			3.95		
USGS	*5-Aug-99*	*22*			3.09			0.10		
USGS	*30-Aug-99*	*12*			2.48			-0.37		

dPb

Concentration over time analysis r2 Slope, m

dPb CC276 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.180** **-0.00025**

	Time	Ln[COC]	[COC]
first:	18-May-91	1.70	5
mid:	16-Aug-94	1.40	4
last:	30-Aug-99	0.94	3

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

Load over time analysis

dPb CC276 **Load over time**

LnLoad=mTime+b All data r2, m: **0.002** **-0.00005** up

	Time	LnLoad	Load
first:	18-May-91	-1.24	0.3
mid:	16-Aug-94	-1.31	0.3
last:	30-Aug-99	-1.40	0.2

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1.00
30-Aug-99	0.00	1.00

max r2: 1.000 max r2: 1.000

Forward time Regression on Ln Concentration(t) **Forward time Regression on Ln Load(t)**

only on >4 data points: delete last 4 rows only on >4 data points: delete last 4 rows

r2	slope	intercept	r2	slope	intercept
0.180	-0.00025	10.08	0.002	-0.00005	0.51
0.331	-0.00037	14.35	0.045	-0.00026	7.76
0.288	-0.00038	14.55	0.053	-0.00032	9.70
0.265	-0.00036	13.78	0.053	-0.00032	9.90
0.251	-0.00035	13.47	0.062	-0.00035	10.95
0.229	-0.00032	12.57	0.065	-0.00037	11.53
0.203	-0.00029	11.53	0.070	-0.00039	12.23
0.203	-0.00030	11.71	0.086	-0.00043	13.83
0.204	-0.00030	11.91	0.108	-0.00049	15.79
0.185	-0.00029	11.33	0.123	-0.00053	17.23
0.163	-0.00027	10.65	0.146	-0.00059	19.16
0.204	-0.00030	11.85	0.175	-0.00065	21.39
0.203	-0.00031	12.02	0.181	-0.00067	22.25
0.203	-0.00031	12.02	0.181	-0.00067	22.25
0.203	-0.00031	12.02	0.181	-0.00067	22.25
0.201	-0.00031	12.16	0.151	-0.00059	19.13
0.251	-0.00035	13.50	0.119	-0.00049	15.85
0.313	-0.00039	15.00	0.095	-0.00043	13.66
0.318	-0.00040	15.40	0.081	-0.00040	12.67
0.298	-0.00034	13.16	0.061	-0.00035	10.69
0.266	-0.00031	12.16	0.052	-0.00033	10.00
0.227	-0.00028	10.90	0.049	-0.00032	9.89
0.209	-0.00027	10.67	0.059	-0.00036	11.35
0.160	-0.00022	8.90	0.064	-0.00039	12.40
0.205	-0.00025	10.15	0.109	-0.00052	16.77
0.268	-0.00030	11.71	0.184	-0.00067	22.27
0.268	-0.00030	11.71	0.184	-0.00067	22.27
0.268	-0.00030	11.71	0.184	-0.00067	22.27
0.268	-0.00030	11.71	0.184	-0.00067	22.27
0.243	-0.00029	11.24	0.146	-0.00057	18.78
0.306	-0.00033	12.72	0.130	-0.00055	17.99
0.403	-0.00038	14.79	0.097	-0.00048	15.39
0.351	-0.00032	12.42	0.013	-0.00007	0.58
0.290	-0.00029	11.29	0.055	0.00009	-5.16
0.183	-0.00022	8.97	0.249	0.00020	-8.92
0.237	-0.00031	12.11	0.073	0.00011	-5.76
1.000	0.00139	-49.10	1.000	-0.00109	37.31

update for EV, CV:

dPb
LN Analysis
Load

CC276
dPb
Load Data, EV=0.32 lbs/day CV=.71
Load Data-based LN

		u	ln dPb Load	dPb Load
Avg:	**0.32**			
SD:	**0.2**	3	0.6	1.79
CV:	**0.71**	0	-1.34	0.26
Min:	**0.1**	-3	-3.26	0.04
Max:	**1.2**			
Median:	**0.2**			

u=mLn{Load}+ b:

pdate for r2, EV, CV: **r^2=0.978, EV=0.3 lbs/day CV=0.87; max r2=0.978**

u

		u	lnLoad	Load
r2 u,lnLoad:	0.978			
slope, m:	1.327	3	0.76	2
intercept, b:	1.996	0	-1.50	0.222
N: 32		-3	-3.76	0.023
E[Load]:	0.3	Parameter Estimates		
SD[Load]:	0.3	from LN regression		
CV[Load]:	0.87	update graph label		

N: 41

max r2
0.978

Date	dPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
30-Aug-99		1	0.0152	-2.166		
10-Jan-95		2	0.0394	-1.758		
5-Aug-99		3	0.0636	-1.525		
7-Apr-94		4	0.0879	-1.354		
8-Mar-95		5	0.1121	-1.215		
9-Feb-95		6	0.1364	-1.097		
7-Apr-94		7	0.1606	-0.992		
5-Oct-91	**0.1**	8	0.1848	-0.897	-2.258	0.978
14-Aug-95	**0.1**	9	0.2091	-0.810	-2.104	0.977
13-Sep-95	**0.1**	10	0.2333	-0.728	-2.003	0.976
12-Nov-98	**0.1**	11	0.2576	-0.651	-1.971	0.974
16-Nov-94	**0.1**	12	0.2818	-0.577	-1.916	0.972
13-Dec-94	**0.1**	13	0.3061	-0.507	-1.916	0.969
25-Jul-95	**0.2**	14	0.3303	-0.439	-1.703	0.967
20-Jan-94	**0.2**	15	0.3545	-0.373	-1.664	0.967
20-Jan-94	**0.2**	16	0.3788	-0.309	-1.628	0.968
8-Mar-94	**0.2**	17	0.4030	-0.246	-1.573	0.969
10-Nov-97	**0.2**	18	0.4273	-0.183	-1.572	0.972
13-Sep-94	**0.2**	19	0.4515	-0.122	-1.552	0.973
18-Feb-94	**0.2**	20	0.4758	-0.061	-1.549	0.973
30-Nov-93	**0.2**	21	0.5000	0.000	-1.518	0.972
18-Feb-94	**0.2**	22	0.5242	0.061	-1.480	0.971
6-Oct-94	**0.2**	23	0.5485	0.122	-1.443	0.969
17-Dec-93	**0.3**	24	0.5727	0.183	-1.346	0.967
17-Dec-93	**0.3**	25	0.5970	0.246	-1.335	0.969
11-Jul-95	**0.3**	26	0.6212	0.309	-1.285	0.969
8-Jul-99		27	0.6455	0.373		
16-Aug-94	**0.3**	28	0.6697	0.439	-1.275	0.970
27-Oct-93	**0.3**	29	0.6939	0.507	-1.223	0.967
24-Mar-94	**0.3**	30	0.7182	0.577	-1.169	0.963
16-Aug-94	**0.3**	31	0.7424	0.651	-1.139	0.957
12-Apr-95	**0.3**	32	0.7667	0.728	-1.106	0.950
23-Jun-94	**0.4**	33	0.7909	0.810	-0.975	0.945
25-Apr-95	**0.4**	34	0.8152	0.897	-0.948	0.934
25-Jul-94	**0.4**	35	0.8394	0.992	-0.803	0.932
7-Jun-94	**0.5**	36	0.8636	1.097	-0.628	0.925
22-Mar-95	**0.6**	37	0.8879	1.215	-0.581	0.896
19-May-94	**0.8**	38	0.9121	1.354	-0.262	
18-May-91		39	0.9364	1.525		
4-May-94	**0.8**	40	0.9606	1.758	-0.178	
13-Jun-95	**1.2**	41	0.9848	2.166	0.167	

update for EV, CV:

dPb
LN Analysis
Concentration

CC276
dPb
Conc. Data, EV=4 ug/L CV=.28
Data-based LN

		u	ln[dPb]	[dPb]
Avg:	**4**	3	2.2	9
SD:	**1**	0	1.38	4
CV:	**0.28**	-3	0.57	2
Min:	**2**			
Max:	**7**			
Median:	**4**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.894, EV=3.7 ug/L CV=0.42; max r2=0.926**

r2 u,lnConc:	0.894	u	lnConc.	Conc.
slope, m:	2.462	3	2.45	12
intercept, b:	-3.028	0	1.23	3
N: 32		-3	0.01	1.0
E[Conc]:	3.7	Parameter Estimates		
SD[Conc]:	2	from LN regression		
CV[Conc]:	0.42	update graph label		

N: 41

max r2
0.926

Date	**dPb Concentration ug/L Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	r2 forward
update and rank for new data						
8-Jul-99		1	0.0152	-2.166		
5-Aug-99		2	0.0394	-1.758		
30-Aug-99		3	0.0636	-1.525		
7-Apr-94		4	0.0879	-1.354		
7-Apr-94		5	0.1121	-1.215		
10-Jan-95		6	0.1364	-1.097		
9-Feb-95		7	0.1606	-0.992		
8-Mar-95		8	0.1848	-0.897		
18-May-91		9	0.2091	-0.810		
10-Nov-97	1.92	10	0.2333	-0.728	0.652	0.894
5-Oct-91	3	11	0.2576	-0.651	1.099	0.926
8-Mar-94	3	12	0.2818	-0.577	1.099	0.924
19-May-94	3	13	0.3061	-0.507	1.099	0.920
7-Jun-94	3	14	0.3303	-0.439	1.099	0.915
16-Nov-94	3	15	0.3545	-0.373	1.099	0.908
13-Dec-94	3	16	0.3788	-0.309	1.099	0.900
12-Apr-95	3	17	0.4030	-0.246	1.099	0.893
25-Apr-95	3	18	0.4273	-0.183	1.099	0.886
14-Aug-95	3	19	0.4515	-0.122	1.099	0.883
12-Nov-98	3.2	20	0.4758	-0.061	1.163	0.892
20-Jan-94	4	21	0.5000	0.000	1.386	0.898
20-Jan-94	4	22	0.5242	0.061	1.386	0.900
24-Mar-94	4	23	0.5485	0.122	1.386	0.900
4-May-94	4	24	0.5727	0.183	1.386	0.897
23-Jun-94	4	25	0.5970	0.246	1.386	0.891
13-Sep-94	4	26	0.6212	0.309	1.386	0.881
22-Mar-95	4	27	0.6455	0.373	1.386	0.868
11-Jul-95	4	28	0.6697	0.439	1.386	0.851
25-Jul-95	4	29	0.6939	0.507	1.386	0.832
13-Sep-95	4	30	0.7182	0.577	1.386	0.819
30-Nov-93	5	31	0.7424	0.651	1.609	0.849
18-Feb-94	5	32	0.7667	0.728	1.609	0.864
18-Feb-94	5	33	0.7909	0.810	1.609	0.874
16-Aug-94	5	34	0.8152	0.897	1.609	0.877
16-Aug-94	5	35	0.8394	0.992	1.609	0.869
6-Oct-94	5	36	0.8636	1.097	1.609	0.841
13-Jun-95	5	37	0.8879	1.215	1.609	0.780
27-Oct-93	6	38	0.9121	1.354	1.792	
17-Dec-93	6	39	0.9364	1.525	1.792	
17-Dec-93	6	40	0.9606	1.758	1.792	
25-Jul-94	7	41	0.9848	2.166	1.946	

update for EV, CV:

dPb
LN Analysis
Discharge, Q

CC276
dPb
Q Data, EV=20 cfs CV=1.06
Q Data-based LN

		u	lnQ	Q
Avg:	**20**	3	5.2	184
SD:	**21**	0	2.61	14
CV:	**1.06**	-3	0.01	1
Min:	**6**			
Max:	**103**			
Median:	**12**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.878, EV=19.6 cfs CV=0.88; max r2=0.967**

r2 u,lnQ:	0.878	u	lnQ	Q
slope, m:	1.326	3	4.95	142
intercept, b:	-3.565	0	2.69	15
N: 41		-3	0.43	2
E[Q]:	19.6	Parameter Estimates		
SD[Q]:	17	from LN regression		
CV[Q]:	0.88	update graph label		

N: 41

max r2
0.967

Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
13-Sep-95	6.27	1	0.0152	-2.166	1.836	0.878
5-Oct-91	6.48	2	0.0394	-1.758	1.869	0.895
14-Aug-95	7.56	3	0.0636	-1.525	2.023	0.902
18-Feb-94	7.9	4	0.0879	-1.354	2.067	0.914
17-Dec-93	8.06	5	0.1121	-1.215	2.087	0.925
12-Nov-98	8.09	6	0.1364	-1.097	2.091	0.934
30-Nov-93	8.15	7	0.1606	-0.992	2.098	0.942
17-Dec-93	8.15	8	0.1848	-0.897	2.098	0.948
18-Feb-94	8.46	9	0.2091	-0.810	2.135	0.953
25-Jul-95	8.46	10	0.2333	-0.728	2.135	0.957
6-Oct-94	8.78	11	0.2576	-0.651	2.172	0.960
20-Jan-94	8.8	12	0.2818	-0.577	2.175	0.963
27-Oct-93	9.12	13	0.3061	-0.507	2.210	0.965
20-Jan-94	9.12	14	0.3303	-0.439	2.210	0.967
16-Nov-94	9.12	15	0.3545	-0.373	2.210	0.967
13-Dec-94	9.12	16	0.3788	-0.309	2.210	0.966
13-Sep-94	9.84	17	0.4030	-0.246	2.286	0.964
16-Aug-94	10.39	18	0.4273	-0.183	2.341	0.962
25-Jul-94	11.9	19	0.4515	-0.122	2.477	0.960
16-Aug-94	11.9	20	0.4758	-0.061	2.477	0.961
30-Aug-99	*12*	21	0.5000	0.000	2.485	0.961
10-Jan-95	*12.37*	22	0.5242	0.061	2.515	0.959
8-Mar-94	12.85	23	0.5485	0.122	2.553	0.956
11-Jul-95	12.85	24	0.5727	0.183	2.553	0.953
24-Mar-94	14.43	25	0.5970	0.246	2.669	0.948
23-Jun-94	17.53	26	0.6212	0.309	2.864	0.943
7-Apr-94	*18.22*	27	0.6455	0.373	2.903	0.946
8-Mar-95	*18.22*	28	0.6697	0.439	2.903	0.949
9-Feb-95	*18.95*	29	0.6939	0.507	2.942	0.949
10-Nov-97	20.1	30	0.7182	0.577	3.001	0.949
12-Apr-95	20.5	31	0.7424	0.651	3.020	0.948
7-Apr-94	*21.84*	32	0.7667	0.728	3.084	0.944
5-Aug-99	*22*	33	0.7909	0.810	3.091	0.938
25-Apr-95	24.01	34	0.8152	0.897	3.178	0.925
22-Mar-95	26	35	0.8394	0.992	3.258	0.906
7-Jun-94	33.06	36	0.8636	1.097	3.498	0.878
4-May-94	38.88	37	0.8879	1.215	3.660	0.836
13-Jun-95	43.93	38	0.9121	1.354	3.783	
19-May-94	47.69	39	0.9364	1.525	3.865	
18-May-91	*101*	40	0.9606	1.758	4.615	
8-Jul-99	*103*	41	0.9848	2.166	4.635	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC276 **Date:** 26-May-00
Chemical: dZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,720	20	86	7	0.00	0.00	0.00
SD:	636	21	35	5	1.00	1.00	1.00
CV:	0.02	1.06	0.41	0.70			
Min:	33,376	6	5	0	-0.65	-2.31	-1.36
Max:	36,402	103	155	31	3.95	1.99	4.85
Median:	34,562	12	100	5	-0.37	0.41	-0.39

dZn CC276 **: Concentration v. Discharge, Q**

Conc. = mQ+b (r2=0.07)	update r2			**Q = mTime +b**	**LnQ = mTime +b**	
r2 Q,[COC]:	0.29	[dZn]	Q	r2:	0.006	0.016
slope, m:	-0.9	98	6.3	m:	0.0027	0.00014
intercept, b:	103.1	86	19.9	b:	-73	-2.10
N: 41		12	103			

LnConc. = mLn{Q}+b (r2=0.02)	update r2				
r2 lnQ,ln[COC]:	0.24	ln[dZn]	ln Q	[dZn]	Q
slope, m:	-0.59	4.76	1.84	117	6
intercept, b:	5.84	4.08	2.99	59	20
N: 41		3.12	4.63	23	103

for graph
dZn 0
CC276

N= 41

update for new data	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	18-May-91	101	57	31	4.62	4.04	3.43	3.85	-0.82	4.85
MFG	5-Oct-91	6.48	136	5	1.87	4.91	1.56	-0.64	1.45	-0.46
IDEQ	27-Oct-93	9.12	103	5	2.21	4.63	1.62	-0.51	0.50	-0.40
IDEQ	30-Nov-93	8.15	100	4	2.10	4.61	1.48	-0.56	0.41	-0.54
IDEQ	17-Dec-93	8.15	106	5	2.10	4.66	1.54	-0.56	0.59	-0.48
IDEQ	17-Dec-93	8.06	106	5	2.09	4.66	1.53	-0.56	0.59	-0.49
IDEQ	20-Jan-94	9.12	103	5	2.21	4.63	1.62	-0.51	0.50	-0.40
IDEQ	20-Jan-94	8.8	103	5	2.17	4.63	1.58	-0.53	0.50	-0.44
IDEQ	18-Feb-94	8.46	120	5	2.14	4.79	1.70	-0.54	0.99	-0.32
IDEQ	18-Feb-94	7.9	120	5	2.07	4.79	1.63	-0.57	0.99	-0.39
IDEQ	8-Mar-94	12.85	110	8	2.55	4.70	2.03	-0.33	0.70	0.12
IDEQ	24-Mar-94	14.43	144	11	2.67	4.97	2.41	-0.26	1.68	0.84
IDEQ	7-Apr-94	18.22	79	8	2.90	4.37	2.05	-0.08	-0.19	0.14
IDEQ	7-Apr-94	21.84	79	9	3.08	4.37	2.23	0.09	-0.19	0.46
IDEQ	4-May-94	38.88	53	11	3.66	3.97	2.41	0.90	-0.93	0.82
IDEQ	19-May-94	47.69	41	11	3.86	3.71	2.35	1.32	-1.28	0.71
IDEQ	7-Jun-94	33.06	63	11	3.50	4.14	2.42	0.63	-0.64	0.85
IDEQ	23-Jun-94	17.53	73	7	2.86	4.29	1.93	-0.11	-0.36	-0.03
IDEQ	25-Jul-94	11.9	78	5	2.48	4.36	1.61	-0.38	-0.22	-0.41
IDEQ	16-Aug-94	11.9	100	6	2.48	4.61	1.86	-0.38	0.41	-0.13
IDEQ	16-Aug-94	10.39	100	6	2.34	4.61	1.72	-0.45	0.41	-0.29
IDEQ	13-Sep-94	9.84	94	5	2.29	4.54	1.60	-0.48	0.24	-0.42
IDEQ	6-Oct-94	8.78	107	5	2.17	4.67	1.62	-0.53	0.62	-0.40
IDEQ	16-Nov-94	9.12	100	5	2.21	4.61	1.59	-0.51	0.41	-0.43
IDEQ	13-Dec-94	9.12	108	5	2.21	4.68	1.67	-0.51	0.64	-0.35
IDEQ	10-Jan-95	12.37	155	10	2.52	5.04	2.33	-0.36	1.99	0.67
IDEQ	9-Feb-95	18.95	123	13	2.94	4.81	2.53	-0.04	1.07	1.12
IDEQ	8-Mar-95	18.22	82	8	2.90	4.41	2.08	-0.08	-0.10	0.20
IDEQ	22-Mar-95	26	103	14	3.26	4.63	2.67	0.29	0.50	1.49
IDEQ	12-Apr-95	20.5	85	9	3.02	4.44	2.24	0.03	-0.01	0.47
IDEQ	25-Apr-95	24.01	71	9	3.18	4.26	2.22	0.20	-0.42	0.43
IDEQ	13-Jun-95	43.93	45	11	3.78	3.81	2.36	1.14	-1.16	0.73
IDEQ	11-Jul-95	12.85	65	4	2.55	4.17	1.50	-0.33	-0.59	-0.51
IDEQ	25-Jul-95	8.46	80	4	2.14	4.38	1.29	-0.54	-0.16	-0.69
IDEQ	14-Aug-95	7.56	110	4	2.02	4.70	1.50	-0.58	0.70	-0.52
IDEQ	13-Sep-95	6.27	102	3	1.84	4.62	1.24	-0.65	0.47	-0.73
URS	10-Nov-97	20.1	39.3	4	3.00	3.67	1.45	0.01	-1.32	-0.56
URS	12-Nov-98	8.09	47.8	2	2.09	3.87	0.73	-0.56	-1.08	-1.00
USGS	8-Jul-99	103	5	3	4.63	1.61	1.02	3.95	-2.31	-0.86
USGS	5-Aug-99	22	5	1	3.09	1.61	-0.52	0.10	-2.31	-1.30
USGS	30-Aug-99	12	5	0	2.48	1.61	-1.13	-0.37	-2.31	-1.36

dZn

Concentration over time analysis r2 Slope, m

dZn CC276 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.596** **-0.00099**

	Time	Ln[COC]	[COC]
first:	18-May-91	5.59	266
mid:	16-Aug-94	4.42	83
last:	30-Aug-99	2.60	13

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

Load over time analysis

dZn CC276 **Load over time**

LnLoad=mTime+b All data r2, m: **0.502** **-0.00085**

	Time	LnLoad	Load
first:	18-May-91	2.86	18
mid:	16-Aug-94	1.86	6
last:	30-Aug-99	0.30	1

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

max r2: 0.823 max r2: 0.719

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.596	-0.00099	38.52	0.502	-0.00085	31.19
0.697	-0.00113	43.57	0.448	-0.00080	29.33
0.717	-0.00120	46.12	0.516	-0.00090	33.08
0.717	-0.00121	46.46	0.530	-0.00092	33.86
0.718	-0.00122	46.80	0.552	-0.00095	34.81
0.717	-0.00123	47.04	0.571	-0.00098	35.72
0.716	-0.00124	47.30	0.593	-0.00101	36.73
0.715	-0.00124	47.56	0.609	-0.00103	37.59
0.714	-0.00125	47.84	0.629	-0.00106	38.59
0.709	-0.00125	47.84	0.643	-0.00108	39.41
0.705	-0.00125	47.84	0.663	-0.00111	40.45
0.701	-0.00126	47.95	0.664	-0.00112	40.85
0.694	-0.00124	47.56	0.656	-0.00111	40.58
0.698	-0.00126	48.19	0.656	-0.00112	40.92
0.703	-0.00128	48.90	0.650	-0.00112	40.96
0.729	-0.00132	50.38	0.641	-0.00111	40.59
0.778	-0.00138	52.51	0.631	-0.00110	40.26
0.798	-0.00142	53.91	0.620	-0.00109	39.71
0.811	-0.00146	55.11	0.619	-0.00110	40.13
0.821	-0.00149	56.17	0.634	-0.00113	41.24
0.821	-0.00150	56.71	0.635	-0.00115	41.84
0.821	-0.00152	57.34	0.645	-0.00118	42.90
0.823	-0.00154	58.11	0.663	-0.00122	44.32
0.820	-0.00155	58.54	0.681	-0.00126	45.84
0.818	-0.00157	59.03	0.702	-0.00131	47.50
0.812	-0.00157	59.25	0.719	-0.00135	49.11
0.804	-0.00154	58.18	0.707	-0.00134	48.71
0.793	-0.00152	57.54	0.691	-0.00130	47.40
0.788	-0.00154	58.16	0.678	-0.00130	47.36
0.775	-0.00153	57.86	0.659	-0.00123	44.69
0.763	-0.00154	58.27	0.630	-0.00119	43.14
0.758	-0.00159	59.81	0.590	-0.00113	40.99
0.796	-0.00172	64.68	0.536	-0.00100	36.45
0.805	-0.00183	68.80	0.497	-0.00101	36.65
0.800	-0.00197	73.73	0.476	-0.00109	39.61
0.744	-0.00210	78.49	0.392	-0.00116	42.17
0.728	-0.00363	133.94	0.537	-0.00287	104.08

update for EV, CV:

dZn **CC276**

LN Analysis **dZn**

Load **Load Data, EV=7 lbs/day CV=.72**

Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**7**			
SD:	**5**	u	ln dZn Load	dZn Load
CV:	**0.70**	3	3.7	38
Min:	**0**	0	1.75	6
Max:	**31**	-3	-0.15	1
Median:	**5**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.823, EV=8.2 lbs/day CV=1.06; max r2=0.938**

r2 u,lnLoad:	0.823	u	lnLoad	Load
slope, m:	1.151	3	4.33	76
intercept, b:	-1.985	0	1.72	6
N: 41		-3	-0.88	0
E[Load]:	8.2	Parameter Estimates		
SD[Load]:	9	from LN regression		
CV[Load]:	1.06	update graph label		

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.938 r2 forward
		N: 41				
update and rank for new data						
30-Aug-99	**0.3**	1	0.0152	-2.166	-1.131	0.823
5-Aug-99	**0.6**	2	0.0394	-1.758	-0.525	0.857
12-Nov-98	**2.1**	3	0.0636	-1.525	0.733	0.938
8-Jul-99	**2.8**	4	0.0879	-1.354	1.019	0.935
13-Sep-95	**3.4**	5	0.1121	-1.215	1.236	0.929
25-Jul-95	**3.6**	6	0.1364	-1.097	1.292	0.925
10-Nov-97	**4.2**	7	0.1606	-0.992	1.447	0.922
30-Nov-93	**4.4**	8	0.1848	-0.897	1.478	0.925
14-Aug-95	**4.5**	9	0.2091	-0.810	1.498	0.928
11-Jul-95	**4.5**	10	0.2333	-0.728	1.503	0.931
17-Dec-93	**4.6**	11	0.2576	-0.651	1.525	0.933
17-Dec-93	**4.6**	12	0.2818	-0.577	1.536	0.935
5-Oct-91	**4.7**	13	0.3061	-0.507	1.556	0.936
20-Jan-94	**4.9**	14	0.3303	-0.439	1.584	0.936
16-Nov-94	**4.9**	15	0.3545	-0.373	1.591	0.937
13-Sep-94	**5.0**	16	0.3788	-0.309	1.605	0.937
25-Jul-94	**5.0**	17	0.4030	-0.246	1.608	0.936
27-Oct-93	**5.1**	18	0.4273	-0.183	1.620	0.933
20-Jan-94	**5.1**	19	0.4515	-0.122	1.620	0.929
6-Oct-94	**5.1**	20	0.4758	-0.061	1.620	0.923
18-Feb-94	**5.1**	21	0.5000	0.000	1.629	0.916
13-Dec-94	**5.3**	22	0.5242	0.061	1.668	0.908
18-Feb-94	**5.5**	23	0.5485	0.122	1.698	0.899
16-Aug-94	**5.6**	24	0.5727	0.183	1.721	0.890
16-Aug-94	**6.4**	25	0.5970	0.246	1.857	0.880
23-Jun-94	**6.9**	26	0.6212	0.309	1.929	0.867
8-Mar-94	**7.6**	27	0.6455	0.373	2.029	0.851
7-Apr-94	**7.7**	28	0.6697	0.439	2.047	0.838
8-Mar-95	**8.0**	29	0.6939	0.507	2.084	0.821
25-Apr-95	**9.2**	30	0.7182	0.577	2.216	0.801
7-Apr-94	**9.3**	31	0.7424	0.651	2.228	0.800
12-Apr-95	**9.4**	32	0.7667	0.728	2.238	0.796
10-Jan-95	**10.3**	33	0.7909	0.810	2.334	0.786
19-May-94	**10.5**	34	0.8152	0.897	2.353	0.803
13-Jun-95	**10.6**	35	0.8394	0.992	2.364	0.826
4-May-94	**11.1**	36	0.8636	1.097	2.406	0.848
24-Mar-94	**11.2**	37	0.8879	1.215	2.414	0.890
7-Jun-94	**11.2**	38	0.9121	1.354	2.416	
9-Feb-95	**12.5**	39	0.9364	1.525	2.529	
22-Mar-95	**14.4**	40	0.9606	1.758	2.668	
18-May-91	**31.0**	41	0.9848	2.166	3.433	

update for EV, CV:

dZn **CC276**

LN Analysis **dZn**

Concentration **Conc. Data, EV=86 ug/L CV=0.41**

Avg:	**86**	**Data-based LN**		
SD:	**35**	u	ln[dZn]	[dZn]
CV:	**0.41**	3	5.5	257
Min:	**5**	0	4.37	79
Max:	**155**	-3	3.19	24
Median:	**100**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.644, EV=122.4 ug/L CV=1.41; max r2=0.972**

r2 u,lnConc:	0.644	u	lnConc.	Conc.
slope, m:	0.955	3	7.40	1637
intercept, b:	-4.068	0	4.26	71
N: 41		-3	1.12	3
E[Conc]:	122.4	Parameter Estimates		
SD[Conc]:	173	from LN regression		
CV[Conc]:	1.41	update graph label		

Date	dZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.972 r2 forward
		N: 41				
update and rank for new data						
8-Jul-99	5	1	0.0152	-2.166	1.609	0.644
5-Aug-99	5	2	0.0394	-1.758	1.609	0.599
30-Aug-99	5	3	0.0636	-1.525	1.609	0.600
10-Nov-97	39.3	4	0.0879	-1.354	3.671	0.887
19-May-94	41	5	0.1121	-1.215	3.714	0.884
13-Jun-95	45	6	0.1364	-1.097	3.807	0.888
12-Nov-98	47.8	7	0.1606	-0.992	3.867	0.893
4-May-94	53	8	0.1848	-0.897	3.970	0.904
18-May-91	57	9	0.2091	-0.810	4.043	0.913
7-Jun-94	63	10	0.2333	-0.728	4.143	0.923
11-Jul-95	65	11	0.2576	-0.651	4.174	0.926
25-Apr-95	71	12	0.2818	-0.577	4.263	0.933
23-Jun-94	73	13	0.3061	-0.507	4.290	0.932
25-Jul-94	78	14	0.3303	-0.439	4.357	0.932
7-Apr-94	79	15	0.3545	-0.373	4.369	0.927
7-Apr-94	79	16	0.3788	-0.309	4.369	0.923
25-Jul-95	80	17	0.4030	-0.246	4.382	0.922
8-Mar-95	82	18	0.4273	-0.183	4.407	0.926
12-Apr-95	85	19	0.4515	-0.122	4.443	0.932
13-Sep-94	94	20	0.4758	-0.061	4.543	0.938
30-Nov-93	100	21	0.5000	0.000	4.605	0.933
16-Aug-94	100	22	0.5242	0.061	4.605	0.940
16-Aug-94	100	23	0.5485	0.122	4.605	0.945
16-Nov-94	100	24	0.5727	0.183	4.605	0.948
13-Sep-95	102	25	0.5970	0.246	4.625	0.949
27-Oct-93	103	26	0.6212	0.309	4.635	0.955
20-Jan-94	103	27	0.6455	0.373	4.635	0.962
20-Jan-94	103	28	0.6697	0.439	4.635	0.967
22-Mar-95	103	29	0.6939	0.507	4.635	0.969
17-Dec-93	106	30	0.7182	0.577	4.663	0.968
17-Dec-93	106	31	0.7424	0.651	4.663	0.972
6-Oct-94	107	32	0.7667	0.728	4.673	0.972
13-Dec-94	108	33	0.7909	0.810	4.682	0.969
8-Mar-94	110	34	0.8152	0.897	4.700	0.963
14-Aug-95	110	35	0.8394	0.992	4.700	0.954
18-Feb-94	120	36	0.8636	1.097	4.787	0.954
18-Feb-94	120	37	0.8879	1.215	4.787	0.950
9-Feb-95	123	38	0.9121	1.354	4.812	
5-Oct-91	136	39	0.9364	1.525	4.913	
24-Mar-94	144	40	0.9606	1.758	4.970	
10-Jan-95	155	41	0.9848	2.166	5.043	

update for EV, CV:

dZn **CC276**

LN Analysis **dZn**

Discharge, Q **Q Data, EV=17 cfs CV=0.99**

Q Data-based LN

		u	lnQ	Q
Avg:	**20**			
SD:	**21**	3	5.2	184
CV:	**1.06**	0	2.61	14
Min:	**6**	-3	0.01	1
Max:	**103**			
Median:	**12**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.878, EV=19.6 cfs CV=0.88; max r2=0.967**

		u	lnQ	Q
r2 u,lnQ:	0.878	3	4.95	142
slope, m:	1.326	0	2.69	15
intercept, b:	-3.565	-3	0.43	2
N: 41				
E[Q]:	19.6	Parameter Estimates		
SD[Q]:	17	from LN regression		
CV[Q]:	0.88	update graph label		

max r2
0.967

N: 41

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
13-Sep-95	6.27	1	0.0152	-2.166	1.836	0.878
5-Oct-91	6.48	2	0.0394	-1.758	1.869	0.895
14-Aug-95	7.56	3	0.0636	-1.525	2.023	0.902
18-Feb-94	7.9	4	0.0879	-1.354	2.067	0.914
17-Dec-93	8.06	5	0.1121	-1.215	2.087	0.925
12-Nov-98	8.09	6	0.1364	-1.097	2.091	0.934
30-Nov-93	8.15	7	0.1606	-0.992	2.098	0.942
17-Dec-93	8.15	8	0.1848	-0.897	2.098	0.948
18-Feb-94	8.46	9	0.2091	-0.810	2.135	0.953
25-Jul-95	8.46	10	0.2333	-0.728	2.135	0.957
6-Oct-94	8.78	11	0.2576	-0.651	2.172	0.960
20-Jan-94	8.8	12	0.2818	-0.577	2.175	0.963
27-Oct-93	9.12	13	0.3061	-0.507	2.210	0.965
20-Jan-94	9.12	14	0.3303	-0.439	2.210	0.967
16-Nov-94	9.12	15	0.3545	-0.373	2.210	0.967
13-Dec-94	9.12	16	0.3788	-0.309	2.210	0.966
13-Sep-94	9.84	17	0.4030	-0.246	2.286	0.964
16-Aug-94	10.39	18	0.4273	-0.183	2.341	0.962
25-Jul-94	11.9	19	0.4515	-0.122	2.477	0.960
16-Aug-94	11.9	20	0.4758	-0.061	2.477	0.961
30-Aug-99	12	21	0.5000	0.000	2.485	0.961
10-Jan-95	12.37	22	0.5242	0.061	2.515	0.959
8-Mar-94	12.85	23	0.5485	0.122	2.553	0.956
11-Jul-95	12.85	24	0.5727	0.183	2.553	0.953
24-Mar-94	14.43	25	0.5970	0.246	2.669	0.948
23-Jun-94	17.53	26	0.6212	0.309	2.864	0.943
7-Apr-94	18.22	27	0.6455	0.373	2.903	0.946
8-Mar-95	18.22	28	0.6697	0.439	2.903	0.949
9-Feb-95	18.95	29	0.6939	0.507	2.942	0.949
10-Nov-97	20.1	30	0.7182	0.577	3.001	0.949
12-Apr-95	20.5	31	0.7424	0.651	3.020	0.948
7-Apr-94	21.84	32	0.7667	0.728	3.084	0.944
5-Aug-99	22	33	0.7909	0.810	3.091	0.938
25-Apr-95	24.01	34	0.8152	0.897	3.178	0.925
22-Mar-95	26	35	0.8394	0.992	3.258	0.906
7-Jun-94	33.06	36	0.8636	1.097	3.498	0.878
4-May-94	38.88	37	0.8879	1.215	3.660	0.836
13-Jun-95	43.93	38	0.9121	1.354	3.783	
19-May-94	47.69	39	0.9364	1.525	3.865	
18-May-91	101	40	0.9606	1.758	4.615	
8-Jul-99	103	41	0.9848	2.166	4.635	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data see comment

Station: CC276 **Date:** 26-May-00
Chemical: tCd **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,720	20	1	0.1	0.00	0.00	0.00
SD:	636	21	0.2	0.1	1.00	1.00	1.00
CV:	0.02	1.06	0.24	1.31			
Min:	33,376	6	0.3	0.02	-0.65	-2.75	-0.54
Max:	36,402	103	1	0.6	3.95	2.13	5.70
Median:	34,562	12	1	0.05	-0.37	0.40	-0.23

tCd CC276 : Concentration v. Discharge, Q

					Q = mTime +b	LnQ = mTime +b
Conc. = mQ+b (r2=0.0011) update r2				r2:	0.007	0.017
r2 Q,[COC]:	0.0011	[tCd]	Q	m:	0.0028	0.00014
slope, m:	-0.0003	1	6.3	b:	-77	-2.19
intercept, b:	0.7	1	19.9			
N: 37		1	103			

LnConc. = mLn{Q}+b (r2=0.10) update r2

lnQ,ln[COC]:	0.10	ln[tCd]	ln Q	[tCd]	Q
slope, m:	-0.15	-0.23	1.84	1	6
intercept, b:	0.04	-0.40	2.99	1	20
N: 37		-0.64	4.63	1	103

for graph
tCd 0
CC276

N= 41

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	18-May-91	101	1.1	0.60	4.62	0.10	-0.51	3.85	2.13	5.70
MFG	5-Oct-91	6.48	1	0.03	1.87	0.00	-3.36	-0.64	1.55	-0.39
IDEQ	27-Oct-93	9.12	0.8	0.04	2.21	-0.22	-3.24	-0.51	0.40	-0.34
IDEQ	30-Nov-93	8.15	0.7	0.03	2.10	-0.36	-3.48	-0.56	-0.17	-0.43
IDEQ	17-Dec-93	8.15	0.8	0.04	2.10	-0.22	-3.35	-0.56	0.40	-0.38
IDEQ	17-Dec-93	8.06	0.8	0.03	2.09	-0.22	-3.36	-0.56	0.40	-0.39
IDEQ	20-Jan-94	9.12	0.8	0.04	2.21	-0.22	-3.24	-0.51	0.40	-0.34
IDEQ	20-Jan-94	8.8	0.8	0.04	2.17	-0.22	-3.27	-0.53	0.40	-0.35
IDEQ	18-Feb-94	8.46	0.8	0.04	2.14	-0.22	-3.31	-0.54	0.40	-0.37
IDEQ	18-Feb-94	7.9	0.8	0.03	2.07	-0.22	-3.38	-0.57	0.40	-0.40
IDEQ	8-Mar-94	12.85	0.8	0.06	2.55	-0.22	-2.89	-0.33	0.40	-0.17
IDEQ	24-Mar-94	14.43	0.9	0.07	2.67	-0.11	-2.66	-0.26	0.98	-0.01
IDEQ	7-Apr-94	18.22	0.7	0.07	2.90	-0.36	-2.68	-0.08	-0.17	-0.02
IDEQ	7-Apr-94	21.84	0.7	0.08	3.08	-0.36	-2.50	0.09	-0.17	0.13
IDEQ	4-May-94	38.88	0.5	0.10	3.66	-0.69	-2.26	0.90	-1.32	0.37
IDEQ	19-May-94	47.69	0.25	0.06	3.86	-1.39	-2.75	1.32	-2.75	-0.07
IDEQ	7-Jun-94	33.06	0.5	0.09	3.50	-0.69	-2.42	0.63	-1.32	0.20
IDEQ	23-Jun-94	17.53	0.6	0.06	2.86	-0.51	-2.87	-0.11	-0.74	-0.15
IDEQ	25-Jul-94	11.9	0.8	0.05	2.48	-0.22	-2.97	-0.38	0.40	-0.21
IDEQ	16-Aug-94	11.9	0.9	0.06	2.48	-0.11	-2.85	-0.38	0.98	-0.14
IDEQ	16-Aug-94	10.39	0.9	0.05	2.34	-0.11	-2.99	-0.45	0.98	-0.22
IDEQ	13-Sep-94	9.84	0.7	0.04	2.29	-0.36	-3.30	-0.48	-0.17	-0.36
IDEQ	6-Oct-94	8.78	0.8	0.04	2.17	-0.22	-3.28	-0.53	0.40	-0.35
IDEQ	16-Nov-94	9.12	0.7	0.03	2.21	-0.36	-3.37	-0.51	-0.17	-0.39
IDEQ	13-Dec-94	9.12	0.7	0.03	2.21	-0.36	-3.37	-0.51	-0.17	-0.39
IDEQ	10-Jan-95	12.37	1	0.07	2.52	0.00	-2.71	-0.36	1.55	-0.04
IDEQ	9-Feb-95	18.95	0.8	0.08	2.94	-0.22	-2.51	-0.04	0.40	0.12
IDEQ	8-Mar-95	18.22	0.5	0.05	2.90	-0.69	-3.02	-0.08	-1.32	-0.23
IDEQ	22-Mar-95	26	0.8	0.11	3.26	-0.22	-2.19	0.29	0.40	0.45
IDEQ	12-Apr-95	20.5	0.8	0.09	3.02	-0.22	-2.43	0.03	0.40	0.19
IDEQ	25-Apr-95	24.01	0.6	0.08	3.18	-0.51	-2.56	0.20	-0.74	0.08
IDEQ	13-Jun-95	43.93	0.7	0.17	3.78	-0.36	-1.80	1.14	-0.17	1.03
IDEQ	11-Jul-95	12.85	0.5	0.03	2.55	-0.69	-3.36	-0.33	-1.32	-0.39
IDEQ	25-Jul-95	8.46	0.9	0.04	2.14	-0.11	-3.20	-0.54	0.98	-0.32
IDEQ	14-Aug-95	7.56	0.6	0.02	2.02	-0.51	-3.71	-0.58	-0.74	-0.50
IDEQ	13-Sep-95	6.27	0.6	0.02	1.84	-0.51	-3.90	-0.65	-0.74	-0.54
URS	10-Nov-97	20.1	0.35	0.04	3.00	-1.05	-3.27	0.01	-2.18	-0.35
URS	*12-Nov-98*	*8.09*			2.09			-0.56		
USGS	*8-Jul-99*	*22*			3.09			0.10		
USGS	*5-Aug-99*	*103*			4.63			3.95		
USGS	*30-Aug-99*	*12*			2.48			-0.37		

tCd

Concentration over time analysis | r2 | Slope, m

tCd **CC276** | **Concentration over time**

LnConc.=mTime+b All data r2, m: | **0.234** | **-0.00037**

	Time	**Ln[COC]**	**[COC]**
first:	18-May-91	0.08	1.1
mid:	16-Aug-94	-0.36	0.7
last:	30-Aug-99	-1.03	0.4

LnConc.=mTime+b >'96 r2, m: | **0.000** | **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

Load over time analysis

tCd **CC276** | **Load over time**

LnLoad=mTime+b All data r2, m: | **0.093** | **-0.00048**

	Time	**LnLoad**	**Load**
first:	18-May-91	-2.36	0.09
mid:	16-Aug-94	-2.93	0.05
last:	30-Aug-99	-3.83	0.02

LnLoad=mTime+b >'96 r2, m: | **0.000** | **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

max r2: 1.000

Forward time Regression on Ln Concentration(t)

r2	**slope**	**intercept**
only on >4 data points: delete last 4 rows		
0.234	-0.00037	12.27
0.178	-0.00036	12.07
0.137	-0.00037	12.35
0.130	-0.00036	12.23
0.133	-0.00038	12.66
0.126	-0.00037	12.49
0.118	-0.00037	12.28
0.109	-0.00036	12.01
0.100	-0.00035	11.69
0.091	-0.00034	11.29
0.082	-0.00032	10.83
0.072	-0.00031	10.29
0.055	-0.00027	8.94
0.052	-0.00027	8.95
0.050	-0.00027	8.95
0.074	-0.00034	11.22
0.332	-0.00055	18.83
0.473	-0.00065	22.31
0.560	-0.00072	24.86
0.555	-0.00074	25.24
0.532	-0.00072	24.59
0.504	-0.00069	23.77
0.522	-0.00073	24.99
0.505	-0.00073	24.97
0.515	-0.00076	25.93
0.523	-0.00078	26.84
0.510	-0.00071	24.22
0.485	-0.00068	23.16
0.637	-0.00077	26.38
0.617	-0.00074	25.28
0.597	-0.00069	23.68
0.629	-0.00074	25.30
0.604	-0.00072	24.65
0.790	-0.00084	29.08
0.999	-0.00067	22.89
1.000	-0.00068	23.37

max r2: 1.000

Forward time Regression on Ln Load(t)

r2	**slope**	**intercept**
only on >4 data points: delete last 4 rows		
0.093	-0.00048	13.81
0.004	0.00009	-5.96
0.000	-0.00002	-2.20
0.001	-0.00006	-0.97
0.006	-0.00013	1.42
0.012	-0.00018	3.41
0.022	-0.00025	5.77
0.031	-0.00030	7.60
0.045	-0.00037	9.90
0.064	-0.00044	12.51
0.094	-0.00054	15.94
0.099	-0.00057	16.92
0.092	-0.00056	16.59
0.086	-0.00055	16.27
0.070	-0.00051	14.65
0.046	-0.00040	11.10
0.040	-0.00039	10.48
0.023	-0.00029	7.24
0.021	-0.00029	7.00
0.022	-0.00030	7.44
0.019	-0.00029	6.94
0.020	-0.00030	7.55
0.033	-0.00040	11.06
0.051	-0.00051	14.96
0.082	-0.00066	19.96
0.126	-0.00082	25.58
0.119	-0.00081	25.43
0.099	-0.00074	23.04
0.110	-0.00080	25.05
0.073	-0.00062	18.54
0.042	-0.00045	12.75
0.015	-0.00027	6.18
0.118	0.00028	-13.36
0.194	0.00037	-16.44
0.896	0.00065	-26.69
1.000	0.00079	-31.63

update for EV, CV:

tCd **CC276**

LN Analysis **tCd**

Load **Load Data, EV=0.1 lbs/day CV=1.31**

Avg:	**0.1**	**Load Data-based LN**		
SD:	**0.1**	u	ln tCd Load	tCd Load
CV:	**1.31**	3	-0.2	0.859
Min:	**0.02**	0	-3.15	0.043
Max:	**1**	-3	-6.15	0.002
Median:	**0.05**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.871, EV=0.1 #/d CV=0.89; max r2=0.919**

r2 u,lnLoad:	0.871	u	lnLoad	Load
slope, m:	1.31	3	-0.76	0.5
intercept, b:	3.998	0	-3.06	0.047
N: 37		-3	-5.35	0.005
E[Load]:	0.1	Parameter Estimates		
SD[Load]:	0.1	from LN regression		
CV[Load]:	0.89	update graph label		

N: 41

max r2 0.919

Date	tCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
30-Aug-99		1	0.0152	-2.166		
8-Jul-99		2	0.0394	-1.758		
13-Sep-95	0.02	3	0.0636	-1.525	-3.900	0.871
12-Nov-98		4	0.0879	-1.354		
14-Aug-95	0.02	5	0.1121	-1.215	-3.713	0.863
5-Aug-99		6	0.1364	-1.097		
30-Nov-93	0.03	7	0.1606	-0.992	-3.484	0.858
18-Feb-94	0.03	8	0.1848	-0.897	-3.381	0.860
16-Nov-94	0.03	9	0.2091	-0.810	-3.371	0.866
13-Dec-94	0.03	10	0.2333	-0.728	-3.371	0.872
11-Jul-95	0.03	11	0.2576	-0.651	-3.365	0.877
17-Dec-93	0.03	12	0.2818	-0.577	-3.361	0.880
5-Oct-91	0.03	13	0.3061	-0.507	-3.356	0.882
17-Dec-93	0.04	14	0.3303	-0.439	-3.350	0.883
18-Feb-94	0.04	15	0.3545	-0.373	-3.313	0.882
13-Sep-94	0.04	16	0.3788	-0.309	-3.295	0.882
6-Oct-94	0.04	17	0.4030	-0.246	-3.276	0.881
10-Nov-97	0.04	18	0.4273	-0.183	-3.274	0.879
20-Jan-94	0.04	19	0.4515	-0.122	-3.273	0.875
27-Oct-93	0.04	20	0.4758	-0.061	-3.238	0.869
20-Jan-94	0.04	21	0.5000	0.000	-3.238	0.862
25-Jul-95	0.04	22	0.5242	0.061	-3.195	0.852
8-Mar-95	0.05	23	0.5485	0.122	-3.016	0.841
16-Aug-94	0.05	24	0.5727	0.183	-2.990	0.838
25-Jul-94	0.05	25	0.5970	0.246	-2.972	0.834
8-Mar-94	0.06	26	0.6212	0.309	-2.895	0.828
23-Jun-94	0.06	27	0.6455	0.373	-2.872	0.827
16-Aug-94	0.06	28	0.6697	0.439	-2.854	0.823
19-May-94	0.06	29	0.6939	0.507	-2.747	0.817
10-Jan-95	0.07	30	0.7182	0.577	-2.710	0.821
7-Apr-94	0.07	31	0.7424	0.651	-2.679	0.825
24-Mar-94	0.07	32	0.7667	0.728	-2.661	0.830
25-Apr-95	0.08	33	0.7909	0.810	-2.557	0.831
9-Feb-95	0.08	34	0.8152	0.897	-2.506	0.847
7-Apr-94	0.08	35	0.8394	0.992	-2.498	0.870
12-Apr-95	0.09	36	0.8636	1.097	-2.428	0.889
7-Jun-94	0.09	37	0.8879	1.215	-2.420	0.919
4-May-94	0.10	38	0.9121	1.354	-2.258	
22-Mar-95	0.11	39	0.9364	1.525	-2.190	
13-Jun-95	0.17	40	0.9606	1.758	-1.799	
18-May-91	0.60	41	0.9848	2.166	-0.515	

update for EV, CV:

tCd — **CC276**

LN Analysis — **tCd**

Concentration

Conc. Data, EV=0.73 ug/L CV=.24

Avg:	**0.73**	**Data-based LN**		
SD:	**0.17**	u	ln[tCd]	[tCd]
CV:	**0.24**	3	0.4	1.4
Min:	**0.25**	0	-0.34	0.7
Max:	**1.10**	-3	-1.05	0.4
Median:	**0.80**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.777, EV=0.7 ug/L CV=0.40; max r2=0.927**

r2 u,lnConc:	0.777	u	lnConc.	Conc.
slope, m:	2.614	3	0.73	2
intercept, b:	1.084	0	-0.41	0.7
N: 37		-3	-1.56	0.2
E[Conc]:	0.71	Parameter Estimates		
SD[Conc]:	0.3	from LN regression		
CV[Conc]:	0.40	update graph label		

N: 41

max r2 0.927

Date	tCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
8-Jul-99		1	0.0152	-2.166		
5-Aug-99		2	0.0394	-1.758		
30-Aug-99		3	0.0636	-1.525		
19-May-94	0.25	4	0.0879	-1.354	-1.386	0.777
10-Nov-97	0.35	5	0.1121	-1.215	-1.050	0.849
4-May-94	0.5	6	0.1364	-1.097	-0.693	0.894
7-Jun-94	0.5	7	0.1606	-0.992	-0.693	0.885
8-Mar-95	0.5	8	0.1848	-0.897	-0.693	0.879
11-Jul-95	0.5	9	0.2091	-0.810	-0.693	0.881
12-Nov-98		10	0.2333	-0.728		
23-Jun-94	0.6	11	0.2576	-0.651	-0.511	0.900
25-Apr-95	0.6	12	0.2818	-0.577	-0.511	0.893
14-Aug-95	0.6	13	0.3061	-0.507	-0.511	0.888
13-Sep-95	0.6	14	0.3303	-0.439	-0.511	0.889
30-Nov-93	0.7	15	0.3545	-0.373	-0.357	0.904
7-Apr-94	0.7	16	0.3788	-0.309	-0.357	0.898
7-Apr-94	0.7	17	0.4030	-0.246	-0.357	0.891
13-Sep-94	0.7	18	0.4273	-0.183	-0.357	0.882
16-Nov-94	0.7	19	0.4515	-0.122	-0.357	0.872
13-Dec-94	0.7	20	0.4758	-0.061	-0.357	0.861
13-Jun-95	0.7	21	0.5000	0.000	-0.357	0.850
27-Oct-93	0.8	22	0.5242	0.061	-0.223	0.845
17-Dec-93	0.8	23	0.5485	0.122	-0.223	0.860
17-Dec-93	0.8	24	0.5727	0.183	-0.223	0.874
20-Jan-94	0.8	25	0.5970	0.246	-0.223	0.887
20-Jan-94	0.8	26	0.6212	0.309	-0.223	0.899
18-Feb-94	0.8	27	0.6455	0.373	-0.223	0.910
18-Feb-94	0.8	28	0.6697	0.439	-0.223	0.919
8-Mar-94	0.8	29	0.6939	0.507	-0.223	0.925
25-Jul-94	0.8	30	0.7182	0.577	-0.223	0.927
6-Oct-94	0.8	31	0.7424	0.651	-0.223	0.925
9-Feb-95	0.8	32	0.7667	0.728	-0.223	0.916
22-Mar-95	0.8	33	0.7909	0.810	-0.223	0.900
12-Apr-95	0.8	34	0.8152	0.897	-0.223	0.880
24-Mar-94	0.9	35	0.8394	0.992	-0.105	0.898
16-Aug-94	0.9	36	0.8636	1.097	-0.105	0.913
16-Aug-94	0.9	37	0.8879	1.215	-0.105	0.912
25-Jul-95	0.9	38	0.9121	1.354	-0.105	
5-Oct-91	1	39	0.9364	1.525	0.000	
10-Jan-95	1	40	0.9606	1.758	0.000	
18-May-91	1.1	41	0.9848	2.166	0.095	

update for EV, CV:

tCd **CC276**

LN Analysis **tCd**

Discharge, Q **Q Data, EV=20cfs CV=1.06**

Avg:	**20**	**Q Data-based LN**		
SD:	**21**	u	lnQ	Q
CV:	**1.06**	3	5.2	184
Min:	**6**	0	2.61	14
Max:	**103**	-3	0.01	1
Median:	**12**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.878, EV=19.6 cfs CV=0.88; max r2=0.967**

r2 u,lnQ:	0.878	u	lnQ	Q
slope, m:	1.326	3	4.95	142
intercept, b:	-3.565	0	2.69	15
N: 41		-3	0.43	2
E[Q]:	19.6	Parameter Estimates		
SD[Q]:	17	from LN regression		
CV[Q]:	0.88	update graph label		

N: 41 max r2 0.967

Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
13-Sep-95	6.27	1	0.0152	-2.166	1.836	0.878
5-Oct-91	6.48	2	0.0394	-1.758	1.869	0.895
14-Aug-95	7.56	3	0.0636	-1.525	2.023	0.902
18-Feb-94	7.9	4	0.0879	-1.354	2.067	0.914
17-Dec-93	8.06	5	0.1121	-1.215	2.087	0.925
12-Nov-98	*8.09*	6	0.1364	-1.097	2.091	0.934
30-Nov-93	8.15	7	0.1606	-0.992	2.098	0.942
17-Dec-93	8.15	8	0.1848	-0.897	2.098	0.948
18-Feb-94	8.46	9	0.2091	-0.810	2.135	0.953
25-Jul-95	8.46	10	0.2333	-0.728	2.135	0.957
6-Oct-94	8.78	11	0.2576	-0.651	2.172	0.960
20-Jan-94	8.8	12	0.2818	-0.577	2.175	0.963
27-Oct-93	9.12	13	0.3061	-0.507	2.210	0.965
20-Jan-94	9.12	14	0.3303	-0.439	2.210	0.967
16-Nov-94	9.12	15	0.3545	-0.373	2.210	0.967
13-Dec-94	9.12	16	0.3788	-0.309	2.210	0.966
13-Sep-94	9.84	17	0.4030	-0.246	2.286	0.964
16-Aug-94	10.39	18	0.4273	-0.183	2.341	0.962
25-Jul-94	11.9	19	0.4515	-0.122	2.477	0.960
16-Aug-94	11.9	20	0.4758	-0.061	2.477	0.961
30-Aug-99	*12*	21	0.5000	0.000	2.485	0.961
10-Jan-95	12.37	22	0.5242	0.061	2.515	0.959
8-Mar-94	12.85	23	0.5485	0.122	2.553	0.956
11-Jul-95	12.85	24	0.5727	0.183	2.553	0.953
24-Mar-94	14.43	25	0.5970	0.246	2.669	0.948
23-Jun-94	17.53	26	0.6212	0.309	2.864	0.943
7-Apr-94	18.22	27	0.6455	0.373	2.903	0.946
8-Mar-95	18.22	28	0.6697	0.439	2.903	0.949
9-Feb-95	18.95	29	0.6939	0.507	2.942	0.949
10-Nov-97	20.1	30	0.7182	0.577	3.001	0.949
12-Apr-95	20.5	31	0.7424	0.651	3.020	0.948
7-Apr-94	21.84	32	0.7667	0.728	3.084	0.944
8-Jul-99	*22*	33	0.7909	0.810	3.091	0.938
25-Apr-95	24.01	34	0.8152	0.897	3.178	0.925
22-Mar-95	26	35	0.8394	0.992	3.258	0.906
7-Jun-94	33.06	36	0.8636	1.097	3.498	0.878
4-May-94	38.88	37	0.8879	1.215	3.660	0.836
13-Jun-95	43.93	38	0.9121	1.354	3.783	
19-May-94	47.69	39	0.9364	1.525	3.865	
18-May-91	101	40	0.9606	1.758	4.615	
5-Aug-99	*103*	41	0.9848	2.166	4.635	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC276 **Date:** 26-May-00
Chemical: tPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,720	20	10	2	0.00	0.00	0.00
SD:	636	21	13	7	1.00	1.00	1.00
CV:	0.02	1.06	1.28	3.97			
Min:	33,376	6	0	0	-0.65	-0.76	-0.25
Max:	36,402	103	85	46	3.95	5.74	6.14
Median:	34,562	12	8	0	-0.37	-0.17	-0.19

tPb CC276 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.27) update r2

r2 Q,[COC]:	0.27	[tPb]	Q
slope, m:	0.3	6	6.3
intercept, b:	4.1	10	19.9
N: 39		37	103

LnConc. = mLn{Q}+b (r2=0.0.003) update r2

2 lnQ,ln[COC]:	0.003	ln[tPb]	ln Q	[tPb]	Q
slope, m:	-0.07	2.01	1.84	7	6
intercept, b:	2.14	1.93	2.99	7	20
N: 39		1.81	4.63	6	103

	Q = mTime +b	**LnQ = mTime +b**
r2:	0.007	0.017
m:	0.0028	0.00014
b:	-77	-2.19

for graph
tPb 0

N= 41

update for new data
DATA:

Sampling Date	Q Discharge cfs x-axis	tPb Concentration ug/L y-axis	tPb Load lbs/day y-axis	Ln Q x-axis	Ln tPb Conc. y-axis	Ln tPb Load y-axis	CC276 Standardized Values = (x - Avg)/SD Q	Conc	Load
MFG 18-May-91	101	85	46.2	4.62	4.44	3.83	3.85	5.74	6.14
MFG 5-Oct-91	6.48	13	0.5	1.87	2.56	-0.79	-0.64	0.22	-0.19
IDEQ 27-Oct-93	9.12	7	0.3	2.21	1.95	-1.07	-0.51	-0.25	-0.20
IDEQ 30-Nov-93	8.15	10	0.4	2.10	2.30	-0.82	-0.56	-0.02	-0.19
IDEQ 17-Dec-93	8.15	8	0.4	2.10	2.08	-1.05	-0.56	-0.17	-0.20
IDEQ 17-Dec-93	8.06	8	0.3	2.09	2.08	-1.06	-0.56	-0.17	-0.20
IDEQ 20-Jan-94	9.12	7	0.3	2.21	1.95	-1.07	-0.51	-0.25	-0.20
IDEQ 20-Jan-94	8.8	7	0.3	2.17	1.95	-1.10	-0.53	-0.25	-0.21
IDEQ 18-Feb-94	8.46	7	0.3	2.14	1.95	-1.14	-0.54	-0.25	-0.21
IDEQ 18-Feb-94	7.9	7	0.3	2.07	1.95	-1.21	-0.57	-0.25	-0.21
IDEQ 8-Mar-94	12.85	6	0.4	2.55	1.79	-0.88	-0.33	-0.32	-0.19
IDEQ 24-Mar-94	14.43	11	0.9	2.67	2.40	-0.16	-0.26	0.06	-0.13
IDEQ 7-Apr-94	18.22	8	0.8	2.90	2.08	-0.24	-0.08	-0.17	-0.14
IDEQ 7-Apr-94	21.84	8	0.9	3.08	2.08	-0.06	0.09	-0.17	-0.12
IDEQ 4-May-94	38.88	6	1.3	3.66	1.79	0.23	0.90	-0.32	-0.08
IDEQ 19-May-94	*47.69*			3.86			1.32		
IDEQ 7-Jun-94	33.06	5	0.9	3.50	1.61	-0.12	0.63	-0.40	-0.13
IDEQ 23-Jun-94	17.53	6	0.6	2.86	1.79	-0.57	-0.11	-0.32	-0.17
IDEQ 25-Jul-94	11.9	9	0.6	2.48	2.20	-0.55	-0.38	-0.09	-0.17
IDEQ 16-Aug-94	11.9	11	0.7	2.48	2.40	-0.35	-0.38	0.06	-0.15
IDEQ 16-Aug-94	10.39	11	0.6	2.34	2.40	-0.49	-0.45	0.06	-0.17
IDEQ 13-Sep-94	9.84	11	0.6	2.29	2.40	-0.54	-0.48	0.06	-0.17
IDEQ 6-Oct-94	8.78	6	0.3	2.17	1.79	-1.26	-0.53	-0.32	-0.21
IDEQ 16-Nov-94	9.12	7	0.3	2.21	1.95	-1.07	-0.51	-0.25	-0.20
IDEQ 13-Dec-94	9.12	6	0.3	2.21	1.79	-1.22	-0.51	-0.32	-0.21
IDEQ 10-Jan-95	12.37	12	0.8	2.52	2.48	-0.22	-0.36	0.14	-0.14
IDEQ 9-Feb-95	18.95	8	0.8	2.94	2.08	-0.20	-0.04	-0.17	-0.14
IDEQ 8-Mar-95	*18.22*			2.90			-0.08		
IDEQ 22-Mar-95	26	8	1.1	3.26	2.08	0.11	0.29	-0.17	-0.10
IDEQ 12-Apr-95	20.5	12	1.3	3.02	2.48	0.28	0.03	0.14	-0.07
IDEQ 25-Apr-95	24.01	8	1.0	3.18	2.08	0.03	0.20	-0.17	-0.11
IDEQ 13-Jun-95	43.93	16	3.8	3.78	2.77	1.33	1.14	0.45	0.27
IDEQ 11-Jul-95	12.85	10	0.7	2.55	2.30	-0.37	-0.33	-0.02	-0.16
IDEQ 25-Jul-95	8.46	30	1.4	2.14	3.40	0.31	-0.54	1.52	-0.06
IDEQ 14-Aug-95	7.56	7	0.3	2.02	1.95	-1.26	-0.58	-0.25	-0.21
IDEQ 13-Sep-95	6.27	7	0.2	1.84	1.95	-1.44	-0.65	-0.25	-0.22
URS 10-Nov-97	20.1	2.8	0.3	3.00	1.03	-1.19	0.01	-0.57	-0.21
URS 12-Nov-98	8.09	4.9	0.2	2.09	1.59	-1.55	-0.56	-0.41	-0.22
USGS 8-Jul-99	22	1.1	0.1	3.09	0.10	-2.04	0.10	-0.70	-0.23
USGS 5-Aug-99	103	0.62	0.3	4.63	-0.48	-1.07	3.95	-0.73	-0.20
USGS 30-Aug-99	12	0.24	0.02	2.48	-1.43	-4.17	-0.37	-0.76	-0.25

tPb

Concentration over time analysis r2 Slope, m

tPb CC276 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.608** **-0.00110**

	Time	Ln[COC]	[COC]
first:	18-May-91	3.44	31
mid:	16-Aug-94	2.13	8
last:	30-Aug-99	0.10	1

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

Load over time analysis

tPb CC276 **Load over time**

LnLoad=mTime+b All data r2, m: **0.306** **-0.00095**

	Time	LnLoad	Load
first:	18-May-91	0.66	2
mid:	16-Aug-94	-0.47	1
last:	30-Aug-99	-2.21	0.11

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

max r2: 0.778 max r2: 0.564

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.608	-0.00110	40.30	0.306	-0.00095	32.23
0.557	-0.00101	36.98	0.219	-0.00065	21.69
0.564	-0.00107	38.96	0.249	-0.00073	24.63
0.573	-0.00109	39.68	0.265	-0.00076	25.71
0.570	-0.00109	39.84	0.274	-0.00078	26.42
0.574	-0.00110	40.33	0.290	-0.00081	27.50
0.577	-0.00112	40.86	0.310	-0.00084	28.71
0.585	-0.00114	41.57	0.330	-0.00088	29.94
0.594	-0.00116	42.36	0.355	-0.00092	31.37
0.603	-0.00118	43.13	0.383	-0.00096	32.91
0.613	-0.00121	44.01	0.419	-0.00101	34.75
0.631	-0.00124	45.20	0.441	-0.00105	36.13
0.626	-0.00125	45.34	0.436	-0.00106	36.26
0.631	-0.00127	46.08	0.433	-0.00106	36.54
0.637	-0.00129	46.93	0.425	-0.00106	36.49
0.657	-0.00133	48.40	0.410	-0.00104	35.74
0.657	-0.00133	48.40	0.410	-0.00104	35.74
0.689	-0.00138	50.31	0.400	-0.00104	35.61
0.712	-0.00143	52.01	0.405	-0.00106	36.45
0.716	-0.00145	52.83	0.409	-0.00108	37.26
0.712	-0.00146	53.19	0.406	-0.00109	37.62
0.708	-0.00148	53.62	0.407	-0.00112	38.43
0.702	-0.00149	53.99	0.411	-0.00114	39.42
0.726	-0.00155	56.16	0.460	-0.00123	42.68
0.741	-0.00160	57.98	0.502	-0.00132	45.68
0.768	-0.00167	60.54	0.564	-0.00143	49.67
0.760	-0.00168	60.95	0.563	-0.00146	50.74
0.769	-0.00173	62.87	0.559	-0.00149	51.81
0.769	-0.00173	62.87	0.559	-0.00149	51.81
0.778	-0.00179	64.97	0.539	-0.00148	51.51
0.767	-0.00181	65.55	0.508	-0.00144	50.11
0.777	-0.00189	68.66	0.476	-0.00142	49.50
0.750	-0.00187	67.61	0.414	-0.00113	39.00
0.732	-0.00192	69.69	0.353	-0.00108	37.07
0.659	-0.00162	58.90	0.192	-0.00073	24.18
0.592	-0.00176	63.94	0.150	-0.00079	26.64
0.526	-0.00312	113.01	0.237	-0.00221	78.11

update for EV, CV:

tPb **CC276**

LN Analysis **tPb**

Load **Load Data, EV=2 lbs/day CV=3.97**

Load Data-based LN

Avg:	**2**	u	ln tPb Load	tPb Load
SD:	**7**	3	4.2	68
CV:	**3.97**	0	-0.81	0.445
Min:	**0.02**	-3	-5.85	0.003
Max:	**46**			
Median:	**0.5**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.801, EV=1.2 lbs/day; CV=2.16; max r2=0.890**

r2 u,lnLoad:	0.801	u	lnLoad	Load
slope, m:	0.760	3	3.25	26
intercept, b:	0.532	0	-0.70	0.5
N: 39		-3	-4.65	0.010
E[Load]:	1.2	Parameter Estimates		
SD[Load]:	3	from LN regression		
CV[Load]:	2.16	update graph label		

N: 41

max r2 0.890

Date	tPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
30-Aug-99	0.02	1	0.0152	-2.166	-4.167	0.801
8-Mar-95		2	0.0394	-1.758		
8-Jul-99	0.1	3	0.0636	-1.525	-2.039	0.777
12-Nov-98	0.2	4	0.0879	-1.354	-1.545	0.762
13-Sep-95	0.2	5	0.1121	-1.215	-1.443	0.759
6-Oct-94	0.3	6	0.1364	-1.097	-1.261	0.758
14-Aug-95	0.3	7	0.1606	-0.992	-1.256	0.763
13-Dec-94	0.3	8	0.1848	-0.897	-1.223	0.766
18-Feb-94	0.3	9	0.2091	-0.810	-1.212	0.770
10-Nov-97	0.3	10	0.2333	-0.728	-1.195	0.772
18-Feb-94	0.3	11	0.2576	-0.651	-1.144	0.773
19-May-94		12	0.2818	-0.577		
20-Jan-94	0.3	13	0.3061	-0.507	-1.104	0.776
27-Oct-93	0.3	14	0.3303	-0.439	-1.069	0.775
20-Jan-94	0.3	15	0.3545	-0.373	-1.069	0.775
16-Nov-94	0.3	16	0.3788	-0.309	-1.069	0.773
5-Aug-99	0.3	17	0.4030	-0.246	-1.068	0.768
17-Dec-93	0.3	18	0.4273	-0.183	-1.059	0.762
17-Dec-93	0.4	19	0.4515	-0.122	-1.048	0.753
8-Mar-94	0.4	20	0.4758	-0.061	-0.880	0.742
30-Nov-93	0.4	21	0.5000	0.000	-0.824	0.735
5-Oct-91	0.5	22	0.5242	0.061	-0.791	0.727
23-Jun-94	0.6	23	0.5485	0.122	-0.569	0.719
25-Jul-94	0.6	24	0.5727	0.183	-0.551	0.721
13-Sep-94	0.6	25	0.5970	0.246	-0.541	0.722
16-Aug-94	0.6	26	0.6212	0.309	-0.486	0.721
11-Jul-95	0.7	27	0.6455	0.373	-0.369	0.721
16-Aug-94	0.7	28	0.6697	0.439	-0.351	0.728
7-Apr-94	0.8	29	0.6939	0.507	-0.243	0.734
10-Jan-95	0.8	30	0.7182	0.577	-0.225	0.747
9-Feb-95	0.8	31	0.7424	0.651	-0.204	0.761
24-Mar-94	0.9	32	0.7667	0.728	-0.158	0.775
7-Jun-94	0.9	33	0.7909	0.810	-0.117	0.791
7-Apr-94	0.9	34	0.8152	0.897	-0.062	0.808
25-Apr-95	1.0	35	0.8394	0.992	0.033	0.827
22-Mar-95	1.1	36	0.8636	1.097	0.112	0.855
4-May-94	1.3	37	0.8879	1.215	0.227	0.890
12-Apr-95	1.3	38	0.9121	1.354	0.280	
25-Jul-95	1.4	39	0.9364	1.525	0.311	
13-Jun-95	3.8	40	0.9606	1.758	1.330	
18-May-91	46.19	41	0.9848	2.166	3.833	

update for EV, CV:

tPb		**CC276**		
LN Analysis		**tPb**		
Concentration		**Conc. Data, EV=10 ug/L CV=1.28**		
Avg:	**10**	**Data-based LN**		
SD:	**13**	u	ln[tPb]	[tPb]
CV:	**1.28**	3	4.8	120
Min:	**0.24**	0	1.84	6
Max:	**85**	-3	-1.11	0.3
Median:	**8**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.791, EV=11.9 ug/L CV=1.53; max r2=0.967**

r2 u,lnConc:	0.791	u	lnConc.	Conc.
slope, m:	0.911	3	5.17	176
intercept, b:	-1.711	0	1.88	7
N: 39		-3	-1.41	0.2
E[Conc]:	11.9	Parameter Estimates		
SD[Conc]:	18	from LN regression		
CV[Conc]:	1.53	update graph label		

N: 41

max r2 0.967

Date	**tPb Concentration ug/L Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	r2 forward
update and rank for new data						
30-Aug-99	0.24	1	0.0152	-2.166	-1.427	0.791
5-Aug-99	0.62	2	0.0394	-1.758	-0.478	0.793
8-Jul-99	1.1	3	0.0636	-1.525	0.095	0.796
19-May-94		4	0.0879	-1.354		
8-Mar-95		5	0.1121	-1.215		
10-Nov-97	2.8	6	0.1364	-1.097	1.030	0.798
12-Nov-98	4.9	7	0.1606	-0.992	1.589	0.782
7-Jun-94	5	8	0.1848	-0.897	1.609	0.775
8-Mar-94	6	9	0.2091	-0.810	1.792	0.767
4-May-94	6	10	0.2333	-0.728	1.792	0.770
23-Jun-94	6	11	0.2576	-0.651	1.792	0.771
6-Oct-94	6	12	0.2818	-0.577	1.792	0.771
13-Dec-94	6	13	0.3061	-0.507	1.792	0.769
27-Oct-93	7	14	0.3303	-0.439	1.946	0.764
20-Jan-94	7	15	0.3545	-0.373	1.946	0.772
20-Jan-94	7	16	0.3788	-0.309	1.946	0.779
18-Feb-94	7	17	0.4030	-0.246	1.946	0.784
18-Feb-94	7	18	0.4273	-0.183	1.946	0.789
16-Nov-94	7	19	0.4515	-0.122	1.946	0.792
14-Aug-95	7	20	0.4758	-0.061	1.946	0.793
13-Sep-95	7	21	0.5000	0.000	1.946	0.791
17-Dec-93	8	22	0.5242	0.061	2.079	0.788
17-Dec-93	8	23	0.5485	0.122	2.079	0.797
7-Apr-94	8	24	0.5727	0.183	2.079	0.804
7-Apr-94	8	25	0.5970	0.246	2.079	0.809
9-Feb-95	8	26	0.6212	0.309	2.079	0.813
22-Mar-95	8	27	0.6455	0.373	2.079	0.813
25-Apr-95	8	28	0.6697	0.439	2.079	0.809
25-Jul-94	9	29	0.6939	0.507	2.197	0.801
30-Nov-93	10	30	0.7182	0.577	2.303	0.802
11-Jul-95	10	31	0.7424	0.651	2.303	0.816
24-Mar-94	11	32	0.7667	0.728	2.398	0.828
16-Aug-94	11	33	0.7909	0.810	2.398	0.857
16-Aug-94	11	34	0.8152	0.897	2.398	0.885
13-Sep-94	11	35	0.8394	0.992	2.398	0.912
10-Jan-95	12	36	0.8636	1.097	2.485	0.933
12-Apr-95	12	37	0.8879	1.215	2.485	0.967
5-Oct-91	13	38	0.9121	1.354	2.565	
13-Jun-95	16	39	0.9364	1.525	2.773	
25-Jul-95	30	40	0.9606	1.758	3.401	
18-May-91	85	41	0.9848	2.166	4.443	

update for EV, CV:

tPb		**CC276**		
LN Analysis		**tPb**		
Discharge, Q		**Q Data, EV=20 cfs CV=1.06**		
Avg:	**20**	**Q Data-based LN**		
SD:	**21**	u	lnQ	Q
CV:	**1.06**	3	5.2	184
Min:	**6**	0	2.61	14
Max:	**103**	-3	0.01	1
Median:	**12**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.878, EV=19.6 cfs CV=0.88; max r2=0.967**

r2 u,lnQ:	0.878	u	lnQ	Q
slope, m:	1.326	3	4.95	142
intercept, b:	-3.565	0	2.69	15
N: 41		-3	0.43	2
E[Q]:	19.6	Parameter Estimates		
SD[Q]:	17	from LN regression		
CV[Q]:	0.88	update graph label		

N: 41

max r2 0.967

Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2 forward**
update and rank for new data						
13-Sep-95	6.27	1	0.0152	-2.166	1.836	0.878
5-Oct-91	6.48	2	0.0394	-1.758	1.869	0.895
14-Aug-95	7.56	3	0.0636	-1.525	2.023	0.902
18-Feb-94	7.9	4	0.0879	-1.354	2.067	0.914
17-Dec-93	8.06	5	0.1121	-1.215	2.087	0.925
12-Nov-98	8.09	6	0.1364	-1.097	2.091	0.934
30-Nov-93	8.15	7	0.1606	-0.992	2.098	0.942
17-Dec-93	8.15	8	0.1848	-0.897	2.098	0.948
18-Feb-94	8.46	9	0.2091	-0.810	2.135	0.953
25-Jul-95	8.46	10	0.2333	-0.728	2.135	0.957
6-Oct-94	8.78	11	0.2576	-0.651	2.172	0.960
20-Jan-94	8.8	12	0.2818	-0.577	2.175	0.963
27-Oct-93	9.12	13	0.3061	-0.507	2.210	0.965
20-Jan-94	9.12	14	0.3303	-0.439	2.210	0.967
16-Nov-94	9.12	15	0.3545	-0.373	2.210	0.967
13-Dec-94	9.12	16	0.3788	-0.309	2.210	0.966
13-Sep-94	9.84	17	0.4030	-0.246	2.286	0.964
16-Aug-94	10.39	18	0.4273	-0.183	2.341	0.962
25-Jul-94	11.9	19	0.4515	-0.122	2.477	0.960
16-Aug-94	11.9	20	0.4758	-0.061	2.477	0.961
30-Aug-99	12	21	0.5000	0.000	2.485	0.961
10-Jan-95	12.37	22	0.5242	0.061	2.515	0.959
8-Mar-94	12.85	23	0.5485	0.122	2.553	0.956
11-Jul-95	12.85	24	0.5727	0.183	2.553	0.953
24-Mar-94	14.43	25	0.5970	0.246	2.669	0.948
23-Jun-94	17.53	26	0.6212	0.309	2.864	0.943
7-Apr-94	18.22	27	0.6455	0.373	2.903	0.946
8-Mar-95	*18.22*	28	0.6697	0.439	2.903	0.949
9-Feb-95	18.95	29	0.6939	0.507	2.942	0.949
10-Nov-97	20.1	30	0.7182	0.577	3.001	0.949
12-Apr-95	20.5	31	0.7424	0.651	3.020	0.948
7-Apr-94	21.84	32	0.7667	0.728	3.084	0.944
8-Jul-99	22	33	0.7909	0.810	3.091	0.938
25-Apr-95	24.01	34	0.8152	0.897	3.178	0.925
22-Mar-95	26	35	0.8394	0.992	3.258	0.906
7-Jun-94	33.06	36	0.8636	1.097	3.498	0.878
4-May-94	38.88	37	0.8879	1.215	3.660	0.836
13-Jun-95	43.93	38	0.9121	1.354	3.783	
19-May-94	*47.69*	39	0.9364	1.525	3.865	
18-May-91	101	40	0.9606	1.758	4.615	
5-Aug-99	103	41	0.9848	2.166	4.635	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC276 **Date:** 26-May-00
Chemical: tZn **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,720	20	92	9	0.00	0.00	0.00
SD:	636	21	40	17	1.00	1.00	1.00
CV:	0.02	1.06	0.44	1.80			
Min:	33,376	6	5	0	-0.65	-2.17	-0.54
Max:	36,402	103	207	112	3.95	2.85	6.20
Median:	34,562	12	99	6	-0.37	0.17	-0.21

tZn CC276 **: Concentration v. Discharge, Q**

Conc. = mQ+b (r2=0.05)	update r2			**Q = mTime +b**	**LnQ = mTime +b**	
r2 Q,[COC]:	0.02	[tZn]	Q	r2:	0.006	0.016
slope, m:	-0.3	95	6.3	m:	0.0027	0.00014
intercept, b:	97.1	92	19.9	b:	-73	-2.10
N: 41		71	103			

LnConc. = mLn{Q}+b (r2=0.07)		update r2			
lnQ,ln[COC]:	0.14	ln[tZn]	ln Q	[tZn]	Q
slope, m:	-0.46	4.71	1.84	112	6
intercept, b:	5.56	4.18	2.99	66	20
N: 41		3.42	4.63	31	103

for graph
tZn 0
CC276

N= 41

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	18-May-91	101	207	112	4.62	5.33	4.72	3.85	2.85	6.20
MFG	5-Oct-91	6.48	164	6	1.87	5.10	1.74	-0.64	1.79	-0.21
IDEQ	27-Oct-93	9.12	104	5	2.21	4.64	1.63	-0.51	0.30	-0.25
IDEQ	30-Nov-93	8.15	99.2	4	2.10	4.60	1.47	-0.56	0.18	-0.29
IDEQ	17-Dec-93	8.15	109	5	2.10	4.69	1.56	-0.56	0.42	-0.27
IDEQ	17-Dec-93	8.06	109	5	2.09	4.69	1.55	-0.56	0.42	-0.27
IDEQ	20-Jan-94	9.12	120	6	2.21	4.79	1.77	-0.51	0.69	-0.20
IDEQ	20-Jan-94	8.8	120	6	2.17	4.79	1.74	-0.53	0.69	-0.21
IDEQ	18-Feb-94	8.46	123	6	2.14	4.81	1.72	-0.54	0.77	-0.22
IDEQ	18-Feb-94	7.9	123	5	2.07	4.81	1.65	-0.57	0.77	-0.24
IDEQ	8-Mar-94	12.85	110	8	2.55	4.70	2.03	-0.33	0.45	-0.10
IDEQ	24-Mar-94	14.43	136	11	2.67	4.91	2.36	-0.26	1.09	0.08
IDEQ	7-Apr-94	18.22	76	7	2.90	4.33	2.01	-0.08	-0.40	-0.11
IDEQ	7-Apr-94	21.84	76	9	3.08	4.33	2.19	0.09	-0.40	-0.02
IDEQ	4-May-94	38.88	53	11	3.66	3.97	2.41	0.90	-0.97	0.11
IDEQ	19-May-94	47.69	43	11	3.86	3.76	2.40	1.32	-1.22	0.11
IDEQ	7-Jun-94	33.06	63	11	3.50	4.14	2.42	0.63	-0.72	0.12
IDEQ	23-Jun-94	17.53	75	7	2.86	4.32	1.96	-0.11	-0.42	-0.13
IDEQ	25-Jul-94	11.9	79	5	2.48	4.37	1.62	-0.38	-0.32	-0.25
IDEQ	16-Aug-94	11.9	106	7	2.48	4.66	1.91	-0.38	0.35	-0.15
IDEQ	16-Aug-94	10.39	106	6	2.34	4.66	1.78	-0.45	0.35	-0.20
IDEQ	13-Sep-94	9.84	97	5	2.29	4.57	1.64	-0.48	0.12	-0.25
IDEQ	6-Oct-94	8.78	111	5	2.17	4.71	1.66	-0.53	0.47	-0.24
IDEQ	16-Nov-94	9.12	100	5	2.21	4.61	1.59	-0.51	0.20	-0.26
IDEQ	13-Dec-94	9.12	111	5	2.21	4.71	1.69	-0.51	0.47	-0.23
IDEQ	10-Jan-95	12.37	157	10	2.52	5.06	2.35	-0.36	1.61	0.07
IDEQ	9-Feb-95	18.95	118	12	2.94	4.77	2.49	-0.04	0.64	0.17
IDEQ	8-Mar-95	18.22	84	8	2.90	4.43	2.11	-0.08	-0.20	-0.06
IDEQ	22-Mar-95	26	115	16	3.26	4.74	2.78	0.29	0.57	0.41
IDEQ	12-Apr-95	20.5	91	10	3.02	4.51	2.31	0.03	-0.03	0.05
IDEQ	25-Apr-95	24.01	79	10	3.18	4.37	2.32	0.20	-0.32	0.06
IDEQ	13-Jun-95	43.93	51	12	3.78	3.93	2.49	1.14	-1.02	0.17
IDEQ	11-Jul-95	12.85	67	5	2.55	4.20	1.53	-0.33	-0.62	-0.28
IDEQ	25-Jul-95	8.46	98	4	2.14	4.58	1.50	-0.54	0.15	-0.29
IDEQ	14-Aug-95	7.56	83	3	2.02	4.42	1.22	-0.58	-0.22	-0.35
IDEQ	13-Sep-95	6.27	99	3	1.84	4.60	1.21	-0.65	0.17	-0.35
URS	10-Nov-97	20.1	48.1	5	3.00	3.87	1.65	0.01	-1.09	-0.24
URS	12-Nov-98	8.09	48.2	2	2.09	3.88	0.74	-0.56	-1.09	-0.43
USGS	8-Jul-99	103	4.6	2.5	4.63	1.53	0.94	3.95	-2.17	-0.40
USGS	5-Aug-99	22	5.5	0.7	3.09	1.70	-0.43	0.10	-2.15	-0.52
USGS	30-Aug-99	12	4.6	0.3	2.48	1.53	-1.21	-0.37	-2.17	-0.54

tZn

Concentration over time analysis | r2 | Slope, m

	tZn	**CC276**		**Concentration over time**	
	LnConc.=mTime+b All data r2, m:			**0.705**	**-0.00111**
	Time	**Ln[COC]**	**[COC]**		
first:	18-May-91	5.81	333		
mid:	16-Aug-94	4.50	90		
last:	30-Aug-99	2.46	12		
	LnConc.=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	30-Aug-99	0.00	1		

Load over time analysis

	tZn	**CC276**		**Load over time**	
	LnLoad=mTime+b All data r2, m:			**0.514**	**-0.00097**
	Time	**LnLoad**	**Load**		
first:	18-May-91	3.09	22		
mid:	16-Aug-94	1.94	7		
last:	30-Aug-99	0.15	1		
	LnLoad=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	30-Aug-99	0.00	1		

0.705	-0.00111	42.77	0.514	-0.00097	35.44
0.705	-0.00111	42.77	0.514	-0.00097	35.44
0.705	-0.00111	42.77	0.514	-0.00097	35.44
0.705	-0.00111	42.77	0.514	-0.00097	35.44
0.705	-0.00111	42.77	0.514	-0.00097	35.44
0.705	-0.00111	42.77	0.514	-0.00097	35.44
0.703	-0.00115	44.33	0.457	-0.00082	30.08
0.713	-0.00121	46.43	0.509	-0.00091	33.40
0.714	-0.00122	46.81	0.523	-0.00093	34.20
0.715	-0.00123	47.20	0.546	-0.00096	35.21
0.714	-0.00124	47.45	0.565	-0.00099	36.13
0.714	-0.00125	47.73	0.587	-0.00102	37.15
0.710	-0.00125	47.80	0.597	-0.00104	37.83
0.706	-0.00125	47.89	0.610	-0.00106	38.63
0.702	-0.00125	47.88	0.623	-0.00108	39.45
0.697	-0.00125	47.87	0.642	-0.00111	40.48
0.694	-0.00126	48.01	0.643	-0.00112	40.91
0.687	-0.00125	47.76	0.637	-0.00112	40.78
0.693	-0.00127	48.51	0.638	-0.00113	41.24
0.701	-0.00129	49.35	0.634	-0.00114	41.41
0.729	-0.00134	50.90	0.625	-0.00113	41.12
0.776	-0.00140	53.01	0.615	-0.00112	40.76
0.798	-0.00144	54.48	0.604	-0.00110	40.29
0.812	-0.00147	55.71	0.603	-0.00112	40.73
0.822	-0.00150	56.83	0.618	-0.00115	41.90
0.822	-0.00152	57.32	0.619	-0.00117	42.45
0.821	-0.00153	57.90	0.627	-0.00119	43.46
0.823	-0.00156	58.69	0.644	-0.00123	44.90
0.820	-0.00157	59.11	0.662	-0.00128	46.42
0.819	-0.00158	59.71	0.684	-0.00133	48.19
0.814	-0.00159	59.97	0.701	-0.00137	49.82
0.805	-0.00156	58.99	0.688	-0.00136	49.51
0.795	-0.00155	58.65	0.672	-0.00133	48.50
0.791	-0.00157	59.36	0.659	-0.00134	48.57
0.777	-0.00156	58.84	0.638	-0.00126	45.66
0.764	-0.00157	59.14	0.608	-0.00121	44.01
0.755	-0.00160	60.29	0.565	-0.00114	41.47
max r2:	0.000		max r2:	0.000	
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		

update for EV, CV:

tZn **CC276**

LN Analysis **tZn**

Load **Load Data, EV=9 lbs/day CV=1.82**

Load Data-based LN

Avg:	**9**	u	ln tZn Load	tZn Load
SD:	**17**	3	5.1	165
CV:	**1.80**	0	1.50	4
Min:	**0**	-3	-2.11	0
Max:	**112**			
Median:	**6**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.804, EV=9.8 lbs/day CV=1.29; max r2=0.815**

r2 u,lnLoad:	0.804	u	lnLoad	Load
slope, m:	1.008	3	4.76	117
intercept, b:	-1.800	0	1.79	6
N: 41		-3	-1.19	0
E[Load]:	9.8	Parameter Estimates		
SD[Load]:	13	from LN regression		
CV[Load]:	1.29	update graph label		

N: 41

max r2 0.815

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
30-Aug-99	**0**	1	0.0152	-2.166	-1.214	0.804
5-Aug-99	**1**	2	0.0394	-1.758	-0.429	0.808
12-Nov-98	**2**	3	0.0636	-1.525	0.741	0.815
8-Jul-99	**3**	4	0.0879	-1.354	0.936	0.797
13-Sep-95	**3**	5	0.1121	-1.215	1.206	0.781
14-Aug-95	**3**	6	0.1364	-1.097	1.217	0.772
30-Nov-93	**4**	7	0.1606	-0.992	1.470	0.760
25-Jul-95	**4**	8	0.1848	-0.897	1.495	0.761
11-Jul-95	**5**	9	0.2091	-0.810	1.533	0.761
17-Dec-93	**5**	10	0.2333	-0.728	1.553	0.762
17-Dec-93	**5**	11	0.2576	-0.651	1.564	0.763
16-Nov-94	**5**	12	0.2818	-0.577	1.591	0.763
25-Jul-94	**5**	13	0.3061	-0.507	1.621	0.763
27-Oct-93	**5.1**	14	0.3303	-0.439	1.630	0.764
13-Sep-94	**5**	15	0.3545	-0.373	1.636	0.764
10-Nov-97	**5**	16	0.3788	-0.309	1.649	0.762
18-Feb-94	**5**	17	0.4030	-0.246	1.654	0.760
6-Oct-94	**5**	18	0.4273	-0.183	1.657	0.755
13-Dec-94	**5**	19	0.4515	-0.122	1.695	0.749
18-Feb-94	**6**	20	0.4758	-0.061	1.722	0.743
20-Jan-94	**6**	21	0.5000	0.000	1.737	0.736
5-Oct-91	**5.7**	22	0.5242	0.061	1.744	0.727
20-Jan-94	**6**	23	0.5485	0.122	1.773	0.715
16-Aug-94	**6**	24	0.5727	0.183	1.779	0.701
16-Aug-94	**7**	25	0.5970	0.246	1.915	0.683
23-Jun-94	**7**	26	0.6212	0.309	1.956	0.673
7-Apr-94	**7**	27	0.6455	0.373	2.008	0.662
8-Mar-94	**8**	28	0.6697	0.439	2.029	0.653
8-Mar-95	**8**	29	0.6939	0.507	2.108	0.640
7-Apr-94	**9**	30	0.7182	0.577	2.189	0.633
12-Apr-95	**10**	31	0.7424	0.651	2.306	0.632
25-Apr-95	**10**	32	0.7667	0.728	2.323	0.651
10-Jan-95	**10**	33	0.7909	0.810	2.346	0.672
24-Mar-94	**11**	34	0.8152	0.897	2.357	0.699
19-May-94	**11**	35	0.8394	0.992	2.401	0.727
4-May-94	**11**	36	0.8636	1.097	2.406	0.769
7-Jun-94	**11**	37	0.8879	1.215	2.416	0.815
9-Feb-95	**12**	38	0.9121	1.354	2.487	
13-Jun-95	**12**	39	0.9364	1.525	2.489	
22-Mar-95	**16**	40	0.9606	1.758	2.778	
18-May-91	**112.5**	41	0.9848	2.166	4.723	

update for EV, CV:

tZn **CC276**

LN Analysis **tZn**

Concentration **Conc. Data, EV=92 ug/L CV=.44**

Data-based LN

Avg:	**92**	u	ln[tZn]	[tZn]
SD:	**40**	3	5.7	296
CV:	**0.44**	0	4.43	84
Min:	**5**	-3	3.18	24
Max:	**207**			
Median:	**99**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.658, EV=133.3 ug/L CV=1.46; max r2=0.975**

r2 u,lnConc:	0.658	u	lnConc.	Conc.
slope, m:	0.935	3	7.53	1862
intercept, b:	-4.039	0	4.32	75
N: 41		-3	1.11	3
E[Conc]:	133.3	Parameter Estimates		
SD[Conc]:	195	from LN regression		
CV[Conc]:	1.46	update graph label		

N: 41

Date	tZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.975 r2 forward
update and rank for new data						
8-Jul-99	4.6	1	0.0152	-2.166	1.526	0.658
30-Aug-99	4.6	2	0.0394	-1.758	1.526	0.617
5-Aug-99	5.5	3	0.0636	-1.525	1.705	0.636
19-May-94	43	4	0.0879	-1.354	3.761	0.930
10-Nov-97	48.1	5	0.1121	-1.215	3.873	0.929
12-Nov-98	48.2	6	0.1364	-1.097	3.875	0.926
13-Jun-95	51	7	0.1606	-0.992	3.932	0.930
4-May-94	53	8	0.1848	-0.897	3.970	0.938
7-Jun-94	63	9	0.2091	-0.810	4.143	0.954
11-Jul-95	67	10	0.2333	-0.728	4.205	0.955
23-Jun-94	75	11	0.2576	-0.651	4.317	0.956
7-Apr-94	76	12	0.2818	-0.577	4.331	0.952
7-Apr-94	76	13	0.3061	-0.507	4.331	0.948
25-Jul-94	79	14	0.3303	-0.439	4.369	0.945
25-Apr-95	79	15	0.3545	-0.373	4.369	0.941
14-Aug-95	83	16	0.3788	-0.309	4.419	0.938
8-Mar-95	84	17	0.4030	-0.246	4.431	0.934
12-Apr-95	91	18	0.4273	-0.183	4.511	0.930
13-Sep-94	97	19	0.4515	-0.122	4.575	0.924
25-Jul-95	98	20	0.4758	-0.061	4.585	0.924
13-Sep-95	99	21	0.5000	0.000	4.595	0.923
30-Nov-93	99.2	22	0.5242	0.061	4.597	0.923
16-Nov-94	100	23	0.5485	0.122	4.605	0.920
27-Oct-93	104	24	0.5727	0.183	4.644	0.916
16-Aug-94	106	25	0.5970	0.246	4.663	0.917
16-Aug-94	106	26	0.6212	0.309	4.663	0.922
17-Dec-93	109	27	0.6455	0.373	4.691	0.924
17-Dec-93	109	28	0.6697	0.439	4.691	0.932
8-Mar-94	110	29	0.6939	0.507	4.700	0.937
6-Oct-94	111	30	0.7182	0.577	4.710	0.942
13-Dec-94	111	31	0.7424	0.651	4.710	0.946
22-Mar-95	115	32	0.7667	0.728	4.745	0.945
9-Feb-95	118	33	0.7909	0.810	4.771	0.950
20-Jan-94	120	34	0.8152	0.897	4.787	0.960
20-Jan-94	120	35	0.8394	0.992	4.787	0.973
18-Feb-94	123	36	0.8636	1.097	4.812	0.975
18-Feb-94	123	37	0.8879	1.215	4.812	0.973
24-Mar-94	136	38	0.9121	1.354	4.913	
10-Jan-95	157	39	0.9364	1.525	5.056	
5-Oct-91	164	40	0.9606	1.758	5.100	
18-May-91	207	41	0.9848	2.166	5.333	

update for EV, CV:

tZn **CC276**

LN Analysis **tZn**

Discharge, Q **Q Data, EV=17 cfs CV=0.99**

Q Data-based LN

		u	lnQ	Q
Avg:	**20**			
SD:	**21**			
CV:	**1.06**	3	5.2	184
Min:	**6**	0	2.61	14
Max:	**103**	-3	0.01	1
Median:	**12**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.878 EV=19.6 cfs CV=0.88; max r2=0.967**

r2 u,lnQ:	0.878	u	lnQ	Q
slope, m:	1.326	3	4.95	142
intercept, b:	-3.565	0	2.69	15
N: 41		-3	0.43	2
E[Q]:	19.6	Parameter Estimates		
SD[Q]:	17	from LN regression		
CV[Q]:	0.88	update graph label		

N: 41

max r2 0.967

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
13-Sep-95	6.27	1	0.0152	-2.166	1.836	0.878
5-Oct-91	6.48	2	0.0394	-1.758	1.869	0.895
14-Aug-95	7.56	3	0.0636	-1.525	2.023	0.902
18-Feb-94	7.9	4	0.0879	-1.354	2.067	0.914
17-Dec-93	8.06	5	0.1121	-1.215	2.087	0.925
12-Nov-98	8.09	6	0.1364	-1.097	2.091	0.934
30-Nov-93	8.15	7	0.1606	-0.992	2.098	0.942
17-Dec-93	8.15	8	0.1848	-0.897	2.098	0.948
18-Feb-94	8.46	9	0.2091	-0.810	2.135	0.953
25-Jul-95	8.46	10	0.2333	-0.728	2.135	0.957
6-Oct-94	8.78	11	0.2576	-0.651	2.172	0.960
20-Jan-94	8.8	12	0.2818	-0.577	2.175	0.963
27-Oct-93	9.12	13	0.3061	-0.507	2.210	0.965
20-Jan-94	9.12	14	0.3303	-0.439	2.210	0.967
16-Nov-94	9.12	15	0.3545	-0.373	2.210	0.967
13-Dec-94	9.12	16	0.3788	-0.309	2.210	0.966
13-Sep-94	9.84	17	0.4030	-0.246	2.286	0.964
16-Aug-94	10.39	18	0.4273	-0.183	2.341	0.962
25-Jul-94	11.9	19	0.4515	-0.122	2.477	0.960
16-Aug-94	11.9	20	0.4758	-0.061	2.477	0.961
30-Aug-99	12	21	0.5000	0.000	2.485	0.961
10-Jan-95	12.37	22	0.5242	0.061	2.515	0.959
8-Mar-94	12.85	23	0.5485	0.122	2.553	0.956
11-Jul-95	12.85	24	0.5727	0.183	2.553	0.953
24-Mar-94	14.43	25	0.5970	0.246	2.669	0.948
23-Jun-94	17.53	26	0.6212	0.309	2.864	0.943
7-Apr-94	18.22	27	0.6455	0.373	2.903	0.946
8-Mar-95	18.22	28	0.6697	0.439	2.903	0.949
9-Feb-95	18.95	29	0.6939	0.507	2.942	0.949
10-Nov-97	20.1	30	0.7182	0.577	3.001	0.949
12-Apr-95	20.5	31	0.7424	0.651	3.020	0.948
7-Apr-94	21.84	32	0.7667	0.728	3.084	0.944
5-Aug-99	22	33	0.7909	0.810	3.091	0.938
25-Apr-95	24.01	34	0.8152	0.897	3.178	0.925
22-Mar-95	26	35	0.8394	0.992	3.258	0.906
7-Jun-94	33.06	36	0.8636	1.097	3.498	0.878
4-May-94	38.88	37	0.8879	1.215	3.660	0.836
13-Jun-95	43.93	38	0.9121	1.354	3.783	
19-May-94	47.69	39	0.9364	1.525	3.865	
18-May-91	101	40	0.9606	1.758	4.615	
8-Jul-99	103	41	0.9848	2.166	4.635	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC278 **Date:** 24-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,587	27	2	0.2	0.00	0.00	0.00
SD:	435	36	1	0.1	1.00	1.00	1.00
CV:	0.01	1.33	0.42	0.52			
Min:	33,375	6	0.4	0.1	-0.58	-1.97	-1.14
Max:	35,929	206	6	1	5.00	3.25	2.41
Median:	34,551	14	2	0.2	-0.36	0.09	-0.50

dCd CC278 **: Concentration v. Discharge, Q**

Q = mTime +b **LnQ = mTime +b**

Conc. = mQ+b (r2=0.38)	update r2			r2:	0.103	0.061
r2 Q,[COC]:	0.38	[dCd]	Q	m:	0.0265	0.00047
slope, m:	-0.02	3	6.2	b:	-889	-13.23
intercept, b:	2.8	2	27.0			
N: 38		-1	206			

LnConc. = mLn{Q}+b (r2=0.64)	update r2				
r2 lnQ,ln[COC]:	0.64	ln[dCd]	ln Q	[dCd]	Q
slope, m:	-0.53	1.29	1.82	4	6
intercept, b:	2.25	0.51	3.29	2	27
N: 38		-0.56	5.33	1	206

for graph
dCd 0
CC278

N= 38

	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	101.6	0.9	0	4.62	-0.11	-0.71	2.08	-1.47	2.28
MFG	5-Oct-91	10.3	2.8	0	2.33	1.03	-1.86	-0.46	0.44	-0.59
IDEQ	27-Oct-93	9.18	3.1	0	2.22	1.13	-1.88	-0.50	0.74	-0.61
IDEQ	30-Nov-93	7.96	5.6	0	2.07	1.72	-1.43	-0.53	3.25	0.13
IDEQ	17-Dec-93	8.46	3.1	0	2.14	1.13	-1.96	-0.52	0.74	-0.71
IDEQ	17-Dec-93	6.19	3.1	0	1.82	1.13	-2.27	-0.58	0.74	-1.03
IDEQ	20-Jan-94	8.81	3.3	0	2.18	1.19	-1.86	-0.51	0.94	-0.58
IDEQ	20-Jan-94	7.73	3.3	0	2.05	1.19	-1.99	-0.54	0.94	-0.74
IDEQ	18-Feb-94	8.29	2.9	0	2.12	1.06	-2.05	-0.52	0.54	-0.81
IDEQ	8-Mar-94	15.41	3.4	0	2.74	1.22	-1.27	-0.32	1.04	0.49
IDEQ	24-Mar-94	14.48	2.8	0	2.67	1.03	-1.52	-0.35	0.44	-0.05
IDEQ	24-Mar-94	16.46	2.8	0	2.80	1.03	-1.39	-0.29	0.44	0.20
IDEQ	7-Apr-94	27.29	2.4	0	3.31	0.88	-1.04	0.01	0.04	1.09
IDEQ	7-Apr-94	32.14	2.4	0	3.47	0.88	-0.88	0.14	0.04	1.63
IDEQ	4-May-94	47.88	1.3	0	3.87	0.26	-1.09	0.58	-1.06	0.94
IDEQ	19-May-94	62.32	0.7	0	4.13	-0.36	-1.45	0.99	-1.67	0.09
IDEQ	7-Jun-94	44.85	1.2	0	3.80	0.18	-1.24	0.50	-1.17	0.56
IDEQ	23-Jun-94	22.53	1.4	0	3.11	0.34	-1.77	-0.12	-0.96	-0.47
IDEQ	25-Jul-94	10.18	1.7	0	2.32	0.53	-2.37	-0.47	-0.66	-1.12
IDEQ	16-Aug-94	9.97	3	0	2.30	1.10	-1.83	-0.47	0.64	-0.54
IDEQ	16-Aug-94	8.89	3	0	2.18	1.10	-1.94	-0.50	0.64	-0.69
IDEQ	13-Sep-94	9.18	2.3	0	2.22	0.83	-2.18	-0.50	-0.06	-0.94
IDEQ	6-Oct-94	8.46	2.5	0	2.14	0.92	-2.17	-0.52	0.14	-0.94
IDEQ	16-Nov-94	9	2.5	0	2.20	0.92	-2.11	-0.50	0.14	-0.88
IDEQ	13-Dec-94	8.81	3	0	2.18	1.10	-1.95	-0.51	0.64	-0.70
IDEQ	10-Jan-95	13.6	3.4	0	2.61	1.22	-1.39	-0.37	1.04	0.21
IDEQ	9-Feb-95	22.05	3	0	3.09	1.10	-1.03	-0.14	0.64	1.12
IDEQ	8-Mar-95	24.53	1.7	0	3.20	0.53	-1.49	-0.07	-0.66	0.00
IDEQ	22-Mar-95	37.69	2.5	1	3.63	0.92	-0.68	0.30	0.14	2.41
IDEQ	12-Apr-95	26.15	2.1	0	3.26	0.74	-1.22	-0.02	-0.26	0.61
IDEQ	13-Jun-95	76.08	0.9	0	4.33	-0.11	-1.00	1.37	-1.47	1.23
IDEQ	27-Jun-95	27.88	0.6	0	3.33	-0.51	-2.41	0.03	-1.77	-1.14
IDEQ	11-Jul-95	15.74	1.6	0	2.76	0.47	-2.00	-0.31	-0.76	-0.76
IDEQ	25-Jul-95	12.51	2.2	0	2.53	0.79	-1.91	-0.40	-0.16	-0.65
IDEQ	14-Aug-95	9.57	2	0	2.26	0.69	-2.27	-0.49	-0.36	-1.03
IDEQ	13-Sep-95	7.8	2.4	0	2.05	0.88	-2.30	-0.53	0.04	-1.05
URS	10-Nov-97	28.2	2.39	0	3.34	0.87	-1.01	0.03	0.03	1.18
URS	14-May-98	206	0.4	0	5.33	-0.92	-0.81	5.00	-1.97	1.87

dCd

Concentration over time analysis r2 Slope, m

dCd CC278 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.090** **-0.00037**

	Time	Ln[COC]	[COC]
first:	17-May-91	1.19	3
mid:	5-Aug-94	0.75	2
last:	14-May-98	0.24	1

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

dCd CC278 **Load over time**

LnLoad=mTime+b All data r2, m: **0.006** **0.00009**

	Time	LnLoad	Load
first:	17-May-91	-1.74	0
mid:	5-Aug-94	-1.63	0
last:	14-May-98	-1.50	0

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.450 max r2: 0.938

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.090	-0.00037	13.64	0.006	0.00009	-4.81
0.235	-0.00066	23.52	0.065	0.00032	-12.63
0.257	-0.00077	27.60	0.062	0.00035	-13.84
0.247	-0.00077	27.35	0.058	0.00034	-13.52
0.223	-0.00070	25.16	0.066	0.00037	-14.55
0.212	-0.00069	24.63	0.059	0.00036	-13.97
0.198	-0.00067	24.03	0.045	0.00031	-12.26
0.183	-0.00065	23.13	0.040	0.00029	-11.81
0.167	-0.00062	22.10	0.032	0.00027	-10.84
0.155	-0.00060	21.41	0.024	0.00023	-9.59
0.137	-0.00056	20.06	0.032	0.00027	-10.94
0.125	-0.00054	19.26	0.035	0.00028	-11.48
0.112	-0.00051	18.32	0.042	0.00032	-12.60
0.103	-0.00050	17.87	0.064	0.00039	-15.22
0.094	-0.00048	17.33	0.109	0.00050	-19.00
0.115	-0.00054	19.35	0.153	0.00059	-22.14
0.203	-0.00068	24.40	0.176	0.00064	-24.06
0.256	-0.00077	27.52	0.226	0.00073	-27.14
0.302	-0.00085	30.27	0.231	0.00075	-28.00
0.329	-0.00090	32.20	0.203	0.00069	-25.88
0.310	-0.00088	31.43	0.200	0.00070	-26.16
0.288	-0.00086	30.47	0.188	0.00069	-25.87
0.282	-0.00086	30.77	0.162	0.00064	-24.07
0.268	-0.00086	30.51	0.135	0.00058	-21.88
0.253	-0.00084	30.00	0.109	0.00052	-19.68
0.225	-0.00079	28.13	0.090	0.00047	-18.03
0.190	-0.00070	25.00	0.102	0.00052	-19.60
0.156	-0.00062	22.00	0.155	0.00063	-23.73
0.152	-0.00062	22.24	0.169	0.00068	-25.37
0.119	-0.00054	19.42	0.368	0.00092	-33.92
0.091	-0.00048	17.12	0.524	0.00110	-40.32
0.143	-0.00061	21.66	0.920	0.00135	-49.42
0.400	-0.00092	32.73	0.926	0.00130	-47.37
0.450	-0.00104	36.99	0.938	0.00136	-49.52

update for EV, CV:

dCd		**CC278**		
LN Analysis		**dCd**		
Load		**Load Data, EV=0.2 lbs/day CV=.52**		
Avg:	**0.2**	**Load Data-based LN**		
SD:	**0.1**	u	ln dCd Load	dCd Load
CV:	**0.52**	3	-0.1	1
Min:	**0.1**	0	-1.62	0
Max:	**1**	-3	-3.09	0
Median:	**0.2**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.954, EV=0.2lbs/day CV=0.58; max r2=0.966**

r2 u,lnLoad:	0.954	u	lnLoad	Load
slope, m:	1.863	3	-0.01	1
intercept, b:	3.027	0	-1.62	0
N: 38		-3	-3.24	0
E[Load]:	0.2	Parameter Estimates		
SD[Load]:	0	from LN regression		
CV[Load]:	0.58	update graph label		

						max r2
	dCd	N: 38				0.966
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
27-Jun-95	0.1	1	0.0163	-2.136	-2.408	0.954
25-Jul-94	0.1	2	0.0425	-1.723	-2.374	0.963
13-Sep-95	0.1	3	0.0686	-1.486	-2.295	0.965
14-Aug-95	0.1	4	0.0948	-1.312	-2.273	0.966
17-Dec-93	0.1	5	0.1209	-1.170	-2.271	0.966
13-Sep-94	0.1	6	0.1471	-1.049	-2.175	0.963
6-Oct-94	0.1	7	0.1732	-0.942	-2.173	0.962
16-Nov-94	0.1	8	0.1993	-0.844	-2.112	0.959
18-Feb-94	0.1	9	0.2255	-0.754	-2.045	0.956
11-Jul-95	0.1	10	0.2516	-0.669	-1.999	0.953
20-Jan-94	0.1	11	0.2778	-0.589	-1.986	0.951
17-Dec-93	0.1	12	0.3039	-0.513	-1.958	0.947
13-Dec-94	0.1	13	0.3301	-0.440	-1.951	0.943
16-Aug-94	0.1	14	0.3562	-0.369	-1.942	0.938
25-Jul-95	0.1	15	0.3824	-0.299	-1.910	0.932
27-Oct-93	0.2	16	0.4085	-0.231	-1.877	0.927
5-Oct-91	0.2	17	0.4346	-0.165	-1.863	0.921
20-Jan-94	0.2	18	0.4608	-0.098	-1.855	0.917
16-Aug-94	0.2	19	0.4869	-0.033	-1.827	0.918
23-Jun-94	0.2	20	0.5131	0.033	-1.774	0.930
24-Mar-94	0.2	21	0.5392	0.098	-1.523	0.955
8-Mar-95	0.2	22	0.5654	0.165	-1.495	0.951
19-May-94	0.2	23	0.5915	0.231	-1.449	0.946
30-Nov-93	0.2	24	0.6176	0.299	-1.428	0.941
24-Mar-94	0.2	25	0.6438	0.369	-1.395	0.935
10-Jan-95	0.2	26	0.6699	0.440	-1.391	0.931
8-Mar-94	0.3	27	0.6961	0.513	-1.266	0.943
7-Jun-94	0.3	28	0.7222	0.589	-1.239	0.937
12-Apr-95	0.3	29	0.7484	0.669	-1.219	0.932
4-May-94	0.3	30	0.7745	0.754	-1.094	0.944
7-Apr-94	0.4	31	0.8007	0.844	-1.043	0.931
9-Feb-95	0.4	32	0.8268	0.942	-1.033	0.921
10-Nov-97	0.4	33	0.8529	1.049	-1.014	0.898
13-Jun-95	0.4	34	0.8791	1.170	-0.999	0.859
7-Apr-94	0.4	35	0.9052	1.312	-0.879	
14-May-98	0.4	36	0.9314	1.486	-0.813	
17-May-91	0.5	37	0.9575	1.723	-0.709	
22-Mar-95	0.5	38	0.9837	2.136	-0.679	

update for EV, CV:

dCd **CC278**

LN Analysis **dCd**

Concentration **Conc. Data, EV=2 ug/L CV=.42**

Avg:	**2**	**Data-based LN**		
SD:	**1**	u	ln[dCd]	[dCd]
CV:	**0.42**	3	2.0	7
Min:	**0**	0	0.78	2
Max:	**6**	-3	-0.44	1
Median:	**2**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.861, EV=2.5 ug/L CV=0.67; max r2=0.892**

r2 u,lnConc:	0.861	u	lnConc.	Conc.
slope, m:	1.651	3	2.56	13
intercept, b:	-1.222	0	0.74	2
N: 38		-3	-1.08	0
E[Conc]:	2.5	Parameter Estimates		
SD[Conc]:	2	from LN regression		
CV[Conc]:	0.67	update graph label		

						max r2
	dCd	N: 38				0.892
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
14-May-98	0.4	1	0.0163	-2.136	-0.916	0.861
27-Jun-95	0.6	2	0.0425	-1.723	-0.511	0.855
19-May-94	0.7	3	0.0686	-1.486	-0.357	0.851
17-May-91	0.9	4	0.0948	-1.312	-0.105	0.855
13-Jun-95	0.9	5	0.1209	-1.170	-0.105	0.853
7-Jun-94	1.2	6	0.1471	-1.049	0.182	0.876
4-May-94	1.3	7	0.1732	-0.942	0.262	0.877
23-Jun-94	1.4	8	0.1993	-0.844	0.336	0.881
11-Jul-95	1.6	9	0.2255	-0.754	0.470	0.888
25-Jul-94	1.7	10	0.2516	-0.669	0.531	0.887
8-Mar-95	1.7	11	0.2778	-0.589	0.531	0.884
14-Aug-95	2	12	0.3039	-0.513	0.693	0.892
12-Apr-95	2.1	13	0.3301	-0.440	0.742	0.884
25-Jul-95	2.2	14	0.3562	-0.369	0.788	0.874
13-Sep-94	2.3	15	0.3824	-0.299	0.833	0.862
10-Nov-97	2.39	16	0.4085	-0.231	0.871	0.852
7-Apr-94	2.4	17	0.4346	-0.165	0.875	0.844
7-Apr-94	2.4	18	0.4608	-0.098	0.875	0.833
13-Sep-95	2.4	19	0.4869	-0.033	0.875	0.819
6-Oct-94	2.5	20	0.5131	0.033	0.916	0.802
16-Nov-94	2.5	21	0.5392	0.098	0.916	0.785
22-Mar-95	2.5	22	0.5654	0.165	0.916	0.763
5-Oct-91	2.8	23	0.5915	0.231	1.030	0.736
24-Mar-94	2.8	24	0.6176	0.299	1.030	0.732
24-Mar-94	2.8	25	0.6438	0.369	1.030	0.723
18-Feb-94	2.9	26	0.6699	0.440	1.065	0.708
16-Aug-94	3	27	0.6961	0.513	1.099	0.704
16-Aug-94	3	28	0.7222	0.589	1.099	0.717
13-Dec-94	3	29	0.7484	0.669	1.099	0.728
9-Feb-95	3	30	0.7745	0.754	1.099	0.734
27-Oct-93	3.1	31	0.8007	0.844	1.131	0.732
17-Dec-93	3.1	32	0.8268	0.942	1.131	0.751
17-Dec-93	3.1	33	0.8529	1.049	1.131	0.762
20-Jan-94	3.3	34	0.8791	1.170	1.194	0.755
20-Jan-94	3.3	35	0.9052	1.312	1.194	
8-Mar-94	3.4	36	0.9314	1.486	1.224	
10-Jan-95	3.4	37	0.9575	1.723	1.224	
30-Nov-93	5.6	38	0.9837	2.136	1.723	

update for EV, CV:

dCd **CC278**

LN Analysis **dCd**

Discharge, Q **Q Data, EV=27 cfs CV=1.33**

Q Data-based LN

		u	lnQ	Q
Avg:	**27**			
SD:	**36**	u	lnQ	Q
CV:	**1.33**	3	5.8	334
Min:	**6**	0	2.78	16
Max:	**206**	-3	-0.24	1
Median:	**14**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.886, EV=26.3 cfs CV=1.13; max r2=0.995**

r2 u,lnQ:	0.886	u	lnQ	Q
slope, m:	1.105	3	5.58	264
intercept, b:	-3.160	0	2.86	17
N: 38		-3	0.14	1.2
E[Q]:	26.3	Parameter Estimates		
SD[Q]:	30	from LN regression		
CV[Q]:	1.13	update graph label		

N: 38

max r2
0.995

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
17-Dec-93	6.19	1	0.0163	-2.136	1.823	0.886
20-Jan-94	7.73	2	0.0425	-1.723	2.045	0.903
13-Sep-95	7.8	3	0.0686	-1.486	2.054	0.921
30-Nov-93	7.96	4	0.0948	-1.312	2.074	0.935
18-Feb-94	8.29	5	0.1209	-1.170	2.115	0.945
17-Dec-93	8.46	6	0.1471	-1.049	2.135	0.955
6-Oct-94	8.46	7	0.1732	-0.942	2.135	0.964
20-Jan-94	8.81	8	0.1993	-0.844	2.176	0.970
13-Dec-94	8.81	9	0.2255	-0.754	2.176	0.977
16-Aug-94	8.89	10	0.2516	-0.669	2.185	0.981
16-Nov-94	9	11	0.2778	-0.589	2.197	0.985
27-Oct-93	9.18	12	0.3039	-0.513	2.217	0.987
13-Sep-94	9.18	13	0.3301	-0.440	2.217	0.988
14-Aug-95	9.57	14	0.3562	-0.369	2.259	0.988
16-Aug-94	9.97	15	0.3824	-0.299	2.300	0.988
25-Jul-94	10.18	16	0.4085	-0.231	2.320	0.987
5-Oct-91	10.3	17	0.4346	-0.165	2.332	0.986
25-Jul-95	12.51	18	0.4608	-0.098	2.527	0.985
10-Jan-95	13.6	19	0.4869	-0.033	2.610	0.984
24-Mar-94	14.48	20	0.5131	0.033	2.673	0.983
8-Mar-94	15.41	21	0.5392	0.098	2.735	0.982
11-Jul-95	15.74	22	0.5654	0.165	2.756	0.980
24-Mar-94	16.46	23	0.5915	0.231	2.801	0.978
9-Feb-95	22.05	24	0.6176	0.299	3.093	0.975
23-Jun-94	22.53	25	0.6438	0.369	3.115	0.978
8-Mar-95	24.53	26	0.6699	0.440	3.200	0.980
12-Apr-95	26.15	27	0.6961	0.513	3.264	0.984
7-Apr-94	27.29	28	0.7222	0.589	3.307	0.989
27-Jun-95	27.88	29	0.7484	0.669	3.328	0.993
10-Nov-97	28.2	30	0.7745	0.754	3.339	0.995
7-Apr-94	32.14	31	0.8007	0.844	3.470	0.994
22-Mar-95	37.69	32	0.8268	0.942	3.629	0.992
7-Jun-94	44.85	33	0.8529	1.049	3.803	0.991
4-May-94	47.88	34	0.8791	1.170	3.869	0.994
19-May-94	62.32	35	0.9052	1.312	4.132	
13-Jun-95	76.08	36	0.9314	1.486	4.332	
17-May-91	101.6	37	0.9575	1.723	4.621	
14-May-98	206	38	0.9837	2.136	5.328	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC278 **Date:** 24-May-00
Chemical: dPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,587	27	7	1	0.00	0.00	0.00
SD:	435	36	2	1	1.00	1.00	1.00
CV:	0.01	1.33	0.33	0.90			
Min:	33,375	6	3	0	-0.58	-1.67	-0.66
Max:	35,929	206	11	3	5.00	1.85	4.21
Median:	34,551	14	7	0	-0.36	0.09	-0.33

dPb CC278 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.22) update r2 — r2: 0.103 0.061

r2 Q,[COC]:	0.22	[dPb]	Q	m:	0.0265 0.00047
slope, m:	0.0	7	6.2	b:	-889 -13.23
intercept, b:	7.6	7	27.0		
N: 37		1	206		

LnConc. = mLn{Q}+b (r2=0.49) update r2

? lnQ,ln[COC]:	0.49	ln[dPb]	ln Q	[dPb]	Q
slope, m:	-0.32	2.17	1.82	9	6
intercept, b:	2.75	1.70	3.29	5	27
N: 37		1.05	5.33	3	206

for graph
dPb 0
CC278

N= 38

	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	101.6			4.62			2.08		
MFG	5-Oct-91	10.3	9	0.5	2.33	2.20	-0.70	-0.46	0.97	-0.33
IDEQ	27-Oct-93	9.18	8	0.4	2.22	2.08	-0.93	-0.50	0.53	-0.49
IDEQ	30-Nov-93	7.96	8	0.3	2.07	2.08	-1.07	-0.53	0.53	-0.58
IDEQ	17-Dec-93	8.46	10	0.5	2.14	2.30	-0.79	-0.52	1.41	-0.40
IDEQ	17-Dec-93	6.19	10	0.3	1.82	2.30	-1.10	-0.58	1.41	-0.59
IDEQ	20-Jan-94	8.81	8	0.4	2.18	2.08	-0.97	-0.51	0.53	-0.52
IDEQ	20-Jan-94	7.73	8	0.3	2.05	2.08	-1.10	-0.54	0.53	-0.59
IDEQ	18-Feb-94	8.29	8	0.4	2.12	2.08	-1.03	-0.52	0.53	-0.55
IDEQ	8-Mar-94	15.41	6	0.5	2.74	1.79	-0.70	-0.32	-0.35	-0.34
IDEQ	24-Mar-94	14.48	5	0.4	2.67	1.61	-0.94	-0.35	-0.79	-0.50
IDEQ	24-Mar-94	16.46	5	0.4	2.80	1.61	-0.81	-0.29	-0.79	-0.42
IDEQ	7-Apr-94	27.29	4	0.6	3.31	1.39	-0.53	0.01	-1.23	-0.20
IDEQ	7-Apr-94	32.14	4	0.7	3.47	1.39	-0.37	0.14	-1.23	-0.04
IDEQ	4-May-94	47.88	5	1.3	3.87	1.61	0.25	0.58	-0.79	0.89
IDEQ	19-May-94	62.32	4	1.3	4.13	1.39	0.29	0.99	-1.23	0.97
IDEQ	7-Jun-94	44.85	4	1.0	3.80	1.39	-0.04	0.50	-1.23	0.39
IDEQ	23-Jun-94	22.53	6	0.7	3.11	1.79	-0.32	-0.12	-0.35	0.02
IDEQ	25-Jul-94	10.18	11	0.6	2.32	2.40	-0.51	-0.47	1.85	-0.17
IDEQ	16-Aug-94	9.97	11	0.6	2.30	2.40	-0.53	-0.47	1.85	-0.19
IDEQ	16-Aug-94	8.89	11	0.5	2.18	2.40	-0.64	-0.50	1.85	-0.29
IDEQ	13-Sep-94	9.18	7	0.3	2.22	1.95	-1.06	-0.50	0.09	-0.57
IDEQ	6-Oct-94	8.46	7	0.3	2.14	1.95	-1.14	-0.52	0.09	-0.61
IDEQ	16-Nov-94	9	6	0.3	2.20	1.79	-1.24	-0.50	-0.35	-0.66
IDEQ	13-Dec-94	8.81	7	0.3	2.18	1.95	-1.10	-0.51	0.09	-0.59
IDEQ	10-Jan-95	13.6	4	0.3	2.61	1.39	-1.23	-0.37	-1.23	-0.65
IDEQ	9-Feb-95	22.05	7	0.8	3.09	1.95	-0.19	-0.14	0.09	0.18
IDEQ	8-Mar-95	24.53	3	0.4	3.20	1.10	-0.93	-0.07	-1.67	-0.49
IDEQ	22-Mar-95	37.69	6	1.2	3.63	1.79	0.20	0.30	-0.35	0.78
IDEQ	12-Apr-95	26.15	5	0.7	3.26	1.61	-0.35	-0.02	-0.79	-0.02
IDEQ	13-Jun-95	76.08	7	2.9	4.33	1.95	1.05	1.37	0.09	3.33
IDEQ	27-Jun-95	27.88	5	0.7	3.33	1.61	-0.29	0.03	-0.79	0.05
IDEQ	11-Jul-95	15.74	9	0.8	2.76	2.20	-0.27	-0.31	0.97	0.07
IDEQ	25-Jul-95	12.51	10	0.7	2.53	2.30	-0.40	-0.40	1.41	-0.06
IDEQ	14-Aug-95	9.57	8	0.4	2.26	2.08	-0.89	-0.49	0.53	-0.47
IDEQ	13-Sep-95	7.8	7	0.3	2.05	1.95	-1.23	-0.53	0.09	-0.65
URS	10-Nov-97	28.2	5.16	0.8	3.34	1.64	-0.24	0.03	-0.72	0.11
URS	14-May-98	206	3.1	3.4	5.33	1.13	1.23	5.00	-1.62	4.21

dPb

Concentration over time analysis | r2 | Slope, m

	dPb	**CC278**		**Concentration over time**	
	LnConc.=mTime+b All data r2, m:			**0.112**	**-0.00030**
	Time	**Ln[COC]**	**[COC]**		
first:	17-May-91	2.23	9		
mid:	5-Aug-94	1.88	7		
last:	14-May-98	1.46	4		
	LnConc.=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	14-May-98	0.00	1		

Load over time analysis

	dPb	**CC278**		**Load over time**	
	LnLoad=mTime+b All data r2, m:			**0.201**	**0.00067**
	Time	**LnLoad**	**Load**		
first:	17-May-91	-1.39	0		
mid:	5-Aug-94	-0.60	1		
last:	14-May-98	0.32	1		
	LnLoad=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	14-May-98	0.00	1		

	max r2:	0.876		max r2:	0.683
	Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**	
	r2	**slope**	**intercept**	**r2**	**slope**
	only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows	
	0.112	-0.00030	12.30	0.201	0.00067
	0.112	-0.00030	12.30	0.201	0.00067
	0.088	-0.00030	12.23	0.238	0.00083
	0.080	-0.00029	11.85	0.229	0.00082
	0.072	-0.00028	11.42	0.216	0.00080
	0.057	-0.00024	10.24	0.211	0.00080
	0.042	-0.00020	8.91	0.196	0.00077
	0.034	-0.00019	8.23	0.184	0.00076
	0.026	-0.00016	7.47	0.167	0.00072
	0.019	-0.00014	6.64	0.153	0.00069
	0.019	-0.00014	6.74	0.147	0.00069
	0.024	-0.00016	7.49	0.134	0.00066
	0.031	-0.00019	8.36	0.124	0.00064
	0.052	-0.00024	10.19	0.123	0.00065
	0.083	-0.00030	12.35	0.130	0.00068
	0.102	-0.00034	13.70	0.175	0.00079
	0.153	-0.00041	16.22	0.239	0.00091
	0.226	-0.00049	19.03	0.286	0.00101
	0.247	-0.00053	20.22	0.312	0.00108
	0.217	-0.00048	18.47	0.324	0.00112
	0.184	-0.00042	16.44	0.335	0.00117
	0.145	-0.00035	13.94	0.339	0.00120
	0.133	-0.00034	13.64	0.317	0.00117
	0.120	-0.00033	13.24	0.289	0.00111
	0.122	-0.00034	13.64	0.257	0.00102
	0.108	-0.00032	13.09	0.226	0.00094
	0.176	-0.00041	15.98	0.188	0.00081
	0.161	-0.00039	15.58	0.198	0.00085
	0.425	-0.00055	20.99	0.164	0.00076
	0.465	-0.00059	22.50	0.210	0.00087
	0.622	-0.00069	26.05	0.204	0.00089
	0.630	-0.00071	26.93	0.543	0.00125
	0.876	-0.00085	31.80	0.594	0.00136
	0.859	-0.00084	31.37	0.683	0.00155

update for EV, CV:

dPb		**CC278**		
LN Analysis		**dPb**		
Load		**Load Data, EV=1 lbs/day CV=.90**		
Avg:	**1**	**Load Data-based LN**		
SD:	**1**	u	ln dPb Load	dPb Load
CV:	**0.90**	3	1.7	5
Min:	**0.3**	0	-0.63	1
Max:	**3**	-3	-2.95	0.1
Median:	**0.5**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.888, EV=0.7 lbs/day CV=.72; max r2=0.95**

r2 u,lnLoad:	0.888	u	lnLoad	Load
slope, m:	1.551	3	1.39	4
intercept, b:	0.840	0	-0.54	1
N: 37		-3	-2.48	0.08
E[Load]:	0.7	Parameter Estimates		
SD[Load]:	1	from LN regression		
CV[Load]:	0.72	update graph label		

max r2 0.946

N: 38

intercept	Date	dPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
	update and rank for new data						
-23.84	16-Nov-94	0.3	1	0.0163	-2.136	-1.236	0.888
-23.84	10-Jan-95	0.3	2	0.0425	-1.723	-1.229	0.911
-29.21	13-Sep-95	0.3	3	0.0686	-1.486	-1.225	0.922
-29.02	6-Oct-94	0.3	4	0.0948	-1.312	-1.144	0.927
-28.29	13-Dec-94	0.3	5	0.1209	-1.170	-1.103	0.933
-28.35	20-Jan-94	0.3	6	0.1471	-1.049	-1.101	0.939
-27.38	17-Dec-93	0.3	7	0.1732	-0.942	-1.100	0.943
-26.70	30-Nov-93	0.3	8	0.1993	-0.844	-1.071	0.945
-25.48	13-Sep-94	0.3	9	0.2255	-0.754	-1.062	0.946
-24.36	18-Feb-94	0.4	10	0.2516	-0.669	-1.031	0.946
-24.26	20-Jan-94	0.4	11	0.2778	-0.589	-0.970	0.945
-23.25	24-Mar-94	0.4	12	0.3039	-0.513	-0.943	0.945
-22.57	27-Oct-93	0.4	13	0.3301	-0.440	-0.929	0.944
-22.90	8-Mar-95	0.4	14	0.3562	-0.369	-0.927	0.942
-23.98	14-Aug-95	0.4	15	0.3824	-0.299	-0.887	0.939
-27.79	24-Mar-94	0.4	16	0.4085	-0.231	-0.815	0.935
-32.23	17-Dec-93	0.5	17	0.4346	-0.165	-0.787	0.932
-35.63	8-Mar-94	0.5	18	0.4608	-0.098	-0.698	0.928
-38.05	5-Oct-91	0.5	19	0.4869	-0.033	-0.696	0.925
-39.61	16-Aug-94	0.5	20	0.5131	0.033	-0.642	0.921
-41.15	7-Apr-94	0.6	21	0.5392	0.098	-0.532	0.917
-42.40	16-Aug-94	0.6	22	0.5654	0.165	-0.528	0.917
-41.21	25-Jul-94	0.6	23	0.5915	0.231	-0.507	0.916
-39.15	25-Jul-95	0.7	24	0.6176	0.299	-0.396	0.912
-36.04	7-Apr-94	0.7	25	0.6438	0.369	-0.369	0.917
-33.08	12-Apr-95	0.7	26	0.6699	0.440	-0.352	0.922
-28.62	23-Jun-94	0.7	27	0.6961	0.513	-0.318	0.925
-30.15	27-Jun-95	0.7	28	0.7222	0.589	-0.288	0.929
-26.62	11-Jul-95	0.8	29	0.7484	0.669	-0.272	0.933
-30.84	10-Nov-97	0.8	30	0.7745	0.754	-0.245	0.933
-31.39	17-May-91		31	0.8007	0.844		
-44.14	9-Feb-95	0.8	32	0.8268	0.942	-0.186	0.928
-48.29	7-Jun-94	1.0	33	0.8529	1.049	-0.035	0.907
-55.14	22-Mar-95	1.2	34	0.8791	1.170	0.196	0.875
	4-May-94	1.3	35	0.9052	1.312	0.253	
	19-May-94	1.3	36	0.9314	1.486	0.294	
	13-Jun-95	2.9	37	0.9575	1.723	1.053	
	14-May-98	3.4	38	0.9837	2.136	1.234	

update for EV, CV:

dPb		**CC278**		
LN Analysis		**dPb**		
Concentration		**Conc. Data, EV=7 ug/L CV=.33**		
Avg:	**7**	**Data-based LN**		
SD:	**2**	u	ln[dPb]	[dPb]
CV:	**0.33**	3	2.8	17
Min:	**3**	0	1.86	6
Max:	**11**	-3	0.89	2
Median:	**7**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.955, EV=6.8 ug/L CV=.41; max r2=0.96**

r2 u,lnConc:	0.955	u	lnConc.	Conc.
slope, m:	2.515	3	3.03	21
intercept, b:	-4.609	0	1.83	6
N: 37		-3	0.64	2
E[Conc]:	6.8	Parameter Estimates		
SD[Conc]:	3	from LN regression		
CV[Conc]:	0.41	update graph label		

N: 38

max r2
0.955

Date	dPb Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
17-May-91		1	0.0163	-2.136		
8-Mar-95	3	2	0.0425	-1.723	1.099	0.955
14-May-98	3.1	3	0.0686	-1.486	1.131	0.950
7-Apr-94	4	4	0.0948	-1.312	1.386	0.950
7-Apr-94	4	5	0.1209	-1.170	1.386	0.945
19-May-94	4	6	0.1471	-1.049	1.386	0.940
7-Jun-94	4	7	0.1732	-0.942	1.386	0.936
10-Jan-95	4	8	0.1993	-0.844	1.386	0.934
24-Mar-94	5	9	0.2255	-0.754	1.609	0.939
24-Mar-94	5	10	0.2516	-0.669	1.609	0.934
4-May-94	5	11	0.2778	-0.589	1.609	0.929
12-Apr-95	5	12	0.3039	-0.513	1.609	0.923
27-Jun-95	5	13	0.3301	-0.440	1.609	0.920
10-Nov-97	5.16	14	0.3562	-0.369	1.641	0.922
8-Mar-94	6	15	0.3824	-0.299	1.792	0.929
23-Jun-94	6	16	0.4085	-0.231	1.792	0.923
16-Nov-94	6	17	0.4346	-0.165	1.792	0.916
22-Mar-95	6	18	0.4608	-0.098	1.792	0.912
13-Sep-94	7	19	0.4869	-0.033	1.946	0.916
6-Oct-94	7	20	0.5131	0.033	1.946	0.910
13-Dec-94	7	21	0.5392	0.098	1.946	0.903
9-Feb-95	7	22	0.5654	0.165	1.946	0.892
13-Jun-95	7	23	0.5915	0.231	1.946	0.880
13-Sep-95	7	24	0.6176	0.299	1.946	0.867
27-Oct-93	8	25	0.6438	0.369	2.079	0.864
30-Nov-93	8	26	0.6699	0.440	2.079	0.854
20-Jan-94	8	27	0.6961	0.513	2.079	0.837
20-Jan-94	8	28	0.7222	0.589	2.079	0.812
18-Feb-94	8	29	0.7484	0.669	2.079	0.779
14-Aug-95	8	30	0.7745	0.754	2.079	0.741
5-Oct-91	9	31	0.8007	0.844	2.197	0.759
11-Jul-95	9	32	0.8268	0.942	2.197	0.698
17-Dec-93	10	33	0.8529	1.049	2.303	0.686
17-Dec-93	10	34	0.8791	1.170	2.303	0.607
25-Jul-95	10	35	0.9052	1.312	2.303	
25-Jul-94	11	36	0.9314	1.486	2.398	
16-Aug-94	11	37	0.9575	1.723	2.398	
16-Aug-94	11	38	0.9837	2.136	2.398	

update for EV, CV:

dPb		**CC278**		
LN Analysis		**dPb**		
Discharge, Q		**Q Data, EV=27 cfs CV=1.33**		
Avg:	**27**	**Q Data-based LN**		
SD:	**36**	u	lnQ	Q
CV:	**1.33**	3	5.8	334
Min:	**6**	0	2.78	16
Max:	**206**	-3	-0.24	1
Median:	**14**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.886, EV=26.3 cfs CV=1.13; max r2=0.995**

r2 u,lnQ:	0.886	u	lnQ	Q
slope, m:	1.105	3	5.58	264
intercept, b:	-3.160	0	2.86	17
N: 38		-3	0.14	1.2
E[Q]:	26.3	Parameter Estimates		
SD[Q]:	30	from LN regression		
CV[Q]:	1.13	update graph label		

						max r2
	Q	N: 38				0.995
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
17-Dec-93	6.19	1	0.0163	-2.136	1.823	0.886
20-Jan-94	7.73	2	0.0425	-1.723	2.045	0.903
13-Sep-95	7.8	3	0.0686	-1.486	2.054	0.921
30-Nov-93	7.96	4	0.0948	-1.312	2.074	0.935
18-Feb-94	8.29	5	0.1209	-1.170	2.115	0.945
17-Dec-93	8.46	6	0.1471	-1.049	2.135	0.955
6-Oct-94	8.46	7	0.1732	-0.942	2.135	0.964
20-Jan-94	8.81	8	0.1993	-0.844	2.176	0.970
13-Dec-94	8.81	9	0.2255	-0.754	2.176	0.977
16-Aug-94	8.89	10	0.2516	-0.669	2.185	0.981
16-Nov-94	9	11	0.2778	-0.589	2.197	0.985
27-Oct-93	9.18	12	0.3039	-0.513	2.217	0.987
13-Sep-94	9.18	13	0.3301	-0.440	2.217	0.988
14-Aug-95	9.57	14	0.3562	-0.369	2.259	0.988
16-Aug-94	9.97	15	0.3824	-0.299	2.300	0.988
25-Jul-94	10.18	16	0.4085	-0.231	2.320	0.987
5-Oct-91	10.3	17	0.4346	-0.165	2.332	0.986
25-Jul-95	12.51	18	0.4608	-0.098	2.527	0.985
10-Jan-95	13.6	19	0.4869	-0.033	2.610	0.984
24-Mar-94	14.48	20	0.5131	0.033	2.673	0.983
8-Mar-94	15.41	21	0.5392	0.098	2.735	0.982
11-Jul-95	15.74	22	0.5654	0.165	2.756	0.980
24-Mar-94	16.46	23	0.5915	0.231	2.801	0.978
9-Feb-95	22.05	24	0.6176	0.299	3.093	0.975
23-Jun-94	22.53	25	0.6438	0.369	3.115	0.978
8-Mar-95	24.53	26	0.6699	0.440	3.200	0.980
12-Apr-95	26.15	27	0.6961	0.513	3.264	0.984
7-Apr-94	27.29	28	0.7222	0.589	3.307	0.989
27-Jun-95	27.88	29	0.7484	0.669	3.328	0.993
10-Nov-97	28.2	30	0.7745	0.754	3.339	0.995
7-Apr-94	32.14	31	0.8007	0.844	3.470	0.994
22-Mar-95	37.69	32	0.8268	0.942	3.629	0.992
7-Jun-94	44.85	33	0.8529	1.049	3.803	0.991
4-May-94	47.88	34	0.8791	1.170	3.869	0.994
19-May-94	62.32	35	0.9052	1.312	4.132	
13-Jun-95	76.08	36	0.9314	1.486	4.332	
17-May-91	101.6	37	0.9575	1.723	4.621	
14-May-98	206	38	0.9837	2.136	5.328	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC278 **Date:** 24-Feb-00
Chemical: dZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,597	27	355	34	0.00	0.00	0.00	
SD:	464	36	147	19	1.00	1.00	1.00	
CV:	0.01	1.33	0.41	0.57				
Min:	33,375	6	78	15	-0.58	-1.89	-0.97	
Max:	36,109	206	606	86	5.00	1.71	2.75	
Median:	34,551	14	364	25	-0.36	0.06	-0.46	

dZn CC278 **: Concentration v. Discharge, Q**

Conc. = mQ+b (r2=0.39) update r2

r2 Q,[COC]:	0.39	[dZn]	Q
slope, m:	-2.6	408	6.2
intercept, b:	423.9	355	27.0
N: 38		-104	206

LnConc. = mLn{Q}+b (r2=0.65) update r2

lnQ,ln[COC]:	0.65	ln[dZn]	ln Q	[dZn]	Q
slope, m:	-0.54	6.31	1.82	549	6
intercept, b:	7.29	5.52	3.29	249	27
N: 38		4.42	5.33	83	206

	Q = mTime +b	**LnQ = mTime +b**
r2:	0.091	0.059
m:	0.0234	0.00043
b:	-782	-12.05

for graph
dZn 0
CC278

N= 38

update for new data
DATA:

	Sampling Date	Q Discharge cfs x-axis	dZn Concentration ug/L y-axis	dZn Load lbs/day y-axis	Ln Q x-axis	Ln dZn Conc. y-axis	Ln dZn Load y-axis	Standardized Values = (x - Avg)/SD Q	Conc	Load
MFG	17-May-91	102	148	81	4.62	5.00	4.39	2.08	-1.41	2.46
MFG	5-Oct-91	10	321	18	2.33	5.77	2.88	-0.46	-0.23	-0.83
IDEQ	27-Oct-93	9	497	25	2.22	6.21	3.20	-0.50	0.97	-0.48
IDEQ	30-Nov-93	7.96	465	20	2.07	6.14	2.99	-0.53	0.75	-0.72
IDEQ	17-Dec-93	8	507	23	2.14	6.23	3.14	-0.52	1.04	-0.56
IDEQ	17-Dec-93	6	507	17	1.82	6.23	2.83	-0.58	1.04	-0.88
IDEQ	20-Jan-94	9	531	25	2.18	6.27	3.23	-0.51	1.20	-0.45
IDEQ	20-Jan-94	8	531	22	2.05	6.27	3.09	-0.54	1.20	-0.61
IDEQ	18-Feb-94	8	521	23	2.12	6.26	3.15	-0.52	1.13	-0.55
IDEQ	8-Mar-94	15	540	45	2.74	6.29	3.80	-0.32	1.26	0.58
IDEQ	24-Mar-94	14	400	31	2.67	5.99	3.44	-0.35	0.31	-0.13
IDEQ	24-Mar-94	16	400	35	2.80	5.99	3.57	-0.29	0.31	0.09
IDEQ	7-Apr-94	27	334	49	3.31	5.81	3.89	0.01	-0.14	0.80
IDEQ	7-Apr-94	32	334	58	3.47	5.81	4.06	0.14	-0.14	1.25
IDEQ	4-May-94	48	152	39	3.87	5.02	3.67	0.58	-1.38	0.28
IDEQ	19-May-94	62	103	35	4.13	4.63	3.54	0.99	-1.72	0.04
IDEQ	7-Jun-94	45	159	38	3.80	5.07	3.65	0.50	-1.34	0.24
IDEQ	23-Jun-94	23	190	23	3.11	5.25	3.14	-0.12	-1.12	-0.56
IDEQ	25-Jul-94	10.18	286	16	2.32	5.66	2.75	-0.47	-0.47	-0.94
IDEQ	16-Aug-94	10	472	25	2.30	6.16	3.23	-0.47	0.80	-0.44
IDEQ	16-Aug-94	9	472	23	2.18	6.16	3.12	-0.50	0.80	-0.58
IDEQ	13-Sep-94	9	368	18	2.22	5.91	2.90	-0.50	0.09	-0.81
IDEQ	6-Oct-94	8	378	17	2.14	5.93	2.85	-0.52	0.16	-0.86
IDEQ	16-Nov-94	9	425	21	2.20	6.05	3.02	-0.50	0.48	-0.69
IDEQ	13-Dec-94	9	493	23	2.18	6.20	3.15	-0.51	0.94	-0.54
IDEQ	10-Jan-95	14	545	40	2.61	6.30	3.69	-0.37	1.30	0.32
IDEQ	9-Feb-95	22	606	72	3.09	6.41	4.28	-0.14	1.71	1.99
IDEQ	8-Mar-95	25	273	36	3.20	5.61	3.58	-0.07	-0.56	0.12
IDEQ	22-Mar-95	38	383	78	3.63	5.95	4.35	0.30	0.19	2.29
IDEQ	12-Apr-95	26	305	43	3.26	5.72	3.76	-0.02	-0.34	0.48
IDEQ	13-Jun-95	76	90	37	4.33	4.50	3.61	1.37	-1.81	0.16
IDEQ	27-Jun-95	28	107	16	3.33	4.67	2.78	0.03	-1.69	-0.92
IDEQ	11-Jul-95	16	228	19	2.76	5.43	2.96	-0.31	-0.87	-0.75
IDEQ	25-Jul-95	12.51	317	21	2.53	5.76	3.06	-0.40	-0.26	-0.65
IDEQ	14-Aug-95	10	306	16	2.26	5.72	2.76	-0.49	-0.33	-0.94
IDEQ	13-Sep-95	8	360	15	2.05	5.89	2.72	-0.53	0.04	-0.97
URS	14-May-98	206	78	86	5.33	4.36	4.46	5.00	-1.89	2.75
URS	10-Nov-98	28	351	53	3.34	5.86	3.98	0.03	-0.03	1.02

dZn

Concentration over time analysis

				r2	Slope, m
	dZn	**CC278**		**Concentration over time**	
	LnConc.=mTime+b All data r2, m:			**0.044**	**-0.00025**
	Time	**Ln[COC]**	**[COC]**		
first:	17-May-91	6.05	426		
mid:	5-Aug-94	5.76	318		
last:	10-Nov-98	5.37	216		
	LnConc.=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	10-Nov-98	0.00	1		

Load over time analysis

	dZn	**CC278**		**Load over time**	
	LnLoad=mTime+b All data r2, m:			**0.029**	**0.00018**
	Time	**LnLoad**	**Load**		
first:	17-May-91	3.16	24		
mid:	5-Aug-94	3.38	29		
last:	10-Nov-98	3.66	39		
	LnLoad=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	10-Nov-98	0.00	1		

max r2:	0.230		max r2:	0.874	
Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.044	-0.00025	14.37	0.029	0.00018	-2.91
0.124	-0.00045	21.32	0.136	0.00041	-11.00
0.153	-0.00056	25.03	0.111	0.00041	-10.87
0.142	-0.00054	24.43	0.108	0.00041	-10.84
0.133	-0.00052	23.94	0.098	0.00039	-10.23
0.122	-0.00050	23.16	0.092	0.00038	-9.95
0.109	-0.00048	22.29	0.078	0.00035	-8.75
0.096	-0.00045	21.22	0.074	0.00035	-8.57
0.083	-0.00041	20.01	0.066	0.00033	-7.99
0.070	-0.00038	18.77	0.060	0.00032	-7.50
0.056	-0.00034	17.31	0.074	0.00035	-8.86
0.049	-0.00032	16.59	0.077	0.00036	-9.25
0.042	-0.00029	15.78	0.085	0.00039	-10.10
0.038	-0.00028	15.45	0.111	0.00045	-12.08
0.034	-0.00027	15.07	0.161	0.00053	-14.95
0.053	-0.00034	17.41	0.188	0.00057	-16.64
0.106	-0.00045	21.45	0.208	0.00061	-18.04
0.149	-0.00053	24.29	0.241	0.00067	-19.96
0.190	-0.00060	26.77	0.236	0.00067	-20.07
0.201	-0.00063	27.78	0.213	0.00063	-18.60
0.184	-0.00061	26.83	0.211	0.00064	-18.83
0.164	-0.00057	25.69	0.200	0.00063	-18.60
0.155	-0.00057	25.45	0.178	0.00059	-17.26
0.144	-0.00055	24.99	0.151	0.00054	-15.38
0.126	-0.00052	23.81	0.131	0.00050	-14.05
0.102	-0.00046	21.66	0.116	0.00047	-13.07
0.073	-0.00037	18.56	0.132	0.00052	-14.59
0.040	-0.00025	14.28	0.232	0.00065	-19.43
0.033	-0.00023	13.57	0.259	0.00070	-21.29
0.014	-0.00015	10.48	0.524	0.00091	-28.53
0.004	-0.00008	7.97	0.704	0.00105	-33.76
0.045	-0.00024	13.85	0.874	0.00119	-38.58
0.185	-0.00044	21.02	0.863	0.00117	-38.11
0.230	-0.00052	23.93	0.860	0.00121	-39.32

update for EV, CV:

dZn **CC278**

LN Analysis **dZn**

Load **Load Data, EV=34 lbs/day CV=.57**

Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**34**			
SD:	**19**			
CV:	**0.57**	3	5.0	143
Min:	**15**	0	3.38	29
Max:	**86**	-3	1.79	6
Median:	**25**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.937, EV=34.0 lbs/day CV=.57; max r2=0.97**

r2 u,lnLoad:	0.937	u	lnLoad	Load
slope, m:	1.876	3	4.98	146
intercept, b:	-6.350	0	3.39	30
N: 38		-3	1.79	6
E[Load]:	34.0	Parameter Estimates		
SD[Load]:	20	from LN regression		
CV[Load]:	0.57	update graph label		

						max r2
	dZn	N: 38				0.972
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
13-Sep-95	**15**	1	0.0163	-2.136	2.715	0.937
25-Jul-94	**16**	2	0.0425	-1.723	2.751	0.955
14-Aug-95	**16**	3	0.0686	-1.486	2.757	0.964
27-Jun-95	**16**	4	0.0948	-1.312	2.776	0.968
17-Dec-93	**17**	5	0.1209	-1.170	2.826	0.970
6-Oct-94	**17**	6	0.1471	-1.049	2.845	0.972
5-Oct-91	**18**	7	0.1732	-0.942	2.879	0.972
13-Sep-94	**18**	8	0.1993	-0.844	2.900	0.972
11-Jul-95	**19**	9	0.2255	-0.754	2.960	0.971
30-Nov-93	**20**	10	0.2516	-0.669	2.991	0.971
16-Nov-94	**21**	11	0.2778	-0.589	3.024	0.970
25-Jul-95	**21**	12	0.3039	-0.513	3.060	0.970
20-Jan-94	**22**	13	0.3301	-0.440	3.095	0.969
16-Aug-94	**23**	14	0.3562	-0.369	3.117	0.968
23-Jun-94	**23**	15	0.3824	-0.299	3.137	0.967
17-Dec-93	**23**	16	0.4085	-0.231	3.139	0.965
18-Feb-94	**23**	17	0.4346	-0.165	3.146	0.962
13-Dec-94	**23**	18	0.4608	-0.098	3.151	0.958
27-Oct-93	**25**	19	0.4869	-0.033	3.201	0.955
20-Jan-94	**25**	20	0.5131	0.033	3.226	0.952
16-Aug-94	**25**	21	0.5392	0.098	3.231	0.950
24-Mar-94	**31**	22	0.5654	0.165	3.439	0.957
19-May-94	**35**	23	0.5915	0.231	3.542	0.952
24-Mar-94	**35**	24	0.6176	0.299	3.567	0.949
8-Mar-95	**36**	25	0.6438	0.369	3.584	0.945
13-Jun-95	**37**	26	0.6699	0.440	3.607	0.939
7-Jun-94	**38**	27	0.6961	0.513	3.647	0.931
4-May-94	**39**	28	0.7222	0.589	3.668	0.920
10-Jan-95	**40**	29	0.7484	0.669	3.686	0.906
12-Apr-95	**43**	30	0.7745	0.754	3.759	0.889
8-Mar-94	**45**	31	0.8007	0.844	3.802	0.865
7-Apr-94	**49**	32	0.8268	0.942	3.893	0.839
10-Nov-98	**53**	33	0.8529	1.049	3.975	0.799
7-Apr-94	**58**	34	0.8791	1.170	4.056	0.747
9-Feb-95	**72**	35	0.9052	1.312	4.275	
22-Mar-95	**78**	36	0.9314	1.486	4.352	
17-May-91	**81**	37	0.9575	1.723	4.393	
14-May-98	**86**	38	0.9837	2.136	4.460	

update for EV, CV:

dZn **CC278**

LN Analysis **dZn**

Concentration **Conc. Data, EV=378.2 ug/L CV=.67**

Avg:	**355**	**Data-based LN**		
SD:	**147**	u	ln[dZn]	[dZn]
CV:	**0.41**	3	7.0	1078
Min:	**78**	0	5.79	328
Max:	**606**	-3	4.60	100
Median:	**364**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.868, EV=378.2 ug/L CV=.67; max r2=0.95**

r2 u,lnConc:	0.868	u	lnConc.	Conc.
slope, m:	1.641	3	7.58	1955
intercept, b:	-9.434	0	5.75	314
N: 38		-3	3.92	50
E[Conc]:	378.2	Parameter Estimates		
SD[Conc]:	254	from LN regression		
CV[Conc]:	0.67	update graph label		

N: 38

Date	**dZn Concentration ug/L Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	max r2 0.950 r2 forward
update and rank for new data						
14-May-98	**78**	1	0.0163	-2.136	4.357	0.868
13-Jun-95	**90**	2	0.0425	-1.723	4.500	0.848
19-May-94	**103**	3	0.0686	-1.486	4.635	0.836
27-Jun-95	**107**	4	0.0948	-1.312	4.673	0.830
17-May-91	**148**	5	0.1209	-1.170	4.997	0.841
4-May-94	**152**	6	0.1471	-1.049	5.024	0.837
7-Jun-94	**159**	7	0.1732	-0.942	5.069	0.845
23-Jun-94	**190**	8	0.1993	-0.844	5.247	0.878
11-Jul-95	**228**	9	0.2255	-0.754	5.429	0.908
8-Mar-95	**273**	10	0.2516	-0.669	5.609	0.923
25-Jul-94	**286**	11	0.2778	-0.589	5.656	0.920
12-Apr-95	**305**	12	0.3039	-0.513	5.720	0.915
14-Aug-95	**306**	13	0.3301	-0.440	5.724	0.908
25-Jul-95	**317**	14	0.3562	-0.369	5.759	0.901
5-Oct-91	**321**	15	0.3824	-0.299	5.771	0.894
7-Apr-94	**334**	16	0.4085	-0.231	5.811	0.887
7-Apr-94	**334**	17	0.4346	-0.165	5.811	0.879
10-Nov-98	**351**	18	0.4608	-0.098	5.861	0.874
13-Sep-95	**360**	19	0.4869	-0.033	5.886	0.866
13-Sep-94	**368**	20	0.5131	0.033	5.908	0.857
6-Oct-94	**378**	21	0.5392	0.098	5.935	0.849
22-Mar-95	**383**	22	0.5654	0.165	5.948	0.841
24-Mar-94	**400**	23	0.5915	0.231	5.991	0.843
24-Mar-94	**400**	24	0.6176	0.299	5.991	0.842
16-Nov-94	**425**	25	0.6438	0.369	6.052	0.893
30-Nov-93	**465**	26	0.6699	0.440	6.142	0.950
16-Aug-94	**472**	27	0.6961	0.513	6.157	0.944
16-Aug-94	**472**	28	0.7222	0.589	6.157	0.936
13-Dec-94	**493**	29	0.7484	0.669	6.201	0.940
27-Oct-93	**497**	30	0.7745	0.754	6.209	0.929
17-Dec-93	**507**	31	0.8007	0.844	6.229	0.914
17-Dec-93	**507**	32	0.8268	0.942	6.229	0.903
18-Feb-94	**521**	33	0.8529	1.049	6.256	0.874
20-Jan-94	**531**	34	0.8791	1.170	6.275	0.861
20-Jan-94	**531**	35	0.9052	1.312	6.275	
8-Mar-94	**540**	36	0.9314	1.486	6.292	
10-Jan-95	**545**	37	0.9575	1.723	6.301	
9-Feb-95	**606**	38	0.9837	2.136	6.407	

update for EV, CV:

dZn **CC278**

LN Analysis **dZn**

Discharge, Q **Q Data, EV=27 cfs CV=1.33**

Avg:	**27**	**Q Data-based LN**		
SD:	**36**	u	lnQ	Q
CV:	**1.33**	3	5.8	334
Min:	**6**	0	2.78	16
Max:	**206**	-3	-0.24	1
Median:	**14**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.886, EV=26.3 cfs CV=1.13; max r2=0.995**

r2 u,lnQ:	0.886	u	lnQ	Q
slope, m:	1.105	3	5.58	264
intercept, b:	-3.160	0	2.86	17
N: 38		-3	0.14	1
E[Q]:	26.3	Parameter Estimates		
SD[Q]:	30	from LN regression		
CV[Q]:	1.13	update graph label		

						max r2
	Q	N: 38				0.995
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
17-Dec-93	**6**	1	0.0163	-2.136	1.823	0.886
20-Jan-94	**8**	2	0.0425	-1.723	2.045	0.903
13-Sep-95	**8**	3	0.0686	-1.486	2.054	0.921
30-Nov-93	**7.96**	4	0.0948	-1.312	2.074	0.935
18-Feb-94	**8**	5	0.1209	-1.170	2.115	0.945
17-Dec-93	**8**	6	0.1471	-1.049	2.135	0.955
6-Oct-94	**8**	7	0.1732	-0.942	2.135	0.964
20-Jan-94	**9**	8	0.1993	-0.844	2.176	0.970
13-Dec-94	**9**	9	0.2255	-0.754	2.176	0.977
16-Aug-94	**9**	10	0.2516	-0.669	2.185	0.981
16-Nov-94	**9**	11	0.2778	-0.589	2.197	0.985
27-Oct-93	**9**	12	0.3039	-0.513	2.217	0.987
13-Sep-94	**9**	13	0.3301	-0.440	2.217	0.988
14-Aug-95	**10**	14	0.3562	-0.369	2.259	0.988
16-Aug-94	**10**	15	0.3824	-0.299	2.300	0.988
25-Jul-94	**10.18**	16	0.4085	-0.231	2.320	0.987
5-Oct-91	**10**	17	0.4346	-0.165	2.332	0.986
25-Jul-95	**12.51**	18	0.4608	-0.098	2.527	0.985
10-Jan-95	**14**	19	0.4869	-0.033	2.610	0.984
24-Mar-94	**14**	20	0.5131	0.033	2.673	0.983
8-Mar-94	**15**	21	0.5392	0.098	2.735	0.982
11-Jul-95	**16**	22	0.5654	0.165	2.756	0.980
24-Mar-94	**16**	23	0.5915	0.231	2.801	0.978
9-Feb-95	**22**	24	0.6176	0.299	3.093	0.975
23-Jun-94	**23**	25	0.6438	0.369	3.115	0.978
8-Mar-95	**25**	26	0.6699	0.440	3.200	0.980
12-Apr-95	**26**	27	0.6961	0.513	3.264	0.984
7-Apr-94	**27**	28	0.7222	0.589	3.307	0.989
27-Jun-95	**28**	29	0.7484	0.669	3.328	0.993
10-Nov-98	**28**	30	0.7745	0.754	3.339	0.995
7-Apr-94	**32**	31	0.8007	0.844	3.470	0.994
22-Mar-95	**38**	32	0.8268	0.942	3.629	0.992
7-Jun-94	**45**	33	0.8529	1.049	3.803	0.991
4-May-94	**48**	34	0.8791	1.170	3.869	0.994
19-May-94	**62**	35	0.9052	1.312	4.132	
13-Jun-95	**76**	36	0.9314	1.486	4.332	
17-May-91	**102**	37	0.9575	1.723	4.621	
14-May-98	**206**	38	0.9837	2.136	5.328	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC278 **Date:** 25-May-00
Chemical: tCd **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,587	27	2	0.2	0.00	0.00	0.00
SD:	435	36	1	0.1	1.00	1.00	1.00
CV:	0.01	1.33	0.40	0.54			
Min:	33,375	6	0.3	0.1	-0.58	-2.18	-1.04
Max:	35,929	206	6	1	5.00	3.28	3.83
Median:	34,551	14	3	0.2	-0.36	0.14	-0.50

tCd CC278 : Concentration v. Discharge, Q

Q = mTime +b **LnQ = mTime +b**

Conc. = mQ+b (r2=0.41) update r2

r2 Q,[COC]:	0.41	[tCd]	Q	r2:	0.103	0.061
slope, m:	-0.02	3	6.2	m:	0.0265	0.00047
intercept, b:	2.9	2	27.0	b:	-889	-13.23
N: 38		-1	206			

LnConc. = mLn{Q}+b (r2=0.70) update r2

2 lnQ,ln[COC]:	0.70	ln[tCd]	ln Q	[tCd]	Q
slope, m:	-0.53	1.33	1.82	4	6
intercept, b:	2.30	0.55	3.29	2	27
N: 38		-0.54	5.33	1	206

for graph
tCd 0
CC278

N= 38

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	101.6	1.3	0.7	4.62	0.26	-0.34	2.08	-1.15	3.83
MFG	5-Oct-91	10.3	2.9	0.2	2.33	1.06	-1.83	-0.46	0.50	-0.56
IDEQ	27-Oct-93	9.18	3	0.1	2.22	1.10	-1.91	-0.50	0.60	-0.66
IDEQ	30-Nov-93	7.96	5.6	0.2	2.07	1.72	-1.43	-0.53	3.28	0.07
IDEQ	17-Dec-93	8.46	3	0.1	2.14	1.10	-1.99	-0.52	0.60	-0.75
IDEQ	17-Dec-93	6.19	3	0.1	1.82	1.10	-2.30	-0.58	0.60	-1.04
IDEQ	20-Jan-94	8.81	3.4	0.2	2.18	1.22	-1.83	-0.51	1.01	-0.55
IDEQ	20-Jan-94	7.73	3.4	0.1	2.05	1.22	-1.96	-0.54	1.01	-0.71
IDEQ	18-Feb-94	8.29	2.8	0.1	2.12	1.03	-2.08	-0.52	0.39	-0.84
IDEQ	8-Mar-94	15.41	3.4	0.3	2.74	1.22	-1.27	-0.32	1.01	0.41
IDEQ	24-Mar-94	14.48	3	0.2	2.67	1.10	-1.45	-0.35	0.60	0.02
IDEQ	24-Mar-94	16.46	3	0.3	2.80	1.10	-1.33	-0.29	0.60	0.28
IDEQ	7-Apr-94	27.29	2.1	0.3	3.31	0.74	-1.18	0.01	-0.33	0.62
IDEQ	7-Apr-94	32.14	2.1	0.4	3.47	0.74	-1.01	0.14	-0.33	1.06
IDEQ	4-May-94	47.88	1.3	0.3	3.87	0.26	-1.09	0.58	-1.15	0.83
IDEQ	19-May-94	62.32	0.8	0.3	4.13	-0.22	-1.32	0.99	-1.67	0.30
IDEQ	7-Jun-94	44.85	1.3	0.3	3.80	0.26	-1.16	0.50	-1.15	0.66
IDEQ	23-Jun-94	22.53	1.4	0.2	3.11	0.34	-1.77	-0.12	-1.05	-0.49
IDEQ	25-Jul-94	10.18	2.2	0.1	2.32	0.79	-2.12	-0.47	-0.23	-0.88
IDEQ	16-Aug-94	9.97	3.1	0.2	2.30	1.13	-1.79	-0.47	0.70	-0.51
IDEQ	16-Aug-94	8.89	3.1	0.1	2.18	1.13	-1.91	-0.50	0.70	-0.66
IDEQ	13-Sep-94	9.18	2.4	0.1	2.22	0.88	-2.13	-0.50	-0.02	-0.89
IDEQ	6-Oct-94	8.46	2.7	0.1	2.14	0.99	-2.10	-0.52	0.29	-0.86
IDEQ	16-Nov-94	9	2.9	0.1	2.20	1.06	-1.96	-0.50	0.50	-0.72
IDEQ	13-Dec-94	8.81	2.8	0.1	2.18	1.03	-2.02	-0.51	0.39	-0.78
IDEQ	10-Jan-95	13.6	3.5	0.3	2.61	1.25	-1.36	-0.37	1.11	0.20
IDEQ	9-Feb-95	22.05	3	0.4	3.09	1.10	-1.03	-0.14	0.60	1.00
IDEQ	8-Mar-95	24.53	1.7	0.2	3.20	0.53	-1.49	-0.07	-0.74	-0.05
IDEQ	22-Mar-95	37.69	2.4	0.5	3.63	0.88	-0.72	0.30	-0.02	2.04
IDEQ	12-Apr-95	26.15	2.1	0.3	3.26	0.74	-1.22	-0.02	-0.33	0.52
IDEQ	13-Jun-95	76.08	1	0.4	4.33	0.00	-0.89	1.37	-1.46	1.43
IDEQ	27-Jun-95	27.88	1	0.1	3.33	0.00	-1.90	0.03	-1.46	-0.64
IDEQ	11-Jul-95	15.74	1.5	0.1	2.76	0.41	-2.06	-0.31	-0.95	-0.83
IDEQ	25-Jul-95	12.51	2.3	0.2	2.53	0.83	-1.87	-0.40	-0.12	-0.61
IDEQ	14-Aug-95	9.57	2.2	0.1	2.26	0.79	-2.18	-0.49	-0.23	-0.94
IDEQ	13-Sep-95	7.8	2.7	0.1	2.05	0.99	-2.18	-0.53	0.29	-0.94
URS	10-Nov-97	28.2	2.2	0.3	3.34	0.79	-1.10	0.03	-0.23	0.82
URS	14-May-98	206	0.3	0.3	5.33	-1.20	-1.10	5.00	-2.18	0.81

tCd

Concentration over time analysis r2 Slope, m

	tCd	**CC278**		**Concentration over time**	
	LnConc.=mTime+b All data r2, m:			**0.155**	**-0.00047**
	Time	**Ln[COC]**	**[COC]**		
first:	17-May-91	1.35	4		
mid:	5-Aug-94	0.79	2		
last:	14-May-98	0.14	1		
	LnConc.=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	14-May-98	0.00	1		

Load over time analysis

	tCd	**CC278**		**Load over time**	
	LnLoad=mTime+b All data r2, m:			**0.000**	**-0.00001**
	Time	**LnLoad**	**Load**		
first:	17-May-91	-1.58	0		
mid:	5-Aug-94	-1.59	0		
last:	14-May-98	-1.60	0		
	LnLoad=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	14-May-98	0.00	1		

max r2:	0.536		max r2:	0.922	
Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.155	-0.00047	17.11	0.000	-0.00001	-1.34
0.285	-0.00071	25.38	0.056	0.00026	-10.77
0.314	-0.00084	29.91	0.051	0.00029	-11.53
0.307	-0.00084	29.92	0.045	0.00027	-10.94
0.285	-0.00078	27.90	0.052	0.00029	-11.81
0.275	-0.00078	27.66	0.043	0.00027	-10.94
0.264	-0.00077	27.38	0.028	0.00021	-8.91
0.249	-0.00075	26.60	0.023	0.00020	-8.34
0.232	-0.00072	25.71	0.016	0.00016	-7.24
0.222	-0.00071	25.36	0.008	0.00012	-5.64
0.204	-0.00068	24.27	0.013	0.00015	-6.73
0.190	-0.00066	23.49	0.016	0.00016	-7.25
0.174	-0.00063	22.58	0.021	0.00019	-8.34
0.174	-0.00064	22.95	0.034	0.00025	-10.14
0.174	-0.00065	23.39	0.061	0.00033	-12.95
0.208	-0.00072	25.86	0.094	0.00040	-15.63
0.319	-0.00087	30.82	0.120	0.00046	-17.63
0.384	-0.00096	34.06	0.169	0.00054	-20.59
0.452	-0.00105	37.34	0.168	0.00055	-20.93
0.462	-0.00109	38.56	0.146	0.00051	-19.53
0.446	-0.00107	38.08	0.140	0.00051	-19.51
0.427	-0.00106	37.49	0.126	0.00049	-18.85
0.424	-0.00107	38.13	0.099	0.00043	-16.71
0.410	-0.00107	38.01	0.073	0.00037	-14.38
0.389	-0.00105	37.19	0.054	0.00031	-12.48
0.368	-0.00102	36.28	0.033	0.00024	-9.88
0.336	-0.00095	33.60	0.040	0.00027	-11.00
0.304	-0.00088	31.26	0.076	0.00037	-14.47
0.308	-0.00091	32.26	0.082	0.00039	-15.35
0.279	-0.00087	30.74	0.234	0.00060	-22.60
0.253	-0.00084	29.73	0.363	0.00074	-27.71
0.332	-0.00098	34.69	0.898	0.00098	-36.39
0.465	-0.00118	41.91	0.922	0.00103	-38.18
0.536	-0.00135	47.91	0.915	0.00105	-38.60

update for EV, CV:

tCd **CC278**

LN Analysis **tCd**

Load **Load Data, EV=0.2 lbs/day CV=0.54**

Avg:	**0.2**	**Load Data-based LN**		
SD:	**0.1**	u	ln tCd Load	tCd Load
CV:	**0.54**	3	-0.1	0.9
Min:	**0.1**	0	-1.60	0.2
Max:	**0.7**	-3	-3.12	0.0
Median:	**0.2**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.936, EV=0.2 lbs/day CV=0.55; max r2=0.98**

r2 u,lnLoad:	0.936	u	lnLoad	Load
slope, m:	1.950	3.0	-0.05	1.0
intercept, b:	3.099	0.0	-1.59	0.2
N: 38		-3.0	-3.13	0.0
E[Load]:	0.2	Parameter Estimates		
SD[Load]:	0.1	from LN regression		
CV[Load]:	0.55	update graph label		

max r2
0.975

N: 38

Date	tCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
17-Dec-93	**0.10**	1	0.0163	-2.136	-2.304	0.936
14-Aug-95	**0.11**	2	0.0425	-1.723	-2.178	0.946
13-Sep-95	**0.11**	3	0.0686	-1.486	-2.178	0.955
13-Sep-94	**0.12**	4	0.0948	-1.312	-2.133	0.959
25-Jul-94	**0.12**	5	0.1209	-1.170	-2.116	0.963
6-Oct-94	**0.12**	6	0.1471	-1.049	-2.096	0.964
18-Feb-94	**0.12**	7	0.1732	-0.942	-2.080	0.965
11-Jul-95	**0.13**	8	0.1993	-0.844	-2.063	0.964
13-Dec-94	**0.13**	9	0.2255	-0.754	-2.020	0.962
17-Dec-93	**0.14**	10	0.2516	-0.669	-1.991	0.961
16-Nov-94	**0.14**	11	0.2778	-0.589	-1.963	0.958
20-Jan-94	**0.14**	12	0.3039	-0.513	-1.956	0.956
27-Oct-93	**0.15**	13	0.3301	-0.440	-1.909	0.952
16-Aug-94	**0.15**	14	0.3562	-0.369	-1.909	0.948
27-Jun-95	**0.15**	15	0.3824	-0.299	-1.897	0.943
25-Jul-95	**0.15**	16	0.4085	-0.231	-1.866	0.939
5-Oct-91	**0.16**	17	0.4346	-0.165	-1.828	0.934
20-Jan-94	**0.16**	18	0.4608	-0.098	-1.825	0.930
16-Aug-94	**0.17**	19	0.4869	-0.033	-1.794	0.929
23-Jun-94	**0.17**	20	0.5131	0.033	-1.774	0.935
8-Mar-95	**0.22**	21	0.5392	0.098	-1.495	0.957
24-Mar-94	**0.23**	22	0.5654	0.165	-1.454	0.952
30-Nov-93	**0.24**	23	0.5915	0.231	-1.428	0.947
10-Jan-95	**0.26**	24	0.6176	0.299	-1.362	0.940
24-Mar-94	**0.27**	25	0.6438	0.369	-1.326	0.935
19-May-94	**0.27**	26	0.6699	0.440	-1.316	0.931
8-Mar-94	**0.28**	27	0.6961	0.513	-1.266	0.924
12-Apr-95	**0.30**	28	0.7222	0.589	-1.219	0.918
7-Apr-94	**0.31**	29	0.7484	0.669	-1.177	0.917
7-Jun-94	**0.31**	30	0.7745	0.754	-1.159	0.922
14-May-98	**0.33**	31	0.8007	0.844	-1.101	0.926
10-Nov-97	**0.33**	32	0.8268	0.942	-1.097	0.949
4-May-94	**0.33**	33	0.8529	1.049	-1.094	0.968
9-Feb-95	**0.36**	34	0.8791	1.170	-1.033	0.975
7-Apr-94	**0.36**	35	0.9052	1.312	-1.013	
13-Jun-95	**0.41**	36	0.9314	1.486	-0.893	
22-Mar-95	**0.49**	37	0.9575	1.723	-0.720	
17-May-91	**0.71**	38	0.9837	2.136	-0.342	

update for EV, CV:

tCd **CC278**

LN Analysis **tCd**

Concentration **Conc. Data, EV=2.4 ug/L CV=.40**

Avg:	**2.4**	**Data-based LN**		
SD:	**1.0**	u	ln[tCd]	[tCd]
CV:	**0.4**	3.0	2.0	7
Min:	**0.3**	0.0	0.81	2
Max:	**5.6**	-3.0	-0.35	1
Median:	**2.6**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.835, EV=2.6 ug/L CV=0.65; max r2=0.89**

r2 u,lnConc:	0.835	u	lnConc.	Conc.
slope, m:	1.691	3.0	2.55	13
intercept, b:	-1.312	0.0	0.78	2
N: 38		-3.0	-1.00	0
E[Conc]:	2.6	Parameter Estimates		
SD[Conc]:	2	from LN regression		
CV[Conc]:	0.65	update graph label		

max r2 0.893

N: 38

Date	tCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
14-May-98	0.3	1	0.0163	-2.136	-1.204	0.835
19-May-94	0.8	2	0.0425	-1.723	-0.223	0.891
13-Jun-95	1	3	0.0686	-1.486	0.000	0.886
27-Jun-95	1	4	0.0948	-1.312	0.000	0.877
17-May-91	1.3	5	0.1209	-1.170	0.262	0.879
4-May-94	1.3	6	0.1471	-1.049	0.262	0.869
7-Jun-94	1.3	7	0.1732	-0.942	0.262	0.863
23-Jun-94	1.4	8	0.1993	-0.844	0.336	0.867
11-Jul-95	1.5	9	0.2255	-0.754	0.405	0.875
8-Mar-95	1.7	10	0.2516	-0.669	0.531	0.888
7-Apr-94	2.1	11	0.2778	-0.589	0.742	0.893
7-Apr-94	2.1	12	0.3039	-0.513	0.742	0.884
12-Apr-95	2.1	13	0.3301	-0.440	0.742	0.874
25-Jul-94	2.2	14	0.3562	-0.369	0.788	0.863
14-Aug-95	2.2	15	0.3824	-0.299	0.788	0.851
10-Nov-97	2.2	16	0.4085	-0.231	0.788	0.838
25-Jul-95	2.3	17	0.4346	-0.165	0.833	0.824
13-Sep-94	2.4	18	0.4608	-0.098	0.875	0.807
22-Mar-95	2.4	19	0.4869	-0.033	0.875	0.788
6-Oct-94	2.7	20	0.5131	0.033	0.993	0.766
13-Sep-95	2.7	21	0.5392	0.098	0.993	0.757
18-Feb-94	2.8	22	0.5654	0.165	1.030	0.743
13-Dec-94	2.8	23	0.5915	0.231	1.030	0.738
5-Oct-91	2.9	24	0.6176	0.299	1.065	0.728
16-Nov-94	2.9	25	0.6438	0.369	1.065	0.731
27-Oct-93	3	26	0.6699	0.440	1.099	0.730
17-Dec-93	3	27	0.6961	0.513	1.099	0.747
17-Dec-93	3	28	0.7222	0.589	1.099	0.762
24-Mar-94	3	29	0.7484	0.669	1.099	0.775
24-Mar-94	3	30	0.7745	0.754	1.099	0.784
9-Feb-95	3	31	0.8007	0.844	1.099	0.786
16-Aug-94	3.1	32	0.8268	0.942	1.131	0.775
16-Aug-94	3.1	33	0.8529	1.049	1.131	0.774
20-Jan-94	3.4	34	0.8791	1.170	1.224	0.747
20-Jan-94	3.4	35	0.9052	1.312	1.224	
8-Mar-94	3.4	36	0.9314	1.486	1.224	
10-Jan-95	3.5	37	0.9575	1.723	1.253	
30-Nov-93	5.6	38	0.9837	2.136	1.723	

update for EV, CV:

tCd		**CC278**		
LN Analysis		**tCd**		
Discharge, Q		**Q Data, EV=27 cfs CV=1.33**		
Avg:	**27**	**Q Data-based LN**		
SD:	**36**	u	lnQ	Q
CV:	**1.33**	3.0	5.8	334
Min:	**6**	0.0	2.78	16
Max:	**206**	-3.0	-0.24	1
Median:	**14**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.886, EV=26.3 cfs CV=1.13; max r2=0.995**

r2 u,lnQ:	0.886	u	lnQ	Q
slope, m:	1.105	3	5.58	264
intercept, b:	-3.160	0	2.86	17
N: 38		-3	0.14	1.2
E[Q]:	26.3	Parameter Estimates		
SD[Q]:	30	from LN regression		
CV[Q]:	1.13	update graph label		

						max r2
		N: 38				0.995
Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2 forward**
update and rank for new data						
17-Dec-93	6.19	1	0.0163	-2.136	1.823	0.886
20-Jan-94	7.73	2	0.0425	-1.723	2.045	0.903
13-Sep-95	7.8	3	0.0686	-1.486	2.054	0.921
30-Nov-93	7.96	4	0.0948	-1.312	2.074	0.935
18-Feb-94	8.29	5	0.1209	-1.170	2.115	0.945
17-Dec-93	8.46	6	0.1471	-1.049	2.135	0.955
6-Oct-94	8.46	7	0.1732	-0.942	2.135	0.964
20-Jan-94	8.81	8	0.1993	-0.844	2.176	0.970
13-Dec-94	8.81	9	0.2255	-0.754	2.176	0.977
16-Aug-94	8.89	10	0.2516	-0.669	2.185	0.981
16-Nov-94	9	11	0.2778	-0.589	2.197	0.985
27-Oct-93	9.18	12	0.3039	-0.513	2.217	0.987
13-Sep-94	9.18	13	0.3301	-0.440	2.217	0.988
14-Aug-95	9.57	14	0.3562	-0.369	2.259	0.988
16-Aug-94	9.97	15	0.3824	-0.299	2.300	0.988
25-Jul-94	10.18	16	0.4085	-0.231	2.320	0.987
5-Oct-91	10.3	17	0.4346	-0.165	2.332	0.986
25-Jul-95	12.51	18	0.4608	-0.098	2.527	0.985
10-Jan-95	13.6	19	0.4869	-0.033	2.610	0.984
24-Mar-94	14.48	20	0.5131	0.033	2.673	0.983
8-Mar-94	15.41	21	0.5392	0.098	2.735	0.982
11-Jul-95	15.74	22	0.5654	0.165	2.756	0.980
24-Mar-94	16.46	23	0.5915	0.231	2.801	0.978
9-Feb-95	22.05	24	0.6176	0.299	3.093	0.975
23-Jun-94	22.53	25	0.6438	0.369	3.115	0.978
8-Mar-95	24.53	26	0.6699	0.440	3.200	0.980
12-Apr-95	26.15	27	0.6961	0.513	3.264	0.984
7-Apr-94	27.29	28	0.7222	0.589	3.307	0.989
27-Jun-95	27.88	29	0.7484	0.669	3.328	0.993
10-Nov-97	28.2	30	0.7745	0.754	3.339	0.995
7-Apr-94	32.14	31	0.8007	0.844	3.470	0.994
22-Mar-95	37.69	32	0.8268	0.942	3.629	0.992
7-Jun-94	44.85	33	0.8529	1.049	3.803	0.991
4-May-94	47.88	34	0.8791	1.170	3.869	0.994
19-May-94	62.32	35	0.9052	1.312	4.132	
13-Jun-95	76.08	36	0.9314	1.486	4.332	
17-May-91	101.6	37	0.9575	1.723	4.621	
14-May-98	206	38	0.9837	2.136	5.328	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC278 **Date:** 25-May-00
Chemical: tPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,587	27	13	2	0.00	0.00	0.00
SD:	435	36	5	2	1.00	1.00	1.00
CV:	0.01	1.33	0.37	1.02			
Min:	33,375	6	6	0	-0.58	-1.46	-0.68
Max:	35,929	206	32	8	5.00	3.83	3.90
Median:	34,551	14	12	1	-0.36	-0.24	-0.32

tPb CC278 **: Concentration v. Discharge, Q**

Conc. = mQ+b (r2=0.16) update r2

r2 Q,[COC]:	0.16	[tPb]	Q
slope, m:	-0.1	14	6.2
intercept, b:	14.7	13	27.0
N: 38		3	206

LnConc. = mLn{Q}+b (r2=0.38) update r2

lnQ,ln[COC]:	0.38	ln[tPb]	ln Q	[tPb]	Q
slope, m:	-0.27	2.80	1.82	16	6
intercept, b:	3.29	2.40	3.29	11	27
N: 38		1.84	5.33	6	206

Q = mTime +b		**LnQ = mTime +b**
r2:	0.103	0.061
m:	0.0265	0.00047
b:	-889	-13.23

for graph
tPb 0
CC278

N= 38

update for new data

DATA:

	Sampling Date	Q Discharge cfs x-axis	tPb Concentration ug/L y-axis	tPb Load lbs/day y-axis	Ln Q x-axis	Ln tPb Conc. y-axis	Ln tPb Load y-axis	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
MFG	17-May-91	101.6	14	7.7	4.62	2.64	2.04	2.08	0.17	3.90
MFG	5-Oct-91	10.3	16	0.9	2.33	2.77	-0.12	-0.46	0.57	-0.41
IDEQ	27-Oct-93	9.18	14	0.7	2.22	2.64	-0.37	-0.50	0.17	-0.54
IDEQ	30-Nov-93	7.96	14	0.6	2.07	2.64	-0.51	-0.53	0.17	-0.60
IDEQ	17-Dec-93	8.46	14	0.6	2.14	2.64	-0.45	-0.52	0.17	-0.57
IDEQ	17-Dec-93	6.19	14	0.5	1.82	2.64	-0.76	-0.58	0.17	-0.68
IDEQ	20-Jan-94	8.81	17	0.8	2.18	2.83	-0.22	-0.51	0.78	-0.46
IDEQ	20-Jan-94	7.73	17	0.7	2.05	2.83	-0.35	-0.54	0.78	-0.53
IDEQ	18-Feb-94	8.29	14	0.6	2.12	2.64	-0.47	-0.52	0.17	-0.58
IDEQ	8-Mar-94	15.41	16	1.3	2.74	2.77	0.28	-0.32	0.57	-0.13
IDEQ	24-Mar-94	14.48	12	0.9	2.67	2.48	-0.07	-0.35	-0.24	-0.38
IDEQ	24-Mar-94	16.46	12	1.1	2.80	2.48	0.06	-0.29	-0.24	-0.30
IDEQ	7-Apr-94	27.29	9	1.3	3.31	2.20	0.28	0.01	-0.85	-0.14
IDEQ	7-Apr-94	32.14	9	1.6	3.47	2.20	0.44	0.14	-0.85	0.01
IDEQ	4-May-94	47.88	10	2.6	3.87	2.30	0.95	0.58	-0.65	0.66
IDEQ	19-May-94	62.32	6	2.0	4.13	1.79	0.70	0.99	-1.46	0.30
IDEQ	7-Jun-94	44.85	6	1.4	3.80	1.79	0.37	0.50	-1.46	-0.06
IDEQ	23-Jun-94	22.53	12	1.5	3.11	2.48	0.37	-0.12	-0.24	-0.05
IDEQ	25-Jul-94	10.18	10	0.5	2.32	2.30	-0.60	-0.47	-0.65	-0.63
IDEQ	16-Aug-94	9.97	18	1.0	2.30	2.89	-0.04	-0.47	0.98	-0.36
IDEQ	16-Aug-94	8.89	18	0.9	2.18	2.89	-0.15	-0.50	0.98	-0.43
IDEQ	13-Sep-94	9.18	12	0.6	2.22	2.48	-0.52	-0.50	-0.24	-0.60
IDEQ	6-Oct-94	8.46	13	0.6	2.14	2.56	-0.52	-0.52	-0.04	-0.60
IDEQ	16-Nov-94	9	12	0.6	2.20	2.48	-0.54	-0.50	-0.24	-0.61
IDEQ	13-Dec-94	8.81	11	0.5	2.18	2.40	-0.65	-0.51	-0.44	-0.65
IDEQ	10-Jan-95	13.6	22	1.6	2.61	3.09	0.48	-0.37	1.79	0.05
IDEQ	9-Feb-95	22.05	17	2.0	3.09	2.83	0.70	-0.14	0.78	0.31
IDEQ	8-Mar-95	24.53	6	0.8	3.20	1.79	-0.23	-0.07	-1.46	-0.47
IDEQ	22-Mar-95	37.69	12	2.4	3.63	2.48	0.89	0.30	-0.24	0.57
IDEQ	12-Apr-95	26.15	11	1.5	3.26	2.40	0.44	-0.02	-0.44	0.01
IDEQ	13-Jun-95	76.08	10	4.1	4.33	2.30	1.41	1.37	-0.65	1.63
IDEQ	27-Jun-95	27.88	10	1.5	3.33	2.30	0.41	0.03	-0.65	-0.02
IDEQ	11-Jul-95	15.74	12	1.0	2.76	2.48	0.02	-0.31	-0.24	-0.33
IDEQ	25-Jul-95	12.51	20	1.3	2.53	3.00	0.30	-0.40	1.39	-0.12
IDEQ	14-Aug-95	9.57	15	0.8	2.26	2.71	-0.26	-0.49	0.37	-0.49
IDEQ	13-Sep-95	7.8	32	1.3	2.05	3.47	0.29	-0.53	3.83	-0.12
URS	10-Nov-97	28.2	7.4	1.1	3.34	2.00	0.12	0.03	-1.18	-0.26
URS	14-May-98	206	6.6	7.3	5.33	1.89	1.99	5.00	-1.34	3.68

tPb

Concentration over time analysis

				r2	Slope, m
	tPb	**CC278**		**Concentration over time**	
	LnConc.=mTime+b All data r2, m:			**0.068**	**-0.00022**
	Time	**Ln[COC]**	**[COC]**		
first:	17-May-91	2.78	16		
mid:	5-Aug-94	2.52	12		
last:	14-May-98	2.22	9		
	LnConc.=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	14-May-98	0.00	1		

Load over time analysis

	tPb	**CC278**		**Load over time**	
	LnLoad=mTime+b All data r2, m:			**0.027**	**0.00025**
	Time	**LnLoad**	**Load**		
first:	17-May-91	-0.15	1		
mid:	5-Aug-94	0.14	1		
last:	14-May-98	0.48	2		
	LnLoad=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	14-May-98	0.00	1		

max r2:	0.813		max r2:	0.504	
Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.068	-0.00022	10.01	0.027	0.00025	-8.44
0.070	-0.00025	11.06	0.231	0.00073	-25.08
0.057	-0.00025	11.16	0.262	0.00088	-30.28
0.053	-0.00025	11.03	0.251	0.00086	-29.83
0.050	-0.00024	10.87	0.235	0.00084	-28.84
0.047	-0.00024	10.69	0.220	0.00081	-27.91
0.043	-0.00023	10.48	0.196	0.00075	-25.80
0.034	-0.00021	9.61	0.186	0.00074	-25.33
0.025	-0.00018	8.61	0.171	0.00071	-24.34
0.021	-0.00017	8.21	0.153	0.00066	-22.79
0.015	-0.00014	7.30	0.160	0.00069	-23.70
0.015	-0.00014	7.32	0.152	0.00068	-23.42
0.014	-0.00014	7.35	0.149	0.00069	-23.57
0.022	-0.00017	8.51	0.156	0.00071	-24.58
0.031	-0.00021	9.88	0.174	0.00077	-26.46
0.039	-0.00024	10.89	0.234	0.00089	-30.60
0.083	-0.00034	14.32	0.286	0.00099	-34.13
0.162	-0.00045	18.17	0.313	0.00105	-36.48
0.175	-0.00048	19.15	0.345	0.00113	-39.12
0.211	-0.00053	21.04	0.319	0.00107	-37.04
0.191	-0.00050	20.15	0.314	0.00108	-37.44
0.167	-0.00047	19.06	0.302	0.00108	-37.28
0.179	-0.00050	20.08	0.271	0.00100	-34.77
0.183	-0.00052	20.71	0.237	0.00092	-31.68
0.194	-0.00055	21.77	0.201	0.00081	-27.91
0.219	-0.00060	23.45	0.162	0.00066	-22.71
0.183	-0.00053	20.86	0.168	0.00069	-23.74
0.157	-0.00048	19.41	0.196	0.00076	-26.32
0.321	-0.00064	24.89	0.159	0.00066	-22.72
0.345	-0.00068	26.49	0.212	0.00078	-26.85
0.402	-0.00076	29.28	0.217	0.00082	-28.16
0.502	-0.00087	33.08	0.462	0.00109	-38.00
0.664	-0.00102	38.59	0.504	0.00119	-41.51
0.813	-0.00120	44.94	0.473	0.00119	-41.57

update for EV, CV:

tPb **CC278**

LN Analysis **tPb**

Load **Load Data, EV=2 lbs/day CV=1.02**

Avg:	**2**	**Load Data-based LN**		
SD:	**2**	u	ln tPb Load	tPb Load
CV:	**1.02**	3	2.6	14
Min:	**0**	0	0.07	1
Max:	**8**	-3	-2.47	0.1
Median:	**1**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.904, EV=1.5 lbs/day CV=0.83; max r2=0.94**

r2 u,lnLoad:	0.904	u	lnLoad	Load
slope, m:	1.384	3	2.32	10
intercept, b:	-0.207	0	0.15	1
N: 38		-3	-2.02	0.1
E[Load]:	1.5	Parameter Estimates		
SD[Load]:	1	from LN regression		
CV[Load]:	0.83	update graph label		

						max r2
	tPb	N: 38				0.940
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
17-Dec-93	**0.5**	1	0.0163	-2.136	-0.763	0.904
13-Dec-94	**0.5**	2	0.0425	-1.723	-0.651	0.917
25-Jul-94	**0.5**	3	0.0686	-1.486	-0.602	0.925
16-Nov-94	**0.6**	4	0.0948	-1.312	-0.543	0.931
6-Oct-94	**0.6**	5	0.1209	-1.170	-0.525	0.936
13-Sep-94	**0.6**	6	0.1471	-1.049	-0.523	0.939
30-Nov-93	**0.6**	7	0.1732	-0.942	-0.512	0.940
18-Feb-94	**0.6**	8	0.1993	-0.844	-0.471	0.939
17-Dec-93	**0.6**	9	0.2255	-0.754	-0.451	0.937
27-Oct-93	**0.7**	10	0.2516	-0.669	-0.369	0.935
20-Jan-94	**0.7**	11	0.2778	-0.589	-0.347	0.933
14-Aug-95	**0.8**	12	0.3039	-0.513	-0.258	0.931
8-Mar-95	**0.8**	13	0.3301	-0.440	-0.233	0.930
20-Jan-94	**0.8**	14	0.3562	-0.369	-0.216	0.928
16-Aug-94	**0.9**	15	0.3824	-0.299	-0.150	0.925
5-Oct-91	**0.9**	16	0.4085	-0.231	-0.120	0.922
24-Mar-94	**0.9**	17	0.4346	-0.165	-0.067	0.919
16-Aug-94	**1.0**	18	0.4608	-0.098	-0.035	0.916
11-Jul-95	**1.0**	19	0.4869	-0.033	0.016	0.912
24-Mar-94	**1.1**	20	0.5131	0.033	0.061	0.909
10-Nov-97	**1.1**	21	0.5392	0.098	0.116	0.905
7-Apr-94	**1.3**	22	0.5654	0.165	0.279	0.901
8-Mar-94	**1.3**	23	0.5915	0.231	0.283	0.910
13-Sep-95	**1.3**	24	0.6176	0.299	0.295	0.917
25-Jul-95	**1.3**	25	0.6438	0.369	0.297	0.923
7-Jun-94	**1.4**	26	0.6699	0.440	0.370	0.925
23-Jun-94	**1.5**	27	0.6961	0.513	0.375	0.933
27-Jun-95	**1.5**	28	0.7222	0.589	0.405	0.936
12-Apr-95	**1.5**	29	0.7484	0.669	0.437	0.938
7-Apr-94	**1.6**	30	0.7745	0.754	0.442	0.937
10-Jan-95	**1.6**	31	0.8007	0.844	0.476	0.927
19-May-94	**2.0**	32	0.8268	0.942	0.699	0.909
9-Feb-95	**2.0**	33	0.8529	1.049	0.701	0.895
22-Mar-95	**2.4**	34	0.8791	1.170	0.889	0.856
4-May-94	**2.6**	35	0.9052	1.312	0.946	
13-Jun-95	**4.1**	36	0.9314	1.486	1.409	
14-May-98	**7.3**	37	0.9575	1.723	1.990	
17-May-91	**7.7**	38	0.9837	2.136	2.035	

update for EV, CV:

tPb **CC278**

LN Analysis **tPb**

Concentration **Conc. Data, EV=13 ug/L CV=.37**

Avg:	**13**	**Data-based LN**		
SD:	**5**	u	ln[tPb]	[tPb]
CV:	**0.37**	3	3.6	36
Min:	**6**	0	2.51	12
Max:	**32**	-3	1.43	4
Median:	**12**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.962, EV=13.3 ug/L CV=.40; max r2=0.96**

r2 u,lnConc:	0.962	u	lnConc.	Conc.
slope, m:	2.617	3	3.66	39
intercept, b:	-6.580	0	2.51	12
N: 38		-3	1.37	4
E[Conc]:	13.3	Parameter Estimates		
SD[Conc]:	5	from LN regression		
CV[Conc]:	0.40	update graph label		

N: 38

max r2
0.962

Date	tPb Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
19-May-94	6	1	0.0163	-2.136	1.792	0.962
7-Jun-94	6	2	0.0425	-1.723	1.792	0.958
8-Mar-95	6	3	0.0686	-1.486	1.792	0.954
14-May-98	6.6	4	0.0948	-1.312	1.887	0.957
10-Nov-97	7.4	5	0.1209	-1.170	2.001	0.961
7-Apr-94	9	6	0.1471	-1.049	2.197	0.962
7-Apr-94	9	7	0.1732	-0.942	2.197	0.959
4-May-94	10	8	0.1993	-0.844	2.303	0.955
25-Jul-94	10	9	0.2255	-0.754	2.303	0.954
13-Jun-95	10	10	0.2516	-0.669	2.303	0.951
27-Jun-95	10	11	0.2778	-0.589	2.303	0.947
13-Dec-94	11	12	0.3039	-0.513	2.398	0.943
12-Apr-95	11	13	0.3301	-0.440	2.398	0.940
24-Mar-94	12	14	0.3562	-0.369	2.485	0.936
24-Mar-94	12	15	0.3824	-0.299	2.485	0.939
23-Jun-94	12	16	0.4085	-0.231	2.485	0.941
13-Sep-94	12	17	0.4346	-0.165	2.485	0.941
16-Nov-94	12	18	0.4608	-0.098	2.485	0.938
22-Mar-95	12	19	0.4869	-0.033	2.485	0.934
11-Jul-95	12	20	0.5131	0.033	2.485	0.927
6-Oct-94	13	21	0.5392	0.098	2.565	0.920
17-May-91	14	22	0.5654	0.165	2.639	0.914
27-Oct-93	14	23	0.5915	0.231	2.639	0.920
30-Nov-93	14	24	0.6176	0.299	2.639	0.924
17-Dec-93	14	25	0.6438	0.369	2.639	0.925
17-Dec-93	14	26	0.6699	0.440	2.639	0.921
18-Feb-94	14	27	0.6961	0.513	2.639	0.913
14-Aug-95	15	28	0.7222	0.589	2.708	0.899
5-Oct-91	16	29	0.7484	0.669	2.773	0.890
8-Mar-94	16	30	0.7745	0.754	2.773	0.896
20-Jan-94	17	31	0.8007	0.844	2.833	0.893
20-Jan-94	17	32	0.8268	0.942	2.833	0.919
9-Feb-95	17	33	0.8529	1.049	2.833	0.938
16-Aug-94	18	34	0.8791	1.170	2.890	0.943
16-Aug-94	18	35	0.9052	1.312	2.890	
25-Jul-95	20	36	0.9314	1.486	2.996	
10-Jan-95	22	37	0.9575	1.723	3.091	
13-Sep-95	32	38	0.9837	2.136	3.466	

update for EV, CV:

tPb **CC278**

LN Analysis **tPb**

Discharge, Q **Q Data, EV=27 cfs CV=1.33**

Avg:	**27**	**Q Data-based LN**		
SD:	**36**	u	lnQ	Q
CV:	**1.33**	3	5.8	334
Min:	**6**	0	2.78	16
Max:	**206**	-3	-0.24	1
Median:	**14**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.886, EV=26.3 cfs CV=1.13; max r2=0.995**

r2 u,lnQ:	0.886	u	lnQ	Q
slope, m:	1.105	3	5.58	264
intercept, b:	-3.160	0	2.86	17
N: 38		-3	0.14	1.2
E[Q]:	26.3	Parameter Estimates		
SD[Q]:	30	from LN regression		
CV[Q]:	1.13	update graph label		

max r2
0.995

N: 38

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
17-Dec-93	6.19	1	0.0163	-2.136	1.823	0.886
20-Jan-94	7.73	2	0.0425	-1.723	2.045	0.903
13-Sep-95	7.8	3	0.0686	-1.486	2.054	0.921
30-Nov-93	7.96	4	0.0948	-1.312	2.074	0.935
18-Feb-94	8.29	5	0.1209	-1.170	2.115	0.945
17-Dec-93	8.46	6	0.1471	-1.049	2.135	0.955
6-Oct-94	8.46	7	0.1732	-0.942	2.135	0.964
20-Jan-94	8.81	8	0.1993	-0.844	2.176	0.970
13-Dec-94	8.81	9	0.2255	-0.754	2.176	0.977
16-Aug-94	8.89	10	0.2516	-0.669	2.185	0.981
16-Nov-94	9	11	0.2778	-0.589	2.197	0.985
27-Oct-93	9.18	12	0.3039	-0.513	2.217	0.987
13-Sep-94	9.18	13	0.3301	-0.440	2.217	0.988
14-Aug-95	9.57	14	0.3562	-0.369	2.259	0.988
16-Aug-94	9.97	15	0.3824	-0.299	2.300	0.988
25-Jul-94	10.18	16	0.4085	-0.231	2.320	0.987
5-Oct-91	10.3	17	0.4346	-0.165	2.332	0.986
25-Jul-95	12.51	18	0.4608	-0.098	2.527	0.985
10-Jan-95	13.6	19	0.4869	-0.033	2.610	0.984
24-Mar-94	14.48	20	0.5131	0.033	2.673	0.983
8-Mar-94	15.41	21	0.5392	0.098	2.735	0.982
11-Jul-95	15.74	22	0.5654	0.165	2.756	0.980
24-Mar-94	16.46	23	0.5915	0.231	2.801	0.978
9-Feb-95	22.05	24	0.6176	0.299	3.093	0.975
23-Jun-94	22.53	25	0.6438	0.369	3.115	0.978
8-Mar-95	24.53	26	0.6699	0.440	3.200	0.980
12-Apr-95	26.15	27	0.6961	0.513	3.264	0.984
7-Apr-94	27.29	28	0.7222	0.589	3.307	0.989
27-Jun-95	27.88	29	0.7484	0.669	3.328	0.993
10-Nov-97	28.2	30	0.7745	0.754	3.339	0.995
7-Apr-94	32.14	31	0.8007	0.844	3.470	0.994
22-Mar-95	37.69	32	0.8268	0.942	3.629	0.992
7-Jun-94	44.85	33	0.8529	1.049	3.803	0.991
4-May-94	47.88	34	0.8791	1.170	3.869	0.994
19-May-94	62.32	35	0.9052	1.312	4.132	
13-Jun-95	76.08	36	0.9314	1.486	4.332	
17-May-91	101.6	37	0.9575	1.723	4.621	
14-May-98	206	38	0.9837	2.136	5.328	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC278 **Date:** 25-May-00
Chemical: tZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,587	27	368	35	0.00	0.00	0.00
SD:	435	36	153	20	1.00	1.00	1.00
CV:	0.01	1.33	0.42	0.57			
Min:	33,375	6	78	16	-0.58	-1.89	-0.95
Max:	35,929	206	591	91	5.00	1.46	2.84
Median:	34,551	14	392	25	-0.36	0.16	-0.47

tZn CC278 **: Concentration v. Discharge, Q**

Conc. = mQ+b (r2=0.40)	update r2			**Q = mTime +b**		**LnQ = mTime +b**
r2 Q,[COC]:	0.40	[tZn]	Q	r2:	0.103	0.061
slope, m:	-2.7	424	6.2	m:	0.0265	0.00047
intercept, b:	440.3	368	27.0	b:	-889	-13.23
N: 38		-113	206			

LnConc. = mLn{Q}+b (r2=0.67)	update r2				
? lnQ,ln[COC]:	0.67	ln[tZn]	ln Q	[tZn]	Q
slope, m:	-0.55	6.36	1.82	576	6
intercept, b:	7.36	5.54	3.29	255	27
N: 38		4.42	5.33	83	206

for graph
tZn 0
CC278

N= 38

update for new data
DATA:

	Sampling Date	Q Discharge cfs x-axis	tZn Concentration ug/L y-axis	tZn Load lbs/day y-axis	Ln Q x-axis	Ln tZn Conc. y-axis	Ln tZn Load y-axis	Standardized Values = (x - Avg)/SD Q	Conc	Load
MFG	17-May-91	101.6	167	91	4.62	5.12	4.51	2.08	-1.31	2.84
MFG	5-Oct-91	10.3	409	23	2.33	6.01	3.12	-0.46	0.27	-0.61
IDEQ	27-Oct-93	9.18	491	24	2.22	6.20	3.19	-0.50	0.80	-0.53
IDEQ	30-Nov-93	7.96	583	25	2.07	6.37	3.22	-0.53	1.41	-0.49
IDEQ	17-Dec-93	8.46	518	24	2.14	6.25	3.16	-0.52	0.98	-0.56
IDEQ	17-Dec-93	6.19	518	17	1.82	6.25	2.85	-0.58	0.98	-0.88
IDEQ	20-Jan-94	8.81	561	27	2.18	6.33	3.28	-0.51	1.26	-0.41
IDEQ	20-Jan-94	7.73	561	23	2.05	6.33	3.15	-0.54	1.26	-0.57
IDEQ	18-Feb-94	8.29	518	23	2.12	6.25	3.14	-0.52	0.98	-0.59
IDEQ	8-Mar-94	15.41	550	46	2.74	6.31	3.82	-0.32	1.19	0.54
IDEQ	24-Mar-94	14.48	392	31	2.67	5.97	3.42	-0.35	0.16	-0.21
IDEQ	24-Mar-94	16.46	392	35	2.80	5.97	3.55	-0.29	0.16	0.00
IDEQ	7-Apr-94	27.29	331	49	3.31	5.80	3.88	0.01	-0.24	0.70
IDEQ	7-Apr-94	32.14	331	57	3.47	5.80	4.05	0.14	-0.24	1.13
IDEQ	4-May-94	47.88	154	40	3.87	5.04	3.68	0.58	-1.40	0.25
IDEQ	19-May-94	62.32	96	32	4.13	4.56	3.47	0.99	-1.77	-0.13
IDEQ	7-Jun-94	44.85	151	36	3.80	5.02	3.60	0.50	-1.42	0.08
IDEQ	23-Jun-94	22.53	203	25	3.11	5.31	3.20	-0.12	-1.08	-0.51
IDEQ	25-Jul-94	10.18	295	16	2.32	5.69	2.78	-0.47	-0.48	-0.93
IDEQ	16-Aug-94	9.97	480	26	2.30	6.17	3.25	-0.47	0.73	-0.45
IDEQ	16-Aug-94	8.89	480	23	2.18	6.17	3.13	-0.50	0.73	-0.59
IDEQ	13-Sep-94	9.18	374	18	2.22	5.92	2.92	-0.50	0.04	-0.82
IDEQ	6-Oct-94	8.46	406	18	2.14	6.01	2.92	-0.52	0.25	-0.82
IDEQ	16-Nov-94	9	424	21	2.20	6.05	3.02	-0.50	0.37	-0.71
IDEQ	13-Dec-94	8.81	496	24	2.18	6.21	3.16	-0.51	0.84	-0.57
IDEQ	10-Jan-95	13.6	591	43	2.61	6.38	3.77	-0.37	1.46	0.43
IDEQ	9-Feb-95	22.05	586	70	3.09	6.37	4.24	-0.14	1.42	1.75
IDEQ	8-Mar-95	24.53	272	36	3.20	5.61	3.58	-0.07	-0.63	0.06
IDEQ	22-Mar-95	37.69	419	85	3.63	6.04	4.44	0.30	0.33	2.52
IDEQ	12-Apr-95	26.15	322	45	3.26	5.77	3.81	-0.02	-0.30	0.53
IDEQ	13-Jun-95	76.08	95	39	4.33	4.55	3.66	1.37	-1.78	0.21
IDEQ	27-Jun-95	27.88	112	17	3.33	4.72	2.82	0.03	-1.67	-0.90
IDEQ	11-Jul-95	15.74	223	19	2.76	5.41	2.94	-0.31	-0.95	-0.80
IDEQ	25-Jul-95	12.51	328	22	2.53	5.79	3.09	-0.40	-0.26	-0.64
IDEQ	14-Aug-95	9.57	309	16	2.26	5.73	2.77	-0.49	-0.38	-0.95
IDEQ	13-Sep-95	7.8	409	17	2.05	6.01	2.84	-0.53	0.27	-0.88
URS	10-Nov-97	28.2	352	53	3.34	5.86	3.98	0.03	-0.10	0.94
URS	14-May-98	206	78	86	5.33	4.36	4.46	5.00	-1.89	2.60

tZn

Concentration over time analysis r2 Slope, m

tZn CC278 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.071** **-0.00034**

	Time	Ln[COC]	[COC]
first:	17-May-91	6.19	490
mid:	5-Aug-94	5.79	329
last:	14-May-98	5.33	206

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

tZn CC278 **Load over time**

LnLoad=mTime+b All data r2, m: **0.012** **0.00012**

	Time	LnLoad	Load
first:	17-May-91	3.27	26
mid:	5-Aug-94	3.41	30
last:	14-May-98	3.59	36

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.475 max r2: 0.960

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.071	-0.00034	17.55	0.012	0.00012	-0.90
0.166	-0.00058	25.74	0.115	0.00040	-10.40
0.184	-0.00068	29.50	0.112	0.00044	-11.94
0.174	-0.00067	29.05	0.107	0.00044	-11.82
0.158	-0.00064	27.98	0.103	0.00044	-11.73
0.146	-0.00062	27.16	0.097	0.00043	-11.44
0.132	-0.00059	26.23	0.081	0.00039	-10.06
0.117	-0.00055	24.94	0.078	0.00039	-9.99
0.100	-0.00051	23.48	0.070	0.00037	-9.46
0.086	-0.00047	22.16	0.062	0.00035	-8.84
0.071	-0.00043	20.50	0.079	0.00040	-10.51
0.064	-0.00041	19.86	0.081	0.00041	-10.88
0.056	-0.00039	19.12	0.088	0.00044	-11.80
0.053	-0.00038	18.95	0.117	0.00050	-14.14
0.049	-0.00038	18.75	0.170	0.00060	-17.58
0.075	-0.00046	21.81	0.199	0.00066	-19.68
0.152	-0.00062	27.38	0.215	0.00070	-21.08
0.220	-0.00074	31.49	0.244	0.00076	-23.17
0.273	-0.00083	34.69	0.242	0.00077	-23.58
0.290	-0.00087	36.24	0.216	0.00072	-21.84
0.272	-0.00085	35.44	0.213	0.00073	-22.15
0.251	-0.00082	34.45	0.202	0.00073	-21.89
0.243	-0.00083	34.63	0.176	0.00068	-20.21
0.229	-0.00082	34.23	0.149	0.00062	-18.16
0.211	-0.00079	33.32	0.126	0.00057	-16.35
0.183	-0.00073	31.16	0.108	0.00053	-15.00
0.146	-0.00062	27.37	0.129	0.00059	-17.23
0.107	-0.00050	22.83	0.223	0.00075	-22.90
0.100	-0.00049	22.64	0.246	0.00081	-24.98
0.065	-0.00039	18.89	0.546	0.00108	-34.45
0.042	-0.00031	16.18	0.758	0.00127	-41.26
0.139	-0.00052	23.66	0.960	0.00144	-47.41
0.373	-0.00078	32.91	0.956	0.00143	-47.19
0.475	-0.00093	38.32	0.956	0.00146	-48.19

update for EV, CV:

tZn **CC278**

LN Analysis **tZn**

Load **Load Data, EV=35 lbs/day CV=.57**

Load Data-based LN

Avg:	**35**	u	ln tZn Load	tZn Load
SD:	**20**	3	5.0	149
CV:	**0.57**	0	3.41	30
Min:	**16**	-3	1.81	6
Max:	**91**			
Median:	**25**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.933, EV=35.0 lbs/day CV=0.56; max r2=0.98**

r2 u,lnLoad:	0.933	u	lnLoad	Load
slope, m:	1.907	3	4.99	147
intercept, b:	-6.519	0	3.42	30
N: 38		-3	1.84	6
E[Load]:	35.0	Parameter Estimates		
SD[Load]:	20	from LN regression		
CV[Load]:	0.56	update graph label		

max r2
0.976

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
		N: 38				
update and rank for new data						
14-Aug-95	**16**	1	0.0163	-2.136	2.767	0.933
25-Jul-94	**16**	2	0.0425	-1.723	2.782	0.951
27-Jun-95	**17**	3	0.0686	-1.486	2.821	0.958
13-Sep-95	**17**	4	0.0948	-1.312	2.843	0.963
17-Dec-93	**17**	5	0.1209	-1.170	2.848	0.966
13-Sep-94	**18**	6	0.1471	-1.049	2.916	0.966
6-Oct-94	**18**	7	0.1732	-0.942	2.917	0.968
11-Jul-95	**19**	8	0.1993	-0.844	2.938	0.967
16-Nov-94	**21**	9	0.2255	-0.754	3.022	0.966
25-Jul-95	**22**	10	0.2516	-0.669	3.094	0.967
5-Oct-91	**23**	11	0.2778	-0.589	3.121	0.970
16-Aug-94	**23**	12	0.3039	-0.513	3.134	0.973
18-Feb-94	**23**	13	0.3301	-0.440	3.140	0.975
20-Jan-94	**23**	14	0.3562	-0.369	3.150	0.976
13-Dec-94	**24**	15	0.3824	-0.299	3.157	0.976
17-Dec-93	**24**	16	0.4085	-0.231	3.160	0.975
27-Oct-93	**24**	17	0.4346	-0.165	3.188	0.973
23-Jun-94	**25**	18	0.4608	-0.098	3.203	0.971
30-Nov-93	**25**	19	0.4869	-0.033	3.218	0.968
16-Aug-94	**26**	20	0.5131	0.033	3.248	0.966
20-Jan-94	**27**	21	0.5392	0.098	3.281	0.964
24-Mar-94	**31**	22	0.5654	0.165	3.419	0.964
19-May-94	**32**	23	0.5915	0.231	3.472	0.960
24-Mar-94	**35**	24	0.6176	0.299	3.547	0.955
8-Mar-95	**36**	25	0.6438	0.369	3.581	0.950
7-Jun-94	**36**	26	0.6699	0.440	3.596	0.943
13-Jun-95	**39**	27	0.6961	0.513	3.661	0.935
4-May-94	**40**	28	0.7222	0.589	3.681	0.925
10-Jan-95	**43**	29	0.7484	0.669	3.767	0.911
12-Apr-95	**45**	30	0.7745	0.754	3.813	0.895
8-Mar-94	**46**	31	0.8007	0.844	3.820	0.872
7-Apr-94	**49**	32	0.8268	0.942	3.884	0.840
10-Nov-97	**53**	33	0.8529	1.049	3.978	0.796
7-Apr-94	**57**	34	0.8791	1.170	4.047	0.723
9-Feb-95	**70**	35	0.9052	1.312	4.242	
22-Mar-95	**85**	36	0.9314	1.486	4.442	
14-May-98	**86**	37	0.9575	1.723	4.460	
17-May-91	**91**	38	0.9837	2.136	4.514	

update for EV, CV:

tZn
LN Analysis
Concentration

CC278
tZn
Conc. Data, EV=368 ug/L CV=.42
Data-based LN

Avg:	**368**			
SD:	**153**	u	ln[tZn]	[tZn]
CV:	**0.42**	3	7.0	1127
Min:	**78**	0	5.83	340
Max:	**591**	-3	4.63	102
Median:	**392**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.865, EV=393.5 ug/L CV=0.69; max r2=0.91**

r2 u,lnConc:	0.865	u	lnConc.	Conc.
slope, m:	1.610	3	7.65	2091
intercept, b:	-9.312	0	5.78	325
N: 38		-3	3.92	50
E[Conc]:	393.5	Parameter Estimates		
SD[Conc]:	270	from LN regression		
CV[Conc]:	0.69	update graph label		

Date	**tZn Concentration ug/L Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	max r2 0.913 r2 forward
		N: 38				
update and rank for new data						
14-May-98	78	1	0.0163	-2.136	4.357	0.865
13-Jun-95	95	2	0.0425	-1.723	4.554	0.845
19-May-94	96	3	0.0686	-1.486	4.564	0.830
27-Jun-95	112	4	0.0948	-1.312	4.718	0.830
7-Jun-94	151	5	0.1209	-1.170	5.017	0.838
4-May-94	154	6	0.1471	-1.049	5.037	0.834
17-May-91	167	7	0.1732	-0.942	5.118	0.845
23-Jun-94	203	8	0.1993	-0.844	5.313	0.872
11-Jul-95	223	9	0.2255	-0.754	5.407	0.889
8-Mar-95	272	10	0.2516	-0.669	5.606	0.913
25-Jul-94	295	11	0.2778	-0.589	5.687	0.913
14-Aug-95	309	12	0.3039	-0.513	5.733	0.908
12-Apr-95	322	13	0.3301	-0.440	5.775	0.902
25-Jul-95	328	14	0.3562	-0.369	5.793	0.895
7-Apr-94	331	15	0.3824	-0.299	5.802	0.887
7-Apr-94	331	16	0.4085	-0.231	5.802	0.882
10-Nov-97	352	17	0.4346	-0.165	5.864	0.885
13-Sep-94	374	18	0.4608	-0.098	5.924	0.883
24-Mar-94	392	19	0.4869	-0.033	5.971	0.874
24-Mar-94	392	20	0.5131	0.033	5.971	0.862
6-Oct-94	406	21	0.5392	0.098	6.006	0.850
5-Oct-91	409	22	0.5654	0.165	6.014	0.834
13-Sep-95	409	23	0.5915	0.231	6.014	0.818
22-Mar-95	419	24	0.6176	0.299	6.038	0.813
16-Nov-94	424	25	0.6438	0.369	6.050	0.818
16-Aug-94	480	26	0.6699	0.440	6.174	0.889
16-Aug-94	480	27	0.6961	0.513	6.174	0.873
27-Oct-93	491	28	0.7222	0.589	6.196	0.860
13-Dec-94	496	29	0.7484	0.669	6.207	0.841
17-Dec-93	518	30	0.7745	0.754	6.250	0.828
17-Dec-93	518	31	0.8007	0.844	6.250	0.790
18-Feb-94	518	32	0.8268	0.942	6.250	0.741
8-Mar-94	550	33	0.8529	1.049	6.310	0.835
20-Jan-94	561	34	0.8791	1.170	6.330	0.781
20-Jan-94	561	35	0.9052	1.312	6.330	
30-Nov-93	583	36	0.9314	1.486	6.368	
9-Feb-95	586	37	0.9575	1.723	6.373	
10-Jan-95	591	38	0.9837	2.136	6.382	

update for EV, CV:

tZn **CC278**

LN Analysis **tZn**

Discharge, Q **Q Data, EV=27 cfs CV=1.33**

Avg:	**27**	**Q Data-based LN**		
SD:	**36**	u	lnQ	Q
CV:	**1.33**	3	5.8	334
Min:	**6**	0	2.78	16
Max:	**206**	-3	-0.24	1
Median:	**14**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.886, EV=26.3 cfs CV=1.13; max r2=0.995**

r2 u,lnQ:	0.886	u	lnQ	Q
slope, m:	1.105	3	5.58	264
intercept, b:	-3.160	0	2.86	17
N: 38		-3	0.14	1
E[Q]:	26.3	Parameter Estimates		
SD[Q]:	30	from LN regression		
CV[Q]:	1.13	update graph label		

						max r2
	Q	N: 38				0.995
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
17-Dec-93	6.19	1	0.0163	-2.136	1.823	0.886
20-Jan-94	7.73	2	0.0425	-1.723	2.045	0.903
13-Sep-95	7.8	3	0.0686	-1.486	2.054	0.921
30-Nov-93	7.96	4	0.0948	-1.312	2.074	0.935
18-Feb-94	8.29	5	0.1209	-1.170	2.115	0.945
17-Dec-93	8.46	6	0.1471	-1.049	2.135	0.955
6-Oct-94	8.46	7	0.1732	-0.942	2.135	0.964
20-Jan-94	8.81	8	0.1993	-0.844	2.176	0.970
13-Dec-94	8.81	9	0.2255	-0.754	2.176	0.977
16-Aug-94	8.89	10	0.2516	-0.669	2.185	0.981
16-Nov-94	9	11	0.2778	-0.589	2.197	0.985
27-Oct-93	9.18	12	0.3039	-0.513	2.217	0.987
13-Sep-94	9.18	13	0.3301	-0.440	2.217	0.988
14-Aug-95	9.57	14	0.3562	-0.369	2.259	0.988
16-Aug-94	9.97	15	0.3824	-0.299	2.300	0.988
25-Jul-94	10.18	16	0.4085	-0.231	2.320	0.987
5-Oct-91	10.3	17	0.4346	-0.165	2.332	0.986
25-Jul-95	12.51	18	0.4608	-0.098	2.527	0.985
10-Jan-95	13.6	19	0.4869	-0.033	2.610	0.984
24-Mar-94	14.48	20	0.5131	0.033	2.673	0.983
8-Mar-94	15.41	21	0.5392	0.098	2.735	0.982
11-Jul-95	15.74	22	0.5654	0.165	2.756	0.980
24-Mar-94	16.46	23	0.5915	0.231	2.801	0.978
9-Feb-95	22.05	24	0.6176	0.299	3.093	0.975
23-Jun-94	22.53	25	0.6438	0.369	3.115	0.978
8-Mar-95	24.53	26	0.6699	0.440	3.200	0.980
12-Apr-95	26.15	27	0.6961	0.513	3.264	0.984
7-Apr-94	27.29	28	0.7222	0.589	3.307	0.989
27-Jun-95	27.88	29	0.7484	0.669	3.328	0.993
10-Nov-97	28.2	30	0.7745	0.754	3.339	0.995
7-Apr-94	32.14	31	0.8007	0.844	3.470	0.994
22-Mar-95	37.69	32	0.8268	0.942	3.629	0.992
7-Jun-94	44.85	33	0.8529	1.049	3.803	0.991
4-May-94	47.88	34	0.8791	1.170	3.869	0.994
19-May-94	62.32	35	0.9052	1.312	4.132	
13-Jun-95	76.08	36	0.9314	1.486	4.332	
17-May-91	101.6	37	0.9575	1.723	4.621	
14-May-98	206	38	0.9837	2.136	5.328	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC282 **Date:** 26-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,615	52	7	1	0.00	0.00	0.00
SD:	451	53	3	1	1.00	1.00	1.00
CV:	0.01	1.03	0.47	0.59			
Min:	34,990	11	2	0.3	-0.76	-1.49	-1.36
Max:	36,227	238	16	4	3.50	2.81	3.43
Median:	35,743	33	6	1	-0.35	-0.16	-0.18

dCd CC282 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.24) update r2

r2 Q,[COC]:	0.24	[dCd]	Q
slope, m:	-0.03	8	11.3
intercept, b:	8.5	7	51.8
N: 23		1	238

LnConc. = mLn{Q}+b (r2=0.36) update r2

lnQ,ln[COC]:	0.36	ln[dCd]	ln Q	[dCd]	Q
slope, m:	-0.39	2.29	2.42	10	11
intercept, b:	3.24	1.70	3.95	5	52
N: 23		1.10	5.47	3	238

	Q = mTime +b	**LnQ = mTime +b**
r2:	0.009	0.002
m:	0.0111	0.00008
b:	-345	0.74

for graph
dCd 0
CC282

N= 23

update for new data

	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	18-Oct-95	11.3	7	0.4	2.42	1.95	-0.85	-0.76	0.03	-1.20
IDEQ	21-Nov-95	78.4	4.2	1.8	4.36	1.44	0.57	0.50	-0.84	0.35
IDEQ	27-Dec-95	37.4	6.4	1.3	3.62	1.86	0.25	-0.27	-0.16	-0.21
IDEQ	17-Jan-96	37.4	11	2.2	3.62	2.40	0.79	-0.27	1.27	0.86
IDEQ	29-Feb-96	47.3	5.3	1.3	3.86	1.67	0.30	-0.08	-0.50	-0.14
IDEQ	28-Mar-96	32.9	5.3	0.9	3.49	1.67	-0.06	-0.35	-0.50	-0.61
IDEQ	8-May-96	56.3	4.6	1.4	4.03	1.53	0.33	0.09	-0.71	-0.08
IDEQ	19-Jun-96	96	2.3	1.2	4.56	0.83	0.17	0.83	-1.43	-0.32
IDEQ	24-Jul-96	23.5	4.8	0.6	3.16	1.57	-0.50	-0.53	-0.65	-0.99
IDEQ	21-Aug-96	18.7	5.7	0.6	2.93	1.74	-0.56	-0.62	-0.37	-1.03
IDEQ	26-Sep-96	11.5	4.7	0.3	2.44	1.55	-1.24	-0.76	-0.68	-1.36
URS	9-Nov-97	34.7	7.95	1.5	3.55	2.07	0.39	-0.32	0.32	0.02
IDEQ	23-Apr-98	179	4.6	4.4	5.19	1.53	1.49	2.39	-0.71	3.43
URS	14-May-98	238	2.1	2.7	5.47	0.74	0.99	3.50	-1.49	1.42
IDEQ	26-Jun-98	68.7	4.3	1.6	4.23	1.46	0.46	0.32	-0.81	0.14
IDEQ	28-Jul-98	35.8	6.8	1.3	3.58	1.92	0.27	-0.30	-0.03	-0.18
IDEQ	26-Aug-98	30.9	6.7	1.1	3.43	1.90	0.11	-0.39	-0.06	-0.41
IDEQ	24-Sep-98	23.5	8.4	1.1	3.16	2.13	0.06	-0.53	0.46	-0.47
IDEQ	26-Oct-98	26.1	7.9	1.1	3.26	2.07	0.10	-0.48	0.31	-0.41
URS	13-Nov-98	20.01	9.8	1.1	3.00	2.28	0.05	-0.60	0.90	-0.48
IDEQ	25-Nov-98	29	16	2.5	3.37	2.77	0.91	-0.43	2.81	1.19
IDEQ	15-Jan-99	28.4	12	1.8	3.35	2.48	0.61	-0.44	1.58	0.43
IDEQ	8-Mar-99	25.6	11	1.5	3.24	2.40	0.42	-0.49	1.27	0.06

dCd

Concentration over time analysis r2 Slope, m

dCd CC282 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.146** **0.00041**

	Time	Ln[COC]	[COC]
first:	18-Oct-95	1.57	5
mid:	9-Nov-97	1.88	7
last:	8-Mar-99	2.07	8

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
8-Mar-99	0.00	1

Load over time analysis

dCd CC282 **Load over time**

LnLoad=mTime+b All data r2, m: **0.139** **0.00049**

	Time	LnLoad	Load
first:	18-Oct-95	-0.08	1
mid:	9-Nov-97	0.28	1
last:	8-Mar-99	0.52	2

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
8-Mar-99	0.00	1

max r2: 0.729 max r2: 0.433

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.146	0.00041	-12.62	0.139	0.00049	-17.10
0.175	0.00046	-14.68	0.086	0.00037	-12.87
0.152	0.00045	-14.10	0.121	0.00046	-16.06
0.172	0.00050	-16.06	0.135	0.00051	-17.91
0.305	0.00069	-22.76	0.230	0.00069	-24.47
0.323	0.00076	-25.22	0.276	0.00081	-28.77
0.347	0.00085	-28.56	0.275	0.00087	-30.99
0.348	0.00093	-31.38	0.355	0.00109	-38.84
0.224	0.00073	-24.37	0.433	0.00136	-48.41
0.201	0.00080	-26.86	0.377	0.00142	-50.56
0.245	0.00114	-38.91	0.280	0.00146	-52.34
0.330	0.00235	-82.57	0.070	-0.00089	32.57
0.714	0.00476	-169.57	0.184	-0.00199	72.17
0.729	0.00534	-190.72	0.016	-0.00048	17.88
0.657	0.00382	-135.80	0.090	0.00109	-39.00
0.516	0.00294	-104.06	0.221	0.00200	-71.80
0.403	0.00280	-98.85	0.275	0.00266	-95.93
0.203	0.00196	-68.34	0.212	0.00273	-98.29
0.075	0.00131	-45.04	0.088	0.00196	-70.52

update for EV, CV:

dCd **CC282**

LN Analysis **dCd**

Load **Load Data, EV=1 lbs/day CV=.59**

Avg:	**1**	**Load Data-based LN**		
SD:	**1**	u	ln dCd Load	dCd Load
CV:	**0.59**	3	1.9	6
Min:	**0.3**	0.0	0.23	1
Max:	**4**	-3	-1.40	0.2
Median:	**1**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.950, EV=1.5 lbs/day CV=.71; max r2=0.98**

r2 u,lnLoad:	0.950	u	lnLoad	Load
slope, m:	1.564	3	2.14	8
intercept, b:	-0.345	0	0.22	1
N: 23		-3	-1.70	0.2
E[Load]:	1.5	Parameter Estimates		
SD[Load]:	1	from LN regression		
CV[Load]:	0.71	update graph label		

Date	dCd Load lbs/day Ranked	i rank	N: 23 i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.975 r2 forward
update and rank for new data						
26-Sep-96	**0.3**	1	0.0269	-1.929	-1.235	0.950
18-Oct-95	**0.4**	2	0.0699	-1.477	-0.854	0.949
21-Aug-96	**0.6**	3	0.1129	-1.211	-0.556	0.950
24-Jul-96	**0.6**	4	0.1559	-1.011	-0.499	0.946
28-Mar-96	**0.9**	5	0.1989	-0.845	-0.064	0.954
13-Nov-98	**1.1**	6	0.2419	-0.700	0.054	0.951
24-Sep-98	**1.1**	7	0.2849	-0.568	0.060	0.957
26-Oct-98	**1.1**	8	0.3280	-0.446	0.104	0.958
26-Aug-98	**1.1**	9	0.3710	-0.329	0.108	0.960
19-Jun-96	**1.2**	10	0.4140	-0.217	0.172	0.958
27-Dec-95	**1.3**	11	0.4570	-0.108	0.253	0.958
28-Jul-98	**1.3**	12	0.5000	0.000	0.270	0.964
29-Feb-96	**1.3**	13	0.5430	0.108	0.299	0.968
8-May-96	**1.4**	14	0.5860	0.217	0.332	0.970
9-Nov-97	**1.5**	15	0.6290	0.329	0.395	0.971
8-Mar-99	**1.5**	16	0.6720	0.446	0.415	0.975
26-Jun-98	**1.6**	17	0.7151	0.568	0.463	0.972
21-Nov-95	**1.8**	18	0.7581	0.700	0.572	0.965
15-Jan-99	**1.8**	19	0.8011	0.845	0.606	0.961
17-Jan-96	**2.2**	20	0.8441	1.011	0.794	
25-Nov-98	**2.5**	21	0.8871	1.211	0.915	
14-May-98	**2.7**	22	0.9301	1.477	0.989	
23-Apr-98	**4.4**	23	0.9731	1.929	1.488	

update for EV, CV:

dCd **CC282**

LN Analysis **dCd**

Concentration

Conc. Data, EV=7 ug/L CV=.47

Data-based LN

		u	ln[dCd]	[dCd]
Avg:	**7**			
SD:	**3**	3	3.2	24
CV:	**0.47**	0	1.83	6
Min:	**2**	-3	0.50	2
Max:	**16**			
Median:	**6**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.964, EV=7.1 ug/L CV=0.55; max r2=0.99**

r2 u,lnConc:	0.964	u	lnConc.	Conc.
slope, m:	1.941	3	3.37	29
intercept, b:	-3.540	0	1.82	6
N: 23		-3	0.28	1
E[Conc]:	7.1	Parameter Estimates		
SD[Conc]:	4	from LN regression		
CV[Conc]:	0.55	update graph label		

max r2
0.988

Date	dCd Concentration ug/L Ranked	i rank	N: 23 i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
14-May-98	2.1	1	0.0269	-1.929	0.742	0.964
19-Jun-96	2.3	2	0.0699	-1.477	0.833	0.958
21-Nov-95	4.2	3	0.1129	-1.211	1.435	0.977
26-Jun-98	4.3	4	0.1559	-1.011	1.459	0.983
8-May-96	4.6	5	0.1989	-0.845	1.526	0.985
23-Apr-98	4.6	6	0.2419	-0.700	1.526	0.988
26-Sep-96	4.7	7	0.2849	-0.568	1.548	0.988
24-Jul-96	4.8	8	0.3280	-0.446	1.569	0.987
29-Feb-96	5.3	9	0.3710	-0.329	1.668	0.985
28-Mar-96	5.3	10	0.4140	-0.217	1.668	0.983
21-Aug-96	5.7	11	0.4570	-0.108	1.740	0.982
27-Dec-95	6.4	12	0.5000	0.000	1.856	0.979
26-Aug-98	6.7	13	0.5430	0.108	1.902	0.977
28-Jul-98	6.8	14	0.5860	0.217	1.917	0.974
18-Oct-95	7	15	0.6290	0.329	1.946	0.969
26-Oct-98	7.9	16	0.6720	0.446	2.067	0.963
9-Nov-97	7.95	17	0.7151	0.568	2.073	0.956
24-Sep-98	8.4	18	0.7581	0.700	2.128	0.943
13-Nov-98	9.8	19	0.8011	0.845	2.282	0.937
17-Jan-96	11	20	0.8441	1.011	2.398	
8-Mar-99	11	21	0.8871	1.211	2.398	
15-Jan-99	12	22	0.9301	1.477	2.485	
25-Nov-98	16	23	0.9731	1.929	2.773	

update for EV, CV:

dCd **CC282**

LN Analysis **dCd**

Discharge, Q **Q Data, EV=52 cfs CV=1.03**

Q Data-based LN

		u	lnQ	Q
Avg:	**52**			
SD:	**53**	u	lnQ	Q
CV:	**1.03**	3	6.1	460
Min:	**11**	0	3.59	36
Max:	**238**	-3	1.04	3
Median:	**33**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.930, EV=51.9 cfs CV=.96; max r2=0.98**

r2 u,lnQ:	0.930	u	lnQ	Q
slope, m:	1.237	3	6.05	423
intercept, b:	-4.481	0	3.62	37
N: 23		-3	1.20	3
E[Q]:	51.9	Parameter Estimates		
SD[Q]:	50	from LN regression		
CV[Q]:	0.96	update graph label		

max r2
0.980

N: 23

Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2 forward**
update and rank for new data						
18-Oct-95	11.3	1	0.0269	-1.929	2.425	0.930
26-Sep-96	11.5	2	0.0699	-1.477	2.442	0.928
21-Aug-96	18.7	3	0.1129	-1.211	2.929	0.916
13-Nov-98	20.01	4	0.1559	-1.011	2.996	0.920
24-Jul-96	23.5	5	0.1989	-0.845	3.157	0.921
24-Sep-98	23.5	6	0.2419	-0.700	3.157	0.931
8-Mar-99	25.6	7	0.2849	-0.568	3.243	0.936
26-Oct-98	26.1	8	0.3280	-0.446	3.262	0.943
15-Jan-99	28.4	9	0.3710	-0.329	3.346	0.948
25-Nov-98	29	10	0.4140	-0.217	3.367	0.955
26-Aug-98	30.9	11	0.4570	-0.108	3.431	0.960
28-Mar-96	32.9	12	0.5000	0.000	3.493	0.966
9-Nov-97	34.7	13	0.5430	0.108	3.547	0.972
28-Jul-98	35.8	14	0.5860	0.217	3.578	0.978
27-Dec-95	37.4	15	0.6290	0.329	3.622	0.980
17-Jan-96	37.4	16	0.6720	0.446	3.622	0.978
29-Feb-96	47.3	17	0.7151	0.568	3.857	0.973
8-May-96	56.3	18	0.7581	0.700	4.031	0.964
26-Jun-98	68.7	19	0.8011	0.845	4.230	0.951
21-Nov-95	78.4	20	0.8441	1.011	4.362	
19-Jun-96	96	21	0.8871	1.211	4.564	
23-Apr-98	179	22	0.9301	1.477	5.187	
14-May-98	238	23	0.9731	1.929	5.472	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC282 **Date:** 30-May-00
Chemical: dPb **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,615	52	27	10	0.00	0.00	0.00
SD:	451	53	20	21	1.00	1.00	1.00
CV:	0.01	1.03	0.77	2.22			
Min:	34,990	11	12	1	-0.76	-0.71	-0.41
Max:	36,227	238	112	108	3.50	4.19	4.60
Median:	35,743	33	21	4	-0.35	-0.27	-0.24

dPb CC282 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.14)	update r2			**Q = mTime +b**		**LnQ = mTime +b**
r2 Q,[COC]:	0.14	[dPb]	Q	r2:	0.009	0.002
slope, m:	0.1	21	11.3	m:	0.0111	0.00008
intercept, b:	19.0	27	51.8	b:	-345	0.74
N: 23		54	238			

LnConc. = mLn{Q}+b (r2=0.07)	update r2				
2 lnQ,ln[COC]:	0.07	ln[dPb]	ln Q	[dPb]	Q
slope, m:	0.17	2.91	2.42	18	11
intercept, b:	2.49	3.18	3.95	24	52
N: 23		3.44	5.47	31	238

N= 23

update for new data	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	dPb CC282 Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	18-Oct-95	11.3	15	1	2.42	2.71	-0.09	-0.76	-0.56	-0.41
IDEQ	21-Nov-95	78.4	12	5	4.36	2.48	1.62	0.50	-0.71	-0.21
IDEQ	27-Dec-95	37.4	19	4	3.62	2.94	1.34	-0.27	-0.37	-0.27
IDEQ	17-Jan-96	37.4	25	5	3.62	3.22	1.62	-0.27	-0.07	-0.21
IDEQ	29-Feb-96	47.3	19	5	3.86	2.94	1.58	-0.08	-0.37	-0.22
IDEQ	28-Mar-96	32.9	21	4	3.49	3.04	1.31	-0.35	-0.27	-0.28
IDEQ	8-May-96	56.3	22	7	4.03	3.09	1.90	0.09	-0.22	-0.14
IDEQ	19-Jun-96	96	15	8	4.56	2.71	2.05	0.83	-0.56	-0.09
IDEQ	24-Jul-96	23.5	20	3	3.16	3.00	0.93	-0.53	-0.32	-0.33
IDEQ	21-Aug-96	18.7	12	1	2.93	2.48	0.19	-0.62	-0.71	-0.39
IDEQ	26-Sep-96	11.5	18	1	2.44	2.89	0.11	-0.76	-0.42	-0.40
URS	9-Nov-97	34.7	36.2	7	3.55	3.59	1.91	-0.32	0.47	-0.13
IDEQ	23-Apr-98	179	112	108	5.19	4.72	4.68	2.39	4.19	4.60
URS	14-May-98	238	16.9	22	5.47	2.83	3.07	3.50	-0.47	0.56
IDEQ	26-Jun-98	68.7	22	8	4.23	3.09	2.10	0.32	-0.22	-0.07
IDEQ	28-Jul-98	35.8	40	8	3.58	3.69	2.04	-0.30	0.66	-0.09
IDEQ	26-Aug-98	30.9	27	4	3.43	3.30	1.50	-0.39	0.02	-0.24
IDEQ	24-Sep-98	23.5	52	7	3.16	3.95	1.88	-0.53	1.25	-0.14
IDEQ	26-Oct-98	26.1	26	4	3.26	3.26	1.29	-0.48	-0.03	-0.28
URS	13-Nov-98	20.01	12.8	1	3.00	2.55	0.32	-0.60	-0.67	-0.39
IDEQ	25-Nov-98	29	26	4	3.37	3.26	1.40	-0.43	-0.03	-0.26
IDEQ	15-Jan-99	28.4	22	3	3.35	3.09	1.21	-0.44	-0.22	-0.29
IDEQ	8-Mar-99	25.6	19	3	3.24	2.94	0.96	-0.49	-0.37	-0.33

for graph
0

dPb

Concentration over time analysis r2 Slope, m

dPb CC282 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.168** **0.00045**

	Time	Ln[COC]	[COC]
first:	18-Oct-95	2.84	17
mid:	9-Nov-97	3.18	24
last:	8-Mar-99	3.39	30

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
8-Mar-99	0.00	1

Load over time analysis

dPb CC282 **Load over time**

LnLoad=mTime+b All data r2, m: **0.058** **0.00053**

	Time	LnLoad	Load
first:	18-Oct-95	1.19	3
mid:	9-Nov-97	1.59	5
last:	8-Mar-99	1.84	6

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
8-Mar-99	0.00	1

max r2: 0.353 max r2: 0.666

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.168	0.00045	-12.82	0.058	0.00053	-17.30
0.144	0.00043	-12.09	0.024	0.00033	-10.28
0.102	0.00036	-9.74	0.027	0.00037	-11.70
0.092	0.00036	-9.71	0.024	0.00037	-11.56
0.109	0.00042	-11.72	0.028	0.00042	-13.42
0.098	0.00042	-11.89	0.031	0.00048	-15.43
0.097	0.00045	-13.05	0.026	0.00048	-15.47
0.102	0.00051	-15.15	0.044	0.00068	-22.61
0.060	0.00043	-12.16	0.085	0.00105	-36.20
0.046	0.00044	-12.55	0.063	0.00105	-36.25
0.001	-0.00009	6.44	0.002	0.00024	-6.99
0.181	-0.00185	70.03	0.361	-0.00509	185.17
0.219	-0.00279	103.93	0.666	-0.00953	345.67
0.025	-0.00069	28.23	0.644	-0.00652	236.83
0.179	-0.00211	79.37	0.489	-0.00484	176.17
0.353	-0.00349	129.23	0.366	-0.00444	161.49
0.235	-0.00311	115.69	0.193	-0.00325	118.61
0.268	-0.00402	148.60	0.139	-0.00325	118.65
0.008	-0.00048	20.50	0.000	0.00017	-4.98

update for EV, CV:

dPb **CC282**

LN Analysis **dPb**

Load **Load Data, EV=10 lbs/day CV=2.22**

Load Data-based LN

Avg:	**10**	u	ln dPb Load	dPb Load
SD:	**21**	3	5.4	216
CV:	**2.22**	0	1.37	4
Min:	**1**	-3	-2.63	0.1
Max:	**108**			
Median:	**4**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.874, EV=8.5 lbs/day CV=1.58; max r2=0.91**

r2 u,lnLoad:	0.874	u	lnLoad	Load
slope, m:	0.895	3	4.87	130
intercept, b:	-1.359	0	1.52	5
N: 23		-3	-1.83	0.2
E[Load]:	8.5	Parameter Estimates		
SD[Load]:	13	from LN regression		
CV[Load]:	1.58	update graph label		

max r2
0.905

N: 23

Date	dPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
18-Oct-95	1	1	0.0269	-1.929	-0.092	0.874
26-Sep-96	1	2	0.0699	-1.477	0.108	0.861
21-Aug-96	1	3	0.1129	-1.211	0.188	0.843
13-Nov-98	1	4	0.1559	-1.011	0.321	0.820
24-Jul-96	3	5	0.1989	-0.845	0.928	0.793
8-Mar-99	3	6	0.2419	-0.700	0.962	0.786
15-Jan-99	3	7	0.2849	-0.568	1.212	0.773
26-Oct-98	4	8	0.3280	-0.446	1.295	0.776
28-Mar-96	4	9	0.3710	-0.329	1.313	0.781
27-Dec-95	4	10	0.4140	-0.217	1.341	0.784
25-Nov-98	4	11	0.4570	-0.108	1.400	0.784
26-Aug-98	4	12	0.5000	0.000	1.502	0.784
29-Feb-96	5	13	0.5430	0.108	1.576	0.789
17-Jan-96	5	14	0.5860	0.217	1.615	0.798
21-Nov-95	5	15	0.6290	0.329	1.622	0.805
24-Sep-98	7	16	0.6720	0.446	1.883	0.803
8-May-96	7	17	0.7151	0.568	1.897	0.838
9-Nov-97	7	18	0.7581	0.700	1.911	0.874
28-Jul-98	8	19	0.8011	0.845	2.042	0.905
19-Jun-96	8	20	0.8441	1.011	2.047	
26-Jun-98	8	21	0.8871	1.211	2.096	
14-May-98	22	22	0.9301	1.477	3.075	
23-Apr-98	108	23	0.9731	1.929	4.681	

update for EV, CV:

dPb **CC282**

LN Analysis **dPb**

Concentration **Conc. Data, EV=27 ug/L CV=.77**

Avg:	**27**	**Data-based LN**		
SD:	**20**	u	ln[dPb]	[dPb]
CV:	**0.77**	3	5.1	163
Min:	**12**	0	3.05	21
Max:	**112**	-3	1.00	3
Median:	**21**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.863, EV=26.5 ug/L CV=0.61; max r2=0.97**

r2 u,lnConc:	0.863	u	lnConc.	Conc.
slope, m:	1.781	3	4.81	122
intercept, b:	-5.558	0	3.12	23
N: 23		-3	1.44	4
E[Conc]:	26.5	Parameter Estimates		
SD[Conc]:	16	from LN regression		
CV[Conc]:	0.61	update graph label		

max r2
0.971

N: 23

Date	dPb Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
21-Nov-95	12	1	0.0269	-1.929	2.485	0.863
21-Aug-96	12	2	0.0699	-1.477	2.485	0.874
13-Nov-98	12.8	3	0.1129	-1.211	2.549	0.867
18-Oct-95	15	4	0.1559	-1.011	2.708	0.858
19-Jun-96	15	5	0.1989	-0.845	2.708	0.858
14-May-98	16.9	6	0.2419	-0.700	2.827	0.851
26-Sep-96	18	7	0.2849	-0.568	2.890	0.854
27-Dec-95	19	8	0.3280	-0.446	2.944	0.862
29-Feb-96	19	9	0.3710	-0.329	2.944	0.875
8-Mar-99	19	10	0.4140	-0.217	2.944	0.883
24-Jul-96	20	11	0.4570	-0.108	2.996	0.887
28-Mar-96	21	12	0.5000	0.000	3.045	0.894
8-May-96	22	13	0.5430	0.108	3.091	0.905
26-Jun-98	22	14	0.5860	0.217	3.091	0.920
15-Jan-99	22	15	0.6290	0.329	3.091	0.930
17-Jan-96	25	16	0.6720	0.446	3.219	0.930
26-Oct-98	26	17	0.7151	0.568	3.258	0.948
25-Nov-98	26	18	0.7581	0.700	3.258	0.967
26-Aug-98	27	19	0.8011	0.845	3.296	0.971
9-Nov-97	36.2	20	0.8441	1.011	3.589	
28-Jul-98	40	21	0.8871	1.211	3.689	
24-Sep-98	52	22	0.9301	1.477	3.951	
23-Apr-98	112	23	0.9731	1.929	4.718	

update for EV, CV:

dPb **CC282**

LN Analysis **dPb**

Discharge, Q **Q Data, EV=52 cfs CV=1.03**

Q Data-based LN

Avg:	**52**	u	lnQ	Q
SD:	**53**	3	6.1	460
CV:	**1.03**	0	3.59	36
Min:	**11**	-3	1.04	3
Max:	**238**			
Median:	**33**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.930, EV=51.9 cfs CV=0.96; max r2=0.98**

r2 u,lnQ:	0.930	u	lnQ	Q
slope, m:	1.237	3	6.05	423
intercept, b:	-4.481	0	3.62	37
N: 23		-3	1.20	3
E[Q]:	51.9	Parameter Estimates		
SD[Q]:	50	from LN regression		
CV[Q]:	0.96	update graph label		

N: 23

max r2 0.980

Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
18-Oct-95	11.3	1	0.0269	-1.929	2.425	0.930
26-Sep-96	11.5	2	0.0699	-1.477	2.442	0.928
21-Aug-96	18.7	3	0.1129	-1.211	2.929	0.916
13-Nov-98	20.01	4	0.1559	-1.011	2.996	0.920
24-Jul-96	23.5	5	0.1989	-0.845	3.157	0.921
24-Sep-98	23.5	6	0.2419	-0.700	3.157	0.931
8-Mar-99	25.6	7	0.2849	-0.568	3.243	0.936
26-Oct-98	26.1	8	0.3280	-0.446	3.262	0.943
15-Jan-99	28.4	9	0.3710	-0.329	3.346	0.948
25-Nov-98	29	10	0.4140	-0.217	3.367	0.955
26-Aug-98	30.9	11	0.4570	-0.108	3.431	0.960
28-Mar-96	32.9	12	0.5000	0.000	3.493	0.966
9-Nov-97	34.7	13	0.5430	0.108	3.547	0.972
28-Jul-98	35.8	14	0.5860	0.217	3.578	0.978
27-Dec-95	37.4	15	0.6290	0.329	3.622	0.980
17-Jan-96	37.4	16	0.6720	0.446	3.622	0.978
29-Feb-96	47.3	17	0.7151	0.568	3.857	0.973
8-May-96	56.3	18	0.7581	0.700	4.031	0.964
26-Jun-98	68.7	19	0.8011	0.845	4.230	0.951
21-Nov-95	78.4	20	0.8441	1.011	4.362	
19-Jun-96	96	21	0.8871	1.211	4.564	
23-Apr-98	179	22	0.9301	1.477	5.187	
14-May-98	238	23	0.9731	1.929	5.472	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC282 **Date:** 29-May-00
Chemical: dZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,615	52	1,073	229	0.00	0.00	0.00
SD:	451	53	471	129	1.00	1.00	1.00
CV:	0.01	1.03	0.44	0.56			
Min:	34,990	11	315	48	-0.76	-1.61	-1.40
Max:	36,227	238	2,380	653	3.50	2.78	3.28
Median:	35,743	33	1,090	213	-0.35	0.04	-0.13

dZn CC282 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.27) update r2

r2 Q,[COC]:	0.27	[dZn]	Q
slope, m:	-4.6	1,259	11.3
intercept, b:	1310.5	1,073	51.8
N: 23		220	238

LnConc. = mLn{Q}+b (r2=0.37) update r2

2 lnQ,ln[COC]:	0.37	ln[dZn]	ln Q	[dZn]	Q
slope, m:	-0.38	7.33	2.42	1,532	11
intercept, b:	8.25	6.76	3.95	861	52
N: 23		6.18	5.47	483	238

	Q = mTime +b	**LnQ = mTime +b**
r2:	0.009	0.002
m:	0.0111	0.00008
b:	-345	0.74

for graph
dZn 0
CC282

N= 23

update for new data

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	18-Oct-95	11.3	1130	69	2.42	7.03	4.23	-0.76	0.12	-1.24
IDEQ	21-Nov-95	78.4	686	289	4.36	6.53	5.67	0.50	-0.82	0.47
IDEQ	27-Dec-95	37.4	1110	223	3.62	7.01	5.41	-0.27	0.08	-0.05
IDEQ	17-Jan-96	37.4	1860	374	3.62	7.53	5.92	-0.27	1.67	1.12
IDEQ	29-Feb-96	47.3	1100	280	3.86	7.00	5.63	-0.08	0.06	0.39
IDEQ	28-Mar-96	32.9	1120	198	3.49	7.02	5.29	-0.35	0.10	-0.24
IDEQ	8-May-96	56.3	830	251	4.03	6.72	5.53	0.09	-0.52	0.17
IDEQ	19-Jun-96	96	400	207	4.56	5.99	5.33	0.83	-1.43	-0.18
IDEQ	24-Jul-96	23.5	739	93	3.16	6.61	4.54	-0.53	-0.71	-1.05
IDEQ	21-Aug-96	18.7	884	89	2.93	6.78	4.49	-0.62	-0.40	-1.09
IDEQ	26-Sep-96	11.5	778	48	2.44	6.66	3.87	-0.76	-0.63	-1.40
URS	9-Nov-97	34.7	1140	213	3.55	7.04	5.36	-0.32	0.14	-0.13
IDEQ	23-Apr-98	179	678	653	5.19	6.52	6.48	2.39	-0.84	3.28
URS	14-May-98	238	315	403	5.47	5.75	6.00	3.50	-1.61	1.35
IDEQ	26-Jun-98	68.7	624	231	4.23	6.44	5.44	0.32	-0.95	0.01
IDEQ	28-Jul-98	35.8	891	172	3.58	6.79	5.15	-0.30	-0.39	-0.45
IDEQ	26-Aug-98	30.9	981	163	3.43	6.89	5.09	-0.39	-0.20	-0.51
IDEQ	24-Sep-98	23.5	1090	138	3.16	6.99	4.93	-0.53	0.04	-0.71
IDEQ	26-Oct-98	26.1	1170	164	3.26	7.06	5.10	-0.48	0.21	-0.50
URS	13-Nov-98	20.01	1390	150	3.00	7.24	5.01	-0.60	0.67	-0.62
IDEQ	25-Nov-98	29	2380	371	3.37	7.77	5.92	-0.43	2.78	1.10
IDEQ	15-Jan-99	28.4	1660	254	3.35	7.41	5.54	-0.44	1.25	0.19
IDEQ	8-Mar-99	25.6	1730	238	3.24	7.46	5.47	-0.49	1.40	0.07

dZn

Concentration over time analysis r2 Slope, m

dZn CC282 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.041** **0.00020**

	Time	Ln[COC]	[COC]
first:	18-Oct-95	6.75	857
mid:	9-Nov-97	6.91	999
last:	8-Mar-99	7.01	1,103

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
8-Mar-99	0.00	1

Load over time analysis

dZn CC282 **Load over time**

LnLoad=mTime+b All data r2, m: **0.049** **0.00028**

	Time	LnLoad	Load
first:	18-Oct-95	5.10	164
mid:	9-Nov-97	5.31	203
last:	8-Mar-99	5.45	233

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
8-Mar-99	0.00	1

max r2: 0.774 max r2: 0.391

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.041	0.00020	-0.38	0.049	0.00028	-4.86
0.054	0.00025	-1.90	0.015	0.00015	-0.09
0.038	0.00021	-0.75	0.030	0.00022	-2.71
0.051	0.00026	-2.44	0.038	0.00027	-4.29
0.138	0.00043	-8.62	0.096	0.00044	-10.33
0.183	0.00053	-12.25	0.155	0.00059	-15.80
0.255	0.00068	-17.53	0.188	0.00070	-19.96
0.282	0.00079	-21.39	0.287	0.00095	-28.85
0.173	0.00063	-15.58	0.391	0.00125	-39.62
0.154	0.00069	-17.73	0.336	0.00130	-41.42
0.200	0.00101	-29.29	0.242	0.00134	-42.73
0.346	0.00239	-79.14	0.057	-0.00085	36.01
0.745	0.00483	-167.24	0.154	-0.00191	74.50
0.774	0.00549	-191.20	0.007	-0.00033	17.41
0.716	0.00417	-143.54	0.135	0.00144	-46.75
0.599	0.00350	-119.16	0.309	0.00255	-86.90
0.476	0.00323	-109.56	0.325	0.00310	-106.64
0.309	0.00269	-89.77	0.291	0.00346	-119.71
0.117	0.00168	-53.22	0.119	0.00233	-78.71

update for EV, CV:

dZn **CC282**
LN Analysis **dZn**

Load **Load Data, EV=229 lbs/day CV=.56**

Avg:	**229**	**Load Data-based LN**		
SD:	**129**	u	ln dZn Load	dZn Load
CV:	**0.56**	3	6.9	965
Min:	**48**	0	5.30	200
Max:	**653**	-3	3.72	41
Median:	**213**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.962, EV=238.8 lbs/day CV=0.70; max r2=0.97**

r2 u,lnLoad:	0.962	u	lnLoad	Load
slope, m:	1.591	3	7.16	1292
intercept, b:	-8.395	0	5.28	196
N: 23		-3	3.39	30
E[Load]:	238.8	Parameter Estimates		
SD[Load]:	166	from LN regression		
CV[Load]:	0.70	update graph label		

max r2
0.973

N: 23

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting point	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
26-Sep-96	**48**	1	0.0269	-1.929	3.874	0.962
18-Oct-95	**69**	2	0.0699	-1.477	4.230	0.961
21-Aug-96	**89**	3	0.1129	-1.211	4.488	0.961
24-Jul-96	**93**	4	0.1559	-1.011	4.537	0.960
24-Sep-98	**138**	5	0.1989	-0.845	4.926	0.973
13-Nov-98	**150**	6	0.2419	-0.700	5.008	0.969
26-Aug-98	**163**	7	0.2849	-0.568	5.094	0.966
26-Oct-98	**164**	8	0.3280	-0.446	5.102	0.963
28-Jul-98	**172**	9	0.3710	-0.329	5.145	0.958
28-Mar-96	**198**	10	0.4140	-0.217	5.289	0.951
19-Jun-96	**207**	11	0.4570	-0.108	5.331	0.951
9-Nov-97	**213**	12	0.5000	0.000	5.360	0.952
27-Dec-95	**223**	13	0.5430	0.108	5.409	0.951
26-Jun-98	**231**	14	0.5860	0.217	5.441	0.953
8-Mar-99	**238**	15	0.6290	0.329	5.473	0.953
8-May-96	**251**	16	0.6720	0.446	5.527	0.950
15-Jan-99	**254**	17	0.7151	0.568	5.536	0.948
29-Feb-96	**280**	18	0.7581	0.700	5.635	0.932
21-Nov-95	**289**	19	0.8011	0.845	5.668	0.913
25-Nov-98	**371**	20	0.8441	1.011	5.917	
17-Jan-96	**374**	21	0.8871	1.211	5.925	
14-May-98	**403**	22	0.9301	1.477	6.000	
23-Apr-98	**653**	23	0.9731	1.929	6.481	

update for EV, CV:

dZn **CC282**

LN Analysis **dZn**

Concentration **Conc. Data, EV=1,073 ug/L CV=.44**

Avg:	**1,073**	**Data-based LN**		
SD:	**471**	u	ln[dZn]	[dZn]
CV:	**0.44**	3	8.1	3459
Min:	**315**	0	6.89	983
Max:	**2,380**	-3	5.63	279
Median:	**1,090**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.959, EV=1098.8 ug/L CV=0.52; max r2=0.98**

r2 u,lnConc:	0.959	u	lnConc.	Conc.
slope, m:	2.029	3	8.36	4268
intercept, b:	-13.964	0	6.88	973
N: 23		-3	5.40	222
E[Conc]:	1098.8	Parameter Estimates		
SD[Conc]:	576	from LN regression		
CV[Conc]:	0.52	update graph label		

N: 23

max r2
0.975

Date	dZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
14-May-98	315	1	0.0269	-1.929	5.753	0.959
19-Jun-96	400	2	0.0699	-1.477	5.991	0.961
26-Jun-98	624	3	0.1129	-1.211	6.436	0.975
23-Apr-98	678	4	0.1559	-1.011	6.519	0.973
21-Nov-95	686	5	0.1989	-0.845	6.531	0.970
24-Jul-96	739	6	0.2419	-0.700	6.605	0.966
26-Sep-96	778	7	0.2849	-0.568	6.657	0.961
8-May-96	830	8	0.3280	-0.446	6.721	0.955
21-Aug-96	884	9	0.3710	-0.329	6.784	0.949
28-Jul-98	891	10	0.4140	-0.217	6.792	0.943
26-Aug-98	981	11	0.4570	-0.108	6.889	0.933
24-Sep-98	1090	12	0.5000	0.000	6.994	0.927
29-Feb-96	1100	13	0.5430	0.108	7.003	0.939
27-Dec-95	1110	14	0.5860	0.217	7.012	0.950
28-Mar-96	1120	15	0.6290	0.329	7.021	0.956
18-Oct-95	1130	16	0.6720	0.446	7.030	0.957
9-Nov-97	1140	17	0.7151	0.568	7.039	0.948
26-Oct-98	1170	18	0.7581	0.700	7.065	0.932
13-Nov-98	1390	19	0.8011	0.845	7.237	0.955
15-Jan-99	1660	20	0.8441	1.011	7.415	
8-Mar-99	1730	21	0.8871	1.211	7.456	
17-Jan-96	1860	22	0.9301	1.477	7.528	
25-Nov-98	2380	23	0.9731	1.929	7.775	

update for EV, CV:

dZn **CC282**

LN Analysis **dZn**

Discharge, Q **Q Data, EV=52 cfs CV=1.03**

Avg:	**52**	**Q Data-based LN**		
SD:	**53**	u	lnQ	Q
CV:	**1.03**	3	6.1	460
Min:	**11**	0	3.59	36
Max:	**238**	-3	1.04	3
Median:	**33**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.930, EV=51.9 cfs CV=0.96; max r2=0.98**

r2 u,lnQ:	0.930	u	lnQ	Q
slope, m:	1.237	3	6.05	423
intercept, b:	-4.481	0	3.62	37
N: 23		-3	1.20	3
E[Q]:	51.9	Parameter Estimates		
SD[Q]:	50	from LN regression		
CV[Q]:	0.96	update graph label		

max r2
0.980

N: 23

update and rank for new data

Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2 forward**
18-Oct-95	11.3	1	0.0269	-1.929	2.425	0.930
26-Sep-96	11.5	2	0.0699	-1.477	2.442	0.928
21-Aug-96	18.7	3	0.1129	-1.211	2.929	0.916
13-Nov-98	20.01	4	0.1559	-1.011	2.996	0.920
24-Jul-96	23.5	5	0.1989	-0.845	3.157	0.921
24-Sep-98	23.5	6	0.2419	-0.700	3.157	0.931
8-Mar-99	25.6	7	0.2849	-0.568	3.243	0.936
26-Oct-98	26.1	8	0.3280	-0.446	3.262	0.943
15-Jan-99	28.4	9	0.3710	-0.329	3.346	0.948
25-Nov-98	29	10	0.4140	-0.217	3.367	0.955
26-Aug-98	30.9	11	0.4570	-0.108	3.431	0.960
28-Mar-96	32.9	12	0.5000	0.000	3.493	0.966
9-Nov-97	34.7	13	0.5430	0.108	3.547	0.972
28-Jul-98	35.8	14	0.5860	0.217	3.578	0.978
27-Dec-95	37.4	15	0.6290	0.329	3.622	0.980
17-Jan-96	37.4	16	0.6720	0.446	3.622	0.978
29-Feb-96	47.3	17	0.7151	0.568	3.857	0.973
8-May-96	56.3	18	0.7581	0.700	4.031	0.964
26-Jun-98	68.7	19	0.8011	0.845	4.230	0.951
21-Nov-95	78.4	20	0.8441	1.011	4.362	
19-Jun-96	96	21	0.8871	1.211	4.564	
23-Apr-98	179	22	0.9301	1.477	5.187	
14-May-98	238	23	0.9731	1.929	5.472	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Da see comment

Station: CC82 **Date:** 30-May-00
Chemical: tCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,615	52	7	2	0.00	0.00	0.00
SD:	451	53	3	1	1.00	1.00	1.00
CV:	0.01	1.03	0.47	0.91			
Min:	34,990	11	2	0.3	-0.76	-1.50	-0.92
Max:	36,227	238	15	8	3.50	2.23	4.30
Median:	35,743	33	7	1	-0.35	-0.17	-0.24

tCd CC82 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.149)	update r2	0.15	0.149		**Q = mTime +b**	**LnQ = mTime +b**	
r2 Q,[COC]:	0.15	[tCd]	Q		r2:	0.009	0.002
slope, m:	0.0	8	11.3		m:	0.0111	0.00008
intercept, b:	8.6	7	51.8		b:	-345	0.74
N: 23		3	238				

LnConc. = mLn{Q}+b (r2=0.25)	update r2	0.25	0.25		
? lnQ,ln[COC]:	0.25	ln[tCd]	ln Q	[tCd]	Q
slope, m:	-0.34	2.28	2.42	10	11
intercept, b:	3.10	1.76	3.95	6	52
N: 23		1.24	5.47	3	238

for graph
tCd 0
CC82

N= 23

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	18-Oct-95	11.3	8	0.5	2.42	2.08	-0.72	-0.76	0.21	-0.78
IDEQ	21-Nov-95	78.4	4.2	1.8	4.36	1.44	0.57	0.50	-0.90	0.08
IDEQ	27-Dec-95	37.4	6.4	1.3	3.62	1.86	0.25	-0.27	-0.26	-0.24
IDEQ	17-Jan-96	37.4	12	2.4	3.62	2.48	0.88	-0.27	1.36	0.51
IDEQ	29-Feb-96	47.3	5.4	1.4	3.86	1.69	0.32	-0.08	-0.55	-0.18
IDEQ	28-Mar-96	32.9	5.3	0.9	3.49	1.67	-0.06	-0.35	-0.58	-0.48
IDEQ	8-May-96	56.3	4.4	1.3	4.03	1.48	0.29	0.09	-0.84	-0.21
IDEQ	19-Jun-96	96	2.3	1.2	4.56	0.83	0.17	0.83	-1.45	-0.31
IDEQ	24-Jul-96	23.5	4.8	0.6	3.16	1.57	-0.50	-0.53	-0.72	-0.70
IDEQ	21-Aug-96	18.7	5.9	0.6	2.93	1.77	-0.52	-0.62	-0.40	-0.71
IDEQ	26-Sep-96	11.5	4.4	0.3	2.44	1.48	-1.30	-0.76	-0.84	-0.92
URS	9-Nov-97	34.7	7.1	1.3	3.55	1.96	0.28	-0.32	-0.06	-0.22
IDEQ	23-Apr-98	179	8.4	8.1	5.19	2.13	2.09	2.39	0.32	4.30
URS	14-May-98	238	2.1	2.7	5.47	0.74	0.99	3.50	-1.50	0.69
IDEQ	26-Jun-98	68.7	4.2	1.6	4.23	1.44	0.44	0.32	-0.90	-0.06
IDEQ	28-Jul-98	35.8	6.7	1.3	3.58	1.90	0.25	-0.30	-0.17	-0.24
IDEQ	26-Aug-98	30.9	6.7	1.1	3.43	1.90	0.11	-0.39	-0.17	-0.36
IDEQ	24-Sep-98	23.5	8.6	1.1	3.16	2.15	0.08	-0.53	0.38	-0.38
IDEQ	26-Oct-98	26.1	8.3	1.2	3.26	2.12	0.15	-0.48	0.29	-0.32
URS	13-Nov-98	20.01	11.5	1.2	3.00	2.44	0.21	-0.60	1.22	-0.27
IDEQ	25-Nov-98	29	15	2.3	3.37	2.71	0.85	-0.43	2.23	0.46
IDEQ	15-Jan-99	28.4	13	2.0	3.35	2.56	0.69	-0.44	1.65	0.23
IDEQ	8-Mar-99	25.6	13	1.8	3.24	2.56	0.58	-0.49	1.65	0.09

tCd

Concentration over time analysis r2 Slope, m

tCd CC82 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.171** **0.00046**

	Time	Ln[COC]	[COC]
first:	18-Oct-95	1.58	5
mid:	9-Nov-97	1.93	7
last:	8-Mar-99	2.15	9

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
8-Mar-99	0.00	1

Load over time analysis

tCd CC82 **Load over time**

LnLoad=mTime+b All data r2, m: **0.141** **0.00054**

	Time	LnLoad	Load
first:	18-Oct-95	-0.07	1
mid:	9-Nov-97	0.34	1
last:	8-Mar-99	0.60	2

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
8-Mar-99	0.00	1

max r2: 0.806 max r2: 0.502

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.171	0.00046	-14.57	0.141	0.00054	-19.05
0.214	0.00054	-17.31	0.096	0.00044	-15.50
0.189	0.00052	-16.77	0.127	0.00053	-18.73
0.208	0.00058	-18.75	0.137	0.00059	-20.60
0.362	0.00078	-26.15	0.228	0.00079	-27.85
0.382	0.00086	-28.91	0.268	0.00091	-32.45
0.406	0.00096	-32.46	0.266	0.00098	-34.89
0.397	0.00103	-34.99	0.323	0.00119	-42.45
0.274	0.00084	-28.14	0.384	0.00146	-52.18
0.247	0.00091	-30.85	0.331	0.00153	-54.55
0.302	0.00130	-44.66	0.252	0.00163	-58.09
0.344	0.00242	-85.23	0.036	-0.00081	29.91
0.577	0.00432	-153.82	0.172	-0.00242	87.92
0.806	0.00588	-210.09	0.000	0.00005	-1.49
0.785	0.00448	-159.52	0.263	0.00175	-62.73
0.713	0.00364	-129.27	0.447	0.00270	-97.01
0.619	0.00352	-124.85	0.502	0.00339	-121.93
0.442	0.00269	-94.77	0.417	0.00346	-124.71
0.256	0.00209	-72.99	0.240	0.00274	-98.48

update for EV, CV:

tCd **CC82**

LN Analysis **tCd**

Load **Load Data, EV=1.65 #/d CV=0.907**

Load Data-based LN

Avg:	**2**	u	ln tCd Load	tCd Load
SD:	**1**	3	2.5	12
CV:	**0.91**	0	0.20	1
Min:	**0.3**	-3	-2.12	0.1
Max:	**8**			
Median:	**1**			

2 1.65
0.91 0.907

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.914, EV=1.69#/d CV=0.828; max r2=0.99**

r2 u,lnLoad:	0.914	u	lnLoad	Load
slope, m:	1.384	3	2.43	11
intercept, b:	-0.368	0	0.27	1
N: 23		-3	-1.90	0.1
E[Load]:	1.7	Parameter Estimates		
SD[Load]:	1	from LN regression		
CV[Load]:	0.83	update graph label		

0.914 0.914
1.7 1.69
0.8 0.828

max r2
0.914

N: 23

Date	tCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
26-Sep-96	**0.3**	1	0.0269	-1.929	-1.301	0.914
18-Oct-95	**0.5**	2	0.0699	-1.477	-0.721	0.898
21-Aug-96	**0.6**	3	0.1129	-1.211	-0.522	0.880
24-Jul-96	**0.6**	4	0.1559	-1.011	-0.499	0.861
28-Mar-96	**0.9**	5	0.1989	-0.845	-0.064	0.840
24-Sep-98	**1.1**	6	0.2419	-0.700	0.084	0.832
26-Aug-98	**1.1**	7	0.2849	-0.568	0.108	0.838
26-Oct-98	**1.2**	8	0.3280	-0.446	0.153	0.842
19-Jun-96	**1.2**	9	0.3710	-0.329	0.172	0.849
13-Nov-98	**1.2**	10	0.4140	-0.217	0.214	0.853
27-Dec-95	**1.3**	11	0.4570	-0.108	0.253	0.860
28-Jul-98	**1.3**	12	0.5000	0.000	0.255	0.869
9-Nov-97	**1.3**	13	0.5430	0.108	0.282	0.873
8-May-96	**1.3**	14	0.5860	0.217	0.287	0.874
29-Feb-96	**1.4**	15	0.6290	0.329	0.318	0.866
26-Jun-98	**1.6**	16	0.6720	0.446	0.440	0.849
21-Nov-95	**1.8**	17	0.7151	0.568	0.572	0.839
8-Mar-99	**1.8**	18	0.7581	0.700	0.582	0.850
15-Jan-99	**2.0**	19	0.8011	0.845	0.686	0.844
25-Nov-98	**2.3**	20	0.8441	1.011	0.850	
17-Jan-96	**2.4**	21	0.8871	1.211	0.882	
14-May-98	**2.7**	22	0.9301	1.477	0.989	
23-Apr-98	**8.1**	23	0.9731	1.929	2.091	

update for EV, CV:

tCd		**CC82**	7	7.29
LN Analysis		**tCd**	0.47	0.473

Concentration

Conc. Data, EV=7.29 ug/L CV=0.473

Data-based LN

		u	ln[tCd]	[tCd]
Avg:	**7**			
SD:	**3**	3	3.2	25
CV:	**0.47**	0	1.89	7
Min:	**2**	-3	0.54	2
Max:	**15**			
Median:	**7**			

0.963 0.963

u=mLn{Conc.}+b:

7.5 7.5

update for r2, EV, CV: **r2=0.963, EV=7.5 ug/L CV=0.585; max r2=0.99**

0.585 0.585

r2 u,lnConc:	0.963	u	lnConc.	Conc.
slope, m:	1.842	3	3.50	33
intercept, b:	-3.442	0	1.87	6
N: 23		-3	0.24	1
E[Conc]:	7.5	Parameter Estimates		
SD[Conc]:	4	from LN regression		
CV[Conc]:	0.59	update graph label		

max r2
N: 23 0.975

Date	tCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
14-May-98	2.1	1	0.0269	-1.929	0.742	0.963
19-Jun-96	2.3	2	0.0699	-1.477	0.833	0.956
21-Nov-95	4.2	3	0.1129	-1.211	1.435	0.972
26-Jun-98	4.2	4	0.1559	-1.011	1.435	0.975
8-May-96	4.4	5	0.1989	-0.845	1.482	0.972
26-Sep-96	4.4	6	0.2419	-0.700	1.482	0.969
24-Jul-96	4.8	7	0.2849	-0.568	1.569	0.965
28-Mar-96	5.3	8	0.3280	-0.446	1.668	0.960
29-Feb-96	5.4	9	0.3710	-0.329	1.686	0.953
21-Aug-96	5.9	10	0.4140	-0.217	1.775	0.947
27-Dec-95	6.4	11	0.4570	-0.108	1.856	0.938
28-Jul-98	6.7	12	0.5000	0.000	1.902	0.928
26-Aug-98	6.7	13	0.5430	0.108	1.902	0.915
9-Nov-97	7.1	14	0.5860	0.217	1.960	0.899
18-Oct-95	8	15	0.6290	0.329	2.079	0.879
26-Oct-98	8.3	16	0.6720	0.446	2.116	0.851
23-Apr-98	8.4	17	0.7151	0.568	2.128	0.810
24-Sep-98	8.6	18	0.7581	0.700	2.152	0.755
13-Nov-98	11.5	19	0.8011	0.845	2.442	0.951
17-Jan-96	12	20	0.8441	1.011	2.485	
15-Jan-99	13	21	0.8871	1.211	2.565	
8-Mar-99	13	22	0.9301	1.477	2.565	
25-Nov-98	15	23	0.9731	1.929	2.708	

update for EV, CV:

tCd		**CC82**			52	51.8
LN Analysis		**tCd**			1.03	1.03
Discharge, Q		**Q Data, EV=51.8 cfs CV=1.03**				
Avg:	**52**	**Q Data-based LN**				
SD:	**53**	u	lnQ	Q		
CV:	**1.03**	3	6.1	460		
Min:	**11**	0	3.59	36		
Max:	**238**	-3	1.04	3		
Median:	**33**					

					0.930	0.93
					51.9	51.9
u=mLn{Q}+b:					0.96	0.96
update for r2, EV, CV:	**r2=0.93, EV=51.9 cfs CV=0.96; max r2=0.98**					
	r2 u,lnQ:	0.930	u	lnQ	Q	
	slope, m:	1.237	3	6.05	423	
	intercept, b:	-4.481	0	3.62	37	
	N: 23		-3	1.20	3	
	E[Q]:	51.9	Parameter Estimates			
	SD[Q]:	50	from LN regression			
	CV[Q]:	0.96	update graph label			

						max r2
	Q	N: 23				0.980
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
18-Oct-95	11.3	1	0.0269	-1.929	2.425	0.930
26-Sep-96	11.5	2	0.0699	-1.477	2.442	0.928
21-Aug-96	18.7	3	0.1129	-1.211	2.929	0.916
13-Nov-98	20.01	4	0.1559	-1.011	2.996	0.920
24-Jul-96	23.5	5	0.1989	-0.845	3.157	0.921
24-Sep-98	23.5	6	0.2419	-0.700	3.157	0.931
8-Mar-99	25.6	7	0.2849	-0.568	3.243	0.936
26-Oct-98	26.1	8	0.3280	-0.446	3.262	0.943
15-Jan-99	28.4	9	0.3710	-0.329	3.346	0.948
25-Nov-98	29	10	0.4140	-0.217	3.367	0.955
26-Aug-98	30.9	11	0.4570	-0.108	3.431	0.960
28-Mar-96	32.9	12	0.5000	0.000	3.493	0.966
9-Nov-97	34.7	13	0.5430	0.108	3.547	0.972
28-Jul-98	35.8	14	0.5860	0.217	3.578	0.978
27-Dec-95	37.4	15	0.6290	0.329	3.622	0.980
17-Jan-96	37.4	16	0.6720	0.446	3.622	0.978
29-Feb-96	47.3	17	0.7151	0.568	3.857	0.973
8-May-96	56.3	18	0.7581	0.700	4.031	0.964
26-Jun-98	68.7	19	0.8011	0.845	4.230	0.951
21-Nov-95	78.4	20	0.8441	1.011	4.362	
19-Jun-96	96	21	0.8871	1.211	4.564	
23-Apr-98	179	22	0.9301	1.477	5.187	
14-May-98	238	23	0.9731	1.929	5.472	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC282 **Date:** 2-Jun-00
Chemical: tPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,615	52	133	82	0.00	0.00	0.00
SD:	451	53	341	332	1.00	1.00	1.00
CV:	0.01	1.03	2.57	4.04			
Min:	34,990	11	18	2.2	-0.76	-0.34	-0.24
Max:	36,227	238	1,700	1,637	3.50	4.60	4.69
Median:	35,743	33	42	8	-0.35	-0.27	-0.22

tPb CC282 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.215)	update r2	0.21	0.215		r2:	0.009	0.002
r2 Q,[COC]:	0.21	[tPb]	Q		m:	0.0111	0.00008
slope, m:	3.0	13	11.3		b:	-345	0.74
intercept, b:	-21.0	133	51.8				
N: 23		686	238				
LnConc. = mLn{Q}+b (r2=0.0115)		update r2	0.01	0.0115			
2 lnQ,ln[COC]:	0.01	ln[tPb]	ln Q	[tPb]	Q		
slope, m:	0.14	3.85	2.42	47	11		
intercept, b:	3.52	4.06	3.95	58	52		
N: 23		4.26	5.47	71	238		

for graph
tPb 0
CC282

N= 23

	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	18-Oct-95	11.3	66	4	2.42	4.19	1.39	-0.76	-0.20	-0.24
IDEQ	21-Nov-95	78.4	18	8	4.36	2.89	2.03	0.50	-0.34	-0.22
IDEQ	27-Dec-95	37.4	27	5	3.62	3.30	1.69	-0.27	-0.31	-0.23
IDEQ	17-Jan-96	37.4	53	11	3.62	3.97	2.37	-0.27	-0.23	-0.22
IDEQ	29-Feb-96	47.3	30	8	3.86	3.40	2.03	-0.08	-0.30	-0.22
IDEQ	28-Mar-96	32.9	39	7	3.49	3.66	1.93	-0.35	-0.28	-0.23
IDEQ	8-May-96	56.3	45	14	4.03	3.81	2.61	0.09	-0.26	-0.21
IDEQ	19-Jun-96	96	28	14	4.56	3.33	2.67	0.83	-0.31	-0.20
IDEQ	24-Jul-96	23.5	36	5	3.16	3.58	1.52	-0.53	-0.28	-0.23
IDEQ	21-Aug-96	18.7	51	5	2.93	3.93	1.64	-0.62	-0.24	-0.23
IDEQ	26-Sep-96	11.5	36	2	2.44	3.58	0.80	-0.76	-0.28	-0.24
URS	9-Nov-97	34.7	58.3	11	3.55	4.07	2.39	-0.32	-0.22	-0.21
IDEQ	23-Apr-98	179	1700	1637	5.19	7.44	7.40	2.39	4.60	4.69
URS	14-May-98	238	32.5	42	5.47	3.48	3.73	3.50	-0.29	-0.12
IDEQ	26-Jun-98	68.7	40	15	4.23	3.69	2.69	0.32	-0.27	-0.20
IDEQ	28-Jul-98	35.8	48	9	3.58	3.87	2.22	-0.30	-0.25	-0.22
IDEQ	26-Aug-98	30.9	41	7	3.43	3.71	1.92	-0.39	-0.27	-0.23
IDEQ	24-Sep-98	23.5	160	20	3.16	5.08	3.01	-0.53	0.08	-0.19
IDEQ	26-Oct-98	26.1	47	7	3.26	3.85	1.89	-0.48	-0.25	-0.23
URS	13-Nov-98	20.01	354	38	3.00	5.87	3.64	-0.60	0.65	-0.13
IDEQ	25-Nov-98	29	63	10	3.37	4.14	2.29	-0.43	-0.20	-0.22
IDEQ	15-Jan-99	28.4	42	6	3.35	3.74	1.86	-0.44	-0.27	-0.23
IDEQ	8-Mar-99	25.6	40	6	3.24	3.69	1.71	-0.49	-0.27	-0.23

tPb

Concentration over time analysis r2 Slope, m

	tPb	**CC282**		**Concentration over time**	
	LnConc.=mTime+b All data r2, m:			**0.141**	**0.00078**
	Time	**Ln[COC]**	**[COC]**		
first:	18-Oct-95	3.52	34		
mid:	9-Nov-97	4.11	61		
last:	8-Mar-99	4.49	89		
	LnConc.=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	8-Mar-99	0.00	1		

Load over time analysis

	tPb	**CC282**		**Load over time**	
	LnLoad=mTime+b All data r2, m:			**0.096**	**0.00086**
	Time	**LnLoad**	**Load**		
first:	18-Oct-95	1.87	6		
mid:	9-Nov-97	2.52	12		
last:	8-Mar-99	2.94	19		
	LnLoad=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	8-Mar-99	0.00	1		

max r2: 0.323 max r2: 0.417

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.141	0.00078	-23.77	0.096	0.00086	-28.26
0.165	0.00088	-27.43	0.076	0.00079	-25.61
0.127	0.00079	-24.01	0.071	0.00080	-25.97
0.103	0.00074	-22.16	0.056	0.00074	-24.01
0.109	0.00081	-24.71	0.059	0.00081	-26.42
0.086	0.00076	-22.92	0.052	0.00081	-26.47
0.074	0.00075	-22.83	0.041	0.00078	-25.25
0.067	0.00079	-24.10	0.051	0.00095	-31.55
0.035	0.00062	-18.11	0.068	0.00125	-42.15
0.013	0.00045	-11.87	0.038	0.00106	-35.56
0.005	0.00037	-8.83	0.010	0.00069	-22.26
0.027	-0.00147	57.32	0.157	-0.00471	172.46
0.095	-0.00379	141.19	0.417	-0.01054	382.93
0.034	0.00153	-51.25	0.282	-0.00429	157.35
0.001	0.00030	-6.55	0.096	-0.00244	90.25
0.014	-0.00131	51.64	0.061	-0.00226	83.89
0.075	-0.00351	131.12	0.110	-0.00365	134.04
0.323	-0.00847	310.36	0.354	-0.00769	280.41
0.215	-0.00785	288.12	0.243	-0.00720	262.64

update for EV, CV:

tPb **CC282**

LN Analysis **tPb**

Load **Load Data, EV=82.1 #/d CV=4.04**

Load Data-based LN

Avg:	**82**	u	ln tPb Load	tPb Load
SD:	**332**	3	8.0	3129
CV:	**4.04**	0	2.98	20
Min:	**2.2**	-3	-2.08	0.1
Max:	**1,637**			
Median:	**8**			

82 82.1
4.04 4.04

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.685, EV=40.1lbs/day CV=3.46; max r2=0.99**

r2 u,lnLoad:	0.685	u	lnLoad	Load		
slope, m:	0.624	3	7.21	1358		
intercept, b:	-1.504	0	2.41	11		
N: 23		-3	-2.40	0.1		
E[Load]:	40.1	Parameter Estimates			0.685	0.685
SD[Load]:	139	from LN regression			40.1	40.1
CV[Load]:	3.46	update graph label			3.5	3.46
					max r2	
		N: 23			0.865	

	tPb Load lbs/day Ranked	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2 forward**
's update and rank for new data						
26-Sep-96	**2**	1	0.0269	-1.929	0.801	0.685
18-Oct-95	**4**	2	0.0699	-1.477	1.389	0.669
24-Jul-96	**5**	3	0.1129	-1.211	1.515	0.676
21-Aug-96	**5**	4	0.1559	-1.011	1.635	0.684
27-Dec-95	**5**	5	0.1989	-0.845	1.692	0.693
8-Mar-99	**6**	6	0.2419	-0.700	1.706	0.702
15-Jan-99	**6**	7	0.2849	-0.568	1.859	0.707
26-Oct-98	**7**	8	0.3280	-0.446	1.887	0.718
26-Aug-98	**7**	9	0.3710	-0.329	1.919	0.729
28-Mar-96	**7**	10	0.4140	-0.217	1.932	0.738
21-Nov-95	**8**	11	0.4570	-0.108	2.027	0.744
29-Feb-96	**8**	12	0.5000	0.000	2.033	0.752
28-Jul-98	**9**	13	0.5430	0.108	2.224	0.755
25-Nov-98	**10**	14	0.5860	0.217	2.285	0.769
17-Jan-96	**11**	15	0.6290	0.329	2.367	0.783
9-Nov-97	**11**	16	0.6720	0.446	2.387	0.800
8-May-96	**14**	17	0.7151	0.568	2.612	0.811
19-Jun-96	**14**	18	0.7581	0.700	2.671	0.839
26-Jun-98	**15**	19	0.8011	0.845	2.694	0.865
24-Sep-98	**20**	20	0.8441	1.011	3.007	
13-Nov-98	**38**	21	0.8871	1.211	3.640	
14-May-98	**42**	22	0.9301	1.477	3.728	
23-Apr-98	**1637**	23	0.9731	1.929	7.401	

update for EV, CV:

tPb		**CC282**		133	133
LN Analysis		**tPb**		2.57	2.57

Concentration

Conc. Data, EV=133 ug/L CV=2.57

Data-based LN

Avg:	**133**			
SD:	**341**	u	ln[tPb]	[tPb]
CV:	**2.57**	3	8.1	3451
Min:	**18**	0	3.88	48
Max:	**1,700**	-3	-0.40	1
Median:	**42**			

				0.681	0.681
u=mLn{Conc.}+b:				113.8	114
update for r2, EV, CV:	**r2=0.681, EV=114 ug/L CV=1.8; max r2=0.99**			1.800	1.8
r2 u,lnConc:	0.681	u	lnConc.	Conc.	
slope, m:	0.832	3	7.62	2033	
intercept, b:	-3.338	0	4.01	55	
N: 23		-3	0.41	2	
E[Conc]:	113.8	Parameter Estimates			
SD[Conc]:	205	from LN regression			
CV[Conc]:	1.80	update graph label			

						max r2
	tPb	N: 23				0.983
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
21-Nov-95	18	1	0.0269	-1.929	2.890	0.681
27-Dec-95	27	2	0.0699	-1.477	3.296	0.672
19-Jun-96	28	3	0.1129	-1.211	3.332	0.686
29-Feb-96	30	4	0.1559	-1.011	3.401	0.694
14-May-98	32.5	5	0.1989	-0.845	3.481	0.702
24-Jul-96	36	6	0.2419	-0.700	3.584	0.713
26-Sep-96	36	7	0.2849	-0.568	3.584	0.731
28-Mar-96	39	8	0.3280	-0.446	3.664	0.745
26-Jun-98	40	9	0.3710	-0.329	3.689	0.765
8-Mar-99	40	10	0.4140	-0.217	3.689	0.786
26-Aug-98	41	11	0.4570	-0.108	3.714	0.804
15-Jan-99	42	12	0.5000	0.000	3.738	0.823
8-May-96	45	13	0.5430	0.108	3.807	0.841
26-Oct-98	47	14	0.5860	0.217	3.850	0.863
28-Jul-98	48	15	0.6290	0.329	3.871	0.888
21-Aug-96	51	16	0.6720	0.446	3.932	0.912
17-Jan-96	53	17	0.7151	0.568	3.970	0.937
9-Nov-97	58.3	18	0.7581	0.700	4.066	0.960
25-Nov-98	63	19	0.8011	0.845	4.143	0.983
18-Oct-95	66	20	0.8441	1.011	4.190	
24-Sep-98	160	21	0.8871	1.211	5.075	
13-Nov-98	354	22	0.9301	1.477	5.869	
23-Apr-98	1700	23	0.9731	1.929	7.438	

update for EV, CV:

tPb		**CC282**			52	51.8
LN Analysis		**tPb**			1.03	1.03
Discharge, Q		**Q Data, EV=51.8 cfs CV=1.03**				
Avg:	**52**	**Q Data-based LN**				
SD:	**53**	u	lnQ	Q		
CV:	**1.03**	3	6.1	460		
Min:	**11**	0	3.59	36		
Max:	**238**	-3	1.04	3		
Median:	**33**					

					0.930	0.93
					51.9	51.9
	u=mLn{Q}+b:				0.96	0.96
update for r2, EV, CV:	**r2=0.93, EV=51.9 cfs CV=0.96; max r2=0.98**					
	r2 u,lnQ:	0.930	u	lnQ	Q	
	slope, m:	1.237	3	6.05	423	
	intercept, b:	-4.481	0	3.62	37	
	N: 23		-3	1.20	3	
	E[Q]:	51.9	Parameter Estimates			
	SD[Q]:	50	from LN regression			
	CV[Q]:	0.96	update graph label			

						max r2
		N: 23				0.980
Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
18-Oct-95	11.3	1	0.0269	-1.929	2.425	0.930
26-Sep-96	11.5	2	0.0699	-1.477	2.442	0.928
21-Aug-96	18.7	3	0.1129	-1.211	2.929	0.916
13-Nov-98	20.01	4	0.1559	-1.011	2.996	0.920
24-Jul-96	23.5	5	0.1989	-0.845	3.157	0.921
24-Sep-98	23.5	6	0.2419	-0.700	3.157	0.931
8-Mar-99	25.6	7	0.2849	-0.568	3.243	0.936
26-Oct-98	26.1	8	0.3280	-0.446	3.262	0.943
15-Jan-99	28.4	9	0.3710	-0.329	3.346	0.948
25-Nov-98	29	10	0.4140	-0.217	3.367	0.955
26-Aug-98	30.9	11	0.4570	-0.108	3.431	0.960
28-Mar-96	32.9	12	0.5000	0.000	3.493	0.966
9-Nov-97	34.7	13	0.5430	0.108	3.547	0.972
28-Jul-98	35.8	14	0.5860	0.217	3.578	0.978
27-Dec-95	37.4	15	0.6290	0.329	3.622	0.980
17-Jan-96	37.4	16	0.6720	0.446	3.622	0.978
29-Feb-96	47.3	17	0.7151	0.568	3.857	0.973
8-May-96	56.3	18	0.7581	0.700	4.031	0.964
26-Jun-98	68.7	19	0.8011	0.845	4.230	0.951
21-Nov-95	78.4	20	0.8441	1.011	4.362	
19-Jun-96	96	21	0.8871	1.211	4.564	
23-Apr-98	179	22	0.9301	1.477	5.187	
14-May-98	238	23	0.9731	1.929	5.472	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC282 **Date:** 2-Jun-00
Chemical: tZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,615	52	1,104	245	0.00	0.00	0.00
SD:	451	53	471	181	1.00	1.00	1.00
CV:	0.01	1.03	0.43	0.74			
Min:	34,990	11	312	49.2	-0.76	-1.68	-1.08
Max:	36,227	238	2,330	982	3.50	2.60	4.07
Median:	35,743	33	1,070	208	-0.35	-0.07	-0.20

tZn CC282 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.218) update r2 0.22 0.218 r2: 0.009 0.002

r2 Q,[COC]:	0.22	[tZn]	Q		m:	0.0111	0.00008
slope, m:	-4.1	1,272	11.3		b:	-345	0.74
intercept, b:	1318.8	1,104	51.8				
N: 23		333	238				

LnConc. = mLn{Q}+b (r2=0.323) update r2 0.32 0.323

r2 lnQ,ln[COC]:	0.32	ln[tZn]	ln Q	[tZn]	Q
slope, m:	-0.35	7.33	2.42	1,529	11
intercept, b:	8.19	6.80	3.95	895	52
N: 23		6.26	5.47	523	238

for graph
tZn 0

N= 23

CC282
Standardized Values
= (x - Avg)/SD

update for new data	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	18-Oct-95	11.3	1180	72	2.42	7.07	4.27	-0.76	0.16	-0.95
IDEQ	21-Nov-95	78.4	705	297	4.36	6.56	5.69	0.50	-0.85	0.29
IDEQ	27-Dec-95	37.4	1070	215	3.62	6.98	5.37	-0.27	-0.07	-0.16
IDEQ	17-Jan-96	37.4	1860	374	3.62	7.53	5.92	-0.27	1.60	0.72
IDEQ	29-Feb-96	47.3	1080	275	3.86	6.98	5.62	-0.08	-0.05	0.17
IDEQ	28-Mar-96	32.9	1100	195	3.49	7.00	5.27	-0.35	-0.01	-0.28
IDEQ	8-May-96	56.3	810	245	4.03	6.70	5.50	0.09	-0.62	0.00
IDEQ	19-Jun-96	96	403	208	4.56	6.00	5.34	0.83	-1.49	-0.20
IDEQ	24-Jul-96	23.5	760	96	3.16	6.63	4.57	-0.53	-0.73	-0.82
IDEQ	21-Aug-96	18.7	979	98	2.93	6.89	4.59	-0.62	-0.27	-0.81
IDEQ	26-Sep-96	11.5	796	49	2.44	6.68	3.90	-0.76	-0.65	-1.08
URS	9-Nov-97	34.7	1110	207	3.55	7.01	5.33	-0.32	0.01	-0.21
IDEQ	23-Apr-98	179	1020	982	5.19	6.93	6.89	2.39	-0.18	4.07
URS	14-May-98	238	312	399	5.47	5.74	5.99	3.50	-1.68	0.86
IDEQ	26-Jun-98	68.7	612	226	4.23	6.42	5.42	0.32	-1.04	-0.10
IDEQ	28-Jul-98	35.8	893	172	3.58	6.79	5.15	-0.30	-0.45	-0.40
IDEQ	26-Aug-98	30.9	971	161	3.43	6.88	5.08	-0.39	-0.28	-0.46
IDEQ	24-Sep-98	23.5	1100	139	3.16	7.00	4.93	-0.53	-0.01	-0.58
IDEQ	26-Oct-98	26.1	1170	164	3.26	7.06	5.10	-0.48	0.14	-0.44
URS	13-Nov-98	20.01	1660	179	3.00	7.41	5.19	-0.60	1.18	-0.36
IDEQ	25-Nov-98	29	2330	364	3.37	7.75	5.90	-0.43	2.60	0.66
IDEQ	15-Jan-99	28.4	1720	263	3.35	7.45	5.57	-0.44	1.31	0.10
IDEQ	8-Mar-99	25.6	1760	242	3.24	7.47	5.49	-0.49	1.39	-0.01

tZn

Concentration over time analysis r2 Slope, m

tZn CC282 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.056** **0.00024**

	Time	Ln[COC]	[COC]
first:	18-Oct-95	6.76	864
mid:	9-Nov-97	6.94	1,034
last:	8-Mar-99	7.06	1,162

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
8-Mar-99	0.00	1

Load over time analysis

tZn CC282 **Load over time**

LnLoad=mTime+b All data r2, m: **0.057** **0.00032**

	Time	LnLoad	Load
first:	18-Oct-95	5.11	165
mid:	9-Nov-97	5.35	210
last:	8-Mar-99	5.50	246

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
8-Mar-99	0.00	1

max r2: 0.785 max r2: 0.390

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.056	0.00024	-1.63	0.057	0.00032	-6.11
0.074	0.00029	-3.34	0.022	0.00019	-1.53
0.056	0.00026	-2.34	0.039	0.00027	-4.29
0.067	0.00030	-3.76	0.045	0.00031	-5.61
0.159	0.00047	-9.88	0.100	0.00047	-11.58
0.200	0.00056	-13.23	0.150	0.00062	-16.78
0.263	0.00070	-18.12	0.174	0.00072	-20.54
0.277	0.00079	-21.29	0.250	0.00095	-28.75
0.163	0.00061	-14.87	0.332	0.00123	-38.91
0.138	0.00065	-16.32	0.275	0.00126	-40.02
0.198	0.00100	-29.00	0.201	0.00133	-42.43
0.318	0.00229	-75.36	0.054	-0.00095	39.78
0.621	0.00440	-151.80	0.172	-0.00234	89.93
0.785	0.00570	-198.56	0.001	-0.00013	10.05
0.731	0.00438	-151.10	0.197	0.00165	-54.31
0.620	0.00365	-124.69	0.382	0.00271	-92.43
0.496	0.00335	-113.72	0.390	0.00322	-110.80
0.312	0.00263	-87.83	0.328	0.00341	-117.77
0.096	0.00140	-43.24	0.122	0.00205	-68.73

update for EV, CV:

tZn **CC282**

LN Analysis **tZn**

Load **Load Data, EV=245 #/d CV=0.741**

Load Data-based LN

		u	ln tZn Load	tZn Load
Avg:	**245**			
SD:	**181**	3	7.3	1430
CV:	**0.74**	0	5.28	197
Min:	**49.2**	-3	3.30	27.0
Max:	**982**			
Median:	**208**			

245 245
0.74 0.741

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.945, EV=251#/d CV=0.741; max r2=0.99**

r2 u,lnLoad:	0.945	u	lnLoad	Load
slope, m:	1.512	3	7.29	1469
intercept, b:	-8.026	0	5.31	202
N: 23		-3	3.32	27.8
E[Load]:	251.4	Parameter Estimates		
SD[Load]:	186	from LN regression		
CV[Load]:	0.74	update graph label		

0.945 0.945
251.4 251
0.7 0.741

max r2
0.945

N: 23

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
26-Sep-96	**49**	1	0.0269	-1.929	3.897	0.945
18-Oct-95	**72**	2	0.0699	-1.477	4.273	0.935
24-Jul-96	**96**	3	0.1129	-1.211	4.565	0.926
21-Aug-96	**98**	4	0.1559	-1.011	4.590	0.914
24-Sep-98	**139**	5	0.1989	-0.845	4.935	0.903
26-Aug-98	**161**	6	0.2419	-0.700	5.084	0.894
26-Oct-98	**164**	7	0.2849	-0.568	5.102	0.893
28-Jul-98	**172**	8	0.3280	-0.446	5.147	0.888
13-Nov-98	**179**	9	0.3710	-0.329	5.186	0.883
28-Mar-96	**195**	10	0.4140	-0.217	5.271	0.876
9-Nov-97	**207**	11	0.4570	-0.108	5.334	0.875
19-Jun-96	**208**	12	0.5000	0.000	5.338	0.880
27-Dec-95	**215**	13	0.5430	0.108	5.372	0.879
26-Jun-98	**226**	14	0.5860	0.217	5.421	0.876
8-Mar-99	**242**	15	0.6290	0.329	5.491	0.874
8-May-96	**245**	16	0.6720	0.446	5.503	0.879
15-Jan-99	**263**	17	0.7151	0.568	5.571	0.874
29-Feb-96	**275**	18	0.7581	0.700	5.616	0.871
21-Nov-95	**297**	19	0.8011	0.845	5.695	0.858
25-Nov-98	**364**	20	0.8441	1.011	5.896	
17-Jan-96	**374**	21	0.8871	1.211	5.925	
14-May-98	**399**	22	0.9301	1.477	5.990	
23-Apr-98	**982**	23	0.9731	1.929	6.890	

update for EV, CV:

tZn		**CC282**		1,104	1100
LN Analysis		**tZn**		0.43	0.427

Concentration

Conc. Data, EV=1100 ug/L CV=0.427

Data-based LN

		u	ln[tZn]	[tZn]
Avg:	**1,104**			
SD:	**471**	3	8.2	3465
CV:	**0.43**	0	6.92	1016
Min:	**312**	-3	5.70	298
Max:	**2,330**			
Median:	**1,070**			

0.941 0.941

u=mLn{Conc.}+b: 1135.4 1140

update for r2, EV, CV: **r2=0.941, EV=1140 ug/L CV=0.53; max r2=0.99** 0.530 0.53

r2 u,lnConc:	0.941	u	lnConc.	Conc.
slope, m:	2.009	3	8.40	4466
intercept, b:	-13.884	0	6.91	1003
N: 23		-3	5.42	225
E[Conc]:	1135.4	Parameter Estimates		
SD[Conc]:	602	from LN regression		
CV[Conc]:	0.53	update graph label		

max r2 0.960

N: 23

Date	tZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
14-May-98	312	1	0.0269	-1.929	5.743	0.941
19-Jun-96	403	2	0.0699	-1.477	5.999	0.943
26-Jun-98	612	3	0.1129	-1.211	6.417	0.960
21-Nov-95	705	4	0.1559	-1.011	6.558	0.954
24-Jul-96	760	5	0.1989	-0.845	6.633	0.948
26-Sep-96	796	6	0.2419	-0.700	6.680	0.942
8-May-96	810	7	0.2849	-0.568	6.697	0.935
28-Jul-98	893	8	0.3280	-0.446	6.795	0.925
26-Aug-98	971	9	0.3710	-0.329	6.878	0.918
21-Aug-96	979	10	0.4140	-0.217	6.887	0.918
23-Apr-98	1020	11	0.4570	-0.108	6.928	0.913
27-Dec-95	1070	12	0.5000	0.000	6.975	0.911
29-Feb-96	1080	13	0.5430	0.108	6.985	0.913
28-Mar-96	1100	14	0.5860	0.217	7.003	0.910
24-Sep-98	1100	15	0.6290	0.329	7.003	0.901
9-Nov-97	1110	16	0.6720	0.446	7.012	0.881
26-Oct-98	1170	17	0.7151	0.568	7.065	0.847
18-Oct-95	1180	18	0.7581	0.700	7.073	0.800
13-Nov-98	1660	19	0.8011	0.845	7.415	0.924
15-Jan-99	1720	20	0.8441	1.011	7.450	
8-Mar-99	1760	21	0.8871	1.211	7.473	
17-Jan-96	1860	22	0.9301	1.477	7.528	
25-Nov-98	2330	23	0.9731	1.929	7.754	

update for EV, CV:

tZn		**CC282**			52	51.8
LN Analysis		**tZn**			1.03	1.03
Discharge, Q		**Q Data, EV=51.8 cfs CV=1.03**				
Avg:	**52**	**Q Data-based LN**				
SD:	**53**	u	lnQ	Q		
CV:	**1.03**	3	6.1	460		
Min:	**11**	0	3.59	36		
Max:	**238**	-3	1.04	3		
Median:	**33**					
					0.930	0.93
					51.9	51.9
	u=mLn{Q}+b:				0.96	0.96

update for r2, EV, CV: **r2=0.93, EV=51.9 cfs CV=0.96; max r2=0.98**

r2 u,lnQ:	0.930	u	lnQ	Q
slope, m:	1.237	3	6.05	423
intercept, b:	-4.481	0	3.62	37
N: 23		-3	1.20	3
E[Q]:	51.9	Parameter Estimates		
SD[Q]:	50	from LN regression		
CV[Q]:	0.96	update graph label		

N: 23

max r2
0.980

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
18-Oct-95	11.3	1	0.0269	-1.929	2.425	0.930
26-Sep-96	11.5	2	0.0699	-1.477	2.442	0.928
21-Aug-96	18.7	3	0.1129	-1.211	2.929	0.916
13-Nov-98	20.01	4	0.1559	-1.011	2.996	0.920
24-Jul-96	23.5	5	0.1989	-0.845	3.157	0.921
24-Sep-98	23.5	6	0.2419	-0.700	3.157	0.931
8-Mar-99	25.6	7	0.2849	-0.568	3.243	0.936
26-Oct-98	26.1	8	0.3280	-0.446	3.262	0.943
15-Jan-99	28.4	9	0.3710	-0.329	3.346	0.948
25-Nov-98	29	10	0.4140	-0.217	3.367	0.955
26-Aug-98	30.9	11	0.4570	-0.108	3.431	0.960
28-Mar-96	32.9	12	0.5000	0.000	3.493	0.966
9-Nov-97	34.7	13	0.5430	0.108	3.547	0.972
28-Jul-98	35.8	14	0.5860	0.217	3.578	0.978
27-Dec-95	37.4	15	0.6290	0.329	3.622	0.980
17-Jan-96	37.4	16	0.6720	0.446	3.622	0.978
29-Feb-96	47.3	17	0.7151	0.568	3.857	0.973
8-May-96	56.3	18	0.7581	0.700	4.031	0.964
26-Jun-98	68.7	19	0.8011	0.845	4.230	0.951
21-Nov-95	78.4	20	0.8441	1.011	4.362	
19-Jun-96	96	21	0.8871	1.211	4.564	
23-Apr-98	179	22	0.9301	1.477	5.187	
14-May-98	238	23	0.9731	1.929	5.472	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC284 **Date:** 29-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,638	38	8	1.4	0.00	0.00	0.00
SD:	400	35	4	1.0	1.00	1.00	1.00
CV:	0.01	0.93	0.43	0.7			
Min:	33,375	7	3	0.3	-0.87	-1.61	-1.12
Max:	35,743	172	16	5.2	3.78	2.19	3.93
Median:	34,634	24	7	1.2	-0.39	-0.29	-0.16

dCd **CC284** **: Concentration v. Discharge, Q**

Conc. = mQ+b (r2=0.21)	update r2			**Q = mTime +b**	**LnQ = mTime +b**	
r2 Q,[COC]:	0.21	[dCd]	Q	r2:	0.004	0.035
slope, m:	-0.05	10	7.1	m:	-0.0058	0.00037
intercept, b:	9.9	8	37.9	b:	237	-9.59
N: 42		2	172			
LnConc. = mLn{Q}+b (r2=0.28)		update r2				
lnQ,ln[COC]:	0.28	ln[dCd]	ln Q	[dCd]	Q	
slope, m:	-0.31	2.42	1.96	11	7	
intercept, b:	3.03	1.91	3.64	7	38	
N: 42		1.44	5.15	4	172	

dCd for graph
CC284 0

N= 42

update for new data	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	171.6	2.5	2.3	5.15	0.92	0.84	3.78	-1.61	0.96
MFG	5-Oct-91	16.1	7.5	0.6	2.78	2.01	-0.43	-0.62	-0.20	-0.73
IDEQ	27-Oct-93	7.88	6.3	0.3	2.06	1.84	-1.32	-0.85	-0.54	-1.12
IDEQ	30-Nov-93	12.6	8.5	0.6	2.53	2.14	-0.55	-0.72	0.08	-0.81
IDEQ	17-Dec-93	7.24	10.7	0.4	1.98	2.37	-0.88	-0.87	0.70	-0.97
IDEQ	17-Dec-93	10.66	10.7	0.6	2.37	2.37	-0.49	-0.77	0.70	-0.77
IDEQ	20-Jan-94	7.88	12	0.5	2.06	2.48	-0.68	-0.85	1.07	-0.88
IDEQ	20-Jan-94	11.68	12	0.8	2.46	2.48	-0.28	-0.74	1.07	-0.63
IDEQ	18-Feb-94	7.12	12	0.5	1.96	2.48	-0.78	-0.87	1.07	-0.93
IDEQ	8-Mar-94	21.27	14	1.6	3.06	2.64	0.47	-0.47	1.63	0.24
IDEQ	24-Mar-94	21.27	15	1.7	3.06	2.71	0.54	-0.47	1.91	0.35
IDEQ	7-Apr-94	59.82	8.3	2.7	4.09	2.12	0.98	0.62	0.02	1.33
IDEQ	4-May-94	59.82	4.3	1.4	4.09	1.46	0.32	0.62	-1.10	0.01
IDEQ	19-May-94	73.12	2.8	1.1	4.29	1.03	0.10	1.00	-1.53	-0.27
IDEQ	7-Jun-94	51.06	5.1	1.4	3.93	1.63	0.34	0.37	-0.88	0.03
IDEQ	23-Jun-94	33.34	5.6	1.0	3.51	1.72	0.00	-0.13	-0.74	-0.37
IDEQ	25-Jul-94	19.76	6	0.6	2.98	1.79	-0.45	-0.51	-0.62	-0.75
IDEQ	16-Aug-94	17.71	7.2	0.7	2.87	1.97	-0.38	-0.57	-0.29	-0.70
IDEQ	16-Aug-94	13.57	7.2	0.5	2.61	1.97	-0.64	-0.69	-0.29	-0.86
IDEQ	13-Sep-94	16.48	5.8	0.5	2.80	1.76	-0.67	-0.61	-0.68	-0.87
IDEQ	6-Oct-94	15.33	7.1	0.6	2.73	1.96	-0.54	-0.64	-0.31	-0.80
IDEQ	16-Nov-94	16.78	12	1.1	2.82	2.48	0.08	-0.60	1.07	-0.29
IDEQ	13-Dec-94	16.48	15	1.3	2.80	2.71	0.29	-0.61	1.91	-0.04
IDEQ	10-Jan-95	25.13	16	2.2	3.22	2.77	0.77	-0.36	2.19	0.81
IDEQ	9-Feb-95	39.63	9.8	2.1	3.68	2.28	0.74	0.05	0.45	0.73
IDEQ	8-Mar-95	38.13	6.8	1.4	3.64	1.92	0.33	0.01	-0.40	0.03
IDEQ	22-Mar-95	80.94	12	5.2	4.39	2.48	1.65	1.22	1.07	3.93
IDEQ	12-Apr-95	58.64	6.7	2.1	4.07	1.90	0.75	0.59	-0.43	0.76
IDEQ	25-Apr-95	47	5.8	1.5	3.85	1.76	0.38	0.26	-0.68	0.10
IDEQ	13-Jun-95	158.04	2.9	2.5	5.06	1.06	0.90	3.40	-1.50	1.12
IDEQ	27-Jun-95	38.13	3.6	0.7	3.64	1.28	-0.30	0.01	-1.30	-0.64
IDEQ	11-Jul-95	23.33	5	0.6	3.15	1.61	-0.47	-0.41	-0.91	-0.76
IDEQ	25-Jul-95	18.71	5.9	0.6	2.93	1.77	-0.52	-0.54	-0.65	-0.79
IDEQ	14-Aug-95	15.89	6.5	0.6	2.77	1.87	-0.59	-0.62	-0.48	-0.83
IDEQ	13-Sep-95	14.02	6.9	0.5	2.64	1.93	-0.65	-0.68	-0.37	-0.87
IDEQ	18-Oct-95	35.3	8.1	1.5	3.56	2.09	0.43	-0.07	-0.03	0.17
IDEQ	21-Nov-95	95.4	4.3	2.2	4.56	1.46	0.79	1.63	-1.10	0.85
IDEQ	27-Dec-95	41.2	7.8	1.7	3.72	2.05	0.55	0.09	-0.12	0.37
IDEQ	17-Jan-96	48.1	15	3.9	3.87	2.71	1.36	0.29	1.91	2.56
IDEQ	29-Feb-96	52.1	6.7	1.9	3.95	1.90	0.63	0.40	-0.43	0.52
IDEQ	28-Mar-96	39.6	8.7	1.9	3.68	2.16	0.62	0.05	0.14	0.49
URS	9-Nov-97	35	8.98	1.7	3.56	2.19	0.53	-0.08	0.22	0.33

dCd

Concentration over time analysis r2 Slope, m

dCd CC284 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.009** **0.00011**

	Time	Ln[COC]	[COC]
first:	17-May-91	1.87	7
mid:	26-Oct-94	2.01	7
last:	9-Nov-97	2.12	8

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Nov-97	0.00	1

Load over time analysis

dCd CC284 **Load over time**

LnLoad=mTime+b All data r2, m: **0.082** **0.00048**

	Time	LnLoad	Load
first:	17-May-91	-0.51	1
mid:	26-Oct-94	0.09	1
last:	9-Nov-97	0.62	2

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Nov-97	0.00	1

max r2: 0.241 max r2: 0.211

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.009	0.00011	-1.69	0.082	0.00048	-16.51
0.012	-0.00014	6.78	0.188	0.00082	-28.48
0.018	-0.00019	8.73	0.192	0.00097	-33.41
0.024	-0.00023	9.93	0.156	0.00084	-29.10
0.023	-0.00023	9.89	0.138	0.00080	-27.67
0.016	-0.00019	8.80	0.112	0.00071	-24.56
0.010	-0.00016	7.52	0.094	0.00066	-22.80
0.004	-0.00010	5.55	0.072	0.00058	-19.87
0.000	-0.00004	3.22	0.060	0.00054	-18.49
0.001	0.00004	0.63	0.037	0.00042	-14.22
0.008	0.00015	-3.17	0.046	0.00048	-16.31
0.032	0.00028	-7.93	0.059	0.00056	-19.08
0.043	0.00034	-9.74	0.099	0.00072	-25.02
0.027	0.00027	-7.52	0.111	0.00079	-27.38
0.005	0.00011	-2.00	0.113	0.00082	-28.50
0.001	0.00005	0.17	0.128	0.00091	-31.42
0.000	0.00000	2.03	0.126	0.00093	-32.22
0.001	-0.00005	3.60	0.102	0.00085	-29.41
0.001	-0.00006	3.95	0.081	0.00077	-26.58
0.001	-0.00007	4.39	0.049	0.00060	-20.58
0.006	-0.00014	6.93	0.021	0.00039	-13.15
0.008	-0.00017	7.93	0.004	0.00017	-5.46
0.001	-0.00005	3.81	0.001	0.00009	-2.82
0.006	0.00015	-3.26	0.001	0.00006	-1.81
0.052	0.00040	-12.04	0.004	0.00017	-5.65
0.092	0.00053	-16.82	0.009	0.00029	-9.60
0.100	0.00058	-18.30	0.009	0.00029	-9.80
0.214	0.00081	-26.37	0.068	0.00072	-24.79
0.238	0.00088	-28.97	0.108	0.00092	-31.89
0.241	0.00092	-30.24	0.127	0.00103	-35.98
0.197	0.00071	-23.01	0.211	0.00131	-45.72
0.145	0.00053	-16.63	0.181	0.00122	-42.46
0.100	0.00043	-12.92	0.137	0.00103	-35.83
0.070	0.00036	-10.46	0.083	0.00075	-25.97
0.049	0.00031	-8.71	0.023	0.00034	-11.33
0.035	0.00027	-7.32	0.045	-0.00025	9.56
0.040	0.00030	-8.47	0.137	-0.00043	15.85
0.003	-0.00006	4.23	0.135	-0.00045	16.46

update for EV, CV:

dCd **CC284**

LN Analysis **dCd**

Load **Load Data, EV=1.4lbs/day CV=0.7**

Load Data-based LN

		u	ln dCd Load	dCd Load
Avg:	**1.4**			
SD:	**1.0**	u	ln dCd Load	dCd Load
CV:	**0.7**	3	2.0	7.7
Min:	**0.3**	0	0.11	1.1
Max:	**5.2**	-3	-1.82	0.2
Median:	**1.2**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.960, EV=1.4 lbs/day CV=0.81; max r2=0.97**

r2 u,lnLoad:	0.960	u	lnLoad	Load
slope, m:	1.414	3	2.21	9
intercept, b:	-0.127	0	0.09	1
N: 42		-3	-2.03	0.1
E[Load]:	1.4	Parameter Estimates		
SD[Load]:	1	from LN regression		
CV[Load]:	0.81	update graph label		

						max r2
	dCd	N: 42				0.968
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
27-Oct-93	**0.3**	1	0.0148	-2.176	-1.320	0.960
17-Dec-93	**0.4**	2	0.0385	-1.769	-0.875	0.956
18-Feb-94	**0.5**	3	0.0621	-1.537	-0.777	0.957
20-Jan-94	**0.5**	4	0.0858	-1.367	-0.676	0.958
13-Sep-94	**0.5**	5	0.1095	-1.229	-0.665	0.960
13-Sep-95	**0.5**	6	0.1331	-1.112	-0.653	0.960
16-Aug-94	**0.5**	7	0.1568	-1.008	-0.643	0.959
14-Aug-95	**0.6**	8	0.1805	-0.914	-0.588	0.956
30-Nov-93	**0.6**	9	0.2041	-0.827	-0.551	0.953
6-Oct-94	**0.6**	10	0.2278	-0.746	-0.535	0.950
25-Jul-95	**0.6**	11	0.2515	-0.670	-0.521	0.946
17-Dec-93	**0.6**	12	0.2751	-0.597	-0.488	0.942
11-Jul-95	**0.6**	13	0.2988	-0.528	-0.466	0.938
25-Jul-94	**0.6**	14	0.3225	-0.461	-0.450	0.934
5-Oct-91	**0.6**	15	0.3462	-0.396	-0.431	0.932
16-Aug-94	**0.7**	16	0.3698	-0.332	-0.377	0.933
27-Jun-95	**0.7**	17	0.3935	-0.270	-0.303	0.938
20-Jan-94	**0.8**	18	0.4172	-0.209	-0.282	0.945
23-Jun-94	**1.0**	19	0.4408	-0.149	0.004	0.964
16-Nov-94	**1.1**	20	0.4645	-0.089	0.080	0.963
19-May-94	**1.1**	21	0.4882	-0.030	0.097	0.960
13-Dec-94	**1.3**	22	0.5118	0.030	0.285	0.959
4-May-94	**1.4**	23	0.5355	0.089	0.325	0.957
8-Mar-95	**1.4**	24	0.5592	0.149	0.333	0.956
7-Jun-94	**1.4**	25	0.5828	0.209	0.337	0.954
25-Apr-95	**1.5**	26	0.6065	0.270	0.383	0.949
18-Oct-95	**1.5**	27	0.6302	0.332	0.431	0.945
8-Mar-94	**1.6**	28	0.6538	0.396	0.471	0.941
9-Nov-97	**1.7**	29	0.6775	0.461	0.525	0.937
24-Mar-94	**1.7**	30	0.7012	0.528	0.540	0.937
27-Dec-95	**1.7**	31	0.7249	0.597	0.547	0.935
28-Mar-96	**1.9**	32	0.7485	0.670	0.617	0.928
29-Feb-96	**1.9**	33	0.7722	0.746	0.630	0.927
9-Feb-95	**2.1**	34	0.7959	0.827	0.737	0.920
12-Apr-95	**2.1**	35	0.8195	0.914	0.748	0.936
10-Jan-95	**2.2**	36	0.8432	1.008	0.772	0.949
21-Nov-95	**2.2**	37	0.8669	1.112	0.792	0.962
17-May-91	**2.3**	38	0.8905	1.229	0.836	0.968
13-Jun-95	**2.5**	39	0.9142	1.367	0.902	
7-Apr-94	**2.7**	40	0.9379	1.537	0.983	
17-Jan-96	**3.9**	41	0.9615	1.769	1.356	
22-Mar-95	**5.2**	42	0.9852	2.176	1.654	

update for EV, CV:

dCd **CC284**

LN Analysis **dCd**

Concentration **Conc. Data, EV=8 ug/L CV=.43**

Avg:	**8**	**Data-based LN**		
SD:	**4**	u	ln[dCd]	[dCd]
CV:	**0.43**	3	3.3	26
Min:	**3**	0	2.02	8
Max:	**16**	-3	0.78	2
Median:	**7**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.970, EV=8.4 ug/L CV=.51; max r2=0.97**

r2 u,lnConc:	0.970	u	lnConc.	Conc.
slope, m:	2.070	3	3.46	32
intercept, b:	-4.155	0	2.01	7
N: 42		-3	0.56	2
E[Conc]:	8.4	Parameter Estimates		
SD[Conc]:	4	from LN regression		
CV[Conc]:	0.51	update graph label		

N: 42

max r2 0.972

Date	dCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
17-May-91	2.5	1	0.0148	-2.176	0.916	0.970
19-May-94	2.8	2	0.0385	-1.769	1.030	0.966
13-Jun-95	2.9	3	0.0621	-1.537	1.065	0.965
27-Jun-95	3.6	4	0.0858	-1.367	1.281	0.972
4-May-94	4.3	5	0.1095	-1.229	1.459	0.972
21-Nov-95	4.3	6	0.1331	-1.112	1.459	0.970
11-Jul-95	5	7	0.1568	-1.008	1.609	0.969
7-Jun-94	5.1	8	0.1805	-0.914	1.629	0.967
23-Jun-94	5.6	9	0.2041	-0.827	1.723	0.964
13-Sep-94	5.8	10	0.2278	-0.746	1.758	0.963
25-Apr-95	5.8	11	0.2515	-0.670	1.758	0.961
25-Jul-95	5.9	12	0.2751	-0.597	1.775	0.958
25-Jul-94	6	13	0.2988	-0.528	1.792	0.955
27-Oct-93	6.3	14	0.3225	-0.461	1.841	0.952
14-Aug-95	6.5	15	0.3462	-0.396	1.872	0.948
12-Apr-95	6.7	16	0.3698	-0.332	1.902	0.945
29-Feb-96	6.7	17	0.3935	-0.270	1.902	0.941
8-Mar-95	6.8	18	0.4172	-0.209	1.917	0.937
13-Sep-95	6.9	19	0.4408	-0.149	1.932	0.931
6-Oct-94	7.1	20	0.4645	-0.089	1.960	0.925
16-Aug-94	7.2	21	0.4882	-0.030	1.974	0.919
16-Aug-94	7.2	22	0.5118	0.030	1.974	0.912
5-Oct-91	7.5	23	0.5355	0.089	2.015	0.905
27-Dec-95	7.8	24	0.5592	0.149	2.054	0.898
18-Oct-95	8.1	25	0.5828	0.209	2.092	0.890
7-Apr-94	8.3	26	0.6065	0.270	2.116	0.879
30-Nov-93	8.5	27	0.6302	0.332	2.140	0.869
28-Mar-96	8.7	28	0.6538	0.396	2.163	0.860
9-Nov-97	8.98	29	0.6775	0.461	2.195	0.857
9-Feb-95	9.8	30	0.7012	0.528	2.282	0.868
17-Dec-93	10.7	31	0.7249	0.597	2.370	0.864
17-Dec-93	10.7	32	0.7485	0.670	2.370	0.842
20-Jan-94	12	33	0.7722	0.746	2.485	0.825
20-Jan-94	12	34	0.7959	0.827	2.485	0.807
18-Feb-94	12	35	0.8195	0.914	2.485	0.775
16-Nov-94	12	36	0.8432	1.008	2.485	0.720
22-Mar-95	12	37	0.8669	1.112	2.485	0.635
8-Mar-94	14	38	0.8905	1.229	2.639	0.797
24-Mar-94	15	39	0.9142	1.367	2.708	
13-Dec-94	15	40	0.9379	1.537	2.708	
17-Jan-96	15	41	0.9615	1.769	2.708	
10-Jan-95	16	42	0.9852	2.176	2.773	

update for EV, CV:

dCd		**CC284**		
LN Analysis		**dCd**		
Discharge, Q		**Q Data, EV=38 cfs CV=0.93**		
Avg:	**38**	**Q Data-based LN**		
SD:	**35**	u	lnQ	Q
CV:	**0.93**	3	5.7	298
Min:	**7**	0	3.32	28
Max:	**172**	-3	0.95	3
Median:	**24**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.977, EV=38.5 cfs CV=0.99; max r2=0.98**

r2 u,lnQ:	0.977	u	lnQ	Q
slope, m:	1.208	3	5.79	328
intercept, b:	-3.997	0	3.31	27
N: 42		-3	0.83	2
E[Q]:	38.5	Parameter Estimates		
SD[Q]:	38	from LN regression		
CV[Q]:	0.99	update graph label		

N: 42

max r2
0.983

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
18-Feb-94	7.12	1	0.0148	-2.176	1.963	0.977
17-Dec-93	7.24	2	0.0385	-1.769	1.980	0.983
27-Oct-93	7.88	3	0.0621	-1.537	2.064	0.983
20-Jan-94	7.88	4	0.0858	-1.367	2.064	0.982
17-Dec-93	10.66	5	0.1095	-1.229	2.366	0.980
20-Jan-94	11.68	6	0.1331	-1.112	2.458	0.980
30-Nov-93	12.6	7	0.1568	-1.008	2.534	0.979
16-Aug-94	13.57	8	0.1805	-0.914	2.608	0.979
13-Sep-95	14.02	9	0.2041	-0.827	2.640	0.979
6-Oct-94	15.33	10	0.2278	-0.746	2.730	0.978
14-Aug-95	15.89	11	0.2515	-0.670	2.766	0.979
5-Oct-91	16.1	12	0.2751	-0.597	2.779	0.978
13-Sep-94	16.48	13	0.2988	-0.528	2.802	0.977
13-Dec-94	16.48	14	0.3225	-0.461	2.802	0.976
16-Nov-94	16.78	15	0.3462	-0.396	2.820	0.974
16-Aug-94	17.71	16	0.3698	-0.332	2.874	0.972
25-Jul-95	18.71	17	0.3935	-0.270	2.929	0.970
25-Jul-94	19.76	18	0.4172	-0.209	2.984	0.968
8-Mar-94	21.27	19	0.4408	-0.149	3.057	0.966
24-Mar-94	21.27	20	0.4645	-0.089	3.057	0.964
11-Jul-95	23.33	21	0.4882	-0.030	3.150	0.965
10-Jan-95	25.13	22	0.5118	0.030	3.224	0.964
23-Jun-94	33.34	23	0.5355	0.089	3.507	0.964
9-Nov-97	35	24	0.5592	0.149	3.555	0.964
18-Oct-95	35.3	25	0.5828	0.209	3.564	0.964
8-Mar-95	38.13	26	0.6065	0.270	3.641	0.963
27-Jun-95	38.13	27	0.6302	0.332	3.641	0.964
28-Mar-96	39.6	28	0.6538	0.396	3.679	0.964
9-Feb-95	39.63	29	0.6775	0.461	3.680	0.962
27-Dec-95	41.2	30	0.7012	0.528	3.718	0.958
25-Apr-95	47	31	0.7249	0.597	3.850	0.953
17-Jan-96	48.1	32	0.7485	0.670	3.873	0.953
7-Jun-94	51.06	33	0.7722	0.746	3.933	0.949
29-Feb-96	52.1	34	0.7959	0.827	3.953	0.947
12-Apr-95	58.64	35	0.8195	0.914	4.071	0.938
7-Apr-94	59.82	36	0.8432	1.008	4.091	0.936
4-May-94	59.82	37	0.8669	1.112	4.091	0.923
19-May-94	73.12	38	0.8905	1.229	4.292	0.894
22-Mar-95	80.94	39	0.9142	1.367	4.394	
21-Nov-95	95.4	40	0.9379	1.537	4.558	
13-Jun-95	158.04	41	0.9615	1.769	5.063	
17-May-91	171.6	42	0.9852	2.176	5.145	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC284 **Date:** 30-May-00
Chemical: dPb **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,638	38	23	5	0.00	0.00	0.00
SD:	400	35	27	7	1.00	1.00	1.00
CV:	0.01	0.93	1.20	1.46			
Min:	33,375	7	4	0	-0.87	-0.69	-0.61
Max:	35,743	172	188	40	3.78	6.04	5.21
Median:	34,634	24	17	3	-0.39	-0.21	-0.26

dPb CC284 : Concentration v. Discharge, Q

Q = mTime +b **LnQ = mTime +b**

Conc. = mQ+b (r2=0.0002) update r2				r2:	0.004	0.035
r2 Q,[COC]:	0.0002	[dPb]	Q	m:	-0.0058	0.00037
slope, m:	0.01	23	7.1	b:	237	-9.59
intercept, b:	22.4	23	37.9			
N: 41		24	172			

LnConc. = mLn{Q}+b (r2=0.01) update r2					
? lnQ,ln[COC]:	0.01	ln[dPb]	ln Q	[dPb]	Q
slope, m:	0.07	2.81	1.96	17	7
intercept, b:	2.67	2.92	3.64	19	38
N: 41		3.03	5.15	21	172

for graph
dPb 0
CC284

N= 42

	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	171.6	4	3.7	5.15	1.39	1.31	3.78	-0.69	-0.14
MFG	5-Oct-91	16.1	6	0.5	2.78	1.79	-0.65	-0.62	-0.61	-0.61
IDEQ	27-Oct-93	7.88	15	0.6	2.06	2.71	-0.45	-0.85	-0.29	-0.59
IDEQ	30-Nov-93	12.6	15	1.0	2.53	2.71	0.02	-0.72	-0.29	-0.54
IDEQ	17-Dec-93	7.24	18	0.7	1.98	2.89	-0.36	-0.87	-0.18	-0.58
IDEQ	17-Dec-93	10.66	18	1.0	2.37	2.89	0.03	-0.77	-0.18	-0.53
IDEQ	20-Jan-94	7.88	18	0.8	2.06	2.89	-0.27	-0.85	-0.18	-0.57
IDEQ	20-Jan-94	11.68	18	1.1	2.46	2.89	0.12	-0.74	-0.18	-0.52
IDEQ	18-Feb-94	7.12	13	0.5	1.96	2.56	-0.70	-0.87	-0.36	-0.61
IDEQ	8-Mar-94	21.27	25	2.9	3.06	3.22	1.05	-0.47	0.08	-0.26
IDEQ	24-Mar-94	21.27	25	2.9	3.06	3.22	1.05	-0.47	0.08	-0.26
IDEQ	7-Apr-94	59.82	18	5.8	4.09	2.89	1.76	0.62	-0.18	0.17
IDEQ	4-May-94	59.82	16	5.1	4.09	2.77	1.64	0.62	-0.25	0.07
IDEQ	19-May-94	73.12	15	5.9	4.29	2.71	1.78	1.00	-0.29	0.18
IDEQ	7-Jun-94	51.06	17	4.7	3.93	2.83	1.54	0.37	-0.21	0.00
IDEQ	23-Jun-94	33.34	20	3.6	3.51	3.00	1.28	-0.13	-0.10	-0.16
IDEQ	25-Jul-94	19.76	18	1.9	2.98	2.89	0.65	-0.51	-0.18	-0.40
IDEQ	16-Aug-94	17.71	17	1.6	2.87	2.83	0.48	-0.57	-0.21	-0.45
IDEQ	16-Aug-94	13.57	17	1.2	2.61	2.83	0.22	-0.69	-0.21	-0.50
IDEQ	13-Sep-94	16.48	10	0.9	2.80	2.30	-0.12	-0.61	-0.47	-0.56
IDEQ	6-Oct-94	15.33	10	0.8	2.73	2.30	-0.19	-0.64	-0.47	-0.56
IDEQ	16-Nov-94	16.78	14	1.3	2.82	2.64	0.23	-0.60	-0.32	-0.50
IDEQ	13-Dec-94	16.48	14	1.2	2.80	2.64	0.22	-0.61	-0.32	-0.50
IDEQ	10-Jan-95	25.13	16	2.2	3.22	2.77	0.77	-0.36	-0.25	-0.37
IDEQ	9-Feb-95	39.63	17	3.6	3.68	2.83	1.29	0.05	-0.21	-0.15
IDEQ	8-Mar-95	38.13	15	3.1	3.64	2.71	1.12	0.01	-0.29	-0.23
IDEQ	22-Mar-95	80.94	26	11.3	4.39	3.26	2.43	1.22	0.12	0.98
IDEQ	*12-Apr-95*	*58.64*			4.07			0.59		
IDEQ	25-Apr-95	47	18	4.6	3.85	2.89	1.52	0.26	-0.18	-0.02
IDEQ	13-Jun-95	158.04	23	19.6	5.06	3.14	2.97	3.40	0.01	2.19
IDEQ	27-Jun-95	38.13	16	3.3	3.64	2.77	1.19	0.01	-0.25	-0.20
IDEQ	11-Jul-95	23.33	20	2.5	3.15	3.00	0.92	-0.41	-0.10	-0.32
IDEQ	25-Jul-95	18.71	22	2.2	2.93	3.09	0.80	-0.54	-0.03	-0.36
IDEQ	14-Aug-95	15.89	19	1.6	2.77	2.94	0.49	-0.62	-0.14	-0.45
IDEQ	13-Sep-95	14.02	14	1.1	2.64	2.64	0.05	-0.68	-0.32	-0.53
IDEQ	18-Oct-95	35.3	16	3.0	3.56	2.77	1.11	-0.07	-0.25	-0.24
IDEQ	21-Nov-95	95.4	16	8.2	4.56	2.77	2.11	1.63	-0.25	0.52
IDEQ	27-Dec-95	41.2	26	5.8	3.72	3.26	1.75	0.09	0.12	0.16
IDEQ	17-Jan-96	48.1	52	13.5	3.87	3.95	2.60	0.29	1.07	1.30
IDEQ	29-Feb-96	52.1	27	7.6	3.95	3.30	2.02	0.40	0.15	0.43
IDEQ	28-Mar-96	39.6	188	40.1	3.68	5.24	3.69	0.05	6.04	5.21
URS	9-Nov-97	35	42.8	8.1	3.56	3.76	2.09	-0.08	0.73	0.50

dPb

Concentration over time analysis r2 Slope, m

dPb CC284 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.454** **0.00093**

	Time	Ln[COC]	[COC]
first:	17-May-91	1.73	6
mid:	26-Oct-94	2.90	18
last:	9-Nov-97	3.94	51

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Nov-97	0.00	1

Load over time analysis

dPb CC284 **Load over time**

LnLoad=mTime+b All data r2, m: **0.263** **0.00129**

	Time	LnLoad	Load
first:	17-May-91	-0.66	1
mid:	26-Oct-94	0.96	3
last:	9-Nov-97	2.39	11

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Nov-97	0.00	1

max r2: 0.454 max r2: 0.385

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.454	0.00093	-29.42	0.263	0.00129	-43.65
0.346	0.00085	-26.42	0.385	0.00179	-61.06
0.254	0.00079	-24.51	0.351	0.00193	-65.99
0.249	0.00080	-24.85	0.324	0.00185	-63.27
0.244	0.00081	-25.09	0.307	0.00182	-62.10
0.249	0.00084	-26.12	0.280	0.00173	-58.98
0.256	0.00087	-27.33	0.259	0.00168	-57.21
0.262	0.00091	-28.49	0.230	0.00157	-53.55
0.270	0.00095	-29.87	0.207	0.00151	-51.30
0.255	0.00093	-29.51	0.168	0.00131	-44.17
0.290	0.00102	-32.66	0.169	0.00135	-45.70
0.332	0.00113	-36.18	0.171	0.00140	-47.34
0.344	0.00118	-38.15	0.206	0.00157	-53.54
0.345	0.00122	-39.40	0.239	0.00174	-59.51
0.340	0.00124	-40.31	0.287	0.00197	-67.26
0.346	0.00129	-42.10	0.327	0.00217	-74.37
0.369	0.00139	-45.31	0.356	0.00234	-80.51
0.381	0.00146	-47.80	0.349	0.00239	-82.02
0.387	0.00152	-49.98	0.333	0.00239	-81.98
0.396	0.00160	-52.75	0.302	0.00231	-79.47
0.360	0.00153	-50.45	0.257	0.00212	-72.58
0.318	0.00144	-47.30	0.204	0.00184	-62.94
0.295	0.00142	-46.56	0.162	0.00163	-55.58
0.269	0.00139	-45.28	0.118	0.00137	-46.18
0.251	0.00137	-44.81	0.091	0.00121	-40.82
0.234	0.00136	-44.49	0.082	0.00119	-40.00
0.207	0.00130	-42.22	0.066	0.00110	-36.75
0.225	0.00141	-46.16	0.110	0.00145	-49.08
0.225	0.00141	-46.16	0.110	0.00145	-49.08
0.207	0.00139	-45.43	0.111	0.00151	-51.16
0.207	0.00143	-46.71	0.220	0.00202	-69.42
0.179	0.00134	-43.50	0.209	0.00202	-69.33
0.161	0.00130	-42.21	0.181	0.00190	-65.12
0.148	0.00128	-41.71	0.141	0.00168	-57.21
0.120	0.00118	-38.06	0.083	0.00121	-40.68
0.069	0.00087	-26.85	0.013	0.00035	-9.97
0.025	0.00050	-13.81	0.008	-0.00023	10.51
0.000	-0.00004	5.21	0.025	-0.00043	17.43

update for EV, CV:

dPb **CC284**
LN Analysis **dPb**

Load **Load Data, EV=5 lbs/day CV=1.46**

Load Data-based LN

Avg:	**5**			
SD:	**7**	u	ln dPb Load	dPb Load
CV:	**1.46**	3	4.2	65
Min:	**0**	0	0.97	3
Max:	**40**	-3	-2.23	0.1
Median:	**3**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.986, EV=4.6 lbs/day CV=1.57; max r2=0.99**

r2 u,lnLoad:	0.986	u	lnLoad	Load
slope, m:	0.898	3	4.25	70
intercept, b:	-0.813	0	0.91	2
N: 41		-3	-2.44	0.09
E[Load]:	4.6	Parameter Estimates		
SD[Load]:	7	from LN regression		
CV[Load]:	1.57	update graph label		

max r2
0.994

N: 42

update and rank for new data

Date	dPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
12-Apr-95		1	0.0148	-2.176		
18-Feb-94	**0.5**	2	0.0385	-1.769	-0.697	0.986
5-Oct-91	**0.5**	3	0.0621	-1.537	-0.654	0.989
27-Oct-93	**0.6**	4	0.0858	-1.367	-0.453	0.989
17-Dec-93	**0.7**	5	0.1095	-1.229	-0.355	0.989
20-Jan-94	**0.8**	6	0.1331	-1.112	-0.270	0.990
6-Oct-94	**0.8**	7	0.1568	-1.008	-0.193	0.990
13-Sep-94	**0.9**	8	0.1805	-0.914	-0.120	0.989
30-Nov-93	**1.0**	9	0.2041	-0.827	0.017	0.989
17-Dec-93	**1.0**	10	0.2278	-0.746	0.032	0.989
13-Sep-95	**1.1**	11	0.2515	-0.670	0.054	0.988
20-Jan-94	**1.1**	12	0.2751	-0.597	0.123	0.987
16-Aug-94	**1.2**	13	0.2988	-0.528	0.216	0.987
13-Dec-94	**1.2**	14	0.3225	-0.461	0.216	0.985
16-Nov-94	**1.3**	15	0.3462	-0.396	0.234	0.985
16-Aug-94	**1.6**	16	0.3698	-0.332	0.482	0.985
14-Aug-95	**1.6**	17	0.3935	-0.270	0.485	0.984
25-Jul-94	**1.9**	18	0.4172	-0.209	0.649	0.983
10-Jan-95	**2.2**	19	0.4408	-0.149	0.772	0.981
25-Jul-95	**2.2**	20	0.4645	-0.089	0.795	0.980
11-Jul-95	**2.5**	21	0.4882	-0.030	0.920	0.979
8-Mar-94	**2.9**	22	0.5118	0.030	1.051	0.978
24-Mar-94	**2.9**	23	0.5355	0.089	1.051	0.980
18-Oct-95	**3.0**	24	0.5592	0.149	1.111	0.980
8-Mar-95	**3.1**	25	0.5828	0.209	1.124	0.981
27-Jun-95	**3.3**	26	0.6065	0.270	1.189	0.980
23-Jun-94	**3.6**	27	0.6302	0.332	1.277	0.979
9-Feb-95	**3.6**	28	0.6538	0.396	1.288	0.979
17-May-91	**3.7**	29	0.6775	0.461	1.306	0.978
25-Apr-95	**4.6**	30	0.7012	0.528	1.515	0.974
7-Jun-94	**4.7**	31	0.7249	0.597	1.541	0.976
4-May-94	**5.1**	32	0.7485	0.670	1.639	0.975
27-Dec-95	**5.8**	33	0.7722	0.746	1.751	0.977
7-Apr-94	**5.8**	34	0.7959	0.827	1.757	0.983
19-May-94	**5.9**	35	0.8195	0.914	1.775	0.984
29-Feb-96	**7.6**	36	0.8432	1.008	2.024	0.980
9-Nov-97	**8.1**	37	0.8669	1.112	2.087	0.988
21-Nov-95	**8.2**	38	0.8905	1.229	2.106	0.994
22-Mar-95	**11.3**	39	0.9142	1.367	2.427	
17-Jan-96	**13.5**	40	0.9379	1.537	2.599	
13-Jun-95	**19.6**	41	0.9615	1.769	2.973	
28-Mar-96	**40.1**	42	0.9852	2.176	3.690	

update for EV, CV:

dPb
LN Analysis

CC284
dPb

Concentration

Conc. Data, EV=23 ug/L CV=1.20

Data-based LN

Avg:	**23**	u	ln[dPb]	[dPb]
SD:	**27**	3	5.5	248
CV:	**1.20**	0	2.68	15
Min:	**4**	-3	-0.15	1
Max:	**188**			
Median:	**17**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.771, EV=22.3 ug/L CV=0.79; max r2=0.95**

r2 u,lnConc:	0.771	u	lnConc.	Conc.
slope, m:	1.439	3	4.95	141
intercept, b:	-4.120	0	2.86	18
N: 41		-3	0.78	2
E[Conc]:	22.3	Parameter Estimates		
SD[Conc]:	18	from LN regression		
CV[Conc]:	0.79	update graph label		

N: 42

max r2
0.948

Date	dPb Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
12-Apr-95		1	0.0148	-2.176		
17-May-91	4	2	0.0385	-1.769	1.386	0.771
5-Oct-91	6	3	0.0621	-1.537	1.792	0.751
13-Sep-94	10	4	0.0858	-1.367	2.303	0.727
6-Oct-94	10	5	0.1095	-1.229	2.303	0.714
18-Feb-94	13	6	0.1331	-1.112	2.565	0.697
16-Nov-94	14	7	0.1568	-1.008	2.639	0.696
13-Dec-94	14	8	0.1805	-0.914	2.639	0.700
13-Sep-95	14	9	0.2041	-0.827	2.639	0.702
27-Oct-93	15	10	0.2278	-0.746	2.708	0.702
30-Nov-93	15	11	0.2515	-0.670	2.708	0.708
19-May-94	15	12	0.2751	-0.597	2.708	0.713
8-Mar-95	15	13	0.2988	-0.528	2.708	0.716
4-May-94	16	14	0.3225	-0.461	2.773	0.718
10-Jan-95	16	15	0.3462	-0.396	2.773	0.726
27-Jun-95	16	16	0.3698	-0.332	2.773	0.733
18-Oct-95	16	17	0.3935	-0.270	2.773	0.739
21-Nov-95	16	18	0.4172	-0.209	2.773	0.743
7-Jun-94	17	19	0.4408	-0.149	2.833	0.747
16-Aug-94	17	20	0.4645	-0.089	2.833	0.756
16-Aug-94	17	21	0.4882	-0.030	2.833	0.764
9-Feb-95	17	22	0.5118	0.030	2.833	0.771
17-Dec-93	18	23	0.5355	0.089	2.890	0.776
17-Dec-93	18	24	0.5592	0.149	2.890	0.788
20-Jan-94	18	25	0.5828	0.209	2.890	0.799
20-Jan-94	18	26	0.6065	0.270	2.890	0.809
7-Apr-94	18	27	0.6302	0.332	2.890	0.817
25-Jul-94	18	28	0.6538	0.396	2.890	0.823
25-Apr-95	18	29	0.6775	0.461	2.890	0.826
14-Aug-95	19	30	0.7012	0.528	2.944	0.826
23-Jun-94	20	31	0.7249	0.597	2.996	0.828
11-Jul-95	20	32	0.7485	0.670	2.996	0.834
25-Jul-95	22	33	0.7722	0.746	3.091	0.835
13-Jun-95	23	34	0.7959	0.827	3.135	0.846
8-Mar-94	25	35	0.8195	0.914	3.219	0.861
24-Mar-94	25	36	0.8432	1.008	3.219	0.891
22-Mar-95	26	37	0.8669	1.112	3.258	0.918
27-Dec-95	26	38	0.8905	1.229	3.258	0.948
29-Feb-96	27	39	0.9142	1.367	3.296	
9-Nov-97	42.8	40	0.9379	1.537	3.757	
17-Jan-96	52	41	0.9615	1.769	3.951	
28-Mar-96	188	42	0.9852	2.176	5.236	

update for EV, CV:

dPb
LN Analysis

CC284
dPb

Discharge, Q

Q Data, EV=38 cfs CV=0.93

Q Data-based LN

Avg:	**38**	u	lnQ	Q
SD:	**35**	3	5.7	298
CV:	**0.93**	0	3.32	28
Min:	**7**	-3	0.95	3
Max:	**172**			
Median:	**24**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.977, EV=38.5 cfs CV=0.99; max r2=0.98**

r2 u,lnQ:	0.977	u	lnQ	Q
slope, m:	1.208	3	5.79	328
intercept, b:	-3.997	0	3.31	27
N: 42		-3	0.83	2
E[Q]:	38.5	Parameter Estimates		
SD[Q]:	38	from LN regression		
CV[Q]:	0.99	update graph label		

N: 42

max r2
0.983

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
18-Feb-94	7.12	1	0.0148	-2.176	1.963	0.977
17-Dec-93	7.24	2	0.0385	-1.769	1.980	0.983
27-Oct-93	7.88	3	0.0621	-1.537	2.064	0.983
20-Jan-94	7.88	4	0.0858	-1.367	2.064	0.982
17-Dec-93	10.66	5	0.1095	-1.229	2.366	0.980
20-Jan-94	11.68	6	0.1331	-1.112	2.458	0.980
30-Nov-93	12.6	7	0.1568	-1.008	2.534	0.979
16-Aug-94	13.57	8	0.1805	-0.914	2.608	0.979
13-Sep-95	14.02	9	0.2041	-0.827	2.640	0.979
6-Oct-94	15.33	10	0.2278	-0.746	2.730	0.978
14-Aug-95	15.89	11	0.2515	-0.670	2.766	0.979
5-Oct-91	16.1	12	0.2751	-0.597	2.779	0.978
13-Sep-94	16.48	13	0.2988	-0.528	2.802	0.977
13-Dec-94	16.48	14	0.3225	-0.461	2.802	0.976
16-Nov-94	16.78	15	0.3462	-0.396	2.820	0.974
16-Aug-94	17.71	16	0.3698	-0.332	2.874	0.972
25-Jul-95	18.71	17	0.3935	-0.270	2.929	0.970
25-Jul-94	19.76	18	0.4172	-0.209	2.984	0.968
8-Mar-94	21.27	19	0.4408	-0.149	3.057	0.966
24-Mar-94	21.27	20	0.4645	-0.089	3.057	0.964
11-Jul-95	23.33	21	0.4882	-0.030	3.150	0.965
10-Jan-95	25.13	22	0.5118	0.030	3.224	0.964
23-Jun-94	33.34	23	0.5355	0.089	3.507	0.964
9-Nov-97	35	24	0.5592	0.149	3.555	0.964
18-Oct-95	35.3	25	0.5828	0.209	3.564	0.964
8-Mar-95	38.13	26	0.6065	0.270	3.641	0.963
27-Jun-95	38.13	27	0.6302	0.332	3.641	0.964
28-Mar-96	39.6	28	0.6538	0.396	3.679	0.964
9-Feb-95	39.63	29	0.6775	0.461	3.680	0.962
27-Dec-95	41.2	30	0.7012	0.528	3.718	0.958
25-Apr-95	47	31	0.7249	0.597	3.850	0.953
17-Jan-96	48.1	32	0.7485	0.670	3.873	0.953
7-Jun-94	51.06	33	0.7722	0.746	3.933	0.949
29-Feb-96	52.1	34	0.7959	0.827	3.953	0.947
12-Apr-95	*58.64*	35	0.8195	0.914	4.071	0.938
7-Apr-94	59.82	36	0.8432	1.008	4.091	0.936
4-May-94	59.82	37	0.8669	1.112	4.091	0.923
19-May-94	73.12	38	0.8905	1.229	4.292	0.894
22-Mar-95	80.94	39	0.9142	1.367	4.394	
21-Nov-95	95.4	40	0.9379	1.537	4.558	
13-Jun-95	158.04	41	0.9615	1.769	5.063	
17-May-91	171.6	42	0.9852	2.176	5.145	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC284 **Date:** 29-May-00

Chemical: dZn **Analyst:** J.Johnston

Notes: Template and Example Lognormal Analysis

Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,638	38	1,344	222	0.00	0.00	0.00
SD:	400	35	641	162	1.00	1.00	1.00
CV:	0.01	0.93	0.48	0.73			
Min:	33,375	7	435	48	-0.87	-1.42	-1.07
Max:	35,743	172	2,660	888	3.78	2.05	4.12
Median:	34,634	24	1,135	189	-0.39	-0.33	-0.20

dZn CC284 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.18) update r2

r2 Q,[COC]:	0.18	[dZn]	Q
slope, m:	-7.8	1,584	7.1
intercept, b:	1639.1	1,344	37.9
N: 42		302	172

LnConc. = mLn{Q}+b (r2=0.27) update r2

r2 lnQ,ln[COC]:	0.27	ln[dZn]	ln Q	[dZn]	Q
slope, m:	-0.32	7.52	1.96	1,844	7
intercept, b:	8.15	6.98	3.64	1,074	38
N: 42		6.49	5.15	659	172

	Q = mTime +b	LnQ = mTime +b
r2:	0.004	0.035
m:	-0.0058	0.00037
b:	237	-9.59

for graph
dZn 0
CC284

N= 42

update for new data	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	171.6	485	448	5.15	6.18	6.10	3.78	-1.34	1.40
MFG	5-Oct-91	16.1	999	87	2.78	6.91	4.46	-0.62	-0.54	-0.84
IDEQ	27-Oct-93	7.88	1130	48	2.06	7.03	3.87	-0.85	-0.33	-1.07
IDEQ	30-Nov-93	12.6	1650	112	2.53	7.41	4.72	-0.72	0.48	-0.68
IDEQ	17-Dec-93	7.24	2130	83	1.98	7.66	4.42	-0.87	1.23	-0.86
IDEQ	17-Dec-93	10.66	2130	122	2.37	7.66	4.81	-0.77	1.23	-0.62
IDEQ	20-Jan-94	7.88	2310	98	2.06	7.75	4.58	-0.85	1.51	-0.77
IDEQ	20-Jan-94	11.68	2310	145	2.46	7.75	4.98	-0.74	1.51	-0.47
IDEQ	18-Feb-94	7.12	1970	75	1.96	7.59	4.32	-0.87	0.98	-0.90
IDEQ	8-Mar-94	21.27	2440	279	3.06	7.80	5.63	-0.47	1.71	0.36
IDEQ	24-Mar-94	21.27	2470	283	3.06	7.81	5.64	-0.47	1.76	0.38
IDEQ	7-Apr-94	59.82	1280	412	4.09	7.15	6.02	0.62	-0.10	1.18
IDEQ	4-May-94	59.82	586	189	4.09	6.37	5.24	0.62	-1.18	-0.20
IDEQ	19-May-94	73.12	480	189	4.29	6.17	5.24	1.00	-1.35	-0.20
IDEQ	7-Jun-94	51.06	728	200	3.93	6.59	5.30	0.37	-0.96	-0.13
IDEQ	23-Jun-94	33.34	728	131	3.51	6.59	4.87	-0.13	-0.96	-0.56
IDEQ	25-Jul-94	19.76	969	103	2.98	6.88	4.63	-0.51	-0.58	-0.73
IDEQ	16-Aug-94	17.71	1050	100	2.87	6.96	4.61	-0.57	-0.46	-0.75
IDEQ	16-Aug-94	13.57	1050	77	2.61	6.96	4.34	-0.69	-0.46	-0.90
IDEQ	13-Sep-94	16.48	709	63	2.80	6.56	4.14	-0.61	-0.99	-0.98
IDEQ	6-Oct-94	15.33	1060	87	2.73	6.97	4.47	-0.64	-0.44	-0.83
IDEQ	16-Nov-94	16.78	1980	179	2.82	7.59	5.19	-0.60	0.99	-0.27
IDEQ	13-Dec-94	16.48	2460	218	2.80	7.81	5.38	-0.61	1.74	-0.02
IDEQ	10-Jan-95	25.13	2660	360	3.22	7.89	5.89	-0.36	2.05	0.85
IDEQ	9-Feb-95	39.63	1690	360	3.68	7.43	5.89	0.05	0.54	0.86
IDEQ	8-Mar-95	38.13	1120	230	3.64	7.02	5.44	0.01	-0.35	0.05
IDEQ	22-Mar-95	80.94	2040	888	4.39	7.62	6.79	1.22	1.09	4.12
IDEQ	12-Apr-95	58.64	1140	360	4.07	7.04	5.89	0.59	-0.32	0.85
IDEQ	25-Apr-95	47	964	244	3.85	6.87	5.50	0.26	-0.59	0.14
IDEQ	13-Jun-95	158.04	435	370	5.06	6.08	5.91	3.40	-1.42	0.92
IDEQ	27-Jun-95	38.13	580	119	3.64	6.36	4.78	0.01	-1.19	-0.64
IDEQ	11-Jul-95	23.33	787	99	3.15	6.67	4.59	-0.41	-0.87	-0.76
IDEQ	25-Jul-95	18.71	818	82	2.93	6.71	4.41	-0.54	-0.82	-0.86
IDEQ	14-Aug-95	15.89	1010	86	2.77	6.92	4.46	-0.62	-0.52	-0.84
IDEQ	13-Sep-95	14.02	893	67	2.64	6.79	4.21	-0.68	-0.70	-0.95
IDEQ	18-Oct-95	35.3	1280	243	3.56	7.15	5.49	-0.07	-0.10	0.13
IDEQ	21-Nov-95	95.4	788	404	4.56	6.67	6.00	1.63	-0.87	1.13
IDEQ	27-Dec-95	41.2	1240	275	3.72	7.12	5.62	0.09	-0.16	0.33
IDEQ	17-Jan-96	48.1	2070	536	3.87	7.64	6.28	0.29	1.13	1.94
IDEQ	29-Feb-96	52.1	1220	342	3.95	7.11	5.83	0.40	-0.19	0.74
IDEQ	28-Mar-96	39.6	1350	288	3.68	7.21	5.66	0.05	0.01	0.41
URS	9-Nov-97	35	1240	233	3.56	7.12	5.45	-0.08	-0.16	0.07

dZn

Concentration over time analysis r2 Slope, m

dZn CC284 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.000** **0.00002**

	Time	Ln[COC]	[COC]
first:	17-May-91	7.05	1,157
mid:	26-Oct-94	7.08	1,194
last:	9-Nov-97	7.11	1,226

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Nov-97	0.00	1

Load over time analysis

dZn CC284 **Load over time**

LnLoad=mTime+b All data r2, m: **0.054** **0.00040**

	Time	LnLoad	Load
first:	17-May-91	4.67	106
mid:	26-Oct-94	5.17	175
last:	9-Nov-97	5.61	272

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Nov-97	0.00	1

max r2: 0.230 max r2: 0.384

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.000	0.00002	6.24	0.054	0.00040	-8.58
0.021	-0.00020	13.94	0.158	0.00076	-21.32
0.044	-0.00033	18.67	0.139	0.00083	-23.48
0.049	-0.00036	19.64	0.107	0.00071	-19.39
0.042	-0.00034	19.00	0.097	0.00068	-18.56
0.029	-0.00029	17.11	0.078	0.00062	-16.25
0.018	-0.00023	14.90	0.069	0.00059	-15.42
0.007	-0.00014	12.07	0.055	0.00054	-13.34
0.001	-0.00005	8.73	0.050	0.00052	-12.98
0.000	0.00003	5.87	0.031	0.00041	-8.98
0.009	0.00016	1.43	0.041	0.00049	-11.71
0.035	0.00031	-3.73	0.055	0.00058	-14.88
0.046	0.00036	-5.60	0.091	0.00075	-20.88
0.027	0.00028	-2.65	0.096	0.00080	-22.50
0.007	0.00014	2.18	0.102	0.00085	-24.33
0.001	0.00006	4.84	0.112	0.00092	-26.75
0.000	-0.00003	7.99	0.102	0.00090	-26.26
0.001	-0.00007	9.35	0.083	0.00083	-23.66
0.003	-0.00009	10.27	0.063	0.00073	-20.26
0.004	-0.00013	11.43	0.034	0.00054	-13.54
0.020	-0.00027	16.47	0.008	0.00026	-3.62
0.027	-0.00032	18.43	0.000	0.00001	5.05
0.011	-0.00021	14.34	0.000	-0.00006	7.71
0.000	-0.00001	7.33	0.001	-0.00009	8.78
0.020	0.00024	-1.56	0.000	0.00002	4.83
0.053	0.00040	-6.90	0.002	0.00015	0.32
0.062	0.00044	-8.58	0.002	0.00016	-0.08
0.176	0.00069	-17.26	0.043	0.00060	-15.68
0.216	0.00079	-20.64	0.079	0.00082	-23.56
0.230	0.00084	-22.59	0.100	0.00096	-28.33
0.188	0.00062	-14.94	0.165	0.00122	-37.65
0.135	0.00045	-8.94	0.141	0.00114	-34.77
0.090	0.00035	-5.41	0.103	0.00096	-28.32
0.045	0.00024	-1.25	0.052	0.00063	-16.75
0.025	0.00018	0.79	0.007	0.00021	-1.83
0.001	0.00004	5.89	0.177	-0.00048	22.77
0.002	0.00004	5.58	0.384	-0.00068	29.90
0.101	-0.00025	16.00	0.334	-0.00064	28.22

update for EV, CV:

dZn		**CC284**		
LN Analysis		**dZn**		
Load		**Load Data, EV=222 lbs/day CV=.73**		
Avg:	**222**	**Load Data-based LN**		
SD:	**162**	u	ln dZn Load	dZn Load
CV:	**0.73**	3	7.1	1271
Min:	**48**	0	5.19	179
Max:	**888**	-3	3.23	25
Median:	**189**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.969, EV=227.2 lbs/day CV=0.82; max r2=0.97**

r2 u,lnLoad:	0.969	u	lnLoad	Load
slope, m:	1.393	3	7.32	1513
intercept, b:	-7.199	0	5.17	176
N: 42		-3	3.01	20
E[Load]:	227.2	Parameter Estimates		
SD[Load]:	187	from LN regression		
CV[Load]:	0.82	update graph label		

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.971 r2 forward
		N: 42				
update and rank for new data						
27-Oct-93	**48**	1	0.0148	-2.176	3.869	0.969
13-Sep-94	**63**	2	0.0385	-1.769	4.141	0.969
13-Sep-95	**67**	3	0.0621	-1.537	4.210	0.970
18-Feb-94	**75**	4	0.0858	-1.367	4.324	0.970
16-Aug-94	**77**	5	0.1095	-1.229	4.339	0.971
25-Jul-95	**82**	6	0.1331	-1.112	4.411	0.970
17-Dec-93	**83**	7	0.1568	-1.008	4.418	0.969
14-Aug-95	**86**	8	0.1805	-0.914	4.458	0.967
5-Oct-91	**87**	9	0.2041	-0.827	4.461	0.965
6-Oct-94	**87**	10	0.2278	-0.746	4.471	0.962
20-Jan-94	**98**	11	0.2515	-0.670	4.584	0.960
11-Jul-95	**99**	12	0.2751	-0.597	4.593	0.957
16-Aug-94	**100**	13	0.2988	-0.528	4.606	0.954
25-Jul-94	**103**	14	0.3225	-0.461	4.635	0.952
30-Nov-93	**112**	15	0.3462	-0.396	4.717	0.952
27-Jun-95	**119**	16	0.3698	-0.332	4.779	0.952
17-Dec-93	**122**	17	0.3935	-0.270	4.805	0.953
23-Jun-94	**131**	18	0.4172	-0.209	4.872	0.957
20-Jan-94	**145**	19	0.4408	-0.149	4.978	0.964
16-Nov-94	**179**	20	0.4645	-0.089	5.186	0.970
4-May-94	**189**	21	0.4882	-0.030	5.240	0.967
19-May-94	**189**	22	0.5118	0.030	5.241	0.964
7-Jun-94	**200**	23	0.5355	0.089	5.298	0.961
13-Dec-94	**218**	24	0.5592	0.149	5.385	0.958
8-Mar-95	**230**	25	0.5828	0.209	5.437	0.954
9-Nov-97	**233**	26	0.6065	0.270	5.453	0.949
18-Oct-95	**243**	27	0.6302	0.332	5.493	0.944
25-Apr-95	**244**	28	0.6538	0.396	5.496	0.938
27-Dec-95	**275**	29	0.6775	0.461	5.616	0.930
8-Mar-94	**279**	30	0.7012	0.528	5.632	0.924
24-Mar-94	**283**	31	0.7249	0.597	5.644	0.916
28-Mar-96	**288**	32	0.7485	0.670	5.662	0.904
29-Feb-96	**342**	33	0.7722	0.746	5.835	0.887
10-Jan-95	**360**	34	0.7959	0.827	5.885	0.893
12-Apr-95	**360**	35	0.8195	0.914	5.885	0.914
9-Feb-95	**360**	36	0.8432	1.008	5.887	0.930
13-Jun-95	**370**	37	0.8669	1.112	5.913	0.938
21-Nov-95	**404**	38	0.8905	1.229	6.003	0.939
7-Apr-94	**412**	39	0.9142	1.367	6.021	
17-May-91	**448**	40	0.9379	1.537	6.104	
17-Jan-96	**536**	41	0.9615	1.769	6.284	
22-Mar-95	**888**	42	0.9852	2.176	6.789	

update for EV, CV:

dZn — **CC284**

LN Analysis — **dZn**

Concentration — **Conc. Data, EV=1,344 ug/L CV=.48**

Data-based LN

		u	ln[dZn]	[dZn]
Avg:	**1,344**			
SD:	**641**	3	8.5	4717
CV:	**0.48**	0	7.10	1213
Min:	**435**	-3	5.74	312
Max:	**2,660**			
Median:	**1,135**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.966, EV=1367.6 ug/L CV=0.56; max r2=0.97**

r2 u,lnConc:	0.966	u	lnConc.	Conc.
slope, m:	1.917	3	8.65	5708
intercept, b:	-13.582	0	7.08	1194
N: 42		-3	5.52	250
E[Conc]:	1367.6	Parameter Estimates		
SD[Conc]:	765	from LN regression		
CV[Conc]:	0.56	update graph label		

max r2 0.966

N: 42

Date	dZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
13-Jun-95	435	1	0.0148	-2.176	6.075	0.966
19-May-94	480	2	0.0385	-1.769	6.174	0.963
17-May-91	485	3	0.0621	-1.537	6.184	0.959
27-Jun-95	580	4	0.0858	-1.367	6.363	0.956
4-May-94	586	5	0.1095	-1.229	6.373	0.952
13-Sep-94	709	6	0.1331	-1.112	6.564	0.949
7-Jun-94	728	7	0.1568	-1.008	6.590	0.945
23-Jun-94	728	8	0.1805	-0.914	6.590	0.941
11-Jul-95	787	9	0.2041	-0.827	6.668	0.936
21-Nov-95	788	10	0.2278	-0.746	6.669	0.931
25-Jul-95	818	11	0.2515	-0.670	6.707	0.926
13-Sep-95	893	12	0.2751	-0.597	6.795	0.920
25-Apr-95	964	13	0.2988	-0.528	6.871	0.914
25-Jul-94	969	14	0.3225	-0.461	6.876	0.909
5-Oct-91	999	15	0.3462	-0.396	6.907	0.902
14-Aug-95	1010	16	0.3698	-0.332	6.918	0.895
16-Aug-94	1050	17	0.3935	-0.270	6.957	0.887
16-Aug-94	1050	18	0.4172	-0.209	6.957	0.878
6-Oct-94	1060	19	0.4408	-0.149	6.966	0.868
8-Mar-95	1120	20	0.4645	-0.089	7.021	0.856
27-Oct-93	1130	21	0.4882	-0.030	7.030	0.844
12-Apr-95	1140	22	0.5118	0.030	7.039	0.829
29-Feb-96	1220	23	0.5355	0.089	7.107	0.815
27-Dec-95	1240	24	0.5592	0.149	7.123	0.796
9-Nov-97	1240	25	0.5828	0.209	7.123	0.777
7-Apr-94	1280	26	0.6065	0.270	7.155	0.759
18-Oct-95	1280	27	0.6302	0.332	7.155	0.743
28-Mar-96	1350	28	0.6538	0.396	7.208	0.758
30-Nov-93	1650	29	0.6775	0.461	7.409	0.843
9-Feb-95	1690	30	0.7012	0.528	7.432	0.856
18-Feb-94	1970	31	0.7249	0.597	7.586	0.933
16-Nov-94	1980	32	0.7485	0.670	7.591	0.923
22-Mar-95	2040	33	0.7722	0.746	7.621	0.914
17-Jan-96	2070	34	0.7959	0.827	7.635	0.899
17-Dec-93	2130	35	0.8195	0.914	7.664	0.884
17-Dec-93	2130	36	0.8432	1.008	7.664	0.858
20-Jan-94	2310	37	0.8669	1.112	7.745	0.919
20-Jan-94	2310	38	0.8905	1.229	7.745	0.891
8-Mar-94	2440	39	0.9142	1.367	7.800	
13-Dec-94	2460	40	0.9379	1.537	7.808	
24-Mar-94	2470	41	0.9615	1.769	7.812	
10-Jan-95	2660	42	0.9852	2.176	7.886	

update for EV, CV:

dZn **CC284**

LN Analysis **dZn**

Discharge, Q **Q Data, EV=38 cfs CV=0.93**

Avg:	**38**	**Q Data-based LN**		
SD:	**35**	u	lnQ	Q
CV:	**0.93**	3	5.7	298
Min:	**7**	0	3.32	28
Max:	**172**	-3	0.95	3
Median:	**24**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.977, EV=38.5 cfs CV=0.99; max r2=0.98**

r2 u,lnQ:	0.977	u	lnQ	Q
slope, m:	1.208	3	5.79	328
intercept, b:	-3.997	0	3.31	27
N: 42		-3	0.83	2
E[Q]:	38.5	Parameter Estimates		
SD[Q]:	38	from LN regression		
CV[Q]:	0.99	update graph label		

						max r2
	Q	N: 42				0.983
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
18-Feb-94	7.12	1	0.0148	-2.176	1.963	0.977
17-Dec-93	7.24	2	0.0385	-1.769	1.980	0.983
27-Oct-93	7.88	3	0.0621	-1.537	2.064	0.983
20-Jan-94	7.88	4	0.0858	-1.367	2.064	0.982
17-Dec-93	10.66	5	0.1095	-1.229	2.366	0.980
20-Jan-94	11.68	6	0.1331	-1.112	2.458	0.980
30-Nov-93	12.6	7	0.1568	-1.008	2.534	0.979
16-Aug-94	13.57	8	0.1805	-0.914	2.608	0.979
13-Sep-95	14.02	9	0.2041	-0.827	2.640	0.979
6-Oct-94	15.33	10	0.2278	-0.746	2.730	0.978
14-Aug-95	15.89	11	0.2515	-0.670	2.766	0.979
5-Oct-91	16.1	12	0.2751	-0.597	2.779	0.978
13-Sep-94	16.48	13	0.2988	-0.528	2.802	0.977
13-Dec-94	16.48	14	0.3225	-0.461	2.802	0.976
16-Nov-94	16.78	15	0.3462	-0.396	2.820	0.974
16-Aug-94	17.71	16	0.3698	-0.332	2.874	0.972
25-Jul-95	18.71	17	0.3935	-0.270	2.929	0.970
25-Jul-94	19.76	18	0.4172	-0.209	2.984	0.968
8-Mar-94	21.27	19	0.4408	-0.149	3.057	0.966
24-Mar-94	21.27	20	0.4645	-0.089	3.057	0.964
11-Jul-95	23.33	21	0.4882	-0.030	3.150	0.965
10-Jan-95	25.13	22	0.5118	0.030	3.224	0.964
23-Jun-94	33.34	23	0.5355	0.089	3.507	0.964
9-Nov-97	35	24	0.5592	0.149	3.555	0.964
18-Oct-95	35.3	25	0.5828	0.209	3.564	0.964
8-Mar-95	38.13	26	0.6065	0.270	3.641	0.963
27-Jun-95	38.13	27	0.6302	0.332	3.641	0.964
28-Mar-96	39.6	28	0.6538	0.396	3.679	0.964
9-Feb-95	39.63	29	0.6775	0.461	3.680	0.962
27-Dec-95	41.2	30	0.7012	0.528	3.718	0.958
25-Apr-95	47	31	0.7249	0.597	3.850	0.953
17-Jan-96	48.1	32	0.7485	0.670	3.873	0.953
7-Jun-94	51.06	33	0.7722	0.746	3.933	0.949
29-Feb-96	52.1	34	0.7959	0.827	3.953	0.947
12-Apr-95	58.64	35	0.8195	0.914	4.071	0.938
7-Apr-94	59.82	36	0.8432	1.008	4.091	0.936
4-May-94	59.82	37	0.8669	1.112	4.091	0.923
19-May-94	73.12	38	0.8905	1.229	4.292	0.894
22-Mar-95	80.94	39	0.9142	1.367	4.394	
21-Nov-95	95.4	40	0.9379	1.537	4.558	
13-Jun-95	158.04	41	0.9615	1.769	5.063	
17-May-91	171.6	42	0.9852	2.176	5.145	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC284 **Date:** 2-Jun-00
Chemical: tCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,638	38	9	2	0.00	0.00	0.00
SD:	400	35	4	1	1.00	1.00	1.00
CV:	0.01	0.93	0.47	0.83			
Min:	33,375	7	3	0.3	-0.87	-1.40	-0.99
Max:	35,743	172	21	7	3.78	3.03	4.33
Median:	34,634	24	8	1	-0.39	-0.29	-0.24

tCd CC284 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.116) update r2 0.12 0.116 r2: 0.004 0.035
r2 Q,[COC]: 0.12 [tCd] Q m: -0.0058 0.00037
slope, m: 0.0 10 7.1 b: 237 -9.59
intercept, b: 10.2 9 37.9
N: 42 3 172

LnConc. = mLn{Q}+b (r2=0.19) update r2 0.19 0.19
r2 lnQ,ln[COC]: 0.19 ln[tCd] ln Q [tCd] Q
slope, m: -0.25 2.40 1.96 11 7
intercept, b: 2.89 1.98 3.64 7 38
N: 42 1.60 5.15 5 172

for graph
tCd 0
CC284

N= 42

update for new data
DATA:

	Sampling Date	Q Discharge cfs x-axis	tCd Concentration ug/L y-axis	tCd Load lbs/day y-axis	Ln Q x-axis	Ln tCd Conc. y-axis	Ln tCd Load y-axis	Standardized Values = (x - Avg)/SD Q	Conc	Load
MFG	17-May-91	171.6	3.3	3.0	5.15	1.19	1.11	3.78	-1.33	1.22
MFG	5-Oct-91	16.1	7.6	0.7	2.78	2.03	-0.42	-0.62	-0.27	-0.68
IDEQ	27-Oct-93	7.88	6.3	0.3	2.06	1.84	-1.32	-0.85	-0.59	-0.99
IDEQ	30-Nov-93	12.6	8.5	0.6	2.53	2.14	-0.55	-0.72	-0.05	-0.74
IDEQ	17-Dec-93	7.24	10.2	0.4	1.98	2.32	-0.92	-0.87	0.37	-0.88
IDEQ	17-Dec-93	10.66	10.2	0.6	2.37	2.32	-0.54	-0.77	0.37	-0.73
IDEQ	20-Jan-94	7.88	12	0.5	2.06	2.48	-0.68	-0.85	0.82	-0.79
IDEQ	20-Jan-94	11.68	12	0.8	2.46	2.48	-0.28	-0.74	0.82	-0.60
IDEQ	18-Feb-94	7.12	11	0.4	1.96	2.40	-0.86	-0.87	0.57	-0.86
IDEQ	8-Mar-94	21.27	15	1.7	3.06	2.71	0.54	-0.47	1.56	0.16
IDEQ	24-Mar-94	21.27	15	1.7	3.06	2.71	0.54	-0.47	1.56	0.16
IDEQ	7-Apr-94	59.82	7.9	2.5	4.09	2.07	0.93	0.62	-0.19	0.82
IDEQ	4-May-94	59.82	3.9	1.3	4.09	1.36	0.23	0.62	-1.18	-0.20
IDEQ	19-May-94	73.12	3.3	1.3	4.29	1.19	0.26	1.00	-1.33	-0.17
IDEQ	7-Jun-94	51.06	5.6	1.5	3.93	1.72	0.43	0.37	-0.76	0.02
IDEQ	23-Jun-94	33.34	5.6	1.0	3.51	1.72	0.00	-0.13	-0.76	-0.40
IDEQ	25-Jul-94	19.76	6.9	0.7	2.98	1.93	-0.31	-0.51	-0.44	-0.62
IDEQ	16-Aug-94	17.71	7.4	0.7	2.87	2.00	-0.35	-0.57	-0.32	-0.64
IDEQ	16-Aug-94	13.57	7.4	0.5	2.61	2.00	-0.62	-0.69	-0.32	-0.77
IDEQ	13-Sep-94	16.48	6.2	0.5	2.80	1.82	-0.60	-0.61	-0.61	-0.76
IDEQ	6-Oct-94	15.33	8.8	0.7	2.73	2.17	-0.32	-0.64	0.03	-0.62
IDEQ	16-Nov-94	16.78	11	1.0	2.82	2.40	-0.01	-0.60	0.57	-0.41
IDEQ	13-Dec-94	16.48	13	1.2	2.80	2.56	0.14	-0.61	1.06	-0.28
IDEQ	10-Jan-95	25.13	18	2.4	3.22	2.89	0.89	-0.36	2.30	0.73
IDEQ	9-Feb-95	39.63	10.3	2.2	3.68	2.33	0.79	0.05	0.40	0.54
IDEQ	8-Mar-95	38.13	7.6	1.6	3.64	2.03	0.44	0.01	-0.27	0.04
IDEQ	22-Mar-95	80.94	16	7.0	4.39	2.77	1.94	1.22	1.80	4.33
IDEQ	12-Apr-95	58.64	6.7	2.1	4.07	1.90	0.75	0.59	-0.49	0.48
IDEQ	25-Apr-95	47	6.2	1.6	3.85	1.82	0.45	0.26	-0.61	0.05
IDEQ	13-Jun-95	158.04	3	2.6	5.06	1.10	0.94	3.40	-1.40	0.83
IDEQ	27-Jun-95	38.13	4.1	0.8	3.64	1.41	-0.17	0.01	-1.13	-0.53
IDEQ	11-Jul-95	23.33	5.1	0.6	3.15	1.63	-0.45	-0.41	-0.88	-0.69
IDEQ	25-Jul-95	18.71	6.2	0.6	2.93	1.82	-0.47	-0.54	-0.61	-0.70
IDEQ	14-Aug-95	15.89	6.7	0.6	2.77	1.90	-0.56	-0.62	-0.49	-0.74
IDEQ	13-Sep-95	14.02	6.8	0.5	2.64	1.92	-0.67	-0.68	-0.47	-0.79
IDEQ	18-Oct-95	35.3	8.5	1.6	3.56	2.14	0.48	-0.07	-0.05	0.08
IDEQ	21-Nov-95	95.4	4.8	2.5	4.56	1.57	0.90	1.63	-0.96	0.76
IDEQ	27-Dec-95	41.2	7.4	1.6	3.72	2.00	0.49	0.09	-0.32	0.10
IDEQ	17-Jan-96	48.1	14	3.6	3.87	2.64	1.29	0.29	1.31	1.68
IDEQ	29-Feb-96	52.1	6.7	1.9	3.95	1.90	0.63	0.40	-0.49	0.29
IDEQ	28-Mar-96	39.6	21	4.5	3.68	3.04	1.50	0.05	3.03	2.35
URS	9-Nov-97	35	7.7	1.4	3.56	2.04	0.37	-0.08	-0.24	-0.05

tCd

Concentration over time analysis r2 Slope, m

tCd CC284 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.010** **0.00011**

	Time	Ln[COC]	[COC]
first:	17-May-91	1.91	7
mid:	26-Oct-94	2.06	8
last:	9-Nov-97	2.19	9

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Nov-97	0.00	1

Load over time analysis

tCd CC284 **Load over time**

LnLoad=mTime+b All data r2, m: **0.073** **0.00049**

	Time	LnLoad	Load
first:	17-May-91	-0.47	1
mid:	26-Oct-94	0.14	1
last:	9-Nov-97	0.68	2

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Nov-97	0.00	1

max r2: 0.143 max r2: 0.229

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.010	0.00011	-1.92	0.073	0.00049	-16.74
0.003	-0.00007	4.45	0.194	0.00089	-30.81
0.006	-0.00011	5.89	0.199	0.00105	-36.25
0.009	-0.00015	7.15	0.163	0.00092	-31.89
0.009	-0.00015	7.17	0.146	0.00088	-30.39
0.006	-0.00012	6.37	0.118	0.00078	-26.99
0.004	-0.00010	5.44	0.099	0.00072	-24.88
0.001	-0.00004	3.62	0.076	0.00063	-21.80
0.000	0.00002	1.47	0.063	0.00059	-20.24
0.002	0.00007	-0.44	0.038	0.00045	-15.29
0.012	0.00018	-4.34	0.047	0.00051	-17.49
0.034	0.00031	-8.81	0.058	0.00058	-19.97
0.040	0.00034	-9.98	0.088	0.00073	-25.25
0.021	0.00025	-6.72	0.092	0.00077	-26.57
0.004	0.00011	-1.75	0.097	0.00082	-28.26
0.001	0.00005	0.27	0.111	0.00091	-31.32
0.000	-0.00002	2.66	0.106	0.00091	-31.59
0.001	-0.00005	3.75	0.088	0.00085	-29.26
0.001	-0.00007	4.45	0.068	0.00076	-26.07
0.002	-0.00009	5.33	0.039	0.00057	-19.63
0.007	-0.00017	8.02	0.015	0.00036	-12.07
0.006	-0.00016	7.70	0.004	0.00018	-5.69
0.002	-0.00009	5.07	0.000	0.00006	-1.56
0.001	0.00005	0.30	0.000	-0.00004	1.75
0.021	0.00030	-8.54	0.001	0.00008	-2.15
0.040	0.00042	-12.72	0.003	0.00017	-5.50
0.045	0.00046	-14.19	0.003	0.00018	-5.69
0.136	0.00075	-24.24	0.048	0.00066	-22.66
0.143	0.00079	-25.85	0.074	0.00083	-28.77
0.142	0.00082	-26.75	0.087	0.00094	-32.49
0.094	0.00059	-18.81	0.142	0.00119	-41.52
0.054	0.00042	-12.76	0.120	0.00111	-38.59
0.026	0.00029	-7.98	0.082	0.00089	-30.89
0.011	0.00019	-4.60	0.039	0.00059	-20.11
0.003	0.00010	-1.33	0.002	0.00013	-3.95
0.000	-0.00002	2.79	0.102	-0.00054	19.68
0.001	-0.00005	3.87	0.218	-0.00078	28.19
0.068	-0.00045	18.12	0.229	-0.00084	30.35

update for EV, CV:

tCd **CC284**

LN Analysis **tCd**

Load **Load Data, EV=1.51 lbs/day CV=0.835**

Load Data-based LN

		u	ln tCd Load	tCd Load
Avg:	**2**			
SD:	**1**			
CV:	**0.83**	3	2.3	10
Min:	**0.3**	0	0.15	1
Max:	**7**	-3	-2.03	0.1
Median:	**1**			
		2	1.51	
		0.83	0.835	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.976, EV=1.53lbs/day CV=0.876; max r2=0.998**

r2 u,lnLoad:	0.976	u	lnLoad	Load	
slope, m:	1.325	3	2.41	11	
intercept, b:	-0.188	0	0.14	1	
N: 42		-3	-2.12	0.1	
E[Load]:	1.5	Parameter Estimates			0.976
SD[Load]:	1	from LN regression			1.5
CV[Load]:	0.88	update graph label			0.9
					max r2
tCd	N: 42				0.998

Date	**tCd Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
27-Oct-93	**0.3**	1	0.0148	-2.176	-1.320	0.976
17-Dec-93	**0.4**	2	0.0385	-1.769	-0.923	0.974
18-Feb-94	**0.4**	3	0.0621	-1.537	-0.864	0.976
20-Jan-94	**0.5**	4	0.0858	-1.367	-0.676	0.977
13-Sep-95	**0.5**	5	0.1095	-1.229	-0.668	0.980
16-Aug-94	**0.5**	6	0.1331	-1.112	-0.616	0.981
13-Sep-94	**0.5**	7	0.1568	-1.008	-0.598	0.982
14-Aug-95	**0.6**	8	0.1805	-0.914	-0.557	0.982
30-Nov-93	**0.6**	9	0.2041	-0.827	-0.551	0.982
17-Dec-93	**0.6**	10	0.2278	-0.746	-0.536	0.980
25-Jul-95	**0.6**	11	0.2515	-0.670	-0.471	0.979
11-Jul-95	**0.6**	12	0.2751	-0.597	-0.446	0.977
5-Oct-91	**0.7**	13	0.2988	-0.528	-0.418	0.976
16-Aug-94	**0.7**	14	0.3225	-0.461	-0.349	0.974
6-Oct-94	**0.7**	15	0.3462	-0.396	-0.321	0.973
25-Jul-94	**0.7**	16	0.3698	-0.332	-0.310	0.971
20-Jan-94	**0.8**	17	0.3935	-0.270	-0.282	0.972
27-Jun-95	**0.8**	18	0.4172	-0.209	-0.173	0.976
16-Nov-94	**1.0**	19	0.4408	-0.149	-0.007	0.979
23-Jun-94	**1.0**	20	0.4645	-0.089	0.004	0.977
13-Dec-94	**1.2**	21	0.4882	-0.030	0.142	0.977
4-May-94	**1.3**	22	0.5118	0.030	0.227	0.975
19-May-94	**1.3**	23	0.5355	0.089	0.261	0.973
9-Nov-97	**1.4**	24	0.5592	0.149	0.372	0.971
7-Jun-94	**1.5**	25	0.5828	0.209	0.431	0.971
8-Mar-95	**1.6**	26	0.6065	0.270	0.444	0.974
25-Apr-95	**1.6**	27	0.6302	0.332	0.450	0.976
18-Oct-95	**1.6**	28	0.6538	0.396	0.479	0.976
27-Dec-95	**1.6**	29	0.6775	0.461	0.495	0.976
8-Mar-94	**1.7**	30	0.7012	0.528	0.540	0.974
24-Mar-94	**1.7**	31	0.7249	0.597	0.540	0.971
29-Feb-96	**1.9**	32	0.7485	0.670	0.630	0.967
12-Apr-95	**2.1**	33	0.7722	0.746	0.748	0.961
9-Feb-95	**2.2**	34	0.7959	0.827	0.787	0.962
10-Jan-95	**2.4**	35	0.8195	0.914	0.889	0.962
21-Nov-95	**2.5**	36	0.8432	1.008	0.902	0.978
7-Apr-94	**2.5**	37	0.8669	1.112	0.933	0.990
13-Jun-95	**2.6**	38	0.8905	1.229	0.936	0.998
17-May-91	**3.0**	39	0.9142	1.367	1.114	
17-Jan-96	**3.6**	40	0.9379	1.537	1.287	
28-Mar-96	**4.5**	41	0.9615	1.769	1.498	
22-Mar-95	**7.0**	42	0.9852	2.176	1.941	

update for EV, CV:

tCd		**CC284**		9	8.69	
LN Analysis		**tCd**		0.47	0.467	
Concentration		**Conc. Data, EV=8.69 ug/L CV=0.467**				
Avg:	**9**	**Data-based LN**				
SD:	**4**	u	ln[tCd]	[tCd]		
CV:	**0.47**	3	3.4	30		
Min:	**3**	0	2.06	8		
Max:	**21**	-3	0.73	2		
Median:	**8**					

					0.985	0.985
	u=mLn{Conc.}+b:				8.8	8.77
update for r2, EV, CV:	**r2=0.985, EV=8.77 ug/L CV=0.504; max r2=0.99**				0.504	0.504
	r2 u,lnConc:	0.985	u	lnConc.	Conc.	
	slope, m:	2.103	3	3.49	33	
	intercept, b:	-4.329	0	2.06	8	
	N: 42		-3	0.63	2	
0.976	E[Conc]:	8.8	Parameter Estimates			
1.53	SD[Conc]:	4	from LN regression			
0.876	CV[Conc]:	0.50	update graph label			

						max r2
	tCd	N: 42				0.985
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
13-Jun-95	3	1	0.0148	-2.176	1.099	0.985
17-May-91	3.3	2	0.0385	-1.769	1.194	0.984
19-May-94	3.3	3	0.0621	-1.537	1.194	0.982
4-May-94	3.9	4	0.0858	-1.367	1.361	0.983
27-Jun-95	4.1	5	0.1095	-1.229	1.411	0.982
21-Nov-95	4.8	6	0.1331	-1.112	1.569	0.982
11-Jul-95	5.1	7	0.1568	-1.008	1.629	0.981
7-Jun-94	5.6	8	0.1805	-0.914	1.723	0.980
23-Jun-94	5.6	9	0.2041	-0.827	1.723	0.980
13-Sep-94	6.2	10	0.2278	-0.746	1.825	0.979
25-Apr-95	6.2	11	0.2515	-0.670	1.825	0.981
25-Jul-95	6.2	12	0.2751	-0.597	1.825	0.982
27-Oct-93	6.3	13	0.2988	-0.528	1.841	0.983
12-Apr-95	6.7	14	0.3225	-0.461	1.902	0.982
14-Aug-95	6.7	15	0.3462	-0.396	1.902	0.984
29-Feb-96	6.7	16	0.3698	-0.332	1.902	0.984
13-Sep-95	6.8	17	0.3935	-0.270	1.917	0.984
25-Jul-94	6.9	18	0.4172	-0.209	1.932	0.983
16-Aug-94	7.4	19	0.4408	-0.149	2.001	0.981
16-Aug-94	7.4	20	0.4645	-0.089	2.001	0.982
27-Dec-95	7.4	21	0.4882	-0.030	2.001	0.981
5-Oct-91	7.6	22	0.5118	0.030	2.028	0.979
8-Mar-95	7.6	23	0.5355	0.089	2.028	0.977
9-Nov-97	7.7	24	0.5592	0.149	2.041	0.975
7-Apr-94	7.9	25	0.5828	0.209	2.067	0.974
30-Nov-93	8.5	26	0.6065	0.270	2.140	0.975
18-Oct-95	8.5	27	0.6302	0.332	2.140	0.974
6-Oct-94	8.8	28	0.6538	0.396	2.175	0.977
17-Dec-93	10.2	29	0.6775	0.461	2.322	0.985
17-Dec-93	10.2	30	0.7012	0.528	2.322	0.984
9-Feb-95	10.3	31	0.7249	0.597	2.332	0.981
18-Feb-94	11	32	0.7485	0.670	2.398	0.981
16-Nov-94	11	33	0.7722	0.746	2.398	0.977
20-Jan-94	12	34	0.7959	0.827	2.485	0.980
20-Jan-94	12	35	0.8195	0.914	2.485	0.976
13-Dec-94	13	36	0.8432	1.008	2.565	0.983
17-Jan-96	14	37	0.8669	1.112	2.639	0.982
8-Mar-94	15	38	0.8905	1.229	2.708	0.976
24-Mar-94	15	39	0.9142	1.367	2.708	
22-Mar-95	16	40	0.9379	1.537	2.773	
10-Jan-95	18	41	0.9615	1.769	2.890	
28-Mar-96	21	42	0.9852	2.176	3.045	

update for EV, CV:

tCd		**CC284**			38	37.9
LN Analysis		**tCd**			0.93	0.932
Discharge, Q		**Q Data, EV=37.9 cfs CV=0.932**				
Avg:	**38**	**Q Data-based LN**				
SD:	**35**	u	lnQ	Q		
CV:	**0.93**	3	5.7	298		
Min:	**7**	0	3.32	28		
Max:	**172**	-3	0.95	3		
Median:	**24**					

					0.977	0.977
					38.5	38.5
u=mLn{Q}+b:					0.99	0.992
update for r2, EV, CV:	**r2=0.977, EV=38.5 cfs CV=0.992; max r2=0.98**					
r2 u,lnQ:	0.977	u	lnQ	Q		
slope, m:	1.208	3	5.79	328		
intercept, b:	-3.997	0	3.31	27		
N: 42		-3	0.83	2		
E[Q]:	38.5	Parameter Estimates				
SD[Q]:	38	from LN regression				
CV[Q]:	0.99	update graph label				

						max r2
	Q	N: 42				0.983
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
18-Feb-94	7.12	1	0.0148	-2.176	1.963	0.977
17-Dec-93	7.24	2	0.0385	-1.769	1.980	0.983
27-Oct-93	7.88	3	0.0621	-1.537	2.064	0.983
20-Jan-94	7.88	4	0.0858	-1.367	2.064	0.982
17-Dec-93	10.66	5	0.1095	-1.229	2.366	0.980
20-Jan-94	11.68	6	0.1331	-1.112	2.458	0.980
30-Nov-93	12.6	7	0.1568	-1.008	2.534	0.979
16-Aug-94	13.57	8	0.1805	-0.914	2.608	0.979
13-Sep-95	14.02	9	0.2041	-0.827	2.640	0.979
6-Oct-94	15.33	10	0.2278	-0.746	2.730	0.978
14-Aug-95	15.89	11	0.2515	-0.670	2.766	0.979
5-Oct-91	16.1	12	0.2751	-0.597	2.779	0.978
13-Sep-94	16.48	13	0.2988	-0.528	2.802	0.977
13-Dec-94	16.48	14	0.3225	-0.461	2.802	0.976
16-Nov-94	16.78	15	0.3462	-0.396	2.820	0.974
16-Aug-94	17.71	16	0.3698	-0.332	2.874	0.972
25-Jul-95	18.71	17	0.3935	-0.270	2.929	0.970
25-Jul-94	19.76	18	0.4172	-0.209	2.984	0.968
8-Mar-94	21.27	19	0.4408	-0.149	3.057	0.966
24-Mar-94	21.27	20	0.4645	-0.089	3.057	0.964
11-Jul-95	23.33	21	0.4882	-0.030	3.150	0.965
10-Jan-95	25.13	22	0.5118	0.030	3.224	0.964
23-Jun-94	33.34	23	0.5355	0.089	3.507	0.964
9-Nov-97	35	24	0.5592	0.149	3.555	0.964
18-Oct-95	35.3	25	0.5828	0.209	3.564	0.964
8-Mar-95	38.13	26	0.6065	0.270	3.641	0.963
27-Jun-95	38.13	27	0.6302	0.332	3.641	0.964
28-Mar-96	39.6	28	0.6538	0.396	3.679	0.964
9-Feb-95	39.63	29	0.6775	0.461	3.680	0.962
27-Dec-95	41.2	30	0.7012	0.528	3.718	0.958
25-Apr-95	47	31	0.7249	0.597	3.850	0.953
17-Jan-96	48.1	32	0.7485	0.670	3.873	0.953
7-Jun-94	51.06	33	0.7722	0.746	3.933	0.949
29-Feb-96	52.1	34	0.7959	0.827	3.953	0.947
12-Apr-95	58.64	35	0.8195	0.914	4.071	0.938
7-Apr-94	59.82	36	0.8432	1.008	4.091	0.936
4-May-94	59.82	37	0.8669	1.112	4.091	0.923
19-May-94	73.12	38	0.8905	1.229	4.292	0.894
22-Mar-95	80.94	39	0.9142	1.367	4.394	
21-Nov-95	95.4	40	0.9379	1.537	4.558	
13-Jun-95	158.04	41	0.9615	1.769	5.063	
17-May-91	171.6	42	0.9852	2.176	5.145	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC284 **Date:** 2-Jun-00
Chemical: tPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,638	38	106	22	0.00	0.00	0.00
SD:	400	35	409	88	1.00	1.00	1.00
CV:	0.01	0.93	3.88	3.96			
Min:	33,375	7	14	1.4	-0.87	-0.22	-0.24
Max:	35,743	172	2,720	579	3.78	6.39	6.36
Median:	34,634	24	36	5	-0.39	-0.17	-0.20

tPb CC284 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.00005 update r2 0.00 5.95E-05 r2: 0.004 0.035
r2 Q,[COC]: 0.0001 [tPb] Q m: -0.0058 0.00037
slope, m: 0.1 103 7.1 b: 237 -9.59
intercept, b: 102.2 106 37.9
N: 42 118 172

LnConc. = mLn{Q}+b (r2=0.00103) update r2 0.00 0.00103
2 lnQ,ln[COC]: 0.001 ln[tPb] ln Q [tPb] Q
slope, m: 0.03 3.67 1.96 39 7
intercept, b: 3.61 3.72 3.64 41 38
N: 42 3.77 5.15 43 172

tPb for graph
CC284 0

N= 42

	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	171.6	21	19	5.15	3.04	2.96	3.78	-0.21	-0.03
MFG	5-Oct-91	16.1	29	3	2.78	3.37	0.92	-0.62	-0.19	-0.22
IDEQ	27-Oct-93	7.88	45	2	2.06	3.81	0.65	-0.85	-0.15	-0.23
IDEQ	30-Nov-93	12.6	43	3	2.53	3.76	1.07	-0.72	-0.15	-0.22
IDEQ	17-Dec-93	7.24	36	1	1.98	3.58	0.34	-0.87	-0.17	-0.24
IDEQ	17-Dec-93	10.66	36	2	2.37	3.58	0.72	-0.77	-0.17	-0.23
IDEQ	20-Jan-94	7.88	40	2	2.06	3.69	0.53	-0.85	-0.16	-0.23
IDEQ	20-Jan-94	11.68	40	3	2.46	3.69	0.92	-0.74	-0.16	-0.22
IDEQ	18-Feb-94	7.12	36	1	1.96	3.58	0.32	-0.87	-0.17	-0.24
IDEQ	8-Mar-94	21.27	42	5	3.06	3.74	1.57	-0.47	-0.16	-0.20
IDEQ	24-Mar-94	21.27	41	5	3.06	3.71	1.55	-0.47	-0.16	-0.20
IDEQ	7-Apr-94	59.82	28	9	4.09	3.33	2.20	0.62	-0.19	-0.15
IDEQ	4-May-94	59.82	25	8	4.09	3.22	2.09	0.62	-0.20	-0.16
IDEQ	19-May-94	73.12	14	6	4.29	2.64	1.71	1.00	-0.22	-0.19
IDEQ	7-Jun-94	51.06	24	7	3.93	3.18	1.89	0.37	-0.20	-0.18
IDEQ	23-Jun-94	33.34	33	6	3.51	3.50	1.78	-0.13	-0.18	-0.19
IDEQ	25-Jul-94	19.76	31	3	2.98	3.43	1.19	-0.51	-0.18	-0.22
IDEQ	16-Aug-94	17.71	39	4	2.87	3.66	1.31	-0.57	-0.16	-0.21
IDEQ	16-Aug-94	13.57	39	3	2.61	3.66	1.05	-0.69	-0.16	-0.22
IDEQ	13-Sep-94	16.48	40	4	2.80	3.69	1.27	-0.61	-0.16	-0.21
IDEQ	6-Oct-94	15.33	31	3	2.73	3.43	0.94	-0.64	-0.18	-0.22
IDEQ	16-Nov-94	16.78	30	3	2.82	3.40	1.00	-0.60	-0.18	-0.22
IDEQ	13-Dec-94	16.48	31	3	2.80	3.43	1.01	-0.61	-0.18	-0.22
IDEQ	10-Jan-95	25.13	82	11	3.22	4.41	2.41	-0.36	-0.06	-0.13
IDEQ	9-Feb-95	39.63	28	6	3.68	3.33	1.79	0.05	-0.19	-0.18
IDEQ	8-Mar-95	38.13	21	4	3.64	3.04	1.46	0.01	-0.21	-0.20
IDEQ	22-Mar-95	80.94	42	18	4.39	3.74	2.91	1.22	-0.16	-0.04
IDEQ	12-Apr-95	58.64	27	9	4.07	3.30	2.14	0.59	-0.19	-0.16
IDEQ	25-Apr-95	47	48	12	3.85	3.87	2.50	0.26	-0.14	-0.11
IDEQ	13-Jun-95	158.04	29	25	5.06	3.37	3.21	3.40	-0.19	0.03
IDEQ	27-Jun-95	38.13	41	8	3.64	3.71	2.13	0.01	-0.16	-0.16
IDEQ	11-Jul-95	23.33	29	4	3.15	3.37	1.29	-0.41	-0.19	-0.21
IDEQ	25-Jul-95	18.71	31	3	2.93	3.43	1.14	-0.54	-0.18	-0.22
IDEQ	14-Aug-95	15.89	30	3	2.77	3.40	0.94	-0.62	-0.18	-0.22
IDEQ	13-Sep-95	14.02	30	2	2.64	3.40	0.82	-0.68	-0.18	-0.23
IDEQ	18-Oct-95	35.3	46	9	3.56	3.83	2.17	-0.07	-0.15	-0.15
IDEQ	21-Nov-95	95.4	88	45	4.56	4.48	3.81	1.63	-0.04	0.26
IDEQ	27-Dec-95	41.2	44	10	3.72	3.78	2.28	0.09	-0.15	-0.14
IDEQ	17-Jan-96	48.1	208	54	3.87	5.34	3.99	0.29	0.25	0.36
IDEQ	29-Feb-96	52.1	48	13	3.95	3.87	2.60	0.40	-0.14	-0.10
IDEQ	28-Mar-96	39.6	2720	579	3.68	7.91	6.36	0.05	6.39	6.36
URS	9-Nov-97	35	70.7	13	3.56	4.26	2.59	-0.08	-0.09	-0.10

tPb

Concentration over time analysis r2 Slope, m

tPb CC284 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.154** **0.00077**

	Time	Ln[COC]	[COC]
first:	17-May-91	2.74	16
mid:	26-Oct-94	3.71	41
last:	9-Nov-97	4.57	96

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Nov-97	0.00	1

Load over time analysis

tPb CC284 **Load over time**

LnLoad=mTime+b All data r2, m: **0.163** **0.00114**

	Time	LnLoad	Load
first:	17-May-91	0.35	1
mid:	26-Oct-94	1.79	6
last:	9-Nov-97	3.06	21

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Nov-97	0.00	1

max r2: 0.234 max r2: 0.348

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.154	0.00077	-22.96	0.163	0.00114	-37.78
0.144	0.00085	-25.64	0.317	0.00181	-60.90
0.160	0.00104	-32.42	0.348	0.00220	-74.57
0.171	0.00111	-34.66	0.332	0.00218	-73.69
0.181	0.00116	-36.70	0.324	0.00219	-74.26
0.184	0.00120	-38.09	0.300	0.00211	-71.45
0.188	0.00125	-39.72	0.282	0.00207	-70.04
0.196	0.00131	-41.80	0.258	0.00199	-67.21
0.205	0.00138	-44.25	0.240	0.00195	-65.96
0.210	0.00144	-46.19	0.209	0.00181	-61.04
0.222	0.00152	-49.11	0.206	0.00185	-62.25
0.234	0.00161	-52.18	0.202	0.00188	-63.33
0.229	0.00164	-53.22	0.221	0.00203	-68.50
0.219	0.00164	-53.40	0.236	0.00216	-73.25
0.189	0.00153	-49.50	0.238	0.00224	-76.01
0.174	0.00151	-48.61	0.247	0.00236	-80.20
0.170	0.00154	-49.79	0.253	0.00247	-84.04
0.163	0.00155	-50.26	0.237	0.00245	-83.27
0.165	0.00161	-52.38	0.223	0.00244	-82.90
0.167	0.00169	-55.05	0.199	0.00236	-80.02
0.170	0.00177	-57.99	0.180	0.00230	-78.08
0.161	0.00179	-58.56	0.149	0.00213	-71.95
0.150	0.00178	-58.15	0.119	0.00192	-64.78
0.138	0.00176	-57.52	0.089	0.00167	-56.07
0.170	0.00201	-66.33	0.095	0.00178	-59.94
0.154	0.00196	-64.59	0.083	0.00171	-57.36
0.129	0.00180	-59.04	0.064	0.00152	-50.54
0.124	0.00182	-59.79	0.078	0.00173	-58.21
0.103	0.00169	-55.06	0.073	0.00173	-57.99
0.099	0.00172	-56.22	0.077	0.00184	-61.95
0.080	0.00156	-50.60	0.101	0.00216	-73.31
0.069	0.00148	-47.70	0.096	0.00217	-73.53
0.047	0.00123	-38.95	0.069	0.00184	-61.86
0.026	0.00093	-28.12	0.037	0.00132	-43.63
0.007	0.00049	-12.71	0.006	0.00052	-15.32
0.000	-0.00009	8.08	0.011	-0.00061	24.97
0.012	-0.00064	27.48	0.059	-0.00137	51.80
0.028	-0.00100	40.26	0.055	-0.00139	52.49

update for EV, CV:

tPb **CC284**

LN Analysis **tPb**

Load **Load Data, EV=22.2 lbs/day CV=3.96**

Load Data-based LN

Avg:	**22**	u	ln tPb Load	tPb Load
SD:	**88**	3	6.7	831
CV:	**3.96**	0	1.69	5
Min:	**1.4**	-3	-3.34	0.04
Max:	**579**			
Median:	**5**			
		22	22.2	
		3.96	3.96	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.856, EV=13.4#/d CV=1.99; max r2=0.92**

r2 u,lnLoad:	0.856	u	lnLoad	Load			
slope, m:	0.791	3	5.59	268			
intercept, b:	-1.421	0	1.80	6			
N: 42		-3	-2.00	0.1			
E[Load]:	13.4	Parameter Estimates				0.856	0.856
SD[Load]:	27	from LN regression				13.4	13.4
CV[Load]:	1.99	update graph label				2.0	1.99
						max r2	
		N: 42				0.924	

update and rank for new data

Date	**tPb Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
18-Feb-94	**1**	1	0.0148	-2.176	0.321	0.856
17-Dec-93	**1**	2	0.0385	-1.769	0.338	0.867
20-Jan-94	**2**	3	0.0621	-1.537	0.528	0.869
27-Oct-93	**2**	4	0.0858	-1.367	0.646	0.872
17-Dec-93	**2**	5	0.1095	-1.229	0.725	0.875
13-Sep-95	**2**	6	0.1331	-1.112	0.817	0.878
5-Oct-91	**3**	7	0.1568	-1.008	0.921	0.881
20-Jan-94	**3**	8	0.1805	-0.914	0.922	0.887
6-Oct-94	**3**	9	0.2041	-0.827	0.939	0.890
14-Aug-95	**3**	10	0.2278	-0.746	0.942	0.893
16-Nov-94	**3**	11	0.2515	-0.670	0.996	0.893
13-Dec-94	**3**	12	0.2751	-0.597	1.011	0.894
16-Aug-94	**3**	13	0.2988	-0.528	1.046	0.894
30-Nov-93	**3**	14	0.3225	-0.461	1.070	0.892
25-Jul-95	**3**	15	0.3462	-0.396	1.138	0.890
25-Jul-94	**3**	16	0.3698	-0.332	1.193	0.888
13-Sep-94	**4**	17	0.3935	-0.270	1.266	0.885
11-Jul-95	**4**	18	0.4172	-0.209	1.292	0.883
16-Aug-94	**4**	19	0.4408	-0.149	1.313	0.879
8-Mar-95	**4**	20	0.4645	-0.089	1.460	0.874
24-Mar-94	**5**	21	0.4882	-0.030	1.546	0.871
8-Mar-94	**5**	22	0.5118	0.030	1.570	0.868
19-May-94	**6**	23	0.5355	0.089	1.706	0.864
23-Jun-94	**6**	24	0.5592	0.149	1.778	0.863
9-Feb-95	**6**	25	0.5828	0.209	1.787	0.862
7-Jun-94	**7**	26	0.6065	0.270	1.886	0.859
4-May-94	**8**	27	0.6302	0.332	2.085	0.858
27-Jun-95	**8**	28	0.6538	0.396	2.130	0.865
12-Apr-95	**9**	29	0.6775	0.461	2.142	0.873
18-Oct-95	**9**	30	0.7012	0.528	2.167	0.879
7-Apr-94	**9**	31	0.7249	0.597	2.198	0.884
27-Dec-95	**10**	32	0.7485	0.670	2.278	0.886
10-Jan-95	**11**	33	0.7722	0.746	2.406	0.888
25-Apr-95	**12**	34	0.7959	0.827	2.496	0.895
9-Nov-97	**13**	35	0.8195	0.914	2.589	0.903
29-Feb-96	**13**	36	0.8432	1.008	2.599	0.911
22-Mar-95	**18**	37	0.8669	1.112	2.906	0.908
17-May-91	**19**	38	0.8905	1.229	2.965	0.924
13-Jun-95	**25**	39	0.9142	1.367	3.205	
21-Nov-95	**45**	40	0.9379	1.537	3.810	
17-Jan-96	**54**	41	0.9615	1.769	3.986	
28-Mar-96	**579**	42	0.9852	2.176	6.362	

update for EV, CV:

tPb		**CC284**		106	106	
LN Analysis		**tPb**		3.88	3.88	
Concentration		**Conc. Data, EV=106 ug/L CV=3.88**				
Avg:	**106**	**Data-based LN**				
SD:	**409**	u	ln[tPb]	[tPb]		
CV:	**3.88**	3	8.3	3903		
Min:	**14**	0	3.27	26		
Max:	**2,720**	-3	-1.72	0.2		
Median:	**36**					

					0.575	0.575
	u=mLn{Conc.}+b:				72.6	72.6
update for r2, EV, CV:	**r2=0.575, EV=72.6 ug/L CV=1.46; max r2=0.90**				1.461	1.46
	r2 u,lnConc:	0.575	u	lnConc.	Conc.	
	slope, m:	0.935	3	6.92	1013	
	intercept, b:	-3.474	0	3.71	41	
	N: 42		-3	0.51	2	
	E[Conc]:	72.6	Parameter Estimates			
	SD[Conc]:	106	from LN regression			
	CV[Conc]:	1.46	update graph label			

						max r2
	tPb	N: 42				0.895
Date	**Concentration ug/L Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	r2 forward
update and rank for new data						
19-May-94	14	1	0.0148	-2.176	2.639	0.575
17-May-91	21	2	0.0385	-1.769	3.045	0.557
8-Mar-95	21	3	0.0621	-1.537	3.045	0.558
7-Jun-94	24	4	0.0858	-1.367	3.178	0.554
4-May-94	25	5	0.1095	-1.229	3.219	0.556
12-Apr-95	27	6	0.1331	-1.112	3.296	0.558
7-Apr-94	28	7	0.1568	-1.008	3.332	0.564
9-Feb-95	28	8	0.1805	-0.914	3.332	0.570
5-Oct-91	29	9	0.2041	-0.827	3.367	0.575
13-Jun-95	29	10	0.2278	-0.746	3.367	0.581
11-Jul-95	29	11	0.2515	-0.670	3.367	0.586
16-Nov-94	30	12	0.2751	-0.597	3.401	0.590
14-Aug-95	30	13	0.2988	-0.528	3.401	0.596
13-Sep-95	30	14	0.3225	-0.461	3.401	0.600
25-Jul-94	31	15	0.3462	-0.396	3.434	0.604
6-Oct-94	31	16	0.3698	-0.332	3.434	0.608
13-Dec-94	31	17	0.3935	-0.270	3.434	0.612
25-Jul-95	31	18	0.4172	-0.209	3.434	0.615
23-Jun-94	33	19	0.4408	-0.149	3.497	0.616
17-Dec-93	36	20	0.4645	-0.089	3.584	0.620
17-Dec-93	36	21	0.4882	-0.030	3.584	0.629
18-Feb-94	36	22	0.5118	0.030	3.584	0.638
16-Aug-94	39	23	0.5355	0.089	3.664	0.647
16-Aug-94	39	24	0.5592	0.149	3.664	0.661
20-Jan-94	40	25	0.5828	0.209	3.689	0.675
20-Jan-94	40	26	0.6065	0.270	3.689	0.691
13-Sep-94	40	27	0.6302	0.332	3.689	0.707
24-Mar-94	41	28	0.6538	0.396	3.714	0.723
27-Jun-95	41	29	0.6775	0.461	3.714	0.741
8-Mar-94	42	30	0.7012	0.528	3.738	0.758
22-Mar-95	42	31	0.7249	0.597	3.738	0.778
30-Nov-93	43	32	0.7485	0.670	3.761	0.796
27-Dec-95	44	33	0.7722	0.746	3.784	0.817
27-Oct-93	45	34	0.7959	0.827	3.807	0.838
18-Oct-95	46	35	0.8195	0.914	3.829	0.858
25-Apr-95	48	36	0.8432	1.008	3.871	0.878
29-Feb-96	48	37	0.8669	1.112	3.871	0.894
9-Nov-97	70.7	38	0.8905	1.229	4.258	0.895
10-Jan-95	82	39	0.9142	1.367	4.407	
21-Nov-95	88	40	0.9379	1.537	4.477	
17-Jan-96	208	41	0.9615	1.769	5.338	
28-Mar-96	2720	42	0.9852	2.176	7.908	

update for EV, CV:

tPb		**CC284**			38	37.9
LN Analysis		**tPb**			0.93	0.932
Discharge, Q		**Q Data, EV=37.9 cfs CV=0.932**				
Avg:	**38**	**Q Data-based LN**				
SD:	**35**	u	lnQ	Q		
CV:	**0.93**	3	5.7	298		
Min:	**7**	0	3.32	28		
Max:	**172**	-3	0.95	3		
Median:	**24**					

					0.977	0.977
					38.5	38.5
u=mLn{Q}+b:					0.99	0.992
update for r2, EV, CV:	**r2=0.977, EV=38.5 cfs CV=0.992; max r2=0.98**					
r2 u,lnQ:	0.977	u	lnQ	Q		
slope, m:	1.208	3	5.79	328		
intercept, b:	-3.997	0	3.31	27		
N: 42		-3	0.83	2		
E[Q]:	38.5	Parameter Estimates				
SD[Q]:	38	from LN regression				
CV[Q]:	0.99	update graph label				

						max r2
	Q	N: 42				0.983
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
18-Feb-94	7.12	1	0.0148	-2.176	1.963	0.977
17-Dec-93	7.24	2	0.0385	-1.769	1.980	0.983
27-Oct-93	7.88	3	0.0621	-1.537	2.064	0.983
20-Jan-94	7.88	4	0.0858	-1.367	2.064	0.982
17-Dec-93	10.66	5	0.1095	-1.229	2.366	0.980
20-Jan-94	11.68	6	0.1331	-1.112	2.458	0.980
30-Nov-93	12.6	7	0.1568	-1.008	2.534	0.979
16-Aug-94	13.57	8	0.1805	-0.914	2.608	0.979
13-Sep-95	14.02	9	0.2041	-0.827	2.640	0.979
6-Oct-94	15.33	10	0.2278	-0.746	2.730	0.978
14-Aug-95	15.89	11	0.2515	-0.670	2.766	0.979
5-Oct-91	16.1	12	0.2751	-0.597	2.779	0.978
13-Sep-94	16.48	13	0.2988	-0.528	2.802	0.977
13-Dec-94	16.48	14	0.3225	-0.461	2.802	0.976
16-Nov-94	16.78	15	0.3462	-0.396	2.820	0.974
16-Aug-94	17.71	16	0.3698	-0.332	2.874	0.972
25-Jul-95	18.71	17	0.3935	-0.270	2.929	0.970
25-Jul-94	19.76	18	0.4172	-0.209	2.984	0.968
8-Mar-94	21.27	19	0.4408	-0.149	3.057	0.966
24-Mar-94	21.27	20	0.4645	-0.089	3.057	0.964
11-Jul-95	23.33	21	0.4882	-0.030	3.150	0.965
10-Jan-95	25.13	22	0.5118	0.030	3.224	0.964
23-Jun-94	33.34	23	0.5355	0.089	3.507	0.964
9-Nov-97	35	24	0.5592	0.149	3.555	0.964
18-Oct-95	35.3	25	0.5828	0.209	3.564	0.964
8-Mar-95	38.13	26	0.6065	0.270	3.641	0.963
27-Jun-95	38.13	27	0.6302	0.332	3.641	0.964
28-Mar-96	39.6	28	0.6538	0.396	3.679	0.964
9-Feb-95	39.63	29	0.6775	0.461	3.680	0.962
27-Dec-95	41.2	30	0.7012	0.528	3.718	0.958
25-Apr-95	47	31	0.7249	0.597	3.850	0.953
17-Jan-96	48.1	32	0.7485	0.670	3.873	0.953
7-Jun-94	51.06	33	0.7722	0.746	3.933	0.949
29-Feb-96	52.1	34	0.7959	0.827	3.953	0.947
12-Apr-95	58.64	35	0.8195	0.914	4.071	0.938
7-Apr-94	59.82	36	0.8432	1.008	4.091	0.936
4-May-94	59.82	37	0.8669	1.112	4.091	0.923
19-May-94	73.12	38	0.8905	1.229	4.292	0.894
22-Mar-95	80.94	39	0.9142	1.367	4.394	
21-Nov-95	95.4	40	0.9379	1.537	4.558	
13-Jun-95	158.04	41	0.9615	1.769	5.063	
17-May-91	171.6	42	0.9852	2.176	5.145	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC284 **Date:** 2-Jun-00
Chemical: tZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	34,638	38	1,371	227		0.00	0.00	0.00	
SD:	400	35	637	170		1.00	1.00	1.00	
CV:	0.01	0.93	0.46	0.75					first:
Min:	33,375	7	444	48.3		-0.87	-1.45	-1.06	mid:
Max:	35,743	172	2,710	954		3.78	2.10	4.28	last:
Median:	34,634	24	1,170	187		-0.39	-0.32	-0.24	

tZn **CC284** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.186)		update r2	0.19	0.186	r2:	0.004	0.035	
r2 Q,[COC]:	0.19	[tZn]	Q		m:	-0.0058	0.00037	
slope, m:	-7.8	1,610	7.1		b:	237	-9.59	
intercept, b:	1665.7	1,371	37.9					
N: 42		333	172					first:
LnConc. = mLn{Q}+b (r2=0.266)		update r2	0.27	0.266				mid:
r2 lnQ,ln[COC]:	0.27	ln[tZn]	ln Q	[tZn]	Q			last:
slope, m:	-0.32	7.54	1.96	1,883	7			
intercept, b:	8.17	7.00	3.64	1,100	38			
N: 42		6.52	5.15	677	172			

for graph
tZn 0
CC284

N= 42

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	171.6	475	439	5.15	6.16	6.08	3.78	-1.41	1.24
MFG	5-Oct-91	16.1	1290	112	2.78	7.16	4.72	-0.62	-0.13	-0.68
IDEQ	27-Oct-93	7.88	1140	48	2.06	7.04	3.88	-0.85	-0.36	-1.06
IDEQ	30-Nov-93	12.6	1640	111	2.53	7.40	4.71	-0.72	0.42	-0.69
IDEQ	17-Dec-93	7.24	2070	81	1.98	7.64	4.39	-0.87	1.10	-0.87
IDEQ	17-Dec-93	10.66	2070	119	2.37	7.64	4.78	-0.77	1.10	-0.64
IDEQ	20-Jan-94	7.88	2310	98	2.06	7.75	4.58	-0.85	1.47	-0.76
IDEQ	20-Jan-94	11.68	2310	145	2.46	7.75	4.98	-0.74	1.47	-0.49
IDEQ	18-Feb-94	7.12	1920	74	1.96	7.56	4.30	-0.87	0.86	-0.91
IDEQ	8-Mar-94	21.27	2410	276	3.06	7.79	5.62	-0.47	1.63	0.28
IDEQ	24-Mar-94	21.27	2440	279	3.06	7.80	5.63	-0.47	1.68	0.31
IDEQ	7-Apr-94	59.82	1260	406	4.09	7.14	6.01	0.62	-0.17	1.05
IDEQ	4-May-94	59.82	585	188	4.09	6.37	5.24	0.62	-1.23	-0.23
IDEQ	19-May-94	73.12	470	185	4.29	6.15	5.22	1.00	-1.41	-0.25
IDEQ	7-Jun-94	51.06	725	199	3.93	6.59	5.29	0.37	-1.01	-0.17
IDEQ	23-Jun-94	33.34	743	133	3.51	6.61	4.89	-0.13	-0.99	-0.56
IDEQ	25-Jul-94	19.76	984	105	2.98	6.89	4.65	-0.51	-0.61	-0.72
IDEQ	16-Aug-94	17.71	1080	103	2.87	6.98	4.63	-0.57	-0.46	-0.73
IDEQ	16-Aug-94	13.57	1080	79	2.61	6.98	4.37	-0.69	-0.46	-0.88
IDEQ	13-Sep-94	16.48	800	71	2.80	6.68	4.26	-0.61	-0.90	-0.92
IDEQ	6-Oct-94	15.33	1120	92	2.73	7.02	4.53	-0.64	-0.39	-0.80
IDEQ	16-Nov-94	16.78	1980	179	2.82	7.59	5.19	-0.60	0.96	-0.29
IDEQ	13-Dec-94	16.48	2480	220	2.80	7.82	5.39	-0.61	1.74	-0.04
IDEQ	10-Jan-95	25.13	2710	366	3.22	7.90	5.90	-0.36	2.10	0.82
IDEQ	9-Feb-95	39.63	1680	358	3.68	7.43	5.88	0.05	0.48	0.77
IDEQ	8-Mar-95	38.13	1110	228	3.64	7.01	5.43	0.01	-0.41	0.00
IDEQ	22-Mar-95	80.94	2190	954	4.39	7.69	6.86	1.22	1.28	4.28
IDEQ	12-Apr-95	58.64	1170	369	4.07	7.06	5.91	0.59	-0.32	0.84
IDEQ	25-Apr-95	47	1060	268	3.85	6.97	5.59	0.26	-0.49	0.24
IDEQ	13-Jun-95	158.04	444	378	5.06	6.10	5.93	3.40	-1.45	0.88
IDEQ	27-Jun-95	38.13	583	120	3.64	6.37	4.78	0.01	-1.24	-0.64
IDEQ	11-Jul-95	23.33	791	99	3.15	6.67	4.60	-0.41	-0.91	-0.76
IDEQ	25-Jul-95	18.71	818	82	2.93	6.71	4.41	-0.54	-0.87	-0.86
IDEQ	14-Aug-95	15.89	1020	87	2.77	6.93	4.47	-0.62	-0.55	-0.83
IDEQ	13-Sep-95	14.02	926	70	2.64	6.83	4.25	-0.68	-0.70	-0.93
IDEQ	18-Oct-95	35.3	1300	247	3.56	7.17	5.51	-0.07	-0.11	0.11
IDEQ	21-Nov-95	95.4	820	421	4.56	6.71	6.04	1.63	-0.86	1.14
IDEQ	27-Dec-95	41.2	1220	270	3.72	7.11	5.60	0.09	-0.24	0.25
IDEQ	17-Jan-96	48.1	2100	543	3.87	7.65	6.30	0.29	1.14	1.86
IDEQ	29-Feb-96	52.1	1170	328	3.95	7.06	5.79	0.40	-0.32	0.59
IDEQ	28-Mar-96	39.6	1800	383	3.68	7.50	5.95	0.05	0.67	0.92
URS	9-Nov-97	35	1290	243	3.56	7.16	5.49	-0.08	-0.13	0.09

tZn

Concentration over time analysis r2 Slope, m

tZn CC284 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.000** **0.00003**

Time	Ln[COC]	[COC]
17-May-91	7.08	1,183
26-Oct-94	7.11	1,222
9-Nov-97	7.14	1,256

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Nov-97	0.00	1

Load over time analysis

tZn CC284 **Load over time**

LnLoad=mTime+b All data r2, m: **0.054** **0.00040**

Time	LnLoad	Load
17-May-91	4.69	109
26-Oct-94	5.19	179
9-Nov-97	5.63	279

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Nov-97	0.00	1

max r2: 0.242 max r2: 0.375

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.000	0.00003	6.23	0.054	0.00040	-8.59
0.023	-0.00021	14.32	0.153	0.00075	-20.94
0.030	-0.00027	16.62	0.156	0.00089	-25.53
0.034	-0.00030	17.52	0.124	0.00077	-21.51
0.029	-0.00028	16.88	0.113	0.00075	-20.68
0.019	-0.00023	15.10	0.092	0.00068	-18.26
0.010	-0.00017	13.01	0.082	0.00065	-17.31
0.003	-0.00009	10.18	0.066	0.00059	-15.23
0.000	0.00001	6.84	0.060	0.00058	-14.86
0.002	0.00008	4.14	0.039	0.00046	-10.71
0.015	0.00021	-0.20	0.050	0.00054	-13.34
0.044	0.00035	-5.24	0.064	0.00062	-16.39
0.054	0.00040	-6.94	0.100	0.00079	-22.22
0.033	0.00031	-3.89	0.104	0.00083	-23.74
0.010	0.00017	1.20	0.108	0.00088	-25.31
0.003	0.00009	4.04	0.116	0.00094	-27.55
0.000	0.00000	7.23	0.106	0.00093	-27.02
0.001	-0.00005	8.67	0.086	0.00085	-24.34
0.002	-0.00007	9.58	0.066	0.00075	-20.94
0.003	-0.00010	10.74	0.037	0.00056	-14.23
0.013	-0.00022	14.90	0.011	0.00030	-5.18
0.018	-0.00027	16.49	0.001	0.00007	3.10
0.006	-0.00016	12.53	0.000	-0.00001	5.90
0.000	0.00004	5.61	0.000	-0.00004	7.07
0.026	0.00029	-3.27	0.000	0.00007	3.12
0.058	0.00044	-8.32	0.003	0.00019	-1.10
0.065	0.00047	-9.64	0.003	0.00019	-1.14
0.180	0.00073	-18.77	0.047	0.00064	-17.19
0.216	0.00083	-22.14	0.083	0.00087	-25.06
0.242	0.00091	-24.97	0.110	0.00103	-30.70
0.200	0.00069	-17.32	0.175	0.00129	-40.03
0.148	0.00052	-11.14	0.150	0.00121	-36.97
0.102	0.00041	-7.34	0.110	0.00102	-30.26
0.054	0.00028	-2.76	0.057	0.00068	-18.26
0.030	0.00021	-0.30	0.010	0.00024	-2.92
0.003	0.00007	4.89	0.152	-0.00045	21.77
0.002	0.00006	5.13	0.375	-0.00067	29.45
0.071	-0.00024	15.81	0.328	-0.00063	28.03

update for EV, CV:

tZn **CC284**

LN Analysis **tZn**

Load **Load Data, EV=227 lbs/day CV=0.745**

Load Data-based LN

		u	ln tZn Load	tZn Load
Avg:	**227**			
SD:	**170**	3	7.2	1340
CV:	**0.75**	0	5.21	182
Min:	**48.3**	-3	3.21	24.8
Max:	**954**			
Median:	**187**			

227 227
0.75 0.745

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.966, EV=233lbs/day CV=0.822; max r2=0.97**

r2 u,lnLoad:	0.966	u	lnLoad	Load
slope, m:	1.391	3	7.35	1553
intercept, b:	-7.222	0	5.19	180
N: 42		-3	3.03	20.8
E[Load]:	232.7	Parameter Estimates		
SD[Load]:	191	from LN regression		
CV[Load]:	0.82	update graph label		

0.966
232.7
0.8
max r2
0.971

N: 42

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
27-Oct-93	**48**	1	0.0148	-2.176	3.878	0.966
13-Sep-95	**70**	2	0.0385	-1.769	4.246	0.966
13-Sep-94	**71**	3	0.0621	-1.537	4.262	0.970
18-Feb-94	**74**	4	0.0858	-1.367	4.298	0.971
16-Aug-94	**79**	5	0.1095	-1.229	4.368	0.971
17-Dec-93	**81**	6	0.1331	-1.112	4.390	0.970
25-Jul-95	**82**	7	0.1568	-1.008	4.411	0.969
14-Aug-95	**87**	8	0.1805	-0.914	4.468	0.966
6-Oct-94	**92**	9	0.2041	-0.827	4.526	0.964
20-Jan-94	**98**	10	0.2278	-0.746	4.584	0.961
11-Jul-95	**99**	11	0.2515	-0.670	4.598	0.958
16-Aug-94	**103**	12	0.2751	-0.597	4.634	0.955
25-Jul-94	**105**	13	0.2988	-0.528	4.650	0.952
30-Nov-93	**111**	14	0.3225	-0.461	4.711	0.949
5-Oct-91	**112**	15	0.3462	-0.396	4.716	0.946
17-Dec-93	**119**	16	0.3698	-0.332	4.777	0.945
27-Jun-95	**120**	17	0.3935	-0.270	4.784	0.944
23-Jun-94	**133**	18	0.4172	-0.209	4.892	0.949
20-Jan-94	**145**	19	0.4408	-0.149	4.978	0.953
16-Nov-94	**179**	20	0.4645	-0.089	5.186	0.957
19-May-94	**185**	21	0.4882	-0.030	5.220	0.953
4-May-94	**188**	22	0.5118	0.030	5.238	0.949
7-Jun-94	**199**	23	0.5355	0.089	5.294	0.945
13-Dec-94	**220**	24	0.5592	0.149	5.393	0.940
8-Mar-95	**228**	25	0.5828	0.209	5.428	0.934
9-Nov-97	**243**	26	0.6065	0.270	5.493	0.927
18-Oct-95	**247**	27	0.6302	0.332	5.509	0.920
25-Apr-95	**268**	28	0.6538	0.396	5.591	0.911
27-Dec-95	**270**	29	0.6775	0.461	5.600	0.903
8-Mar-94	**276**	30	0.7012	0.528	5.620	0.891
24-Mar-94	**279**	31	0.7249	0.597	5.632	0.876
29-Feb-96	**328**	32	0.7485	0.670	5.793	0.856
9-Feb-95	**358**	33	0.7722	0.746	5.881	0.846
10-Jan-95	**366**	34	0.7959	0.827	5.904	0.858
12-Apr-95	**369**	35	0.8195	0.914	5.911	0.876
13-Jun-95	**378**	36	0.8432	1.008	5.934	0.891
28-Mar-96	**383**	37	0.8669	1.112	5.949	0.909
7-Apr-94	**406**	38	0.8905	1.229	6.005	0.923
21-Nov-95	**421**	39	0.9142	1.367	6.042	
17-May-91	**439**	40	0.9379	1.537	6.083	
17-Jan-96	**543**	41	0.9615	1.769	6.298	
22-Mar-95	**954**	42	0.9852	2.176	6.860	

update for EV, CV:

tZn		**CC284**		1,371	1370
LN Analysis		**tZn**		0.46	0.465
Concentration		**Conc. Data, EV=1370 ug/L CV=0.465**			
Avg:	**1,371**	**Data-based LN**			
SD:	**637**	u	ln[tZn]	[tZn]	
CV:	**0.46**	3	8.5	4687	
Min:	**444**	0	7.13	1243	
Max:	**2,710**	-3	5.80	330	
Median:	**1,170**				

				0.965	0.965
	u=mLn{Conc.}+b:			1398.1	1400
update for r2, EV, CV:	**r2=0.965, EV=1400 ug/L CV=0.557; max r2=0.97**			0.557	0.557
	r2 u,lnConc:	0.965	u	lnConc.	Conc.
	slope, m:	1.925	3	8.67	5804
	intercept, b:	-13.684	0	7.11	1222
	N: 42		-3	5.55	257
0.966	E[Conc]:	1398.1	Parameter Estimates		
233	SD[Conc]:	778	from LN regression		
0.822	CV[Conc]:	0.56	update graph label		

						max r2
	tZn	N: 42				0.965
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
13-Jun-95	444	1	0.0148	-2.176	6.096	0.965
19-May-94	470	2	0.0385	-1.769	6.153	0.961
17-May-91	475	3	0.0621	-1.537	6.163	0.957
27-Jun-95	583	4	0.0858	-1.367	6.368	0.956
4-May-94	585	5	0.1095	-1.229	6.372	0.952
7-Jun-94	725	6	0.1331	-1.112	6.586	0.950
23-Jun-94	743	7	0.1568	-1.008	6.611	0.946
11-Jul-95	791	8	0.1805	-0.914	6.673	0.942
13-Sep-94	800	9	0.2041	-0.827	6.685	0.937
25-Jul-95	818	10	0.2278	-0.746	6.707	0.932
21-Nov-95	820	11	0.2515	-0.670	6.709	0.927
13-Sep-95	926	12	0.2751	-0.597	6.831	0.923
25-Jul-94	984	13	0.2988	-0.528	6.892	0.917
14-Aug-95	1020	14	0.3225	-0.461	6.928	0.911
25-Apr-95	1060	15	0.3462	-0.396	6.966	0.905
16-Aug-94	1080	16	0.3698	-0.332	6.985	0.898
16-Aug-94	1080	17	0.3935	-0.270	6.985	0.891
8-Mar-95	1110	18	0.4172	-0.209	7.012	0.882
6-Oct-94	1120	19	0.4408	-0.149	7.021	0.872
27-Oct-93	1140	20	0.4645	-0.089	7.039	0.861
12-Apr-95	1170	21	0.4882	-0.030	7.065	0.848
29-Feb-96	1170	22	0.5118	0.030	7.065	0.835
27-Dec-95	1220	23	0.5355	0.089	7.107	0.822
7-Apr-94	1260	24	0.5592	0.149	7.139	0.807
5-Oct-91	1290	25	0.5828	0.209	7.162	0.792
9-Nov-97	1290	26	0.6065	0.270	7.162	0.779
18-Oct-95	1300	27	0.6302	0.332	7.170	0.788
30-Nov-93	1640	28	0.6538	0.396	7.402	0.888
9-Feb-95	1680	29	0.6775	0.461	7.427	0.895
28-Mar-96	1800	30	0.7012	0.528	7.496	0.926
18-Feb-94	1920	31	0.7249	0.597	7.560	0.948
16-Nov-94	1980	32	0.7485	0.670	7.591	0.949
17-Dec-93	2070	33	0.7722	0.746	7.635	0.949
17-Dec-93	2070	34	0.7959	0.827	7.635	0.939
17-Jan-96	2100	35	0.8195	0.914	7.650	0.933
22-Mar-95	2190	36	0.8432	1.008	7.692	0.950
20-Jan-94	2310	37	0.8669	1.112	7.745	0.957
20-Jan-94	2310	38	0.8905	1.229	7.745	0.952
8-Mar-94	2410	39	0.9142	1.367	7.787	
24-Mar-94	2440	40	0.9379	1.537	7.800	
13-Dec-94	2480	41	0.9615	1.769	7.816	
10-Jan-95	2710	42	0.9852	2.176	7.905	

update for EV, CV:

tZn		**CC284**			38	37.9
LN Analysis		**tZn**			0.93	0.932
Discharge, Q		**Q Data, EV=37.9 cfs CV=0.932**				
Avg:	**38**	**Q Data-based LN**				
SD:	**35**	u	lnQ	Q		
CV:	**0.93**	3	5.7	298		
Min:	**7**	0	3.32	28		
Max:	**172**	-3	0.95	3		
Median:	**24**					

					0.977	0.977
					38.5	38.5
u=mLn{Q}+b:					0.99	0.992
update for r2, EV, CV:	**r2=0.977, EV=38.5 cfs CV=0.992; max r2=0.98**					
r2 u,lnQ:	0.977	u	lnQ	Q		
slope, m:	1.208	3	5.79	328		
intercept, b:	-3.997	0	3.31	27		
N: 42		-3	0.83	2		
E[Q]:	38.5	Parameter Estimates				
SD[Q]:	38	from LN regression				
CV[Q]:	0.99	update graph label				

						max r2
		N: 42				0.983
Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
18-Feb-94	7.12	1	0.0148	-2.176	1.963	0.977
17-Dec-93	7.24	2	0.0385	-1.769	1.980	0.983
27-Oct-93	7.88	3	0.0621	-1.537	2.064	0.983
20-Jan-94	7.88	4	0.0858	-1.367	2.064	0.982
17-Dec-93	10.66	5	0.1095	-1.229	2.366	0.980
20-Jan-94	11.68	6	0.1331	-1.112	2.458	0.980
30-Nov-93	12.6	7	0.1568	-1.008	2.534	0.979
16-Aug-94	13.57	8	0.1805	-0.914	2.608	0.979
13-Sep-95	14.02	9	0.2041	-0.827	2.640	0.979
6-Oct-94	15.33	10	0.2278	-0.746	2.730	0.978
14-Aug-95	15.89	11	0.2515	-0.670	2.766	0.979
5-Oct-91	16.1	12	0.2751	-0.597	2.779	0.978
13-Sep-94	16.48	13	0.2988	-0.528	2.802	0.977
13-Dec-94	16.48	14	0.3225	-0.461	2.802	0.976
16-Nov-94	16.78	15	0.3462	-0.396	2.820	0.974
16-Aug-94	17.71	16	0.3698	-0.332	2.874	0.972
25-Jul-95	18.71	17	0.3935	-0.270	2.929	0.970
25-Jul-94	19.76	18	0.4172	-0.209	2.984	0.968
8-Mar-94	21.27	19	0.4408	-0.149	3.057	0.966
24-Mar-94	21.27	20	0.4645	-0.089	3.057	0.964
11-Jul-95	23.33	21	0.4882	-0.030	3.150	0.965
10-Jan-95	25.13	22	0.5118	0.030	3.224	0.964
23-Jun-94	33.34	23	0.5355	0.089	3.507	0.964
9-Nov-97	35	24	0.5592	0.149	3.555	0.964
18-Oct-95	35.3	25	0.5828	0.209	3.564	0.964
8-Mar-95	38.13	26	0.6065	0.270	3.641	0.963
27-Jun-95	38.13	27	0.6302	0.332	3.641	0.964
28-Mar-96	39.6	28	0.6538	0.396	3.679	0.964
9-Feb-95	39.63	29	0.6775	0.461	3.680	0.962
27-Dec-95	41.2	30	0.7012	0.528	3.718	0.958
25-Apr-95	47	31	0.7249	0.597	3.850	0.953
17-Jan-96	48.1	32	0.7485	0.670	3.873	0.953
7-Jun-94	51.06	33	0.7722	0.746	3.933	0.949
29-Feb-96	52.1	34	0.7959	0.827	3.953	0.947
12-Apr-95	58.64	35	0.8195	0.914	4.071	0.938
7-Apr-94	59.82	36	0.8432	1.008	4.091	0.936
4-May-94	59.82	37	0.8669	1.112	4.091	0.923
19-May-94	73.12	38	0.8905	1.229	4.292	0.894
22-Mar-95	80.94	39	0.9142	1.367	4.394	
21-Nov-95	95.4	40	0.9379	1.537	4.558	
13-Jun-95	158.04	41	0.9615	1.769	5.063	
17-May-91	171.6	42	0.9852	2.176	5.145	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC285 **Date:** 29-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,890	74	10	3	0.00	0.00	0.00	
SD:	618	89	6	2	1.00	1.00	1.00	
CV:	0.02	1.19	0.56	0.81				first:
Min:	33,375	12	1	0	-0.70	-1.61	-1.19	mid:
Max:	36,402	345	28	9	3.05	3.22	3.26	last:
Median:	36,033	30	10	2	-0.50	-0.05	-0.32	

dCd **CC285** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.22) update r2

r2 Q,[COC]:	0.27	[dCd]	Q	r2:	0.000	0.000
slope, m:	-0.03	12	12.0	m:	-0.0028	0.00000
intercept, b:	12.4	10	74.3	b:	174	3.95
N: 38		1	345			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.13) update r2

r2 lnQ,ln[COC]:	0.30	ln[dCd]	ln Q	[dCd]	Q
slope, m:	-0.40	2.62	2.48	14	12
intercept, b:	3.62	1.90	4.31	7	74
N: 38		1.28	5.84	4	345

for graph
dCd 0
CC285

N= 38

update for new data	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	199.5	2.7	2.9	5.30	0.99	1.06	1.41	-1.29	0.14
MFG	5-Oct-91	14.2	10.1	0.8	2.65	2.31	-0.26	-0.68	0.03	-0.87
IDEQ	24-Jun-97	118	3.1	2.0	4.77	1.13	0.68	0.49	-1.22	-0.30
IDEQ	23-Jul-97	73.3	5	2.0	4.29	1.61	0.68	-0.01	-0.88	-0.30
IDEQ	14-Aug-97	30.3	8.5	1.4	3.41	2.14	0.33	-0.50	-0.26	-0.57
IDEQ	4-Sep-97	26.7	11	1.6	3.28	2.40	0.46	-0.54	0.19	-0.48
IDEQ	16-Oct-97	21.9	6.4	0.8	3.09	1.86	-0.28	-0.59	-0.63	-0.87
URS	9-Nov-97	42.6	10.7	2.5	3.75	2.37	0.90	-0.36	0.13	-0.07
IDEQ	26-Nov-97	24.8	9.5	1.3	3.21	2.25	0.24	-0.56	-0.08	-0.63
IDEQ	19-Dec-97	20.4	14	1.5	3.02	2.64	0.43	-0.61	0.72	-0.50
IDEQ	22-Jan-98	18.7	0.9	0.1	2.93	-0.11	-2.40	-0.63	-1.61	-1.19
IDEQ	26-Feb-98	20.4	14	1.5	3.02	2.64	0.43	-0.61	0.72	-0.50
IDEQ	20-Mar-98	31.4	13	2.2	3.45	2.56	0.79	-0.48	0.54	-0.19
IDEQ	23-Apr-98	154	6.5	5.4	5.04	1.87	1.68	0.90	-0.62	1.32
URS	14-May-98	223	3.4	4.1	5.41	1.22	1.41	1.68	-1.17	0.70
IDEQ	28-May-98	293	5.2	8.2	5.68	1.65	2.10	2.47	-0.85	2.66
IDEQ	26-Jun-98	62	6.4	2.1	4.13	1.86	0.76	-0.14	-0.63	-0.22
IDEQ	28-Jul-98	33.8	10	1.8	3.52	2.30	0.60	-0.46	0.01	-0.37
IDEQ	26-Aug-98	26.2	11	1.6	3.27	2.40	0.44	-0.54	0.19	-0.50
IDEQ	26-Aug-98	26.2	9.8	1.4	3.27	2.28	0.32	-0.54	-0.03	-0.58
IDEQ	24-Sep-98	21.5	10	1.2	3.07	2.30	0.15	-0.59	0.01	-0.68
IDEQ	26-Oct-98	23.1	9.4	1.2	3.14	2.24	0.16	-0.58	-0.10	-0.68
USGS	27-Oct-98	12	13	0.8	2.48	2.56	-0.18	-0.70	0.54	-0.83
USGS	18-Nov-98	14	16	1.2	2.64	2.77	0.19	-0.68	1.08	-0.66
IDEQ	25-Nov-98	29.2	28	4.4	3.37	3.33	1.48	-0.51	3.22	0.86
USGS	15-Dec-98	19	19	1.9	2.94	2.94	0.66	-0.62	1.61	-0.31
IDEQ	15-Jan-99	34.4	17	3.1	3.54	2.83	1.15	-0.45	1.26	0.26
USGS	20-Jan-99	23	16	2.0	3.14	2.77	0.68	-0.58	1.08	-0.29
IDEQ	23-Feb-99	23.1	14	1.7	3.14	2.64	0.55	-0.58	0.72	-0.41
IDEQ	8-Mar-99	29.2	14	2.2	3.37	2.64	0.79	-0.51	0.72	-0.19
USGS	23-Mar-99	88	20	9.5	4.48	3.00	2.25	0.15	1.79	3.26
USGS	21-Apr-99	122	8.9	5.8	4.80	2.19	1.77	0.54	-0.19	1.54
USGS	5-May-99	77	6	2.5	4.34	1.79	0.91	0.03	-0.70	-0.05
USGS	24-May-99	329	4.2	7.4	5.80	1.44	2.01	2.87	-1.03	2.29
USGS	15-Jun-99	345	2.4	4.5	5.84	0.88	1.49	3.05	-1.35	0.88
USGS	8-Jul-99	117	3	1.9	4.76	1.10	0.64	0.48	-1.24	-0.34
USGS	5-Aug-99	31	7	1.2	3.43	1.95	0.15	-0.49	-0.53	-0.68
USGS	30-Aug-99	24	9	1.2	3.18	2.20	0.15	-0.57	-0.17	-0.68

dCd

Concentration over time analysis r2 Slope, m

dCd CC285 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.039** **0.00022**

Time	Ln[COC]	[COC]
17-May-91	1.55	5
26-Aug-98	2.14	8
30-Aug-99	2.22	9

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

Load over time analysis

dCd CC285 **Load over time**

LnLoad=mTime+b All data r2, m: **0.027** **0.00021**

Time	LnLoad	Load
17-May-91	0.13	1
26-Aug-98	0.70	2
30-Aug-99	0.78	2

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

max r2: 0.585 max r2: 0.909

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.039	0.00022	-5.76	0.027	0.00021	-7.04
0.001	0.00004	0.73	0.087	0.00052	-17.90
0.018	0.00040	-12.31	0.075	0.00097	-34.34
0.004	0.00019	-4.76	0.083	0.00107	-38.03
0.000	0.00007	-0.19	0.092	0.00119	-42.21
0.000	0.00006	-0.10	0.088	0.00122	-43.40
0.002	0.00014	-2.98	0.088	0.00130	-46.13
0.000	0.00006	0.15	0.062	0.00113	-39.88
0.001	0.00013	-2.60	0.076	0.00132	-47.03
0.002	0.00018	-4.41	0.066	0.00131	-46.39
0.009	0.00042	-12.92	0.063	0.00135	-48.18
0.024	-0.00059	23.57	0.000	0.00006	-1.14
0.014	-0.00047	19.27	0.001	-0.00016	6.52
0.007	-0.00035	14.93	0.002	-0.00023	9.36
0.017	-0.00059	23.62	0.001	0.00018	-5.82
0.080	-0.00130	49.37	0.011	0.00055	-19.20
0.164	-0.00196	73.18	0.089	0.00156	-55.57
0.257	-0.00261	96.87	0.102	0.00180	-64.21
0.297	-0.00301	111.40	0.102	0.00192	-68.80
0.325	-0.00336	123.98	0.089	0.00190	-68.12
0.389	-0.00400	147.02	0.066	0.00176	-62.85
0.456	-0.00468	171.89	0.034	0.00133	-47.15
0.536	-0.00542	198.89	0.011	0.00076	-26.75
0.580	-0.00613	224.46	0.005	-0.00054	20.43
0.585	-0.00661	242.02	0.056	-0.00180	66.40
0.509	-0.00628	230.00	0.030	-0.00145	53.64
0.452	-0.00633	231.71	0.080	-0.00262	96.23
0.390	-0.00620	227.08	0.085	-0.00302	110.58
0.310	-0.00605	221.69	0.195	-0.00525	191.52
0.231	-0.00558	204.65	0.420	-0.00848	309.20
0.123	-0.00437	160.59	0.753	-0.01310	476.79
0.008	0.00097	-33.57	0.658	-0.01270	462.35
0.203	0.00520	-187.29	0.578	-0.01276	464.43
0.585	0.01089	-394.45	0.909	-0.02026	737.55

update for EV, CV:

dCd **CC285**

LN Analysis **dCd**

Load **Load Data, EV=2 lbs/day CV=.88**

Load Data-based LN

Avg:	**3**			
SD:	**2**	u	ln dCd Load	dCd Load
CV:	**0.81**	3	2.8	17
Min:	**0**	0	0.70	2
Max:	**9**	-3	-1.44	0.2
Median:	**2**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.883, EV=2.9 lbs/day CV=1.10; max r2=0.966**

r2 u,lnLoad:	0.883	u	lnLoad	Load
slope, m:	1.121	3	3.34	28
intercept, b:	-0.747	0	0.67	2
N: 38		-3	-2.01	0.13
E[Load]:	2.9	Parameter Estimates		
SD[Load]:	3	from LN regression		
CV[Load]:	1.10	update graph label		

N: 38

max r2 0.966

Date	**dCd Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
22-Jan-98	**0.1**	1	0.0163	-2.136	-2.402	0.883
16-Oct-97	**0.8**	2	0.0425	-1.723	-0.282	0.959
5-Oct-91	**0.8**	3	0.0686	-1.486	-0.259	0.959
27-Oct-98	**0.8**	4	0.0948	-1.312	-0.175	0.956
24-Sep-98	**1.2**	5	0.1209	-1.170	0.146	0.952
30-Aug-99	**1.2**	6	0.1471	-1.049	0.150	0.958
5-Aug-99	**1.2**	7	0.1732	-0.942	0.155	0.961
26-Oct-98	**1.2**	8	0.1993	-0.844	0.155	0.963
18-Nov-98	**1.2**	9	0.2255	-0.754	0.187	0.963
26-Nov-97	**1.3**	10	0.2516	-0.669	0.237	0.962
26-Aug-98	**1.4**	11	0.2778	-0.589	0.323	0.961
14-Aug-97	**1.4**	12	0.3039	-0.513	0.326	0.962
19-Dec-97	**1.5**	13	0.3301	-0.440	0.430	0.961
26-Feb-98	**1.5**	14	0.3562	-0.369	0.430	0.964
26-Aug-98	**1.6**	15	0.3824	-0.299	0.439	0.964
4-Sep-97	**1.6**	16	0.4085	-0.231	0.457	0.964
23-Feb-99	**1.7**	17	0.4346	-0.165	0.554	0.962
28-Jul-98	**1.8**	18	0.4608	-0.098	0.598	0.962
8-Jul-99	**1.9**	19	0.4869	-0.033	0.636	0.964
15-Dec-98	**1.9**	20	0.5131	0.033	0.664	0.965
24-Jun-97	**2.0**	21	0.5392	0.098	0.677	0.966
23-Jul-97	**2.0**	22	0.5654	0.165	0.679	0.965
20-Jan-99	**2.0**	23	0.5915	0.231	0.683	0.962
26-Jun-98	**2.1**	24	0.6176	0.299	0.758	0.957
20-Mar-98	**2.2**	25	0.6438	0.369	0.787	0.952
8-Mar-99	**2.2**	26	0.6699	0.440	0.788	0.945
9-Nov-97	**2.5**	27	0.6961	0.513	0.897	0.940
5-May-99	**2.5**	28	0.7222	0.589	0.910	0.932
17-May-91	**2.9**	29	0.7484	0.669	1.064	0.935
15-Jan-99	**3.1**	30	0.7745	0.754	1.146	0.934
14-May-98	**4.1**	31	0.8007	0.844	1.406	0.950
25-Nov-98	**4.4**	32	0.8268	0.942	1.481	0.937
15-Jun-99	**4.5**	33	0.8529	1.049	1.494	0.917
23-Apr-98	**5.4**	34	0.8791	1.170	1.684	0.920
21-Apr-99	**5.8**	35	0.9052	1.312	1.765	
24-May-99	**7.4**	36	0.9314	1.486	2.006	
28-May-98	**8.2**	37	0.9575	1.723	2.104	
23-Mar-99	**9.5**	38	0.9837	2.136	2.248	

update for EV, CV:

dCd **CC285**
LN Analysis **dCd**

Concentration **Conc. Data, EV=10 ug/L CV=.56**

Avg:	**10**	**Data-based LN**		
SD:	**6**	u	ln[dCd]	[dCd]
CV:	**0.56**	3	3.7	42
Min:	**0.9**	0	2.16	9
Max:	**28**	-3	0.58	2
Median:	**10**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.930, EV=10.8 ug/L CV=0.85; max r2=0.981**

r2 u,lnConc:	0.930	u	lnConc.	Conc.
slope, m:	1.351	3	4.32	76
intercept, b:	-2.842	0	2.10	8
N: 38		-3	-0.12	1
E[Conc]:	10.8	Parameter Estimates		
SD[Conc]:	9	from LN regression		
CV[Conc]:	0.85	update graph label		

						max r2 0.981
	dCd	N: 38				
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
22-Jan-98	0.9	1	0.0163	-2.136	-0.105	0.930
15-Jun-99	2.4	2	0.0425	-1.723	0.875	0.953
17-May-91	2.7	3	0.0686	-1.486	0.993	0.948
8-Jul-99	3	4	0.0948	-1.312	1.099	0.946
24-Jun-97	3.1	5	0.1209	-1.170	1.131	0.945
14-May-98	3.4	6	0.1471	-1.049	1.224	0.951
24-May-99	4.2	7	0.1732	-0.942	1.435	0.963
23-Jul-97	5	8	0.1993	-0.844	1.609	0.969
28-May-98	5.2	9	0.2255	-0.754	1.649	0.969
5-May-99	6	10	0.2516	-0.669	1.792	0.972
16-Oct-97	6.4	11	0.2778	-0.589	1.856	0.971
26-Jun-98	6.4	12	0.3039	-0.513	1.856	0.969
23-Apr-98	6.5	13	0.3301	-0.440	1.872	0.970
5-Aug-99	7	14	0.3562	-0.369	1.946	0.976
14-Aug-97	8.5	15	0.3824	-0.299	2.140	0.981
21-Apr-99	8.9	16	0.4085	-0.231	2.186	0.979
30-Aug-99	9	17	0.4346	-0.165	2.197	0.978
26-Oct-98	9.4	18	0.4608	-0.098	2.241	0.977
26-Nov-97	9.5	19	0.4869	-0.033	2.251	0.976
26-Aug-98	9.8	20	0.5131	0.033	2.282	0.974
28-Jul-98	10	21	0.5392	0.098	2.303	0.972
24-Sep-98	10	22	0.5654	0.165	2.303	0.970
5-Oct-91	10.1	23	0.5915	0.231	2.313	0.966
9-Nov-97	10.7	24	0.6176	0.299	2.370	0.963
4-Sep-97	11	25	0.6438	0.369	2.398	0.958
26-Aug-98	11	26	0.6699	0.440	2.398	0.953
20-Mar-98	13	27	0.6961	0.513	2.565	0.953
27-Oct-98	13	28	0.7222	0.589	2.565	0.954
19-Dec-97	14	29	0.7484	0.669	2.639	0.949
26-Feb-98	14	30	0.7745	0.754	2.639	0.961
23-Feb-99	14	31	0.8007	0.844	2.639	0.966
8-Mar-99	14	32	0.8268	0.942	2.639	0.962
18-Nov-98	16	33	0.8529	1.049	2.773	0.950
20-Jan-99	16	34	0.8791	1.170	2.773	0.966
15-Jan-99	17	35	0.9052	1.312	2.833	
15-Dec-98	19	36	0.9314	1.486	2.944	
23-Mar-99	20	37	0.9575	1.723	2.996	
25-Nov-98	28	38	0.9837	2.136	3.332	

update for EV, CV:

dCd **CC285**
LN Analysis **dCd**

Discharge, Q **Q Data, EV=70 cfs CV=1.28**

Q Data-based LN

		u	lnQ	Q
Avg:	**74**			
SD:	**89**			
CV:	**1.19**	3	6.7	803
Min:	**12**	0	3.86	48
Max:	**345**	-3	1.04	3
Median:	**30**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.886, EV=76.0 cfs CV=1.40; max r2=0.950**

r2 u,lnQ:	0.886	u	lnQ	Q
slope, m:	0.959	3	6.91	1007
intercept, b:	-3.635	0	3.79	44
N: 38		-3	0.66	2
E[Q]:	76.0	Parameter Estimates		
SD[Q]:	107	from LN regression		
CV[Q]:	1.40	update graph label		

N: 38

max r2
0.950

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
27-Oct-98	12	1	0.0163	-2.136	2.485	0.886
18-Nov-98	14	2	0.0425	-1.723	2.639	0.896
5-Oct-91	14.2	3	0.0686	-1.486	2.653	0.902
22-Jan-98	18.7	4	0.0948	-1.312	2.929	0.903
15-Dec-98	19	5	0.1209	-1.170	2.944	0.912
19-Dec-97	20.4	6	0.1471	-1.049	3.016	0.919
26-Feb-98	20.4	7	0.1732	-0.942	3.016	0.926
24-Sep-98	21.5	8	0.1993	-0.844	3.068	0.931
16-Oct-97	21.9	9	0.2255	-0.754	3.086	0.937
20-Jan-99	23	10	0.2516	-0.669	3.135	0.941
26-Oct-98	23.1	11	0.2778	-0.589	3.140	0.945
23-Feb-99	23.1	12	0.3039	-0.513	3.140	0.948
30-Aug-99	24	13	0.3301	-0.440	3.178	0.949
26-Nov-97	24.8	14	0.3562	-0.369	3.211	0.950
26-Aug-98	26.2	15	0.3824	-0.299	3.266	0.950
26-Aug-98	26.2	16	0.4085	-0.231	3.266	0.949
4-Sep-97	26.7	17	0.4346	-0.165	3.285	0.947
25-Nov-98	29.2	18	0.4608	-0.098	3.374	0.943
8-Mar-99	29.2	19	0.4869	-0.033	3.374	0.939
14-Aug-97	30.3	20	0.5131	0.033	3.411	0.933
5-Aug-99	31	21	0.5392	0.098	3.434	0.926
20-Mar-98	31.4	22	0.5654	0.165	3.447	0.918
28-Jul-98	33.8	23	0.5915	0.231	3.520	0.911
15-Jan-99	34.4	24	0.6176	0.299	3.538	0.906
9-Nov-97	42.6	25	0.6438	0.369	3.752	0.915
26-Jun-98	62	26	0.6699	0.440	4.127	0.928
23-Jul-97	73.3	27	0.6961	0.513	4.295	0.921
5-May-99	77	28	0.7222	0.589	4.344	0.910
23-Mar-99	88	29	0.7484	0.669	4.477	0.901
8-Jul-99	117	30	0.7745	0.754	4.762	0.892
24-Jun-97	118	31	0.8007	0.844	4.771	0.868
21-Apr-99	122	32	0.8268	0.942	4.804	0.836
23-Apr-98	154	33	0.8529	1.049	5.037	0.829
17-May-91	199.5	34	0.8791	1.170	5.296	0.820
14-May-98	223	35	0.9052	1.312	5.407	
28-May-98	293	36	0.9314	1.486	5.680	
24-May-99	329	37	0.9575	1.723	5.796	
15-Jun-99	345	38	0.9837	2.136	5.844	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC285 **Date:** 30-May-00
Chemical: dPb **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,893	73	35	13	0.00	0.00	0.00	
SD:	611	88	18	18	1.00	1.00	1.00	
CV:	0.02	1.20	0.53	1.37				first:
Min:	33,375	12	2	0.2	-0.70	-1.82	-0.72	mid:
Max:	36,402	345	91	75	3.10	3.03	3.43	last:
Median:	36,033	30	34	7	-0.49	-0.06	-0.37	

dPb **CC285** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.001) update r2 r2: 0.000 0.000

r2 Q,[COC]:	0.005	[dPb]	Q	m:	-0.0031	-0.00001
slope, m:	0.0	36	12.0	b:	184	4.01
intercept, b:	36.2	35	73.2			
N: 39		31	345			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.01) update r2

r2 lnQ,ln[COC]:	0.00	ln[dPb]	ln Q	[dPb]	Q
slope, m:	-0.01	3.38	2.48	29	12
intercept, b:	3.40	3.37	4.29	29	73
N: 39		3.35	5.84	29	345

for graph
dPb 0
CC285

N= 39

update for new data	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	199.5	4	4.3	5.30	1.39	1.46	1.44	-1.69	-0.49
MFG	5-Oct-91	14.2	8	0.6	2.65	2.08	-0.49	-0.67	-1.47	-0.70
IDEQ	24-Jun-97	118	27	17.1	4.77	3.30	2.84	0.51	-0.44	0.22
IDEQ	23-Jul-97	73.3	36	14.2	4.29	3.58	2.65	0.00	0.05	0.05
IDEQ	14-Aug-97	30.3	80	13.0	3.41	4.38	2.57	-0.49	2.43	-0.01
IDEQ	4-Sep-97	26.7	43	6.2	3.28	3.76	1.82	-0.53	0.43	-0.39
IDEQ	16-Oct-97	21.9	45	5.3	3.09	3.81	1.67	-0.58	0.54	-0.44
URS	9-Nov-97	42.6	47.7	10.9	3.75	3.86	2.39	-0.35	0.68	-0.13
IDEQ	26-Nov-97	24.8	70	9.3	3.21	4.25	2.23	-0.55	1.89	-0.21
IDEQ	19-Dec-97	20.4	61	6.7	3.02	4.11	1.90	-0.60	1.40	-0.36
IDEQ	22-Jan-98	18.7	1.5	0.2	2.93	0.41	-1.89	-0.62	-1.82	-0.72
IDEQ	26-Feb-98	20.4	38	4.2	3.02	3.64	1.43	-0.60	0.16	-0.50
IDEQ	20-Mar-98	31.4	39	6.6	3.45	3.66	1.89	-0.48	0.21	-0.37
IDEQ	23-Apr-98	154	91	75.4	5.04	4.51	4.32	0.92	3.03	3.43
URS	14-May-98	223	61.2	73.4	5.41	4.11	4.30	1.71	1.41	3.33
IDEQ	28-May-98	293	35	55.2	5.68	3.56	4.01	2.50	-0.01	2.32
IDEQ	26-Jun-98	62	34	11.3	4.13	3.53	2.43	-0.13	-0.06	-0.10
IDEQ	28-Jul-98	33.8	41	7.5	3.52	3.71	2.01	-0.45	0.32	-0.32
IDEQ	28-Jul-98	33.8	43	7.8	3.52	3.76	2.06	-0.45	0.43	-0.30
IDEQ	26-Aug-98	26.2	34	4.8	3.27	3.53	1.57	-0.54	-0.06	-0.47
IDEQ	26-Aug-98	26.2	36	5.1	3.27	3.58	1.62	-0.54	0.05	-0.45
IDEQ	24-Sep-98	21.5	46	5.3	3.07	3.83	1.67	-0.59	0.59	-0.44
IDEQ	26-Oct-98	23.1	30	3.7	3.14	3.40	1.32	-0.57	-0.28	-0.52
USGS	27-Oct-98	12	31	2.0	2.48	3.43	0.69	-0.70	-0.22	-0.62
USGS	18-Nov-98	14	22	1.7	2.64	3.09	0.51	-0.67	-0.71	-0.64
IDEQ	25-Nov-98	29.2	43	6.8	3.37	3.76	1.91	-0.50	0.43	-0.36
USGS	15-Dec-98	19	22	2.2	2.94	3.09	0.81	-0.62	-0.71	-0.61
IDEQ	15-Jan-99	34.4	34	6.3	3.54	3.53	1.84	-0.44	-0.06	-0.38
USGS	20-Jan-99	23	24	3.0	3.14	3.18	1.09	-0.57	-0.60	-0.57
IDEQ	23-Feb-99	23.1	24	3.0	3.14	3.18	1.09	-0.57	-0.60	-0.57
IDEQ	8-Mar-99	29.2	30	4.7	3.37	3.40	1.55	-0.50	-0.28	-0.47
USGS	23-Mar-99	88	37	17.5	4.48	3.61	2.86	0.17	0.10	0.24
USGS	21-Apr-99	122	24	15.8	4.80	3.18	2.76	0.56	-0.60	0.14
USGS	5-May-99	77	19	7.9	4.34	2.94	2.06	0.04	-0.87	-0.30
USGS	24-May-99	329	25	44.3	5.80	3.22	3.79	2.91	-0.55	1.71
USGS	15-Jun-99	345	19	35.3	5.84	2.94	3.56	3.10	-0.87	1.22
USGS	8-Jul-99	117	16	10.1	4.76	2.77	2.31	0.50	-1.04	-0.17
USGS	5-Aug-99	31	21	3.5	3.43	3.04	1.25	-0.48	-0.77	-0.54
USGS	30-Aug-99	24	27	3.5	3.18	3.30	1.25	-0.56	-0.44	-0.54

dPb

Concentration over time analysis r2 Slope, m

dPb CC285 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.153** **0.00047**

Time	Ln[COC]	[COC]
17-May-91	2.18	9
26-Aug-98	3.44	31
30-Aug-99	3.61	37

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

Load over time analysis

dPb CC285 **Load over time**

LnLoad=mTime+b All data r2, m: **0.058** **0.00047**

Time	LnLoad	Load
17-May-91	0.75	2
26-Aug-98	1.99	7
30-Aug-99	2.16	9

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

max r2: 0.587 max r2: 0.923

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rov		
0.153	0.00047	-13.63	0.058	0.00047	-14.85
0.022	0.00022	-4.46	0.071	0.00070	-23.06
0.088	-0.00085	33.95	0.003	-0.00027	11.82
0.106	-0.00098	38.66	0.000	-0.00009	5.25
0.111	-0.00105	41.30	0.000	0.00008	-0.90
0.078	-0.00090	35.94	0.002	0.00026	-7.59
0.071	-0.00091	36.12	0.002	0.00026	-7.35
0.061	-0.00089	35.35	0.001	0.00020	-5.12
0.049	-0.00083	33.39	0.003	0.00037	-11.53
0.024	-0.00061	25.21	0.005	0.00054	-17.45
0.008	-0.00037	16.64	0.006	0.00060	-19.66
0.548	-0.00176	66.87	0.024	-0.00106	40.46
0.569	-0.00189	71.85	0.044	-0.00150	56.46
0.587	-0.00203	76.93	0.056	-0.00182	67.72
0.552	-0.00172	65.56	0.014	-0.00087	33.53
0.495	-0.00153	58.63	0.002	0.00031	-9.42
0.496	-0.00162	61.91	0.066	0.00169	-59.36
0.502	-0.00172	65.54	0.112	0.00232	-82.04
0.463	-0.00168	64.04	0.139	0.00273	-97.04
0.404	-0.00158	60.53	0.183	0.00335	-119.67
0.384	-0.00162	61.79	0.191	0.00365	-130.31
0.344	-0.00161	61.56	0.209	0.00414	-148.32
0.247	-0.00129	49.99	0.232	0.00472	-169.05
0.227	-0.00131	50.56	0.221	0.00488	-175.07
0.193	-0.00129	49.80	0.159	0.00431	-154.23
0.292	-0.00171	65.26	0.082	0.00310	-110.36
0.153	-0.00114	44.70	0.093	0.00369	-131.66
0.256	-0.00166	63.52	0.026	0.00204	-71.96
0.153	-0.00129	50.04	0.018	0.00189	-66.47
0.194	-0.00169	64.68	0.003	-0.00089	34.51
0.236	-0.00212	80.03	0.101	-0.00502	184.58
0.143	-0.00180	68.67	0.364	-0.01053	384.87
0.010	0.00039	-10.93	0.399	-0.01328	484.99
0.104	0.00141	-48.04	0.445	-0.01655	603.68
0.054	0.00125	-42.35	0.923	-0.02991	1089.65

update for EV, CV:

dPb **CC285**

LN Analysis **dPb**

Load **Load Data, EV=13 lbs/day CV=1.43**

Load Data-based LN

		u	ln dPb Load	dPb Load
Avg:	**13**			
SD:	**18**	3	5.1	170
CV:	**1.37**	0	2.05	8
Min:	**0.2**	-3	-1.03	0.4
Max:	**75**			
Median:	**7**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.934, EV=15.4 lbs/day CV=2.01; max r2=0.959**

r2 u,lnLoad:	0.934	u	lnLoad	Load
slope, m:	0.787	3	5.74	311
intercept, b:	-1.515	0	1.93	7
N: 39		-3	-1.89	0.15
E[Load]:	15.4	Parameter Estimates		
SD[Load]:	31	from LN regression		
CV[Load]:	2.01	update graph label		

N: 39

max r2 0.959

	Date	dPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
ws	update and rank for new data						
	22-Jan-98	**0.2**	1	0.0159	-2.146	-1.891	0.934
	5-Oct-91	**0.6**	2	0.0414	-1.735	-0.492	0.957
	18-Nov-98	**1.7**	3	0.0669	-1.499	0.505	0.959
	27-Oct-98	**2.0**	4	0.0924	-1.326	0.694	0.956
	15-Dec-98	**2.2**	5	0.1178	-1.186	0.810	0.954
	20-Jan-99	**3.0**	6	0.1433	-1.066	1.088	0.951
	23-Feb-99	**3.0**	7	0.1688	-0.959	1.093	0.952
	30-Aug-99	**3.5**	8	0.1943	-0.862	1.249	0.951
	5-Aug-99	**3.5**	9	0.2197	-0.773	1.253	0.952
	26-Oct-98	**3.7**	10	0.2452	-0.690	1.316	0.952
	26-Feb-98	**4.2**	11	0.2707	-0.611	1.428	0.951
	17-May-91	**4.3**	12	0.2962	-0.535	1.457	0.952
	8-Mar-99	**4.7**	13	0.3217	-0.463	1.550	0.953
	26-Aug-98	**4.8**	14	0.3471	-0.393	1.567	0.954
	26-Aug-98	**5.1**	15	0.3726	-0.325	1.624	0.954
	16-Oct-97	**5.3**	16	0.3981	-0.258	1.668	0.955
	24-Sep-98	**5.3**	17	0.4236	-0.193	1.672	0.955
	4-Sep-97	**6.2**	18	0.4490	-0.128	1.821	0.953
	15-Jan-99	**6.3**	19	0.4745	-0.064	1.839	0.955
	20-Mar-98	**6.6**	20	0.5000	0.000	1.885	0.955
	19-Dec-97	**6.7**	21	0.5255	0.064	1.901	0.955
	25-Nov-98	**6.8**	22	0.5510	0.128	1.910	0.953
	28-Jul-98	**7.5**	23	0.5764	0.193	2.009	0.950
	28-Jul-98	**7.8**	24	0.6019	0.258	2.057	0.946
	5-May-99	**7.9**	25	0.6274	0.325	2.063	0.941
	26-Nov-97	**9.3**	26	0.6529	0.393	2.234	0.934
	8-Jul-99	**10.1**	27	0.6783	0.463	2.310	0.927
	9-Nov-97	**10.9**	28	0.7038	0.535	2.392	0.918
	26-Jun-98	**11.3**	29	0.7293	0.611	2.428	0.907
	14-Aug-97	**13.0**	30	0.7548	0.690	2.568	0.891
	23-Jul-97	**14.2**	31	0.7803	0.773	2.653	0.871
	21-Apr-99	**15.8**	32	0.8057	0.862	2.757	0.842
	24-Jun-97	**17.1**	33	0.8312	0.959	2.841	0.801
	23-Mar-99	**17.5**	34	0.8567	1.066	2.863	0.743
	15-Jun-99	**35.3**	35	0.8822	1.186	3.563	0.843
	24-May-99	**44.3**	36	0.9076	1.326	3.790	
	28-May-98	**55.2**	37	0.9331	1.499	4.010	
	14-May-98	**73.4**	38	0.9586	1.735	4.296	
	23-Apr-98	**75.4**	39	0.9841	2.146	4.323	

update for EV, CV:

dPb
LN Analysis

CC285
dPb

Concentration

Conc. Data, EV=35 ug/L CV=.53

Data-based LN

		u	ln[dPb]	[dPb]
Avg:	**35**			
SD:	**18**			
CV:	**0.53**	3	4.9	137
Min:	**2**	0	3.44	31
Max:	**91**	-3	1.96	7
Median:	**34**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.798, EV=42.0 ug/L CV=1.04; max r2=0.986**

r2 u,lnConc:	0.798	u	lnConc.	Conc.
slope, m:	1.165	3	5.95	382
intercept, b:	-3.925	0	3.37	29
N: 39		-3	0.79	2
E[Conc]:	42.0	Parameter Estimates		
SD[Conc]:	44	from LN regression		
CV[Conc]:	1.04	update graph label		

Date	dPb Concentration ug/L Ranked	i rank	N: 39 i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.986 r2 forward
update and rank for new data						
22-Jan-98	1.5	1	0.0159	-2.146	0.405	0.798
17-May-91	4	2	0.0414	-1.735	1.386	0.863
5-Oct-91	8	3	0.0669	-1.499	2.079	0.939
8-Jul-99	16	4	0.0924	-1.326	2.773	0.986
5-May-99	19	5	0.1178	-1.186	2.944	0.985
15-Jun-99	19	6	0.1433	-1.066	2.944	0.984
5-Aug-99	21	7	0.1688	-0.959	3.045	0.983
18-Nov-98	22	8	0.1943	-0.862	3.091	0.982
15-Dec-98	22	9	0.2197	-0.773	3.091	0.981
20-Jan-99	24	10	0.2452	-0.690	3.178	0.979
23-Feb-99	24	11	0.2707	-0.611	3.178	0.978
21-Apr-99	24	12	0.2962	-0.535	3.178	0.976
24-May-99	25	13	0.3217	-0.463	3.219	0.974
24-Jun-97	27	14	0.3471	-0.393	3.296	0.972
30-Aug-99	27	15	0.3726	-0.325	3.296	0.970
26-Oct-98	30	16	0.3981	-0.258	3.401	0.967
8-Mar-99	30	17	0.4236	-0.193	3.401	0.966
27-Oct-98	31	18	0.4490	-0.128	3.434	0.964
26-Jun-98	34	19	0.4745	-0.064	3.526	0.961
26-Aug-98	34	20	0.5000	0.000	3.526	0.964
15-Jan-99	34	21	0.5255	0.064	3.526	0.966
28-May-98	35	22	0.5510	0.128	3.555	0.965
23-Jul-97	36	23	0.5764	0.193	3.584	0.965
26-Aug-98	36	24	0.6019	0.258	3.584	0.966
23-Mar-99	37	25	0.6274	0.325	3.611	0.964
26-Feb-98	38	26	0.6529	0.393	3.638	0.962
20-Mar-98	39	27	0.6783	0.463	3.664	0.959
28-Jul-98	41	28	0.7038	0.535	3.714	0.956
4-Sep-97	43	29	0.7293	0.611	3.761	0.954
28-Jul-98	43	30	0.7548	0.690	3.761	0.957
25-Nov-98	43	31	0.7803	0.773	3.761	0.953
16-Oct-97	45	32	0.8057	0.862	3.807	0.942
24-Sep-98	46	33	0.8312	0.959	3.829	0.927
9-Nov-97	47.7	34	0.8567	1.066	3.865	0.911
19-Dec-97	61	35	0.8822	1.186	4.111	0.965
14-May-98	61.2	36	0.9076	1.326	4.114	
26-Nov-97	70	37	0.9331	1.499	4.248	
14-Aug-97	80	38	0.9586	1.735	4.382	
23-Apr-98	91	39	0.9841	2.146	4.511	

update for EV, CV:

dPb		**CC285**		
LN Analysis		**dPb**		
Discharge, Q		**Q Data, EV=69 cfs CV=1.28**		
Avg:	**73**	**Q Data-based LN**		
SD:	**88**	u	lnQ	Q
CV:	**1.20**	3	6.7	796
Min:	**12**	0	3.85	47
Max:	**345**	-3	1.02	3
Median:	**30**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.884, EV=74.5 cfs CV=1.37; max r2=0.950**

r2 u,lnQ:	0.884	u	lnQ	Q
slope, m:	0.971	3	6.87	963
intercept, b:	-3.672	0	3.78	44
N: 39		-3	0.69	2.0
E[Q]:	74.5	Parameter Estimates		
SD[Q]:	102	from LN regression		
CV[Q]:	1.37	update graph label		

N: 39

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.950 r2 forward
update and rank for new data						
27-Oct-98	12	1	0.0159	-2.146	2.485	0.884
18-Nov-98	14	2	0.0414	-1.735	2.639	0.894
5-Oct-91	14.2	3	0.0669	-1.499	2.653	0.900
22-Jan-98	18.7	4	0.0924	-1.326	2.929	0.901
15-Dec-98	19	5	0.1178	-1.186	2.944	0.910
19-Dec-97	20.4	6	0.1433	-1.066	3.016	0.916
26-Feb-98	20.4	7	0.1688	-0.959	3.016	0.924
24-Sep-98	21.5	8	0.1943	-0.862	3.068	0.929
16-Oct-97	21.9	9	0.2197	-0.773	3.086	0.934
20-Jan-99	23	10	0.2452	-0.690	3.135	0.939
26-Oct-98	23.1	11	0.2707	-0.611	3.140	0.943
23-Feb-99	23.1	12	0.2962	-0.535	3.140	0.946
30-Aug-99	24	13	0.3217	-0.463	3.178	0.948
26-Nov-97	24.8	14	0.3471	-0.393	3.211	0.949
26-Aug-98	26.2	15	0.3726	-0.325	3.266	0.949
26-Aug-98	26.2	16	0.3981	-0.258	3.266	0.950
4-Sep-97	26.7	17	0.4236	-0.193	3.285	0.948
25-Nov-98	29.2	18	0.4490	-0.128	3.374	0.946
8-Mar-99	29.2	19	0.4745	-0.064	3.374	0.943
14-Aug-97	30.3	20	0.5000	0.000	3.411	0.939
5-Aug-99	31	21	0.5255	0.064	3.434	0.934
20-Mar-98	31.4	22	0.5510	0.128	3.447	0.927
28-Jul-98	33.8	23	0.5764	0.193	3.520	0.919
28-Jul-98	33.8	24	0.6019	0.258	3.520	0.910
15-Jan-99	34.4	25	0.6274	0.325	3.538	0.905
9-Nov-97	42.6	26	0.6529	0.393	3.752	0.914
26-Jun-98	62	27	0.6783	0.463	4.127	0.927
23-Jul-97	73.3	28	0.7038	0.535	4.295	0.921
5-May-99	77	29	0.7293	0.611	4.344	0.909
23-Mar-99	88	30	0.7548	0.690	4.477	0.901
8-Jul-99	117	31	0.7803	0.773	4.762	0.891
24-Jun-97	118	32	0.8057	0.862	4.771	0.868
21-Apr-99	122	33	0.8312	0.959	4.804	0.836
23-Apr-98	154	34	0.8567	1.066	5.037	0.828
17-May-91	199.5	35	0.8822	1.186	5.296	0.819
14-May-98	223	36	0.9076	1.326	5.407	
28-May-98	293	37	0.9331	1.499	5.680	
24-May-99	329	38	0.9586	1.735	5.796	
15-Jun-99	345	39	0.9841	2.146	5.844	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC285 **Date:** 23-May-00
Chemical: dZn **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,890	74	1,381	366	0.00	0.00	0.00	
SD:	618	89	804	299	1.00	1.00	1.00	
CV:	0.02	1.19	0.58	0.82				first:
Min:	33,375	12	151	15	-0.70	-1.53	-1.17	mid:
Max:	36,402	345	3,950	1,382	3.05	3.20	3.40	last:
Median:	36,033	30	1,225	274	-0.50	-0.19	-0.31	

dZn **CC285** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.19) update r2

r2 Q,[COC]:	0.24	[dZn]	Q	r2:	0.000	0.000
slope, m:	-4.4	1,655	12.0	m:	-0.0028	0.00000
intercept, b:	1708.2	1,381	74.3	b:	174	3.95
N: 38		190	345			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.12) update r2

r2 lnQ,ln[COC]:	0.28	ln[dZn]	ln Q	[dZn]	Q
slope, m:	-0.37	7.53	2.48	1,861	12
intercept, b:	8.46	6.85	4.31	941	74
N: 38		6.27	5.84	530	345

for graph
dZn 0
CC285

N= 38

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	199.5	555	596	5.30	6.32	6.39	1.41	-1.03	0.77
MFG	5-Oct-91	14.2	1740	133	2.65	7.46	4.89	-0.68	0.45	-0.78
IDEQ	24-Jun-97	118	505	321	4.77	6.22	5.77	0.49	-1.09	-0.15
IDEQ	23-Jul-97	73.3	784	309	4.29	6.66	5.73	-0.01	-0.74	-0.19
IDEQ	14-Aug-97	30.3	1230	201	3.41	7.11	5.30	-0.50	-0.19	-0.55
IDEQ	4-Sep-97	26.7	1440	207	3.28	7.27	5.33	-0.54	0.07	-0.53
IDEQ	16-Oct-97	21.9	736	87	3.09	6.60	4.46	-0.59	-0.80	-0.93
URS	9-Nov-97	42.6	1480	339	3.75	7.30	5.83	-0.36	0.12	-0.09
IDEQ	26-Nov-97	24.8	1450	193	3.21	7.28	5.27	-0.56	0.09	-0.58
IDEQ	19-Dec-97	20.4	1760	193	3.02	7.47	5.26	-0.61	0.47	-0.58
IDEQ	22-Jan-98	18.7	151	15	2.93	5.02	2.72	-0.63	-1.53	-1.17
IDEQ	26-Feb-98	20.4	1890	207	3.02	7.54	5.33	-0.61	0.63	-0.53
IDEQ	20-Mar-98	31.4	1840	311	3.45	7.52	5.74	-0.48	0.57	-0.18
IDEQ	23-Apr-98	154	917	760	5.04	6.82	6.63	0.90	-0.58	1.32
URS	14-May-98	223	475	570	5.41	6.16	6.35	1.68	-1.13	0.68
IDEQ	28-May-98	293	739	1165	5.68	6.61	7.06	2.47	-0.80	2.68
IDEQ	26-Jun-98	62	810	270	4.13	6.70	5.60	-0.14	-0.71	-0.32
IDEQ	28-Jul-98	33.8	1150	209	3.52	7.05	5.34	-0.46	-0.29	-0.52
IDEQ	26-Aug-98	26.2	1210	171	3.27	7.10	5.14	-0.54	-0.21	-0.65
IDEQ	26-Aug-98	26.2	1220	172	3.27	7.11	5.15	-0.54	-0.20	-0.65
IDEQ	24-Sep-98	21.5	1230	142	3.07	7.11	4.96	-0.59	-0.19	-0.75
IDEQ	26-Oct-98	23.1	1080	134	3.14	6.98	4.90	-0.58	-0.37	-0.77
USGS	27-Oct-98	12	1660	107	2.48	7.41	4.67	-0.70	0.35	-0.87
USGS	18-Nov-98	14	2290	172	2.64	7.74	5.15	-0.68	1.13	-0.65
IDEQ	25-Nov-98	29.2	3950	621	3.37	8.28	6.43	-0.51	3.20	0.85
USGS	15-Dec-98	19	2790	285	2.94	7.93	5.65	-0.62	1.75	-0.27
IDEQ	15-Jan-99	34.4	2420	448	3.54	7.79	6.10	-0.45	1.29	0.28
USGS	20-Jan-99	23	2250	278	3.14	7.72	5.63	-0.58	1.08	-0.29
IDEQ	23-Feb-99	23.1	1950	242	3.14	7.58	5.49	-0.58	0.71	-0.41
IDEQ	8-Mar-99	29.2	2280	358	3.37	7.73	5.88	-0.51	1.12	-0.03
USGS	23-Mar-99	88	2920	1382	4.48	7.98	7.23	0.15	1.91	3.40
USGS	21-Apr-99	122	1290	847	4.80	7.16	6.74	0.54	-0.11	1.61
USGS	5-May-99	77	956	396	4.34	6.86	5.98	0.03	-0.53	0.10
USGS	24-May-99	329	505	894	5.80	6.22	6.80	2.87	-1.09	1.77
USGS	15-Jun-99	345	307	570	5.84	5.73	6.35	3.05	-1.34	0.68
USGS	8-Jul-99	117	457	288	4.76	6.12	5.66	0.48	-1.15	-0.26
USGS	5-Aug-99	31	944	157	3.43	6.85	5.06	-0.49	-0.54	-0.70
USGS	30-Aug-99	24	1130	146	3.18	7.03	4.98	-0.57	-0.31	-0.74

dZn

Concentration over time analysis r2 Slope, m

dZn CC285 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.010 0.00011**

Time	Ln[COC]	[COC]
17-May-91	6.78	876
26-Aug-98	7.06	1,160
30-Aug-99	7.10	1,207

LnConc.=mTime+b >'96 r2, m: **0.000 0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

Load over time analysis

dZn CC285 **Load over time**

LnLoad=mTime+b All data r2, m: **0.006 0.00010**

Time	LnLoad	Load
17-May-91	5.35	211
26-Aug-98	5.62	276
30-Aug-99	5.66	286

LnLoad=mTime+b >'96 r2, m: **0.000 0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

max r2: 0.682 max r2: 0.950

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.010	0.00011	3.25	0.006	0.00010	1.97
0.001	-0.00004	8.54	0.062	0.00044	-10.09
0.015	0.00036	-5.75	0.067	0.00093	-27.78
0.004	0.00018	0.41	0.081	0.00107	-32.86
0.001	0.00010	3.66	0.095	0.00122	-38.37
0.001	0.00011	2.95	0.094	0.00127	-40.35
0.003	0.00019	0.26	0.093	0.00134	-42.90
0.000	0.00005	5.17	0.062	0.00112	-34.86
0.001	0.00013	2.26	0.077	0.00132	-42.16
0.003	0.00023	-1.18	0.071	0.00135	-43.16
0.010	0.00044	-8.68	0.064	0.00137	-43.94
0.014	-0.00047	24.16	0.002	0.00018	-0.56
0.007	-0.00034	19.29	0.000	-0.00002	6.54
0.002	-0.00017	13.33	0.000	-0.00005	7.76
0.006	-0.00036	20.20	0.006	0.00041	-9.24
0.045	-0.00102	43.90	0.023	0.00084	-24.67
0.098	-0.00159	64.57	0.123	0.00193	-64.18
0.171	-0.00222	87.70	0.135	0.00218	-73.38
0.218	-0.00269	104.65	0.126	0.00224	-75.55
0.265	-0.00316	121.80	0.100	0.00210	-70.30
0.335	-0.00386	147.12	0.071	0.00189	-62.75
0.415	-0.00465	175.58	0.034	0.00136	-43.46
0.529	-0.00558	209.59	0.007	0.00060	-16.04
0.594	-0.00644	240.85	0.014	-0.00085	36.82
0.602	-0.00697	259.95	0.082	-0.00216	84.33
0.532	-0.00673	251.25	0.053	-0.00190	74.89
0.478	-0.00682	254.35	0.113	-0.00311	118.87
0.422	-0.00678	253.05	0.122	-0.00360	136.55
0.354	-0.00684	255.19	0.260	-0.00603	225.02
0.286	-0.00663	247.56	0.536	-0.00953	352.11
0.158	-0.00515	193.91	0.840	-0.01388	510.11
0.000	0.00015	1.21	0.770	-0.01352	497.14
0.142	0.00442	-153.99	0.703	-0.01354	497.72
0.682	0.01137	-406.79	0.950	-0.01979	725.21

update for EV, CV:

dZn **CC285**

LN Analysis **dZn**

Load **Load Data, EV=352 lbs/day CV=.88**

Avg:	**366**	**Load Data-based LN**		
SD:	**299**	u	ln dZn Load	dZn Load
CV:	**0.82**	3	7.8	2419
Min:	**15**	0	5.65	283
Max:	**1,382**	-3	3.50	33
Median:	**274**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.924, EV=400.2; CV=1.08x r2=0.984**

r2 u,lnLoad:	0.924	u	lnLoad	Load
slope, m:	1.136	3	8.25	3810
intercept, b:	-6.366	0	5.60	272
N: 38		-3	2.96	19
E[Load]:	400.2	Parameter Estimates		
SD[Load]:	433	from LN regression		
CV[Load]:	1.08	update graph label		

						max r2
	dZn	N: 38				0.984
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
22-Jan-98	**15**	1	0.0163	-2.136	2.721	0.924
16-Oct-97	**87**	2	0.0425	-1.723	4.463	0.978
27-Oct-98	**107**	3	0.0686	-1.486	4.674	0.976
5-Oct-91	**133**	4	0.0948	-1.312	4.890	0.976
26-Oct-98	**134**	5	0.1209	-1.170	4.899	0.979
24-Sep-98	**142**	6	0.1471	-1.049	4.958	0.980
30-Aug-99	**146**	7	0.1732	-0.942	4.983	0.981
5-Aug-99	**157**	8	0.1993	-0.844	5.059	0.981
26-Aug-98	**171**	9	0.2255	-0.754	5.139	0.982
26-Aug-98	**172**	10	0.2516	-0.669	5.147	0.984
18-Nov-98	**172**	11	0.2778	-0.589	5.150	0.984
19-Dec-97	**193**	12	0.3039	-0.513	5.264	0.983
26-Nov-97	**193**	13	0.3301	-0.440	5.265	0.984
14-Aug-97	**201**	14	0.3562	-0.369	5.301	0.984
4-Sep-97	**207**	15	0.3824	-0.299	5.332	0.983
26-Feb-98	**207**	16	0.4085	-0.231	5.335	0.982
28-Jul-98	**209**	17	0.4346	-0.165	5.343	0.980
23-Feb-99	**242**	18	0.4608	-0.098	5.490	0.979
26-Jun-98	**270**	19	0.4869	-0.033	5.599	0.977
20-Jan-99	**278**	20	0.5131	0.033	5.629	0.977
15-Dec-98	**285**	21	0.5392	0.098	5.653	0.976
8-Jul-99	**288**	22	0.5654	0.165	5.662	0.974
23-Jul-97	**309**	23	0.5915	0.231	5.734	0.971
20-Mar-98	**311**	24	0.6176	0.299	5.739	0.968
24-Jun-97	**321**	25	0.6438	0.369	5.770	0.964
9-Nov-97	**339**	26	0.6699	0.440	5.827	0.960
8-Mar-99	**358**	27	0.6961	0.513	5.881	0.958
5-May-99	**396**	28	0.7222	0.589	5.981	0.962
15-Jan-99	**448**	29	0.7484	0.669	6.105	0.968
15-Jun-99	**570**	30	0.7745	0.754	6.345	0.973
14-May-98	**570**	31	0.8007	0.844	6.345	0.973
17-May-91	**596**	32	0.8268	0.942	6.390	0.967
25-Nov-98	**621**	33	0.8529	1.049	6.431	0.957
23-Apr-98	**760**	34	0.8791	1.170	6.633	0.969
21-Apr-99	**847**	35	0.9052	1.312	6.741	
24-May-99	**894**	36	0.9314	1.486	6.796	
28-May-98	**1165**	37	0.9575	1.723	7.060	
23-Mar-99	**1382**	38	0.9837	2.136	7.232	

update for EV, CV:

dZn		**CC285**		
LN Analysis		**dZn**		
Concentration		**Conc. Data, EV=1,381 ug/L CV=.58**		
Avg:	**1,381**	**Data-based LN**		
SD:	**804**	u	ln[dZn]	[dZn]
CV:	**0.58**	3	8.7	6034
Min:	**151**	0	7.08	1194
Max:	**3,950**	-3	5.46	236
Median:	**1,225**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.959, EV=1463.1 ug/L CV=0.80; max r2=0.989**

r2 u,lnConc:	0.959	u	lnConc.	Conc.
slope, m:	1.423	3	9.15	9410
intercept, b:	-10.020	0	7.04	1143
N: 38		-3	4.93	139
E[Conc]:	1463.1	Parameter Estimates		
SD[Conc]:	1169	from LN regression		
CV[Conc]:	0.80	update graph label		

						max r2
	dZn	N: 38				0.989
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
22-Jan-98	151	1	0.0163	-2.136	5.017	0.959
15-Jun-99	307	2	0.0425	-1.723	5.727	0.977
8-Jul-99	457	3	0.0686	-1.486	6.125	0.980
14-May-98	475	4	0.0948	-1.312	6.163	0.978
24-Jun-97	505	5	0.1209	-1.170	6.225	0.976
24-May-99	505	6	0.1471	-1.049	6.225	0.976
17-May-91	555	7	0.1732	-0.942	6.319	0.981
16-Oct-97	736	8	0.1993	-0.844	6.601	0.988
28-May-98	739	9	0.2255	-0.754	6.605	0.988
23-Jul-97	784	10	0.2516	-0.669	6.664	0.988
26-Jun-98	810	11	0.2778	-0.589	6.697	0.988
23-Apr-98	917	12	0.3039	-0.513	6.821	0.989
5-Aug-99	944	13	0.3301	-0.440	6.850	0.988
5-May-99	956	14	0.3562	-0.369	6.863	0.987
26-Oct-98	1080	15	0.3824	-0.299	6.985	0.987
30-Aug-99	1130	16	0.4085	-0.231	7.030	0.986
28-Jul-98	1150	17	0.4346	-0.165	7.048	0.985
26-Aug-98	1210	18	0.4608	-0.098	7.098	0.984
26-Aug-98	1220	19	0.4869	-0.033	7.107	0.983
14-Aug-97	1230	20	0.5131	0.033	7.115	0.981
24-Sep-98	1230	21	0.5392	0.098	7.115	0.980
21-Apr-99	1290	22	0.5654	0.165	7.162	0.981
4-Sep-97	1440	23	0.5915	0.231	7.272	0.982
26-Nov-97	1450	24	0.6176	0.299	7.279	0.980
9-Nov-97	1480	25	0.6438	0.369	7.300	0.979
27-Oct-98	1660	26	0.6699	0.440	7.415	0.981
5-Oct-91	1740	27	0.6961	0.513	7.462	0.978
19-Dec-97	1760	28	0.7222	0.589	7.473	0.976
20-Mar-98	1840	29	0.7484	0.669	7.518	0.971
26-Feb-98	1890	30	0.7745	0.754	7.544	0.966
23-Feb-99	1950	31	0.8007	0.844	7.576	0.959
20-Jan-99	2250	32	0.8268	0.942	7.719	0.949
8-Mar-99	2280	33	0.8529	1.049	7.732	0.964
18-Nov-98	2290	34	0.8791	1.170	7.736	0.975
15-Jan-99	2420	35	0.9052	1.312	7.792	
15-Dec-98	2790	36	0.9314	1.486	7.934	
23-Mar-99	2920	37	0.9575	1.723	7.979	
25-Nov-98	3950	38	0.9837	2.136	8.281	

update for EV, CV:

dZn		**CC285**		
LN Analysis		**dZn**		
Discharge, Q		**Q Data, EV=70 cfs CV=1.28**		
Avg:	**74**	**Q Data-based LN**		
SD:	**89**	u	lnQ	Q
CV:	**1.19**	3	6.7	803
Min:	**12**	0	3.86	48
Max:	**345**	-3	1.04	3
Median:	**30**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.886, EV=76.0 cfs CV=1.40; max r2=0.950**

r2 u,lnQ:	0.886	u	lnQ	Q
slope, m:	0.959	3	6.91	1007
intercept, b:	-3.635	0	3.79	44
N: 38		-3	0.66	2
E[Q]:	76.0	Parameter Estimates		
SD[Q]:	107	from LN regression		
CV[Q]:	1.40	update graph label		

max r2
0.950

N: 38

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
27-Oct-98	12	1	0.0163	-2.136	2.485	0.886
18-Nov-98	14	2	0.0425	-1.723	2.639	0.896
5-Oct-91	14.2	3	0.0686	-1.486	2.653	0.902
22-Jan-98	18.7	4	0.0948	-1.312	2.929	0.903
15-Dec-98	19	5	0.1209	-1.170	2.944	0.912
19-Dec-97	20.4	6	0.1471	-1.049	3.016	0.919
26-Feb-98	20.4	7	0.1732	-0.942	3.016	0.926
24-Sep-98	21.5	8	0.1993	-0.844	3.068	0.931
16-Oct-97	21.9	9	0.2255	-0.754	3.086	0.937
20-Jan-99	23	10	0.2516	-0.669	3.135	0.941
26-Oct-98	23.1	11	0.2778	-0.589	3.140	0.945
23-Feb-99	23.1	12	0.3039	-0.513	3.140	0.948
30-Aug-99	24	13	0.3301	-0.440	3.178	0.949
26-Nov-97	24.8	14	0.3562	-0.369	3.211	0.950
26-Aug-98	26.2	15	0.3824	-0.299	3.266	0.950
26-Aug-98	26.2	16	0.4085	-0.231	3.266	0.949
4-Sep-97	26.7	17	0.4346	-0.165	3.285	0.947
25-Nov-98	29.2	18	0.4608	-0.098	3.374	0.943
8-Mar-99	29.2	19	0.4869	-0.033	3.374	0.939
14-Aug-97	30.3	20	0.5131	0.033	3.411	0.933
5-Aug-99	31	21	0.5392	0.098	3.434	0.926
20-Mar-98	31.4	22	0.5654	0.165	3.447	0.918
28-Jul-98	33.8	23	0.5915	0.231	3.520	0.911
15-Jan-99	34.4	24	0.6176	0.299	3.538	0.906
9-Nov-97	42.6	25	0.6438	0.369	3.752	0.915
26-Jun-98	62	26	0.6699	0.440	4.127	0.928
23-Jul-97	73.3	27	0.6961	0.513	4.295	0.921
5-May-99	77	28	0.7222	0.589	4.344	0.910
23-Mar-99	88	29	0.7484	0.669	4.477	0.901
8-Jul-99	117	30	0.7745	0.754	4.762	0.892
24-Jun-97	118	31	0.8007	0.844	4.771	0.868
21-Apr-99	122	32	0.8268	0.942	4.804	0.836
23-Apr-98	154	33	0.8529	1.049	5.037	0.829
17-May-91	199.5	34	0.8791	1.170	5.296	0.820
14-May-98	223	35	0.9052	1.312	5.407	
28-May-98	293	36	0.9314	1.486	5.680	
24-May-99	329	37	0.9575	1.723	5.796	
15-Jun-99	345	38	0.9837	2.136	5.844	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC285 **Date:** 2-Jun-00
Chemical: tCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	35,888	75	11	3	0.00	0.00	0.00		
SD:	618	88	6	3	1.00	1.00	1.00		
CV:	0.02	1.18	0.56	0.92					first:
Min:	33,375	14	1	0.1	-0.69	-1.68	-1.06		mid:
Max:	36,402	345	28	12	3.06	2.97	3.42		last:
Median:	36,019	31	10	2	-0.50	-0.09	-0.35		

tCd **CC285** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.205) update r2 0.21 0.205 r2: 0.000 0.000

r2 Q,[COC]:	0.21	[tCd]	Q	m:	-0.0022	0.00001
slope, m:	-0.03	12	14.0	b:	154	3.38
intercept, b:	12.8	11	74.8			
N: 38		2	345			

LnConc. = mLn{Q}+b (r2=0.201) update r2 0.20 0.201 first: mid: last:

r2 lnQ,ln[COC]:	0.20	ln[tCd]	ln Q	[tCd]	Q
slope, m:	-0.34	2.56	2.64	13	14
intercept, b:	3.46	1.99	4.32	7	75
N: 38		1.48	5.84	4	345

for graph
tCd 0
CC285

N= 38

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	199.5	3.7	4.0	5.30	1.31	1.38	1.41	-1.17	0.36
MFG	5-Oct-91	14.2	10.2	0.8	2.65	2.32	-0.25	-0.69	-0.06	-0.80
IDEQ	24-Jun-97	118	2.8	1.8	4.77	1.03	0.58	0.49	-1.32	-0.44
IDEQ	23-Jul-97	73.3	4.6	1.8	4.29	1.53	0.60	-0.02	-1.01	-0.43
IDEQ	14-Aug-97	30.3	8.8	1.4	3.41	2.17	0.36	-0.50	-0.30	-0.56
IDEQ	4-Sep-97	26.7	10	1.4	3.28	2.30	0.36	-0.54	-0.09	-0.56
IDEQ	16-Oct-97	21.9	9.8	1.2	3.09	2.28	0.14	-0.60	-0.13	-0.67
URS	9-Nov-97	42.6	9.6	2.2	3.75	2.26	0.79	-0.36	-0.16	-0.28
IDEQ	26-Nov-97	24.8	11	1.5	3.21	2.40	0.38	-0.57	0.08	-0.55
IDEQ	19-Dec-97	20.4	23	2.5	3.02	3.14	0.93	-0.62	2.12	-0.17
IDEQ	22-Jan-98	18.7	0.7	0.1	2.93	-0.36	-2.65	-0.64	-1.68	-1.06
IDEQ	26-Feb-98	20.4	13	1.4	3.02	2.56	0.36	-0.62	0.42	-0.57
IDEQ	20-Mar-98	31.4	13	2.2	3.45	2.56	0.79	-0.49	0.42	-0.29
IDEQ	23-Apr-98	154	11	9.1	5.04	2.40	2.21	0.90	0.08	2.23
URS	14-May-98	223	3.3	4.0	5.41	1.19	1.38	1.68	-1.23	0.35
IDEQ	28-May-98	293	5.4	8.5	5.68	1.69	2.14	2.47	-0.88	2.01
IDEQ	26-Jun-98	62	6.1	2.0	4.13	1.81	0.71	-0.15	-0.76	-0.35
IDEQ	28-Jul-98	33.8	10	1.8	3.52	2.30	0.60	-0.46	-0.09	-0.42
IDEQ	28-Jul-98	33.8	11	2.0	3.52	2.40	0.69	-0.46	0.08	-0.36
IDEQ	26-Aug-98	26.2	11	1.6	3.27	2.40	0.44	-0.55	0.08	-0.52
IDEQ	26-Aug-98	26.2	9.6	1.4	3.27	2.26	0.30	-0.55	-0.16	-0.59
IDEQ	24-Sep-98	21.5	10	1.2	3.07	2.30	0.15	-0.60	-0.09	-0.66
IDEQ	26-Oct-98	23.1	9.6	1.2	3.14	2.26	0.18	-0.59	-0.16	-0.65
USGS	18-Nov-98	14	16	1.2	2.64	2.77	0.19	-0.69	0.93	-0.65
IDEQ	25-Nov-98	29.2	28	4.4	3.37	3.33	1.48	-0.52	2.97	0.51
USGS	15-Dec-98	19	20	2.0	2.94	3.00	0.72	-0.63	1.61	-0.34
IDEQ	15-Jan-99	34.4	16	3.0	3.54	2.77	1.09	-0.46	0.93	-0.01
USGS	20-Jan-99	23	17	2.1	3.14	2.83	0.74	-0.59	1.10	-0.32
IDEQ	23-Feb-99	23.1	15	1.9	3.14	2.71	0.62	-0.59	0.76	-0.41
IDEQ	8-Mar-99	29.2	15	2.4	3.37	2.71	0.86	-0.52	0.76	-0.23
USGS	23-Mar-99	88	21	9.9	4.48	3.04	2.30	0.15	1.78	2.53
USGS	21-Apr-99	122	10	6.6	4.80	2.30	1.88	0.53	-0.09	1.30
USGS	5-May-99	77	6	2.5	4.34	1.79	0.91	0.02	-0.78	-0.18
USGS	24-May-99	329	7	12.4	5.80	1.95	2.52	2.88	-0.60	3.42
USGS	15-Jun-99	345	3	5.6	5.84	1.10	1.72	3.06	-1.29	0.94
USGS	8-Jul-99	117	3.4	2.1	4.76	1.22	0.76	0.48	-1.22	-0.31
USGS	5-Aug-99	31	7.4	1.2	3.43	2.00	0.21	-0.50	-0.54	-0.64
USGS	30-Aug-99	24	9	1.2	3.18	2.20	0.15	-0.58	-0.26	-0.66

tCd

Concentration over time analysis r2 Slope, m

tCd CC285 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.029** **0.00019**

Time	Ln[COC]	[COC]
17-May-91	1.68	5
11-Aug-98	2.19	9
30-Aug-99	2.26	10

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

Load over time analysis

tCd CC285 **Load over time**

LnLoad=mTime+b All data r2, m: **0.0209** **0.00020**

Time	LnLoad	Load
17-May-91	0.24	1
11-Aug-98	0.78	2
30-Aug-99	0.86	2

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

max r2: 0.617 max r2: 0.911

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.029	0.00019	-4.74	0.021	0.00020	-6.58
0.002	0.00007	-0.40	0.092	0.00057	-19.79
0.025	0.00048	-15.21	0.084	0.00111	-39.12
0.006	0.00024	-6.57	0.086	0.00118	-41.60
0.001	0.00009	-0.85	0.089	0.00125	-44.46
0.001	0.00008	-0.55	0.083	0.00128	-45.25
0.001	0.00011	-1.62	0.077	0.00130	-45.95
0.001	0.00013	-2.59	0.063	0.00123	-43.57
0.002	0.00016	-3.51	0.070	0.00137	-48.45
0.003	0.00024	-6.58	0.063	0.00137	-48.66
0.023	0.00067	-21.99	0.075	0.00160	-56.93
0.014	-0.00041	17.02	0.002	0.00022	-7.01
0.008	-0.00033	14.24	0.000	-0.00004	2.49
0.003	-0.00023	10.52	0.001	-0.00015	6.52
0.002	-0.00019	9.09	0.009	0.00048	-16.39
0.042	-0.00084	32.62	0.022	0.00079	-27.79
0.104	-0.00137	52.07	0.104	0.00171	-61.07
0.190	-0.00194	72.55	0.106	0.00185	-65.90
0.224	-0.00223	83.23	0.099	0.00189	-67.39
0.256	-0.00258	95.81	0.098	0.00203	-72.53
0.291	-0.00296	109.59	0.079	0.00193	-68.90
0.378	-0.00372	136.99	0.047	0.00161	-57.45
0.476	-0.00459	168.83	0.013	0.00091	-31.84
0.601	-0.00563	206.53	0.000	-0.00004	2.50
0.617	-0.00614	225.09	0.025	-0.00133	49.47
0.543	-0.00586	214.91	0.012	-0.00103	38.55
0.486	-0.00590	216.14	0.044	-0.00219	80.66
0.445	-0.00604	221.28	0.061	-0.00286	104.77
0.369	-0.00601	220.38	0.153	-0.00521	190.21
0.292	-0.00571	209.36	0.345	-0.00861	313.91
0.180	-0.00480	176.45	0.642	-0.01353	492.65
0.001	-0.00022	9.94	0.559	-0.01389	505.86
0.106	0.00328	-117.53	0.501	-0.01467	534.18
0.235	0.00616	-222.17	0.911	-0.02500	909.83

update for EV, CV:

tCd **CC285**

LN Analysis **tCd**

Load **Load Data, EV=2.98 lbs/day CV=0.922**

Load Data-based LN

Avg:	**3**			
SD:	**3**	u	ln tCd Load	tCd Load
CV:	**0.92**	3	3.1	23
Min:	**0.1**	0	0.79	2
Max:	**12**	-3	-1.57	0.2
Median:	**2**			
		3	2.98	
		0.92	0.922	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.844, EV=3.45lbs/day CV=1.28; max r2=0.955**

r2 u,lnLoad:	0.844	u	lnLoad	Load	
slope, m:	1.016	3	3.71	41	
intercept, b:	-0.767	0	0.75	2	
N: 38		-3	-2.20	0.1	
E[Load]:	3.5	Parameter Estimates			0.844
SD[Load]:	4	from LN regression			3.5
CV[Load]:	1.28	update graph label			1.3
					max r2
	tCd	N: 38			0.955

Date	**Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
22-Jan-98	**0.1**	1	0.0163	-2.136	-2.653	0.844
5-Oct-91	**0.8**	2	0.0425	-1.723	-0.249	0.920
16-Oct-97	**1.2**	3	0.0686	-1.486	0.144	0.916
24-Sep-98	**1.2**	4	0.0948	-1.312	0.146	0.926
30-Aug-99	**1.2**	5	0.1209	-1.170	0.150	0.933
26-Oct-98	**1.2**	6	0.1471	-1.049	0.177	0.937
18-Nov-98	**1.2**	7	0.1732	-0.942	0.187	0.939
5-Aug-99	**1.2**	8	0.1993	-0.844	0.210	0.940
26-Aug-98	**1.4**	9	0.2255	-0.754	0.302	0.940
26-Feb-98	**1.4**	10	0.2516	-0.669	0.355	0.942
14-Aug-97	**1.4**	11	0.2778	-0.589	0.361	0.945
4-Sep-97	**1.4**	12	0.3039	-0.513	0.362	0.946
26-Nov-97	**1.5**	13	0.3301	-0.440	0.384	0.945
26-Aug-98	**1.6**	14	0.3562	-0.369	0.439	0.944
24-Jun-97	**1.8**	15	0.3824	-0.299	0.575	0.942
23-Jul-97	**1.8**	16	0.4085	-0.231	0.596	0.946
28-Jul-98	**1.8**	17	0.4346	-0.165	0.598	0.949
23-Feb-99	**1.9**	18	0.4608	-0.098	0.623	0.950
28-Jul-98	**2.0**	19	0.4869	-0.033	0.693	0.951
26-Jun-98	**2.0**	20	0.5131	0.033	0.710	0.953
15-Dec-98	**2.0**	21	0.5392	0.098	0.715	0.955
20-Jan-99	**2.1**	22	0.5654	0.165	0.744	0.954
8-Jul-99	**2.1**	23	0.5915	0.231	0.761	0.952
20-Mar-98	**2.2**	24	0.6176	0.299	0.787	0.948
9-Nov-97	**2.2**	25	0.6438	0.369	0.789	0.942
8-Mar-99	**2.4**	26	0.6699	0.440	0.857	0.934
5-May-99	**2.5**	27	0.6961	0.513	0.910	0.925
19-Dec-97	**2.5**	28	0.7222	0.589	0.926	0.914
15-Jan-99	**3.0**	29	0.7484	0.669	1.086	0.914
14-May-98	**4.0**	30	0.7745	0.754	1.376	0.915
17-May-91	**4.0**	31	0.8007	0.844	1.379	0.895
25-Nov-98	**4.4**	32	0.8268	0.942	1.481	0.882
15-Jun-99	**5.6**	33	0.8529	1.049	1.717	0.902
21-Apr-99	**6.6**	34	0.8791	1.170	1.882	0.913
28-May-98	**8.5**	35	0.9052	1.312	2.142	
23-Apr-98	**9.1**	36	0.9314	1.486	2.210	
23-Mar-99	**9.9**	37	0.9575	1.723	2.297	
24-May-99	**12.4**	38	0.9837	2.136	2.517	

update for EV, CV:

tCd		**CC285**		11	10.6
LN Analysis		**tCd**		0.56	0.557
Concentration		**Conc. Data, EV=10.6 ug/L CV=0.557**			
Avg:	**11**	**Data-based LN**			
SD:	**6**	u	ln[tCd]	[tCd]	
CV:	**0.56**	3	3.8	44	
Min:	**1**	0	2.22	9	
Max:	**28**	-3	0.66	2	
Median:	**10**				

				0.895	0.895
	u=mLn{Conc.}+b:			11.7	11.7
update for r2, EV, CV:	**r2=0.895, EV=11.7 ug/L CV=0.893; max r2=0.980**			0.893	0.893
	r2 u,lnConc:	0.895	u	lnConc.	Conc.
	slope, m:	1.306	3	4.46	87
	intercept, b:	-2.826	0	2.16	9
	N: 38		-3	-0.13	1
0.844	E[Conc]:	11.7	Parameter Estimates		
3.45	SD[Conc]:	10	from LN regression		
1.28	CV[Conc]:	0.89	update graph label		

						max r2 0.980
	tCd	N: 38				
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
22-Jan-98	0.7	1	0.0163	-2.136	-0.357	0.895
24-Jun-97	2.8	2	0.0425	-1.723	1.030	0.948
15-Jun-99	3	3	0.0686	-1.486	1.099	0.942
14-May-98	3.3	4	0.0948	-1.312	1.194	0.939
8-Jul-99	3.4	5	0.1209	-1.170	1.224	0.938
17-May-91	3.7	6	0.1471	-1.049	1.308	0.944
23-Jul-97	4.6	7	0.1732	-0.942	1.526	0.957
28-May-98	5.4	8	0.1993	-0.844	1.686	0.963
5-May-99	6	9	0.2255	-0.754	1.792	0.964
26-Jun-98	6.1	10	0.2516	-0.669	1.808	0.963
24-May-99	7	11	0.2778	-0.589	1.946	0.966
5-Aug-99	7.4	12	0.3039	-0.513	2.001	0.964
14-Aug-97	8.8	13	0.3301	-0.440	2.175	0.961
30-Aug-99	9	14	0.3562	-0.369	2.197	0.961
9-Nov-97	9.6	15	0.3824	-0.299	2.262	0.962
26-Aug-98	9.6	16	0.4085	-0.231	2.262	0.968
26-Oct-98	9.6	17	0.4346	-0.165	2.262	0.972
16-Oct-97	9.8	18	0.4608	-0.098	2.282	0.974
4-Sep-97	10	19	0.4869	-0.033	2.303	0.976
28-Jul-98	10	20	0.5131	0.033	2.303	0.979
24-Sep-98	10	21	0.5392	0.098	2.303	0.980
21-Apr-99	10	22	0.5654	0.165	2.303	0.979
5-Oct-91	10.2	23	0.5915	0.231	2.322	0.976
26-Nov-97	11	24	0.6176	0.299	2.398	0.973
23-Apr-98	11	25	0.6438	0.369	2.398	0.971
28-Jul-98	11	26	0.6699	0.440	2.398	0.967
26-Aug-98	11	27	0.6961	0.513	2.398	0.965
26-Feb-98	13	28	0.7222	0.589	2.565	0.980
20-Mar-98	13	29	0.7484	0.669	2.565	0.976
23-Feb-99	15	30	0.7745	0.754	2.708	0.979
8-Mar-99	15	31	0.8007	0.844	2.708	0.979
18-Nov-98	16	32	0.8268	0.942	2.773	0.974
15-Jan-99	16	33	0.8529	1.049	2.773	0.969
20-Jan-99	17	34	0.8791	1.170	2.833	0.964
15-Dec-98	20	35	0.9052	1.312	2.996	
23-Mar-99	21	36	0.9314	1.486	3.045	
19-Dec-97	23	37	0.9575	1.723	3.135	
25-Nov-98	28	38	0.9837	2.136	3.332	

update for EV, CV:

tCd		**CC285**			75	74.8
LN Analysis		**tCd**			1.18	1.18
Discharge, Q		**Q Data, EV=74.8 cfs CV=1.18**				
Avg:	**75**	**Q Data-based LN**				
SD:	**88**	u	lnQ	Q		
CV:	**1.18**	3	6.7	798		
Min:	**14**	0	3.88	48		
Max:	**345**	-3	1.08	3		
Median:	**31**					

					0.873	0.873
					76.7	76.7
u=mLn{Q}+b:					1.36	1.36
update for r2, EV, CV:	**r2=0.873, EV=76.7 cfs CV=1.36; max r2=0.950**					
r2 u,lnQ:	0.873	u	lnQ	Q		
slope, m:	0.977	3	6.89	979		
intercept, b:	-3.726	0	3.82	45		
N: 38		-3	0.74	2		
E[Q]:	76.7	Parameter Estimates				
SD[Q]:	104	from LN regression				
CV[Q]:	1.36	update graph label				

						max r2
	Q	N: 38				0.950
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
18-Nov-98	14	1	0.0163	-2.136	2.639	0.873
5-Oct-91	14.2	2	0.0425	-1.723	2.653	0.888
22-Jan-98	18.7	3	0.0686	-1.486	2.929	0.891
15-Dec-98	19	4	0.0948	-1.312	2.944	0.903
19-Dec-97	20.4	5	0.1209	-1.170	3.016	0.911
26-Feb-98	20.4	6	0.1471	-1.049	3.016	0.919
24-Sep-98	21.5	7	0.1732	-0.942	3.068	0.925
16-Oct-97	21.9	8	0.1993	-0.844	3.086	0.932
20-Jan-99	23	9	0.2255	-0.754	3.135	0.937
26-Oct-98	23.1	10	0.2516	-0.669	3.140	0.942
23-Feb-99	23.1	11	0.2778	-0.589	3.140	0.945
30-Aug-99	24	12	0.3039	-0.513	3.178	0.947
26-Nov-97	24.8	13	0.3301	-0.440	3.211	0.949
26-Aug-98	26.2	14	0.3562	-0.369	3.266	0.949
26-Aug-98	26.2	15	0.3824	-0.299	3.266	0.950
4-Sep-97	26.7	16	0.4085	-0.231	3.285	0.949
25-Nov-98	29.2	17	0.4346	-0.165	3.374	0.946
8-Mar-99	29.2	18	0.4608	-0.098	3.374	0.944
14-Aug-97	30.3	19	0.4869	-0.033	3.411	0.940
5-Aug-99	31	20	0.5131	0.033	3.434	0.935
20-Mar-98	31.4	21	0.5392	0.098	3.447	0.928
28-Jul-98	33.8	22	0.5654	0.165	3.520	0.920
28-Jul-98	33.8	23	0.5915	0.231	3.520	0.911
15-Jan-99	34.4	24	0.6176	0.299	3.538	0.906
9-Nov-97	42.6	25	0.6438	0.369	3.752	0.915
26-Jun-98	62	26	0.6699	0.440	4.127	0.928
23-Jul-97	73.3	27	0.6961	0.513	4.295	0.921
5-May-99	77	28	0.7222	0.589	4.344	0.910
23-Mar-99	88	29	0.7484	0.669	4.477	0.901
8-Jul-99	117	30	0.7745	0.754	4.762	0.892
24-Jun-97	118	31	0.8007	0.844	4.771	0.868
21-Apr-99	122	32	0.8268	0.942	4.804	0.836
23-Apr-98	154	33	0.8529	1.049	5.037	0.829
17-May-91	199.5	34	0.8791	1.170	5.296	0.820
14-May-98	223	35	0.9052	1.312	5.407	
28-May-98	293	36	0.9314	1.486	5.680	
24-May-99	329	37	0.9575	1.723	5.796	
15-Jun-99	345	38	0.9837	2.136	5.844	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC285 **Date:** 2-Jun-00
Chemical: tPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,893	73	222	136	0.00	0.00	0.00	
SD:	611	88	476	456	1.00	1.00	1.00	
CV:	0.02	1.20	2.15	3.35				first:
Min:	33,375	12	3	0.3	-0.70	-0.46	-0.30	mid:
Max:	36,402	345	2,080	2,478	3.10	3.90	5.14	last:
Median:	36,033	30	60	12	-0.49	-0.34	-0.27	

tPb **CC285** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.0468)		update r2	0.05	0.0468	r2:	0.000	0.000	
r2 Q,[COC]:	0.05	[tPb]	Q		m:	-0.0031	-0.00001	
slope, m:	1.2	150	12.0		b:	184	4.01	
intercept, b:	135.9	222	73.2					
N: 39		541	345					first:
LnConc. = mLn{Q}+b (r2=0.0358)		update r2		0.04	0.0358			mid:
r2 lnQ,ln[COC]:	0.04	ln[tPb]	ln Q	[tPb]	Q			last:
slope, m:	0.24	4.07	2.48	59	12			
intercept, b:	3.46	4.51	4.29	91	73			
N: 39		4.89	5.84	133	345			

for graph
tPb 0
CC285

N= 39

update for new data	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	199.5	24	25.8	5.30	3.18	3.25	1.44	-0.42	-0.24
MFG	5-Oct-91	14.2	34	2.6	2.65	3.53	0.95	-0.67	-0.39	-0.29
IDEQ	24-Jun-97	118	39	24.8	4.77	3.66	3.21	0.51	-0.38	-0.24
IDEQ	23-Jul-97	73.3	50	19.7	4.29	3.91	2.98	0.00	-0.36	-0.26
IDEQ	14-Aug-97	30.3	257	41.9	3.41	5.55	3.74	-0.49	0.07	-0.21
IDEQ	4-Sep-97	26.7	60	8.6	3.28	4.09	2.15	-0.53	-0.34	-0.28
IDEQ	16-Oct-97	21.9	698	82.2	3.09	6.55	4.41	-0.58	1.00	-0.12
URS	9-Nov-97	42.6	77.6	17.8	3.75	4.35	2.88	-0.35	-0.30	-0.26
IDEQ	26-Nov-97	24.8	292	39.0	3.21	5.68	3.66	-0.55	0.15	-0.21
IDEQ	19-Dec-97	20.4	2080	228.3	3.02	7.64	5.43	-0.60	3.90	0.20
IDEQ	22-Jan-98	18.7	2.5	0.3	2.93	0.92	-1.38	-0.62	-0.46	-0.30
IDEQ	26-Feb-98	20.4	60	6.6	3.02	4.09	1.88	-0.60	-0.34	-0.28
IDEQ	20-Mar-98	31.4	89	15.0	3.45	4.49	2.71	-0.48	-0.28	-0.27
IDEQ	23-Apr-98	154	1920	1590.8	5.04	7.56	7.37	0.92	3.57	3.19
URS	14-May-98	223	43.1	51.7	5.41	3.76	3.95	1.71	-0.38	-0.19
IDEQ	28-May-98	293	100	157.6	5.68	4.61	5.06	2.50	-0.26	0.05
IDEQ	26-Jun-98	62	54	18.0	4.13	3.99	2.89	-0.13	-0.35	-0.26
IDEQ	28-Jul-98	33.8	58	10.5	3.52	4.06	2.36	-0.45	-0.34	-0.28
IDEQ	28-Jul-98	33.8	62	11.3	3.52	4.13	2.42	-0.45	-0.34	-0.27
IDEQ	26-Aug-98	26.2	57	8.0	3.27	4.04	2.08	-0.54	-0.35	-0.28
IDEQ	26-Aug-98	26.2	58	8.2	3.27	4.06	2.10	-0.54	-0.34	-0.28
IDEQ	24-Sep-98	21.5	72	8.3	3.07	4.28	2.12	-0.59	-0.31	-0.28
IDEQ	26-Oct-98	23.1	46	5.7	3.14	3.83	1.74	-0.57	-0.37	-0.29
USGS	27-Oct-98	12	46	3.0	2.48	3.83	1.09	-0.70	-0.37	-0.29
USGS	18-Nov-98	14	120	9.0	2.64	4.79	2.20	-0.67	-0.21	-0.28
IDEQ	25-Nov-98	29.2	77	12.1	3.37	4.34	2.49	-0.50	-0.30	-0.27
USGS	15-Dec-98	19	57	5.8	2.94	4.04	1.76	-0.62	-0.35	-0.29
IDEQ	15-Jan-99	34.4	61	11.3	3.54	4.11	2.42	-0.44	-0.34	-0.27
USGS	20-Jan-99	23	50	6.2	3.14	3.91	1.82	-0.57	-0.36	-0.29
IDEQ	23-Feb-99	23.1	37	4.6	3.14	3.61	1.53	-0.57	-0.39	-0.29
IDEQ	8-Mar-99	29.2	43	6.8	3.37	3.76	1.91	-0.50	-0.38	-0.28
USGS	23-Mar-99	88	130	61.5	4.48	4.87	4.12	0.17	-0.19	-0.16
USGS	21-Apr-99	122	96	63.0	4.80	4.56	4.14	0.56	-0.26	-0.16
USGS	5-May-99	77	57	23.6	4.34	4.04	3.16	0.04	-0.35	-0.25
USGS	24-May-99	329	1400	2478.0	5.80	7.24	7.82	2.91	2.47	5.14
USGS	15-Jun-99	345	110	204.2	5.84	4.70	5.32	3.10	-0.23	0.15
USGS	8-Jul-99	117	28.1	17.7	4.76	3.34	2.87	0.50	-0.41	-0.26
USGS	5-Aug-99	31	61.4	10.2	3.43	4.12	2.33	-0.48	-0.34	-0.28
USGS	30-Aug-99	24	45.9	5.9	3.18	3.83	1.78	-0.56	-0.37	-0.29

tPb

Concentration over time analysis r2 Slope, m

tPb CC285 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.020** **0.00028**

Time	Ln[COC]	[COC]
17-May-91	3.69	40
26-Aug-98	4.42	83
30-Aug-99	4.53	92

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

Load over time analysis

tPb CC285 **Load over time**

LnLoad=mTime+b All data r2, m: **0.010** **0.00027**

Time	LnLoad	Load
17-May-91	2.26	10
26-Aug-98	2.98	20
30-Aug-99	3.08	22

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

max r2: 0.540 max r2: 0.870

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rov		
0.020	0.00028	-5.54	0.010	0.00027	-6.75
0.002	0.00011	0.39	0.026	0.00059	-18.20
0.017	-0.00070	29.81	0.000	-0.00013	7.68
0.030	-0.00097	39.57	0.000	-0.00009	6.16
0.044	-0.00123	48.70	0.000	-0.00010	6.50
0.030	-0.00106	42.52	0.000	0.00011	-1.01
0.040	-0.00130	51.23	0.000	-0.00013	7.77
0.014	-0.00076	31.93	0.001	0.00032	-8.54
0.016	-0.00087	35.77	0.001	0.00033	-9.15
0.004	-0.00048	21.69	0.004	0.00066	-20.97
0.017	0.00087	-27.23	0.028	0.00184	-63.53
0.008	-0.00052	23.27	0.000	0.00017	-3.14
0.013	-0.00072	30.23	0.001	-0.00033	14.85
0.013	-0.00075	31.46	0.002	-0.00053	22.25
0.026	0.00084	-26.27	0.025	0.00169	-58.30
0.016	0.00069	-20.53	0.051	0.00253	-88.59
0.030	0.00101	-32.17	0.144	0.00432	-153.44
0.025	0.00098	-31.10	0.171	0.00501	-178.67
0.022	0.00097	-30.79	0.177	0.00538	-191.87
0.021	0.00101	-32.28	0.188	0.00595	-212.49
0.017	0.00097	-30.78	0.183	0.00623	-222.88
0.013	0.00092	-29.17	0.180	0.00668	-239.05
0.015	0.00107	-34.39	0.175	0.00707	-253.42
0.006	0.00074	-22.41	0.151	0.00693	-248.04
0.001	0.00023	-4.01	0.097	0.00582	-208.04
0.007	0.00091	-28.52	0.080	0.00572	-204.14
0.009	0.00118	-38.30	0.072	0.00601	-214.66
0.004	0.00089	-28.03	0.035	0.00460	-163.51
0.001	0.00058	-16.59	0.019	0.00376	-133.10
0.002	-0.00069	29.45	0.000	0.00012	-0.73
0.034	-0.00356	133.60	0.040	-0.00646	238.15
0.140	-0.00812	299.45	0.227	-0.01684	615.66
0.153	-0.01034	380.03	0.309	-0.02400	875.95
0.214	-0.01458	534.28	0.401	-0.03253	1186.00
0.540	-0.02885	1053.56	0.870	-0.06001	2185.56

update for EV, CV:

tPb **CC285**

LN Analysis **tPb**

Load **Load Data, EV=136 lbs/day CV=3.35**

Load Data-based LN

Avg:	**136**	u	ln tPb Load	tPb Load
SD:	**456**	3	8.4	4480
CV:	**3.35**	0	3.66	39
Min:	**0.3**	-3	-1.08	0.3
Max:	**2,478**			
Median:	**12**			

136 136
3.35 3.35

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.901, EV=98.1lbs/day CV=5.08; max r2=0.957**

r2 u,lnLoad:	0.901	u	lnLoad	Load	
slope, m:	0.551	3	8.38	4367	
intercept, b:	-1.622	0	2.94	19	
N: 39		-3	-2.50	0.1	
E[Load]:	98.1	Parameter Estimates			0.901
SD[Load]:	498	from LN regression			98.1
CV[Load]:	5.08	update graph label			5.1
					max r2
					0.957

N: 39

	Date	tPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
ws	update and rank for new data						
	22-Jan-98	**0.3**	1	0.0159	-2.146	-1.380	0.901
	5-Oct-91	**2.6**	2	0.0414	-1.735	0.955	0.888
	27-Oct-98	**3.0**	3	0.0669	-1.499	1.088	0.889
	23-Feb-99	**4.6**	4	0.0924	-1.326	1.526	0.888
	26-Oct-98	**5.7**	5	0.1178	-1.186	1.743	0.894
	15-Dec-98	**5.8**	6	0.1433	-1.066	1.762	0.902
	30-Aug-99	**5.9**	7	0.1688	-0.959	1.779	0.909
	20-Jan-99	**6.2**	8	0.1943	-0.862	1.822	0.914
	26-Feb-98	**6.6**	9	0.2197	-0.773	1.885	0.919
	8-Mar-99	**6.8**	10	0.2452	-0.690	1.910	0.923
	26-Aug-98	**8.0**	11	0.2707	-0.611	2.084	0.926
	26-Aug-98	**8.2**	12	0.2962	-0.535	2.101	0.931
	24-Sep-98	**8.3**	13	0.3217	-0.463	2.120	0.936
	4-Sep-97	**8.6**	14	0.3471	-0.393	2.154	0.939
	18-Nov-98	**9.0**	15	0.3726	-0.325	2.201	0.942
	5-Aug-99	**10.2**	16	0.3981	-0.258	2.326	0.944
	28-Jul-98	**10.5**	17	0.4236	-0.193	2.356	0.947
	28-Jul-98	**11.3**	18	0.4490	-0.128	2.423	0.949
	15-Jan-99	**11.3**	19	0.4745	-0.064	2.424	0.951
	25-Nov-98	**12.1**	20	0.5000	0.000	2.493	0.950
	20-Mar-98	**15.0**	21	0.5255	0.064	2.710	0.949
	8-Jul-99	**17.7**	22	0.5510	0.128	2.873	0.951
	9-Nov-97	**17.8**	23	0.5764	0.193	2.878	0.955
	26-Jun-98	**18.0**	24	0.6019	0.258	2.891	0.957
	23-Jul-97	**19.7**	25	0.6274	0.325	2.982	0.957
	5-May-99	**23.6**	26	0.6529	0.393	3.162	0.956
	24-Jun-97	**24.8**	27	0.6783	0.463	3.209	0.956
	17-May-91	**25.8**	28	0.7038	0.535	3.249	0.953
	26-Nov-97	**39.0**	29	0.7293	0.611	3.663	0.946
	14-Aug-97	**41.9**	30	0.7548	0.690	3.735	0.946
	14-May-98	**51.7**	31	0.7803	0.773	3.946	0.943
	23-Mar-99	**61.5**	32	0.8057	0.862	4.120	0.939
	21-Apr-99	**63.0**	33	0.8312	0.959	4.143	0.934
	16-Oct-97	**82.2**	34	0.8567	1.066	4.410	0.915
	28-May-98	**157.6**	35	0.8822	1.186	5.060	0.883
	15-Jun-99	**204.2**	36	0.9076	1.326	5.319	
	19-Dec-97	**228.3**	37	0.9331	1.499	5.431	
	23-Apr-98	**1590.8**	38	0.9586	1.735	7.372	
	24-May-99	**2478.0**	39	0.9841	2.146	7.815	

update for EV, CV:

tPb		**CC285**		222	222
LN Analysis		**tPb**		2.15	2.15
Concentration		**Conc. Data, EV=222 ug/L CV=2.15**			
Avg:	**222**	**Data-based LN**			
SD:	**476**	u	ln[tPb]	[tPb]	
CV:	**2.15**	3	8.5	4811	
Min:	**3**	0	4.54	94	
Max:	**2,080**	-3	0.60	2	
Median:	**60**				

				0.804	0.804
	u=mLn{Conc.}+b:			212.7	213
update for r2, EV, CV:	**r2=0.804, EV=213 ug/L CV=2.45; max r2=0.925**			2.452	2.45
	r2 u,lnConc:	0.804	u	lnConc.	Conc.
	slope, m:	0.716	3	8.57	5287
	intercept, b:	-3.142	0	4.39	80
	N: 39		-3	0.20	1
0.901	E[Conc]:	212.7	Parameter Estimates		
98.1	SD[Conc]:	522	from LN regression		
5.08	CV[Conc]:	2.45	update graph label		

						max r2
	tPb	N: 39				0.925
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
22-Jan-98	2.5	1	0.0159	-2.146	0.916	0.804
17-May-91	24	2	0.0414	-1.735	3.178	0.779
8-Jul-99	28.1	3	0.0669	-1.499	3.336	0.779
5-Oct-91	34	4	0.0924	-1.326	3.526	0.780
23-Feb-99	37	5	0.1178	-1.186	3.611	0.786
24-Jun-97	39	6	0.1433	-1.066	3.664	0.792
8-Mar-99	43	7	0.1688	-0.959	3.761	0.799
14-May-98	43.1	8	0.1943	-0.862	3.764	0.808
30-Aug-99	45.9	9	0.2197	-0.773	3.826	0.815
26-Oct-98	46	10	0.2452	-0.690	3.829	0.824
27-Oct-98	46	11	0.2707	-0.611	3.829	0.831
23-Jul-97	50	12	0.2962	-0.535	3.912	0.837
20-Jan-99	50	13	0.3217	-0.463	3.912	0.846
26-Jun-98	54	14	0.3471	-0.393	3.989	0.853
26-Aug-98	57	15	0.3726	-0.325	4.043	0.862
15-Dec-98	57	16	0.3981	-0.258	4.043	0.874
5-May-99	57	17	0.4236	-0.193	4.043	0.884
28-Jul-98	58	18	0.4490	-0.128	4.060	0.893
26-Aug-98	58	19	0.4745	-0.064	4.060	0.901
4-Sep-97	60	20	0.5000	0.000	4.094	0.908
26-Feb-98	60	21	0.5255	0.064	4.094	0.915
15-Jan-99	61	22	0.5510	0.128	4.111	0.921
5-Aug-99	61.4	23	0.5764	0.193	4.117	0.924
28-Jul-98	62	24	0.6019	0.258	4.127	0.925
24-Sep-98	72	25	0.6274	0.325	4.277	0.924
25-Nov-98	77	26	0.6529	0.393	4.344	0.925
9-Nov-97	77.6	27	0.6783	0.463	4.352	0.925
20-Mar-98	89	28	0.7038	0.535	4.489	0.920
21-Apr-99	96	29	0.7293	0.611	4.564	0.916
28-May-98	100	30	0.7548	0.690	4.605	0.908
15-Jun-99	110	31	0.7803	0.773	4.700	0.893
18-Nov-98	120	32	0.8057	0.862	4.787	0.870
23-Mar-99	130	33	0.8312	0.959	4.868	0.837
14-Aug-97	257	34	0.8567	1.066	5.549	0.806
26-Nov-97	292	35	0.8822	1.186	5.677	0.732
16-Oct-97	698	36	0.9076	1.326	6.548	
24-May-99	1400	37	0.9331	1.499	7.244	
23-Apr-98	1920	38	0.9586	1.735	7.560	
19-Dec-97	2080	39	0.9841	2.146	7.640	

update for EV, CV:

tPb		**CC285**			73	73.2
LN Analysis		**tPb**			1.20	1.2
Discharge, Q		**Q Data, EV=73.2 cfs CV=1.2**				
Avg:	**73**	**Q Data-based LN**				
SD:	**88**	u	lnQ	Q		
CV:	**1.20**	3	6.7	796		
Min:	**12**	0	3.85	47		
Max:	**345**	-3	1.02	3		
Median:	**30**					

					0.884	0.884
					74.5	74.5
u=mLn{Q}+b:					1.37	1.37
update for r2, EV, CV:	**r2=0.884, EV=74.5 cfs CV=1.37; max r2=0.950**					
r2 u,lnQ:	0.884	u	lnQ	Q		
slope, m:	0.971	3	6.87	963		
intercept, b:	-3.672	0	3.78	44		
N: 39		-3	0.69	2		
E[Q]:	74.5	Parameter Estimates				
SD[Q]:	102	from LN regression				
CV[Q]:	1.37	update graph label				

						max r2
	Q	N: 39				0.950
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
27-Oct-98	12	1	0.0159	-2.146	2.485	0.884
18-Nov-98	14	2	0.0414	-1.735	2.639	0.894
5-Oct-91	14.2	3	0.0669	-1.499	2.653	0.900
22-Jan-98	18.7	4	0.0924	-1.326	2.929	0.901
15-Dec-98	19	5	0.1178	-1.186	2.944	0.910
19-Dec-97	20.4	6	0.1433	-1.066	3.016	0.916
26-Feb-98	20.4	7	0.1688	-0.959	3.016	0.924
24-Sep-98	21.5	8	0.1943	-0.862	3.068	0.929
16-Oct-97	21.9	9	0.2197	-0.773	3.086	0.934
20-Jan-99	23	10	0.2452	-0.690	3.135	0.939
26-Oct-98	23.1	11	0.2707	-0.611	3.140	0.943
23-Feb-99	23.1	12	0.2962	-0.535	3.140	0.946
30-Aug-99	24	13	0.3217	-0.463	3.178	0.948
26-Nov-97	24.8	14	0.3471	-0.393	3.211	0.949
26-Aug-98	26.2	15	0.3726	-0.325	3.266	0.949
26-Aug-98	26.2	16	0.3981	-0.258	3.266	0.950
4-Sep-97	26.7	17	0.4236	-0.193	3.285	0.948
25-Nov-98	29.2	18	0.4490	-0.128	3.374	0.946
8-Mar-99	29.2	19	0.4745	-0.064	3.374	0.943
14-Aug-97	30.3	20	0.5000	0.000	3.411	0.939
5-Aug-99	31	21	0.5255	0.064	3.434	0.934
20-Mar-98	31.4	22	0.5510	0.128	3.447	0.927
28-Jul-98	33.8	23	0.5764	0.193	3.520	0.919
28-Jul-98	33.8	24	0.6019	0.258	3.520	0.910
15-Jan-99	34.4	25	0.6274	0.325	3.538	0.905
9-Nov-97	42.6	26	0.6529	0.393	3.752	0.914
26-Jun-98	62	27	0.6783	0.463	4.127	0.927
23-Jul-97	73.3	28	0.7038	0.535	4.295	0.921
5-May-99	77	29	0.7293	0.611	4.344	0.909
23-Mar-99	88	30	0.7548	0.690	4.477	0.901
8-Jul-99	117	31	0.7803	0.773	4.762	0.891
24-Jun-97	118	32	0.8057	0.862	4.771	0.868
21-Apr-99	122	33	0.8312	0.959	4.804	0.836
23-Apr-98	154	34	0.8567	1.066	5.037	0.828
17-May-91	199.5	35	0.8822	1.186	5.296	0.819
14-May-98	223	36	0.9076	1.326	5.407	
28-May-98	293	37	0.9331	1.499	5.680	
24-May-99	329	38	0.9586	1.735	5.796	
15-Jun-99	345	39	0.9841	2.146	5.844	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC285 **Date:** 2-Jun-00
Chemical: tZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	35,889	74	1,424	396	0.00	0.00	0.00		
SD:	618	89	800	365	1.00	1.00	1.00		
CV:	0.02	1.19	0.56	0.92					first:
Min:	33,375	12	156	15.7	-0.71	-1.59	-1.04		mid:
Max:	36,402	345	3,860	1,664	3.05	3.05	3.47		last:
Median:	36,019	31	1,235	270	-0.49	-0.24	-0.35		

tZn **CC285** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.209)		update r2	0.21	0.209	r2:	0.000	0.000	
r2 Q,[COC]:	0.21	[tZn]	Q		m:	-0.0026	0.00000	
slope, m:	-4.1	1,681	12.0		b:	168	3.84	
intercept, b:	1730.8	1,424	74.5					
N: 38		307	345					first:
LnConc. = mLn{Q}+b (r2=0.248)		update r2	0.25	0.248				mid:
r2 lnQ,ln[COC]:	0.25	ln[tZn]	ln Q	[tZn]	Q			last:
slope, m:	-0.35	7.53	2.48	1,869	12			
intercept, b:	8.40	6.90	4.31	990	74			
N: 38		6.36	5.84	581	345			

for graph
tZn 0
CC285

N= 38

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	17-May-91	199.5	554	595	5.30	6.32	6.39	1.41	-1.09	0.54
MFG	5-Oct-91	14.2	1890	144	2.65	7.54	4.97	-0.68	0.58	-0.69
IDEQ	24-Jun-97	118	466	296	4.77	6.14	5.69	0.49	-1.20	-0.27
IDEQ	23-Jul-97	73.3	767	302	4.29	6.64	5.71	-0.01	-0.82	-0.26
IDEQ	14-Aug-97	30.3	1250	204	3.41	7.13	5.32	-0.50	-0.22	-0.53
IDEQ	4-Sep-97	26.7	1390	200	3.28	7.24	5.30	-0.54	-0.04	-0.54
IDEQ	16-Oct-97	21.9	1140	134	3.09	7.04	4.90	-0.59	-0.35	-0.72
URS	9-Nov-97	42.6	1550	355	3.75	7.35	5.87	-0.36	0.16	-0.11
IDEQ	26-Nov-97	24.8	1490	199	3.21	7.31	5.29	-0.56	0.08	-0.54
IDEQ	19-Dec-97	20.4	2420	266	3.02	7.79	5.58	-0.61	1.25	-0.36
IDEQ	22-Jan-98	18.7	156	16	2.93	5.05	2.75	-0.63	-1.59	-1.04
IDEQ	26-Feb-98	20.4	1830	201	3.02	7.51	5.30	-0.61	0.51	-0.54
IDEQ	20-Mar-98	31.4	1840	311	3.45	7.52	5.74	-0.49	0.52	-0.23
IDEQ	23-Apr-98	154	1340	1110	5.04	7.20	7.01	0.90	-0.10	1.96
URS	14-May-98	223	424	509	5.41	6.05	6.23	1.68	-1.25	0.31
IDEQ	28-May-98	293	764	1204	5.68	6.64	7.09	2.47	-0.82	2.22
IDEQ	26-Jun-98	62	786	262	4.13	6.67	5.57	-0.14	-0.80	-0.37
IDEQ	28-Jul-98	33.8	1140	207	3.52	7.04	5.33	-0.46	-0.35	-0.52
IDEQ	28-Jul-98	33.8	1180	215	3.52	7.07	5.37	-0.46	-0.30	-0.50
IDEQ	26-Aug-98	26.2	1180	166	3.27	7.07	5.11	-0.54	-0.30	-0.63
IDEQ	24-Sep-98	21.5	1220	141	3.07	7.11	4.95	-0.60	-0.25	-0.70
IDEQ	26-Oct-98	23.1	1070	133	3.14	6.98	4.89	-0.58	-0.44	-0.72
USGS	27-Oct-98	12	1600	103	2.48	7.38	4.64	-0.71	0.22	-0.80
USGS	18-Nov-98	14	2400	181	2.64	7.78	5.20	-0.68	1.22	-0.59
IDEQ	25-Nov-98	29.2	3860	606	3.37	8.26	6.41	-0.51	3.05	0.58
USGS	15-Dec-98	19	2800	286	2.94	7.94	5.66	-0.63	1.72	-0.30
IDEQ	15-Jan-99	34.4	2440	452	3.54	7.80	6.11	-0.45	1.27	0.15
USGS	20-Jan-99	23	2300	285	3.14	7.74	5.65	-0.58	1.10	-0.31
IDEQ	23-Feb-99	23.1	1960	244	3.14	7.58	5.50	-0.58	0.67	-0.42
IDEQ	8-Mar-99	29.2	2280	358	3.37	7.73	5.88	-0.51	1.07	-0.10
USGS	23-Mar-99	88	2800	1326	4.48	7.94	7.19	0.15	1.72	2.55
USGS	21-Apr-99	122	1300	853	4.80	7.17	6.75	0.54	-0.15	1.25
USGS	5-May-99	77	920	381	4.34	6.82	5.94	0.03	-0.63	-0.04
USGS	24-May-99	329	940	1664	5.80	6.85	7.42	2.87	-0.60	3.47
USGS	15-Jun-99	345	320	594	5.84	5.77	6.39	3.05	-1.38	0.54
USGS	8-Jul-99	117	436	274	4.76	6.08	5.61	0.48	-1.24	-0.33
USGS	5-Aug-99	31	865	144	3.43	6.76	4.97	-0.49	-0.70	-0.69
USGS	30-Aug-99	24	1030	133	3.18	6.94	4.89	-0.57	-0.49	-0.72

tZn

Concentration over time analysis r2 Slope, m

tZn CC285 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.008** **0.00010**

Time	Ln[COC]	[COC]
17-May-91	6.84	931
11-Aug-98	7.09	1,199
30-Aug-99	7.13	1,244

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

Load over time analysis

tZn CC285 **Load over time**

LnLoad=mTime+b All data r2, m: **0.005** **0.00009**

Time	LnLoad	Load
17-May-91	5.41	224
11-Aug-98	5.66	287
30-Aug-99	5.70	297

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

max r2: 0.664 max r2: 0.914

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rov		
0.008	0.00010	3.64	0.005	0.00009	2.26
0.003	-0.00007	9.67	0.051	0.00041	-9.09
0.010	0.00029	-3.30	0.055	0.00086	-25.50
0.001	0.00008	4.16	0.062	0.00097	-29.20
0.000	-0.00003	8.38	0.071	0.00109	-33.64
0.000	-0.00004	8.48	0.068	0.00112	-34.72
0.000	-0.00001	7.36	0.063	0.00114	-35.58
0.000	-0.00003	8.38	0.047	0.00103	-31.32
0.000	0.00004	5.69	0.059	0.00122	-38.22
0.001	0.00012	2.79	0.053	0.00122	-38.50
0.010	0.00044	-8.64	0.056	0.00135	-43.02
0.014	-0.00045	23.57	0.001	0.00016	-0.11
0.007	-0.00034	19.61	0.000	-0.00006	8.03
0.002	-0.00020	14.23	0.000	-0.00012	10.05
0.002	-0.00019	13.86	0.009	0.00053	-13.24
0.037	-0.00087	38.69	0.022	0.00087	-25.89
0.083	-0.00138	57.31	0.108	0.00194	-64.49
0.156	-0.00200	79.47	0.115	0.00214	-71.85
0.202	-0.00242	94.99	0.104	0.00217	-72.66
0.268	-0.00303	117.05	0.094	0.00223	-75.04
0.350	-0.00376	143.39	0.066	0.00200	-66.48
0.441	-0.00456	172.32	0.032	0.00145	-46.71
0.572	-0.00551	207.07	0.007	0.00067	-18.56
0.656	-0.00644	240.77	0.011	-0.00085	36.75
0.664	-0.00694	258.88	0.061	-0.00213	83.26
0.603	-0.00679	253.27	0.042	-0.00196	76.91
0.556	-0.00695	259.11	0.093	-0.00324	123.63
0.506	-0.00700	261.03	0.104	-0.00382	144.52
0.444	-0.00718	267.60	0.218	-0.00637	237.42
0.382	-0.00717	267.39	0.446	-0.01008	371.94
0.253	-0.00608	227.49	0.712	-0.01480	543.69
0.029	-0.00178	71.47	0.646	-0.01545	567.39
0.014	0.00131	-41.17	0.604	-0.01664	610.55
0.154	0.00525	-184.28	0.914	-0.02591	947.72

update for EV, CV:

tZn **CC285**

LN Analysis **tZn**

Load **Load Data, EV=396 lbs/day CV=0.921**

Load Data-based LN

		u	ln tZn Load	tZn Load
Avg:	**396**			
SD:	**365**	3	8.0	3059
CV:	**0.92**	0	5.67	291
Min:	**15.7**	-3	3.32	27.8
Max:	**1,664**			
Median:	**270**			

396 396
0.92 0.921

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.913, EV=429lbs/day CV=1.14; max r2=0.970**

r2 u,lnLoad:	0.913	u	lnLoad	Load	
slope, m:	1.098	3	8.38	4360	
intercept, b:	-6.198	0	5.65	283	
N: 38		-3	2.91	18.4	
E[Load]:	429.2	Parameter Estimates			0.913
SD[Load]:	488	from LN regression			429.2
CV[Load]:	1.14	update graph label			1.1
					max r2
					0.970

N: 38

	Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
ws	update and rank for new data						
	22-Jan-98	**16**	1	0.0163	-2.136	2.753	0.913
	27-Oct-98	**103**	2	0.0425	-1.723	4.638	0.954
	26-Oct-98	**133**	3	0.0686	-1.486	4.890	0.955
	30-Aug-99	**133**	4	0.0948	-1.312	4.890	0.962
	16-Oct-97	**134**	5	0.1209	-1.170	4.900	0.965
	24-Sep-98	**141**	6	0.1471	-1.049	4.950	0.966
	5-Aug-99	**144**	7	0.1732	-0.942	4.972	0.967
	5-Oct-91	**144**	8	0.1993	-0.844	4.973	0.966
	26-Aug-98	**166**	9	0.2255	-0.754	5.114	0.964
	18-Nov-98	**181**	10	0.2516	-0.669	5.197	0.964
	26-Nov-97	**199**	11	0.2778	-0.589	5.292	0.965
	4-Sep-97	**200**	12	0.3039	-0.513	5.297	0.968
	26-Feb-98	**201**	13	0.3301	-0.440	5.303	0.970
	14-Aug-97	**204**	14	0.3562	-0.369	5.317	0.970
	28-Jul-98	**207**	15	0.3824	-0.299	5.334	0.970
	28-Jul-98	**215**	16	0.4085	-0.231	5.369	0.968
	23-Feb-99	**244**	17	0.4346	-0.165	5.495	0.966
	26-Jun-98	**262**	18	0.4608	-0.098	5.569	0.966
	19-Dec-97	**266**	19	0.4869	-0.033	5.582	0.968
	8-Jul-99	**274**	20	0.5131	0.033	5.615	0.968
	20-Jan-99	**285**	21	0.5392	0.098	5.651	0.968
	15-Dec-98	**286**	22	0.5654	0.165	5.657	0.968
	24-Jun-97	**296**	23	0.5915	0.231	5.690	0.965
	23-Jul-97	**302**	24	0.6176	0.299	5.712	0.962
	20-Mar-98	**311**	25	0.6438	0.369	5.739	0.957
	9-Nov-97	**355**	26	0.6699	0.440	5.873	0.951
	8-Mar-99	**358**	27	0.6961	0.513	5.881	0.944
	5-May-99	**381**	28	0.7222	0.589	5.943	0.936
	15-Jan-99	**452**	29	0.7484	0.669	6.113	0.931
	14-May-98	**509**	30	0.7745	0.754	6.232	0.918
	15-Jun-99	**594**	31	0.8007	0.844	6.387	0.900
	17-May-91	**595**	32	0.8268	0.942	6.388	0.876
	25-Nov-98	**606**	33	0.8529	1.049	6.408	0.842
	21-Apr-99	**853**	34	0.8791	1.170	6.749	0.920
	23-Apr-98	**1110**	35	0.9052	1.312	7.012	
	28-May-98	**1204**	36	0.9314	1.486	7.094	
	23-Mar-99	**1326**	37	0.9575	1.723	7.190	
	24-May-99	**1664**	38	0.9837	2.136	7.417	

update for EV, CV:

tZn		**CC285**		1,424	1420
LN Analysis		**tZn**		0.56	0.562
Concentration		**Conc. Data, EV=1420 ug/L CV=0.562**			
Avg:	**1,424**	**Data-based LN**			
SD:	**800**	u	ln[tZn]	[tZn]	
CV:	**0.56**	3	8.7	5972	
Min:	**156**	0	7.12	1241	
Max:	**3,860**	-3	5.55	258	
Median:	**1,235**				

				0.948	0.948
	u=mLn{Conc.}+b:			1516.0	1520
update for r2, EV, CV:	**r2=0.948, EV=1520 ug/L CV=0.798; max r2=0.985**			0.798	0.798
	r2 u,lnConc:	0.948	u	lnConc.	Conc.
	slope, m:	1.424	3	9.18	9741
	intercept, b:	-10.078	0	7.08	1185
	N: 38		-3	4.97	144
0.913	E[Conc]:	1516.0	Parameter Estimates		
429	SD[Conc]:	1210	from LN regression		
1.14	CV[Conc]:	0.80	update graph label		

						max r2
	tZn	N: 38				0.985
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
22-Jan-98	156	1	0.0163	-2.136	5.050	0.948
15-Jun-99	320	2	0.0425	-1.723	5.768	0.966
14-May-98	424	3	0.0686	-1.486	6.050	0.967
8-Jul-99	436	4	0.0948	-1.312	6.078	0.965
24-Jun-97	466	5	0.1209	-1.170	6.144	0.968
17-May-91	554	6	0.1471	-1.049	6.317	0.978
28-May-98	764	7	0.1732	-0.942	6.639	0.985
23-Jul-97	767	8	0.1993	-0.844	6.642	0.984
26-Jun-98	786	9	0.2255	-0.754	6.667	0.983
5-Aug-99	865	10	0.2516	-0.669	6.763	0.982
5-May-99	920	11	0.2778	-0.589	6.824	0.981
24-May-99	940	12	0.3039	-0.513	6.846	0.979
30-Aug-99	1030	13	0.3301	-0.440	6.937	0.978
26-Oct-98	1070	14	0.3562	-0.369	6.975	0.976
16-Oct-97	1140	15	0.3824	-0.299	7.039	0.974
28-Jul-98	1140	16	0.4085	-0.231	7.039	0.972
28-Jul-98	1180	17	0.4346	-0.165	7.073	0.970
26-Aug-98	1180	18	0.4608	-0.098	7.073	0.967
24-Sep-98	1220	19	0.4869	-0.033	7.107	0.964
14-Aug-97	1250	20	0.5131	0.033	7.131	0.961
21-Apr-99	1300	21	0.5392	0.098	7.170	0.958
23-Apr-98	1340	22	0.5654	0.165	7.200	0.954
4-Sep-97	1390	23	0.5915	0.231	7.237	0.952
26-Nov-97	1490	24	0.6176	0.299	7.307	0.952
9-Nov-97	1550	25	0.6438	0.369	7.346	0.948
27-Oct-98	1600	26	0.6699	0.440	7.378	0.945
26-Feb-98	1830	27	0.6961	0.513	7.512	0.947
20-Mar-98	1840	28	0.7222	0.589	7.518	0.939
5-Oct-91	1890	29	0.7484	0.669	7.544	0.928
23-Feb-99	1960	30	0.7745	0.754	7.581	0.916
8-Mar-99	2280	31	0.8007	0.844	7.732	0.903
20-Jan-99	2300	32	0.8268	0.942	7.741	0.908
18-Nov-98	2400	33	0.8529	1.049	7.783	0.905
19-Dec-97	2420	34	0.8791	1.170	7.792	0.921
15-Jan-99	2440	35	0.9052	1.312	7.800	
15-Dec-98	2800	36	0.9314	1.486	7.937	
23-Mar-99	2800	37	0.9575	1.723	7.937	
25-Nov-98	3860	38	0.9837	2.136	8.258	

update for EV, CV:

tZn		**CC285**			74	74.5
LN Analysis		**tZn**			1.19	1.19
Discharge, Q		**Q Data, EV=74.5 cfs CV=1.19**				
Avg:	**74**	**Q Data-based LN**				
SD:	**89**	u	lnQ	Q		
CV:	**1.19**	3	6.7	801		
Min:	**12**	0	3.87	48		
Max:	**345**	-3	1.05	3		
Median:	**31**					

					0.891	0.891
					76.1	76.1
u=mLn{Q}+b:					1.39	1.39
update for r2, EV, CV:	**r2=0.891, EV=76.1 cfs CV=1.39; max r2=0.951**					
r2 u,lnQ:	0.891	u	lnQ	Q		
slope, m:	0.965	3	6.90	996		
intercept, b:	-3.662	0	3.79	44		
N: 38		-3	0.69	2		
E[Q]:	76.1	Parameter Estimates				
SD[Q]:	106	from LN regression				
CV[Q]:	1.39	update graph label				

						max r2
	Q	N: 38				0.951
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
27-Oct-98	12	1	0.0163	-2.136	2.485	0.891
18-Nov-98	14	2	0.0425	-1.723	2.639	0.901
5-Oct-91	14.2	3	0.0686	-1.486	2.653	0.907
22-Jan-98	18.7	4	0.0948	-1.312	2.929	0.908
15-Dec-98	19	5	0.1209	-1.170	2.944	0.917
19-Dec-97	20.4	6	0.1471	-1.049	3.016	0.923
26-Feb-98	20.4	7	0.1732	-0.942	3.016	0.930
24-Sep-98	21.5	8	0.1993	-0.844	3.068	0.935
16-Oct-97	21.9	9	0.2255	-0.754	3.086	0.940
20-Jan-99	23	10	0.2516	-0.669	3.135	0.944
26-Oct-98	23.1	11	0.2778	-0.589	3.140	0.948
23-Feb-99	23.1	12	0.3039	-0.513	3.140	0.950
30-Aug-99	24	13	0.3301	-0.440	3.178	0.951
26-Nov-97	24.8	14	0.3562	-0.369	3.211	0.951
26-Aug-98	26.2	15	0.3824	-0.299	3.266	0.950
4-Sep-97	26.7	16	0.4085	-0.231	3.285	0.949
25-Nov-98	29.2	17	0.4346	-0.165	3.374	0.946
8-Mar-99	29.2	18	0.4608	-0.098	3.374	0.944
14-Aug-97	30.3	19	0.4869	-0.033	3.411	0.940
5-Aug-99	31	20	0.5131	0.033	3.434	0.935
20-Mar-98	31.4	21	0.5392	0.098	3.447	0.928
28-Jul-98	33.8	22	0.5654	0.165	3.520	0.920
28-Jul-98	33.8	23	0.5915	0.231	3.520	0.911
15-Jan-99	34.4	24	0.6176	0.299	3.538	0.906
9-Nov-97	42.6	25	0.6438	0.369	3.752	0.915
26-Jun-98	62	26	0.6699	0.440	4.127	0.928
23-Jul-97	73.3	27	0.6961	0.513	4.295	0.921
5-May-99	77	28	0.7222	0.589	4.344	0.910
23-Mar-99	88	29	0.7484	0.669	4.477	0.901
8-Jul-99	117	30	0.7745	0.754	4.762	0.892
24-Jun-97	118	31	0.8007	0.844	4.771	0.868
21-Apr-99	122	32	0.8268	0.942	4.804	0.836
23-Apr-98	154	33	0.8529	1.049	5.037	0.829
17-May-91	199.5	34	0.8791	1.170	5.296	0.820
14-May-98	223	35	0.9052	1.312	5.407	
28-May-98	293	36	0.9314	1.486	5.680	
24-May-99	329	37	0.9575	1.723	5.796	
15-Jun-99	345	38	0.9837	2.136	5.844	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC287 **Date:** 29-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,150	41	23	11	0.00	0.00	0.00	
SD:	626	38	22	64	1.00	1.00	1.00	
CV:	0.02	0.92	0.97	5.58				first:
Min:	33,516	11	5	1	-0.79	-0.80	-0.16	mid:
Max:	36,227	206	200	559	4.36	7.92	8.58	last:
Median:	35,081	26	20	3	-0.40	-0.14	-0.13	

dCd **CC287** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.06) update r2 r2: 0.015 0.033

r2 Q,[COC]:	0.06	[dCd]	Q	m:	0.0075	0.00021
slope, m:	-0.1	27	11.4	b:	-222	-3.98
intercept, b:	28.8	23	41.1			
N: 75		-0.1	206			first:

LnConc. = mLn{Q}+b (r2=0.32) update r2 mid:

						last:
r2 lnQ,ln[COC]:	0.32	ln[dCd]	ln Q	[dCd]	Q	
slope, m:	-0.43	3.38	2.43	29	11	
intercept, b:	4.44	2.83	3.72	17	41	
N: 75		2.13	5.33	8	206	

for graph
dCd 0
CC287

N= 75

	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	5-Oct-91	14.5	21.6	2	2.67	3.07	0.52	-0.70	-0.06	-0.15
IDEQ	27-Oct-93	13.28	26	2	2.59	3.26	0.62	-0.74	0.13	-0.15
IDEQ	30-Nov-93	12.62	26	2	2.54	3.26	0.57	-0.75	0.13	-0.15
IDEQ	17-Dec-93	11.7	31	2	2.46	3.43	0.67	-0.78	0.36	-0.15
IDEQ	17-Dec-93	12.03	31	2	2.49	3.43	0.70	-0.77	0.36	-0.15
IDEQ	20-Jan-94	13.28	33	2	2.59	3.50	0.86	-0.74	0.45	-0.14
IDEQ	20-Jan-94	14.66	33	3	2.69	3.50	0.96	-0.70	0.45	-0.14
IDEQ	18-Feb-94	11.41	28	2	2.43	3.33	0.54	-0.78	0.22	-0.15
IDEQ	8-Mar-94	22.26	27	3	3.10	3.30	1.17	-0.50	0.18	-0.13
IDEQ	24-Mar-94	21.13	27	3	3.05	3.30	1.12	-0.53	0.18	-0.13
IDEQ	7-Apr-94	37.82	17	3	3.63	2.83	1.24	-0.09	-0.27	-0.12
IDEQ	4-May-94	111.05	8.3	5	4.71	2.12	1.60	1.85	-0.66	-0.10
IDEQ	19-May-94	102.01	7.5	4	4.63	2.01	1.41	1.61	-0.70	-0.11
IDEQ	7-Jun-94	63.45	11	4	4.15	2.40	1.32	0.59	-0.54	-0.12
IDEQ	23-Jun-94	28.96	13	2	3.37	2.56	0.71	-0.32	-0.45	-0.15
IDEQ	25-Jul-94	19.04	16	2	2.95	2.77	0.49	-0.58	-0.32	-0.15
IDEQ	16-Aug-94	16.3	20	2	2.79	3.00	0.56	-0.66	-0.14	-0.15
IDEQ	16-Aug-94	13.57	20	1	2.61	3.00	0.38	-0.73	-0.14	-0.16
IDEQ	13-Sep-94	15.89	20	2	2.77	3.00	0.54	-0.67	-0.14	-0.15
IDEQ	16-Oct-94	14.34	20	2	2.66	3.00	0.43	-0.71	-0.14	-0.15
IDEQ	16-Nov-94	15.89	32	3	2.77	3.47	1.01	-0.67	0.40	-0.14
IDEQ	13-Dec-94	17.17	41	4	2.84	3.71	1.33	-0.63	0.80	-0.12
IDEQ	10-Jan-95	28.21	38	6	3.34	3.64	1.75	-0.34	0.67	-0.09
IDEQ	9-Feb-95	43.28	19	4	3.77	2.94	1.49	0.06	-0.18	-0.11
IDEQ	8-Mar-95	36.82	15	3	3.61	2.71	1.09	-0.11	-0.36	-0.13
IDEQ	22-Mar-95	86.16	21	10	4.46	3.04	2.28	1.19	-0.09	-0.03
IDEQ	12-Apr-95	42.13	15	3	3.74	2.71	1.22	0.03	-0.36	-0.13
IDEQ	25-Apr-95	43	12	3	3.76	2.48	1.02	0.05	-0.49	-0.14
IDEQ	13-Jun-95	96.41	7	4	4.57	1.95	1.29	1.46	-0.72	-0.12
IDEQ	27-Jun-95	34.9	8.4	2	3.55	2.13	0.46	-0.16	-0.66	-0.15
IDEQ	11-Jul-95	20.05	11	1	3.00	2.40	0.17	-0.56	-0.54	-0.16
IDEQ	25-Jul-95	14.71	14	1	2.69	2.64	0.10	-0.70	-0.40	-0.16
IDEQ	14-Aug-95	12.6	17	1	2.53	2.83	0.14	-0.75	-0.27	-0.16
IDEQ	13-Sep-95	11.4	20	1	2.43	3.00	0.20	-0.79	-0.14	-0.16
IDEQ	18-Oct-95	31.4	200	34	3.45	5.30	3.52	-0.26	7.92	0.35
IDEQ	21-Nov-95	81.5	11	5	4.40	2.40	1.57	1.07	-0.54	-0.10
IDEQ	27-Dec-95	42.1	18	4	3.74	2.89	1.41	0.03	-0.23	-0.12
IDEQ	17-Jan-96	50.9	26	7	3.93	3.26	1.96	0.26	0.13	-0.07
IDEQ	29-Feb-96	111	15	9	4.71	2.71	2.19	1.85	-0.36	-0.04
IDEQ	28-Mar-96	65.2	15	5	4.18	2.71	1.66	0.64	-0.36	-0.10
IDEQ	8-May-96	81.5	11	5	4.40	2.40	1.57	1.07	-0.54	-0.10
IDEQ	19-Jun-96	148	5.8	5	5.00	1.76	1.53	2.83	-0.77	-0.11
IDEQ	24-Jul-96	35.8	14	3	3.58	2.64	0.99	-0.14	-0.40	-0.14
IDEQ	21-Aug-96	23.342375	23	3	3.15	3.14	1.06	-0.47	0.00	-0.13
IDEQ	26-Sep-96	19.5	24	3	2.97	3.18	0.92	-0.57	0.04	-0.14
IDEQ	29-Oct-96	23.5	28	4	3.16	3.33	1.26	-0.47	0.22	-0.12
IDEQ	27-Nov-96	21.7	29	3	3.08	3.37	1.22	-0.51	0.27	-0.13

IDEQ	13-Dec-96	29.7	39	6	3.39	3.66	1.83	-0.30	0.71	-0.08
IDEQ	30-Jan-97	31.4	25	4	3.45	3.22	1.44	-0.26	0.09	-0.11
IDEQ	21-Feb-97	38.9	26	5	3.66	3.26	1.69	-0.06	0.13	-0.09
IDEQ	26-Mar-97	144	26	20	4.97	3.26	3.00	2.72	0.13	0.14
IDEQ	16-Apr-97	55.3	24	7	4.01	3.18	1.97	0.38	0.04	-0.07
IDEQ	24-Jun-97	124	5.4	4	4.82	1.69	1.28	2.19	-0.79	-0.12
IDEQ	23-Jul-97	111	9.2	5	4.71	2.22	1.70	1.85	-0.62	-0.09
IDEQ	14-Aug-97	37.8	14	3	3.63	2.64	1.05	-0.09	-0.40	-0.13
IDEQ	4-Sep-97	34	18	3	3.53	2.89	1.19	-0.19	-0.23	-0.13
IDEQ	16-Oct-97	25.4	20	3	3.23	3.00	1.01	-0.41	-0.14	-0.14
URS	9-Nov-97	32.7	19.8	3	3.49	2.99	1.25	-0.22	-0.15	-0.12
IDEQ	26-Nov-97	29.7	18	3	3.39	2.89	1.06	-0.30	-0.23	-0.13
IDEQ	19-Dec-97	24.1	27	4	3.18	3.30	1.25	-0.45	0.18	-0.12
IDEQ	22-Jan-98	18.1	26	3	2.90	3.26	0.93	-0.61	0.13	-0.14
IDEQ	26-Feb-98	22.3	25	3	3.10	3.22	1.10	-0.50	0.09	-0.13
IDEQ	20-Mar-98	33.1	21	4	3.50	3.04	1.32	-0.21	-0.09	-0.12
URS	14-May-98	206	5.2	6	5.33	1.65	1.75	4.36	-0.80	-0.09
IDEQ	26-Jun-98	63.5	9.9	3	4.15	2.29	1.22	0.59	-0.59	-0.13
IDEQ	28-Jul-98	24.7	17	2	3.21	2.83	0.81	-0.43	-0.27	-0.14
IDEQ	26-Aug-98	19.5	18	2	2.97	2.89	0.64	-0.57	-0.23	-0.15
IDEQ	24-Sep-98	17.2	17	2	2.84	2.83	0.45	-0.63	-0.27	-0.15
IDEQ	1-Oct-98	16.7	18	2	2.82	2.89	0.48	-0.64	-0.23	-0.15
IDEQ	8-Oct-98	15.9	21	2	2.77	3.04	0.59	-0.67	-0.09	-0.15
IDEQ	26-Oct-98	16.7	19	2	2.82	2.94	0.53	-0.64	-0.18	-0.15
IDEQ	25-Nov-98	26	49	7	3.26	3.89	1.92	-0.40	1.16	-0.07
IDEQ	15-Jan-99	33	27	5	3.50	3.30	1.57	-0.21	0.18	-0.10
IDEQ	23-Feb-99	20	29	3	3.00	3.37	1.14	-0.56	0.27	-0.13
IDEQ	8-Mar-99	23	28	559	3.14	3.33	6.33	-0.48	0.22	8.58

dCd

Concentration over time analysis r2 Slope, m

dCd CC287 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.001** **-0.00003**

Time	Ln[COC]	[COC]
5-Oct-91	3.01	20
17-Jan-96	2.96	19
8-Mar-99	2.92	19

LnConc.=mTime+b >'96 r2, m: **0.055** **0.00052**

21-Feb-97	2.73	15
8-Mar-99	3.11	22

Load over time analysis

dCd CC287 **Load over time**

LnLoad=mTime+b All data r2, m: **0.072** **0.00037**

Time	LnLoad	Load
5-Oct-91	0.62	2
17-Jan-96	1.19	3
8-Mar-99	1.61	5

LnLoad=mTime+b >'96 r2, m: **0.002** **0.00022**

21-Feb-97	1.34	4
8-Mar-99	1.51	5

max r2: 0.670 max r2: 0.505

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rov		
0.001	-0.00003	4.04	0.072	0.00037	-11.65
0.001	-0.00003	3.89	0.064	0.00036	-11.43
0.000	-0.00002	3.54	0.059	0.00035	-11.07
0.000	-0.00001	3.17	0.054	0.00034	-10.62
0.000	0.00001	2.54	0.049	0.00033	-10.25
0.001	0.00003	1.85	0.045	0.00032	-9.89
0.003	0.00005	1.04	0.042	0.00031	-9.71
0.006	0.00008	0.14	0.040	0.00031	-9.66
0.010	0.00010	-0.58	0.035	0.00029	-8.98
0.014	0.00012	-1.30	0.035	0.00030	-9.19
0.019	0.00014	-2.08	0.035	0.00030	-9.34
0.019	0.00014	-2.17	0.035	0.00031	-9.68
0.011	0.00011	-1.06	0.040	0.00034	-10.65
0.005	0.00007	0.34	0.044	0.00036	-11.37
0.002	0.00005	1.18	0.046	0.00038	-11.99
0.001	0.00003	1.80	0.041	0.00036	-11.50
0.000	0.00002	2.07	0.034	0.00033	-10.54
0.001	0.00003	1.93	0.028	0.00031	-9.61
0.001	0.00003	1.76	0.021	0.00027	-8.16
0.001	0.00004	1.59	0.015	0.00023	-6.89
0.001	0.00004	1.39	0.009	0.00019	-5.25
0.004	0.00008	0.10	0.008	0.00017	-4.76
0.012	0.00014	-1.92	0.008	0.00018	-4.98
0.024	0.00019	-3.95	0.011	0.00021	-6.26
0.026	0.00021	-4.42	0.012	0.00023	-6.98
0.024	0.00020	-4.30	0.011	0.00023	-6.71
0.027	0.00023	-5.10	0.020	0.00031	-9.69
0.025	0.00022	-5.00	0.020	0.00032	-9.98
0.019	0.00020	-4.19	0.017	0.00031	-9.67
0.008	0.00013	-1.57	0.018	0.00032	-10.12
0.002	0.00006	0.85	0.011	0.00026	-7.83
0.000	0.00001	2.69	0.004	0.00016	-4.14
0.000	-0.00003	3.93	0.000	0.00003	0.48
0.001	-0.00005	4.59	0.002	-0.00012	5.75
0.001	-0.00005	4.64	0.012	-0.00028	11.64
0.033	0.00025	-5.95	0.000	-0.00005	3.14
0.020	0.00020	-4.17	0.000	-0.00003	2.67
0.021	0.00021	-4.58	0.000	-0.00004	2.97
0.034	0.00028	-7.10	0.000	0.00003	0.22
0.029	0.00027	-6.78	0.003	0.00016	-4.35
0.025	0.00026	-6.35	0.005	0.00022	-6.50
0.012	0.00019	-3.71	0.007	0.00027	-8.42
0.000	-0.00003	3.89	0.009	0.00033	-10.32
0.003	-0.00010	6.54	0.006	0.00028	-8.57
0.002	-0.00008	5.84	0.004	0.00023	-6.90
0.001	-0.00005	4.61	0.001	0.00014	-3.66
0.000	0.00004	1.71	0.001	0.00012	-2.71

0.005	0.00015	-2.24	0.000	0.00007	-1.06
0.033	0.00038	-10.61	0.002	0.00020	-5.60
0.055	0.00052	-15.55	0.002	0.00022	-6.59
0.092	0.00070	-22.38	0.004	0.00035	-11.07
0.146	0.00094	-30.91	0.034	0.00102	-35.13
0.214	0.00122	-40.99	0.061	0.00146	-51.00
0.126	0.00086	-28.11	0.067	0.00163	-57.41
0.070	0.00064	-20.14	0.093	0.00204	-72.15
0.048	0.00056	-17.24	0.095	0.00222	-78.44
0.046	0.00060	-18.52	0.104	0.00252	-89.42
0.053	0.00070	-22.09	0.105	0.00273	-96.92
0.062	0.00082	-26.40	0.119	0.00316	-112.24
0.062	0.00090	-29.37	0.125	0.00358	-127.53
0.132	0.00146	-49.55	0.149	0.00438	-156.45
0.247	0.00224	-77.82	0.154	0.00504	-180.32
0.429	0.00336	-118.14	0.174	0.00613	-219.68
0.670	0.00500	-177.50	0.232	0.00846	-303.91
0.561	0.00371	-131.03	0.362	0.01234	-444.14
0.420	0.00291	-101.94	0.449	0.01582	-569.82
0.358	0.00292	-102.25	0.492	0.01878	-676.65
0.295	0.00285	-99.63	0.505	0.02109	-760.34
0.199	0.00232	-80.74	0.478	0.02189	-789.14
0.083	0.00151	-51.10	0.438	0.02287	-824.82
0.005	0.00043	-12.25	0.382	0.02498	-901.29

update for EV, CV:

dCd **CC287**

LN Analysis **dCd**

Load **Load Data, EV=11 lbs/day CV=5.58**

Load Data-based LN

Avg:	**11**	u	ln dCd Load	dCd Load
SD:	**64**	3	6.3	539
CV:	**5.58**	0	0.70	2
Min:	**1**	-3	-4.89	0.01
Max:	**559**			
Median:	**3**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.732, EV=5.7 lbs/day CV=1.34; max r2=0.94**

r2 u,lnLoad:	0.732	u	lnLoad	Load
slope, m:	0.985	3	4.26	71
intercept, b:	-1.200	0	1.22	3
N: 75		-3	-1.83	0.2
E[Load]:	5.7	Parameter Estimates		
SD[Load]:	8	from LN regression		
CV[Load]:	1.34	update graph label		

N: 75

max r2 0.939

	Date	dCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
ws	update and rank for new data						
	25-Jul-95	1	1	0.0083	-2.395	0.103	0.732
	14-Aug-95	1	2	0.0216	-2.022	0.142	0.734
	11-Jul-95	1	3	0.0349	-1.813	0.171	0.733
	13-Sep-95	1	4	0.0482	-1.663	0.204	0.730
	16-Aug-94	1	5	0.0615	-1.543	0.379	0.726
	16-Oct-94	2	6	0.0748	-1.441	0.434	0.726
	24-Sep-98	2	7	0.0880	-1.353	0.453	0.726
	27-Jun-95	2	8	0.1013	-1.274	0.456	0.725
	1-Oct-98	2	9	0.1146	-1.202	0.481	0.724
	25-Jul-94	2	10	0.1279	-1.136	0.494	0.723
	5-Oct-91	2	11	0.1412	-1.075	0.522	0.721
	26-Oct-98	2	12	0.1545	-1.017	0.535	0.719
	13-Sep-94	2	13	0.1678	-0.963	0.536	0.717
	18-Feb-94	2	14	0.1811	-0.911	0.542	0.714
	16-Aug-94	2	15	0.1944	-0.862	0.562	0.711
	30-Nov-93	2	16	0.2076	-0.815	0.568	0.707
	8-Oct-98	2	17	0.2209	-0.769	0.586	0.703
	27-Oct-93	2	18	0.2342	-0.725	0.619	0.699
	26-Aug-98	2	19	0.2475	-0.682	0.636	0.695
	17-Dec-93	2	20	0.2608	-0.641	0.669	0.691
	17-Dec-93	2	21	0.2741	-0.601	0.696	0.687
	23-Jun-94	2	22	0.2874	-0.561	0.706	0.682
	28-Jul-98	2	23	0.3007	-0.522	0.815	0.678
	20-Jan-94	2	24	0.3140	-0.485	0.858	0.676
	26-Sep-96	3	25	0.3272	-0.448	0.923	0.674
	22-Jan-98	3	26	0.3405	-0.411	0.929	0.674
	20-Jan-94	3	27	0.3538	-0.375	0.957	0.674
	24-Jul-96	3	28	0.3671	-0.340	0.992	0.674
	16-Oct-97	3	29	0.3804	-0.304	1.005	0.675
	16-Nov-94	3	30	0.3937	-0.270	1.006	0.676
	25-Apr-95	3	31	0.4070	-0.235	1.021	0.676
	14-Aug-97	3	32	0.4203	-0.201	1.046	0.677
	26-Nov-97	3	33	0.4336	-0.167	1.056	0.678
	21-Aug-96	3	34	0.4468	-0.134	1.061	0.679
	8-Mar-95	3	35	0.4601	-0.100	1.089	0.680
	26-Feb-98	3	36	0.4734	-0.067	1.098	0.681
	24-Mar-94	3	37	0.4867	-0.033	1.121	0.682
	23-Feb-99	3	38	0.5000	0.000	1.138	0.684
	8-Mar-94	3	39	0.5133	0.033	1.174	0.685
	4-Sep-97	3	40	0.5266	0.067	1.192	0.688
	26-Jun-98	3	41	0.5399	0.100	1.219	0.691
	27-Nov-96	3	42	0.5532	0.134	1.220	0.694
	12-Apr-95	3	43	0.5664	0.167	1.224	0.698
	7-Apr-94	3	44	0.5797	0.201	1.241	0.701
	9-Nov-97	3	45	0.5930	0.235	1.248	0.704
	19-Dec-97	4	46	0.6063	0.270	1.253	0.707
	29-Oct-96	4	47	0.6196	0.304	1.264	0.710

24-Jun-97	**4**	48	0.6329	0.340	1.282	0.712
13-Jun-95	**4**	49	0.6462	0.375	1.289	0.715
20-Mar-98	**4**	50	0.6595	0.411	1.319	0.717
7-Jun-94	**4**	51	0.6728	0.448	1.323	0.720
13-Dec-94	**4**	52	0.6860	0.485	1.332	0.722
27-Dec-95	**4**	53	0.6993	0.522	1.405	0.724
19-May-94	**4**	54	0.7126	0.561	1.415	0.729
30-Jan-97	**4**	55	0.7259	0.601	1.441	0.733
9-Feb-95	**4**	56	0.7392	0.641	1.487	0.738
19-Jun-96	**5**	57	0.7525	0.682	1.530	0.745
15-Jan-99	**5**	58	0.7658	0.725	1.567	0.753
21-Nov-95	**5**	59	0.7791	0.769	1.573	0.764
8-May-96	**5**	60	0.7924	0.815	1.573	0.774
4-May-94	**5**	61	0.8056	0.862	1.601	0.783
28-Mar-96	**5**	62	0.8189	0.911	1.660	0.792
21-Feb-97	**5**	63	0.8322	0.963	1.694	0.805
23-Jul-97	**5**	64	0.8455	1.017	1.704	0.820
14-May-98	**6**	65	0.8588	1.075	1.751	0.834
10-Jan-95	**6**	66	0.8721	1.136	1.752	0.850
13-Dec-96	**6**	67	0.8854	1.202	1.830	0.863
25-Nov-98	**7**	68	0.8987	1.274	1.925	0.881
17-Jan-96	**7**	69	0.9120	1.353	1.963	0.904
16-Apr-97	**7**	70	0.9252	1.441	1.966	0.927
29-Feb-96	**9**	71	0.9385	1.543	2.193	0.939
22-Mar-95	**10**	72	0.9518	1.663	2.276	
26-Mar-97	**20**	73	0.9651	1.813	3.003	
18-Oct-95	**34**	74	0.9784	2.022	3.520	
8-Mar-99	**559**	75	0.9917	2.395	6.326	

update for EV, CV:

dCd **CC287**
LN Analysis **dCd**

Concentration **Conc. Data, EV=23 ug/L CV=.97**

Avg:	**23**	**Data-based LN**		
SD:	**22**	u	ln[dCd]	[dCd]
CV:	**0.97**	3	5.2	190
Min:	**5**	0	2.81	17
Max:	**200**	-3	0.36	1
Median:	**20**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.918, EV=22.8 ug/L CV=.64; max r2=0.92**

r2 u,lnConc:	0.918	u	lnConc.	Conc.
slope, m:	1.710	3	4.71	111
intercept, b:	-5.056	0	2.96	19
N: 75		-3	1.20	3
E[Conc]:	22.8	Parameter Estimates		
SD[Conc]:	15	from LN regression		
CV[Conc]:	0.64	update graph label		

Date	dCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.918 r2 forward
		N: 75				
update and rank for new data						
14-May-98	5.2	1	0.0083	-2.395	1.649	0.918
24-Jun-97	5.4	2	0.0216	-2.022	1.686	0.911
19-Jun-96	5.8	3	0.0349	-1.813	1.758	0.906
13-Jun-95	7	4	0.0482	-1.663	1.946	0.901
19-May-94	7.5	5	0.0615	-1.543	2.015	0.895
4-May-94	8.3	6	0.0748	-1.441	2.116	0.890
27-Jun-95	8.4	7	0.0880	-1.353	2.128	0.885
23-Jul-97	9.2	8	0.1013	-1.274	2.219	0.879
26-Jun-98	9.9	9	0.1146	-1.202	2.293	0.873
7-Jun-94	11	10	0.1279	-1.136	2.398	0.868
11-Jul-95	11	11	0.1412	-1.075	2.398	0.862
21-Nov-95	11	12	0.1545	-1.017	2.398	0.856
8-May-96	11	13	0.1678	-0.963	2.398	0.850
25-Apr-95	12	14	0.1811	-0.911	2.485	0.844
23-Jun-94	13	15	0.1944	-0.862	2.565	0.837
25-Jul-95	14	16	0.2076	-0.815	2.639	0.832
24-Jul-96	14	17	0.2209	-0.769	2.639	0.827
14-Aug-97	14	18	0.2342	-0.725	2.639	0.822
8-Mar-95	15	19	0.2475	-0.682	2.708	0.816
12-Apr-95	15	20	0.2608	-0.641	2.708	0.811
29-Feb-96	15	21	0.2741	-0.601	2.708	0.806
28-Mar-96	15	22	0.2874	-0.561	2.708	0.800
25-Jul-94	16	23	0.3007	-0.522	2.773	0.794
7-Apr-94	17	24	0.3140	-0.485	2.833	0.788
14-Aug-95	17	25	0.3272	-0.448	2.833	0.785
28-Jul-98	17	26	0.3405	-0.411	2.833	0.781
24-Sep-98	17	27	0.3538	-0.375	2.833	0.777
27-Dec-95	18	28	0.3671	-0.340	2.890	0.772
4-Sep-97	18	29	0.3804	-0.304	2.890	0.769
26-Nov-97	18	30	0.3937	-0.270	2.890	0.765
26-Aug-98	18	31	0.4070	-0.235	2.890	0.760
1-Oct-98	18	32	0.4203	-0.201	2.890	0.755
9-Feb-95	19	33	0.4336	-0.167	2.944	0.749
26-Oct-98	19	34	0.4468	-0.134	2.944	0.745
9-Nov-97	19.8	35	0.4601	-0.100	2.986	0.740
16-Aug-94	20	36	0.4734	-0.067	2.996	0.737
16-Aug-94	20	37	0.4867	-0.033	2.996	0.734
13-Sep-94	20	38	0.5000	0.000	2.996	0.730
16-Oct-94	20	39	0.5133	0.033	2.996	0.725
13-Sep-95	20	40	0.5266	0.067	2.996	0.719
16-Oct-97	20	41	0.5399	0.100	2.996	0.712
22-Mar-95	21	42	0.5532	0.134	3.045	0.704
20-Mar-98	21	43	0.5664	0.167	3.045	0.698
8-Oct-98	21	44	0.5797	0.201	3.045	0.691
5-Oct-91	21.6	45	0.5930	0.235	3.073	0.682
21-Aug-96	23	46	0.6063	0.270	3.135	0.674
26-Sep-96	24	47	0.6196	0.304	3.178	0.671

16-Apr-97	24	48	0.6329	0.340	3.178	0.671
30-Jan-97	25	49	0.6462	0.375	3.219	0.669
26-Feb-98	25	50	0.6595	0.411	3.219	0.672
27-Oct-93	26	51	0.6728	0.448	3.258	0.674
30-Nov-93	26	52	0.6860	0.485	3.258	0.681
17-Jan-96	26	53	0.6993	0.522	3.258	0.687
21-Feb-97	26	54	0.7126	0.561	3.258	0.692
26-Mar-97	26	55	0.7259	0.601	3.258	0.697
22-Jan-98	26	56	0.7392	0.641	3.258	0.701
8-Mar-94	27	57	0.7525	0.682	3.296	0.704
24-Mar-94	27	58	0.7658	0.725	3.296	0.711
19-Dec-97	27	59	0.7791	0.769	3.296	0.718
15-Jan-99	27	60	0.7924	0.815	3.296	0.723
18-Feb-94	28	61	0.8056	0.862	3.332	0.726
29-Oct-96	28	62	0.8189	0.911	3.332	0.735
8-Mar-99	28	63	0.8322	0.963	3.332	0.741
27-Nov-96	29	64	0.8455	1.017	3.367	0.745
23-Feb-99	29	65	0.8588	1.075	3.367	0.752
17-Dec-93	31	66	0.8721	1.136	3.434	0.756
17-Dec-93	31	67	0.8854	1.202	3.434	0.772
16-Nov-94	32	68	0.8987	1.274	3.466	0.784
20-Jan-94	33	69	0.9120	1.353	3.497	0.800
20-Jan-94	33	70	0.9252	1.441	3.497	0.819
10-Jan-95	38	71	0.9385	1.543	3.638	0.826
13-Dec-96	39	72	0.9518	1.663	3.664	
13-Dec-94	41	73	0.9651	1.813	3.714	
25-Nov-98	49	74	0.9784	2.022	3.892	
18-Oct-95	200	75	0.9917	2.395	5.298	

update for EV, CV:

dCd **CC287**

LN Analysis **dCd**

Discharge, Q **Q Data, EV=41 cfs CV=0.92**

Avg:	**41**	**Q Data-based LN**		
SD:	**38**	u	lnQ	Q
CV:	**0.92**	3	5.8	317
Min:	**11**	0	3.41	30
Max:	**206**	-3	1.06	3
Median:	**26**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.936, EV=40.8 cfs CV=.88; max r2=0.98**

r2 u,lnQ:	0.936	u	lnQ	Q
slope, m:	1.316	3	5.70	299
intercept, b:	-4.498	0	3.42	31
N: 75		-3	1.14	3
E[Q]:	40.8	Parameter Estimates		
SD[Q]:	36	from LN regression		
CV[Q]:	0.88	update graph label		

N: 75

max r2 0.979

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
13-Sep-95	11.4	1	0.0083	-2.395	2.434	0.936
18-Feb-94	11.41	2	0.0216	-2.022	2.434	0.950
17-Dec-93	11.7	3	0.0349	-1.813	2.460	0.956
17-Dec-93	12.03	4	0.0482	-1.663	2.487	0.960
14-Aug-95	12.6	5	0.0615	-1.543	2.534	0.964
30-Nov-93	12.62	6	0.0748	-1.441	2.535	0.966
27-Oct-93	13.28	7	0.0880	-1.353	2.586	0.968
20-Jan-94	13.28	8	0.1013	-1.274	2.586	0.970
16-Aug-94	13.57	9	0.1146	-1.202	2.608	0.972
16-Oct-94	14.34	10	0.1279	-1.136	2.663	0.973
5-Oct-91	14.5	11	0.1412	-1.075	2.674	0.974
20-Jan-94	14.66	12	0.1545	-1.017	2.685	0.975
25-Jul-95	14.71	13	0.1678	-0.963	2.689	0.976
13-Sep-94	15.89	14	0.1811	-0.911	2.766	0.977
16-Nov-94	15.89	15	0.1944	-0.862	2.766	0.978
8-Oct-98	15.9	16	0.2076	-0.815	2.766	0.978
16-Aug-94	16.3	17	0.2209	-0.769	2.791	0.979
1-Oct-98	16.7	18	0.2342	-0.725	2.815	0.979
26-Oct-98	16.7	19	0.2475	-0.682	2.815	0.979
13-Dec-94	17.17	20	0.2608	-0.641	2.843	0.979
24-Sep-98	17.2	21	0.2741	-0.601	2.845	0.979
22-Jan-98	18.1	22	0.2874	-0.561	2.896	0.978
25-Jul-94	19.04	23	0.3007	-0.522	2.947	0.978
26-Sep-96	19.5	24	0.3140	-0.485	2.970	0.978
26-Aug-98	19.5	25	0.3272	-0.448	2.970	0.978
23-Feb-99	20	26	0.3405	-0.411	2.996	0.978
11-Jul-95	20.05	27	0.3538	-0.375	2.998	0.978
24-Mar-94	21.13	28	0.3671	-0.340	3.051	0.977
27-Nov-96	21.7	29	0.3804	-0.304	3.077	0.977
8-Mar-94	22.26	30	0.3937	-0.270	3.103	0.976
26-Feb-98	22.3	31	0.4070	-0.235	3.105	0.976
8-Mar-99	23	32	0.4203	-0.201	3.135	0.975
21-Aug-96	23.342375	33	0.4336	-0.167	3.150	0.975
29-Oct-96	23.5	34	0.4468	-0.134	3.157	0.974
19-Dec-97	24.1	35	0.4601	-0.100	3.182	0.973
28-Jul-98	24.7	36	0.4734	-0.067	3.207	0.972
16-Oct-97	25.4	37	0.4867	-0.033	3.235	0.971
25-Nov-98	26	38	0.5000	0.000	3.258	0.969
10-Jan-95	28.21	39	0.5133	0.033	3.340	0.968
23-Jun-94	28.96	40	0.5266	0.067	3.366	0.967
13-Dec-96	29.7	41	0.5399	0.100	3.391	0.966
26-Nov-97	29.7	42	0.5532	0.134	3.391	0.965
18-Oct-95	31.4	43	0.5664	0.167	3.447	0.963
30-Jan-97	31.4	44	0.5797	0.201	3.447	0.962
9-Nov-97	32.7	45	0.5930	0.235	3.487	0.960
15-Jan-99	33	46	0.6063	0.270	3.497	0.959
20-Mar-98	33.1	47	0.6196	0.304	3.500	0.956

4-Sep-97	34	48	0.6329	0.340	3.526	0.954
27-Jun-95	34.9	49	0.6462	0.375	3.552	0.951
24-Jul-96	35.8	50	0.6595	0.411	3.578	0.948
8-Mar-95	36.82	51	0.6728	0.448	3.606	0.944
14-Aug-97	37.8	52	0.6860	0.485	3.632	0.940
7-Apr-94	37.82	53	0.6993	0.522	3.633	0.936
21-Feb-97	38.9	54	0.7126	0.561	3.661	0.932
27-Dec-95	42.1	55	0.7259	0.601	3.740	0.929
12-Apr-95	42.13	56	0.7392	0.641	3.741	0.924
25-Apr-95	43	57	0.7525	0.682	3.761	0.922
9-Feb-95	43.28	58	0.7658	0.725	3.768	0.923
17-Jan-96	50.9	59	0.7791	0.769	3.930	0.938
16-Apr-97	55.3	60	0.7924	0.815	4.013	0.943
7-Jun-94	63.45	61	0.8056	0.862	4.150	0.948
26-Jun-98	63.5	62	0.8189	0.911	4.151	0.944
28-Mar-96	65.2	63	0.8322	0.963	4.177	0.949
21-Nov-95	81.5	64	0.8455	1.017	4.401	0.973
8-May-96	81.5	65	0.8588	1.075	4.401	0.969
22-Mar-95	86.16	66	0.8721	1.136	4.456	0.968
13-Jun-95	96.41	67	0.8854	1.202	4.569	0.968
19-May-94	102.01	68	0.8987	1.274	4.625	0.962
29-Feb-96	111	69	0.9120	1.353	4.710	0.955
23-Jul-97	111	70	0.9252	1.441	4.710	0.968
4-May-94	111.05	71	0.9385	1.543	4.710	0.966
24-Jun-97	124	72	0.9518	1.663	4.820	
26-Mar-97	144	73	0.9651	1.813	4.970	
19-Jun-96	148	74	0.9784	2.022	4.997	
14-May-98	206	75	0.9917	2.395	5.328	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC287 **Date:** 30-May-00
Chemical: dPb **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,150	41	48	10	0.00	0.00	0.00	
SD:	626	38	30	11	1.00	1.00	1.00	
CV:	0.02	0.92	0.63	1.04				first:
Min:	33,516	11	20	2	-0.79	-0.93	-0.81	mid:
Max:	36,227	206	223	61	4.36	5.82	4.74	last:
Median:	35,081	26	42	6	-0.40	-0.20	-0.39	

dPb **CC287** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.003) update r2

r2 Q,[COC]:	0.003	[dPb]	Q	r2:	0.015	0.033
slope, m:	-0.04	49	11.4	m:	0.0075	0.00021
intercept, b:	49.5	48	41.1	b:	-222	-3.98
N: 75		41	206			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.001) update r2

r2 lnQ,ln[COC]:	0.001	ln[dPb]	ln Q	[dPb]	Q
slope, m:	-0.02	3.78	2.43	44	11
intercept, b:	3.81	3.76	3.72	43	41
N: 75		3.73	5.33	42	206

for graph
dPb 0
CC287

N= 75

update for new data	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	5-Oct-91	14.5	20	2	2.67	3.00	0.44	-0.70	-0.93	-0.81
IDEQ	27-Oct-93	13.28	55	4	2.59	4.01	1.37	-0.74	0.24	-0.59
IDEQ	30-Nov-93	12.62	34	2	2.54	3.53	0.84	-0.75	-0.46	-0.74
IDEQ	17-Dec-93	11.7	46	3	2.46	3.83	1.06	-0.78	-0.06	-0.69
IDEQ	17-Dec-93	12.03	46	3	2.49	3.83	1.09	-0.77	-0.06	-0.68
IDEQ	20-Jan-94	13.28	38	3	2.59	3.64	1.00	-0.74	-0.33	-0.70
IDEQ	20-Jan-94	14.66	38	3	2.69	3.64	1.10	-0.70	-0.33	-0.68
IDEQ	18-Feb-94	11.41	36	2	2.43	3.58	0.79	-0.78	-0.39	-0.75
IDEQ	8-Mar-94	22.26	38	5	3.10	3.64	1.52	-0.50	-0.33	-0.53
IDEQ	24-Mar-94	21.13	37	4	3.05	3.61	1.44	-0.53	-0.36	-0.57
IDEQ	7-Apr-94	37.82	35	7	3.63	3.56	1.96	-0.09	-0.43	-0.29
IDEQ	4-May-94	111.05	28	17	4.71	3.33	2.82	1.85	-0.66	0.60
IDEQ	19-May-94	102.01	26	14	4.63	3.26	2.66	1.61	-0.73	0.37
IDEQ	7-Jun-94	63.45	29	10	4.15	3.37	2.29	0.59	-0.63	-0.03
IDEQ	23-Jun-94	28.96	34	5	3.37	3.53	1.67	-0.32	-0.46	-0.46
IDEQ	25-Jul-94	19.04	42	4	2.95	3.74	1.46	-0.58	-0.20	-0.56
IDEQ	16-Aug-94	16.3	46	4	2.79	3.83	1.39	-0.66	-0.06	-0.58
IDEQ	16-Aug-94	13.57	46	3	2.61	3.83	1.21	-0.73	-0.06	-0.64
IDEQ	13-Sep-94	15.89	36	3	2.77	3.58	1.12	-0.67	-0.39	-0.67
IDEQ	16-Oct-94	14.34	31	2	2.66	3.43	0.87	-0.71	-0.56	-0.73
IDEQ	16-Nov-94	15.89	40	3	2.77	3.69	1.23	-0.67	-0.26	-0.64
IDEQ	13-Dec-94	17.17	39	4	2.84	3.66	1.28	-0.63	-0.29	-0.62
IDEQ	10-Jan-95	28.21	40	6	3.34	3.69	1.80	-0.34	-0.26	-0.39
IDEQ	9-Feb-95	43.28	26	6	3.77	3.26	1.80	0.06	-0.73	-0.39
IDEQ	8-Mar-95	36.82	22	4	3.61	3.09	1.47	-0.11	-0.86	-0.55
IDEQ	22-Mar-95	86.16	34	16	4.46	3.53	2.76	1.19	-0.46	0.51
IDEQ	12-Apr-95	42.13	27	6	3.74	3.30	1.81	0.03	-0.69	-0.39
IDEQ	25-Apr-95	43	22	5	3.76	3.09	1.63	0.05	-0.86	-0.48
IDEQ	13-Jun-95	96.41	27	14	4.57	3.30	2.64	1.46	-0.69	0.35
IDEQ	27-Jun-95	34.9	26	5	3.55	3.26	1.59	-0.16	-0.73	-0.50
IDEQ	11-Jul-95	20.05	34	4	3.00	3.53	1.30	-0.56	-0.46	-0.62
IDEQ	25-Jul-95	14.71	33	3	2.69	3.50	0.96	-0.70	-0.49	-0.71
IDEQ	14-Aug-95	12.6	36	2	2.53	3.58	0.89	-0.75	-0.39	-0.73
IDEQ	13-Sep-95	11.4	38	2	2.43	3.64	0.85	-0.79	-0.33	-0.74
IDEQ	18-Oct-95	31.4	48	8	3.45	3.87	2.09	-0.26	0.00	-0.20
IDEQ	21-Nov-95	81.5	45	20	4.40	3.81	2.98	1.07	-0.10	0.88
IDEQ	27-Dec-95	42.1	55	12	3.74	4.01	2.52	0.03	0.24	0.20
IDEQ	17-Jan-96	50.9	223	61	3.93	5.41	4.11	0.26	5.82	4.74
IDEQ	29-Feb-96	111	45	27	4.71	3.81	3.29	1.85	-0.10	1.55
IDEQ	28-Mar-96	65.2	53	19	4.18	3.97	2.92	0.64	0.17	0.78
IDEQ	8-May-96	81.5	66	29	4.40	4.19	3.37	1.07	0.60	1.74
IDEQ	19-Jun-96	148	36	29	5.00	3.58	3.36	2.83	-0.39	1.72
IDEQ	24-Jul-96	35.8	66	13	3.58	4.19	2.54	-0.14	0.60	0.23
IDEQ	21-Aug-96	23.342375	94	12	3.15	4.54	2.47	-0.47	1.53	0.14
IDEQ	26-Sep-96	19.5	98	10	2.97	4.58	2.33	-0.57	1.67	0.00
IDEQ	29-Oct-96	23.5	174	22	3.16	5.16	3.09	-0.47	4.19	1.09
IDEQ	27-Nov-96	21.7	51	6	3.08	3.93	1.78	-0.51	0.10	-0.40

IDEQ	13-Dec-96	29.7	60	10	3.39	4.09	2.26	-0.30	0.40	-0.06
IDEQ	30-Jan-97	31.4	48	8	3.45	3.87	2.09	-0.26	0.00	-0.20
IDEQ	21-Feb-97	38.9	71	15	3.66	4.26	2.70	-0.06	0.77	0.43
IDEQ	26-Mar-97	144	63	49	4.97	4.14	3.89	2.72	0.50	3.59
IDEQ	16-Apr-97	55.3	46	14	4.01	3.83	2.62	0.38	-0.06	0.32
IDEQ	24-Jun-97	124	32	21	4.82	3.47	3.06	2.19	-0.53	1.03
IDEQ	23-Jul-97	111	66	39	4.71	4.19	3.67	1.85	0.60	2.72
IDEQ	14-Aug-97	37.8	54	11	3.63	3.99	2.40	-0.09	0.20	0.07
IDEQ	4-Sep-97	34	114	21	3.53	4.74	3.04	-0.19	2.20	0.99
IDEQ	16-Oct-97	25.4	57	8	3.23	4.04	2.05	-0.41	0.30	-0.23
URS	9-Nov-97	32.7	50.8	9	3.49	3.93	2.19	-0.22	0.10	-0.12
IDEQ	26-Nov-97	29.7	49	8	3.39	3.89	2.06	-0.30	0.04	-0.23
IDEQ	19-Dec-97	24.1	43	6	3.18	3.76	1.72	-0.45	-0.16	-0.44
IDEQ	22-Jan-98	18.1	44	4	2.90	3.78	1.46	-0.61	-0.13	-0.56
IDEQ	26-Feb-98	22.3	42	5	3.10	3.74	1.62	-0.50	-0.20	-0.49
IDEQ	20-Mar-98	33.1	45	8	3.50	3.81	2.08	-0.21	-0.10	-0.21
URS	14-May-98	206	25.7	28	5.33	3.25	3.35	4.36	-0.74	1.70
IDEQ	26-Jun-98	63.5	34	12	4.15	3.53	2.45	0.59	-0.46	0.13
IDEQ	28-Jul-98	24.7	46	6	3.21	3.83	1.81	-0.43	-0.06	-0.39
IDEQ	26-Aug-98	19.5	42	4	2.97	3.74	1.48	-0.57	-0.20	-0.55
IDEQ	24-Sep-98	17.2	50	5	2.84	3.91	1.53	-0.63	0.07	-0.53
IDEQ	1-Oct-98	16.7	39	4	2.82	3.66	1.25	-0.64	-0.29	-0.63
IDEQ	8-Oct-98	15.9	45	4	2.77	3.81	1.35	-0.67	-0.10	-0.60
IDEQ	26-Oct-98	16.7	34	3	2.82	3.53	1.12	-0.64	-0.46	-0.67
IDEQ	25-Nov-98	26	54	8	3.26	3.99	2.02	-0.40	0.20	-0.25
IDEQ	15-Jan-99	33	38	7	3.50	3.64	1.91	-0.21	-0.33	-0.33
IDEQ	23-Feb-99	20	28	3	3.00	3.33	1.10	-0.56	-0.66	-0.68
IDEQ	8-Mar-99	23	31	4	3.14	3.43	1.34	-0.48	-0.56	-0.60

dPb

Concentration over time analysis r2 Slope, m

dPb CC287 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.071** **0.00018**

Time	Ln[COC]	[COC]
5-Oct-91	3.47	32
17-Jan-96	3.75	42
8-Mar-99	3.95	52

LnConc.=mTime+b >'96 r2, m: **0.322** **-0.00079**

21-Feb-97	4.12	62
8-Mar-99	3.53	34

Load over time analysis

dPb CC287 **Load over time**

LnLoad=mTime+b All data r2, m: **0.087** **0.00039**

Time	LnLoad	Load
5-Oct-91	1.32	4
17-Jan-96	1.93	7
8-Mar-99	2.37	11

LnLoad=mTime+b >'96 r2, m: **0.521** **-0.00249**

21-Feb-97	3.09	22
8-Mar-99	1.24	3

max r2: 0.462 max r2: 0.522

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rov		
0.071	0.00018	-2.47	0.087	0.00039	-11.67
0.047	0.00015	-1.42	0.061	0.00033	-9.74
0.054	0.00016	-1.89	0.056	0.00032	-9.36
0.051	0.00016	-1.76	0.046	0.00029	-8.26
0.054	0.00016	-2.01	0.038	0.00027	-7.37
0.057	0.00017	-2.29	0.030	0.00024	-6.44
0.056	0.00017	-2.32	0.022	0.00021	-5.30
0.054	0.00017	-2.34	0.016	0.00018	-4.20
0.051	0.00017	-2.28	0.009	0.00013	-2.56
0.050	0.00017	-2.30	0.006	0.00011	-1.89
0.048	0.00017	-2.27	0.004	0.00009	-1.02
0.044	0.00017	-2.14	0.003	0.00009	-0.94
0.036	0.00015	-1.61	0.007	0.00012	-2.27
0.027	0.00013	-0.91	0.011	0.00016	-3.45
0.020	0.00012	-0.33	0.013	0.00017	-4.09
0.016	0.00011	0.02	0.010	0.00016	-3.60
0.016	0.00011	-0.01	0.007	0.00013	-2.67
0.017	0.00011	-0.21	0.004	0.00010	-1.51
0.018	0.00012	-0.44	0.001	0.00005	0.19
0.015	0.00011	-0.15	0.000	0.00000	2.26
0.010	0.00009	0.51	0.003	-0.00008	5.10
0.009	0.00009	0.66	0.008	-0.00015	7.39
0.007	0.00008	0.89	0.016	-0.00021	9.78
0.006	0.00008	1.08	0.021	-0.00025	11.13
0.002	0.00004	2.40	0.027	-0.00029	12.60
0.000	-0.00001	4.31	0.040	-0.00036	15.08
0.001	-0.00004	5.26	0.034	-0.00034	14.30
0.007	-0.00009	7.00	0.043	-0.00039	16.16
0.024	-0.00016	9.64	0.058	-0.00047	18.86
0.046	-0.00022	11.87	0.053	-0.00046	18.56
0.081	-0.00030	14.55	0.071	-0.00055	21.73
0.111	-0.00036	16.69	0.105	-0.00068	26.41
0.154	-0.00043	19.31	0.170	-0.00087	33.19
0.199	-0.00051	22.00	0.271	-0.00110	41.38
0.250	-0.00059	24.84	0.424	-0.00137	51.03
0.280	-0.00065	26.98	0.481	-0.00151	56.30
0.324	-0.00072	29.70	0.478	-0.00156	57.89
0.346	-0.00078	31.72	0.504	-0.00167	61.83
0.286	-0.00063	26.27	0.459	-0.00155	57.54
0.331	-0.00070	29.05	0.432	-0.00153	56.90
0.356	-0.00076	31.26	0.421	-0.00157	58.17
0.352	-0.00079	32.23	0.384	-0.00151	56.33
0.455	-0.00093	37.34	0.343	-0.00144	53.78
0.456	-0.00097	38.79	0.346	-0.00151	56.32
0.416	-0.00094	37.55	0.355	-0.00161	59.67
0.367	-0.00088	35.41	0.376	-0.00174	64.40
0.306	-0.00066	27.38	0.341	-0.00170	62.85

0.318	-0.00071	29.14	0.420	-0.00198	73.14
0.298	-0.00072	29.52	0.459	-0.00220	81.01
0.322	-0.00079	32.15	0.521	-0.00249	91.33
0.271	-0.00074	30.36	0.522	-0.00263	96.37
0.232	-0.00071	29.36	0.453	-0.00231	84.97
0.257	-0.00081	32.84	0.443	-0.00243	89.12
0.406	-0.00106	41.78	0.389	-0.00229	84.39
0.359	-0.00102	40.42	0.303	-0.00180	66.61
0.347	-0.00106	42.03	0.273	-0.00180	66.58
0.238	-0.00065	27.15	0.175	-0.00138	51.41
0.165	-0.00055	23.35	0.165	-0.00143	53.41
0.114	-0.00047	20.76	0.135	-0.00138	51.58
0.068	-0.00039	17.74	0.116	-0.00141	52.37
0.055	-0.00039	17.80	0.148	-0.00178	65.93
0.034	-0.00035	16.17	0.259	-0.00266	97.49
0.023	-0.00033	15.43	0.383	-0.00370	135.32
0.002	-0.00012	7.87	0.416	-0.00455	165.97
0.201	-0.00111	43.86	0.200	-0.00229	84.16
0.448	-0.00186	70.89	0.029	-0.00073	27.82
0.426	-0.00201	76.32	0.000	-0.00002	2.20
0.462	-0.00235	88.41	0.000	0.00006	-0.55
0.371	-0.00208	78.62	0.003	0.00030	-9.52
0.430	-0.00253	95.22	0.004	-0.00039	15.56
0.338	-0.00258	96.73	0.037	-0.00147	54.69

update for EV, CV:

dPb **CC287**

LN Analysis **dPb**

Load **Load Data, EV=10 lbs/day CV=1.04**

Load Data-based LN

Avg:	**10**			
SD:	**11**	u	ln dPb Load	dPb Load
CV:	**1.04**	3	4.5	93
Min:	**2**	0	1.96	7
Max:	**61**	-3	-0.61	1
Median:	**6**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.965, EV=10.2 lbs/day CV=1.04; max r2=0.995**

r2 u,lnLoad:	0.965	u	lnLoad	Load
slope, m:	1.171	3	4.52	92
intercept, b:	-2.289	0	1.95	7
N: 75		-3	-0.61	0.5
E[Load]:	10.2	Parameter Estimates		
SD[Load]:	11	from LN regression		
CV[Load]:	1.04	update graph label		

	Date	**dPb Load lbs/day Ranked**	**i rank** (N: 75)	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	max r2 0.995 **r2** forward
ws	update and rank for new data						
	5-Oct-91	2	1	0.0083	-2.395	0.445	0.965
	18-Feb-94	2	2	0.0216	-2.022	0.793	0.968
	30-Nov-93	2	3	0.0349	-1.813	0.837	0.974
	13-Sep-95	2	4	0.0482	-1.663	0.846	0.978
	16-Oct-94	2	5	0.0615	-1.543	0.872	0.981
	14-Aug-95	2	6	0.0748	-1.441	0.892	0.983
	25-Jul-95	3	7	0.0880	-1.353	0.960	0.984
	20-Jan-94	3	8	0.1013	-1.274	0.999	0.985
	17-Dec-93	3	9	0.1146	-1.202	1.063	0.986
	17-Dec-93	3	10	0.1279	-1.136	1.091	0.988
	20-Jan-94	3	11	0.1412	-1.075	1.098	0.990
	23-Feb-99	3	12	0.1545	-1.017	1.103	0.991
	26-Oct-98	3	13	0.1678	-0.963	1.117	0.991
	13-Sep-94	3	14	0.1811	-0.911	1.124	0.992
	16-Aug-94	3	15	0.1944	-0.862	1.211	0.992
	16-Nov-94	3	16	0.2076	-0.815	1.230	0.993
	1-Oct-98	4	17	0.2209	-0.769	1.254	0.993
	13-Dec-94	4	18	0.2342	-0.725	1.282	0.994
	11-Jul-95	4	19	0.2475	-0.682	1.300	0.994
	8-Mar-99	4	20	0.2608	-0.641	1.344	0.994
	8-Oct-98	4	21	0.2741	-0.601	1.348	0.995
	27-Oct-93	4	22	0.2874	-0.561	1.369	0.995
	16-Aug-94	4	23	0.3007	-0.522	1.395	0.995
	24-Mar-94	4	24	0.3140	-0.485	1.437	0.995
	22-Jan-98	4	25	0.3272	-0.448	1.455	0.995
	25-Jul-94	4	26	0.3405	-0.411	1.459	0.995
	8-Mar-95	4	27	0.3538	-0.375	1.472	0.995
	26-Aug-98	4	28	0.3671	-0.340	1.483	0.995
	8-Mar-94	5	29	0.3804	-0.304	1.515	0.995
	24-Sep-98	5	30	0.3937	-0.270	1.532	0.995
	27-Jun-95	5	31	0.4070	-0.235	1.586	0.994
	26-Feb-98	5	32	0.4203	-0.201	1.617	0.994
	25-Apr-95	5	33	0.4336	-0.167	1.627	0.994
	23-Jun-94	5	34	0.4468	-0.134	1.667	0.994
	19-Dec-97	6	35	0.4601	-0.100	1.718	0.993
	27-Nov-96	6	36	0.4734	-0.067	1.784	0.993
	9-Feb-95	6	37	0.4867	-0.033	1.801	0.993
	10-Jan-95	6	38	0.5000	0.000	1.803	0.992
	28-Jul-98	6	39	0.5133	0.033	1.810	0.992
	12-Apr-95	6	40	0.5266	0.067	1.812	0.992
	15-Jan-99	7	41	0.5399	0.100	1.909	0.992
	7-Apr-94	7	42	0.5532	0.134	1.963	0.992
	25-Nov-98	8	43	0.5664	0.167	2.022	0.992
	16-Oct-97	8	44	0.5797	0.201	2.053	0.991
	26-Nov-97	8	45	0.5930	0.235	2.058	0.991
	20-Mar-98	8	46	0.6063	0.270	2.081	0.990
	18-Oct-95	8	47	0.6196	0.304	2.093	0.990

30-Jan-97	**8**	48	0.6329	0.340	2.093	0.990
9-Nov-97	**9**	49	0.6462	0.375	2.190	0.991
13-Dec-96	**10**	50	0.6595	0.411	2.260	0.991
7-Jun-94	**10**	51	0.6728	0.448	2.292	0.991
26-Sep-96	**10**	52	0.6860	0.485	2.330	0.990
14-Aug-97	**11**	53	0.6993	0.522	2.396	0.990
26-Jun-98	**12**	54	0.7126	0.561	2.452	0.989
21-Aug-96	**12**	55	0.7259	0.601	2.468	0.988
27-Dec-95	**12**	56	0.7392	0.641	2.522	0.987
24-Jul-96	**13**	57	0.7525	0.682	2.543	0.986
16-Apr-97	**14**	58	0.7658	0.725	2.616	0.985
13-Jun-95	**14**	59	0.7791	0.769	2.639	0.983
19-May-94	**14**	60	0.7924	0.815	2.658	0.982
21-Feb-97	**15**	61	0.8056	0.862	2.699	0.980
22-Mar-95	**16**	62	0.8189	0.911	2.757	0.979
4-May-94	**17**	63	0.8322	0.963	2.817	0.977
28-Mar-96	**19**	64	0.8455	1.017	2.923	0.975
21-Nov-95	**20**	65	0.8588	1.075	2.982	0.971
4-Sep-97	**21**	66	0.8721	1.136	3.037	0.967
24-Jun-97	**21**	67	0.8854	1.202	3.061	0.962
29-Oct-96	**22**	68	0.8987	1.274	3.091	0.954
29-Feb-96	**27**	69	0.9120	1.353	3.291	0.946
14-May-98	**28**	70	0.9252	1.441	3.349	0.945
19-Jun-96	**29**	71	0.9385	1.543	3.356	0.946
8-May-96	**29**	72	0.9518	1.663	3.365	
23-Jul-97	**39**	73	0.9651	1.813	3.674	
26-Mar-97	**49**	74	0.9784	2.022	3.888	
17-Jan-96	**61**	75	0.9917	2.395	4.112	

update for EV, CV:

dPb **CC287**
LN Analysis **dPb**

Concentration **Conc. Data, EV=48 ug/L CV=.63**

Avg:	**48**	**Data-based LN**		
SD:	**30**	u	ln[dPb]	[dPb]
CV:	**0.63**	3	5.4	229
Min:	**20**	0	3.70	41
Max:	**223**	-3	1.97	7
Median:	**42**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.896, EV=47.5 ug/L CV=.47; max r2=0.97**

r2 u,lnConc:	0.896	u	lnConc.	Conc.
slope, m:	2.234	3	5.10	165
intercept, b:	-8.401	0	3.76	43
N: 75		-3	2.42	11
E[Conc]:	47.5	Parameter Estimates		
SD[Conc]:	22	from LN regression		
CV[Conc]:	0.47	update graph label		

max r2
0.971

Date	dPb Concentration ug/L Ranked	i rank	N: 75 i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
5-Oct-91	20	1	0.0083	-2.395	2.996	0.896
8-Mar-95	22	2	0.0216	-2.022	3.091	0.895
25-Apr-95	22	3	0.0349	-1.813	3.091	0.893
14-May-98	25.7	4	0.0482	-1.663	3.246	0.889
19-May-94	26	5	0.0615	-1.543	3.258	0.889
9-Feb-95	26	6	0.0748	-1.441	3.258	0.889
27-Jun-95	26	7	0.0880	-1.353	3.258	0.887
12-Apr-95	27	8	0.1013	-1.274	3.296	0.885
13-Jun-95	27	9	0.1146	-1.202	3.296	0.883
4-May-94	28	10	0.1279	-1.136	3.332	0.880
23-Feb-99	28	11	0.1412	-1.075	3.332	0.877
7-Jun-94	29	12	0.1545	-1.017	3.367	0.874
16-Oct-94	31	13	0.1678	-0.963	3.434	0.872
8-Mar-99	31	14	0.1811	-0.911	3.434	0.871
24-Jun-97	32	15	0.1944	-0.862	3.466	0.870
25-Jul-95	33	16	0.2076	-0.815	3.497	0.870
30-Nov-93	34	17	0.2209	-0.769	3.526	0.870
23-Jun-94	34	18	0.2342	-0.725	3.526	0.872
22-Mar-95	34	19	0.2475	-0.682	3.526	0.873
11-Jul-95	34	20	0.2608	-0.641	3.526	0.874
26-Jun-98	34	21	0.2741	-0.601	3.526	0.874
26-Oct-98	34	22	0.2874	-0.561	3.526	0.873
7-Apr-94	35	23	0.3007	-0.522	3.555	0.872
18-Feb-94	36	24	0.3140	-0.485	3.584	0.872
13-Sep-94	36	25	0.3272	-0.448	3.584	0.873
14-Aug-95	36	26	0.3405	-0.411	3.584	0.874
19-Jun-96	36	27	0.3538	-0.375	3.584	0.874
24-Mar-94	37	28	0.3671	-0.340	3.611	0.873
20-Jan-94	38	29	0.3804	-0.304	3.638	0.873
20-Jan-94	38	30	0.3937	-0.270	3.638	0.875
8-Mar-94	38	31	0.4070	-0.235	3.638	0.875
13-Sep-95	38	32	0.4203	-0.201	3.638	0.876
15-Jan-99	38	33	0.4336	-0.167	3.638	0.875
13-Dec-94	39	34	0.4468	-0.134	3.664	0.875
1-Oct-98	39	35	0.4601	-0.100	3.664	0.875
16-Nov-94	40	36	0.4734	-0.067	3.689	0.874
10-Jan-95	40	37	0.4867	-0.033	3.689	0.874
25-Jul-94	42	38	0.5000	0.000	3.738	0.874
26-Feb-98	42	39	0.5133	0.033	3.738	0.877
26-Aug-98	42	40	0.5266	0.067	3.738	0.879
19-Dec-97	43	41	0.5399	0.100	3.761	0.880
22-Jan-98	44	42	0.5532	0.134	3.784	0.882
21-Nov-95	45	43	0.5664	0.167	3.807	0.886
29-Feb-96	45	44	0.5797	0.201	3.807	0.892
20-Mar-98	45	45	0.5930	0.235	3.807	0.896
8-Oct-98	45	46	0.6063	0.270	3.807	0.901
17-Dec-93	46	47	0.6196	0.304	3.829	0.905

17-Dec-93	46	48	0.6329	0.340	3.829	0.910
16-Aug-94	46	49	0.6462	0.375	3.829	0.914
16-Aug-94	46	50	0.6595	0.411	3.829	0.918
16-Apr-97	46	51	0.6728	0.448	3.829	0.921
28-Jul-98	46	52	0.6860	0.485	3.829	0.923
18-Oct-95	48	53	0.6993	0.522	3.871	0.924
30-Jan-97	48	54	0.7126	0.561	3.871	0.928
26-Nov-97	49	55	0.7259	0.601	3.892	0.930
24-Sep-98	50	56	0.7392	0.641	3.912	0.933
9-Nov-97	50.8	57	0.7525	0.682	3.928	0.937
27-Nov-96	51	58	0.7658	0.725	3.932	0.941
28-Mar-96	53	59	0.7791	0.769	3.970	0.944
14-Aug-97	54	60	0.7924	0.815	3.989	0.949
25-Nov-98	54	61	0.8056	0.862	3.989	0.955
27-Oct-93	55	62	0.8189	0.911	4.007	0.958
27-Dec-95	55	63	0.8322	0.963	4.007	0.962
16-Oct-97	57	64	0.8455	1.017	4.043	0.962
13-Dec-96	60	65	0.8588	1.075	4.094	0.962
26-Mar-97	63	66	0.8721	1.136	4.143	0.964
8-May-96	66	67	0.8854	1.202	4.190	0.967
24-Jul-96	66	68	0.8987	1.274	4.190	0.971
23-Jul-97	66	69	0.9120	1.353	4.190	0.968
21-Feb-97	71	70	0.9252	1.441	4.263	0.960
21-Aug-96	94	71	0.9385	1.543	4.543	0.955
26-Sep-96	98	72	0.9518	1.663	4.585	
4-Sep-97	114	73	0.9651	1.813	4.736	
29-Oct-96	174	74	0.9784	2.022	5.159	
17-Jan-96	223	75	0.9917	2.395	5.407	

update for EV, CV:

dPb **CC287**

LN Analysis **dPb**

Discharge, Q **Q Data, EV=41 cfs CV=0.92**

Q Data-based LN

		u	lnQ	Q
Avg:	**41**			
SD:	**38**			
CV:	**0.92**	3	5.8	317
Min:	**11**	0	3.41	30
Max:	**206**	-3	1.06	3
Median:	**26**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.936, EV=40.8 cfs CV=.88; max r2=0.98**

			u	lnQ	Q
r2 u,lnQ:	0.936		u	lnQ	Q
slope, m:	1.316		3	5.70	299
intercept, b:	-4.498		0	3.42	31
N:	75		-3	1.14	3
E[Q]:	40.8	Parameter Estimates			
SD[Q]:	36	from LN regression			
CV[Q]:	0.88	update graph label			

N: 75 max r2 0.979

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
13-Sep-95	11.4	1	0.0083	-2.395	2.434	0.936
18-Feb-94	11.41	2	0.0216	-2.022	2.434	0.950
17-Dec-93	11.7	3	0.0349	-1.813	2.460	0.956
17-Dec-93	12.03	4	0.0482	-1.663	2.487	0.960
14-Aug-95	12.6	5	0.0615	-1.543	2.534	0.964
30-Nov-93	12.62	6	0.0748	-1.441	2.535	0.966
27-Oct-93	13.28	7	0.0880	-1.353	2.586	0.968
20-Jan-94	13.28	8	0.1013	-1.274	2.586	0.970
16-Aug-94	13.57	9	0.1146	-1.202	2.608	0.972
16-Oct-94	14.34	10	0.1279	-1.136	2.663	0.973
5-Oct-91	14.5	11	0.1412	-1.075	2.674	0.974
20-Jan-94	14.66	12	0.1545	-1.017	2.685	0.975
25-Jul-95	14.71	13	0.1678	-0.963	2.689	0.976
13-Sep-94	15.89	14	0.1811	-0.911	2.766	0.977
16-Nov-94	15.89	15	0.1944	-0.862	2.766	0.978
8-Oct-98	15.9	16	0.2076	-0.815	2.766	0.978
16-Aug-94	16.3	17	0.2209	-0.769	2.791	0.979
1-Oct-98	16.7	18	0.2342	-0.725	2.815	0.979
26-Oct-98	16.7	19	0.2475	-0.682	2.815	0.979
13-Dec-94	17.17	20	0.2608	-0.641	2.843	0.979
24-Sep-98	17.2	21	0.2741	-0.601	2.845	0.979
22-Jan-98	18.1	22	0.2874	-0.561	2.896	0.978
25-Jul-94	19.04	23	0.3007	-0.522	2.947	0.978
26-Sep-96	19.5	24	0.3140	-0.485	2.970	0.978
26-Aug-98	19.5	25	0.3272	-0.448	2.970	0.978
23-Feb-99	20	26	0.3405	-0.411	2.996	0.978
11-Jul-95	20.05	27	0.3538	-0.375	2.998	0.978
24-Mar-94	21.13	28	0.3671	-0.340	3.051	0.977
27-Nov-96	21.7	29	0.3804	-0.304	3.077	0.977
8-Mar-94	22.26	30	0.3937	-0.270	3.103	0.976
26-Feb-98	22.3	31	0.4070	-0.235	3.105	0.976
8-Mar-99	23	32	0.4203	-0.201	3.135	0.975
21-Aug-96	23.342375	33	0.4336	-0.167	3.150	0.975
29-Oct-96	23.5	34	0.4468	-0.134	3.157	0.974
19-Dec-97	24.1	35	0.4601	-0.100	3.182	0.973
28-Jul-98	24.7	36	0.4734	-0.067	3.207	0.972
16-Oct-97	25.4	37	0.4867	-0.033	3.235	0.971
25-Nov-98	26	38	0.5000	0.000	3.258	0.969
10-Jan-95	28.21	39	0.5133	0.033	3.340	0.968
23-Jun-94	28.96	40	0.5266	0.067	3.366	0.967
13-Dec-96	29.7	41	0.5399	0.100	3.391	0.966
26-Nov-97	29.7	42	0.5532	0.134	3.391	0.965
18-Oct-95	31.4	43	0.5664	0.167	3.447	0.963
30-Jan-97	31.4	44	0.5797	0.201	3.447	0.962
9-Nov-97	32.7	45	0.5930	0.235	3.487	0.960
15-Jan-99	33	46	0.6063	0.270	3.497	0.959
20-Mar-98	33.1	47	0.6196	0.304	3.500	0.956

4-Sep-97	34	48	0.6329	0.340	3.526	0.954
27-Jun-95	34.9	49	0.6462	0.375	3.552	0.951
24-Jul-96	35.8	50	0.6595	0.411	3.578	0.948
8-Mar-95	36.82	51	0.6728	0.448	3.606	0.944
14-Aug-97	37.8	52	0.6860	0.485	3.632	0.940
7-Apr-94	37.82	53	0.6993	0.522	3.633	0.936
21-Feb-97	38.9	54	0.7126	0.561	3.661	0.932
27-Dec-95	42.1	55	0.7259	0.601	3.740	0.929
12-Apr-95	42.13	56	0.7392	0.641	3.741	0.924
25-Apr-95	43	57	0.7525	0.682	3.761	0.922
9-Feb-95	43.28	58	0.7658	0.725	3.768	0.923
17-Jan-96	50.9	59	0.7791	0.769	3.930	0.938
16-Apr-97	55.3	60	0.7924	0.815	4.013	0.943
7-Jun-94	63.45	61	0.8056	0.862	4.150	0.948
26-Jun-98	63.5	62	0.8189	0.911	4.151	0.944
28-Mar-96	65.2	63	0.8322	0.963	4.177	0.949
21-Nov-95	81.5	64	0.8455	1.017	4.401	0.973
8-May-96	81.5	65	0.8588	1.075	4.401	0.969
22-Mar-95	86.16	66	0.8721	1.136	4.456	0.968
13-Jun-95	96.41	67	0.8854	1.202	4.569	0.968
19-May-94	102.01	68	0.8987	1.274	4.625	0.962
29-Feb-96	111	69	0.9120	1.353	4.710	0.955
23-Jul-97	111	70	0.9252	1.441	4.710	0.968
4-May-94	111.05	71	0.9385	1.543	4.710	0.966
24-Jun-97	124	72	0.9518	1.663	4.820	
26-Mar-97	144	73	0.9651	1.813	4.970	
19-Jun-96	148	74	0.9784	2.022	4.997	
14-May-98	206	75	0.9917	2.395	5.328	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC287 **Date:** 29-May-00
Chemical: dZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,150	41	3,038	531	0.00	0.00	0.00	
SD:	626	38	1,433	401	1.00	1.00	1.00	
CV:	0.02	0.92	0.47	0.76				first:
Min:	33,516	11	688	142	-0.79	-1.64	-0.97	mid:
Max:	36,227	206	7,240	2,998	4.36	2.93	6.15	last:
Median:	35,081	26	2,780	459	-0.40	-0.18	-0.18	

dZn CC287 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.24) update r2 r2: 0.015 0.033

r2 Q,[COC]:	0.24	[dZn]	Q	m:	0.0075	0.00021
slope, m:	-18.4	3,586	11.4	b:	-222	-3.98
intercept, b:	3795.7	3,038	41.1			
N: 75		-3	206			first:

LnConc. = mLn{Q}+b (r2=0.38) update r2 mid:

						last:
r2 lnQ,ln[COC]:	0.38	ln[dZn]	ln Q	[dZn]	Q	
slope, m:	-0.44	8.33	2.43	4,165	11	
intercept, b:	9.41	7.77	3.72	2,361	41	
N: 75		7.05	5.33	1,156	206	

for graph
dZn 0
CC287

N= 75

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	5-Oct-91	14.5	3440	268	2.67	8.14	5.59	-0.70	0.28	-0.65
IDEQ	27-Oct-93	13.28	3470	248	2.59	8.15	5.51	-0.74	0.30	-0.70
IDEQ	30-Nov-93	12.62	3980	270	2.54	8.29	5.60	-0.75	0.66	-0.65
IDEQ	17-Dec-93	11.7	5440	342	2.46	8.60	5.84	-0.78	1.68	-0.47
IDEQ	17-Dec-93	12.03	5440	352	2.49	8.60	5.86	-0.77	1.68	-0.45
IDEQ	20-Jan-94	13.28	5240	374	2.59	8.56	5.93	-0.74	1.54	-0.39
IDEQ	20-Jan-94	14.66	5240	413	2.69	8.56	6.02	-0.70	1.54	-0.29
IDEQ	18-Feb-94	11.41	4740	291	2.43	8.46	5.67	-0.78	1.19	-0.60
IDEQ	8-Mar-94	22.26	4440	532	3.10	8.40	6.28	-0.50	0.98	0.00
IDEQ	24-Mar-94	21.13	4660	530	3.05	8.45	6.27	-0.53	1.13	0.00
IDEQ	7-Apr-94	37.82	2440	496	3.63	7.80	6.21	-0.09	-0.42	-0.09
IDEQ	4-May-94	111.05	1200	717	4.71	7.09	6.57	1.85	-1.28	0.46
IDEQ	19-May-94	102.01	1010	554	4.63	6.92	6.32	1.61	-1.42	0.06
IDEQ	7-Jun-94	63.45	1570	536	4.15	7.36	6.28	0.59	-1.02	0.01
IDEQ	23-Jun-94	28.96	1720	268	3.37	7.45	5.59	-0.32	-0.92	-0.65
IDEQ	25-Jul-94	19.04	2490	255	2.95	7.82	5.54	-0.58	-0.38	-0.69
IDEQ	16-Aug-94	16.3	2940	258	2.79	7.99	5.55	-0.66	-0.07	-0.68
IDEQ	16-Aug-94	13.57	2940	215	2.61	7.99	5.37	-0.73	-0.07	-0.79
IDEQ	13-Sep-94	15.89	3020	258	2.77	8.01	5.55	-0.67	-0.01	-0.68
IDEQ	16-Oct-94	14.34	3480	268	2.66	8.15	5.59	-0.71	0.31	-0.65
IDEQ	16-Nov-94	15.89	5610	480	2.77	8.63	6.17	-0.67	1.79	-0.13
IDEQ	13-Dec-94	17.17	6730	622	2.84	8.81	6.43	-0.63	2.58	0.23
IDEQ	10-Jan-95	28.21	6370	967	3.34	8.76	6.87	-0.34	2.33	1.09
IDEQ	9-Feb-95	43.28	3380	787	3.77	8.13	6.67	0.06	0.24	0.64
IDEQ	8-Mar-95	36.82	2550	505	3.61	7.84	6.22	-0.11	-0.34	-0.06
IDEQ	22-Mar-95	86.16	3640	1687	4.46	8.20	7.43	1.19	0.42	2.88
IDEQ	12-Apr-95	42.13	2500	567	3.74	7.82	6.34	0.03	-0.38	0.09
IDEQ	25-Apr-95	43	2100	486	3.76	7.65	6.19	0.05	-0.65	-0.11
IDEQ	13-Jun-95	96.41	906	470	4.57	6.81	6.15	1.46	-1.49	-0.15
IDEQ	27-Jun-95	34.9	1260	237	3.55	7.14	5.47	-0.16	-1.24	-0.73
IDEQ	11-Jul-95	20.05	1700	183	3.00	7.44	5.21	-0.56	-0.93	-0.87
IDEQ	25-Jul-95	14.71	1790	142	2.69	7.49	4.95	-0.70	-0.87	-0.97
IDEQ	14-Aug-95	12.6	2580	175	2.53	7.86	5.16	-0.75	-0.32	-0.89
IDEQ	13-Sep-95	11.4	2800	172	2.43	7.94	5.15	-0.79	-0.17	-0.89
IDEQ	18-Oct-95	31.4	2930	495	3.45	7.98	6.20	-0.26	-0.08	-0.09
IDEQ	21-Nov-95	81.5	1670	732	4.40	7.42	6.60	1.07	-0.95	0.50
IDEQ	27-Dec-95	42.1	2580	584	3.74	7.86	6.37	0.03	-0.32	0.13
IDEQ	17-Jan-96	50.9	3870	1060	3.93	8.26	6.97	0.26	0.58	1.32
IDEQ	29-Feb-96	111	2310	1379	4.71	7.75	7.23	1.85	-0.51	2.12
IDEQ	28-Mar-96	65.2	2220	779	4.18	7.71	6.66	0.64	-0.57	0.62
IDEQ	8-May-96	81.5	1650	723	4.40	7.41	6.58	1.07	-0.97	0.48
IDEQ	19-Jun-96	148	843	671	5.00	6.74	6.51	2.83	-1.53	0.35
IDEQ	24-Jul-96	35.8	1550	299	3.58	7.35	5.70	-0.14	-1.04	-0.58
IDEQ	21-Aug-96	23.342375	2620	329	3.15	7.87	5.80	-0.47	-0.29	-0.50
IDEQ	26-Sep-96	19.5	2640	277	2.97	7.88	5.62	-0.57	-0.28	-0.63
IDEQ	29-Oct-96	23.5	3780	478	3.16	8.24	6.17	-0.47	0.52	-0.13
IDEQ	27-Nov-96	21.7	4530	529	3.08	8.42	6.27	-0.51	1.04	0.00

IDEQ	13-Dec-96	29.7	5430	868	3.39	8.60	6.77	-0.30	1.67	0.84
IDEQ	30-Jan-97	31.4	3590	606	3.45	8.19	6.41	-0.26	0.39	0.19
IDEQ	21-Feb-97	38.9	4140	866	3.66	8.33	6.76	-0.06	0.77	0.84
IDEQ	26-Mar-97	144	3870	2998	4.97	8.26	8.01	2.72	0.58	6.15
IDEQ	16-Apr-97	55.3	3380	1006	4.01	8.13	6.91	0.38	0.24	1.18
IDEQ	24-Jun-97	124	797	532	4.82	6.68	6.28	2.19	-1.56	0.00
IDEQ	23-Jul-97	111	1260	752	4.71	7.14	6.62	1.85	-1.24	0.55
IDEQ	14-Aug-97	37.8	2010	409	3.63	7.61	6.01	-0.09	-0.72	-0.30
IDEQ	4-Sep-97	34	2390	437	3.53	7.78	6.08	-0.19	-0.45	-0.23
IDEQ	16-Oct-97	25.4	2750	376	3.23	7.92	5.93	-0.41	-0.20	-0.39
URS	9-Nov-97	32.7	2610	459	3.49	7.87	6.13	-0.22	-0.30	-0.18
IDEQ	26-Nov-97	29.7	2840	454	3.39	7.95	6.12	-0.30	-0.14	-0.19
IDEQ	19-Dec-97	24.1	3340	433	3.18	8.11	6.07	-0.45	0.21	-0.24
IDEQ	22-Jan-98	18.1	3320	323	2.90	8.11	5.78	-0.61	0.20	-0.52
IDEQ	26-Feb-98	22.3	3560	427	3.10	8.18	6.06	-0.50	0.36	-0.26
IDEQ	20-Mar-98	33.1	2780	495	3.50	7.93	6.20	-0.21	-0.18	-0.09
URS	14-May-98	206	688	762	5.33	6.53	6.64	4.36	-1.64	0.58
IDEQ	26-Jun-98	63.5	1220	417	4.15	7.11	6.03	0.59	-1.27	-0.28
IDEQ	28-Jul-98	24.7	1720	229	3.21	7.45	5.43	-0.43	-0.92	-0.75
IDEQ	26-Aug-98	19.5	2110	221	2.97	7.65	5.40	-0.57	-0.65	-0.77
IDEQ	24-Sep-98	17.2	2260	209	2.84	7.72	5.34	-0.63	-0.54	-0.80
IDEQ	1-Oct-98	16.7	2270	204	2.82	7.73	5.32	-0.64	-0.54	-0.81
IDEQ	8-Oct-98	15.9	2700	231	2.77	7.90	5.44	-0.67	-0.24	-0.75
IDEQ	26-Oct-98	16.7	2270	204	2.82	7.73	5.32	-0.64	-0.54	-0.81
IDEQ	25-Nov-98	26	7240	1013	3.26	8.89	6.92	-0.40	2.93	1.20
IDEQ	15-Jan-99	33	3660	650	3.50	8.21	6.48	-0.21	0.43	0.30
IDEQ	23-Feb-99	20	3770	406	3.00	8.23	6.01	-0.56	0.51	-0.31
IDEQ	8-Mar-99	23	3880	559	3.14	8.26	6.33	-0.48	0.59	0.07

dZn

Concentration over time analysis r2 Slope, m

dZn CC287 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.026** **-0.00013**

Time	Ln[COC]	[COC]
5-Oct-91	8.12	3,348
17-Jan-96	7.91	2,718
8-Mar-99	7.75	2,333

LnConc.=mTime+b >'96 r2, m: **0.019** **0.00031**

21-Feb-97	7.70	2,213
8-Mar-99	7.93	2,791

Load over time analysis

dZn CC287 **Load over time**

LnLoad=mTime+b All data r2, m: **0.008** **0.00008**

Time	LnLoad	Load
5-Oct-91	5.96	387
17-Jan-96	6.09	441
8-Mar-99	6.18	484

LnLoad=mTime+b >'96 r2, m: **0.245** **-0.00134**

21-Feb-97	6.66	781
8-Mar-99	5.66	287

max r2: 0.703 max r2: 0.466

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.026	-0.00013	12.58	0.008	0.00008	3.19
0.023	-0.00013	12.52	0.004	0.00006	4.00
0.021	-0.00013	12.35	0.002	0.00004	4.67
0.017	-0.00012	11.99	0.001	0.00002	5.27
0.011	-0.00009	11.19	0.000	0.00001	5.61
0.006	-0.00007	10.31	0.000	0.00001	5.94
0.003	-0.00004	9.43	0.000	0.00000	6.21
0.000	-0.00002	8.45	0.000	-0.00001	6.36
0.000	0.00001	7.56	0.001	-0.00003	7.04
0.001	0.00003	6.69	0.000	-0.00002	6.86
0.004	0.00006	5.67	0.000	-0.00002	6.66
0.004	0.00006	5.62	0.000	-0.00001	6.56
0.001	0.00003	6.75	0.000	0.00001	5.83
0.000	-0.00001	8.29	0.000	0.00002	5.48
0.002	-0.00004	9.19	0.001	0.00003	5.15
0.004	-0.00006	10.00	0.000	0.00000	6.09
0.005	-0.00007	10.17	0.001	-0.00003	7.21
0.004	-0.00006	10.03	0.003	-0.00006	8.42
0.003	-0.00006	9.86	0.009	-0.00011	10.18
0.002	-0.00005	9.61	0.016	-0.00016	11.70
0.001	-0.00003	9.02	0.025	-0.00020	13.28
0.000	0.00002	7.27	0.026	-0.00021	13.65
0.006	0.00008	4.89	0.024	-0.00020	13.43
0.021	0.00015	2.40	0.015	-0.00017	12.08
0.030	0.00018	1.28	0.010	-0.00014	11.10
0.033	0.00020	0.79	0.010	-0.00014	11.17
0.046	0.00024	-0.75	0.001	-0.00005	7.89
0.051	0.00026	-1.38	0.001	-0.00003	7.36
0.050	0.00026	-1.55	0.000	-0.00003	7.23
0.027	0.00019	0.95	0.000	-0.00003	7.19
0.015	0.00014	2.73	0.004	-0.00009	9.44
0.009	0.00011	3.74	0.015	-0.00019	12.97
0.005	0.00009	4.74	0.048	-0.00033	18.10
0.006	0.00010	4.40	0.097	-0.00048	23.24
0.008	0.00012	3.66	0.179	-0.00065	29.28
0.011	0.00015	2.61	0.196	-0.00070	31.33
0.005	0.00010	4.15	0.188	-0.00071	31.70
0.006	0.00012	3.73	0.194	-0.00076	33.17
0.015	0.00019	0.98	0.164	-0.00071	31.53
0.015	0.00020	0.80	0.121	-0.00061	27.89
0.013	0.00019	0.87	0.103	-0.00058	26.98
0.006	0.00014	2.97	0.089	-0.00056	26.22
0.001	-0.00006	10.14	0.078	-0.00055	25.67
0.010	-0.00018	14.27	0.114	-0.00069	30.82
0.012	-0.00020	15.12	0.155	-0.00084	36.20
0.013	-0.00023	16.03	0.227	-0.00105	43.91
0.007	-0.00017	13.86	0.253	-0.00117	48.14

0.000	-0.00004	9.35	0.271	-0.00128	52.08
0.007	0.00018	1.46	0.244	-0.00127	51.56
0.019	0.00031	-3.35	0.245	-0.00134	54.33
0.050	0.00053	-11.39	0.213	-0.00131	53.00
0.099	0.00079	-20.62	0.106	-0.00076	33.21
0.161	0.00107	-30.81	0.044	-0.00049	23.49
0.085	0.00075	-18.97	0.031	-0.00043	21.49
0.042	0.00053	-11.13	0.006	-0.00019	12.73
0.030	0.00048	-9.35	0.005	-0.00019	12.64
0.029	0.00051	-10.49	0.002	-0.00014	10.93
0.038	0.00063	-14.80	0.003	-0.00017	12.12
0.045	0.00075	-19.05	0.000	-0.00007	8.29
0.065	0.00099	-27.85	0.001	0.00009	2.81
0.126	0.00153	-47.46	0.004	0.00027	-3.95
0.230	0.00233	-76.22	0.001	0.00017	-0.38
0.439	0.00364	-123.46	0.007	0.00045	-10.18
0.703	0.00548	-190.09	0.041	0.00129	-40.49
0.595	0.00447	-153.58	0.277	0.00359	-123.83
0.473	0.00384	-130.74	0.466	0.00533	-186.49
0.366	0.00347	-117.15	0.456	0.00587	-206.20
0.282	0.00321	-107.83	0.416	0.00608	-213.86
0.202	0.00278	-92.30	0.343	0.00567	-198.96
0.091	0.00190	-60.64	0.222	0.00462	-161.02
0.012	0.00080	-20.81	0.062	0.00261	-88.14

update for EV, CV:

dZn **CC287**

LN Analysis **dZn**

Load **Load Data, EV=531 lbs/day CV=.76**

Load Data-based LN

Avg:	**531**	u	ln dZn Load	dZn Load
SD:	**401**	3	8.1	3182
CV:	**0.76**	0	6.05	423
Min:	**142**	-3	4.03	56
Max:	**2,998**			
Median:	**459**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.974, EV=527.2 lbs/day CV=.64; max r2=0.99**

r2 u,lnLoad:	0.974	u	lnLoad	Load
slope, m:	1.697	3	7.86	2597
intercept, b:	-10.339	0	6.09	443
N: 75		-3	4.33	76
E[Load]:	527.2	Parameter Estimates		
SD[Load]:	340	from LN regression		
CV[Load]:	0.64	update graph label		

max r2 0.986

N: 75

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
25-Jul-95	142	1	0.0083	-2.395	4.953	0.974
13-Sep-95	172	2	0.0216	-2.022	5.146	0.975
14-Aug-95	175	3	0.0349	-1.813	5.164	0.977
11-Jul-95	183	4	0.0482	-1.663	5.212	0.977
1-Oct-98	204	5	0.0615	-1.543	5.318	0.977
26-Oct-98	204	6	0.0748	-1.441	5.318	0.977
24-Sep-98	209	7	0.0880	-1.353	5.343	0.977
16-Aug-94	215	8	0.1013	-1.274	5.369	0.976
26-Aug-98	221	9	0.1146	-1.202	5.400	0.976
28-Jul-98	229	10	0.1279	-1.136	5.432	0.975
8-Oct-98	231	11	0.1412	-1.075	5.442	0.974
27-Jun-95	237	12	0.1545	-1.017	5.466	0.974
27-Oct-93	248	13	0.1678	-0.963	5.513	0.973
25-Jul-94	255	14	0.1811	-0.911	5.542	0.972
16-Aug-94	258	15	0.1944	-0.862	5.552	0.971
13-Sep-94	258	16	0.2076	-0.815	5.554	0.970
23-Jun-94	268	17	0.2209	-0.769	5.591	0.968
5-Oct-91	268	18	0.2342	-0.725	5.592	0.967
16-Oct-94	268	19	0.2475	-0.682	5.593	0.966
30-Nov-93	270	20	0.2608	-0.641	5.599	0.964
26-Sep-96	277	21	0.2741	-0.601	5.624	0.963
18-Feb-94	291	22	0.2874	-0.561	5.673	0.962
24-Jul-96	299	23	0.3007	-0.522	5.699	0.960
22-Jan-98	323	24	0.3140	-0.485	5.779	0.959
21-Aug-96	329	25	0.3272	-0.448	5.796	0.957
17-Dec-93	342	26	0.3405	-0.411	5.836	0.955
17-Dec-93	352	27	0.3538	-0.375	5.864	0.953
20-Jan-94	374	28	0.3671	-0.340	5.925	0.951
16-Oct-97	376	29	0.3804	-0.304	5.929	0.950
23-Feb-99	406	30	0.3937	-0.270	6.005	0.949
14-Aug-97	409	31	0.4070	-0.235	6.013	0.949
20-Jan-94	413	32	0.4203	-0.201	6.024	0.948
26-Jun-98	417	33	0.4336	-0.167	6.033	0.948
26-Feb-98	427	34	0.4468	-0.134	6.057	0.947
19-Dec-97	433	35	0.4601	-0.100	6.071	0.947
4-Sep-97	437	36	0.4734	-0.067	6.080	0.946
26-Nov-97	454	37	0.4867	-0.033	6.118	0.946
9-Nov-97	459	38	0.5000	0.000	6.129	0.946
13-Jun-95	470	39	0.5133	0.033	6.153	0.946
29-Oct-96	478	40	0.5266	0.067	6.169	0.947
16-Nov-94	480	41	0.5399	0.100	6.173	0.948
25-Apr-95	486	42	0.5532	0.134	6.186	0.948
18-Oct-95	495	43	0.5664	0.167	6.204	0.949
20-Mar-98	495	44	0.5797	0.201	6.205	0.950
7-Apr-94	496	45	0.5930	0.235	6.208	0.950
8-Mar-95	505	46	0.6063	0.270	6.225	0.949
27-Nov-96	529	47	0.6196	0.304	6.271	0.949

24-Mar-94	**530**	48	0.6329	0.340	6.272	0.950
24-Jun-97	**532**	49	0.6462	0.375	6.276	0.950
8-Mar-94	**532**	50	0.6595	0.411	6.276	0.950
7-Jun-94	**536**	51	0.6728	0.448	6.284	0.949
19-May-94	**554**	52	0.6860	0.485	6.318	0.947
8-Mar-99	**559**	53	0.6993	0.522	6.326	0.945
12-Apr-95	**567**	54	0.7126	0.561	6.340	0.943
27-Dec-95	**584**	55	0.7259	0.601	6.371	0.940
30-Jan-97	**606**	56	0.7392	0.641	6.408	0.937
13-Dec-94	**622**	57	0.7525	0.682	6.432	0.934
15-Jan-99	**650**	58	0.7658	0.725	6.477	0.931
19-Jun-96	**671**	59	0.7791	0.769	6.509	0.929
4-May-94	**717**	60	0.7924	0.815	6.575	0.929
8-May-96	**723**	61	0.8056	0.862	6.584	0.933
21-Nov-95	**732**	62	0.8189	0.911	6.596	0.937
23-Jul-97	**752**	63	0.8322	0.963	6.623	0.940
14-May-98	**762**	64	0.8455	1.017	6.637	0.944
28-Mar-96	**779**	65	0.8588	1.075	6.658	0.946
9-Feb-95	**787**	66	0.8721	1.136	6.668	0.947
21-Feb-97	**866**	67	0.8854	1.202	6.764	0.944
13-Dec-96	**868**	68	0.8987	1.274	6.766	0.950
10-Jan-95	**967**	69	0.9120	1.353	6.874	0.949
16-Apr-97	**1006**	70	0.9252	1.441	6.913	0.966
25-Nov-98	**1013**	71	0.9385	1.543	6.920	0.986
17-Jan-96	**1060**	72	0.9518	1.663	6.966	
29-Feb-96	**1379**	73	0.9651	1.813	7.229	
22-Mar-95	**1687**	74	0.9784	2.022	7.431	
26-Mar-97	**2998**	75	0.9917	2.395	8.006	

update for EV, CV:

dZn
LN Analysis

CC287
dZn

Concentration

Conc. Data, EV=3,038 ug/L CV=.47

Avg:	**3,038**	**Data-based LN**		
SD:	**1,433**	u	ln[dZn]	[dZn]
CV:	**0.47**	3	9.3	10541
Min:	**688**	0	7.92	2748
Max:	**7,240**	-3	6.57	716
Median:	**2,780**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.974, EV=3102.3 ug/L CV=.57; max r2=0.99**

r2 u,lnConc:	0.974	u	lnConc.	Conc.
slope, m:	1.879	3	9.49	13288
intercept, b:	-14.843	0	7.90	2693
N: 75		-3	6.30	546
E[Conc]:	3102.3	Parameter Estimates		
SD[Conc]:	1775	from LN regression		
CV[Conc]:	0.57	update graph label		

max r2
0.991

Date	dZn Concentration ug/L Ranked	i rank	N: 75 i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
14-May-98	688	1	0.0083	-2.395	6.534	0.974
24-Jun-97	797	2	0.0216	-2.022	6.681	0.972
19-Jun-96	843	3	0.0349	-1.813	6.737	0.972
13-Jun-95	906	4	0.0482	-1.663	6.809	0.973
19-May-94	1010	5	0.0615	-1.543	6.918	0.976
4-May-94	1200	6	0.0748	-1.441	7.090	0.979
26-Jun-98	1220	7	0.0880	-1.353	7.107	0.979
27-Jun-95	1260	8	0.1013	-1.274	7.139	0.980
23-Jul-97	1260	9	0.1146	-1.202	7.139	0.982
24-Jul-96	1550	10	0.1279	-1.136	7.346	0.986
7-Jun-94	1570	11	0.1412	-1.075	7.359	0.986
8-May-96	1650	12	0.1545	-1.017	7.409	0.986
21-Nov-95	1670	13	0.1678	-0.963	7.421	0.986
11-Jul-95	1700	14	0.1811	-0.911	7.438	0.986
23-Jun-94	1720	15	0.1944	-0.862	7.450	0.986
28-Jul-98	1720	16	0.2076	-0.815	7.450	0.987
25-Jul-95	1790	17	0.2209	-0.769	7.490	0.989
14-Aug-97	2010	18	0.2342	-0.725	7.606	0.991
25-Apr-95	2100	19	0.2475	-0.682	7.650	0.990
26-Aug-98	2110	20	0.2608	-0.641	7.654	0.990
28-Mar-96	2220	21	0.2741	-0.601	7.705	0.990
24-Sep-98	2260	22	0.2874	-0.561	7.723	0.989
1-Oct-98	2270	23	0.3007	-0.522	7.728	0.989
26-Oct-98	2270	24	0.3140	-0.485	7.728	0.988
29-Feb-96	2310	25	0.3272	-0.448	7.745	0.988
4-Sep-97	2390	26	0.3405	-0.411	7.779	0.987
7-Apr-94	2440	27	0.3538	-0.375	7.800	0.987
25-Jul-94	2490	28	0.3671	-0.340	7.820	0.986
12-Apr-95	2500	29	0.3804	-0.304	7.824	0.986
8-Mar-95	2550	30	0.3937	-0.270	7.844	0.985
14-Aug-95	2580	31	0.4070	-0.235	7.856	0.985
27-Dec-95	2580	32	0.4203	-0.201	7.856	0.984
9-Nov-97	2610	33	0.4336	-0.167	7.867	0.983
21-Aug-96	2620	34	0.4468	-0.134	7.871	0.983
26-Sep-96	2640	35	0.4601	-0.100	7.879	0.982
8-Oct-98	2700	36	0.4734	-0.067	7.901	0.981
16-Oct-97	2750	37	0.4867	-0.033	7.919	0.980
20-Mar-98	2780	38	0.5000	0.000	7.930	0.980
13-Sep-95	2800	39	0.5133	0.033	7.937	0.979
26-Nov-97	2840	40	0.5266	0.067	7.952	0.978
18-Oct-95	2930	41	0.5399	0.100	7.983	0.978
16-Aug-94	2940	42	0.5532	0.134	7.986	0.977
16-Aug-94	2940	43	0.5664	0.167	7.986	0.976
13-Sep-94	3020	44	0.5797	0.201	8.013	0.976
22-Jan-98	3320	45	0.5930	0.235	8.108	0.976
19-Dec-97	3340	46	0.6063	0.270	8.114	0.976
9-Feb-95	3380	47	0.6196	0.304	8.126	0.975

16-Apr-97	3380	48	0.6329	0.340	8.126	0.974
5-Oct-91	3440	49	0.6462	0.375	8.143	0.972
27-Oct-93	3470	50	0.6595	0.411	8.152	0.971
16-Oct-94	3480	51	0.6728	0.448	8.155	0.969
26-Feb-98	3560	52	0.6860	0.485	8.178	0.967
30-Jan-97	3590	53	0.6993	0.522	8.186	0.965
22-Mar-95	3640	54	0.7126	0.561	8.200	0.962
15-Jan-99	3660	55	0.7259	0.601	8.205	0.959
23-Feb-99	3770	56	0.7392	0.641	8.235	0.956
29-Oct-96	3780	57	0.7525	0.682	8.237	0.952
17-Jan-96	3870	58	0.7658	0.725	8.261	0.948
26-Mar-97	3870	59	0.7791	0.769	8.261	0.943
8-Mar-99	3880	60	0.7924	0.815	8.264	0.939
30-Nov-93	3980	61	0.8056	0.862	8.289	0.941
21-Feb-97	4140	62	0.8189	0.911	8.328	0.946
8-Mar-94	4440	63	0.8322	0.963	8.398	0.953
27-Nov-96	4530	64	0.8455	1.017	8.418	0.948
24-Mar-94	4660	65	0.8588	1.075	8.447	0.944
18-Feb-94	4740	66	0.8721	1.136	8.464	0.939
20-Jan-94	5240	67	0.8854	1.202	8.564	0.940
20-Jan-94	5240	68	0.8987	1.274	8.564	0.940
13-Dec-96	5430	69	0.9120	1.353	8.600	0.931
17-Dec-93	5440	70	0.9252	1.441	8.602	0.932
17-Dec-93	5440	71	0.9385	1.543	8.602	0.917
16-Nov-94	5610	72	0.9518	1.663	8.632	
10-Jan-95	6370	73	0.9651	1.813	8.759	
13-Dec-94	6730	74	0.9784	2.022	8.814	
25-Nov-98	7240	75	0.9917	2.395	8.887	

update for EV, CV:

dZn **CC287**

LN Analysis **dZn**

Discharge, Q **Q Data, EV=41 cfs CV=0.92**

Q Data-based LN

		u	lnQ	Q
Avg:	**41**			
SD:	**38**	3	5.8	317
CV:	**0.92**	0	3.41	30
Min:	**11**	-3	1.06	3
Max:	**206**			
Median:	**26**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.936, EV=40.8 cfs CV=0.88; max r2=0.98**

		u	lnQ	Q
r2 u,lnQ:	0.936			
slope, m:	1.316	3	5.70	299
intercept, b:	-4.498	0	3.42	31
N: 75		-3	1.14	3
E[Q]:	40.8	Parameter Estimates		
SD[Q]:	36	from LN regression		
CV[Q]:	0.88	update graph label		

N: 75

max r2 0.979

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
13-Sep-95	11.4	1	0.0083	-2.395	2.434	0.936
18-Feb-94	11.41	2	0.0216	-2.022	2.434	0.950
17-Dec-93	11.7	3	0.0349	-1.813	2.460	0.956
17-Dec-93	12.03	4	0.0482	-1.663	2.487	0.960
14-Aug-95	12.6	5	0.0615	-1.543	2.534	0.964
30-Nov-93	12.62	6	0.0748	-1.441	2.535	0.966
27-Oct-93	13.28	7	0.0880	-1.353	2.586	0.968
20-Jan-94	13.28	8	0.1013	-1.274	2.586	0.970
16-Aug-94	13.57	9	0.1146	-1.202	2.608	0.972
16-Oct-94	14.34	10	0.1279	-1.136	2.663	0.973
5-Oct-91	14.5	11	0.1412	-1.075	2.674	0.974
20-Jan-94	14.66	12	0.1545	-1.017	2.685	0.975
25-Jul-95	14.71	13	0.1678	-0.963	2.689	0.976
13-Sep-94	15.89	14	0.1811	-0.911	2.766	0.977
16-Nov-94	15.89	15	0.1944	-0.862	2.766	0.978
8-Oct-98	15.9	16	0.2076	-0.815	2.766	0.978
16-Aug-94	16.3	17	0.2209	-0.769	2.791	0.979
1-Oct-98	16.7	18	0.2342	-0.725	2.815	0.979
26-Oct-98	16.7	19	0.2475	-0.682	2.815	0.979
13-Dec-94	17.17	20	0.2608	-0.641	2.843	0.979
24-Sep-98	17.2	21	0.2741	-0.601	2.845	0.979
22-Jan-98	18.1	22	0.2874	-0.561	2.896	0.978
25-Jul-94	19.04	23	0.3007	-0.522	2.947	0.978
26-Sep-96	19.5	24	0.3140	-0.485	2.970	0.978
26-Aug-98	19.5	25	0.3272	-0.448	2.970	0.978
23-Feb-99	20	26	0.3405	-0.411	2.996	0.978
11-Jul-95	20.05	27	0.3538	-0.375	2.998	0.978
24-Mar-94	21.13	28	0.3671	-0.340	3.051	0.977
27-Nov-96	21.7	29	0.3804	-0.304	3.077	0.977
8-Mar-94	22.26	30	0.3937	-0.270	3.103	0.976
26-Feb-98	22.3	31	0.4070	-0.235	3.105	0.976
8-Mar-99	23	32	0.4203	-0.201	3.135	0.975
21-Aug-96	23.342375	33	0.4336	-0.167	3.150	0.975
29-Oct-96	23.5	34	0.4468	-0.134	3.157	0.974
19-Dec-97	24.1	35	0.4601	-0.100	3.182	0.973
28-Jul-98	24.7	36	0.4734	-0.067	3.207	0.972
16-Oct-97	25.4	37	0.4867	-0.033	3.235	0.971
25-Nov-98	26	38	0.5000	0.000	3.258	0.969
10-Jan-95	28.21	39	0.5133	0.033	3.340	0.968
23-Jun-94	28.96	40	0.5266	0.067	3.366	0.967
13-Dec-96	29.7	41	0.5399	0.100	3.391	0.966
26-Nov-97	29.7	42	0.5532	0.134	3.391	0.965
18-Oct-95	31.4	43	0.5664	0.167	3.447	0.963
30-Jan-97	31.4	44	0.5797	0.201	3.447	0.962
9-Nov-97	32.7	45	0.5930	0.235	3.487	0.960
15-Jan-99	33	46	0.6063	0.270	3.497	0.959
20-Mar-98	33.1	47	0.6196	0.304	3.500	0.956

4-Sep-97	34	48	0.6329	0.340	3.526	0.954
27-Jun-95	34.9	49	0.6462	0.375	3.552	0.951
24-Jul-96	35.8	50	0.6595	0.411	3.578	0.948
8-Mar-95	36.82	51	0.6728	0.448	3.606	0.944
14-Aug-97	37.8	52	0.6860	0.485	3.632	0.940
7-Apr-94	37.82	53	0.6993	0.522	3.633	0.936
21-Feb-97	38.9	54	0.7126	0.561	3.661	0.932
27-Dec-95	42.1	55	0.7259	0.601	3.740	0.929
12-Apr-95	42.13	56	0.7392	0.641	3.741	0.924
25-Apr-95	43	57	0.7525	0.682	3.761	0.922
9-Feb-95	43.28	58	0.7658	0.725	3.768	0.923
17-Jan-96	50.9	59	0.7791	0.769	3.930	0.938
16-Apr-97	55.3	60	0.7924	0.815	4.013	0.943
7-Jun-94	63.45	61	0.8056	0.862	4.150	0.948
26-Jun-98	63.5	62	0.8189	0.911	4.151	0.944
28-Mar-96	65.2	63	0.8322	0.963	4.177	0.949
21-Nov-95	81.5	64	0.8455	1.017	4.401	0.973
8-May-96	81.5	65	0.8588	1.075	4.401	0.969
22-Mar-95	86.16	66	0.8721	1.136	4.456	0.968
13-Jun-95	96.41	67	0.8854	1.202	4.569	0.968
19-May-94	102.01	68	0.8987	1.274	4.625	0.962
29-Feb-96	111	69	0.9120	1.353	4.710	0.955
23-Jul-97	111	70	0.9252	1.441	4.710	0.968
4-May-94	111.05	71	0.9385	1.543	4.710	0.966
24-Jun-97	124	72	0.9518	1.663	4.820	
26-Mar-97	144	73	0.9651	1.813	4.970	
19-Jun-96	148	74	0.9784	2.022	4.997	
14-May-98	206	75	0.9917	2.395	5.328	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC287 **Date:** 2-Jun-00
Chemical: tCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	35,345	55	20	4	0.00	0.00	0.00		
SD:	701	66	9	3	1.00	1.00	1.00		
CV:	0.02	1.20	0.47	0.82					first:
Min:	33,516	11	4	1.1	-0.66	-1.71	-0.89		mid:
Max:	36,402	384	52	23	4.97	3.44	5.48		last:
Median:	35,382	29	19	3	-0.39	-0.10	-0.23		

tCd **CC287** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.299)		update r2	0.30	0.299	r2:	0.111	0.112	
r2 Q,[COC]:	0.30	[tCd]	Q		m:	0.0314	0.00041	
slope, m:	-0.1	23	11.4		b:	-1055	-11.04	
intercept, b:	24.2	20	55.2					
N: 92		-5	384					first:
LnConc. = mLn{Q}+b (r2=0.506)		update r2	0.51	0.506				mid:
r2 lnQ,ln[COC]:	0.51	ln[tCd]	ln Q	[tCd]	Q			last:
slope, m:	-0.45	3.37	2.43	29	11			
intercept, b:	4.47	2.66	4.01	14	55			
N: 92		1.79	5.95	6	384			

for graph
tCd 0
CC287

N= 92

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	5-Oct-91	14.5	20.8	1.6	2.67	3.03	0.48	-0.62	0.09	-0.73
IDEQ	27-Oct-93	13.28	22	1.6	2.59	3.09	0.45	-0.63	0.22	-0.75
IDEQ	30-Nov-93	12.62	22	1.5	2.54	3.09	0.40	-0.64	0.22	-0.77
IDEQ	17-Dec-93	11.7	33	2.1	2.46	3.50	0.73	-0.66	1.40	-0.60
IDEQ	17-Dec-93	12.03	33	2.1	2.49	3.50	0.76	-0.65	1.40	-0.58
IDEQ	20-Jan-94	13.28	38	2.7	2.59	3.64	1.00	-0.63	1.94	-0.41
IDEQ	20-Jan-94	14.66	38	3.0	2.69	3.64	1.10	-0.61	1.94	-0.33
IDEQ	18-Feb-94	11.41	30	1.8	2.43	3.40	0.61	-0.66	1.08	-0.67
IDEQ	8-Mar-94	22.26	26	3.1	3.10	3.26	1.14	-0.50	0.65	-0.30
IDEQ	24-Mar-94	21.13	26	3.0	3.05	3.26	1.08	-0.52	0.65	-0.34
IDEQ	7-Apr-94	37.82	18	3.7	3.63	2.89	1.30	-0.26	-0.21	-0.13
IDEQ	4-May-94	111.05	8.2	4.9	4.71	2.10	1.59	0.84	-1.26	0.23
IDEQ	19-May-94	102.01	7.7	4.2	4.63	2.04	1.44	0.71	-1.31	0.03
IDEQ	7-Jun-94	63.45	12	4.1	4.15	2.48	1.41	0.12	-0.85	-0.01
IDEQ	23-Jun-94	28.96	14	2.2	3.37	2.64	0.78	-0.40	-0.64	-0.57
IDEQ	25-Jul-94	19.04	18	1.8	2.95	2.89	0.61	-0.55	-0.21	-0.67
IDEQ	16-Aug-94	16.3	19	1.7	2.79	2.94	0.51	-0.59	-0.10	-0.72
IDEQ	16-Aug-94	13.57	19	1.4	2.61	2.94	0.33	-0.63	-0.10	-0.80
IDEQ	13-Sep-94	15.89	21	1.8	2.77	3.04	0.59	-0.60	0.11	-0.68
IDEQ	16-Oct-94	14.34	21	1.6	2.66	3.04	0.48	-0.62	0.11	-0.74
IDEQ	16-Nov-94	15.89	32	2.7	2.77	3.47	1.01	-0.60	1.29	-0.41
IDEQ	13-Dec-94	17.17	38	3.5	2.84	3.64	1.26	-0.58	1.94	-0.18
IDEQ	10-Jan-95	28.21	39	5.9	3.34	3.66	1.78	-0.41	2.05	0.53
IDEQ	9-Feb-95	43.28	19	4.4	3.77	2.94	1.49	-0.18	-0.10	0.09
IDEQ	8-Mar-95	36.82	16	3.2	3.61	2.77	1.15	-0.28	-0.42	-0.28
IDEQ	22-Mar-95	86.16	24	11.1	4.46	3.18	2.41	0.47	0.44	2.06
IDEQ	12-Apr-95	42.13	15	3.4	3.74	2.71	1.22	-0.20	-0.53	-0.21
IDEQ	25-Apr-95	43	12	2.8	3.76	2.48	1.02	-0.19	-0.85	-0.39
IDEQ	13-Jun-95	96.41	6.8	3.5	4.57	1.92	1.26	0.62	-1.41	-0.17
IDEQ	27-Jun-95	34.9	8.4	1.6	3.55	2.13	0.46	-0.31	-1.24	-0.75
IDEQ	11-Jul-95	20.05	12	1.3	3.00	2.48	0.26	-0.53	-0.85	-0.83
IDEQ	25-Jul-95	14.71	14	1.1	2.69	2.64	0.10	-0.61	-0.64	-0.89
IDEQ	14-Aug-95	12.6	18	1.2	2.53	2.89	0.20	-0.64	-0.21	-0.85
IDEQ	13-Sep-95	11.4	20	1.2	2.43	3.00	0.20	-0.66	0.01	-0.85
IDEQ	18-Oct-95	31.4	21	3.5	3.45	3.04	1.27	-0.36	0.11	-0.17
IDEQ	21-Nov-95	81.5	13	5.7	4.40	2.56	1.74	0.40	-0.75	0.47
IDEQ	27-Dec-95	42.1	18	4.1	3.74	2.89	1.41	-0.20	-0.21	-0.01
IDEQ	17-Jan-96	50.9	27	7.4	3.93	3.30	2.00	-0.07	0.76	0.97
IDEQ	29-Feb-96	111	15	9.0	4.71	2.71	2.19	0.84	-0.53	1.43
IDEQ	28-Mar-96	65.2	16	5.6	4.18	2.77	1.72	0.15	-0.42	0.44
IDEQ	8-May-96	81.5	12	5.3	4.40	2.48	1.66	0.40	-0.85	0.34
IDEQ	19-Jun-96	148	5.8	4.6	5.00	1.76	1.53	1.40	-1.52	0.15
IDEQ	24-Jul-96	35.8	14	2.7	3.58	2.64	0.99	-0.29	-0.64	-0.42
IDEQ	21-Aug-96	23.342375	24	3.0	3.15	3.18	1.10	-0.48	0.44	-0.32
IDEQ	26-Sep-96	19.5	23	2.4	2.97	3.14	0.88	-0.54	0.33	-0.50
IDEQ	29-Oct-96	23.5	28	3.5	3.16	3.33	1.26	-0.48	0.86	-0.17
IDEQ	27-Nov-96	21.7	29	3.4	3.08	3.37	1.22	-0.51	0.97	-0.22

IDEQ	13-Dec-96	29.7	39	6.2	3.39	3.66	1.83	-0.39	2.05	0.62
IDEQ	30-Jan-97	31.4	25	4.2	3.45	3.22	1.44	-0.36	0.54	0.03
IDEQ	21-Feb-97	38.9	27	5.7	3.66	3.30	1.73	-0.25	0.76	0.45
IDEQ	26-Mar-97	144	25	19.4	4.97	3.22	2.96	1.34	0.54	4.49
IDEQ	16-Apr-97	55.3	23	6.8	4.01	3.14	1.92	0.00	0.33	0.80
IDEQ	24-Jun-97	124	5	3.3	4.82	1.61	1.20	1.04	-1.60	-0.23
IDEQ	23-Jul-97	111	10	6.0	4.71	2.30	1.79	0.84	-1.07	0.55
IDEQ	14-Aug-97	37.8	15	3.1	3.63	2.71	1.12	-0.26	-0.53	-0.31
IDEQ	4-Sep-97	34	19	3.5	3.53	2.94	1.25	-0.32	-0.10	-0.19
IDEQ	16-Oct-97	25.4	22	3.0	3.23	3.09	1.10	-0.45	0.22	-0.33
URS	9-Nov-97	32.7	17.8	3.1	3.49	2.88	1.14	-0.34	-0.23	-0.29
IDEQ	26-Nov-97	29.7	19	3.0	3.39	2.94	1.11	-0.39	-0.10	-0.32
IDEQ	19-Dec-97	24.1	26	3.4	3.18	3.26	1.22	-0.47	0.65	-0.22
IDEQ	22-Jan-98	18.1	25	2.4	2.90	3.22	0.89	-0.56	0.54	-0.50
IDEQ	26-Feb-98	22.3	25	3.0	3.10	3.22	1.10	-0.50	0.54	-0.33
IDEQ	20-Mar-98	33.1	21	3.7	3.50	3.04	1.32	-0.33	0.11	-0.11
URS	14-May-98	206	5.1	5.7	5.33	1.63	1.73	2.28	-1.59	0.45
IDEQ	26-Jun-98	63.5	9.8	3.3	4.15	2.28	1.21	0.12	-1.09	-0.23
IDEQ	28-Jul-98	24.7	17	2.3	3.21	2.83	0.81	-0.46	-0.32	-0.55
IDEQ	26-Aug-98	19.5	18	1.9	2.97	2.89	0.64	-0.54	-0.21	-0.66
IDEQ	24-Sep-98	17.2	17	1.6	2.84	2.83	0.45	-0.58	-0.32	-0.75
IDEQ	1-Oct-98	16.7	19	1.7	2.82	2.94	0.53	-0.58	-0.10	-0.71
IDEQ	8-Oct-98	15.9	20	1.7	2.77	3.00	0.54	-0.59	0.01	-0.71
IDEQ	26-Oct-98	16.7	18	1.6	2.82	2.89	0.48	-0.58	-0.21	-0.74
IDEQ	25-Nov-98	26	52	7.3	3.26	3.95	1.98	-0.44	3.44	0.93
IDEQ	15-Jan-99	33	25	4.4	3.50	3.22	1.49	-0.34	0.54	0.10
IDEQ	23-Feb-99	20	30	3.2	3.00	3.40	1.17	-0.53	1.08	-0.26
IDEQ	8-Mar-99	23	28	3.5	3.14	3.33	1.24	-0.49	0.86	-0.19
URS	9-Nov-97	36.6	18.2	3.6	3.60	2.90	1.28	-0.28	-0.19	-0.16
URS	14-May-98	233	5.2	6.5	5.45	1.65	1.87	2.69	-1.58	0.71
USGS	26-Oct-98	13	18	1.3	2.56	2.89	0.23	-0.64	-0.21	-0.84
USGS	26-Oct-98	13	19	1.3	2.56	2.94	0.28	-0.64	-0.10	-0.82
URS	14-Nov-98	22.53	34.2	4.1	3.11	3.53	1.42	-0.49	1.53	0.01
USGS	15-Dec-98	25	31	4.2	3.22	3.43	1.43	-0.46	1.19	0.02
USGS	28-Dec-98	27	32	4.6	3.30	3.47	1.54	-0.43	1.29	0.16
USGS	23-Mar-99	97	26	13.6	4.57	3.26	2.61	0.63	0.65	2.78
USGS	19-Apr-99	138	15	11.1	4.93	2.71	2.41	1.25	-0.53	2.07
USGS	5-May-99	84	9	4.1	4.43	2.20	1.40	0.43	-1.17	-0.01
USGS	24-May-99	384	11	22.7	5.95	2.40	3.12	4.97	-0.96	5.48
USGS	27-May-99	261	5	7.0	5.56	1.61	1.95	3.11	-1.60	0.86
USGS	2-Jun-99	241	5	6.5	5.48	1.61	1.87	2.81	-1.60	0.70
USGS	15-Jun-99	263	4	5.7	5.57	1.39	1.73	3.14	-1.71	0.45
USGS	8-Jul-99	107	5.4	3.1	4.67	1.69	1.13	0.78	-1.56	-0.30
USGS	5-Aug-99	34	12.6	2.3	3.53	2.53	0.83	-0.32	-0.79	-0.53
USGS	30-Aug-99	22	15	1.8	3.09	2.71	0.57	-0.50	-0.53	-0.69

tCd

Concentration over time analysis r2 Slope, m

tCd CC287 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.045** **-0.00017**

Time	Ln[COC]	[COC]
5-Oct-91	3.17	24
12-Nov-96	2.86	17
30-Aug-99	2.69	15

LnConc.=mTime+b >'96 r2, m: **0.039** **-0.00047**

21-Feb-97	3.01	20
30-Aug-99	2.58	13

Load over time analysis

tCd CC287 **Load over time**

LnLoad=mTime+b All data r2, m: **0.079** **0.00025**

Time	LnLoad	Load
5-Oct-91	0.75	2
12-Nov-96	1.21	3
30-Aug-99	1.46	4

LnLoad=mTime+b >'96 r2, m: **0.002** **-0.00010**

21-Feb-97	1.40	4
30-Aug-99	1.30	4

max r2: 1.000 max r2: 1.000

Forward time Regression on Ln Concentration(t) **Forward time Regression on Ln Load(t)**

r2	slope	intercept	r2	slope	intercept
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rov		
0.045	-0.00017	8.77	0.079	0.00025	-7.50
0.045	-0.00017	8.98	0.068	0.00023	-7.08
0.043	-0.00017	8.94	0.059	0.00022	-6.59
0.041	-0.00017	8.89	0.050	0.00020	-6.01
0.035	-0.00016	8.43	0.046	0.00020	-5.73
0.029	-0.00014	7.92	0.041	0.00019	-5.45
0.021	-0.00012	7.24	0.039	0.00019	-5.41
0.015	-0.00010	6.48	0.039	0.00019	-5.47
0.010	-0.00009	5.95	0.033	0.00018	-4.98
0.008	-0.00008	5.54	0.033	0.00018	-5.06
0.005	-0.00006	5.10	0.032	0.00018	-5.08
0.005	-0.00006	5.08	0.033	0.00019	-5.37
0.010	-0.00009	6.05	0.039	0.00021	-6.04
0.018	-0.00012	7.20	0.043	0.00022	-6.58
0.023	-0.00014	7.84	0.048	0.00024	-7.11
0.026	-0.00015	8.31	0.043	0.00023	-6.79
0.027	-0.00016	8.44	0.036	0.00021	-6.19
0.026	-0.00016	8.50	0.028	0.00019	-5.37
0.026	-0.00016	8.57	0.018	0.00015	-4.17
0.024	-0.00016	8.47	0.013	0.00013	-3.28
0.022	-0.00016	8.36	0.007	0.00010	-2.13
0.015	-0.00013	7.50	0.005	0.00009	-1.77
0.008	-0.00010	6.24	0.005	0.00009	-1.82
0.003	-0.00006	4.82	0.009	0.00012	-2.83
0.002	-0.00005	4.61	0.011	0.00013	-3.38
0.002	-0.00005	4.72	0.010	0.00013	-3.33
0.001	-0.00003	4.01	0.024	0.00020	-5.85
0.001	-0.00004	4.23	0.024	0.00021	-6.10
0.003	-0.00006	4.97	0.022	0.00020	-5.91
0.010	-0.00012	7.09	0.023	0.00021	-6.24
0.019	-0.00017	8.96	0.014	0.00017	-4.65
0.026	-0.00021	10.18	0.005	0.00010	-2.31
0.031	-0.00023	11.14	0.000	0.00002	0.80
0.031	-0.00024	11.49	0.003	-0.00008	4.11
0.030	-0.00024	11.56	0.016	-0.00018	7.86
0.027	-0.00024	11.44	0.019	-0.00020	8.70
0.035	-0.00028	12.90	0.015	-0.00019	8.04
0.035	-0.00030	13.39	0.015	-0.00020	8.44
0.027	-0.00027	12.40	0.008	-0.00015	6.64
0.032	-0.00030	13.54	0.002	-0.00007	3.81
0.035	-0.00033	14.56	0.000	-0.00003	2.45
0.047	-0.00039	16.94	0.000	0.00001	1.15
0.092	-0.00056	22.89	0.000	0.00003	0.25
0.109	-0.00063	25.51	0.000	-0.00001	1.77
0.103	-0.00064	25.78	0.001	-0.00005	3.00
0.099	-0.00065	26.19	0.003	-0.00012	5.60
0.086	-0.00063	25.45	0.004	-0.00014	6.48

0.072	-0.00060	24.25	0.006	-0.00018	7.77
0.048	-0.00050	20.79	0.002	-0.00011	5.34
0.039	-0.00047	19.60	0.002	-0.00010	5.11
0.027	-0.00041	17.50	0.000	-0.00004	2.67
0.019	-0.00035	15.48	0.015	0.00031	-9.89
0.012	-0.00030	13.60	0.034	0.00049	-16.56
0.047	-0.00059	24.06	0.035	0.00053	-17.72
0.072	-0.00076	30.27	0.058	0.00070	-24.10
0.082	-0.00086	33.83	0.058	0.00074	-25.34
0.083	-0.00091	35.59	0.064	0.00081	-28.06
0.076	-0.00091	35.71	0.063	0.00085	-29.35
0.079	-0.00098	37.98	0.063	0.00090	-31.15
0.078	-0.00103	39.82	0.063	0.00094	-32.83
0.063	-0.00097	37.62	0.067	0.00103	-36.02
0.049	-0.00090	35.06	0.057	0.00100	-34.87
0.036	-0.00080	31.61	0.055	0.00103	-35.96
0.029	-0.00075	29.75	0.061	0.00115	-40.27
0.076	-0.00121	46.40	0.085	0.00140	-49.45
0.102	-0.00143	54.62	0.087	0.00146	-51.62
0.103	-0.00148	56.28	0.076	0.00139	-48.93
0.102	-0.00150	56.91	0.062	0.00126	-44.11
0.102	-0.00152	57.61	0.048	0.00108	-37.77
0.099	-0.00151	57.31	0.035	0.00091	-31.55
0.094	-0.00148	56.45	0.023	0.00072	-24.77
0.091	-0.00148	56.24	0.013	0.00053	-17.59
0.080	-0.00129	49.37	0.018	0.00061	-20.74
0.078	-0.00126	48.13	0.018	0.00062	-20.81
0.086	-0.00127	48.68	0.019	0.00062	-21.02
0.098	-0.00131	50.09	0.020	0.00064	-21.50
0.094	-0.00175	66.08	0.014	0.00075	-25.54
0.449	-0.00466	171.32	0.061	0.00195	-69.28
0.469	-0.00519	190.68	0.007	0.00067	-22.76
0.499	-0.00607	222.62	0.040	-0.00158	59.18
0.402	-0.00596	218.72	0.100	-0.00297	109.46
0.271	-0.00543	199.29	0.233	-0.00554	202.87
0.048	-0.00277	102.67	0.635	-0.01323	482.20
0.026	0.00197	-69.59	0.586	-0.01410	513.70
0.238	0.00611	-220.05	0.529	-0.01444	526.17
0.416	0.00912	-329.61	0.780	-0.01995	726.40
0.838	0.01342	-485.87	0.975	-0.01521	554.18
0.872	0.01522	-551.26	0.966	-0.01511	550.48
0.948	0.01890	-685.36	0.945	-0.01465	533.88
0.895	0.01950	-706.85	1.000	-0.01057	385.37
1.000	0.00697	-251.16	1.000	-0.01044	380.56

update for EV, CV:

tCd **CC287**

LN Analysis **tCd**

Load **Load Data, EV=4.12 lbs/day CV=0.825**

Load Data-based LN

		u	ln tCd Load	tCd Load
Avg:	**4**			
SD:	**3**	3	3.3	28
CV:	**0.82**	0	1.16	3
Min:	**1.1**	-3	-1.01	0.4
Max:	**23**			
Median:	**3**			

4	4.12
0.82	0.825

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.968, EV=4.07lbs/day CV=0.702; max r2=0.975**

r2 u,lnLoad:	0.968	u	lnLoad	Load
slope, m:	1.579	3	3.10	22
intercept, b:	-1.900	0	1.20	3
N: 92		-3	-0.70	0.5
E[Load]:	4.1	Parameter Estimates		
SD[Load]:	3	from LN regression		
CV[Load]:	0.70	update graph label		

						0.968
						4.1
						0.7
						max r2
	tCd	N: 92				0.975
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
ws	update and rank for new data					
25-Jul-95	**1.1**	1	0.0068	-2.469	0.103	0.968
14-Aug-95	**1.2**	2	0.0176	-2.106	0.199	0.972
13-Sep-95	**1.2**	3	0.0285	-1.904	0.204	0.975
30-Aug-99	1.3	4	0.0393	-1.759	0.230	0.975
11-Jul-95	**1.3**	5	0.0501	-1.644	0.258	0.975
5-Aug-99	1.3	6	0.0610	-1.547	0.284	0.975
16-Aug-94	**1.4**	7	0.0718	-1.462	0.327	0.975
30-Nov-93	**1.5**	8	0.0827	-1.387	0.401	0.974
27-Oct-93	**1.6**	9	0.0935	-1.320	0.452	0.974
24-Sep-98	**1.6**	10	0.1043	-1.257	0.453	0.974
27-Jun-95	**1.6**	11	0.1152	-1.199	0.456	0.974
26-Oct-98	**1.6**	12	0.1260	-1.145	0.481	0.973
16-Oct-94	**1.6**	13	0.1369	-1.095	0.483	0.972
5-Oct-91	**1.6**	14	0.1477	-1.046	0.484	0.972
16-Aug-94	**1.7**	15	0.1585	-1.000	0.511	0.971
1-Oct-98	**1.7**	16	0.1694	-0.957	0.535	0.970
8-Oct-98	**1.7**	17	0.1802	-0.915	0.537	0.969
24-May-99	1.8	18	0.1911	-0.874	0.574	0.967
13-Sep-94	**1.8**	19	0.2019	-0.835	0.585	0.966
18-Feb-94	**1.8**	20	0.2127	-0.797	0.611	0.965
25-Jul-94	**1.8**	21	0.2236	-0.760	0.612	0.964
26-Aug-98	**1.9**	22	0.2344	-0.724	0.636	0.963
17-Dec-93	**2.1**	23	0.2453	-0.689	0.731	0.962
17-Dec-93	**2.1**	24	0.2561	-0.655	0.759	0.960
23-Jun-94	**2.2**	25	0.2669	-0.622	0.780	0.959
28-Jul-98	**2.3**	26	0.2778	-0.589	0.815	0.958
23-Mar-99	2.3	27	0.2886	-0.557	0.835	0.957
26-Sep-96	**2.4**	28	0.2995	-0.526	0.881	0.955
22-Jan-98	**2.4**	29	0.3103	-0.495	0.890	0.954
24-Jul-96	**2.7**	30	0.3211	-0.465	0.992	0.953
20-Jan-94	**2.7**	31	0.3320	-0.434	0.999	0.953
16-Nov-94	**2.7**	32	0.3428	-0.405	1.006	0.954
25-Apr-95	**2.8**	33	0.3537	-0.375	1.021	0.954
24-Mar-94	**3.0**	34	0.3645	-0.346	1.084	0.954
20-Jan-94	**3.0**	35	0.3753	-0.318	1.098	0.955
26-Feb-98	**3.0**	36	0.3862	-0.289	1.098	0.957
16-Oct-97	**3.0**	37	0.3970	-0.261	1.101	0.958
21-Aug-96	**3.0**	38	0.4079	-0.233	1.103	0.959
26-Nov-97	**3.0**	39	0.4187	-0.205	1.111	0.960
14-Aug-97	**3.1**	40	0.4295	-0.178	1.115	0.960
19-Apr-99	3.1	41	0.4404	-0.150	1.134	0.961
8-Mar-94	**3.1**	42	0.4512	-0.123	1.136	0.962
9-Nov-97	**3.1**	43	0.4621	-0.095	1.142	0.962
8-Mar-95	**3.2**	44	0.4729	-0.068	1.154	0.963
23-Feb-99	**3.2**	45	0.4837	-0.041	1.172	0.963
24-Jun-97	**3.3**	46	0.4946	-0.014	1.205	0.964
26-Jun-98	**3.3**	47	0.5054	0.014	1.208	0.965

19-Dec-97	**3.4**	48	0.5163	0.041	1.215	0.966
27-Nov-96	**3.4**	49	0.5271	0.068	1.220	0.966
12-Apr-95	**3.4**	50	0.5379	0.095	1.224	0.967
8-Mar-99	**3.5**	51	0.5488	0.123	1.243	0.967
4-Sep-97	**3.5**	52	0.5596	0.150	1.246	0.968
13-Dec-94	**3.5**	53	0.5705	0.178	1.256	0.968
13-Jun-95	**3.5**	54	0.5813	0.205	1.260	0.968
29-Oct-96	**3.5**	55	0.5921	0.233	1.264	0.968
18-Oct-95	**3.5**	56	0.6030	0.261	1.266	0.967
26-Oct-98	3.6	57	0.6138	0.289	1.276	0.966
7-Apr-94	**3.7**	58	0.6247	0.318	1.298	0.965
20-Mar-98	**3.7**	59	0.6355	0.346	1.319	0.964
28-Dec-98	4.1	60	0.6463	0.375	1.403	0.963
27-Dec-95	**4.1**	61	0.6572	0.405	1.405	0.964
7-Jun-94	**4.1**	62	0.6680	0.434	1.410	0.964
8-Jul-99	4.1	63	0.6789	0.465	1.422	0.964
9-Nov-97	4.2	64	0.6897	0.495	1.428	0.963
30-Jan-97	**4.2**	65	0.7005	0.526	1.441	0.962
19-May-94	**4.2**	66	0.7114	0.557	1.441	0.961
9-Feb-95	**4.4**	67	0.7222	0.589	1.487	0.959
15-Jan-99	**4.4**	68	0.7331	0.622	1.490	0.958
19-Jun-96	**4.6**	69	0.7439	0.655	1.530	0.956
5-May-99	4.6	70	0.7547	0.689	1.537	0.954
4-May-94	**4.9**	71	0.7656	0.724	1.589	0.951
8-May-96	**5.3**	72	0.7764	0.760	1.660	0.949
28-Mar-96	**5.6**	73	0.7873	0.797	1.725	0.950
21-Feb-97	**5.7**	74	0.7981	0.835	1.732	0.955
14-May-98	**5.7**	75	0.8089	0.874	1.732	0.960
27-May-99	5.7	76	0.8198	0.915	1.733	0.964
21-Nov-95	**5.7**	77	0.8306	0.957	1.740	0.966
10-Jan-95	**5.9**	78	0.8415	1.000	1.778	0.966
23-Jul-97	**6.0**	79	0.8523	1.046	1.787	0.968
13-Dec-96	**6.2**	80	0.8631	1.095	1.830	0.967
14-May-98	6.5	81	0.8740	1.145	1.869	0.968
26-Oct-98	6.5	82	0.8848	1.199	1.875	0.969
16-Apr-97	**6.8**	83	0.8957	1.257	1.923	0.966
2-Jun-99	7.0	84	0.9065	1.320	1.949	0.963
25-Nov-98	**7.3**	85	0.9173	1.387	1.984	0.956
17-Jan-96	**7.4**	86	0.9282	1.462	2.001	0.945
29-Feb-96	**9.0**	87	0.9390	1.547	2.193	0.945
22-Mar-95	**11.1**	88	0.9499	1.644	2.409	0.930
15-Dec-98	11.1	89	0.9607	1.759	2.410	0.911
14-Nov-98	13.6	90	0.9715	1.904	2.608	0.863
26-Mar-97	**19.4**	91	0.9824	2.106	2.964	
15-Jun-99	22.7	92	0.9932	2.469	3.123	

update for EV, CV:

tCd		**CC287**		20	19.9
LN Analysis		**tCd**		0.47	0.467
Concentration		**Conc. Data, EV=19.9 ug/L CV=0.467**			
Avg:	**20**	**Data-based LN**			
SD:	**9**	u	ln[tCd]	[tCd]	
CV:	**0.47**	3	4.2	69	
Min:	**4**	0	2.89	18	
Max:	**52**	-3	1.56	5	
Median:	**19**				

				0.186	0.186
	u=mLn{Conc.}+b:			40.6	40.6
update for r2, EV, CV:	**r2=0.186, EV=40.6 ug/L CV=2.09; max r2=0.999**			2.091	2.09
	r2 u,lnConc:	0.186	u	lnConc.	Conc.
	slope, m:	0.771	3	6.75	857
	intercept, b:	-2.208	0	2.86	18
	N: 92		-3	-1.03	0
0.968	E[Conc]:	40.6	Parameter Estimates		
4.07	SD[Conc]:	85	from LN regression		
0.702	CV[Conc]:	2.09	update graph label		

						max r2
	tCd	N: 92				0.999
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
24-Jun-97	5	1	0.0068	-2.469	1.609	0.186
14-May-98	5.1	2	0.0176	-2.106	1.629	0.154
19-Jun-96	5.8	3	0.0285	-1.904	1.758	0.127
13-Jun-95	6.8	4	0.0393	-1.759	1.917	0.103
19-May-94	7.7	5	0.0501	-1.644	2.041	0.084
4-May-94	8.2	6	0.0610	-1.547	2.104	0.068
27-Jun-95	8.4	7	0.0718	-1.462	2.128	0.055
26-Jun-98	9.8	8	0.0827	-1.387	2.282	0.042
23-Jul-97	10	9	0.0935	-1.320	2.303	0.033
7-Jun-94	12	10	0.1043	-1.257	2.485	0.025
25-Apr-95	12	11	0.1152	-1.199	2.485	0.020
11-Jul-95	12	12	0.1260	-1.145	2.485	0.015
8-May-96	12	13	0.1369	-1.095	2.485	0.011
21-Nov-95	13	14	0.1477	-1.046	2.565	0.007
23-Jun-94	14	15	0.1585	-1.000	2.639	0.005
25-Jul-95	14	16	0.1694	-0.957	2.639	0.003
24-Jul-96	14	17	0.1802	-0.915	2.639	0.002
12-Apr-95	15	18	0.1911	-0.874	2.708	0.001
29-Feb-96	15	19	0.2019	-0.835	2.708	0.000
14-Aug-97	15	20	0.2127	-0.797	2.708	0.000
8-Mar-95	16	21	0.2236	-0.760	2.773	0.000
28-Mar-96	16	22	0.2344	-0.724	2.773	0.001
28-Jul-98	17	23	0.2453	-0.689	2.833	0.001
24-Sep-98	17	24	0.2561	-0.655	2.833	0.002
9-Nov-97	17.8	25	0.2669	-0.622	2.879	0.003
7-Apr-94	18	26	0.2778	-0.589	2.890	0.004
25-Jul-94	18	27	0.2886	-0.557	2.890	0.005
14-Aug-95	18	28	0.2995	-0.526	2.890	0.006
27-Dec-95	18	29	0.3103	-0.495	2.890	0.007
26-Aug-98	18	30	0.3211	-0.465	2.890	0.009
26-Oct-98	18	31	0.3320	-0.434	2.890	0.010
16-Aug-94	19	32	0.3428	-0.405	2.944	0.012
16-Aug-94	19	33	0.3537	-0.375	2.944	0.013
9-Feb-95	19	34	0.3645	-0.346	2.944	0.015
4-Sep-97	19	35	0.3753	-0.318	2.944	0.017
26-Nov-97	19	36	0.3862	-0.289	2.944	0.019
1-Oct-98	19	37	0.3970	-0.261	2.944	0.021
13-Sep-95	20	38	0.4079	-0.233	2.996	0.023
8-Oct-98	20	39	0.4187	-0.205	2.996	0.024
5-Oct-91	20.8	40	0.4295	-0.178	3.035	0.026
13-Sep-94	21	41	0.4404	-0.150	3.045	0.028
16-Oct-94	21	42	0.4512	-0.123	3.045	0.029
18-Oct-95	21	43	0.4621	-0.095	3.045	0.030
20-Mar-98	21	44	0.4729	-0.068	3.045	0.031
27-Oct-93	22	45	0.4837	-0.041	3.091	0.033
30-Nov-93	22	46	0.4946	-0.014	3.091	0.034
16-Oct-97	22	47	0.5054	0.014	3.091	0.034

26-Sep-96	23	48	0.5163	0.041	3.135	0.035
16-Apr-97	23	49	0.5271	0.068	3.135	0.035
22-Mar-95	24	50	0.5379	0.095	3.178	0.035
21-Aug-96	24	51	0.5488	0.123	3.178	0.034
30-Jan-97	25	52	0.5596	0.150	3.219	0.033
26-Mar-97	25	53	0.5705	0.178	3.219	0.031
22-Jan-98	25	54	0.5813	0.205	3.219	0.030
26-Feb-98	25	55	0.5921	0.233	3.219	0.028
15-Jan-99	25	56	0.6030	0.261	3.219	0.026
8-Mar-94	26	57	0.6138	0.289	3.258	0.024
24-Mar-94	26	58	0.6247	0.318	3.258	0.021
19-Dec-97	26	59	0.6355	0.346	3.258	0.018
17-Jan-96	27	60	0.6463	0.375	3.296	0.016
21-Feb-97	27	61	0.6572	0.405	3.296	0.013
29-Oct-96	28	62	0.6680	0.434	3.332	0.010
8-Mar-99	28	63	0.6789	0.465	3.332	0.006
27-Nov-96	29	64	0.6897	0.495	3.367	0.004
18-Feb-94	30	65	0.7005	0.526	3.401	0.001
23-Feb-99	30	66	0.7114	0.557	3.401	0.000
16-Nov-94	32	67	0.7222	0.589	3.466	0.000
17-Dec-93	33	68	0.7331	0.622	3.497	0.003
17-Dec-93	33	69	0.7439	0.655	3.497	0.011
20-Jan-94	38	70	0.7547	0.689	3.638	0.024
20-Jan-94	38	71	0.7656	0.724	3.638	0.050
13-Dec-94	38	72	0.7764	0.760	3.638	0.093
10-Jan-95	39	73	0.7873	0.797	3.664	0.160
13-Dec-96	39	74	0.7981	0.835	3.664	0.269
25-Nov-98	52	75	0.8089	0.874	3.951	0.441
15-Jun-99	4	76	0.8198	0.915	1.386	0.842
27-May-99	5	77	0.8306	0.957	1.609	0.833
2-Jun-99	5	78	0.8415	1.000	1.609	0.817
14-May-98	5.2	79	0.8523	1.046	1.649	0.806
8-Jul-99	5.4	80	0.8631	1.095	1.686	0.810
5-May-99	9	81	0.8740	1.145	2.197	0.881
24-May-99	11	82	0.8848	1.199	2.398	0.889
5-Aug-99	12.6	83	0.8957	1.257	2.534	0.884
19-Apr-99	15	84	0.9065	1.320	2.708	0.871
30-Aug-99	15	85	0.9173	1.387	2.708	0.844
26-Oct-98	18	86	0.9282	1.462	2.890	0.814
9-Nov-97	18.2	87	0.9390	1.547	2.901	0.763
26-Oct-98	19	88	0.9499	1.644	2.944	0.680
23-Mar-99	26	89	0.9607	1.759	3.258	0.766
15-Dec-98	31	90	0.9715	1.904	3.434	0.999
28-Dec-98	32	91	0.9824	2.106	3.466	
14-Nov-98	34.2	92	0.9932	2.469	3.532	

update for EV, CV:

tCd		**CC287**			55	55.2
LN Analysis		**tCd**			1.20	1.2
Discharge, Q		**Q Data, EV=55.2 cfs CV=1.2**				
Avg:	**55**	**Q Data-based LN**				
SD:	**66**	u	lnQ	Q		
CV:	**1.20**	3	6.4	599		
Min:	**11**	0	3.57	35		
Max:	**384**	-3	0.74	2		
Median:	**29**					

					0.683	0.683
					62.4	62.4
u=mLn{Q}+b:					1.45	1.45
update for r2, EV, CV:	**r2=0.683, EV=62.4 cfs CV=1.45; max r2=0.895**					
r2 u,lnQ:	0.683	u	lnQ	Q		
slope, m:	0.938	3	6.76	865		
intercept, b:	-3.345	0	3.57	35		
N: 92		-3	0.37	1		
E[Q]:	62.4	Parameter Estimates				
SD[Q]:	91	from LN regression				
CV[Q]:	1.45	update graph label				

						max r2
	Q	N: 92				0.895
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
13-Sep-95	11.4	1	0.0068	-2.469	2.434	0.683
18-Feb-94	11.41	2	0.0176	-2.106	2.434	0.684
17-Dec-93	11.7	3	0.0285	-1.904	2.460	0.681
17-Dec-93	12.03	4	0.0393	-1.759	2.487	0.677
14-Aug-95	12.6	5	0.0501	-1.644	2.534	0.672
30-Nov-93	12.62	6	0.0610	-1.547	2.535	0.667
27-Oct-93	13.28	7	0.0718	-1.462	2.586	0.661
20-Jan-94	13.28	8	0.0827	-1.387	2.586	0.655
16-Aug-94	13.57	9	0.0935	-1.320	2.608	0.649
16-Oct-94	14.34	10	0.1043	-1.257	2.663	0.642
5-Oct-91	14.5	11	0.1152	-1.199	2.674	0.636
20-Jan-94	14.66	12	0.1260	-1.145	2.685	0.630
25-Jul-95	14.71	13	0.1369	-1.095	2.689	0.623
13-Sep-94	15.89	14	0.1477	-1.046	2.766	0.615
16-Nov-94	15.89	15	0.1585	-1.000	2.766	0.609
8-Oct-98	15.9	16	0.1694	-0.957	2.766	0.602
16-Aug-94	16.3	17	0.1802	-0.915	2.791	0.594
1-Oct-98	16.7	18	0.1911	-0.874	2.815	0.586
26-Oct-98	16.7	19	0.2019	-0.835	2.815	0.578
13-Dec-94	17.17	20	0.2127	-0.797	2.843	0.569
24-Sep-98	17.2	21	0.2236	-0.760	2.845	0.561
22-Jan-98	18.1	22	0.2344	-0.724	2.896	0.552
25-Jul-94	19.04	23	0.2453	-0.689	2.947	0.543
26-Sep-96	19.5	24	0.2561	-0.655	2.970	0.534
26-Aug-98	19.5	25	0.2669	-0.622	2.970	0.526
23-Feb-99	20	26	0.2778	-0.589	2.996	0.517
11-Jul-95	20.05	27	0.2886	-0.557	2.998	0.507
24-Mar-94	21.13	28	0.2995	-0.526	3.051	0.498
27-Nov-96	21.7	29	0.3103	-0.495	3.077	0.488
8-Mar-94	22.26	30	0.3211	-0.465	3.103	0.479
26-Feb-98	22.3	31	0.3320	-0.434	3.105	0.469
8-Mar-99	23	32	0.3428	-0.405	3.135	0.459
21-Aug-96	23.342375	33	0.3537	-0.375	3.150	0.449
29-Oct-96	23.5	34	0.3645	-0.346	3.157	0.439
19-Dec-97	24.1	35	0.3753	-0.318	3.182	0.428
28-Jul-98	24.7	36	0.3862	-0.289	3.207	0.417
16-Oct-97	25.4	37	0.3970	-0.261	3.235	0.406
25-Nov-98	26	38	0.4079	-0.233	3.258	0.395
10-Jan-95	28.21	39	0.4187	-0.205	3.340	0.383
23-Jun-94	28.96	40	0.4295	-0.178	3.366	0.373
13-Dec-96	29.7	41	0.4404	-0.150	3.391	0.363
26-Nov-97	29.7	42	0.4512	-0.123	3.391	0.353
18-Oct-95	31.4	43	0.4621	-0.095	3.447	0.343
30-Jan-97	31.4	44	0.4729	-0.068	3.447	0.333
9-Nov-97	32.7	45	0.4837	-0.041	3.487	0.322
15-Jan-99	33	46	0.4946	-0.014	3.497	0.312
20-Mar-98	33.1	47	0.5054	0.014	3.500	0.301

4-Sep-97	34	48	0.5163	0.041	3.526	0.290
27-Jun-95	34.9	49	0.5271	0.068	3.552	0.279
24-Jul-96	35.8	50	0.5379	0.095	3.578	0.268
8-Mar-95	36.82	51	0.5488	0.123	3.606	0.257
14-Aug-97	37.8	52	0.5596	0.150	3.632	0.246
7-Apr-94	37.82	53	0.5705	0.178	3.633	0.235
21-Feb-97	38.9	54	0.5813	0.205	3.661	0.223
27-Dec-95	42.1	55	0.5921	0.233	3.740	0.212
12-Apr-95	42.13	56	0.6030	0.261	3.741	0.202
25-Apr-95	43	57	0.6138	0.289	3.761	0.191
9-Feb-95	43.28	58	0.6247	0.318	3.768	0.180
17-Jan-96	50.9	59	0.6355	0.346	3.930	0.169
16-Apr-97	55.3	60	0.6463	0.375	4.013	0.162
7-Jun-94	63.45	61	0.6572	0.405	4.150	0.157
26-Jun-98	63.5	62	0.6680	0.434	4.151	0.157
28-Mar-96	65.2	63	0.6789	0.465	4.177	0.156
21-Nov-95	81.5	64	0.6897	0.495	4.401	0.156
8-May-96	81.5	65	0.7005	0.526	4.401	0.164
22-Mar-95	86.16	66	0.7114	0.557	4.456	0.173
13-Jun-95	96.41	67	0.7222	0.589	4.569	0.185
19-May-94	102.01	68	0.7331	0.622	4.625	0.204
29-Feb-96	111	69	0.7439	0.655	4.710	0.229
23-Jul-97	111	70	0.7547	0.689	4.710	0.263
4-May-94	111.05	71	0.7656	0.724	4.710	0.303
24-Jun-97	124	72	0.7764	0.760	4.820	0.350
26-Mar-97	144	73	0.7873	0.797	4.970	0.416
19-Jun-96	148	74	0.7981	0.835	4.997	0.513
14-May-98	206	75	0.8089	0.874	5.328	0.640
26-Oct-98	13	76	0.8198	0.915	2.565	0.867
26-Oct-98	13	77	0.8306	0.957	2.565	0.856
30-Aug-99	22	78	0.8415	1.000	3.091	0.849
14-Nov-98	22.53	79	0.8523	1.046	3.115	0.832
15-Dec-98	25	80	0.8631	1.095	3.219	0.813
28-Dec-98	27	81	0.8740	1.145	3.296	0.793
5-Aug-99	34	82	0.8848	1.199	3.526	0.776
9-Nov-97	36.6	83	0.8957	1.257	3.600	0.763
5-May-99	84	84	0.9065	1.320	4.431	0.833
23-Mar-99	97	85	0.9173	1.387	4.575	0.805
8-Jul-99	107	86	0.9282	1.462	4.673	0.768
19-Apr-99	138	87	0.9390	1.547	4.927	0.764
14-May-98	233	88	0.9499	1.644	5.451	0.895
2-Jun-99	241	89	0.9607	1.759	5.485	0.895
27-May-99	261	90	0.9715	1.904	5.565	0.887
15-Jun-99	263	91	0.9824	2.106	5.572	
24-May-99	384	92	0.9932	2.469	5.951	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC288 **Date:** 2-Jun-00
Chemical: tPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	36,198	112	212	298	0.00	0.00	0.00		
SD:	164	111	443	935	1.00	1.00	1.00		
CV:	0.00	0.99	2.09	3.14					first:
Min:	35,743	13	33	2.9	-0.89	-0.40	-0.32		mid:
Max:	36,402	384	2,000	4,132	2.44	4.04	4.10		last:
Median:	36,256	60	68	22	-0.46	-0.32	-0.29		

tPb **CC288** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.411)		update r2	0.41	0.411	r2:	0.076	0.097	
r2 Q,[COC]:	0.41	[tPb]	Q		m:	0.1880	0.00216	
slope, m:	2.5	-40	13.0		b:	-6693	-74.16	
intercept, b:	-73.5	212	112.1					
N: 18		904	384					first:
LnConc. = mLn{Q}+b (r2=0.332)		update r2		0.33	0.332			mid:
r2 lnQ,ln[COC]:	0.33	ln[tPb]	ln Q	[tPb]	Q			last:
slope, m:	0.50	3.79	2.56	44	13			
intercept, b:	2.50	4.87	4.72	131	112			
N: 18		5.49	5.95	243	384			

for graph
tPb 0
CC288

N= 18

	Sampling Date	Q Discharge	tPb Concentration	tPb Load	Ln Q	Ln tPb Conc.	Ln tPb Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data		cfs	ug/L	lbs/day						
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
URS	9-Nov-97	36.6	77.5	15.3	3.60	4.35	2.73	-0.68	-0.30	-0.30
URS	14-May-98	233	51.1	64.1	5.45	3.93	4.16	1.09	-0.36	-0.25
USGS	26-Oct-98	13	42	2.9	2.56	3.74	1.08	-0.89	-0.38	-0.32
USGS	26-Oct-98	13	43	3.0	2.56	3.76	1.10	-0.89	-0.38	-0.32
URS	14-Nov-98	22.53	83.5	10.1	3.11	4.42	2.31	-0.80	-0.29	-0.31
USGS	18-Nov-98	16	49	4.2	2.77	3.89	1.44	-0.86	-0.37	-0.31
USGS	15-Dec-98	25	52	7.0	3.22	3.95	1.95	-0.78	-0.36	-0.31
USGS	28-Dec-98	27	230	33.4	3.30	5.44	3.51	-0.76	0.04	-0.28
USGS	23-Mar-99	97	120	62.6	4.57	4.79	4.14	-0.14	-0.21	-0.25
USGS	19-Apr-99	138	370	274.7	4.93	5.91	5.62	0.23	0.36	-0.02
USGS	5-May-99	84	55	24.9	4.43	4.01	3.21	-0.25	-0.35	-0.29
USGS	24-May-99	384	2000	4131.8	5.95	7.60	8.33	2.44	4.04	4.10
USGS	27-May-99	261	250	351.0	5.56	5.52	5.86	1.34	0.09	0.06
USGS	2-Jun-99	241	99	128.4	5.48	4.60	4.85	1.16	-0.26	-0.18
USGS	15-Jun-99	263	150	212.2	5.57	5.01	5.36	1.35	-0.14	-0.09
USGS	8-Jul-99	107	33.2	19.1	4.67	3.50	2.95	-0.05	-0.40	-0.30
USGS	5-Aug-99	34	58.9	10.8	3.53	4.08	2.38	-0.70	-0.35	-0.31
USGS	30-Aug-99	22	50.5	6.0	3.09	3.92	1.79	-0.81	-0.36	-0.31

tPb

Concentration over time analysis r2 Slope, m

tPb CC288 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.052** **0.00138**

Time	Ln[COC]	[COC]
9-Nov-97	3.95	52
5-Apr-99	4.66	105
30-Aug-99	4.86	129

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

Load over time analysis

tPb CC288 **Load over time**

LnLoad=mTime+b All data r2, m: **0.094** **0.00354**

Time	LnLoad	Load
9-Nov-97	1.88	7
5-Apr-99	3.69	40
30-Aug-99	4.21	67

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
30-Aug-99	0.00	1

max r2: 0.521 max r2: 0.901

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.052	0.00138	-45.27	0.094	0.00354	-124.66
0.066	0.00210	-71.60	0.107	0.00509	-180.93
0.041	0.00204	-69.15	0.220	0.00902	-323.38
0.018	0.00139	-45.87	0.159	0.00786	-281.41
0.001	0.00038	-9.17	0.087	0.00601	-214.28
0.000	-0.00009	8.10	0.049	0.00497	-176.37
0.027	-0.00241	92.27	0.001	0.00058	-16.99
0.157	-0.00690	255.42	0.062	-0.00701	259.00
0.186	-0.01077	396.15	0.276	-0.02124	775.68
0.286	-0.01596	584.49	0.441	-0.03202	1167.78
0.220	-0.01537	563.36	0.438	-0.03592	1309.57
0.471	-0.02497	912.12	0.794	-0.05404	1968.13
0.521	-0.01431	524.56	0.901	-0.04294	1564.60
0.359	-0.00969	356.39	0.872	-0.04001	1458.12

update for EV, CV:

tPb **CC288**

LN Analysis **tPb**

Load **Load Data, EV=298 lbs/day CV=3.14**

Load Data-based LN

Avg:	**298**	u	ln tPb Load	tPb Load
SD:	**935**	3	9.1	9295
CV:	**3.14**	0	4.50	90
Min:	**2.9**	-3	-0.13	0.9
Max:	**4,132**			
Median:	**22**			
		298	298	
		3.14	3.14	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.936, EV=292lbs/day CV=8.89; max r2=0.969**

r2 u,lnLoad:	0.936	u	lnLoad	Load	
slope, m:	0.478	3	9.77	17450	
intercept, b:	-1.665	0	3.49	33	
N: 18		-3	-2.79	0.1	
E[Load]:	292.3	Parameter Estimates			0.936
SD[Load]:	2600	from LN regression			292.3
CV[Load]:	8.89	update graph label			8.9
					max r2
					0.969

N: 18

Date	tPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
26-Oct-98	**2.9**	1	0.0342	-1.822	1.078	0.936
26-Oct-98	**3.0**	2	0.0890	-1.347	1.101	0.961
18-Nov-98	**4.2**	3	0.1438	-1.063	1.439	0.964
30-Aug-99	**6.0**	4	0.1986	-0.847	1.788	0.966
15-Dec-98	**7.0**	5	0.2534	-0.664	1.945	0.969
14-Nov-98	**10.1**	6	0.3082	-0.501	2.315	0.968
5-Aug-99	**10.8**	7	0.3630	-0.350	2.377	0.969
9-Nov-97	**15.3**	8	0.4178	-0.208	2.725	0.965
8-Jul-99	**19.1**	9	0.4726	-0.069	2.950	0.961
5-May-99	**24.9**	10	0.5274	0.069	3.213	0.954
28-Dec-98	**33.4**	11	0.5822	0.208	3.509	0.944
23-Mar-99	**62.6**	12	0.6370	0.350	4.137	0.928
14-May-98	**64.1**	13	0.6918	0.501	4.160	0.923
2-Jun-99	**128.4**	14	0.7466	0.664	4.855	0.893
15-Jun-99	**212.2**	15	0.8014	0.847	5.358	
19-Apr-99	**274.7**	16	0.8562	1.063	5.616	
27-May-99	**351.0**	17	0.9110	1.347	5.861	
24-May-99	**4131.8**	18	0.9658	1.822	8.326	

update for EV, CV:

tPb		**CC288**		212	212
LN Analysis		**tPb**		2.09	2.09
Concentration		**Conc. Data, EV=212 ug/L CV=2.09**			
Avg:	**212**	**Data-based LN**			
SD:	**443**	u	ln[tPb]	[tPb]	
CV:	**2.09**	3	8.4	4465	
Min:	**33**	0	4.52	92	
Max:	**2,000**	-3	0.63	2	
Median:	**68**				

				0.818	0.818
	u=mLn{Conc.}+b:			194.0	194
update for r2, EV, CV:	**r2=0.818, EV=194 ug/L CV=1.72; max r2=0.939**			1.722	1.72
	r2 u,lnConc:	0.818	u	lnConc.	Conc.
	slope, m:	0.852	3	8.10	3296
	intercept, b:	-3.901	0	4.58	97
	N: 18		-3	1.06	3
0.936	E[Conc]:	194.0	Parameter Estimates		
292	SD[Conc]:	334	from LN regression		
8.89	CV[Conc]:	1.72	update graph label		

						max r2
	tPb	N: 18				0.939
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
8-Jul-99	33.2	1	0.0342	-1.822	3.503	0.818
26-Oct-98	42	2	0.0890	-1.347	3.738	0.842
26-Oct-98	43	3	0.1438	-1.063	3.761	0.868
18-Nov-98	49	4	0.1986	-0.847	3.892	0.885
30-Aug-99	50.5	5	0.2534	-0.664	3.922	0.906
14-May-98	51.1	6	0.3082	-0.501	3.934	0.923
15-Dec-98	52	7	0.3630	-0.350	3.951	0.934
5-May-99	55	8	0.4178	-0.208	4.007	0.939
5-Aug-99	58.9	9	0.4726	-0.069	4.076	0.939
9-Nov-97	77.5	10	0.5274	0.069	4.350	0.933
14-Nov-98	83.5	11	0.5822	0.208	4.425	0.936
2-Jun-99	99	12	0.6370	0.350	4.595	0.932
23-Mar-99	120	13	0.6918	0.501	4.787	0.927
15-Jun-99	150	14	0.7466	0.664	5.011	0.918
28-Dec-98	230	15	0.8014	0.847	5.438	
27-May-99	250	16	0.8562	1.063	5.521	
19-Apr-99	370	17	0.9110	1.347	5.914	
24-May-99	2000	18	0.9658	1.822	7.601	

update for EV, CV:

tPb		**CC288**			112	112
LN Analysis		**tPb**			0.99	0.994
Discharge, Q		**Q Data, EV=112 cfs CV=0.994**				
Avg:	**112**	**Q Data-based LN**				
SD:	**111**	u	lnQ	Q		
CV:	**0.99**	3	6.9	956		
Min:	**13**	0	4.38	79		
Max:	**384**	-3	1.89	7		
Median:	**60**					

					0.925	0.925
					139.0	139
u=mLn{Q}+b:					1.99	1.99
update for r2, EV, CV:	**r2=0.925, EV=139 cfs CV=1.99; max r2=0.937**					
r2 u,lnQ:	0.925	u	lnQ	Q		
slope, m:	0.790	3	7.93	2784		
intercept, b:	-3.263	0	4.13	62		
N: 18		-3	0.33	1		
E[Q]:	139.0	Parameter Estimates				
SD[Q]:	277	from LN regression				
CV[Q]:	1.99	update graph label				

						max r2
	Q	N: 18				0.937
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
26-Oct-98	13	1	0.0342	-1.822	2.565	0.925
26-Oct-98	13	2	0.0890	-1.347	2.565	0.937
18-Nov-98	16	3	0.1438	-1.063	2.773	0.929
30-Aug-99	22	4	0.1986	-0.847	3.091	0.917
14-Nov-98	22.53	5	0.2534	-0.664	3.115	0.907
15-Dec-98	25	6	0.3082	-0.501	3.219	0.889
28-Dec-98	27	7	0.3630	-0.350	3.296	0.867
5-Aug-99	34	8	0.4178	-0.208	3.526	0.844
9-Nov-97	36.6	9	0.4726	-0.069	3.600	0.822
5-May-99	84	10	0.5274	0.069	4.431	0.874
23-Mar-99	97	11	0.5822	0.208	4.575	0.843
8-Jul-99	107	12	0.6370	0.350	4.673	0.801
19-Apr-99	138	13	0.6918	0.501	4.927	0.782
14-May-98	233	14	0.7466	0.664	5.451	0.876
2-Jun-99	241	15	0.8014	0.847	5.485	
27-May-99	261	16	0.8562	1.063	5.565	
15-Jun-99	263	17	0.9110	1.347	5.572	
24-May-99	384	18	0.9658	1.822	5.951	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC287 **Date:** 2-Jun-00
Chemical: tZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	35,150	41	3,023	529	0.00	0.00	0.00		
SD:	626	38	1,399	402	1.00	1.00	1.00		
CV:	0.02	0.92	0.46	0.76					first:
Min:	33,516	11	641	140.1	-0.79	-1.70	-0.97		mid:
Max:	36,227	206	6,950	2,913	4.36	2.81	5.94		last:
Median:	35,081	26	2,780	470	-0.40	-0.17	-0.15		

tZn CC287 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.238)	update r2	0.24	0.238		r2:	0.015	0.033	
r2 Q,[COC]:	0.24	[tZn]	Q		m:	0.0075	0.00021	
slope, m:	-18.1	3,559	11.4		b:	-222	-3.98	
intercept, b:	3765.1	3,023	41.1					
N: 75		45	206					first:
LnConc. = mLn{Q}+b (r2=0.373)	update r2		0.37	0.373				mid:
r2 lnQ,ln[COC]:	0.37	ln[tZn]	ln Q	[tZn]	Q			last:
slope, m:	-0.44	8.33	2.43	4,130	11			
intercept, b:	9.39	7.76	3.72	2,355	41			
N: 75		7.06	5.33	1,162	206			

	tZn	for graph
	CC287	0

N= 75

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	5-Oct-91	14.5	3430	268	2.67	8.14	5.59	-0.70	0.29	-0.65
IDEQ	27-Oct-93	13.28	3420	244	2.59	8.14	5.50	-0.74	0.28	-0.71
IDEQ	30-Nov-93	12.62	4050	275	2.54	8.31	5.62	-0.75	0.73	-0.63
IDEQ	17-Dec-93	11.7	5180	326	2.46	8.55	5.79	-0.78	1.54	-0.51
IDEQ	17-Dec-93	12.03	5180	335	2.49	8.55	5.81	-0.77	1.54	-0.48
IDEQ	20-Jan-94	13.28	5050	361	2.59	8.53	5.89	-0.74	1.45	-0.42
IDEQ	20-Jan-94	14.66	5050	398	2.69	8.53	5.99	-0.70	1.45	-0.33
IDEQ	18-Feb-94	11.41	4620	284	2.43	8.44	5.65	-0.78	1.14	-0.61
IDEQ	8-Mar-94	22.26	4460	534	3.10	8.40	6.28	-0.50	1.03	0.01
IDEQ	24-Mar-94	21.13	4600	523	3.05	8.43	6.26	-0.53	1.13	-0.02
IDEQ	7-Apr-94	37.82	2350	478	3.63	7.76	6.17	-0.09	-0.48	-0.13
IDEQ	4-May-94	111.05	1160	693	4.71	7.06	6.54	1.85	-1.33	0.41
IDEQ	19-May-94	102.01	1000	549	4.63	6.91	6.31	1.61	-1.45	0.05
IDEQ	7-Jun-94	63.45	1520	519	4.15	7.33	6.25	0.59	-1.07	-0.03
IDEQ	23-Jun-94	28.96	1690	263	3.37	7.43	5.57	-0.32	-0.95	-0.66
IDEQ	25-Jul-94	19.04	2390	245	2.95	7.78	5.50	-0.58	-0.45	-0.71
IDEQ	16-Aug-94	16.3	2850	250	2.79	7.96	5.52	-0.66	-0.12	-0.70
IDEQ	16-Aug-94	13.57	2850	208	2.61	7.96	5.34	-0.73	-0.12	-0.80
IDEQ	13-Sep-94	15.89	2880	246	2.77	7.97	5.51	-0.67	-0.10	-0.71
IDEQ	16-Oct-94	14.34	3430	265	2.66	8.14	5.58	-0.71	0.29	-0.66
IDEQ	16-Nov-94	15.89	5500	470	2.77	8.61	6.15	-0.67	1.77	-0.15
IDEQ	13-Dec-94	17.17	6640	613	2.84	8.80	6.42	-0.63	2.59	0.21
IDEQ	10-Jan-95	28.21	6320	959	3.34	8.75	6.87	-0.34	2.36	1.07
IDEQ	9-Feb-95	43.28	3230	752	3.77	8.08	6.62	0.06	0.15	0.55
IDEQ	8-Mar-95	36.82	2530	501	3.61	7.84	6.22	-0.11	-0.35	-0.07
IDEQ	22-Mar-95	86.16	3970	1840	4.46	8.29	7.52	1.19	0.68	3.26
IDEQ	12-Apr-95	42.13	2550	578	3.74	7.84	6.36	0.03	-0.34	0.12
IDEQ	25-Apr-95	43	2100	486	3.76	7.65	6.19	0.05	-0.66	-0.11
IDEQ	13-Jun-95	96.41	919	477	4.57	6.82	6.17	1.46	-1.50	-0.13
IDEQ	27-Jun-95	34.9	1220	229	3.55	7.11	5.43	-0.16	-1.29	-0.75
IDEQ	11-Jul-95	20.05	1690	182	3.00	7.43	5.21	-0.56	-0.95	-0.86
IDEQ	25-Jul-95	14.71	1770	140	2.69	7.48	4.94	-0.70	-0.90	-0.97
IDEQ	14-Aug-95	12.6	2490	169	2.53	7.82	5.13	-0.75	-0.38	-0.90
IDEQ	13-Sep-95	11.4	2780	171	2.43	7.93	5.14	-0.79	-0.17	-0.89
IDEQ	18-Oct-95	31.4	3020	510	3.45	8.01	6.23	-0.26	0.00	-0.05
IDEQ	21-Nov-95	81.5	1960	859	4.40	7.58	6.76	1.07	-0.76	0.82
IDEQ	27-Dec-95	42.1	2500	566	3.74	7.82	6.34	0.03	-0.37	0.09
IDEQ	17-Jan-96	50.9	3830	1049	3.93	8.25	6.96	0.26	0.58	1.29
IDEQ	29-Feb-96	111	2370	1415	4.71	7.77	7.26	1.85	-0.47	2.21
IDEQ	28-Mar-96	65.2	2230	782	4.18	7.71	6.66	0.64	-0.57	0.63
IDEQ	8-May-96	81.5	1660	728	4.40	7.41	6.59	1.07	-0.97	0.49
IDEQ	19-Jun-96	148	836	666	5.00	6.73	6.50	2.83	-1.56	0.34
IDEQ	24-Jul-96	35.8	1550	299	3.58	7.35	5.70	-0.14	-1.05	-0.57
IDEQ	21-Aug-96	23.342375	3730	468	3.15	8.22	6.15	-0.47	0.51	-0.15
IDEQ	26-Sep-96	19.5	2770	291	2.97	7.93	5.67	-0.57	-0.18	-0.59
IDEQ	29-Oct-96	23.5	3840	485	3.16	8.25	6.19	-0.47	0.58	-0.11
IDEQ	27-Nov-96	21.7	4480	523	3.08	8.41	6.26	-0.51	1.04	-0.02

IDEQ	13-Dec-96	29.7	5500	879	3.39	8.61	6.78	-0.30	1.77	0.87
IDEQ	30-Jan-97	31.4	3500	591	3.45	8.16	6.38	-0.26	0.34	0.15
IDEQ	21-Feb-97	38.9	3980	833	3.66	8.29	6.72	-0.06	0.68	0.76
IDEQ	26-Mar-97	144	3760	2913	4.97	8.23	7.98	2.72	0.53	5.94
IDEQ	16-Apr-97	55.3	3340	994	4.01	8.11	6.90	0.38	0.23	1.16
IDEQ	24-Jun-97	124	726	484	4.82	6.59	6.18	2.19	-1.64	-0.11
IDEQ	23-Jul-97	111	1330	794	4.71	7.19	6.68	1.85	-1.21	0.66
IDEQ	14-Aug-97	37.8	1900	386	3.63	7.55	5.96	-0.09	-0.80	-0.36
IDEQ	4-Sep-97	34	2540	465	3.53	7.84	6.14	-0.19	-0.35	-0.16
IDEQ	16-Oct-97	25.4	2850	389	3.23	7.96	5.96	-0.41	-0.12	-0.35
URS	9-Nov-97	32.7	2680	471	3.49	7.89	6.16	-0.22	-0.25	-0.14
IDEQ	26-Nov-97	29.7	2750	439	3.39	7.92	6.09	-0.30	-0.20	-0.22
IDEQ	19-Dec-97	24.1	3440	446	3.18	8.14	6.10	-0.45	0.30	-0.21
IDEQ	22-Jan-98	18.1	3320	323	2.90	8.11	5.78	-0.61	0.21	-0.51
IDEQ	26-Feb-98	22.3	3460	415	3.10	8.15	6.03	-0.50	0.31	-0.28
IDEQ	20-Mar-98	33.1	2730	486	3.50	7.91	6.19	-0.21	-0.21	-0.11
URS	14-May-98	206	641	710	5.33	6.46	6.57	4.36	-1.70	0.45
IDEQ	26-Jun-98	63.5	1200	410	4.15	7.09	6.02	0.59	-1.30	-0.30
IDEQ	28-Jul-98	24.7	1700	226	3.21	7.44	5.42	-0.43	-0.95	-0.76
IDEQ	26-Aug-98	19.5	2080	218	2.97	7.64	5.39	-0.57	-0.67	-0.77
IDEQ	24-Sep-98	17.2	2220	205	2.84	7.71	5.33	-0.63	-0.57	-0.81
IDEQ	1-Oct-98	16.7	2220	199	2.82	7.71	5.30	-0.64	-0.57	-0.82
IDEQ	8-Oct-98	15.9	2680	229	2.77	7.89	5.43	-0.67	-0.25	-0.75
IDEQ	26-Oct-98	16.7	2290	206	2.82	7.74	5.33	-0.64	-0.52	-0.81
IDEQ	25-Nov-98	26	6950	972	3.26	8.85	6.88	-0.40	2.81	1.10
IDEQ	15-Jan-99	33	3730	662	3.50	8.22	6.50	-0.21	0.51	0.33
IDEQ	23-Feb-99	20	3710	399	3.00	8.22	5.99	-0.56	0.49	-0.32
IDEQ	8-Mar-99	23	3870	479	3.14	8.26	6.17	-0.48	0.61	-0.13

tZn

Concentration over time analysis r2 Slope, m

tZn CC287 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.023** **-0.00013**

Time	Ln[COC]	[COC]
5-Oct-91	8.10	3,297
17-Jan-96	7.90	2,706
8-Mar-99	7.76	2,341

LnConc.=mTime+b >'96 r2, m: **0.019** **0.00032**

21-Feb-97	7.69	2,184
8-Mar-99	7.92	2,764

Load over time analysis

tZn CC287 **Load over time**

LnLoad=mTime+b All data r2, m: **0.008** **0.00008**

Time	LnLoad	Load
5-Oct-91	5.95	384
17-Jan-96	6.08	438
8-Mar-99	6.18	482

LnLoad=mTime+b >'96 r2, m: **0.264** **-0.00138**

21-Feb-97	6.66	779
8-Mar-99	5.63	279

max r2: 0.715 max r2: 0.438

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.023	-0.00013	12.34	0.008	0.00008	3.14
0.021	-0.00012	12.25	0.004	0.00006	3.93
0.018	-0.00012	12.08	0.002	0.00004	4.61
0.015	-0.00011	11.68	0.001	0.00003	5.18
0.009	-0.00009	10.93	0.000	0.00002	5.57
0.005	-0.00006	10.10	0.000	0.00000	5.96
0.002	-0.00004	9.26	0.000	0.00000	6.28
0.000	-0.00001	8.33	0.000	-0.00001	6.48
0.000	0.00001	7.47	0.001	-0.00003	7.19
0.001	0.00003	6.59	0.001	-0.00002	7.00
0.005	0.00006	5.59	0.000	-0.00002	6.83
0.004	0.00006	5.59	0.000	-0.00002	6.79
0.001	0.00003	6.77	0.000	0.00000	6.12
0.000	-0.00001	8.34	0.000	0.00001	5.79
0.002	-0.00004	9.29	0.000	0.00002	5.53
0.005	-0.00006	10.15	0.000	-0.00001	6.52
0.005	-0.00007	10.40	0.001	-0.00005	7.74
0.005	-0.00007	10.33	0.004	-0.00008	9.03
0.004	-0.00007	10.25	0.012	-0.00013	10.88
0.004	-0.00006	10.13	0.021	-0.00018	12.55
0.002	-0.00005	9.61	0.032	-0.00023	14.19
0.000	0.00000	7.93	0.034	-0.00024	14.66
0.003	0.00006	5.63	0.031	-0.00024	14.53
0.015	0.00013	3.21	0.022	-0.00020	13.26
0.021	0.00016	2.26	0.017	-0.00018	12.46
0.023	0.00017	1.86	0.017	-0.00018	12.63
0.036	0.00021	0.15	0.004	-0.00009	9.20
0.040	0.00023	-0.47	0.003	-0.00007	8.69
0.038	0.00023	-0.57	0.002	-0.00007	8.65
0.019	0.00016	1.96	0.002	-0.00007	8.65
0.008	0.00011	3.93	0.008	-0.00014	11.11
0.004	0.00008	5.06	0.025	-0.00024	14.77
0.001	0.00005	6.21	0.065	-0.00039	20.09
0.001	0.00005	6.16	0.127	-0.00054	25.54
0.002	0.00006	5.62	0.224	-0.00072	31.81
0.004	0.00009	4.63	0.242	-0.00078	33.95
0.002	0.00006	5.58	0.225	-0.00077	33.77
0.002	0.00007	5.46	0.235	-0.00082	35.57
0.007	0.00014	2.95	0.205	-0.00078	34.22
0.007	0.00014	2.83	0.159	-0.00069	30.68
0.006	0.00013	3.09	0.140	-0.00067	30.00
0.001	0.00007	5.39	0.124	-0.00065	29.50
0.006	-0.00014	12.88	0.113	-0.00065	29.32
0.021	-0.00026	17.30	0.160	-0.00080	34.83
0.013	-0.00022	15.70	0.176	-0.00089	37.83
0.014	-0.00023	16.21	0.247	-0.00109	45.20
0.006	-0.00017	13.82	0.271	-0.00120	49.29

0.000	-0.00004	9.31	0.291	-0.00132	53.32
0.007	0.00019	1.16	0.261	-0.00130	52.64
0.019	0.00032	-3.53	0.264	-0.00138	55.64
0.047	0.00053	-11.24	0.233	-0.00136	54.78
0.092	0.00078	-20.19	0.126	-0.00082	35.43
0.149	0.00106	-30.27	0.060	-0.00056	26.01
0.072	0.00069	-17.03	0.051	-0.00055	25.58
0.035	0.00049	-9.93	0.014	-0.00029	16.27
0.022	0.00041	-7.03	0.015	-0.00032	17.52
0.024	0.00048	-9.26	0.008	-0.00025	15.01
0.036	0.00062	-14.42	0.008	-0.00027	15.63
0.046	0.00076	-19.64	0.002	-0.00015	11.19
0.064	0.00099	-27.98	0.000	-0.00002	6.65
0.131	0.00159	-49.33	0.002	0.00020	-1.19
0.240	0.00242	-79.39	0.001	0.00011	1.94
0.449	0.00374	-126.98	0.005	0.00036	-7.09
0.715	0.00562	-194.94	0.037	0.00118	-36.84
0.615	0.00452	-155.40	0.253	0.00335	-115.11
0.496	0.00389	-132.63	0.438	0.00503	-175.70
0.390	0.00353	-119.49	0.425	0.00552	-193.61
0.305	0.00328	-110.36	0.382	0.00568	-199.32
0.221	0.00284	-94.49	0.306	0.00522	-182.63
0.101	0.00193	-61.44	0.183	0.00407	-141.09
0.015	0.00083	-21.80	0.036	0.00194	-63.84

update for EV, CV:

tZn **CC287**

LN Analysis **tZn**

Load **Load Data, EV=529 lbs/day CV=0.76**

Load Data-based LN

		u	ln tZn Load	tZn Load
Avg:	**529**			
SD:	**402**			
CV:	**0.76**	3	8.1	3187
Min:	**140.1**	0	6.04	422
Max:	**2,913**	-3	4.02	55.8
Median:	**470**			
		529	529	
		0.76	0.76	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.97, EV=526lbs/day CV=0.65; max r2=0.99**

r2 u,lnLoad:	0.972	u	lnLoad	Load	
slope, m:	1.679	3	7.87	2630	
intercept, b:	-10.221	0	6.09	441	
N: 75		-3	4.30	73.8	
E[Load]:	526.1	Parameter Estimates			0.970
SD[Load]:	343	from LN regression			526.1
CV[Load]:	0.65	update graph label			0.7
					max r2
					0.990

N: 75

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
25-Jul-95	**140**	1	0.0083	-2.395	4.942	0.972
14-Aug-95	**169**	2	0.0216	-2.022	5.129	0.973
13-Sep-95	**171**	3	0.0349	-1.813	5.139	0.975
11-Jul-95	**182**	4	0.0482	-1.663	5.206	0.975
1-Oct-98	**199**	5	0.0615	-1.543	5.296	0.974
24-Sep-98	**205**	6	0.0748	-1.441	5.325	0.975
26-Oct-98	**206**	7	0.0880	-1.353	5.327	0.975
16-Aug-94	**208**	8	0.1013	-1.274	5.338	0.974
26-Aug-98	**218**	9	0.1146	-1.202	5.385	0.973
28-Jul-98	**226**	10	0.1279	-1.136	5.420	0.972
27-Jun-95	**229**	11	0.1412	-1.075	5.434	0.972
8-Oct-98	**229**	12	0.1545	-1.017	5.435	0.971
27-Oct-93	**244**	13	0.1678	-0.963	5.499	0.969
25-Jul-94	**245**	14	0.1811	-0.911	5.501	0.968
13-Sep-94	**246**	15	0.1944	-0.862	5.506	0.967
16-Aug-94	**250**	16	0.2076	-0.815	5.521	0.966
23-Jun-94	**263**	17	0.2209	-0.769	5.573	0.964
16-Oct-94	**265**	18	0.2342	-0.725	5.578	0.963
5-Oct-91	**268**	19	0.2475	-0.682	5.589	0.961
30-Nov-93	**275**	20	0.2608	-0.641	5.617	0.959
18-Feb-94	**284**	21	0.2741	-0.601	5.648	0.958
26-Sep-96	**291**	22	0.2874	-0.561	5.672	0.956
24-Jul-96	**299**	23	0.3007	-0.522	5.699	0.954
22-Jan-98	**323**	24	0.3140	-0.485	5.779	0.952
17-Dec-93	**326**	25	0.3272	-0.448	5.787	0.951
17-Dec-93	**335**	26	0.3405	-0.411	5.815	0.948
20-Jan-94	**361**	27	0.3538	-0.375	5.888	0.946
14-Aug-97	**386**	28	0.3671	-0.340	5.957	0.945
16-Oct-97	**389**	29	0.3804	-0.304	5.965	0.944
20-Jan-94	**398**	30	0.3937	-0.270	5.987	0.943
23-Feb-99	**399**	31	0.4070	-0.235	5.989	0.943
26-Jun-98	**410**	32	0.4203	-0.201	6.016	0.942
26-Feb-98	**415**	33	0.4336	-0.167	6.029	0.941
26-Nov-97	**439**	34	0.4468	-0.134	6.085	0.940
19-Dec-97	**446**	35	0.4601	-0.100	6.100	0.941
4-Sep-97	**465**	36	0.4734	-0.067	6.141	0.942
21-Aug-96	**468**	37	0.4867	-0.033	6.149	0.945
16-Nov-94	**470**	38	0.5000	0.000	6.153	0.947
9-Nov-97	**471**	39	0.5133	0.033	6.156	0.950
13-Jun-95	**477**	40	0.5266	0.067	6.167	0.952
7-Apr-94	**478**	41	0.5399	0.100	6.170	0.954
8-Mar-99	**479**	42	0.5532	0.134	6.171	0.955
24-Jun-97	**484**	43	0.5664	0.167	6.183	0.957
29-Oct-96	**485**	44	0.5797	0.201	6.185	0.958
25-Apr-95	**486**	45	0.5930	0.235	6.186	0.958
20-Mar-98	**486**	46	0.6063	0.270	6.187	0.958
8-Mar-95	**501**	47	0.6196	0.304	6.217	0.957

18-Oct-95	**510**	48	0.6329	0.340	6.235	0.957
7-Jun-94	**519**	49	0.6462	0.375	6.252	0.956
24-Mar-94	**523**	50	0.6595	0.411	6.259	0.956
27-Nov-96	**523**	51	0.6728	0.448	6.260	0.955
8-Mar-94	**534**	52	0.6860	0.485	6.281	0.952
19-May-94	**549**	53	0.6993	0.522	6.308	0.950
27-Dec-95	**566**	54	0.7126	0.561	6.339	0.948
12-Apr-95	**578**	55	0.7259	0.601	6.360	0.945
30-Jan-97	**591**	56	0.7392	0.641	6.382	0.942
13-Dec-94	**613**	57	0.7525	0.682	6.419	0.939
15-Jan-99	**662**	58	0.7658	0.725	6.496	0.935
19-Jun-96	**666**	59	0.7791	0.769	6.501	0.936
4-May-94	**693**	60	0.7924	0.815	6.541	0.934
14-May-98	**710**	61	0.8056	0.862	6.566	0.935
8-May-96	**728**	62	0.8189	0.911	6.590	0.935
9-Feb-95	**752**	63	0.8322	0.963	6.623	0.936
28-Mar-96	**782**	64	0.8455	1.017	6.662	0.938
23-Jul-97	**794**	65	0.8588	1.075	6.677	0.942
21-Feb-97	**833**	66	0.8721	1.136	6.725	0.944
21-Nov-95	**859**	67	0.8854	1.202	6.756	0.950
13-Dec-96	**879**	68	0.8987	1.274	6.779	0.957
10-Jan-95	**959**	69	0.9120	1.353	6.866	0.961
25-Nov-98	**972**	70	0.9252	1.441	6.880	0.979
16-Apr-97	**994**	71	0.9385	1.543	6.901	0.990
17-Jan-96	**1049**	72	0.9518	1.663	6.955	
29-Feb-96	**1415**	73	0.9651	1.813	7.255	
22-Mar-95	**1840**	74	0.9784	2.022	7.518	
26-Mar-97	**2913**	75	0.9917	2.395	7.977	

update for EV, CV:

tZn		**CC287**		3,023	3020
LN Analysis		**tZn**		0.46	0.463
Concentration		**Conc. Data, EV=3020 ug/L CV=0.463**			
Avg:	**3,023**	**Data-based LN**			
SD:	**1,399**	u	ln[tZn]	[tZn]	
CV:	**0.46**	3	9.2	10283	
Min:	**641**	0	7.92	2744	
Max:	**6,950**	-3	6.60	732	
Median:	**2,780**				

				0.968	0.968
	u=mLn{Conc.}+b:			3096.1	3100
update for r2, EV, CV:	**r2=0.968, EV=3100 ug/L CV=0.577; max r2=0.99**			0.577	0.577
	r2 u,lnConc:	0.968	u	lnConc.	Conc.
	slope, m:	1.867	3	9.50	13379
	intercept, b:	-14.737	0	7.89	2682
	N: 75		-3	6.29	538
0.97	E[Conc]:	3096.1	Parameter Estimates		
526	SD[Conc]:	1785	from LN regression		
0.65	CV[Conc]:	0.58	update graph label		

						max r2
	tZn	N: 75				0.990
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
14-May-98	641	1	0.0083	-2.395	6.463	0.968
24-Jun-97	726	2	0.0216	-2.022	6.588	0.967
19-Jun-96	836	3	0.0349	-1.813	6.729	0.968
13-Jun-95	919	4	0.0482	-1.663	6.823	0.970
19-May-94	1000	5	0.0615	-1.543	6.908	0.973
4-May-94	1160	6	0.0748	-1.441	7.056	0.976
26-Jun-98	1200	7	0.0880	-1.353	7.090	0.977
27-Jun-95	1220	8	0.1013	-1.274	7.107	0.979
23-Jul-97	1330	9	0.1146	-1.202	7.193	0.982
7-Jun-94	1520	10	0.1279	-1.136	7.326	0.985
24-Jul-96	1550	11	0.1412	-1.075	7.346	0.985
8-May-96	1660	12	0.1545	-1.017	7.415	0.985
23-Jun-94	1690	13	0.1678	-0.963	7.432	0.985
11-Jul-95	1690	14	0.1811	-0.911	7.432	0.985
28-Jul-98	1700	15	0.1944	-0.862	7.438	0.986
25-Jul-95	1770	16	0.2076	-0.815	7.479	0.988
14-Aug-97	1900	17	0.2209	-0.769	7.550	0.989
21-Nov-95	1960	18	0.2342	-0.725	7.581	0.990
26-Aug-98	2080	19	0.2475	-0.682	7.640	0.990
25-Apr-95	2100	20	0.2608	-0.641	7.650	0.990
24-Sep-98	2220	21	0.2741	-0.601	7.705	0.989
1-Oct-98	2220	22	0.2874	-0.561	7.705	0.989
28-Mar-96	2230	23	0.3007	-0.522	7.710	0.988
26-Oct-98	2290	24	0.3140	-0.485	7.736	0.988
7-Apr-94	2350	25	0.3272	-0.448	7.762	0.988
29-Feb-96	2370	26	0.3405	-0.411	7.771	0.987
25-Jul-94	2390	27	0.3538	-0.375	7.779	0.986
14-Aug-95	2490	28	0.3671	-0.340	7.820	0.986
27-Dec-95	2500	29	0.3804	-0.304	7.824	0.985
8-Mar-95	2530	30	0.3937	-0.270	7.836	0.985
4-Sep-97	2540	31	0.4070	-0.235	7.840	0.984
12-Apr-95	2550	32	0.4203	-0.201	7.844	0.983
9-Nov-97	2680	33	0.4336	-0.167	7.894	0.983
8-Oct-98	2680	34	0.4468	-0.134	7.894	0.982
20-Mar-98	2730	35	0.4601	-0.100	7.912	0.982
26-Nov-97	2750	36	0.4734	-0.067	7.919	0.981
26-Sep-96	2770	37	0.4867	-0.033	7.927	0.980
13-Sep-95	2780	38	0.5000	0.000	7.930	0.979
16-Aug-94	2850	39	0.5133	0.033	7.955	0.979
16-Aug-94	2850	40	0.5266	0.067	7.955	0.978
16-Oct-97	2850	41	0.5399	0.100	7.955	0.978
13-Sep-94	2880	42	0.5532	0.134	7.966	0.979
18-Oct-95	3020	43	0.5664	0.167	8.013	0.981
9-Feb-95	3230	44	0.5797	0.201	8.080	0.981
22-Jan-98	3320	45	0.5930	0.235	8.108	0.980
16-Apr-97	3340	46	0.6063	0.270	8.114	0.979
27-Oct-93	3420	47	0.6196	0.304	8.137	0.978

5-Oct-91	3430	48	0.6329	0.340	8.140	0.978
16-Oct-94	3430	49	0.6462	0.375	8.140	0.977
19-Dec-97	3440	50	0.6595	0.411	8.143	0.975
26-Feb-98	3460	51	0.6728	0.448	8.149	0.973
30-Jan-97	3500	52	0.6860	0.485	8.161	0.972
23-Feb-99	3710	53	0.6993	0.522	8.219	0.970
21-Aug-96	3730	54	0.7126	0.561	8.224	0.969
15-Jan-99	3730	55	0.7259	0.601	8.224	0.967
26-Mar-97	3760	56	0.7392	0.641	8.232	0.964
17-Jan-96	3830	57	0.7525	0.682	8.251	0.961
29-Oct-96	3840	58	0.7658	0.725	8.253	0.957
8-Mar-99	3870	59	0.7791	0.769	8.261	0.953
22-Mar-95	3970	60	0.7924	0.815	8.287	0.951
21-Feb-97	3980	61	0.8056	0.862	8.289	0.947
30-Nov-93	4050	62	0.8189	0.911	8.306	0.949
8-Mar-94	4460	63	0.8322	0.963	8.403	0.958
27-Nov-96	4480	64	0.8455	1.017	8.407	0.952
24-Mar-94	4600	65	0.8588	1.075	8.434	0.946
18-Feb-94	4620	66	0.8721	1.136	8.438	0.937
20-Jan-94	5050	67	0.8854	1.202	8.527	0.934
20-Jan-94	5050	68	0.8987	1.274	8.527	0.929
17-Dec-93	5180	69	0.9120	1.353	8.553	0.914
17-Dec-93	5180	70	0.9252	1.441	8.553	0.893
16-Nov-94	5500	71	0.9385	1.543	8.613	0.856
13-Dec-96	5500	72	0.9518	1.663	8.613	
10-Jan-95	6320	73	0.9651	1.813	8.751	
13-Dec-94	6640	74	0.9784	2.022	8.801	
25-Nov-98	6950	75	0.9917	2.395	8.846	

update for EV, CV:

tZn		**CC287**			41	41.1
LN Analysis		**tZn**			0.92	0.92
Discharge, Q		**Q Data, EV=41.1 cfs CV=0.92**				
Avg:	**41**	**Q Data-based LN**				
SD:	**38**	u	lnQ	Q		
CV:	**0.92**	3	5.8	317		
Min:	**11**	0	3.41	30		
Max:	**206**	-3	1.06	3		
Median:	**26**					

					0.936	0.936
					40.8	40.8
u=mLn{Q}+b:					0.88	0.884

update for r2, EV, CV: **r2=0.936, EV=40.8 cfs CV=0.884; max r2=0.98**

r2 u,lnQ:	0.936	u	lnQ	Q
slope, m:	1.316	3	5.70	299
intercept, b:	-4.498	0	3.42	31
N: 75		-3	1.14	3
E[Q]:	40.8	Parameter Estimates		
SD[Q]:	36	from LN regression		
CV[Q]:	0.88	update graph label		

						max r2
	Q	N: 75				0.979
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
13-Sep-95	11.4	1	0.0083	-2.395	2.434	0.936
18-Feb-94	11.41	2	0.0216	-2.022	2.434	0.950
17-Dec-93	11.7	3	0.0349	-1.813	2.460	0.956
17-Dec-93	12.03	4	0.0482	-1.663	2.487	0.960
14-Aug-95	12.6	5	0.0615	-1.543	2.534	0.964
30-Nov-93	12.62	6	0.0748	-1.441	2.535	0.966
27-Oct-93	13.28	7	0.0880	-1.353	2.586	0.968
20-Jan-94	13.28	8	0.1013	-1.274	2.586	0.970
16-Aug-94	13.57	9	0.1146	-1.202	2.608	0.972
16-Oct-94	14.34	10	0.1279	-1.136	2.663	0.973
5-Oct-91	14.5	11	0.1412	-1.075	2.674	0.974
20-Jan-94	14.66	12	0.1545	-1.017	2.685	0.975
25-Jul-95	14.71	13	0.1678	-0.963	2.689	0.976
13-Sep-94	15.89	14	0.1811	-0.911	2.766	0.977
16-Nov-94	15.89	15	0.1944	-0.862	2.766	0.978
8-Oct-98	15.9	16	0.2076	-0.815	2.766	0.978
16-Aug-94	16.3	17	0.2209	-0.769	2.791	0.979
1-Oct-98	16.7	18	0.2342	-0.725	2.815	0.979
26-Oct-98	16.7	19	0.2475	-0.682	2.815	0.979
13-Dec-94	17.17	20	0.2608	-0.641	2.843	0.979
24-Sep-98	17.2	21	0.2741	-0.601	2.845	0.979
22-Jan-98	18.1	22	0.2874	-0.561	2.896	0.978
25-Jul-94	19.04	23	0.3007	-0.522	2.947	0.978
26-Sep-96	19.5	24	0.3140	-0.485	2.970	0.978
26-Aug-98	19.5	25	0.3272	-0.448	2.970	0.978
23-Feb-99	20	26	0.3405	-0.411	2.996	0.978
11-Jul-95	20.05	27	0.3538	-0.375	2.998	0.978
24-Mar-94	21.13	28	0.3671	-0.340	3.051	0.977
27-Nov-96	21.7	29	0.3804	-0.304	3.077	0.977
8-Mar-94	22.26	30	0.3937	-0.270	3.103	0.976
26-Feb-98	22.3	31	0.4070	-0.235	3.105	0.976
8-Mar-99	23	32	0.4203	-0.201	3.135	0.975
21-Aug-96	23.342375	33	0.4336	-0.167	3.150	0.975
29-Oct-96	23.5	34	0.4468	-0.134	3.157	0.974
19-Dec-97	24.1	35	0.4601	-0.100	3.182	0.973
28-Jul-98	24.7	36	0.4734	-0.067	3.207	0.972
16-Oct-97	25.4	37	0.4867	-0.033	3.235	0.971
25-Nov-98	26	38	0.5000	0.000	3.258	0.969
10-Jan-95	28.21	39	0.5133	0.033	3.340	0.968
23-Jun-94	28.96	40	0.5266	0.067	3.366	0.967
13-Dec-96	29.7	41	0.5399	0.100	3.391	0.966
26-Nov-97	29.7	42	0.5532	0.134	3.391	0.965
18-Oct-95	31.4	43	0.5664	0.167	3.447	0.963
30-Jan-97	31.4	44	0.5797	0.201	3.447	0.962
9-Nov-97	32.7	45	0.5930	0.235	3.487	0.960
15-Jan-99	33	46	0.6063	0.270	3.497	0.959
20-Mar-98	33.1	47	0.6196	0.304	3.500	0.956

4-Sep-97	34	48	0.6329	0.340	3.526	0.954
27-Jun-95	34.9	49	0.6462	0.375	3.552	0.951
24-Jul-96	35.8	50	0.6595	0.411	3.578	0.948
8-Mar-95	36.82	51	0.6728	0.448	3.606	0.944
14-Aug-97	37.8	52	0.6860	0.485	3.632	0.940
7-Apr-94	37.82	53	0.6993	0.522	3.633	0.936
21-Feb-97	38.9	54	0.7126	0.561	3.661	0.932
27-Dec-95	42.1	55	0.7259	0.601	3.740	0.929
12-Apr-95	42.13	56	0.7392	0.641	3.741	0.924
25-Apr-95	43	57	0.7525	0.682	3.761	0.922
9-Feb-95	43.28	58	0.7658	0.725	3.768	0.923
17-Jan-96	50.9	59	0.7791	0.769	3.930	0.938
16-Apr-97	55.3	60	0.7924	0.815	4.013	0.943
7-Jun-94	63.45	61	0.8056	0.862	4.150	0.948
26-Jun-98	63.5	62	0.8189	0.911	4.151	0.944
28-Mar-96	65.2	63	0.8322	0.963	4.177	0.949
21-Nov-95	81.5	64	0.8455	1.017	4.401	0.973
8-May-96	81.5	65	0.8588	1.075	4.401	0.969
22-Mar-95	86.16	66	0.8721	1.136	4.456	0.968
13-Jun-95	96.41	67	0.8854	1.202	4.569	0.968
19-May-94	102.01	68	0.8987	1.274	4.625	0.962
29-Feb-96	111	69	0.9120	1.353	4.710	0.955
23-Jul-97	111	70	0.9252	1.441	4.710	0.968
4-May-94	111.05	71	0.9385	1.543	4.710	0.966
24-Jun-97	124	72	0.9518	1.663	4.820	
26-Mar-97	144	73	0.9651	1.813	4.970	
19-Jun-96	148	74	0.9784	2.022	4.997	
14-May-98	206	75	0.9917	2.395	5.328	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC287/288 **Date:** 29-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,345	55	22	10	0.00	0.00	0.00
SD:	701	66	21	58	1.00	1.00	1.00
CV:	0.02	1.20	0.96	5.59			
Min:	33,516	11	4	1	-0.66	-0.87	-0.16
Max:	36,402	384	200	559	4.97	8.55	9.51
Median:	35,382	29	20	3	-0.39	-0.08	-0.12

dCd **CC287/288** **: Concentration v. Discharge, Q**

Q = mTime +b **LnQ = mTime +b**

Conc. = mQ+b (r2=0.06) update r2

r2 Q,[COC]:	0.09	[dCd]	Q	r2:	0.111	0.114
slope, m:	-0.1	26	11.4	m:	0.0314	0.00042
intercept, b:	26.9	22	55.3	b:	-1056	-11.14
N: 92		-8.9	384			

LnConc. = mLn{Q}+b (r2=0.32) update r2

r2 lnQ,ln[COC]:	0.48	ln[dCd]	ln Q	[dCd]	Q
slope, m:	-0.50	3.44	2.43	31	11
intercept, b:	4.65	2.65	4.01	14	55
N: 92		1.69	5.95	5	384

for graph
dCd 0
CC287/288

N= 92

update for new data	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	5-Oct-91	14.5	21.6	2	2.67	3.07	0.52	-0.62	-0.01	-0.15
IDEQ	27-Oct-93	13.28	26	2	2.59	3.26	0.62	-0.64	0.21	-0.15
IDEQ	30-Nov-93	12.62	26	2	2.54	3.26	0.57	-0.65	0.21	-0.15
IDEQ	17-Dec-93	11.7	31	2	2.46	3.43	0.67	-0.66	0.45	-0.14
IDEQ	17-Dec-93	12.03	31	2	2.49	3.43	0.70	-0.65	0.45	-0.14
IDEQ	20-Jan-94	13.28	33	2	2.59	3.50	0.86	-0.64	0.54	-0.14
IDEQ	20-Jan-94	14.66	33	3	2.69	3.50	0.96	-0.61	0.54	-0.13
IDEQ	18-Feb-94	11.41	28	2	2.43	3.33	0.54	-0.66	0.30	-0.15
IDEQ	8-Mar-94	22.26	27	3	3.10	3.30	1.17	-0.50	0.25	-0.12
IDEQ	24-Mar-94	21.13	27	3	3.05	3.30	1.12	-0.52	0.25	-0.13
IDEQ	7-Apr-94	37.82	17	3	3.63	2.83	1.24	-0.26	-0.23	-0.12
IDEQ	4-May-94	111.05	8.3	5	4.71	2.12	1.60	0.84	-0.64	-0.09
IDEQ	19-May-94	102.01	7.5	4	4.63	2.01	1.41	0.71	-0.68	-0.11
IDEQ	7-Jun-94	63.45	11	4	4.15	2.40	1.32	0.12	-0.51	-0.11
IDEQ	23-Jun-94	28.96	13	2	3.37	2.56	0.71	-0.40	-0.42	-0.14
IDEQ	25-Jul-94	19.04	16	2	2.95	2.77	0.49	-0.55	-0.27	-0.15
IDEQ	16-Aug-94	16.3	20	2	2.79	3.00	0.56	-0.59	-0.08	-0.15
IDEQ	16-Aug-94	13.57	20	1	2.61	3.00	0.38	-0.63	-0.08	-0.15
IDEQ	13-Sep-94	15.89	20	2	2.77	3.00	0.54	-0.60	-0.08	-0.15
IDEQ	16-Oct-94	14.34	20	2	2.66	3.00	0.43	-0.62	-0.08	-0.15
IDEQ	16-Nov-94	15.89	32	3	2.77	3.47	1.01	-0.60	0.49	-0.13
IDEQ	13-Dec-94	17.17	41	4	2.84	3.71	1.33	-0.58	0.93	-0.11
IDEQ	10-Jan-95	28.21	38	6	3.34	3.64	1.75	-0.41	0.78	-0.08
IDEQ	9-Feb-95	43.28	19	4	3.77	2.94	1.49	-0.18	-0.13	-0.10
IDEQ	8-Mar-95	36.82	15	3	3.61	2.71	1.09	-0.28	-0.32	-0.13
IDEQ	22-Mar-95	86.16	21	10	4.46	3.04	2.28	0.47	-0.03	-0.01
IDEQ	12-Apr-95	42.13	15	3	3.74	2.71	1.22	-0.20	-0.32	-0.12
IDEQ	25-Apr-95	43	12	3	3.76	2.48	1.02	-0.19	-0.47	-0.13
IDEQ	13-Jun-95	96.41	7	4	4.57	1.95	1.29	0.62	-0.71	-0.12
IDEQ	27-Jun-95	34.9	8.4	2	3.55	2.13	0.46	-0.31	-0.64	-0.15
IDEQ	11-Jul-95	20.05	11	1	3.00	2.40	0.17	-0.53	-0.51	-0.16
IDEQ	25-Jul-95	14.71	14	1	2.69	2.64	0.10	-0.61	-0.37	-0.16
IDEQ	14-Aug-95	12.6	17	1	2.53	2.83	0.14	-0.65	-0.23	-0.16
IDEQ	13-Sep-95	11.4	20	1	2.43	3.00	0.20	-0.66	-0.08	-0.16
IDEQ	18-Oct-95	31.4	200	34	3.45	5.30	3.52	-0.36	8.55	0.41
IDEQ	21-Nov-95	81.5	11	5	4.40	2.40	1.57	0.40	-0.51	-0.10
IDEQ	27-Dec-95	42.1	18	4	3.74	2.89	1.41	-0.20	-0.18	-0.11
IDEQ	17-Jan-96	50.9	26	7	3.93	3.26	1.96	-0.07	0.21	-0.06
IDEQ	29-Feb-96	111	15	9	4.71	2.71	2.19	0.84	-0.32	-0.02
IDEQ	28-Mar-96	65.2	15	5	4.18	2.71	1.66	0.15	-0.32	-0.09
IDEQ	8-May-96	81.5	11	5	4.40	2.40	1.57	0.40	-0.51	-0.10
IDEQ	19-Jun-96	148	5.8	5	5.00	1.76	1.53	1.40	-0.76	-0.10
IDEQ	24-Jul-96	35.8	14	3	3.58	2.64	0.99	-0.29	-0.37	-0.13
IDEQ	21-Aug-96	23.34	23	3	3.15	3.14	1.06	-0.48	0.06	-0.13
IDEQ	26-Sep-96	19.5	24	3	2.97	3.18	0.92	-0.54	0.11	-0.14
IDEQ	29-Oct-96	23.5	28	4	3.16	3.33	1.26	-0.48	0.30	-0.12
IDEQ	27-Nov-96	21.7	29	3	3.08	3.37	1.22	-0.51	0.35	-0.12

IDEQ	13-Dec-96	29.7	39	6	3.39	3.66	1.83	-0.39	0.83	-0.07
IDEQ	30-Jan-97	31.4	25	4	3.45	3.22	1.44	-0.36	0.16	-0.11
IDEQ	21-Feb-97	38.9	26	5	3.66	3.26	1.69	-0.25	0.21	-0.08
IDEQ	26-Mar-97	144	26	20	4.97	3.26	3.00	1.34	0.21	0.17
IDEQ	16-Apr-97	55.3	24	7	4.01	3.18	1.97	0.00	0.11	-0.05
IDEQ	24-Jun-97	124	5.4	4	4.82	1.69	1.28	1.04	-0.78	-0.12
IDEQ	23-Jul-97	111	9.2	5	4.71	2.22	1.70	0.84	-0.60	-0.08
IDEQ	14-Aug-97	37.8	14	3	3.63	2.64	1.05	-0.26	-0.37	-0.13
IDEQ	4-Sep-97	34	18	3	3.53	2.89	1.19	-0.32	-0.18	-0.12
IDEQ	16-Oct-97	25.4	20	3	3.23	3.00	1.01	-0.45	-0.08	-0.13
URS	9-Nov-97	32.7	19.8	3	3.49	2.99	1.25	-0.34	-0.09	-0.12
IDEQ	26-Nov-97	29.7	18	3	3.39	2.89	1.06	-0.39	-0.18	-0.13
IDEQ	19-Dec-97	24.1	27	4	3.18	3.30	1.25	-0.47	0.25	-0.12
IDEQ	22-Jan-98	18.1	26	3	2.90	3.26	0.93	-0.56	0.21	-0.13
IDEQ	26-Feb-98	22.3	25	3	3.10	3.22	1.10	-0.50	0.16	-0.13
IDEQ	20-Mar-98	33.1	21	4	3.50	3.04	1.32	-0.34	-0.03	-0.11
URS	14-May-98	206	5.2	6	5.33	1.65	1.75	2.28	-0.79	-0.08
IDEQ	26-Jun-98	63.5	9.9	3	4.15	2.29	1.22	0.12	-0.57	-0.12
IDEQ	28-Jul-98	24.7	17	2	3.21	2.83	0.81	-0.46	-0.23	-0.14
IDEQ	26-Aug-98	19.5	18	2	2.97	2.89	0.64	-0.54	-0.18	-0.15
IDEQ	24-Sep-98	17.2	17	2	2.84	2.83	0.45	-0.58	-0.23	-0.15
IDEQ	1-Oct-98	16.7	18	2	2.82	2.89	0.48	-0.58	-0.18	-0.15
IDEQ	8-Oct-98	15.9	21	2	2.77	3.04	0.59	-0.60	-0.03	-0.15
IDEQ	26-Oct-98	16.7	19	2	2.82	2.94	0.53	-0.58	-0.13	-0.15
IDEQ	25-Nov-98	26	49	7	3.26	3.89	1.92	-0.44	1.31	-0.06
IDEQ	15-Jan-99	33	27	5	3.50	3.30	1.57	-0.34	0.25	-0.10
IDEQ	23-Feb-99	20	29	3	3.00	3.37	1.14	-0.53	0.35	-0.12
IDEQ	8-Mar-99	23	28	559	3.14	3.33	6.33	-0.49	0.30	9.51
URS	9-Nov-97	36.6	20.2	4.0	3.60	3.01	1.38	-0.28	-0.07	-0.11
URS	14-May-98	233	5.4	6.8	5.45	1.69	1.91	2.69	-0.78	-0.06
USGS	26-Oct-98	13	21	1.5	2.56	3.04	0.38	-0.64	-0.03	-0.15
URS	14-Nov-98	22.53	34	4.1	3.11	3.53	1.42	-0.50	0.59	-0.11
USGS	18-Nov-98	16	31	2.7	2.77	3.43	0.98	-0.59	0.45	-0.13
USGS	15-Dec-98	25	28	3.8	3.22	3.33	1.33	-0.46	0.30	-0.11
USGS	28-Dec-98	27	30	4.4	3.30	3.40	1.47	-0.43	0.40	-0.10
USGS	23-Mar-99	97	26	13.6	4.57	3.26	2.61	0.63	0.21	0.06
USGS	19-Apr-99	138	14	10.4	4.93	2.64	2.34	1.25	-0.37	0.00
USGS	5-May-99	84	9.2	4.2	4.43	2.22	1.42	0.43	-0.60	-0.11
USGS	24-May-99	384	5.8	12.0	5.95	1.76	2.48	4.97	-0.76	0.03
USGS	27-May-99	261	4.8	6.7	5.56	1.57	1.91	3.11	-0.81	-0.06
USGS	2-Jun-99	241	4.4	5.7	5.48	1.48	1.74	2.81	-0.83	-0.08
USGS	15-Jun-99	263	3.6	5.1	5.57	1.28	1.63	3.14	-0.87	-0.09
USGS	8-Jul-99	107	5	2.9	4.67	1.61	1.06	0.78	-0.80	-0.13
USGS	5-Aug-99	34	12	2.2	3.53	2.48	0.79	-0.32	-0.47	-0.14
USGS	30-Aug-99	22	15	1.8	3.09	2.71	0.57	-0.50	-0.32	-0.15

dCd

Concentration over time analysis r2 Slope, m

dCd CC287/288 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.044** **-0.00019**

	Time	Ln[COC]	[COC]
first:	5-Oct-91	3.21	25
mid:	12-Nov-96	2.86	18
last:	30-Aug-99	2.67	14

LnConc.=mTime+b >'96 r2, m: **0.051** **-0.00057**

21-Feb-97	3.05	21
30-Aug-99	2.53	13

Load over time analysis

dCd CC287/288 **Load over time**

LnLoad=mTime+b All data r2, m: **0.079** **0.00033**

	Time	LnLoad	Load
first:	5-Oct-91	0.67	2
mid:	12-Nov-96	1.28	4
last:	30-Aug-99	1.62	5

LnLoad=mTime+b >'96 r2, m: **0.003** **0.00019**

21-Feb-97	1.36	4
30-Aug-99	1.53	5

max r2: 0.149 max r2: 0.079

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.044	-0.00019	9.49	0.079	0.00033	-10.32
0.044	-0.00019	9.71	0.071	0.00032	-10.09
0.041	-0.00019	9.54	0.066	0.00031	-9.79
0.038	-0.00018	9.35	0.060	0.00030	-9.42
0.033	-0.00017	8.97	0.055	0.00029	-9.11
0.028	-0.00016	8.55	0.051	0.00029	-8.81
0.023	-0.00015	8.04	0.048	0.00028	-8.66
0.018	-0.00013	7.49	0.046	0.00028	-8.60
0.014	-0.00012	7.08	0.040	0.00026	-8.05
0.012	-0.00011	6.67	0.040	0.00027	-8.20
0.009	-0.00010	6.24	0.040	0.00027	-8.29
0.009	-0.00010	6.34	0.040	0.00028	-8.53
0.015	-0.00013	7.36	0.044	0.00030	-9.25
0.023	-0.00016	8.61	0.047	0.00031	-9.77
0.030	-0.00019	9.43	0.049	0.00032	-10.20
0.034	-0.00020	10.09	0.044	0.00031	-9.79
0.037	-0.00022	10.49	0.037	0.00029	-9.03
0.036	-0.00022	10.58	0.031	0.00027	-8.28
0.036	-0.00022	10.69	0.024	0.00024	-7.17
0.035	-0.00022	10.79	0.018	0.00021	-6.19
0.034	-0.00023	10.89	0.012	0.00018	-4.95
0.028	-0.00021	10.17	0.011	0.00017	-4.58
0.019	-0.00017	8.94	0.011	0.00017	-4.74
0.012	-0.00014	7.71	0.013	0.00020	-5.68
0.011	-0.00014	7.68	0.015	0.00021	-6.19
0.012	-0.00015	8.10	0.013	0.00021	-5.97
0.011	-0.00014	7.87	0.021	0.00027	-8.15
0.012	-0.00016	8.34	0.021	0.00027	-8.31
0.016	-0.00018	9.36	0.019	0.00026	-8.03
0.029	-0.00025	11.69	0.019	0.00027	-8.31
0.044	-0.00031	13.88	0.012	0.00022	-6.59
0.056	-0.00036	15.67	0.005	0.00015	-3.89
0.064	-0.00040	17.06	0.001	0.00006	-0.58
0.069	-0.00043	18.06	0.000	-0.00005	3.10
0.069	-0.00044	18.66	0.005	-0.00016	7.12
0.027	-0.00025	11.90	0.000	0.00001	1.03
0.038	-0.00031	13.91	0.000	0.00002	0.62
0.039	-0.00032	14.43	0.000	0.00002	0.74
0.032	-0.00030	13.62	0.001	0.00007	-1.22
0.036	-0.00034	14.81	0.004	0.00016	-4.34
0.041	-0.00037	16.17	0.006	0.00020	-5.76
0.056	-0.00045	19.01	0.008	0.00023	-6.98
0.103	-0.00062	25.09	0.010	0.00027	-8.14
0.120	-0.00070	27.85	0.007	0.00023	-6.88
0.117	-0.00071	28.50	0.005	0.00020	-5.72
0.111	-0.00073	28.88	0.002	0.00014	-3.59
0.099	-0.00071	28.34	0.001	0.00012	-2.98

0.085	-0.00068	27.36	0.001	0.00010	-1.97
0.061	-0.00059	24.15	0.002	0.00017	-4.71
0.051	-0.00057	23.22	0.003	0.00019	-5.21
0.041	-0.00053	21.71	0.004	0.00025	-7.65
0.030	-0.00047	19.76	0.024	0.00061	-20.73
0.022	-0.00042	17.93	0.039	0.00082	-28.04
0.058	-0.00070	28.08	0.040	0.00087	-30.01
0.089	-0.00090	35.30	0.052	0.00103	-35.86
0.104	-0.00103	39.94	0.049	0.00105	-36.53
0.109	-0.00111	42.84	0.049	0.00111	-38.62
0.108	-0.00116	44.63	0.044	0.00111	-38.62
0.107	-0.00121	46.60	0.045	0.00118	-41.04
0.111	-0.00131	49.99	0.041	0.00119	-41.46
0.095	-0.00126	48.40	0.041	0.00126	-44.25
0.079	-0.00121	46.41	0.035	0.00122	-42.51
0.065	-0.00114	44.02	0.031	0.00121	-42.25
0.057	-0.00113	43.35	0.031	0.00128	-44.86
0.115	-0.00161	60.83	0.039	0.00149	-52.51
0.146	-0.00185	69.76	0.037	0.00150	-52.92
0.149	-0.00192	72.04	0.030	0.00138	-48.27
0.148	-0.00195	73.14	0.022	0.00119	-41.51
0.148	-0.00197	74.17	0.015	0.00097	-33.34
0.146	-0.00199	74.66	0.008	0.00073	-24.66
0.140	-0.00196	73.70	0.004	0.00049	-16.12

update for EV, CV:

dCd **CC287/288**

LN Analysis **dCd**

Load **Load Data, EV=10.3 lbs/day CV=5.59**

Load Data-based LN

Avg:	**10.3**	u	ln dCd Load	dCd Load
SD:	**58**	3	6.2	487
CV:	**5.59**	0	0.60	2
Min:	**1**	-3	-5.00	0.01
Max:	**559**			
Median:	**3**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.783, EV=5.5 lbs/day CV=1.20; max r2=0.91**

r2 u,lnLoad:	0.783	u	lnLoad	Load
slope, m:	1.061	3	4.10	60
intercept, b:	-1.347	0	1.27	4
N: 92		-3	-1.56	0.2
E[Load]:	5.5	Parameter Estimates		
SD[Load]:	7	from LN regression		
CV[Load]:	1.20	update graph label		

max r2
0.910

N: 92

Date	dCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
25-Jul-95	1	1	0.0068	-2.469	0.103	0.783
14-Aug-95	1	2	0.0176	-2.106	0.142	0.785
11-Jul-95	1	3	0.0285	-1.904	0.171	0.785
13-Sep-95	1	4	0.0393	-1.759	0.204	0.783
16-Aug-94	1	5	0.0501	-1.644	0.379	0.780
26-Oct-98	1.5	6	0.0610	-1.547	0.384	0.780
16-Oct-94	2	7	0.0718	-1.462	0.434	0.779
24-Sep-98	2	8	0.0827	-1.387	0.453	0.778
27-Jun-95	2	9	0.0935	-1.320	0.456	0.778
1-Oct-98	2	10	0.1043	-1.257	0.481	0.776
25-Jul-94	2	11	0.1152	-1.199	0.494	0.775
5-Oct-91	2	12	0.1260	-1.145	0.522	0.773
26-Oct-98	2	13	0.1369	-1.095	0.535	0.771
13-Sep-94	2	14	0.1477	-1.046	0.536	0.770
18-Feb-94	2	15	0.1585	-1.000	0.542	0.767
16-Aug-94	2	16	0.1694	-0.957	0.562	0.764
30-Nov-93	2	17	0.1802	-0.915	0.568	0.762
30-Aug-99	1.8	18	0.1911	-0.874	0.574	0.758
8-Oct-98	2	19	0.2019	-0.835	0.586	0.755
27-Oct-93	2	20	0.2127	-0.797	0.619	0.751
26-Aug-98	2	21	0.2236	-0.760	0.636	0.747
17-Dec-93	2	22	0.2344	-0.724	0.669	0.744
17-Dec-93	2	23	0.2453	-0.689	0.696	0.740
23-Jun-94	2	24	0.2561	-0.655	0.706	0.736
5-Aug-99	2.2	25	0.2669	-0.622	0.786	0.733
28-Jul-98	2	26	0.2778	-0.589	0.815	0.730
20-Jan-94	2	27	0.2886	-0.557	0.858	0.728
26-Sep-96	3	28	0.2995	-0.526	0.923	0.726
22-Jan-98	3	29	0.3103	-0.495	0.929	0.725
20-Jan-94	3	30	0.3211	-0.465	0.957	0.724
18-Nov-98	2.7	31	0.3320	-0.434	0.982	0.724
24-Jul-96	3	32	0.3428	-0.405	0.992	0.724
16-Oct-97	3	33	0.3537	-0.375	1.005	0.723
16-Nov-94	3	34	0.3645	-0.346	1.006	0.723
25-Apr-95	3	35	0.3753	-0.318	1.021	0.723
14-Aug-97	3	36	0.3862	-0.289	1.046	0.722
26-Nov-97	3	37	0.3970	-0.261	1.056	0.722
8-Jul-99	2.9	38	0.4079	-0.233	1.057	0.722
21-Aug-96	3	39	0.4187	-0.205	1.061	0.721
8-Mar-95	3	40	0.4295	-0.178	1.089	0.721
26-Feb-98	3	41	0.4404	-0.150	1.098	0.720
24-Mar-94	3	42	0.4512	-0.123	1.121	0.720
23-Feb-99	3	43	0.4621	-0.095	1.138	0.720
8-Mar-94	3	44	0.4729	-0.068	1.174	0.720
4-Sep-97	3	45	0.4837	-0.041	1.192	0.720
26-Jun-98	3	46	0.4946	-0.014	1.219	0.721
27-Nov-96	3	47	0.5054	0.014	1.220	0.723

12-Apr-95	**3**	48	0.5163	0.041	1.224	0.724
7-Apr-94	**3**	49	0.5271	0.068	1.241	0.725
9-Nov-97	**3**	50	0.5379	0.095	1.248	0.726
19-Dec-97	**4**	51	0.5488	0.123	1.253	0.727
29-Oct-96	**4**	52	0.5596	0.150	1.264	0.728
24-Jun-97	**4**	53	0.5705	0.178	1.282	0.729
13-Jun-95	**4**	54	0.5813	0.205	1.289	0.730
20-Mar-98	**4**	55	0.5921	0.233	1.319	0.731
7-Jun-94	**4**	56	0.6030	0.261	1.323	0.732
15-Dec-98	3.8	57	0.6138	0.289	1.326	0.733
13-Dec-94	**4**	58	0.6247	0.318	1.332	0.734
9-Nov-97	4.0	59	0.6355	0.346	1.381	0.734
27-Dec-95	**4**	60	0.6463	0.375	1.405	0.736
19-May-94	**4**	61	0.6572	0.405	1.415	0.738
14-Nov-98	4.1	62	0.6680	0.434	1.416	0.740
5-May-99	4.2	63	0.6789	0.465	1.425	0.742
30-Jan-97	**4**	64	0.6897	0.495	1.441	0.743
28-Dec-98	4.4	65	0.7005	0.526	1.472	0.745
9-Feb-95	**4**	66	0.7114	0.557	1.487	0.746
19-Jun-96	**5**	67	0.7222	0.589	1.530	0.748
15-Jan-99	**5**	68	0.7331	0.622	1.567	0.752
21-Nov-95	**5**	69	0.7439	0.655	1.573	0.756
8-May-96	**5**	70	0.7547	0.689	1.573	0.760
4-May-94	**5**	71	0.7656	0.724	1.601	0.763
15-Jun-99	5.1	72	0.7764	0.760	1.628	0.767
28-Mar-96	**5**	73	0.7873	0.797	1.660	0.772
21-Feb-97	**5**	74	0.7981	0.835	1.694	0.777
23-Jul-97	**5**	75	0.8089	0.874	1.704	0.783
2-Jun-99	5.7	76	0.8198	0.915	1.741	0.789
14-May-98	**6**	77	0.8306	0.957	1.751	0.795
10-Jan-95	**6**	78	0.8415	1.000	1.752	0.802
13-Dec-96	**6**	79	0.8523	1.046	1.830	0.806
27-May-99	6.7	80	0.8631	1.095	1.908	0.813
14-May-98	6.8	81	0.8740	1.145	1.912	0.825
25-Nov-98	**7**	82	0.8848	1.199	1.925	0.836
17-Jan-96	**7**	83	0.8957	1.257	1.963	0.844
16-Apr-97	**7**	84	0.9065	1.320	1.966	0.851
29-Feb-96	**9**	85	0.9173	1.387	2.193	0.853
22-Mar-95	**10**	86	0.9282	1.462	2.276	0.869
19-Apr-99	10.4	87	0.9390	1.547	2.341	0.890
24-May-99	12.0	88	0.9499	1.644	2.483	0.910
23-Mar-99	13.6	89	0.9607	1.759	2.608	
26-Mar-97	**20**	90	0.9715	1.904	3.003	
18-Oct-95	**34**	91	0.9824	2.106	3.520	
8-Mar-99	**559**	92	0.9932	2.469	6.326	

update for EV, CV:

dCd **CC287/288**

LN Analysis **dCd**

Concentration **Conc. Data, EV=21.7 ug/L CV=.96**

Avg:	**21.7**	**Data-based LN**		
SD:	**21**	u	ln[dCd]	[dCd]
CV:	**0.96**	3	5.2	177
Min:	**4**	0	2.75	16
Max:	**200**	-3	0.33	1
Median:	**20**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.927, EV=21.9 ug/L CV=.74; max r2=0.927**

r2 u,lnConc:	0.927	u	lnConc.	Conc.
slope, m:	1.520	3	4.84	127
intercept, b:	-4.366	0	2.87	18
N: 92		-3	0.90	2
E[Conc]:	21.9	Parameter Estimates		
SD[Conc]:	16	from LN regression		
CV[Conc]:	0.74	update graph label		

N: 92

max r2
0.927

Date	dCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
15-Jun-99	3.6	1	0.0068	-2.469	1.281	0.927
2-Jun-99	4.4	2	0.0176	-2.106	1.482	0.921
27-May-99	4.8	3	0.0285	-1.904	1.569	0.916
8-Jul-99	5	4	0.0393	-1.759	1.609	0.912
14-May-98	5.2	5	0.0501	-1.644	1.649	0.908
24-Jun-97	5.4	6	0.0610	-1.547	1.686	0.905
14-May-98	5.4	7	0.0718	-1.462	1.686	0.902
19-Jun-96	5.8	8	0.0827	-1.387	1.758	0.901
24-May-99	5.8	9	0.0935	-1.320	1.758	0.900
13-Jun-95	7	10	0.1043	-1.257	1.946	0.900
19-May-94	7.5	11	0.1152	-1.199	2.015	0.898
4-May-94	8.3	12	0.1260	-1.145	2.116	0.896
27-Jun-95	8.4	13	0.1369	-1.095	2.128	0.892
23-Jul-97	9.2	14	0.1477	-1.046	2.219	0.889
5-May-99	9.2	15	0.1585	-1.000	2.219	0.886
26-Jun-98	9.9	16	0.1694	-0.957	2.293	0.882
7-Jun-94	11	17	0.1802	-0.915	2.398	0.878
11-Jul-95	11	18	0.1911	-0.874	2.398	0.874
21-Nov-95	11	19	0.2019	-0.835	2.398	0.870
8-May-96	11	20	0.2127	-0.797	2.398	0.865
25-Apr-95	12	21	0.2236	-0.760	2.485	0.861
5-Aug-99	12	22	0.2344	-0.724	2.485	0.856
23-Jun-94	13	23	0.2453	-0.689	2.565	0.851
25-Jul-95	14	24	0.2561	-0.655	2.639	0.847
24-Jul-96	14	25	0.2669	-0.622	2.639	0.843
14-Aug-97	14	26	0.2778	-0.589	2.639	0.838
19-Apr-99	14	27	0.2886	-0.557	2.639	0.833
8-Mar-95	15	28	0.2995	-0.526	2.708	0.828
12-Apr-95	15	29	0.3103	-0.495	2.708	0.824
29-Feb-96	15	30	0.3211	-0.465	2.708	0.819
28-Mar-96	15	31	0.3320	-0.434	2.708	0.814
30-Aug-99	15	32	0.3428	-0.405	2.708	0.808
25-Jul-94	16	33	0.3537	-0.375	2.773	0.802
7-Apr-94	17	34	0.3645	-0.346	2.833	0.797
14-Aug-95	17	35	0.3753	-0.318	2.833	0.793
28-Jul-98	17	36	0.3862	-0.289	2.833	0.789
24-Sep-98	17	37	0.3970	-0.261	2.833	0.784
27-Dec-95	18	38	0.4079	-0.233	2.890	0.778
4-Sep-97	18	39	0.4187	-0.205	2.890	0.774
26-Nov-97	18	40	0.4295	-0.178	2.890	0.770
26-Aug-98	18	41	0.4404	-0.150	2.890	0.765
1-Oct-98	18	42	0.4512	-0.123	2.890	0.760
9-Feb-95	19	43	0.4621	-0.095	2.944	0.754
26-Oct-98	19	44	0.4729	-0.068	2.944	0.749
9-Nov-97	19.8	45	0.4837	-0.041	2.986	0.744
16-Aug-94	20	46	0.4946	-0.014	2.996	0.741
16-Aug-94	20	47	0.5054	0.014	2.996	0.737

13-Sep-94	20	48	0.5163	0.041	2.996	0.733
16-Oct-94	20	49	0.5271	0.068	2.996	0.728
13-Sep-95	20	50	0.5379	0.095	2.996	0.723
16-Oct-97	20	51	0.5488	0.123	2.996	0.717
9-Nov-97	20.2	52	0.5596	0.150	3.006	0.710
22-Mar-95	21	53	0.5705	0.178	3.045	0.702
20-Mar-98	21	54	0.5813	0.205	3.045	0.696
8-Oct-98	21	55	0.5921	0.233	3.045	0.689
26-Oct-98	21	56	0.6030	0.261	3.045	0.681
5-Oct-91	21.6	57	0.6138	0.289	3.073	0.672
21-Aug-96	23	58	0.6247	0.318	3.135	0.664
26-Sep-96	24	59	0.6355	0.346	3.178	0.659
16-Apr-97	24	60	0.6463	0.375	3.178	0.657
30-Jan-97	25	61	0.6572	0.405	3.219	0.654
26-Feb-98	25	62	0.6680	0.434	3.219	0.655
27-Oct-93	26	63	0.6789	0.465	3.258	0.655
30-Nov-93	26	64	0.6897	0.495	3.258	0.660
17-Jan-96	26	65	0.7005	0.526	3.258	0.663
21-Feb-97	26	66	0.7114	0.557	3.258	0.667
26-Mar-97	26	67	0.7222	0.589	3.258	0.669
22-Jan-98	26	68	0.7331	0.622	3.258	0.672
23-Mar-99	26	69	0.7439	0.655	3.258	0.673
8-Mar-94	27	70	0.7547	0.689	3.296	0.673
24-Mar-94	27	71	0.7656	0.724	3.296	0.678
19-Dec-97	27	72	0.7764	0.760	3.296	0.682
15-Jan-99	27	73	0.7873	0.797	3.296	0.684
18-Feb-94	28	74	0.7981	0.835	3.332	0.686
29-Oct-96	28	75	0.8089	0.874	3.332	0.692
8-Mar-99	28	76	0.8198	0.915	3.332	0.697
15-Dec-98	28	77	0.8306	0.957	3.332	0.701
27-Nov-96	29	78	0.8415	1.000	3.367	0.703
23-Feb-99	29	79	0.8523	1.046	3.367	0.709
28-Dec-98	30	80	0.8631	1.095	3.401	0.714
17-Dec-93	31	81	0.8740	1.145	3.434	0.723
17-Dec-93	31	82	0.8848	1.199	3.434	0.738
18-Nov-98	31	83	0.8957	1.257	3.434	0.751
16-Nov-94	32	84	0.9065	1.320	3.466	0.762
20-Jan-94	33	85	0.9173	1.387	3.497	0.778
20-Jan-94	33	86	0.9282	1.462	3.497	0.798
14-Nov-98	34	87	0.9390	1.547	3.526	0.814
10-Jan-95	38	88	0.9499	1.644	3.638	0.828
13-Dec-96	39	89	0.9607	1.759	3.664	
13-Dec-94	41	90	0.9715	1.904	3.714	
25-Nov-98	49	91	0.9824	2.106	3.892	
18-Oct-95	200	92	0.9932	2.469	5.298	

update for EV, CV:

dCd **CC287/288**

LN Analysis **dCd**

Discharge, Q **Q Data, EV=41 cfs CV=0.92**

Q Data-based LN

		u	lnQ	Q
Avg:	**41**			
SD:	**38**			
CV:	**0.92**	3	5.8	317
Min:	**11**	0	3.41	30
Max:	**206**	-3	1.06	3
Median:	**26**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.936, EV=40.8 cfs CV=.88; max r2=0.98**

		u	lnQ	Q
r2 u,lnQ:	0.936			
slope, m:	1.316	3	5.70	299
intercept, b:	-4.498	0	3.42	31
N: 75		-3	1.14	3
E[Q]:	40.8	Parameter Estimates		
SD[Q]:	36	from LN regression		
CV[Q]:	0.88	update graph label		

N: 75

max r2 0.979

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
13-Sep-95	11.4	1	0.0083	-2.395	2.434	0.936
18-Feb-94	11.41	2	0.0216	-2.022	2.434	0.950
17-Dec-93	11.7	3	0.0349	-1.813	2.460	0.956
17-Dec-93	12.03	4	0.0482	-1.663	2.487	0.960
14-Aug-95	12.6	5	0.0615	-1.543	2.534	0.964
30-Nov-93	12.62	6	0.0748	-1.441	2.535	0.966
27-Oct-93	13.28	7	0.0880	-1.353	2.586	0.968
20-Jan-94	13.28	8	0.1013	-1.274	2.586	0.970
16-Aug-94	13.57	9	0.1146	-1.202	2.608	0.972
16-Oct-94	14.34	10	0.1279	-1.136	2.663	0.973
5-Oct-91	14.5	11	0.1412	-1.075	2.674	0.974
20-Jan-94	14.66	12	0.1545	-1.017	2.685	0.975
25-Jul-95	14.71	13	0.1678	-0.963	2.689	0.976
13-Sep-94	15.89	14	0.1811	-0.911	2.766	0.977
16-Nov-94	15.89	15	0.1944	-0.862	2.766	0.978
8-Oct-98	15.9	16	0.2076	-0.815	2.766	0.978
16-Aug-94	16.3	17	0.2209	-0.769	2.791	0.979
1-Oct-98	16.7	18	0.2342	-0.725	2.815	0.979
26-Oct-98	16.7	19	0.2475	-0.682	2.815	0.979
13-Dec-94	17.17	20	0.2608	-0.641	2.843	0.979
24-Sep-98	17.2	21	0.2741	-0.601	2.845	0.979
22-Jan-98	18.1	22	0.2874	-0.561	2.896	0.978
25-Jul-94	19.04	23	0.3007	-0.522	2.947	0.978
26-Sep-96	19.5	24	0.3140	-0.485	2.970	0.978
26-Aug-98	19.5	25	0.3272	-0.448	2.970	0.978
23-Feb-99	20	26	0.3405	-0.411	2.996	0.978
11-Jul-95	20.05	27	0.3538	-0.375	2.998	0.978
24-Mar-94	21.13	28	0.3671	-0.340	3.051	0.977
27-Nov-96	21.7	29	0.3804	-0.304	3.077	0.977
8-Mar-94	22.26	30	0.3937	-0.270	3.103	0.976
26-Feb-98	22.3	31	0.4070	-0.235	3.105	0.976
8-Mar-99	23	32	0.4203	-0.201	3.135	0.975
21-Aug-96	23.342375	33	0.4336	-0.167	3.150	0.975
29-Oct-96	23.5	34	0.4468	-0.134	3.157	0.974
19-Dec-97	24.1	35	0.4601	-0.100	3.182	0.973
28-Jul-98	24.7	36	0.4734	-0.067	3.207	0.972
16-Oct-97	25.4	37	0.4867	-0.033	3.235	0.971
25-Nov-98	26	38	0.5000	0.000	3.258	0.969
10-Jan-95	28.21	39	0.5133	0.033	3.340	0.968
23-Jun-94	28.96	40	0.5266	0.067	3.366	0.967
13-Dec-96	29.7	41	0.5399	0.100	3.391	0.966
26-Nov-97	29.7	42	0.5532	0.134	3.391	0.965
18-Oct-95	31.4	43	0.5664	0.167	3.447	0.963
30-Jan-97	31.4	44	0.5797	0.201	3.447	0.962
9-Nov-97	32.7	45	0.5930	0.235	3.487	0.960
15-Jan-99	33	46	0.6063	0.270	3.497	0.959
20-Mar-98	33.1	47	0.6196	0.304	3.500	0.956

4-Sep-97	34	48	0.6329	0.340	3.526	0.954
27-Jun-95	34.9	49	0.6462	0.375	3.552	0.951
24-Jul-96	35.8	50	0.6595	0.411	3.578	0.948
8-Mar-95	36.82	51	0.6728	0.448	3.606	0.944
14-Aug-97	37.8	52	0.6860	0.485	3.632	0.940
7-Apr-94	37.82	53	0.6993	0.522	3.633	0.936
21-Feb-97	38.9	54	0.7126	0.561	3.661	0.932
27-Dec-95	42.1	55	0.7259	0.601	3.740	0.929
12-Apr-95	42.13	56	0.7392	0.641	3.741	0.924
25-Apr-95	43	57	0.7525	0.682	3.761	0.922
9-Feb-95	43.28	58	0.7658	0.725	3.768	0.923
17-Jan-96	50.9	59	0.7791	0.769	3.930	0.938
16-Apr-97	55.3	60	0.7924	0.815	4.013	0.943
7-Jun-94	63.45	61	0.8056	0.862	4.150	0.948
26-Jun-98	63.5	62	0.8189	0.911	4.151	0.944
28-Mar-96	65.2	63	0.8322	0.963	4.177	0.949
21-Nov-95	81.5	64	0.8455	1.017	4.401	0.973
8-May-96	81.5	65	0.8588	1.075	4.401	0.969
22-Mar-95	86.16	66	0.8721	1.136	4.456	0.968
13-Jun-95	96.41	67	0.8854	1.202	4.569	0.968
19-May-94	102.01	68	0.8987	1.274	4.625	0.962
29-Feb-96	111	69	0.9120	1.353	4.710	0.955
23-Jul-97	111	70	0.9252	1.441	4.710	0.968
4-May-94	111.05	71	0.9385	1.543	4.710	0.966
24-Jun-97	124	72	0.9518	1.663	4.820	
26-Mar-97	144	73	0.9651	1.813	4.970	
19-Jun-96	148	74	0.9784	2.022	4.997	
14-May-98	206	75	0.9917	2.395	5.328	
9-Nov-97						
14-May-98						
26-Oct-98						
14-Nov-98						
18-Nov-98						
15-Dec-98						
28-Dec-98						
23-Mar-99						
19-Apr-99						
5-May-99						
24-May-99						
27-May-99						
2-Jun-99						
15-Jun-99						
8-Jul-99						
5-Aug-99						
30-Aug-99						

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC287/288 **Date:** 30-May-00
Chemical: dPb **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,353	55	44	11	0.00	0.00	0.00
SD:	702	66	28	11	1.00	1.00	1.00
CV:	0.02	1.20	0.64	1.03			
Min:	33,516	11	17	2	-0.66	-0.96	-0.83
Max:	36,402	384	223	61	5.00	6.33	4.36
Median:	35,396	29	38	6	-0.39	-0.22	-0.44

dPb CC287/288 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.003) update r2

r2 Q,[COC]:	0.037	[dPb]	Q				
slope, m:	-0.08	48	11.4				
intercept, b:	48.7	44	54.8				
N: 93		17	384				

LnConc. = mLn{Q}+b (r2=0.001) update r2

r2 lnQ,ln[COC]:	0.065	ln[dPb]	ln Q	[dPb]	Q
slope, m:	-0.13	3.82	2.43	46	11
intercept, b:	4.13	3.62	4.00	37	55
N: 93		3.37	5.95	29	384

Q = mTime +b		**LnQ = mTime +b**
r2:	0.105	0.103
m:	0.0304	0.00039
b:	-1019	-10.40

for graph
dPb 0
CC287/288

N= 93

update for new data	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	5-Oct-91	14.5	20	2	2.67	3.00	0.44	-0.61	-0.86	-0.83
IDEQ	27-Oct-93	13.28	55	4	2.59	4.01	1.37	-0.63	0.38	-0.63
IDEQ	30-Nov-93	12.62	34	2	2.54	3.53	0.84	-0.64	-0.36	-0.77
IDEQ	17-Dec-93	11.7	46	3	2.46	3.83	1.06	-0.65	0.06	-0.72
IDEQ	17-Dec-93	12.03	46	3	2.49	3.83	1.09	-0.65	0.06	-0.71
IDEQ	20-Jan-94	13.28	38	3	2.59	3.64	1.00	-0.63	-0.22	-0.73
IDEQ	20-Jan-94	14.66	38	3	2.69	3.64	1.10	-0.61	-0.22	-0.71
IDEQ	18-Feb-94	11.41	36	2	2.43	3.58	0.79	-0.66	-0.29	-0.78
IDEQ	8-Mar-94	22.26	38	5	3.10	3.64	1.52	-0.49	-0.22	-0.57
IDEQ	24-Mar-94	21.13	37	4	3.05	3.61	1.44	-0.51	-0.26	-0.60
IDEQ	7-Apr-94	37.82	35	7	3.63	3.56	1.96	-0.26	-0.33	-0.35
IDEQ	4-May-94	111.05	28	17	4.71	3.33	2.82	0.85	-0.57	0.49
IDEQ	19-May-94	102.01	26	14	4.63	3.26	2.66	0.72	-0.64	0.28
IDEQ	7-Jun-94	63.45	29	10	4.15	3.37	2.29	0.13	-0.54	-0.11
IDEQ	23-Jun-94	28.96	34	5	3.37	3.53	1.67	-0.39	-0.36	-0.51
IDEQ	25-Jul-94	19.04	42	4	2.95	3.74	1.46	-0.54	-0.08	-0.59
IDEQ	16-Aug-94	16.3	46	4	2.79	3.83	1.39	-0.58	0.06	-0.62
IDEQ	16-Aug-94	13.57	46	3	2.61	3.83	1.21	-0.63	0.06	-0.68
IDEQ	13-Sep-94	15.89	36	3	2.77	3.58	1.12	-0.59	-0.29	-0.70
IDEQ	16-Oct-94	14.34	31	2	2.66	3.43	0.87	-0.61	-0.47	-0.76
IDEQ	16-Nov-94	15.89	40	3	2.77	3.69	1.23	-0.59	-0.15	-0.67
IDEQ	13-Dec-94	17.17	39	4	2.84	3.66	1.28	-0.57	-0.18	-0.66
IDEQ	10-Jan-95	28.21	40	6	3.34	3.69	1.80	-0.40	-0.15	-0.44
IDEQ	9-Feb-95	43.28	26	6	3.77	3.26	1.80	-0.18	-0.64	-0.44
IDEQ	8-Mar-95	36.82	22	4	3.61	3.09	1.47	-0.27	-0.79	-0.59
IDEQ	22-Mar-95	86.16	34	16	4.46	3.53	2.76	0.48	-0.36	0.41
IDEQ	12-Apr-95	42.13	27	6	3.74	3.30	1.81	-0.19	-0.61	-0.44
IDEQ	25-Apr-95	43	22	5	3.76	3.09	1.63	-0.18	-0.79	-0.53
IDEQ	13-Jun-95	96.41	27	14	4.57	3.30	2.64	0.63	-0.61	0.25
IDEQ	27-Jun-95	34.9	26	5	3.55	3.26	1.59	-0.30	-0.64	-0.54
IDEQ	11-Jul-95	20.05	34	4	3.00	3.53	1.30	-0.53	-0.36	-0.65
IDEQ	25-Jul-95	14.71	33	3	2.69	3.50	0.96	-0.61	-0.40	-0.74
IDEQ	14-Aug-95	12.6	36	2	2.53	3.58	0.89	-0.64	-0.29	-0.76
IDEQ	13-Sep-95	11.4	38	2	2.43	3.64	0.85	-0.66	-0.22	-0.77
IDEQ	18-Oct-95	31.4	48	8	3.45	3.87	2.09	-0.36	0.13	-0.26
IDEQ	21-Nov-95	81.5	45	20	4.40	3.81	2.98	0.40	0.03	0.75
IDEQ	27-Dec-95	42.1	55	12	3.74	4.01	2.52	-0.19	0.38	0.12
IDEQ	17-Jan-96	50.9	223	61	3.93	5.41	4.11	-0.06	6.33	4.36
IDEQ	29-Feb-96	111	45	27	4.71	3.81	3.29	0.85	0.03	1.38
IDEQ	28-Mar-96	65.2	53	19	4.18	3.97	2.92	0.16	0.31	0.65
IDEQ	8-May-96	81.5	66	29	4.40	4.19	3.37	0.40	0.77	1.56
IDEQ	19-Jun-96	148	36	29	5.00	3.58	3.36	1.41	-0.29	1.53
IDEQ	24-Jul-96	35.8	66	13	3.58	4.19	2.54	-0.29	0.77	0.14
IDEQ	21-Aug-96	23.342375	94	12	3.15	4.54	2.47	-0.48	1.76	0.06
IDEQ	26-Sep-96	19.5	98	10	2.97	4.58	2.33	-0.54	1.90	-0.07
IDEQ	29-Oct-96	23.5	174	22	3.16	5.16	3.09	-0.48	4.59	0.95
IDEQ	27-Nov-96	21.7	51	6	3.08	3.93	1.78	-0.50	0.24	-0.45
IDEQ	13-Dec-96	29.7	60	10	3.39	4.09	2.26	-0.38	0.56	-0.13
IDEQ	30-Jan-97	31.4	48	8	3.45	3.87	2.09	-0.36	0.13	-0.26
IDEQ	21-Feb-97	38.9	71	15	3.66	4.26	2.70	-0.24	0.95	0.33
IDEQ	26-Mar-97	144	63	49	4.97	4.14	3.89	1.35	0.67	3.29
IDEQ	16-Apr-97	55.3	46	14	4.01	3.83	2.62	0.01	0.06	0.22
IDEQ	24-Jun-97	124	32	21	4.82	3.47	3.06	1.05	-0.43	0.89
IDEQ	23-Jul-97	111	66	39	4.71	4.19	3.67	0.85	0.77	2.47
IDEQ	14-Aug-97	37.8	54	11	3.63	3.99	2.40	-0.26	0.35	-0.01
IDEQ	4-Sep-97	34	114	21	3.53	4.74	3.04	-0.32	2.47	0.85
IDEQ	16-Oct-97	25.4	57	8	3.23	4.04	2.05	-0.45	0.45	-0.29
URS	9-Nov-97	32.7	50.8	9	3.49	3.93	2.19	-0.34	0.23	-0.19
IDEQ	26-Nov-97	29.7	49	8	3.39	3.89	2.06	-0.38	0.17	-0.29
IDEQ	19-Dec-97	24.1	43	6	3.18	3.76	1.72	-0.47	-0.04	-0.48
IDEQ	22-Jan-98	18.1	44	4	2.90	3.78	1.46	-0.56	-0.01	-0.60
IDEQ	26-Feb-98	22.3	42	5	3.10	3.74	1.62	-0.49	-0.08	-0.53

IDEQ	20-Mar-98	33.1	45	8	3.50	3.81	2.08	-0.33	0.03	-0.27
URS	14-May-98	206	25.7	28	5.33	3.25	3.35	2.29	-0.65	1.52
IDEQ	26-Jun-98	63.5	34	12	4.15	3.53	2.45	0.13	-0.36	0.04
IDEQ	28-Jul-98	24.7	46	6	3.21	3.83	1.81	-0.46	0.06	-0.44
IDEQ	26-Aug-98	19.5	42	4	2.97	3.74	1.48	-0.54	-0.08	-0.59
IDEQ	24-Sep-98	17.2	50	5	2.84	3.91	1.53	-0.57	0.20	-0.57
IDEQ	1-Oct-98	16.7	39	4	2.82	3.66	1.25	-0.58	-0.18	-0.66
IDEQ	8-Oct-98	15.9	45	4	2.77	3.81	1.35	-0.59	0.03	-0.63
IDEQ	26-Oct-98	16.7	34	3	2.82	3.53	1.12	-0.58	-0.36	-0.70
IDEQ	25-Nov-98	26	54	8	3.26	3.99	2.02	-0.44	0.35	-0.31
IDEQ	15-Jan-99	33	38	7	3.50	3.64	1.91	-0.33	-0.22	-0.38
IDEQ	23-Feb-99	20	28	3	3.00	3.33	1.10	-0.53	-0.57	-0.71
IDEQ	8-Mar-99	23	31	4	3.14	3.43	1.34	-0.48	-0.47	-0.63
URS	9-Nov-97	36.6	49.9	10	3.60	3.91	2.29	-0.28	0.20	-0.11
URS	14-May-98	233	25.3	32	5.45	3.23	3.46	2.70	-0.67	1.80
USGS	26-Oct-98	13	31	2	2.56	3.43	0.77	-0.63	-0.47	-0.78
USGS	26-Oct-98	13	32	2	2.56	3.47	0.81	-0.63	-0.43	-0.77
URS	14-Nov-98	22.53	34.6	4	3.11	3.54	1.43	-0.49	-0.34	-0.60
USGS	18-Nov-98	16	32	3	2.77	3.47	1.01	-0.59	-0.43	-0.73
USGS	15-Dec-98	25	29	4	3.22	3.37	1.36	-0.45	-0.54	-0.63
USGS	28-Dec-98	27	31	5	3.30	3.43	1.50	-0.42	-0.47	-0.58
USGS	23-Mar-99	97	40	21	4.57	3.69	3.04	0.64	-0.15	0.85
USGS	19-Apr-99	138	22	16	4.93	3.09	2.79	1.26	-0.79	0.46
USGS	5-May-99	84	22	10	4.43	3.09	2.30	0.44	-0.79	-0.10
USGS	24-May-99	384	26	54	5.95	3.26	3.98	5.00	-0.64	3.72
USGS	27-May-99	261	17	24	5.56	2.83	3.17	3.13	-0.96	1.11
USGS	2-Jun-99	241	23	30	5.48	3.14	3.40	2.83	-0.75	1.63
USGS	15-Jun-99	263	18	25	5.57	2.89	3.24	3.16	-0.93	1.25
USGS	8-Jul-99	107	20	12	4.67	3.00	2.44	0.79	-0.86	0.04
USGS	5-Aug-99	34	31	6	3.53	3.43	1.74	-0.32	-0.47	-0.47
USGS	30-Aug-99	22	37	4	3.09	3.61	1.48	-0.50	-0.26	-0.59

dPb

Concentration over time analysis

				r2	Slope, m
	dPb	**CC287/288**		**Concentration over time**	
	LnConc.=mTime+b All data r2, m:			**0.004**	**-0.00004**
	Time	**Ln[COC]**	**[COC]**		
first:	5-Oct-91	3.75	43		
mid:	27-Nov-96	3.68	39		
last:	30-Aug-99	3.63	38		
	LnConc.=mTime+b >'96 r2, m:			**0.533**	**-0.00108**
	21-Feb-97	4.18	65		
	30-Aug-99	3.18	24		

Load over time analysis

	dPb	**CC287/288**		**Load over time**	
	LnLoad=mTime+b All data r2, m:			**0.083**	**0.00035**
	Time	**LnLoad**	**Load**		
first:	5-Oct-91	1.36	4		
mid:	27-Nov-96	2.02	8		
last:	30-Aug-99	2.38	11		
	LnLoad=mTime+b >'96 r2, m:			**0.052**	**-0.00076**
	21-Feb-97	2.57	13		
	30-Aug-99	1.87	6		

max r2:	1.000		max r2:	1.000	
Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.004	-0.00004	5.10	0.083	0.00035	-10.53
0.014	-0.00007	6.27	0.063	0.00031	-9.10
0.011	-0.00007	6.04	0.058	0.00031	-8.80
0.013	-0.00007	6.26	0.049	0.00028	-7.96
0.012	-0.00007	6.19	0.042	0.00026	-7.27
0.011	-0.00007	6.12	0.036	0.00024	-6.56
0.012	-0.00007	6.24	0.029	0.00022	-5.70
0.012	-0.00008	6.37	0.022	0.00020	-4.87
0.014	-0.00008	6.58	0.015	0.00016	-3.64
0.015	-0.00009	6.73	0.012	0.00015	-3.15
0.016	-0.00009	6.92	0.009	0.00013	-2.53
0.018	-0.00010	7.20	0.009	0.00013	-2.50
0.024	-0.00012	7.78	0.013	0.00016	-3.55
0.033	-0.00014	8.50	0.017	0.00019	-4.49
0.040	-0.00015	9.14	0.019	0.00020	-5.00
0.046	-0.00017	9.60	0.017	0.00019	-4.67
0.047	-0.00017	9.79	0.013	0.00017	-4.00
0.046	-0.00017	9.85	0.010	0.00015	-3.17
0.045	-0.00018	9.93	0.006	0.00012	-1.96
0.050	-0.00019	10.39	0.002	0.00007	-0.49
0.059	-0.00021	11.14	0.000	0.00002	1.54
0.062	-0.00022	11.51	0.000	-0.00003	3.13
0.066	-0.00023	11.95	0.002	-0.00007	4.78
0.069	-0.00024	12.37	0.003	-0.00010	5.63
0.088	-0.00028	13.62	0.005	-0.00012	6.56
0.117	-0.00033	15.31	0.010	-0.00017	8.21
0.132	-0.00035	16.31	0.007	-0.00015	7.42
0.160	-0.00040	17.89	0.010	-0.00018	8.57
0.209	-0.00046	20.13	0.015	-0.00022	10.27
0.250	-0.00051	22.05	0.013	-0.00021	9.77
0.303	-0.00057	24.30	0.019	-0.00027	11.76
0.340	-0.00063	26.15	0.031	-0.00035	14.75
0.385	-0.00069	28.33	0.055	-0.00047	19.11
0.429	-0.00075	30.55	0.092	-0.00061	24.29
0.472	-0.00081	32.85	0.146	-0.00078	30.30
0.496	-0.00086	34.64	0.164	-0.00086	33.06
0.528	-0.00092	36.80	0.155	-0.00086	33.14
0.544	-0.00097	38.45	0.160	-0.00090	34.73
0.511	-0.00087	35.03	0.122	-0.00079	30.54
0.543	-0.00093	37.25	0.103	-0.00074	28.82
0.559	-0.00098	39.05	0.092	-0.00073	28.27
0.555	-0.00101	40.00	0.071	-0.00065	25.58
0.620	-0.00111	43.64	0.051	-0.00056	22.40
0.618	-0.00114	44.80	0.047	-0.00056	22.49
0.592	-0.00113	44.22	0.045	-0.00058	22.88
0.560	-0.00110	43.10	0.046	-0.00061	23.97
0.531	-0.00097	38.36	0.032	-0.00052	20.87
0.536	-0.00101	39.90	0.043	-0.00063	24.89
0.522	-0.00103	40.62	0.045	-0.00068	26.65
0.533	-0.00108	42.62	0.052	-0.00076	29.60
0.501	-0.00107	42.03	0.044	-0.00074	28.64
0.474	-0.00107	41.97	0.016	-0.00044	18.01
0.485	-0.00113	44.40	0.010	-0.00037	15.59
0.558	-0.00127	49.49	0.003	-0.00019	8.97
0.528	-0.00126	48.84	0.002	0.00018	-4.39
0.513	-0.00128	49.70	0.005	0.00029	-8.47
0.464	-0.00109	42.77	0.022	0.00061	-20.06
0.425	-0.00105	41.50	0.025	0.00069	-22.93
0.393	-0.00104	40.98	0.033	0.00082	-27.77
0.362	-0.00103	40.55	0.038	0.00094	-32.02
0.347	-0.00105	41.44	0.035	0.00096	-32.50
0.326	-0.00106	41.69	0.026	0.00086	-28.99

0.308	-0.00107	42.12	0.020	0.00080	-26.73
0.278	-0.00105	41.27	0.023	0.00090	-30.63
0.347	-0.00121	47.12	0.061	0.00146	-50.97
0.357	-0.00126	49.00	0.079	0.00171	-59.85
0.332	-0.00121	47.16	0.079	0.00174	-61.13
0.313	-0.00117	45.91	0.071	0.00168	-58.71
0.296	-0.00110	43.04	0.065	0.00162	-56.49
0.282	-0.00107	41.97	0.055	0.00148	-51.69
0.264	-0.00100	39.54	0.046	0.00136	-47.23
0.256	-0.00099	39.19	0.036	0.00119	-41.00
0.269	-0.00091	36.13	0.036	0.00119	-40.94
0.277	-0.00089	35.60	0.035	0.00118	-40.58
0.277	-0.00089	35.62	0.039	0.00121	-41.65
0.283	-0.00090	35.88	0.045	0.00126	-43.50
0.088	-0.00058	24.36	0.089	0.00241	-84.96
0.172	-0.00101	39.95	0.390	0.00597	-214.28
0.156	-0.00103	40.47	0.321	0.00544	-195.07
0.126	-0.00100	39.67	0.226	0.00463	-165.43
0.069	-0.00080	32.36	0.165	0.00426	-152.11
0.028	-0.00059	24.54	0.047	0.00240	-84.72
0.010	-0.00042	18.58	0.002	-0.00054	22.16
0.014	0.00070	-22.28	0.374	-0.00976	357.25
0.413	0.00374	-132.79	0.426	-0.01233	450.50
0.480	0.00462	-164.79	0.538	-0.01593	581.42
0.548	0.00562	-200.91	0.929	-0.02345	855.09
0.789	0.00733	-263.38	0.950	-0.02130	776.66
0.724	0.00704	-252.85	0.971	-0.02328	848.89
0.961	0.01023	-368.63	0.954	-0.02333	850.62
0.957	0.01169	-421.81	0.948	-0.01838	670.41
1.000	0.00708	-254.01	1.000	-0.01034	377.71

update for EV, CV:

dPb **CC287/288**

LN Analysis **dPb**

Load **Load Data, EV=10 lbs/day CV=1.04**

Load Data-based LN

Avg:	**11**			
SD:	**11**	u	ln dPb Load	dPb Load
CV:	**1.03**	3	4.6	99
Min:	**2**	0	2.05	8
Max:	**61**	-3	-0.51	1
Median:	**6**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.964, EV=11.1 lbs/day CV=1.10; max r2=0.994**

r2 u,lnLoad:	0.964	u	lnLoad	Load
slope, m:	1.120	3	4.69	108
intercept, b:	-2.250	0	2.01	7
N: 93		-3	-0.67	0.5
E[Load]:	11.1	Parameter Estimates		
SD[Load]:	12	from LN regression		
CV[Load]:	1.10	update graph label		

N: 93

max r2 0.994

Date	dPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
5-Oct-91	2	1	0.0067	-2.473	0.445	0.964
26-Oct-98	2	2	0.0174	-2.110	0.774	0.967
18-Feb-94	2	3	0.0282	-1.909	0.793	0.973
26-Oct-98	2	4	0.0389	-1.764	0.806	0.977
30-Nov-93	2	5	0.0496	-1.649	0.837	0.979
13-Sep-95	2	6	0.0603	-1.552	0.846	0.981
16-Oct-94	2	7	0.0710	-1.468	0.872	0.982
14-Aug-95	2	8	0.0818	-1.393	0.892	0.983
25-Jul-95	3	9	0.0925	-1.326	0.960	0.984
20-Jan-94	3	10	0.1032	-1.263	0.999	0.984
18-Nov-98	3	11	0.1139	-1.206	1.013	0.985
17-Dec-93	3	12	0.1247	-1.152	1.063	0.986
17-Dec-93	3	13	0.1354	-1.101	1.091	0.987
20-Jan-94	3	14	0.1461	-1.053	1.098	0.987
23-Feb-99	3	15	0.1568	-1.008	1.103	0.988
26-Oct-98	3	16	0.1676	-0.964	1.117	0.988
13-Sep-94	3	17	0.1783	-0.922	1.124	0.988
16-Aug-94	3	18	0.1890	-0.882	1.211	0.988
16-Nov-94	3	19	0.1997	-0.843	1.230	0.988
1-Oct-98	4	20	0.2105	-0.805	1.254	0.988
13-Dec-94	4	21	0.2212	-0.768	1.282	0.988
11-Jul-95	4	22	0.2319	-0.733	1.300	0.989
8-Mar-99	4	23	0.2426	-0.698	1.344	0.989
8-Oct-98	4	24	0.2534	-0.664	1.348	0.989
15-Dec-98	4	25	0.2641	-0.631	1.361	0.989
27-Oct-93	4	26	0.2748	-0.598	1.369	0.989
16-Aug-94	4	27	0.2855	-0.567	1.395	0.989
14-Nov-98	4	28	0.2962	-0.535	1.434	0.989
24-Mar-94	4	29	0.3070	-0.504	1.437	0.989
22-Jan-98	4	30	0.3177	-0.474	1.455	0.988
25-Jul-94	4	31	0.3284	-0.444	1.459	0.988
8-Mar-95	4	32	0.3391	-0.415	1.472	0.988
30-Aug-99	4	33	0.3499	-0.386	1.477	0.987
26-Aug-98	4	34	0.3606	-0.357	1.483	0.987
28-Dec-98	5	35	0.3713	-0.328	1.505	0.987
8-Mar-94	5	36	0.3820	-0.300	1.515	0.986
24-Sep-98	5	37	0.3928	-0.272	1.532	0.986
27-Jun-95	5	38	0.4035	-0.244	1.586	0.985
26-Feb-98	5	39	0.4142	-0.217	1.617	0.985
25-Apr-95	5	40	0.4249	-0.189	1.627	0.985
23-Jun-94	5	41	0.4357	-0.162	1.667	0.984
19-Dec-97	6	42	0.4464	-0.135	1.718	0.984
5-Aug-99	6	43	0.4571	-0.108	1.735	0.984
27-Nov-96	6	44	0.4678	-0.081	1.784	0.983
9-Feb-95	6	45	0.4786	-0.054	1.801	0.983
10-Jan-95	6	46	0.4893	-0.027	1.803	0.982
28-Jul-98	6	47	0.5000	0.000	1.810	0.982
12-Apr-95	6	48	0.5107	0.027	1.812	0.982
15-Jan-99	7	49	0.5214	0.054	1.909	0.983
7-Apr-94	7	50	0.5322	0.081	1.963	0.983
25-Nov-98	8	51	0.5429	0.108	2.022	0.982
16-Oct-97	8	52	0.5536	0.135	2.053	0.982
26-Nov-97	8	53	0.5643	0.162	2.058	0.981
20-Mar-98	8	54	0.5751	0.189	2.081	0.981
18-Oct-95	8	55	0.5858	0.217	2.093	0.980
30-Jan-97	8	56	0.5965	0.244	2.093	0.980
9-Nov-97	9	57	0.6072	0.272	2.190	0.981
13-Dec-96	10	58	0.6180	0.300	2.260	0.981
9-Nov-97	10	59	0.6287	0.328	2.285	0.980
7-Jun-94	10	60	0.6394	0.357	2.292	0.979
5-May-99	10	61	0.6501	0.386	2.297	0.978
26-Sep-96	10	62	0.6609	0.415	2.330	0.978

14-Aug-97	**11**	63	0.6716	0.444	2.396	0.978
8-Jul-99	**12**	64	0.6823	0.474	2.443	0.978
26-Jun-98	**12**	65	0.6930	0.504	2.452	0.977
21-Aug-96	**12**	66	0.7038	0.535	2.468	0.976
27-Dec-95	**12**	67	0.7145	0.567	2.522	0.976
24-Jul-96	**13**	68	0.7252	0.598	2.543	0.975
16-Apr-97	**14**	69	0.7359	0.631	2.616	0.976
13-Jun-95	**14**	70	0.7466	0.664	2.639	0.974
19-May-94	**14**	71	0.7574	0.698	2.658	0.974
21-Feb-97	**15**	72	0.7681	0.733	2.699	0.974
22-Mar-95	**16**	73	0.7788	0.768	2.757	0.974
19-Apr-99	**16**	74	0.7895	0.805	2.793	0.973
4-May-94	**17**	75	0.8003	0.843	2.817	0.972
28-Mar-96	**19**	76	0.8110	0.882	2.923	0.973
21-Nov-95	**20**	77	0.8217	0.922	2.982	0.971
4-Sep-97	**21**	78	0.8324	0.964	3.037	0.968
23-Mar-99	**21**	79	0.8432	1.008	3.039	0.965
24-Jun-97	**21**	80	0.8539	1.053	3.061	0.961
29-Oct-96	**22**	81	0.8646	1.101	3.091	0.956
27-May-99	**24**	82	0.8753	1.152	3.173	0.951
15-Jun-99	**25**	83	0.8861	1.206	3.237	0.944
29-Feb-96	**27**	84	0.8968	1.263	3.291	0.937
14-May-98	**28**	85	0.9075	1.326	3.349	0.931
19-Jun-96	**29**	86	0.9182	1.393	3.356	0.928
8-May-96	**29**	87	0.9290	1.468	3.365	0.916
2-Jun-99	**30**	88	0.9397	1.552	3.395	0.891
14-May-98	**32**	89	0.9504	1.649	3.457	0.857
23-Jul-97	**39**	90	0.9611	1.764	3.674	0.885
26-Mar-97	**49**	91	0.9718	1.909	3.888	0.994
24-May-99	**54**	92	0.9826	2.110	3.984	
17-Jan-96	**61**	93	0.9933	2.473	4.112	

update for EV, CV:

dPb — **CC287/288**

LN Analysis — **dPb**

Concentration — **Conc. Data, EV=48 ug/L CV=.63**

Data-based LN

		u	ln[dPb]	[dPb]
Avg:	**44**			
SD:	**28**			
CV:	**0.64**	3	5.4	216
Min:	**17**	0	3.62	37
Max:	**223**	-3	1.86	6
Median:	**38**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.922, EV=43.8 ug/L CV=.48; max r2=0.971**

r2 u,lnConc:	0.922	u	lnConc.	Conc.
slope, m:	2.204	3	5.04	154
intercept, b:	-8.106	0	3.68	40
N: 93		-3	2.32	10
E[Conc]:	43.8	Parameter Estimates		
SD[Conc]:	21	from LN regression		
CV[Conc]:	0.48	update graph label		

N: 93 — max r2 0.971

Date	dPb Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
27-May-99	17	1	0.0067	-2.473	2.833	0.922
15-Jun-99	18	2	0.0174	-2.110	2.890	0.921
5-Oct-91	20	3	0.0282	-1.909	2.996	0.918
8-Jul-99	20	4	0.0389	-1.764	2.996	0.917
8-Mar-95	22	5	0.0496	-1.649	3.091	0.914
25-Apr-95	22	6	0.0603	-1.552	3.091	0.913
19-Apr-99	22	7	0.0710	-1.468	3.091	0.912
5-May-99	22	8	0.0818	-1.393	3.091	0.909
2-Jun-99	23	9	0.0925	-1.326	3.135	0.907
14-May-98	25.3	10	0.1032	-1.263	3.231	0.904
14-May-98	25.7	11	0.1139	-1.206	3.246	0.903
19-May-94	26	12	0.1247	-1.152	3.258	0.903
9-Feb-95	26	13	0.1354	-1.101	3.258	0.902
27-Jun-95	26	14	0.1461	-1.053	3.258	0.900
24-May-99	26	15	0.1568	-1.008	3.258	0.899
12-Apr-95	27	16	0.1676	-0.964	3.296	0.897
13-Jun-95	27	17	0.1783	-0.922	3.296	0.895
4-May-94	28	18	0.1890	-0.882	3.332	0.893
23-Feb-99	28	19	0.1997	-0.843	3.332	0.892
7-Jun-94	29	20	0.2105	-0.805	3.367	0.890
15-Dec-98	29	21	0.2212	-0.768	3.367	0.889
16-Oct-94	31	22	0.2319	-0.733	3.434	0.887
8-Mar-99	31	23	0.2426	-0.698	3.434	0.887
26-Oct-98	31	24	0.2534	-0.664	3.434	0.887
28-Dec-98	31	25	0.2641	-0.631	3.434	0.887
5-Aug-99	31	26	0.2748	-0.598	3.434	0.886
24-Jun-97	32	27	0.2855	-0.567	3.466	0.885
26-Oct-98	32	28	0.2962	-0.535	3.466	0.885
18-Nov-98	32	29	0.3070	-0.504	3.466	0.884
25-Jul-95	33	30	0.3177	-0.474	3.497	0.883
30-Nov-93	34	31	0.3284	-0.444	3.526	0.883
23-Jun-94	34	32	0.3391	-0.415	3.526	0.884
22-Mar-95	34	33	0.3499	-0.386	3.526	0.885
11-Jul-95	34	34	0.3606	-0.357	3.526	0.885
26-Jun-98	34	35	0.3713	-0.328	3.526	0.885
26-Oct-98	34	36	0.3820	-0.300	3.526	0.884
14-Nov-98	34.6	37	0.3928	-0.272	3.544	0.883
7-Apr-94	35	38	0.4035	-0.244	3.555	0.883
18-Feb-94	36	39	0.4142	-0.217	3.584	0.882
13-Sep-94	36	40	0.4249	-0.189	3.584	0.882
14-Aug-95	36	41	0.4357	-0.162	3.584	0.883
19-Jun-96	36	42	0.4464	-0.135	3.584	0.882
24-Mar-94	37	43	0.4571	-0.108	3.611	0.882
30-Aug-99	37	44	0.4678	-0.081	3.611	0.882
20-Jan-94	38	45	0.4786	-0.054	3.638	0.882
20-Jan-94	38	46	0.4893	-0.027	3.638	0.882
8-Mar-94	38	47	0.5000	0.000	3.638	0.883
13-Sep-95	38	48	0.5107	0.027	3.638	0.883
15-Jan-99	38	49	0.5214	0.054	3.638	0.882
13-Dec-94	39	50	0.5322	0.081	3.664	0.881
1-Oct-98	39	51	0.5429	0.108	3.664	0.881
16-Nov-94	40	52	0.5536	0.135	3.689	0.881
10-Jan-95	40	53	0.5643	0.162	3.689	0.881
23-Mar-99	40	54	0.5751	0.189	3.689	0.881
25-Jul-94	42	55	0.5858	0.217	3.738	0.880
26-Feb-98	42	56	0.5965	0.244	3.738	0.882
26-Aug-98	42	57	0.6072	0.272	3.738	0.883
19-Dec-97	43	58	0.6180	0.300	3.761	0.884
22-Jan-98	44	59	0.6287	0.328	3.784	0.886
21-Nov-95	45	60	0.6394	0.357	3.807	0.889
29-Feb-96	45	61	0.6501	0.386	3.807	0.894
20-Mar-98	45	62	0.6609	0.415	3.807	0.898

8-Oct-98	45	63	0.6716	0.444	3.807	0.902
17-Dec-93	46	64	0.6823	0.474	3.829	0.905
17-Dec-93	46	65	0.6930	0.504	3.829	0.910
16-Aug-94	46	66	0.7038	0.535	3.829	0.914
16-Aug-94	46	67	0.7145	0.567	3.829	0.917
16-Apr-97	46	68	0.7252	0.598	3.829	0.920
28-Jul-98	46	69	0.7359	0.631	3.829	0.922
18-Oct-95	48	70	0.7466	0.664	3.871	0.923
30-Jan-97	48	71	0.7574	0.698	3.871	0.927
26-Nov-97	49	72	0.7681	0.733	3.892	0.929
9-Nov-97	49.9	73	0.7788	0.768	3.910	0.933
24-Sep-98	50	74	0.7895	0.805	3.912	0.937
9-Nov-97	50.8	75	0.8003	0.843	3.928	0.941
27-Nov-96	51	76	0.8110	0.882	3.932	0.944
28-Mar-96	53	77	0.8217	0.922	3.970	0.947
14-Aug-97	54	78	0.8324	0.964	3.989	0.951
25-Nov-98	54	79	0.8432	1.008	3.989	0.957
27-Oct-93	55	80	0.8539	1.053	4.007	0.960
27-Dec-95	55	81	0.8646	1.101	4.007	0.963
16-Oct-97	57	82	0.8753	1.152	4.043	0.963
13-Dec-96	60	83	0.8861	1.206	4.094	0.963
26-Mar-97	63	84	0.8968	1.263	4.143	0.964
8-May-96	66	85	0.9075	1.326	4.190	0.967
24-Jul-96	66	86	0.9182	1.393	4.190	0.971
23-Jul-97	66	87	0.9290	1.468	4.190	0.968
21-Feb-97	71	88	0.9397	1.552	4.263	0.959
21-Aug-96	94	89	0.9504	1.649	4.543	0.955
26-Sep-96	98	90	0.9611	1.764	4.585	0.945
4-Sep-97	114	91	0.9718	1.909	4.736	0.905
29-Oct-96	174	92	0.9826	2.110	5.159	
17-Jan-96	223	93	0.9933	2.473	5.407	

update for EV, CV:

dPb **CC287/288**

LN Analysis **dPb**

Discharge, Q **Q Data, EV=41 cfs CV=0.92**

Q Data-based LN

Avg:	**55**	u	lnQ	Q
SD:	**66**	3	6.4	598
CV:	**1.20**	0	3.56	35
Min:	**11**	-3	0.72	2
Max:	**384**			
Median:	**29**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.919, EV=53.4 cfs CV=1.15; max r2=0.978**

r2 u,lnQ:	0.919	u	lnQ	Q
slope, m:	1.090	3	6.31	550
intercept, b:	-3.876	0	3.56	35
N: 93		-3	0.80	2
E[Q]:	53.4	Parameter Estimates		
SD[Q]:	61	from LN regression		
CV[Q]:	1.15	update graph label		

N: 93 max r2 0.978

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
13-Sep-95	11.4	1	0.0067	-2.473	2.434	0.919
18-Feb-94	11.41	2	0.0174	-2.110	2.434	0.932
17-Dec-93	11.7	3	0.0282	-1.909	2.460	0.940
17-Dec-93	12.03	4	0.0389	-1.764	2.487	0.945
14-Aug-95	12.6	5	0.0496	-1.649	2.534	0.949
30-Nov-93	12.62	6	0.0603	-1.552	2.535	0.953
26-Oct-98	13	7	0.0710	-1.468	2.565	0.956
26-Oct-98	13	8	0.0818	-1.393	2.565	0.958
27-Oct-93	13.28	9	0.0925	-1.326	2.586	0.960
20-Jan-94	13.28	10	0.1032	-1.263	2.586	0.962
16-Aug-94	13.57	11	0.1139	-1.206	2.608	0.964
16-Oct-94	14.34	12	0.1247	-1.152	2.663	0.965
5-Oct-91	14.5	13	0.1354	-1.101	2.674	0.966
20-Jan-94	14.66	14	0.1461	-1.053	2.685	0.967
25-Jul-95	14.71	15	0.1568	-1.008	2.689	0.968
13-Sep-94	15.89	16	0.1676	-0.964	2.766	0.969
16-Nov-94	15.89	17	0.1783	-0.922	2.766	0.971
8-Oct-98	15.9	18	0.1890	-0.882	2.766	0.972
18-Nov-98	16	19	0.1997	-0.843	2.773	0.972
16-Aug-94	16.3	20	0.2105	-0.805	2.791	0.973
1-Oct-98	16.7	21	0.2212	-0.768	2.815	0.973
26-Oct-98	16.7	22	0.2319	-0.733	2.815	0.974
13-Dec-94	17.17	23	0.2426	-0.698	2.843	0.974
24-Sep-98	17.2	24	0.2534	-0.664	2.845	0.974
22-Jan-98	18.1	25	0.2641	-0.631	2.896	0.974
25-Jul-94	19.04	26	0.2748	-0.598	2.947	0.974
26-Sep-96	19.5	27	0.2855	-0.567	2.970	0.975
26-Aug-98	19.5	28	0.2962	-0.535	2.970	0.976
23-Feb-99	20	29	0.3070	-0.504	2.996	0.976
11-Jul-95	20.05	30	0.3177	-0.474	2.998	0.976
24-Mar-94	21.13	31	0.3284	-0.444	3.051	0.976
27-Nov-96	21.7	32	0.3391	-0.415	3.077	0.977
30-Aug-99	22	33	0.3499	-0.386	3.091	0.977
8-Mar-94	22.26	34	0.3606	-0.357	3.103	0.978
26-Feb-98	22.3	35	0.3713	-0.328	3.105	0.978
14-Nov-98	22.53	36	0.3820	-0.300	3.115	0.978
8-Mar-99	23	37	0.3928	-0.272	3.135	0.978
21-Aug-96	23.342375	38	0.4035	-0.244	3.150	0.978
29-Oct-96	23.5	39	0.4142	-0.217	3.157	0.978
19-Dec-97	24.1	40	0.4249	-0.189	3.182	0.977
28-Jul-98	24.7	41	0.4357	-0.162	3.207	0.977
15-Dec-98	25	42	0.4464	-0.135	3.219	0.976
16-Oct-97	25.4	43	0.4571	-0.108	3.235	0.976
25-Nov-98	26	44	0.4678	-0.081	3.258	0.975
28-Dec-98	27	45	0.4786	-0.054	3.296	0.975
10-Jan-95	28.21	46	0.4893	-0.027	3.340	0.974
23-Jun-94	28.96	47	0.5000	0.000	3.366	0.973
13-Dec-96	29.7	48	0.5107	0.027	3.391	0.973
26-Nov-97	29.7	49	0.5214	0.054	3.391	0.972
18-Oct-95	31.4	50	0.5322	0.081	3.447	0.971
30-Jan-97	31.4	51	0.5429	0.108	3.447	0.970
9-Nov-97	32.7	52	0.5536	0.135	3.487	0.969
15-Jan-99	33	53	0.5643	0.162	3.497	0.969
20-Mar-98	33.1	54	0.5751	0.189	3.500	0.967
4-Sep-97	34	55	0.5858	0.217	3.526	0.966
5-Aug-99	34	56	0.5965	0.244	3.526	0.964
27-Jun-95	34.9	57	0.6072	0.272	3.552	0.963
24-Jul-96	35.8	58	0.6180	0.300	3.578	0.961
9-Nov-97	36.6	59	0.6287	0.328	3.600	0.959
8-Mar-95	36.82	60	0.6394	0.357	3.606	0.957
14-Aug-97	37.8	61	0.6501	0.386	3.632	0.955
7-Apr-94	37.82	62	0.6609	0.415	3.633	0.954

21-Feb-97	38.9	63	0.6716	0.444	3.661	0.953
27-Dec-95	42.1	64	0.6823	0.474	3.740	0.952
12-Apr-95	42.13	65	0.6930	0.504	3.741	0.951
25-Apr-95	43	66	0.7038	0.535	3.761	0.952
9-Feb-95	43.28	67	0.7145	0.567	3.768	0.954
17-Jan-96	50.9	68	0.7252	0.598	3.930	0.962
16-Apr-97	55.3	69	0.7359	0.631	4.013	0.964
7-Jun-94	63.45	70	0.7466	0.664	4.150	0.966
26-Jun-98	63.5	71	0.7574	0.698	4.151	0.964
28-Mar-96	65.2	72	0.7681	0.733	4.177	0.964
21-Nov-95	81.5	73	0.7788	0.768	4.401	0.966
8-May-96	81.5	74	0.7895	0.805	4.401	0.963
5-May-99	84	75	0.8003	0.843	4.431	0.960
22-Mar-95	86.16	76	0.8110	0.882	4.456	0.957
13-Jun-95	96.41	77	0.8217	0.922	4.569	0.953
23-Mar-99	97	78	0.8324	0.964	4.575	0.949
19-May-94	102.01	79	0.8432	1.008	4.625	0.944
8-Jul-99	107	80	0.8539	1.053	4.673	0.937
29-Feb-96	111	81	0.8646	1.101	4.710	0.930
23-Jul-97	111	82	0.8753	1.152	4.710	0.922
4-May-94	111.05	83	0.8861	1.206	4.710	0.910
24-Jun-97	124	84	0.8968	1.263	4.820	0.902
19-Apr-99	138	85	0.9075	1.326	4.927	0.889
26-Mar-97	144	86	0.9182	1.393	4.970	0.868
19-Jun-96	148	87	0.9290	1.468	4.997	0.847
14-May-98	206	88	0.9397	1.552	5.328	0.923
14-May-98	233	89	0.9504	1.649	5.451	0.895
2-Jun-99	241	90	0.9611	1.764	5.485	0.895
27-May-99	261	91	0.9718	1.909	5.565	0.887
15-Jun-99	263	92	0.9826	2.110	5.572	
24-May-99	384	93	0.9933	2.473	5.951	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC287/288 **Date:** 29-May-00
Chemical: dZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,353	55	2,869	558	0.00	0.00	0.00
SD:	702	66	1,481	415	1.00	1.00	1.00
CV:	0.02	1.20	0.52	0.74			
Min:	33,516	11	451	142	-0.66	-1.63	-1.00
Max:	36,402	384	7,240	2,998	5.00	2.95	5.88
Median:	35,396	29	2,640	480	-0.39	-0.15	-0.19

dZn **CC287/288** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.24) update r2

r2 Q,[COC]:	0.30	[dZn]	Q	r2:	0.105	0.103
slope, m:	-12.3	3,404	11.4	m:	0.0304	0.00039
intercept, b:	3544.6	2,869	54.8	b:	-1019	-10.40
N: 93		-1,186	384			

LnConc. = mLn{Q}+b (r2=0.38) update r2

r2 lnQ,ln[COC]:	0.53	ln[dZn]	ln Q	[dZn]	Q
slope, m:	-0.51	8.38	2.43	4,347	11
intercept, b:	9.62	7.57	4.00	1,944	55
N: 93		6.57	5.95	717	384

for graph
dZn 0
CC287/288

N= 93

update for new data	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	5-Oct-91	14.5	3440	268	2.67	8.14	5.59	-0.61	0.39	-0.70
IDEQ	27-Oct-93	13.28	3470	248	2.59	8.15	5.51	-0.63	0.41	-0.75
IDEQ	30-Nov-93	12.62	3980	270	2.54	8.29	5.60	-0.64	0.75	-0.69
IDEQ	17-Dec-93	11.7	5440	342	2.46	8.60	5.84	-0.65	1.74	-0.52
IDEQ	17-Dec-93	12.03	5440	352	2.49	8.60	5.86	-0.65	1.74	-0.50
IDEQ	20-Jan-94	13.28	5240	374	2.59	8.56	5.93	-0.63	1.60	-0.44
IDEQ	20-Jan-94	14.66	5240	413	2.69	8.56	6.02	-0.61	1.60	-0.35
IDEQ	18-Feb-94	11.41	4740	291	2.43	8.46	5.67	-0.66	1.26	-0.64
IDEQ	8-Mar-94	22.26	4440	532	3.10	8.40	6.28	-0.49	1.06	-0.06
IDEQ	24-Mar-94	21.13	4660	530	3.05	8.45	6.27	-0.51	1.21	-0.07
IDEQ	7-Apr-94	37.82	2440	496	3.63	7.80	6.21	-0.26	-0.29	-0.15
IDEQ	4-May-94	111.05	1200	717	4.71	7.09	6.57	0.85	-1.13	0.38
IDEQ	19-May-94	102.01	1010	554	4.63	6.92	6.32	0.72	-1.26	-0.01
IDEQ	7-Jun-94	63.45	1570	536	4.15	7.36	6.28	0.13	-0.88	-0.05
IDEQ	23-Jun-94	28.96	1720	268	3.37	7.45	5.59	-0.39	-0.78	-0.70
IDEQ	25-Jul-94	19.04	2490	255	2.95	7.82	5.54	-0.54	-0.26	-0.73
IDEQ	16-Aug-94	16.3	2940	258	2.79	7.99	5.55	-0.58	0.05	-0.72
IDEQ	16-Aug-94	13.57	2940	215	2.61	7.99	5.37	-0.63	0.05	-0.83
IDEQ	13-Sep-94	15.89	3020	258	2.77	8.01	5.55	-0.59	0.10	-0.72
IDEQ	16-Oct-94	14.34	3480	268	2.66	8.15	5.59	-0.61	0.41	-0.70
IDEQ	16-Nov-94	15.89	5610	480	2.77	8.63	6.17	-0.59	1.85	-0.19
IDEQ	13-Dec-94	17.17	6730	622	2.84	8.81	6.43	-0.57	2.61	0.15
IDEQ	10-Jan-95	28.21	6370	967	3.34	8.76	6.87	-0.40	2.36	0.98
IDEQ	9-Feb-95	43.28	3380	787	3.77	8.13	6.67	-0.18	0.34	0.55
IDEQ	8-Mar-95	36.82	2550	505	3.61	7.84	6.22	-0.27	-0.22	-0.13
IDEQ	22-Mar-95	86.16	3640	1687	4.46	8.20	7.43	0.48	0.52	2.72
IDEQ	12-Apr-95	42.13	2500	567	3.74	7.82	6.34	-0.19	-0.25	0.02
IDEQ	25-Apr-95	43	2100	486	3.76	7.65	6.19	-0.18	-0.52	-0.17
IDEQ	13-Jun-95	96.41	906	470	4.57	6.81	6.15	0.63	-1.33	-0.21
IDEQ	27-Jun-95	34.9	1260	237	3.55	7.14	5.47	-0.30	-1.09	-0.78
IDEQ	11-Jul-95	20.05	1700	183	3.00	7.44	5.21	-0.53	-0.79	-0.90
IDEQ	25-Jul-95	14.71	1790	142	2.69	7.49	4.95	-0.61	-0.73	-1.00
IDEQ	14-Aug-95	12.6	2580	175	2.53	7.86	5.16	-0.64	-0.20	-0.92
IDEQ	13-Sep-95	11.4	2800	172	2.43	7.94	5.15	-0.66	-0.05	-0.93
IDEQ	18-Oct-95	31.4	2930	495	3.45	7.98	6.20	-0.36	0.04	-0.15
IDEQ	21-Nov-95	81.5	1670	732	4.40	7.42	6.60	0.40	-0.81	0.42
IDEQ	27-Dec-95	42.1	2580	584	3.74	7.86	6.37	-0.19	-0.20	0.06
IDEQ	17-Jan-96	50.9	3870	1060	3.93	8.26	6.97	-0.06	0.68	1.21
IDEQ	29-Feb-96	111	2310	1379	4.71	7.75	7.23	0.85	-0.38	1.98
IDEQ	28-Mar-96	65.2	2220	779	4.18	7.71	6.66	0.16	-0.44	0.53
IDEQ	8-May-96	81.5	1650	723	4.40	7.41	6.58	0.40	-0.82	0.40
IDEQ	19-Jun-96	148	843	671	5.00	6.74	6.51	1.41	-1.37	0.27
IDEQ	24-Jul-96	35.8	1550	299	3.58	7.35	5.70	-0.29	-0.89	-0.63
IDEQ	21-Aug-96	23.342375	2620	329	3.15	7.87	5.80	-0.48	-0.17	-0.55
IDEQ	26-Sep-96	19.5	2640	277	2.97	7.88	5.62	-0.54	-0.15	-0.68
IDEQ	29-Oct-96	23.5	3780	478	3.16	8.24	6.17	-0.48	0.62	-0.19
IDEQ	27-Nov-96	21.7	4530	529	3.08	8.42	6.27	-0.50	1.12	-0.07

IDEQ	13-Dec-96	29.7	5430	868	3.39	8.60	6.77	-0.38	1.73	0.74
IDEQ	30-Jan-97	31.4	3590	606	3.45	8.19	6.41	-0.36	0.49	0.12
IDEQ	21-Feb-97	38.9	4140	866	3.66	8.33	6.76	-0.24	0.86	0.74
IDEQ	26-Mar-97	144	3870	2998	4.97	8.26	8.01	1.35	0.68	5.88
IDEQ	16-Apr-97	55.3	3380	1006	4.01	8.13	6.91	0.01	0.34	1.08
IDEQ	24-Jun-97	124	797	532	4.82	6.68	6.28	1.05	-1.40	-0.06
IDEQ	23-Jul-97	111	1260	752	4.71	7.14	6.62	0.85	-1.09	0.47
IDEQ	14-Aug-97	37.8	2010	409	3.63	7.61	6.01	-0.26	-0.58	-0.36
IDEQ	4-Sep-97	34	2390	437	3.53	7.78	6.08	-0.32	-0.32	-0.29
IDEQ	16-Oct-97	25.4	2750	376	3.23	7.92	5.93	-0.45	-0.08	-0.44
URS	9-Nov-97	32.7	2610	459	3.49	7.87	6.13	-0.34	-0.18	-0.24
IDEQ	26-Nov-97	29.7	2840	454	3.39	7.95	6.12	-0.38	-0.02	-0.25
IDEQ	19-Dec-97	24.1	3340	433	3.18	8.11	6.07	-0.47	0.32	-0.30
IDEQ	22-Jan-98	18.1	3320	323	2.90	8.11	5.78	-0.56	0.30	-0.57
IDEQ	26-Feb-98	22.3	3560	427	3.10	8.18	6.06	-0.49	0.47	-0.32
IDEQ	20-Mar-98	33.1	2780	495	3.50	7.93	6.20	-0.33	-0.06	-0.15
URS	14-May-98	206	688	762	5.33	6.53	6.64	2.29	-1.47	0.49
IDEQ	26-Jun-98	63.5	1220	417	4.15	7.11	6.03	0.13	-1.11	-0.34
IDEQ	28-Jul-98	24.7	1720	229	3.21	7.45	5.43	-0.46	-0.78	-0.79
IDEQ	26-Aug-98	19.5	2110	221	2.97	7.65	5.40	-0.54	-0.51	-0.81
IDEQ	24-Sep-98	17.2	2260	209	2.84	7.72	5.34	-0.57	-0.41	-0.84
IDEQ	1-Oct-98	16.7	2270	204	2.82	7.73	5.32	-0.58	-0.40	-0.85
IDEQ	8-Oct-98	15.9	2700	231	2.77	7.90	5.44	-0.59	-0.11	-0.79
IDEQ	26-Oct-98	16.7	2270	204	2.82	7.73	5.32	-0.58	-0.40	-0.85
IDEQ	25-Nov-98	26	7240	1013	3.26	8.89	6.92	-0.44	2.95	1.09
IDEQ	15-Jan-99	33	3660	650	3.50	8.21	6.48	-0.33	0.53	0.22
IDEQ	23-Feb-99	20	3770	406	3.00	8.23	6.01	-0.53	0.61	-0.37
IDEQ	8-Mar-99	23	3880	480	3.14	8.26	6.17	-0.48	0.68	-0.19
URS	9-Nov-97	36.6	2680	528	3.60	7.89	6.27	-0.28	-0.13	-0.07
URS	14-May-98	233	673	844	5.45	6.51	6.74	2.70	-1.48	0.69
USGS	26-Oct-98	13	2380	166	2.56	7.77	5.11	-0.63	-0.33	-0.94
USGS	26-Oct-98	13	2570	180	2.56	7.85	5.19	-0.63	-0.20	-0.91
URS	14-Nov-98	22.53	4610	559	3.11	8.44	6.33	-0.49	1.18	0.00
USGS	18-Nov-98	16	4270	368	2.77	8.36	5.91	-0.59	0.95	-0.46
USGS	15-Dec-98	25	4330	582	3.22	8.37	6.37	-0.45	0.99	0.06
USGS	28-Dec-98	27	4440	645	3.30	8.40	6.47	-0.42	1.06	0.21
USGS	23-Mar-99	97	3630	1894	4.57	8.20	7.55	0.64	0.51	3.22
USGS	19-Apr-99	138	1830	1359	4.93	7.51	7.21	1.26	-0.70	1.93
USGS	5-May-99	84	1290	583	4.43	7.16	6.37	0.44	-1.07	0.06
USGS	24-May-99	384	671	1386	5.95	6.51	7.23	5.00	-1.48	1.99
USGS	27-May-99	261	604	848	5.56	6.40	6.74	3.13	-1.53	0.70
USGS	2-Jun-99	241	571	740	5.48	6.35	6.61	2.83	-1.55	0.44
USGS	15-Jun-99	263	451	638	5.57	6.11	6.46	3.16	-1.63	0.19
USGS	8-Jul-99	107	702	404	4.67	6.55	6.00	0.79	-1.46	-0.37
USGS	5-Aug-99	34	1480	271	3.53	7.30	5.60	-0.32	-0.94	-0.69
USGS	30-Aug-99	22	1790	212	3.09	7.49	5.36	-0.50	-0.73	-0.84

dZn

Concentration over time analysis r2 Slope, m

dZn CC287/288 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.097** **-0.00027**

	Time	Ln[COC]	[COC]
first:	5-Oct-91	8.30	4,026
mid:	27-Nov-96	7.79	2,416
last:	30-Aug-99	7.52	1,839

LnConc.=mTime+b >'96 r2, m: **0.069** **-0.00069**

21-Feb-97	8.01	3,006
30-Aug-99	7.38	1,598

Load over time analysis

dZn CC287/288 **Load over time**

LnLoad=mTime+b All data r2, m: **0.021** **0.00012**

	Time	LnLoad	Load
first:	5-Oct-91	5.91	368
mid:	27-Nov-96	6.14	463
last:	30-Aug-99	6.26	525

LnLoad=mTime+b >'96 r2, m: **0.022** **-0.00036**

21-Feb-97	6.39	599
30-Aug-99	6.06	428

max r2: 0.145 max r2: 0.061

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.097	-0.00027	17.40	0.021	0.00012	1.78
0.095	-0.00028	17.65	0.015	0.00011	2.27
0.091	-0.00028	17.60	0.012	0.00010	2.76
0.086	-0.00027	17.41	0.009	0.00008	3.19
0.076	-0.00026	16.89	0.007	0.00008	3.42
0.066	-0.00024	16.32	0.006	0.00007	3.64
0.057	-0.00023	15.75	0.005	0.00007	3.81
0.048	-0.00021	15.13	0.005	0.00006	3.88
0.041	-0.00019	14.57	0.003	0.00005	4.36
0.034	-0.00018	14.05	0.003	0.00006	4.17
0.027	-0.00016	13.42	0.004	0.00006	3.97
0.027	-0.00016	13.54	0.004	0.00007	3.84
0.037	-0.00019	14.56	0.006	0.00008	3.23
0.052	-0.00023	15.90	0.008	0.00009	2.91
0.061	-0.00025	16.75	0.009	0.00010	2.61
0.069	-0.00028	17.54	0.006	0.00008	3.27
0.071	-0.00028	17.85	0.003	0.00006	4.05
0.069	-0.00029	17.92	0.001	0.00004	4.89
0.067	-0.00029	18.00	0.000	0.00000	6.12
0.065	-0.00029	18.04	0.001	-0.00003	7.15
0.060	-0.00028	17.82	0.002	-0.00006	8.21
0.047	-0.00025	16.75	0.003	-0.00006	8.37
0.033	-0.00021	15.24	0.002	-0.00005	8.07
0.021	-0.00017	13.68	0.000	-0.00002	6.94
0.017	-0.00015	13.16	0.000	0.00000	6.09
0.016	-0.00015	13.12	0.000	0.00000	6.02
0.011	-0.00013	12.35	0.003	0.00008	3.47
0.010	-0.00013	12.29	0.005	0.00009	2.96
0.011	-0.00014	12.60	0.005	0.00010	2.74
0.023	-0.00020	14.86	0.005	0.00010	2.58
0.034	-0.00025	16.62	0.002	0.00006	4.08
0.041	-0.00028	17.84	0.000	-0.00001	6.44
0.049	-0.00032	19.09	0.005	-0.00010	9.86
0.049	-0.00033	19.44	0.018	-0.00019	13.18
0.047	-0.00033	19.56	0.043	-0.00030	17.00
0.043	-0.00033	19.52	0.047	-0.00033	17.94
0.054	-0.00038	21.32	0.042	-0.00032	17.66
0.053	-0.00039	21.81	0.042	-0.00033	18.09
0.043	-0.00037	20.82	0.029	-0.00028	16.32
0.045	-0.00039	21.65	0.014	-0.00020	13.22
0.049	-0.00042	22.74	0.009	-0.00016	11.95
0.061	-0.00049	25.21	0.005	-0.00013	10.78
0.103	-0.00065	31.00	0.003	-0.00010	9.76
0.129	-0.00075	34.71	0.008	-0.00017	12.40
0.133	-0.00080	36.32	0.015	-0.00024	14.99
0.137	-0.00084	38.01	0.029	-0.00035	18.88
0.126	-0.00084	37.83	0.033	-0.00039	20.33

0.107	-0.00080	36.38	0.034	-0.00042	21.37
0.081	-0.00071	33.34	0.024	-0.00037	19.37
0.069	-0.00069	32.37	0.022	-0.00036	19.34
0.052	-0.00062	30.02	0.013	-0.00029	16.63
0.038	-0.00055	27.56	0.001	0.00007	3.60
0.028	-0.00050	25.55	0.011	0.00026	-3.26
0.063	-0.00076	35.09	0.015	0.00032	-5.43
0.091	-0.00096	42.23	0.030	0.00047	-11.01
0.103	-0.00107	46.28	0.030	0.00050	-11.89
0.107	-0.00115	49.25	0.032	0.00055	-13.57
0.105	-0.00119	50.73	0.029	0.00055	-13.70
0.104	-0.00125	52.80	0.033	0.00061	-15.95
0.099	-0.00129	54.07	0.037	0.00068	-18.50
0.086	-0.00126	53.11	0.039	0.00075	-20.83
0.072	-0.00121	51.44	0.031	0.00070	-19.24
0.056	-0.00112	47.91	0.032	0.00075	-20.94
0.049	-0.00109	46.94	0.038	0.00086	-24.96
0.099	-0.00156	63.83	0.061	0.00112	-34.26
0.128	-0.00181	73.09	0.061	0.00116	-35.76
0.141	-0.00195	77.98	0.046	0.00101	-30.31
0.144	-0.00201	80.18	0.033	0.00085	-24.44
0.145	-0.00203	81.15	0.022	0.00068	-18.38
0.145	-0.00206	82.04	0.012	0.00049	-11.61
0.140	-0.00204	81.43	0.005	0.00032	-5.34

update for EV, CV:

dZn **CC287/288**

LN Analysis **dZn**

Load **Load Data, EV=531 lbs/day CV=.76**

Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**558**			
SD:	**415**			
CV:	**0.74**	3	8.1	3277
Min:	**142**	0	6.11	448
Max:	**2,998**	-3	4.12	61
Median:	**480**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.981, EV=556.01 lbs/day CV=.67; max r2=0.986**

r2 u,lnLoad:	0.981	u	lnLoad	Load
slope, m:	1.634	3	7.97	2893
intercept, b:	-10.019	0	6.13	461
N: 93		-3	4.30	73
E[Load]:	556.01	Parameter Estimates		
SD[Load]:	375	from LN regression		
CV[Load]:	0.67	update graph label		

Date	dZn Load lbs/day Ranked	i rank	N: 93 i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.986 r2 forward
update and rank for new data						
25-Jul-95	142	1	0.0067	-2.473	4.953	0.981
26-Oct-98	166	2	0.0174	-2.110	5.115	0.983
13-Sep-95	172	3	0.0282	-1.909	5.146	0.985
14-Aug-95	175	4	0.0389	-1.764	5.164	0.986
26-Oct-98	180	5	0.0496	-1.649	5.192	0.986
11-Jul-95	183	6	0.0603	-1.552	5.212	0.986
1-Oct-98	204	7	0.0710	-1.468	5.318	0.986
26-Oct-98	204	8	0.0818	-1.393	5.318	0.986
24-Sep-98	209	9	0.0925	-1.326	5.343	0.986
30-Aug-99	212	10	0.1032	-1.263	5.356	0.986
16-Aug-94	215	11	0.1139	-1.206	5.369	0.985
26-Aug-98	221	12	0.1247	-1.152	5.400	0.985
28-Jul-98	229	13	0.1354	-1.101	5.432	0.984
8-Oct-98	231	14	0.1461	-1.053	5.442	0.984
27-Jun-95	237	15	0.1568	-1.008	5.466	0.983
27-Oct-93	248	16	0.1676	-0.964	5.513	0.983
25-Jul-94	255	17	0.1783	-0.922	5.542	0.982
16-Aug-94	258	18	0.1890	-0.882	5.552	0.982
13-Sep-94	258	19	0.1997	-0.843	5.554	0.981
23-Jun-94	268	20	0.2105	-0.805	5.591	0.980
5-Oct-91	268	21	0.2212	-0.768	5.592	0.980
16-Oct-94	268	22	0.2319	-0.733	5.593	0.979
30-Nov-93	270	23	0.2426	-0.698	5.599	0.978
5-Aug-99	271	24	0.2534	-0.664	5.601	0.978
26-Sep-96	277	25	0.2641	-0.631	5.624	0.978
18-Feb-94	291	26	0.2748	-0.598	5.673	0.977
24-Jul-96	299	27	0.2855	-0.567	5.699	0.977
22-Jan-98	323	28	0.2962	-0.535	5.779	0.976
21-Aug-96	329	29	0.3070	-0.504	5.796	0.975
17-Dec-93	342	30	0.3177	-0.474	5.836	0.975
17-Dec-93	352	31	0.3284	-0.444	5.864	0.974
18-Nov-98	368	32	0.3391	-0.415	5.907	0.973
20-Jan-94	374	33	0.3499	-0.386	5.925	0.972
16-Oct-97	376	34	0.3606	-0.357	5.929	0.972
8-Jul-99	404	35	0.3713	-0.328	6.002	0.971
23-Feb-99	406	36	0.3820	-0.300	6.005	0.971
14-Aug-97	409	37	0.3928	-0.272	6.013	0.971
20-Jan-94	413	38	0.4035	-0.244	6.024	0.971
26-Jun-98	417	39	0.4142	-0.217	6.033	0.970
26-Feb-98	427	40	0.4249	-0.189	6.057	0.970
19-Dec-97	433	41	0.4357	-0.162	6.071	0.970
4-Sep-97	437	42	0.4464	-0.135	6.080	0.970
26-Nov-97	454	43	0.4571	-0.108	6.118	0.969
9-Nov-97	459	44	0.4678	-0.081	6.129	0.970
13-Jun-95	470	45	0.4786	-0.054	6.153	0.970
29-Oct-96	478	46	0.4893	-0.027	6.169	0.971
16-Nov-94	480	47	0.5000	0.000	6.173	0.972

8-Mar-99	480	48	0.5107	0.027	6.174	0.972
25-Apr-95	486	49	0.5214	0.054	6.186	0.973
18-Oct-95	495	50	0.5322	0.081	6.204	0.973
20-Mar-98	495	51	0.5429	0.108	6.205	0.974
7-Apr-94	496	52	0.5536	0.135	6.208	0.974
8-Mar-95	505	53	0.5643	0.162	6.225	0.974
9-Nov-97	528	54	0.5751	0.189	6.269	0.974
27-Nov-96	529	55	0.5858	0.217	6.271	0.975
24-Mar-94	530	56	0.5965	0.244	6.272	0.976
24-Jun-97	532	57	0.6072	0.272	6.276	0.977
8-Mar-94	532	58	0.6180	0.300	6.276	0.977
7-Jun-94	536	59	0.6287	0.328	6.284	0.977
19-May-94	554	60	0.6394	0.357	6.318	0.976
14-Nov-98	559	61	0.6501	0.386	6.326	0.976
12-Apr-95	567	62	0.6609	0.415	6.340	0.976
15-Dec-98	582	63	0.6716	0.444	6.367	0.976
5-May-99	583	64	0.6823	0.474	6.368	0.976
27-Dec-95	584	65	0.6930	0.504	6.371	0.975
30-Jan-97	606	66	0.7038	0.535	6.408	0.974
13-Dec-94	622	67	0.7145	0.567	6.432	0.974
15-Jun-99	638	68	0.7252	0.598	6.459	0.973
28-Dec-98	645	69	0.7359	0.631	6.469	0.973
15-Jan-99	650	70	0.7466	0.664	6.477	0.973
19-Jun-96	671	71	0.7574	0.698	6.509	0.972
4-May-94	717	72	0.7681	0.733	6.575	0.971
8-May-96	723	73	0.7788	0.768	6.584	0.974
21-Nov-95	732	74	0.7895	0.805	6.596	0.976
2-Jun-99	740	75	0.8003	0.843	6.607	0.977
23-Jul-97	752	76	0.8110	0.882	6.623	0.978
14-May-98	762	77	0.8217	0.922	6.637	0.979
28-Mar-96	779	78	0.8324	0.964	6.658	0.979
9-Feb-95	787	79	0.8432	1.008	6.668	0.979
14-May-98	844	80	0.8539	1.053	6.738	0.978
27-May-99	848	81	0.8646	1.101	6.743	0.979
21-Feb-97	866	82	0.8753	1.152	6.764	0.978
13-Dec-96	868	83	0.8861	1.206	6.766	0.975
10-Jan-95	967	84	0.8968	1.263	6.874	0.972
16-Apr-97	1006	85	0.9075	1.326	6.913	0.969
25-Nov-98	1013	86	0.9182	1.393	6.920	0.964
17-Jan-96	1060	87	0.9290	1.468	6.966	0.956
19-Apr-99	1359	88	0.9397	1.552	7.214	0.949
29-Feb-96	1379	89	0.9504	1.649	7.229	0.970
24-May-99	1386	90	0.9611	1.764	7.234	
22-Mar-95	1687	91	0.9718	1.909	7.431	
23-Mar-99	1894	92	0.9826	2.110	7.547	
26-Mar-97	2998	93	0.9933	2.473	8.006	

update for EV, CV:

dZn — **CC287/288**

LN Analysis — **dZn**

Concentration — **Conc. Data, EV=3,038 ug/L CV=.47**

Data-based LN

		u	ln[dZn]	[dZn]
Avg:	**2,869**	3	9.3	10955
SD:	**1,481**	0	7.84	2550
CV:	**0.52**	-3	6.39	593
Min:	**451**			
Max:	**7,240**			
Median:	**2,640**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.951, EV=2996.4 ug/L CV=.71; max r2=0.988**

r2 u,lnConc:	0.951	u	lnConc.	Conc.
slope, m:	1.568	3	9.72	16571
intercept, b:	-12.230	0	7.80	2445
N: 93		-3	5.89	361
E[Conc]:	2996.4	Parameter Estimates		
SD[Conc]:	2123	from LN regression		
CV[Conc]:	0.71	update graph label		

N: 93

max r2 0.988

update and rank for new data

Date	dZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
15-Jun-99	451	1	0.0067	-2.473	6.111	0.951
2-Jun-99	571	2	0.0174	-2.110	6.347	0.948
27-May-99	604	3	0.0282	-1.909	6.404	0.945
24-May-99	671	4	0.0389	-1.764	6.509	0.944
14-May-98	673	5	0.0496	-1.649	6.512	0.942
14-May-98	688	6	0.0603	-1.552	6.534	0.943
8-Jul-99	702	7	0.0710	-1.468	6.554	0.946
24-Jun-97	797	8	0.0818	-1.393	6.681	0.951
19-Jun-96	843	9	0.0925	-1.326	6.737	0.955
13-Jun-95	906	10	0.1032	-1.263	6.809	0.960
19-May-94	1010	11	0.1139	-1.206	6.918	0.966
4-May-94	1200	12	0.1247	-1.152	7.090	0.970
26-Jun-98	1220	13	0.1354	-1.101	7.107	0.970
27-Jun-95	1260	14	0.1461	-1.053	7.139	0.971
23-Jul-97	1260	15	0.1568	-1.008	7.139	0.973
5-May-99	1290	16	0.1676	-0.964	7.162	0.975
5-Aug-99	1480	17	0.1783	-0.922	7.300	0.979
24-Jul-96	1550	18	0.1890	-0.882	7.346	0.979
7-Jun-94	1570	19	0.1997	-0.843	7.359	0.979
8-May-96	1650	20	0.2105	-0.805	7.409	0.980
21-Nov-95	1670	21	0.2212	-0.768	7.421	0.980
11-Jul-95	1700	22	0.2319	-0.733	7.438	0.980
23-Jun-94	1720	23	0.2426	-0.698	7.450	0.981
28-Jul-98	1720	24	0.2534	-0.664	7.450	0.981
25-Jul-95	1790	25	0.2641	-0.631	7.490	0.983
30-Aug-99	1790	26	0.2748	-0.598	7.490	0.984
19-Apr-99	1830	27	0.2855	-0.567	7.512	0.986
14-Aug-97	2010	28	0.2962	-0.535	7.606	0.988
25-Apr-95	2100	29	0.3070	-0.504	7.650	0.988
26-Aug-98	2110	30	0.3177	-0.474	7.654	0.988
28-Mar-96	2220	31	0.3284	-0.444	7.705	0.988
24-Sep-98	2260	32	0.3391	-0.415	7.723	0.987
1-Oct-98	2270	33	0.3499	-0.386	7.728	0.987
26-Oct-98	2270	34	0.3606	-0.357	7.728	0.987
29-Feb-96	2310	35	0.3713	-0.328	7.745	0.986
26-Oct-98	2380	36	0.3820	-0.300	7.775	0.986
4-Sep-97	2390	37	0.3928	-0.272	7.779	0.985
7-Apr-94	2440	38	0.4035	-0.244	7.800	0.985
25-Jul-94	2490	39	0.4142	-0.217	7.820	0.984
12-Apr-95	2500	40	0.4249	-0.189	7.824	0.984
8-Mar-95	2550	41	0.4357	-0.162	7.844	0.983
26-Oct-98	2570	42	0.4464	-0.135	7.852	0.982
14-Aug-95	2580	43	0.4571	-0.108	7.856	0.982
27-Dec-95	2580	44	0.4678	-0.081	7.856	0.981
9-Nov-97	2610	45	0.4786	-0.054	7.867	0.981
21-Aug-96	2620	46	0.4893	-0.027	7.871	0.980
26-Sep-96	2640	47	0.5000	0.000	7.879	0.980

9-Nov-97	2680	48	0.5107	0.027	7.894	0.980
8-Oct-98	2700	49	0.5214	0.054	7.901	0.979
16-Oct-97	2750	50	0.5322	0.081	7.919	0.980
20-Mar-98	2780	51	0.5429	0.108	7.930	0.980
13-Sep-95	2800	52	0.5536	0.135	7.937	0.980
26-Nov-97	2840	53	0.5643	0.162	7.952	0.981
18-Oct-95	2930	54	0.5751	0.189	7.983	0.982
16-Aug-94	2940	55	0.5858	0.217	7.986	0.982
16-Aug-94	2940	56	0.5965	0.244	7.986	0.983
13-Sep-94	3020	57	0.6072	0.272	8.013	0.986
22-Jan-98	3320	58	0.6180	0.300	8.108	0.988
19-Dec-97	3340	59	0.6287	0.328	8.114	0.987
9-Feb-95	3380	60	0.6394	0.357	8.126	0.987
16-Apr-97	3380	61	0.6501	0.386	8.126	0.986
5-Oct-91	3440	62	0.6609	0.415	8.143	0.985
27-Oct-93	3470	63	0.6716	0.444	8.152	0.985
16-Oct-94	3480	64	0.6823	0.474	8.155	0.984
26-Feb-98	3560	65	0.6930	0.504	8.178	0.983
30-Jan-97	3590	66	0.7038	0.535	8.186	0.982
23-Mar-99	3630	67	0.7145	0.567	8.197	0.981
22-Mar-95	3640	68	0.7252	0.598	8.200	0.980
15-Jan-99	3660	69	0.7359	0.631	8.205	0.978
23-Feb-99	3770	70	0.7466	0.664	8.235	0.977
29-Oct-96	3780	71	0.7574	0.698	8.237	0.976
17-Jan-96	3870	72	0.7681	0.733	8.261	0.974
26-Mar-97	3870	73	0.7788	0.768	8.261	0.973
8-Mar-99	3880	74	0.7895	0.805	8.264	0.971
30-Nov-93	3980	75	0.8003	0.843	8.289	0.972
21-Feb-97	4140	76	0.8110	0.882	8.328	0.972
18-Nov-98	4270	77	0.8217	0.922	8.359	0.970
15-Dec-98	4330	78	0.8324	0.964	8.373	0.967
8-Mar-94	4440	79	0.8432	1.008	8.398	0.964
28-Dec-98	4440	80	0.8539	1.053	8.398	0.960
27-Nov-96	4530	81	0.8646	1.101	8.418	0.955
14-Nov-98	4610	82	0.8753	1.152	8.436	0.950
24-Mar-94	4660	83	0.8861	1.206	8.447	0.943
18-Feb-94	4740	84	0.8968	1.263	8.464	0.938
20-Jan-94	5240	85	0.9075	1.326	8.564	0.940
20-Jan-94	5240	86	0.9182	1.393	8.564	0.940
13-Dec-96	5430	87	0.9290	1.468	8.600	0.930
17-Dec-93	5440	88	0.9397	1.552	8.602	0.932
17-Dec-93	5440	89	0.9504	1.649	8.602	0.915
16-Nov-94	5610	90	0.9611	1.764	8.632	
10-Jan-95	6370	91	0.9718	1.909	8.759	
13-Dec-94	6730	92	0.9826	2.110	8.814	
25-Nov-98	7240	93	0.9933	2.473	8.887	

update for EV, CV:

dZn **CC287/288**

LN Analysis **dZn**

Discharge, Q **Q Data, EV=41 cfs CV=0.92**

Q Data-based LN

		u	lnQ	Q
Avg:	**55**			
SD:	**66**			
CV:	**1.20**	3	6.4	598
Min:	**11**	0	3.56	35
Max:	**384**	-3	0.72	2
Median:	**29**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.919, EV=53.4 cfs CV=1.15; max r2=0.978**

		u	lnQ	Q
r2 u,lnQ:	0.919			
slope, m:	1.090	3	6.31	550
intercept, b:	-3.876	0	3.56	35
N: 93		-3	0.80	2
E[Q]:	53.4	Parameter Estimates		
SD[Q]:	61	from LN regression		
CV[Q]:	1.15	update graph label		

N: 93

max r2 0.978

Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
13-Sep-95	11.4	1	0.0067	-2.473	2.434	0.919
18-Feb-94	11.41	2	0.0174	-2.110	2.434	0.932
17-Dec-93	11.7	3	0.0282	-1.909	2.460	0.940
17-Dec-93	12.03	4	0.0389	-1.764	2.487	0.945
14-Aug-95	12.6	5	0.0496	-1.649	2.534	0.949
30-Nov-93	12.62	6	0.0603	-1.552	2.535	0.953
26-Oct-98	13	7	0.0710	-1.468	2.565	0.956
26-Oct-98	13	8	0.0818	-1.393	2.565	0.958
27-Oct-93	13.28	9	0.0925	-1.326	2.586	0.960
20-Jan-94	13.28	10	0.1032	-1.263	2.586	0.962
16-Aug-94	13.57	11	0.1139	-1.206	2.608	0.964
16-Oct-94	14.34	12	0.1247	-1.152	2.663	0.965
5-Oct-91	14.5	13	0.1354	-1.101	2.674	0.966
20-Jan-94	14.66	14	0.1461	-1.053	2.685	0.967
25-Jul-95	14.71	15	0.1568	-1.008	2.689	0.968
13-Sep-94	15.89	16	0.1676	-0.964	2.766	0.969
16-Nov-94	15.89	17	0.1783	-0.922	2.766	0.971
8-Oct-98	15.9	18	0.1890	-0.882	2.766	0.972
18-Nov-98	16	19	0.1997	-0.843	2.773	0.972
16-Aug-94	16.3	20	0.2105	-0.805	2.791	0.973
1-Oct-98	16.7	21	0.2212	-0.768	2.815	0.973
26-Oct-98	16.7	22	0.2319	-0.733	2.815	0.974
13-Dec-94	17.17	23	0.2426	-0.698	2.843	0.974
24-Sep-98	17.2	24	0.2534	-0.664	2.845	0.974
22-Jan-98	18.1	25	0.2641	-0.631	2.896	0.974
25-Jul-94	19.04	26	0.2748	-0.598	2.947	0.974
26-Sep-96	19.5	27	0.2855	-0.567	2.970	0.975
26-Aug-98	19.5	28	0.2962	-0.535	2.970	0.976
23-Feb-99	20	29	0.3070	-0.504	2.996	0.976
11-Jul-95	20.05	30	0.3177	-0.474	2.998	0.976
24-Mar-94	21.13	31	0.3284	-0.444	3.051	0.976
27-Nov-96	21.7	32	0.3391	-0.415	3.077	0.977
30-Aug-99	22	33	0.3499	-0.386	3.091	0.977
8-Mar-94	22.26	34	0.3606	-0.357	3.103	0.978
26-Feb-98	22.3	35	0.3713	-0.328	3.105	0.978
14-Nov-98	22.53	36	0.3820	-0.300	3.115	0.978
8-Mar-99	23	37	0.3928	-0.272	3.135	0.978
21-Aug-96	23.342375	38	0.4035	-0.244	3.150	0.978
29-Oct-96	23.5	39	0.4142	-0.217	3.157	0.978
19-Dec-97	24.1	40	0.4249	-0.189	3.182	0.977
28-Jul-98	24.7	41	0.4357	-0.162	3.207	0.977
15-Dec-98	25	42	0.4464	-0.135	3.219	0.976
16-Oct-97	25.4	43	0.4571	-0.108	3.235	0.976
25-Nov-98	26	44	0.4678	-0.081	3.258	0.975
28-Dec-98	27	45	0.4786	-0.054	3.296	0.975
10-Jan-95	28.21	46	0.4893	-0.027	3.340	0.974
23-Jun-94	28.96	47	0.5000	0.000	3.366	0.973

13-Dec-96	29.7	48	0.5107	0.027	3.391	0.973
26-Nov-97	29.7	49	0.5214	0.054	3.391	0.972
18-Oct-95	31.4	50	0.5322	0.081	3.447	0.971
30-Jan-97	31.4	51	0.5429	0.108	3.447	0.970
9-Nov-97	32.7	52	0.5536	0.135	3.487	0.969
15-Jan-99	33	53	0.5643	0.162	3.497	0.969
20-Mar-98	33.1	54	0.5751	0.189	3.500	0.967
4-Sep-97	34	55	0.5858	0.217	3.526	0.966
5-Aug-99	34	56	0.5965	0.244	3.526	0.964
27-Jun-95	34.9	57	0.6072	0.272	3.552	0.963
24-Jul-96	35.8	58	0.6180	0.300	3.578	0.961
9-Nov-97	36.6	59	0.6287	0.328	3.600	0.959
8-Mar-95	36.82	60	0.6394	0.357	3.606	0.957
14-Aug-97	37.8	61	0.6501	0.386	3.632	0.955
7-Apr-94	37.82	62	0.6609	0.415	3.633	0.954
21-Feb-97	38.9	63	0.6716	0.444	3.661	0.953
27-Dec-95	42.1	64	0.6823	0.474	3.740	0.952
12-Apr-95	42.13	65	0.6930	0.504	3.741	0.951
25-Apr-95	43	66	0.7038	0.535	3.761	0.952
9-Feb-95	43.28	67	0.7145	0.567	3.768	0.954
17-Jan-96	50.9	68	0.7252	0.598	3.930	0.962
16-Apr-97	55.3	69	0.7359	0.631	4.013	0.964
7-Jun-94	63.45	70	0.7466	0.664	4.150	0.966
26-Jun-98	63.5	71	0.7574	0.698	4.151	0.964
28-Mar-96	65.2	72	0.7681	0.733	4.177	0.964
21-Nov-95	81.5	73	0.7788	0.768	4.401	0.966
8-May-96	81.5	74	0.7895	0.805	4.401	0.963
5-May-99	84	75	0.8003	0.843	4.431	0.960
22-Mar-95	86.16	76	0.8110	1	4.456	0.957
13-Jun-95	96.41	77	0.8217	0.922	4.569	0.953
23-Mar-99	97	78	0.8324	0.964	4.575	0.949
19-May-94	102.01	79	0.8432	1.008	4.625	0.944
8-Jul-99	107	80	0.8539	1.053	4.673	0.937
29-Feb-96	111	81	0.8646	1.101	4.710	0.930
23-Jul-97	111	82	0.8753	1.152	4.710	0.922
4-May-94	111.05	83	0.8861	1.206	4.710	0.910
24-Jun-97	124	84	0.8968	1.263	4.820	0.902
19-Apr-99	138	85	0.9075	1.326	4.927	0.889
26-Mar-97	144	86	0.9182	1.393	4.970	0.868
19-Jun-96	148	87	0.9290	1.468	4.997	0.847
14-May-98	206	88	0.9397	1.552	5.328	0.923
14-May-98	233	89	0.9504	1.649	5.451	0.895
2-Jun-99	241	90	0.9611	1.764	5.485	
27-May-99	261	91	0.9718	1.909	5.565	
15-Jun-99	263	92	0.9826	2.110	5.572	
24-May-99	384	93	0.9933	2.473	5.951	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC287/288 **Date:** 2-Jun-00
Chemical: tCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,345	55	20	4	0.00	0.00	0.00
SD:	701	66	9	3	1.00	1.00	1.00
CV:	0.02	1.20	0.47	0.82			
Min:	33,516	11	4	1.1	-0.66	-1.71	-0.89
Max:	36,402	384	52	23	4.97	3.44	5.48
Median:	35,382	29	19	3	-0.39	-0.10	-0.23

tCd **CC287/288** **: Concentration v. Discharge, Q**

Conc. = mQ+b (r2=0.299) update r2 0.30 0.299

r2 Q,[COC]:	0.30	[tCd]	Q	r2:	0.111	0.112
slope, m:	-0.1	23	11.4	m:	0.0314	0.00041
intercept, b:	24.2	20	55.2	b:	-1055	-11.04
N: 92		-5	384			

Q = mTime +b **LnQ = mTime +b**

LnConc. = mLn{Q}+b (r2=0.506) update r2 0.51 0.506

r2 lnQ,ln[COC]:	0.51	ln[tCd]	ln Q	[tCd]	Q
slope, m:	-0.45	3.37	2.43	29	11
intercept, b:	4.47	2.66	4.01	14	55
N: 92		1.79	5.95	6	384

for graph
tCd 0
CC287/288

N= 92

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	5-Oct-91	14.5	20.8	1.6	2.67	3.03	0.48	-0.62	0.09	-0.73
IDEQ	27-Oct-93	13.28	22	1.6	2.59	3.09	0.45	-0.63	0.22	-0.75
IDEQ	30-Nov-93	12.62	22	1.5	2.54	3.09	0.40	-0.64	0.22	-0.77
IDEQ	17-Dec-93	11.7	33	2.1	2.46	3.50	0.73	-0.66	1.40	-0.60
IDEQ	17-Dec-93	12.03	33	2.1	2.49	3.50	0.76	-0.65	1.40	-0.58
IDEQ	20-Jan-94	13.28	38	2.7	2.59	3.64	1.00	-0.63	1.94	-0.41
IDEQ	20-Jan-94	14.66	38	3.0	2.69	3.64	1.10	-0.61	1.94	-0.33
IDEQ	18-Feb-94	11.41	30	1.8	2.43	3.40	0.61	-0.66	1.08	-0.67
IDEQ	8-Mar-94	22.26	26	3.1	3.10	3.26	1.14	-0.50	0.65	-0.30
IDEQ	24-Mar-94	21.13	26	3.0	3.05	3.26	1.08	-0.52	0.65	-0.34
IDEQ	7-Apr-94	37.82	18	3.7	3.63	2.89	1.30	-0.26	-0.21	-0.13
IDEQ	4-May-94	111.05	8.2	4.9	4.71	2.10	1.59	0.84	-1.26	0.23
IDEQ	19-May-94	102.01	7.7	4.2	4.63	2.04	1.44	0.71	-1.31	0.03
IDEQ	7-Jun-94	63.45	12	4.1	4.15	2.48	1.41	0.12	-0.85	-0.01
IDEQ	23-Jun-94	28.96	14	2.2	3.37	2.64	0.78	-0.40	-0.64	-0.57
IDEQ	25-Jul-94	19.04	18	1.8	2.95	2.89	0.61	-0.55	-0.21	-0.67
IDEQ	16-Aug-94	16.3	19	1.7	2.79	2.94	0.51	-0.59	-0.10	-0.72
IDEQ	16-Aug-94	13.57	19	1.4	2.61	2.94	0.33	-0.63	-0.10	-0.80
IDEQ	13-Sep-94	15.89	21	1.8	2.77	3.04	0.59	-0.60	0.11	-0.68
IDEQ	16-Oct-94	14.34	21	1.6	2.66	3.04	0.48	-0.62	0.11	-0.74
IDEQ	16-Nov-94	15.89	32	2.7	2.77	3.47	1.01	-0.60	1.29	-0.41
IDEQ	13-Dec-94	17.17	38	3.5	2.84	3.64	1.26	-0.58	1.94	-0.18
IDEQ	10-Jan-95	28.21	39	5.9	3.34	3.66	1.78	-0.41	2.05	0.53
IDEQ	9-Feb-95	43.28	19	4.4	3.77	2.94	1.49	-0.18	-0.10	0.09
IDEQ	8-Mar-95	36.82	16	3.2	3.61	2.77	1.15	-0.28	-0.42	-0.28
IDEQ	22-Mar-95	86.16	24	11.1	4.46	3.18	2.41	0.47	0.44	2.06
IDEQ	12-Apr-95	42.13	15	3.4	3.74	2.71	1.22	-0.20	-0.53	-0.21
IDEQ	25-Apr-95	43	12	2.8	3.76	2.48	1.02	-0.19	-0.85	-0.39
IDEQ	13-Jun-95	96.41	6.8	3.5	4.57	1.92	1.26	0.62	-1.41	-0.17
IDEQ	27-Jun-95	34.9	8.4	1.6	3.55	2.13	0.46	-0.31	-1.24	-0.75
IDEQ	11-Jul-95	20.05	12	1.3	3.00	2.48	0.26	-0.53	-0.85	-0.83
IDEQ	25-Jul-95	14.71	14	1.1	2.69	2.64	0.10	-0.61	-0.64	-0.89
IDEQ	14-Aug-95	12.6	18	1.2	2.53	2.89	0.20	-0.64	-0.21	-0.85
IDEQ	13-Sep-95	11.4	20	1.2	2.43	3.00	0.20	-0.66	0.01	-0.85
IDEQ	18-Oct-95	31.4	21	3.5	3.45	3.04	1.27	-0.36	0.11	-0.17
IDEQ	21-Nov-95	81.5	13	5.7	4.40	2.56	1.74	0.40	-0.75	0.47
IDEQ	27-Dec-95	42.1	18	4.1	3.74	2.89	1.41	-0.20	-0.21	-0.01
IDEQ	17-Jan-96	50.9	27	7.4	3.93	3.30	2.00	-0.07	0.76	0.97
IDEQ	29-Feb-96	111	15	9.0	4.71	2.71	2.19	0.84	-0.53	1.43
IDEQ	28-Mar-96	65.2	16	5.6	4.18	2.77	1.72	0.15	-0.42	0.44
IDEQ	8-May-96	81.5	12	5.3	4.40	2.48	1.66	0.40	-0.85	0.34
IDEQ	19-Jun-96	148	5.8	4.6	5.00	1.76	1.53	1.40	-1.52	0.15
IDEQ	24-Jul-96	35.8	14	2.7	3.58	2.64	0.99	-0.29	-0.64	-0.42
IDEQ	21-Aug-96	23.342375	24	3.0	3.15	3.18	1.10	-0.48	0.44	-0.32
IDEQ	26-Sep-96	19.5	23	2.4	2.97	3.14	0.88	-0.54	0.33	-0.50
IDEQ	29-Oct-96	23.5	28	3.5	3.16	3.33	1.26	-0.48	0.86	-0.17
IDEQ	27-Nov-96	21.7	29	3.4	3.08	3.37	1.22	-0.51	0.97	-0.22

IDEQ	13-Dec-96	29.7	39	6.2	3.39	3.66	1.83	-0.39	2.05	0.62
IDEQ	30-Jan-97	31.4	25	4.2	3.45	3.22	1.44	-0.36	0.54	0.03
IDEQ	21-Feb-97	38.9	27	5.7	3.66	3.30	1.73	-0.25	0.76	0.45
IDEQ	26-Mar-97	144	25	19.4	4.97	3.22	2.96	1.34	0.54	4.49
IDEQ	16-Apr-97	55.3	23	6.8	4.01	3.14	1.92	0.00	0.33	0.80
IDEQ	24-Jun-97	124	5	3.3	4.82	1.61	1.20	1.04	-1.60	-0.23
IDEQ	23-Jul-97	111	10	6.0	4.71	2.30	1.79	0.84	-1.07	0.55
IDEQ	14-Aug-97	37.8	15	3.1	3.63	2.71	1.12	-0.26	-0.53	-0.31
IDEQ	4-Sep-97	34	19	3.5	3.53	2.94	1.25	-0.32	-0.10	-0.19
IDEQ	16-Oct-97	25.4	22	3.0	3.23	3.09	1.10	-0.45	0.22	-0.33
URS	9-Nov-97	32.7	17.8	3.1	3.49	2.88	1.14	-0.34	-0.23	-0.29
IDEQ	26-Nov-97	29.7	19	3.0	3.39	2.94	1.11	-0.39	-0.10	-0.32
IDEQ	19-Dec-97	24.1	26	3.4	3.18	3.26	1.22	-0.47	0.65	-0.22
IDEQ	22-Jan-98	18.1	25	2.4	2.90	3.22	0.89	-0.56	0.54	-0.50
IDEQ	26-Feb-98	22.3	25	3.0	3.10	3.22	1.10	-0.50	0.54	-0.33
IDEQ	20-Mar-98	33.1	21	3.7	3.50	3.04	1.32	-0.33	0.11	-0.11
URS	14-May-98	206	5.1	5.7	5.33	1.63	1.73	2.28	-1.59	0.45
IDEQ	26-Jun-98	63.5	9.8	3.3	4.15	2.28	1.21	0.12	-1.09	-0.23
IDEQ	28-Jul-98	24.7	17	2.3	3.21	2.83	0.81	-0.46	-0.32	-0.55
IDEQ	26-Aug-98	19.5	18	1.9	2.97	2.89	0.64	-0.54	-0.21	-0.66
IDEQ	24-Sep-98	17.2	17	1.6	2.84	2.83	0.45	-0.58	-0.32	-0.75
IDEQ	1-Oct-98	16.7	19	1.7	2.82	2.94	0.53	-0.58	-0.10	-0.71
IDEQ	8-Oct-98	15.9	20	1.7	2.77	3.00	0.54	-0.59	0.01	-0.71
IDEQ	26-Oct-98	16.7	18	1.6	2.82	2.89	0.48	-0.58	-0.21	-0.74
IDEQ	25-Nov-98	26	52	7.3	3.26	3.95	1.98	-0.44	3.44	0.93
IDEQ	15-Jan-99	33	25	4.4	3.50	3.22	1.49	-0.34	0.54	0.10
IDEQ	23-Feb-99	20	30	3.2	3.00	3.40	1.17	-0.53	1.08	-0.26
IDEQ	8-Mar-99	23	28	3.5	3.14	3.33	1.24	-0.49	0.86	-0.19
URS	9-Nov-97	36.6	18.2	3.6	3.60	2.90	1.28	-0.28	-0.19	-0.16
URS	14-May-98	233	5.2	6.5	5.45	1.65	1.87	2.69	-1.58	0.71
USGS	26-Oct-98	13	18	1.3	2.56	2.89	0.23	-0.64	-0.21	-0.84
USGS	26-Oct-98	13	19	1.3	2.56	2.94	0.28	-0.64	-0.10	-0.82
URS	14-Nov-98	22.53	34.2	4.1	3.11	3.53	1.42	-0.49	1.53	0.01
USGS	15-Dec-98	25	31	4.2	3.22	3.43	1.43	-0.46	1.19	0.02
USGS	28-Dec-98	27	32	4.6	3.30	3.47	1.54	-0.43	1.29	0.16
USGS	23-Mar-99	97	26	13.6	4.57	3.26	2.61	0.63	0.65	2.78
USGS	19-Apr-99	138	15	11.1	4.93	2.71	2.41	1.25	-0.53	2.07
USGS	5-May-99	84	9	4.1	4.43	2.20	1.40	0.43	-1.17	-0.01
USGS	24-May-99	384	11	22.7	5.95	2.40	3.12	4.97	-0.96	5.48
USGS	27-May-99	261	5	7.0	5.56	1.61	1.95	3.11	-1.60	0.86
USGS	2-Jun-99	241	5	6.5	5.48	1.61	1.87	2.81	-1.60	0.70
USGS	15-Jun-99	263	4	5.7	5.57	1.39	1.73	3.14	-1.71	0.45
USGS	8-Jul-99	107	5.4	3.1	4.67	1.69	1.13	0.78	-1.56	-0.30
USGS	5-Aug-99	34	12.6	2.3	3.53	2.53	0.83	-0.32	-0.79	-0.53
USGS	30-Aug-99	22	15	1.8	3.09	2.71	0.57	-0.50	-0.53	-0.69

tCd

Concentration over time analysis r2 Slope, m

tCd CC287/288 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.045** **-0.00017**

	Time	Ln[COC]	[COC]
first:	5-Oct-91	3.17	24
mid:	12-Nov-96	2.86	17
last:	30-Aug-99	2.69	15

LnConc.=mTime+b >'96 r2, m: **0.039** **-0.00047**

21-Feb-97	3.01	20
30-Aug-99	2.58	13

Load over time analysis

tCd CC287/288 **Load over time**

LnLoad=mTime+b All data r2, m: **0.079** **0.00025**

	Time	LnLoad	Load
first:	5-Oct-91	0.75	2
mid:	12-Nov-96	1.21	3
last:	30-Aug-99	1.46	4

LnLoad=mTime+b >'96 r2, m: **0.002** **-0.00010**

21-Feb-97	1.40	4
30-Aug-99	1.30	4

max r2: 1.000 max r2: 1.000

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.045	-0.00017	8.77	0.079	0.00025	-7.50
0.045	-0.00017	8.98	0.068	0.00023	-7.08
0.043	-0.00017	8.94	0.059	0.00022	-6.59
0.041	-0.00017	8.89	0.050	0.00020	-6.01
0.035	-0.00016	8.43	0.046	0.00020	-5.73
0.029	-0.00014	7.92	0.041	0.00019	-5.45
0.021	-0.00012	7.24	0.039	0.00019	-5.41
0.015	-0.00010	6.48	0.039	0.00019	-5.47
0.010	-0.00009	5.95	0.033	0.00018	-4.98
0.008	-0.00008	5.54	0.033	0.00018	-5.06
0.005	-0.00006	5.10	0.032	0.00018	-5.08
0.005	-0.00006	5.08	0.033	0.00019	-5.37
0.010	-0.00009	6.05	0.039	0.00021	-6.04
0.018	-0.00012	7.20	0.043	0.00022	-6.58
0.023	-0.00014	7.84	0.048	0.00024	-7.11
0.026	-0.00015	8.31	0.043	0.00023	-6.79
0.027	-0.00016	8.44	0.036	0.00021	-6.19
0.026	-0.00016	8.50	0.028	0.00019	-5.37
0.026	-0.00016	8.57	0.018	0.00015	-4.17
0.024	-0.00016	8.47	0.013	0.00013	-3.28
0.022	-0.00016	8.36	0.007	0.00010	-2.13
0.015	-0.00013	7.50	0.005	0.00009	-1.77
0.008	-0.00010	6.24	0.005	0.00009	-1.82
0.003	-0.00006	4.82	0.009	0.00012	-2.83
0.002	-0.00005	4.61	0.011	0.00013	-3.38
0.002	-0.00005	4.72	0.010	0.00013	-3.33
0.001	-0.00003	4.01	0.024	0.00020	-5.85
0.001	-0.00004	4.23	0.024	0.00021	-6.10
0.003	-0.00006	4.97	0.022	0.00020	-5.91
0.010	-0.00012	7.09	0.023	0.00021	-6.24
0.019	-0.00017	8.96	0.014	0.00017	-4.65
0.026	-0.00021	10.18	0.005	0.00010	-2.31
0.031	-0.00023	11.14	0.000	0.00002	0.80
0.031	-0.00024	11.49	0.003	-0.00008	4.11
0.030	-0.00024	11.56	0.016	-0.00018	7.86
0.027	-0.00024	11.44	0.019	-0.00020	8.70
0.035	-0.00028	12.90	0.015	-0.00019	8.04
0.035	-0.00030	13.39	0.015	-0.00020	8.44
0.027	-0.00027	12.40	0.008	-0.00015	6.64
0.032	-0.00030	13.54	0.002	-0.00007	3.81
0.035	-0.00033	14.56	0.000	-0.00003	2.45
0.047	-0.00039	16.94	0.000	0.00001	1.15
0.092	-0.00056	22.89	0.000	0.00003	0.25
0.109	-0.00063	25.51	0.000	-0.00001	1.77
0.103	-0.00064	25.78	0.001	-0.00005	3.00
0.099	-0.00065	26.19	0.003	-0.00012	5.60
0.086	-0.00063	25.45	0.004	-0.00014	6.48

0.072	-0.00060	24.25	0.006	-0.00018	7.77
0.048	-0.00050	20.79	0.002	-0.00011	5.34
0.039	-0.00047	19.60	0.002	-0.00010	5.11
0.027	-0.00041	17.50	0.000	-0.00004	2.67
0.019	-0.00035	15.48	0.015	0.00031	-9.89
0.012	-0.00030	13.60	0.034	0.00049	-16.56
0.047	-0.00059	24.06	0.035	0.00053	-17.72
0.072	-0.00076	30.27	0.058	0.00070	-24.10
0.082	-0.00086	33.83	0.058	0.00074	-25.34
0.083	-0.00091	35.59	0.064	0.00081	-28.06
0.076	-0.00091	35.71	0.063	0.00085	-29.35
0.079	-0.00098	37.98	0.063	0.00090	-31.15
0.078	-0.00103	39.82	0.063	0.00094	-32.83
0.063	-0.00097	37.62	0.067	0.00103	-36.02
0.049	-0.00090	35.06	0.057	0.00100	-34.87
0.036	-0.00080	31.61	0.055	0.00103	-35.96
0.029	-0.00075	29.75	0.061	0.00115	-40.27
0.076	-0.00121	46.40	0.085	0.00140	-49.45
0.102	-0.00143	54.62	0.087	0.00146	-51.62
0.103	-0.00148	56.28	0.076	0.00139	-48.93
0.102	-0.00150	56.91	0.062	0.00126	-44.11
0.102	-0.00152	57.61	0.048	0.00108	-37.77
0.099	-0.00151	57.31	0.035	0.00091	-31.55
0.094	-0.00148	56.45	0.023	0.00072	-24.77
0.091	-0.00148	56.24	0.013	0.00053	-17.59
0.080	-0.00129	49.37	0.018	0.00061	-20.74
0.078	-0.00126	48.13	0.018	0.00062	-20.81
0.086	-0.00127	48.68	0.019	0.00062	-21.02
0.098	-0.00131	50.09	0.020	0.00064	-21.50
0.094	-0.00175	66.08	0.014	0.00075	-25.54
0.449	-0.00466	171.32	0.061	0.00195	-69.28
0.469	-0.00519	190.68	0.007	0.00067	-22.76
0.499	-0.00607	222.62	0.040	-0.00158	59.18
0.402	-0.00596	218.72	0.100	-0.00297	109.46
0.271	-0.00543	199.29	0.233	-0.00554	202.87
0.048	-0.00277	102.67	0.635	-0.01323	482.20
0.026	0.00197	-69.59	0.586	-0.01410	513.70
0.238	0.00611	-220.05	0.529	-0.01444	526.17
0.416	0.00912	-329.61	0.780	-0.01995	726.40
0.838	0.01342	-485.87	0.975	-0.01521	554.18
0.872	0.01522	-551.26	0.966	-0.01511	550.48
0.948	0.01890	-685.36	0.945	-0.01465	533.88
0.895	0.01950	-706.85	1.000	-0.01057	385.37
1.000	0.00697	-251.16	1.000	-0.01044	380.56

update for EV, CV:

tCd **CC287/288**

LN Analysis **tCd**

Load **Load Data, EV=4.12 lbs/day CV=0.825**

Load Data-based LN

Avg:	**4**	u	ln tCd Load	tCd Load
SD:	**3**	3	3.3	28
CV:	**0.82**	0	1.16	3
Min:	**1.1**	-3	-1.01	0.4
Max:	**23**			
Median:	**3**			
		4	4.12	
		0.82	0.825	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.968, EV=4.07lbs/day CV=0.702; max r2=0.975**

r2 u,lnLoad:	0.968	u	lnLoad	Load		
slope, m:	1.579	3	3.10	22		
intercept, b:	-1.900	0	1.20	3		
N: 92		-3	-0.70	0.5		
E[Load]:	4.1	Parameter Estimates			0.968	0.968
SD[Load]:	3	from LN regression			4.1	4.07
CV[Load]:	0.70	update graph label			0.7	0.702
					max r2	
					0.975	

Date	tCd Load lbs/day Ranked	i rank	N: 92 i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
25-Jul-95	1.1	1	0.0068	-2.469	0.103	0.968
14-Aug-95	1.2	2	0.0176	-2.106	0.199	0.972
13-Sep-95	1.2	3	0.0285	-1.904	0.204	0.975
30-Aug-99	1.3	4	0.0393	-1.759	0.230	0.975
11-Jul-95	1.3	5	0.0501	-1.644	0.258	0.975
5-Aug-99	1.3	6	0.0610	-1.547	0.284	0.975
16-Aug-94	1.4	7	0.0718	-1.462	0.327	0.975
30-Nov-93	1.5	8	0.0827	-1.387	0.401	0.974
27-Oct-93	1.6	9	0.0935	-1.320	0.452	0.974
24-Sep-98	1.6	10	0.1043	-1.257	0.453	0.974
27-Jun-95	1.6	11	0.1152	-1.199	0.456	0.974
26-Oct-98	1.6	12	0.1260	-1.145	0.481	0.973
16-Oct-94	1.6	13	0.1369	-1.095	0.483	0.972
5-Oct-91	1.6	14	0.1477	-1.046	0.484	0.972
16-Aug-94	1.7	15	0.1585	-1.000	0.511	0.971
1-Oct-98	1.7	16	0.1694	-0.957	0.535	0.970
8-Oct-98	1.7	17	0.1802	-0.915	0.537	0.969
24-May-99	1.8	18	0.1911	-0.874	0.574	0.967
13-Sep-94	1.8	19	0.2019	-0.835	0.585	0.966
18-Feb-94	1.8	20	0.2127	-0.797	0.611	0.965
25-Jul-94	1.8	21	0.2236	-0.760	0.612	0.964
26-Aug-98	1.9	22	0.2344	-0.724	0.636	0.963
17-Dec-93	2.1	23	0.2453	-0.689	0.731	0.962
17-Dec-93	2.1	24	0.2561	-0.655	0.759	0.960
23-Jun-94	2.2	25	0.2669	-0.622	0.780	0.959
28-Jul-98	2.3	26	0.2778	-0.589	0.815	0.958
23-Mar-99	2.3	27	0.2886	-0.557	0.835	0.957
26-Sep-96	2.4	28	0.2995	-0.526	0.881	0.955
22-Jan-98	2.4	29	0.3103	-0.495	0.890	0.954
24-Jul-96	2.7	30	0.3211	-0.465	0.992	0.953
20-Jan-94	2.7	31	0.3320	-0.434	0.999	0.953
16-Nov-94	2.7	32	0.3428	-0.405	1.006	0.954
25-Apr-95	2.8	33	0.3537	-0.375	1.021	0.954
24-Mar-94	3.0	34	0.3645	-0.346	1.084	0.954
20-Jan-94	3.0	35	0.3753	-0.318	1.098	0.955
26-Feb-98	3.0	36	0.3862	-0.289	1.098	0.957
16-Oct-97	3.0	37	0.3970	-0.261	1.101	0.958
21-Aug-96	3.0	38	0.4079	-0.233	1.103	0.959
26-Nov-97	3.0	39	0.4187	-0.205	1.111	0.960
14-Aug-97	3.1	40	0.4295	-0.178	1.115	0.960
19-Apr-99	3.1	41	0.4404	-0.150	1.134	0.961
8-Mar-94	3.1	42	0.4512	-0.123	1.136	0.962
9-Nov-97	3.1	43	0.4621	-0.095	1.142	0.962
8-Mar-95	3.2	44	0.4729	-0.068	1.154	0.963
23-Feb-99	3.2	45	0.4837	-0.041	1.172	0.963
24-Jun-97	3.3	46	0.4946	-0.014	1.205	0.964
26-Jun-98	3.3	47	0.5054	0.014	1.208	0.965

19-Dec-97	**3.4**	48	0.5163	0.041	1.215	0.966
27-Nov-96	**3.4**	49	0.5271	0.068	1.220	0.966
12-Apr-95	**3.4**	50	0.5379	0.095	1.224	0.967
8-Mar-99	**3.5**	51	0.5488	0.123	1.243	0.967
4-Sep-97	**3.5**	52	0.5596	0.150	1.246	0.968
13-Dec-94	**3.5**	53	0.5705	0.178	1.256	0.968
13-Jun-95	**3.5**	54	0.5813	0.205	1.260	0.968
29-Oct-96	**3.5**	55	0.5921	0.233	1.264	0.968
18-Oct-95	**3.5**	56	0.6030	0.261	1.266	0.967
26-Oct-98	3.6	57	0.6138	0.289	1.276	0.966
7-Apr-94	**3.7**	58	0.6247	0.318	1.298	0.965
20-Mar-98	**3.7**	59	0.6355	0.346	1.319	0.964
28-Dec-98	4.1	60	0.6463	0.375	1.403	0.963
27-Dec-95	**4.1**	61	0.6572	0.405	1.405	0.964
7-Jun-94	**4.1**	62	0.6680	0.434	1.410	0.964
8-Jul-99	4.1	63	0.6789	0.465	1.422	0.964
9-Nov-97	4.2	64	0.6897	0.495	1.428	0.963
30-Jan-97	**4.2**	65	0.7005	0.526	1.441	0.962
19-May-94	**4.2**	66	0.7114	0.557	1.441	0.961
9-Feb-95	**4.4**	67	0.7222	0.589	1.487	0.959
15-Jan-99	**4.4**	68	0.7331	0.622	1.490	0.958
19-Jun-96	**4.6**	69	0.7439	0.655	1.530	0.956
5-May-99	4.6	70	0.7547	0.689	1.537	0.954
4-May-94	**4.9**	71	0.7656	0.724	1.589	0.951
8-May-96	**5.3**	72	0.7764	0.760	1.660	0.949
28-Mar-96	**5.6**	73	0.7873	0.797	1.725	0.950
21-Feb-97	**5.7**	74	0.7981	0.835	1.732	0.955
14-May-98	**5.7**	75	0.8089	0.874	1.732	0.960
27-May-99	5.7	76	0.8198	0.915	1.733	0.964
21-Nov-95	**5.7**	77	0.8306	0.957	1.740	0.966
10-Jan-95	**5.9**	78	0.8415	1.000	1.778	0.966
23-Jul-97	**6.0**	79	0.8523	1.046	1.787	0.968
13-Dec-96	**6.2**	80	0.8631	1.095	1.830	0.967
14-May-98	6.5	81	0.8740	1.145	1.869	0.968
26-Oct-98	6.5	82	0.8848	1.199	1.875	0.969
16-Apr-97	**6.8**	83	0.8957	1.257	1.923	0.966
2-Jun-99	7.0	84	0.9065	1.320	1.949	0.963
25-Nov-98	**7.3**	85	0.9173	1.387	1.984	0.956
17-Jan-96	**7.4**	86	0.9282	1.462	2.001	0.945
29-Feb-96	**9.0**	87	0.9390	1.547	2.193	0.945
22-Mar-95	**11.1**	88	0.9499	1.644	2.409	0.930
15-Dec-98	11.1	89	0.9607	1.759	2.410	0.911
14-Nov-98	13.6	90	0.9715	1.904	2.608	0.863
26-Mar-97	**19.4**	91	0.9824	2.106	2.964	
15-Jun-99	22.7	92	0.9932	2.469	3.123	

update for EV, CV:

tCd		**CC287/288**		20	19.9
LN Analysis		**tCd**		0.47	0.467
Concentration		**Conc. Data, EV=19.9 ug/L CV=0.467**			
Avg:	**20**	**Data-based LN**			
SD:	**9**	u	ln[tCd]	[tCd]	
CV:	**0.47**	3	4.2	69	
Min:	**4**	0	2.89	18	
Max:	**52**	-3	1.56	5	
Median:	**19**				

				0.186	0.186
u=mLn{Conc.}+b:				40.6	40.6
update for r2, EV, CV: **r2=0.186, EV=40.6 ug/L CV=2.09; max r2=0.999**				2.091	2.09
r2 u,lnConc:	0.186	u	lnConc.	Conc.	
slope, m:	0.771	3	6.75	857	
intercept, b:	-2.208	0	2.86	18	
N: 92		-3	-1.03	0	
E[Conc]:	40.6	Parameter Estimates			
SD[Conc]:	85	from LN regression			
CV[Conc]:	2.09	update graph label			

Date	tCd Concentration ug/L Ranked	i rank	N: 92 i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.999 r2 forward
update and rank for new data						
24-Jun-97	5	1	0.0068	-2.469	1.609	0.186
14-May-98	5.1	2	0.0176	-2.106	1.629	0.154
19-Jun-96	5.8	3	0.0285	-1.904	1.758	0.127
13-Jun-95	6.8	4	0.0393	-1.759	1.917	0.103
19-May-94	7.7	5	0.0501	-1.644	2.041	0.084
4-May-94	8.2	6	0.0610	-1.547	2.104	0.068
27-Jun-95	8.4	7	0.0718	-1.462	2.128	0.055
26-Jun-98	9.8	8	0.0827	-1.387	2.282	0.042
23-Jul-97	10	9	0.0935	-1.320	2.303	0.033
7-Jun-94	12	10	0.1043	-1.257	2.485	0.025
25-Apr-95	12	11	0.1152	-1.199	2.485	0.020
11-Jul-95	12	12	0.1260	-1.145	2.485	0.015
8-May-96	12	13	0.1369	-1.095	2.485	0.011
21-Nov-95	13	14	0.1477	-1.046	2.565	0.007
23-Jun-94	14	15	0.1585	-1.000	2.639	0.005
25-Jul-95	14	16	0.1694	-0.957	2.639	0.003
24-Jul-96	14	17	0.1802	-0.915	2.639	0.002
12-Apr-95	15	18	0.1911	-0.874	2.708	0.001
29-Feb-96	15	19	0.2019	-0.835	2.708	0.000
14-Aug-97	15	20	0.2127	-0.797	2.708	0.000
8-Mar-95	16	21	0.2236	-0.760	2.773	0.000
28-Mar-96	16	22	0.2344	-0.724	2.773	0.001
28-Jul-98	17	23	0.2453	-0.689	2.833	0.001
24-Sep-98	17	24	0.2561	-0.655	2.833	0.002
9-Nov-97	17.8	25	0.2669	-0.622	2.879	0.003
7-Apr-94	18	26	0.2778	-0.589	2.890	0.004
25-Jul-94	18	27	0.2886	-0.557	2.890	0.005
14-Aug-95	18	28	0.2995	-0.526	2.890	0.006
27-Dec-95	18	29	0.3103	-0.495	2.890	0.007
26-Aug-98	18	30	0.3211	-0.465	2.890	0.009
26-Oct-98	18	31	0.3320	-0.434	2.890	0.010
16-Aug-94	19	32	0.3428	-0.405	2.944	0.012
16-Aug-94	19	33	0.3537	-0.375	2.944	0.013
9-Feb-95	19	34	0.3645	-0.346	2.944	0.015
4-Sep-97	19	35	0.3753	-0.318	2.944	0.017
26-Nov-97	19	36	0.3862	-0.289	2.944	0.019
1-Oct-98	19	37	0.3970	-0.261	2.944	0.021
13-Sep-95	20	38	0.4079	-0.233	2.996	0.023
8-Oct-98	20	39	0.4187	-0.205	2.996	0.024
5-Oct-91	20.8	40	0.4295	-0.178	3.035	0.026
13-Sep-94	21	41	0.4404	-0.150	3.045	0.028
16-Oct-94	21	42	0.4512	-0.123	3.045	0.029
18-Oct-95	21	43	0.4621	-0.095	3.045	0.030
20-Mar-98	21	44	0.4729	-0.068	3.045	0.031
27-Oct-93	22	45	0.4837	-0.041	3.091	0.033
30-Nov-93	22	46	0.4946	-0.014	3.091	0.034
16-Oct-97	22	47	0.5054	0.014	3.091	0.034

26-Sep-96	23	48	0.5163	0.041	3.135	0.035
16-Apr-97	23	49	0.5271	0.068	3.135	0.035
22-Mar-95	24	50	0.5379	0.095	3.178	0.035
21-Aug-96	24	51	0.5488	0.123	3.178	0.034
30-Jan-97	25	52	0.5596	0.150	3.219	0.033
26-Mar-97	25	53	0.5705	0.178	3.219	0.031
22-Jan-98	25	54	0.5813	0.205	3.219	0.030
26-Feb-98	25	55	0.5921	0.233	3.219	0.028
15-Jan-99	25	56	0.6030	0.261	3.219	0.026
8-Mar-94	26	57	0.6138	0.289	3.258	0.024
24-Mar-94	26	58	0.6247	0.318	3.258	0.021
19-Dec-97	26	59	0.6355	0.346	3.258	0.018
17-Jan-96	27	60	0.6463	0.375	3.296	0.016
21-Feb-97	27	61	0.6572	0.405	3.296	0.013
29-Oct-96	28	62	0.6680	0.434	3.332	0.010
8-Mar-99	28	63	0.6789	0.465	3.332	0.006
27-Nov-96	29	64	0.6897	0.495	3.367	0.004
18-Feb-94	30	65	0.7005	0.526	3.401	0.001
23-Feb-99	30	66	0.7114	0.557	3.401	0.000
16-Nov-94	32	67	0.7222	0.589	3.466	0.000
17-Dec-93	33	68	0.7331	0.622	3.497	0.003
17-Dec-93	33	69	0.7439	0.655	3.497	0.011
20-Jan-94	38	70	0.7547	0.689	3.638	0.024
20-Jan-94	38	71	0.7656	0.724	3.638	0.050
13-Dec-94	38	72	0.7764	0.760	3.638	0.093
10-Jan-95	39	73	0.7873	0.797	3.664	0.160
13-Dec-96	39	74	0.7981	0.835	3.664	0.269
25-Nov-98	52	75	0.8089	0.874	3.951	0.441
15-Jun-99	4	76	0.8198	0.915	1.386	0.842
27-May-99	5	77	0.8306	0.957	1.609	0.833
2-Jun-99	5	78	0.8415	1.000	1.609	0.817
14-May-98	5.2	79	0.8523	1.046	1.649	0.806
8-Jul-99	5.4	80	0.8631	1.095	1.686	0.810
5-May-99	9	81	0.8740	1.145	2.197	0.881
24-May-99	11	82	0.8848	1.199	2.398	0.889
5-Aug-99	12.6	83	0.8957	1.257	2.534	0.884
19-Apr-99	15	84	0.9065	1.320	2.708	0.871
30-Aug-99	15	85	0.9173	1.387	2.708	0.844
26-Oct-98	18	86	0.9282	1.462	2.890	0.814
9-Nov-97	18.2	87	0.9390	1.547	2.901	0.763
26-Oct-98	19	88	0.9499	1.644	2.944	0.680
23-Mar-99	26	89	0.9607	1.759	3.258	0.766
15-Dec-98	31	90	0.9715	1.904	3.434	0.999
28-Dec-98	32	91	0.9824	2.106	3.466	
14-Nov-98	34.2	92	0.9932	2.469	3.532	

update for EV, CV:

tCd		**CC287/288**			55	55.2
LN Analysis		**tCd**			1.20	1.2

Discharge, Q

Q Data, EV=55.2 cfs CV=1.2

Q Data-based LN

		u	lnQ	Q
Avg:	**55**			
SD:	**66**	u	lnQ	Q
CV:	**1.20**	3	6.4	599
Min:	**11**	0	3.57	35
Max:	**384**	-3	0.74	2
Median:	**29**			

					0.683	0.683
					62.4	62.4
u=mLn{Q}+b:					1.45	1.45

update for r2, EV, CV: **r2=0.683, EV=62.4 cfs CV=1.45; max r2=0.895**

r2 u,lnQ:	0.683	u	lnQ	Q
slope, m:	0.938	3	6.76	865
intercept, b:	-3.345	0	3.57	35
N: 92		-3	0.37	1
E[Q]:	62.4	Parameter Estimates		
SD[Q]:	91	from LN regression		
CV[Q]:	1.45	update graph label		

N: 92

max r2 0.895

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
13-Sep-95	11.4	1	0.0068	-2.469	2.434	0.683
18-Feb-94	11.41	2	0.0176	-2.106	2.434	0.684
17-Dec-93	11.7	3	0.0285	-1.904	2.460	0.681
17-Dec-93	12.03	4	0.0393	-1.759	2.487	0.677
14-Aug-95	12.6	5	0.0501	-1.644	2.534	0.672
30-Nov-93	12.62	6	0.0610	-1.547	2.535	0.667
27-Oct-93	13.28	7	0.0718	-1.462	2.586	0.661
20-Jan-94	13.28	8	0.0827	-1.387	2.586	0.655
16-Aug-94	13.57	9	0.0935	-1.320	2.608	0.649
16-Oct-94	14.34	10	0.1043	-1.257	2.663	0.642
5-Oct-91	14.5	11	0.1152	-1.199	2.674	0.636
20-Jan-94	14.66	12	0.1260	-1.145	2.685	0.630
25-Jul-95	14.71	13	0.1369	-1.095	2.689	0.623
13-Sep-94	15.89	14	0.1477	-1.046	2.766	0.615
16-Nov-94	15.89	15	0.1585	-1.000	2.766	0.609
8-Oct-98	15.9	16	0.1694	-0.957	2.766	0.602
16-Aug-94	16.3	17	0.1802	-0.915	2.791	0.594
1-Oct-98	16.7	18	0.1911	-0.874	2.815	0.586
26-Oct-98	16.7	19	0.2019	-0.835	2.815	0.578
13-Dec-94	17.17	20	0.2127	-0.797	2.843	0.569
24-Sep-98	17.2	21	0.2236	-0.760	2.845	0.561
22-Jan-98	18.1	22	0.2344	-0.724	2.896	0.552
25-Jul-94	19.04	23	0.2453	-0.689	2.947	0.543
26-Sep-96	19.5	24	0.2561	-0.655	2.970	0.534
26-Aug-98	19.5	25	0.2669	-0.622	2.970	0.526
23-Feb-99	20	26	0.2778	-0.589	2.996	0.517
11-Jul-95	20.05	27	0.2886	-0.557	2.998	0.507
24-Mar-94	21.13	28	0.2995	-0.526	3.051	0.498
27-Nov-96	21.7	29	0.3103	-0.495	3.077	0.488
8-Mar-94	22.26	30	0.3211	-0.465	3.103	0.479
26-Feb-98	22.3	31	0.3320	-0.434	3.105	0.469
8-Mar-99	23	32	0.3428	-0.405	3.135	0.459
21-Aug-96	23.342375	33	0.3537	-0.375	3.150	0.449
29-Oct-96	23.5	34	0.3645	-0.346	3.157	0.439
19-Dec-97	24.1	35	0.3753	-0.318	3.182	0.428
28-Jul-98	24.7	36	0.3862	-0.289	3.207	0.417
16-Oct-97	25.4	37	0.3970	-0.261	3.235	0.406
25-Nov-98	26	38	0.4079	-0.233	3.258	0.395
10-Jan-95	28.21	39	0.4187	-0.205	3.340	0.383
23-Jun-94	28.96	40	0.4295	-0.178	3.366	0.373
13-Dec-96	29.7	41	0.4404	-0.150	3.391	0.363
26-Nov-97	29.7	42	0.4512	-0.123	3.391	0.353
18-Oct-95	31.4	43	0.4621	-0.095	3.447	0.343
30-Jan-97	31.4	44	0.4729	-0.068	3.447	0.333
9-Nov-97	32.7	45	0.4837	-0.041	3.487	0.322
15-Jan-99	33	46	0.4946	-0.014	3.497	0.312
20-Mar-98	33.1	47	0.5054	0.014	3.500	0.301

4-Sep-97	34	48	0.5163	0.041	3.526	0.290
27-Jun-95	34.9	49	0.5271	0.068	3.552	0.279
24-Jul-96	35.8	50	0.5379	0.095	3.578	0.268
8-Mar-95	36.82	51	0.5488	0.123	3.606	0.257
14-Aug-97	37.8	52	0.5596	0.150	3.632	0.246
7-Apr-94	37.82	53	0.5705	0.178	3.633	0.235
21-Feb-97	38.9	54	0.5813	0.205	3.661	0.223
27-Dec-95	42.1	55	0.5921	0.233	3.740	0.212
12-Apr-95	42.13	56	0.6030	0.261	3.741	0.202
25-Apr-95	43	57	0.6138	0.289	3.761	0.191
9-Feb-95	43.28	58	0.6247	0.318	3.768	0.180
17-Jan-96	50.9	59	0.6355	0.346	3.930	0.169
16-Apr-97	55.3	60	0.6463	0.375	4.013	0.162
7-Jun-94	63.45	61	0.6572	0.405	4.150	0.157
26-Jun-98	63.5	62	0.6680	0.434	4.151	0.157
28-Mar-96	65.2	63	0.6789	0.465	4.177	0.156
21-Nov-95	81.5	64	0.6897	0.495	4.401	0.156
8-May-96	81.5	65	0.7005	0.526	4.401	0.164
22-Mar-95	86.16	66	0.7114	0.557	4.456	0.173
13-Jun-95	96.41	67	0.7222	0.589	4.569	0.185
19-May-94	102.01	68	0.7331	0.622	4.625	0.204
29-Feb-96	111	69	0.7439	0.655	4.710	0.229
23-Jul-97	111	70	0.7547	0.689	4.710	0.263
4-May-94	111.05	71	0.7656	0.724	4.710	0.303
24-Jun-97	124	72	0.7764	0.760	4.820	0.350
26-Mar-97	144	73	0.7873	0.797	4.970	0.416
19-Jun-96	148	74	0.7981	0.835	4.997	0.513
14-May-98	206	75	0.8089	0.874	5.328	0.640
26-Oct-98	13	76	0.8198	0.915	2.565	0.867
26-Oct-98	13	77	0.8306	0.957	2.565	0.856
30-Aug-99	22	78	0.8415	1.000	3.091	0.849
14-Nov-98	22.53	79	0.8523	1.046	3.115	0.832
15-Dec-98	25	80	0.8631	1.095	3.219	0.813
28-Dec-98	27	81	0.8740	1.145	3.296	0.793
5-Aug-99	34	82	0.8848	1.199	3.526	0.776
9-Nov-97	36.6	83	0.8957	1.257	3.600	0.763
5-May-99	84	84	0.9065	1.320	4.431	0.833
23-Mar-99	97	85	0.9173	1.387	4.575	0.805
8-Jul-99	107	86	0.9282	1.462	4.673	0.768
19-Apr-99	138	87	0.9390	1.547	4.927	0.764
14-May-98	233	88	0.9499	1.644	5.451	0.895
2-Jun-99	241	89	0.9607	1.759	5.485	0.895
27-May-99	261	90	0.9715	1.904	5.565	0.887
15-Jun-99	263	91	0.9824	2.106	5.572	
24-May-99	384	92	0.9932	2.469	5.951	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC287/288 **Date:** 2-Jun-00
Chemical: tPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,353	55	135	80	0.00	0.00	0.00
SD:	702	66	233	428	1.00	1.00	1.00
CV:	0.02	1.20	1.73	5.32			
Min:	33,516	11	0	0.1	-0.66	-0.58	-0.19
Max:	36,402	384	2,000	4,132	5.00	7.99	9.47
Median:	35,396	29	61	11	-0.39	-0.32	-0.16

tPb **CC287/288** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.241) update r2 0.24 0.241 r2: 0.105 0.103

r2 Q,[COC]:	0.24	[tPb]	Q		m:	0.0304	0.00039
slope, m:	1.7	59	11.4		b:	-1019	-10.40
intercept, b:	39.4	135	54.8				
N: 93		708	384				

LnConc. = mLn{Q}+b (r2=0.0171) update r2 0.02 0.0171

r2 lnQ,ln[COC]:	0.017	ln[tPb]	ln Q	[tPb]	Q
slope, m:	0.16	4.18	2.43	65	11
intercept, b:	3.79	4.43	4.00	84	55
N: 93		4.74	5.95	114	384

for graph
tPb 0
CC287/288

N= 93

	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	5-Oct-91	14.5	55	4.3	2.67	4.01	1.46	-0.61	-0.34	-0.18
IDEQ	27-Oct-93	13.28	56	4.0	2.59	4.03	1.39	-0.63	-0.34	-0.18
IDEQ	30-Nov-93	12.62	62	4.2	2.54	4.13	1.44	-0.64	-0.31	-0.18
IDEQ	17-Dec-93	11.7	56	3.5	2.46	4.03	1.26	-0.65	-0.34	-0.18
IDEQ	17-Dec-93	12.03	56	3.6	2.49	4.03	1.29	-0.65	-0.34	-0.18
IDEQ	20-Jan-94	13.28	59	4.2	2.59	4.08	1.44	-0.63	-0.32	-0.18
IDEQ	20-Jan-94	14.66	59	4.7	2.69	4.08	1.54	-0.61	-0.32	-0.18
IDEQ	18-Feb-94	11.41	52	3.2	2.43	3.95	1.16	-0.66	-0.35	-0.18
IDEQ	8-Mar-94	22.26	55	6.6	3.10	4.01	1.89	-0.49	-0.34	-0.17
IDEQ	24-Mar-94	21.13	53	6.0	3.05	3.97	1.80	-0.51	-0.35	-0.17
IDEQ	7-Apr-94	37.82	47	9.6	3.63	3.85	2.26	-0.26	-0.38	-0.17
IDEQ	4-May-94	111.05	42	25.1	4.71	3.74	3.22	0.85	-0.40	-0.13
IDEQ	19-May-94	102.01	34	18.7	4.63	3.53	2.93	0.72	-0.43	-0.14
IDEQ	7-Jun-94	63.45	39	13.3	4.15	3.66	2.59	0.13	-0.41	-0.16
IDEQ	23-Jun-94	28.96	49	7.6	3.37	3.89	2.03	-0.39	-0.37	-0.17
IDEQ	25-Jul-94	19.04	55	5.6	2.95	4.01	1.73	-0.54	-0.34	-0.17
IDEQ	16-Aug-94	16.3	62	5.4	2.79	4.13	1.69	-0.58	-0.31	-0.18
IDEQ	16-Aug-94	13.57	62	4.5	2.61	4.13	1.51	-0.63	-0.31	-0.18
IDEQ	13-Sep-94	15.89	53	4.5	2.77	3.97	1.51	-0.59	-0.35	-0.18
IDEQ	16-Oct-94	14.34	50	3.9	2.66	3.91	1.35	-0.61	-0.36	-0.18
IDEQ	16-Nov-94	15.89	59	5.0	2.77	4.08	1.62	-0.59	-0.32	-0.18
IDEQ	13-Dec-94	17.17	54	5.0	2.84	3.99	1.61	-0.57	-0.35	-0.18
IDEQ	10-Jan-95	28.21	137	20.8	3.34	4.92	3.03	-0.40	0.01	-0.14
IDEQ	9-Feb-95	43.28	44	10.2	3.77	3.78	2.33	-0.18	-0.39	-0.16
IDEQ	8-Mar-95	36.82	31	6.1	3.61	3.43	1.81	-0.27	-0.44	-0.17
IDEQ	22-Mar-95	86.16	66	30.6	4.46	4.19	3.42	0.48	-0.29	-0.12
IDEQ	12-Apr-95	42.13	46	10.4	3.74	3.83	2.34	-0.19	-0.38	-0.16
IDEQ	25-Apr-95	43	36	8.3	3.76	3.58	2.12	-0.18	-0.42	-0.17
IDEQ	13-Jun-95	96.41	37	19.2	4.57	3.61	2.95	0.63	-0.42	-0.14
IDEQ	27-Jun-95	34.9	36	6.8	3.55	3.58	1.91	-0.30	-0.42	-0.17
IDEQ	11-Jul-95	20.05	44	4.7	3.00	3.78	1.56	-0.53	-0.39	-0.18
IDEQ	25-Jul-95	14.71	45	3.6	2.69	3.81	1.27	-0.61	-0.38	-0.18
IDEQ	14-Aug-95	12.6	58	3.9	2.53	4.06	1.37	-0.64	-0.33	-0.18
IDEQ	13-Sep-95	11.4	52	3.2	2.43	3.95	1.16	-0.66	-0.35	-0.18
IDEQ	18-Oct-95	31.4	424	71.6	3.45	6.05	4.27	-0.36	1.24	-0.02
IDEQ	21-Nov-95	81.5	680	298.2	4.40	6.52	5.70	0.40	2.33	0.51
IDEQ	27-Dec-95	42.1	108	24.5	3.74	4.68	3.20	-0.19	-0.12	-0.13
IDEQ	17-Jan-96	50.9	254	69.6	3.93	5.54	4.24	-0.06	0.51	-0.03
IDEQ	29-Feb-96	111	282	168.4	4.71	5.64	5.13	0.85	0.63	0.21
IDEQ	28-Mar-96	65.2	98	34.4	4.18	4.58	3.54	0.16	-0.16	-0.11
IDEQ	8-May-96	81.5	219	96.0	4.40	5.39	4.56	0.40	0.36	0.04
IDEQ	19-Jun-96	148	74	58.9	5.00	4.30	4.08	1.41	-0.26	-0.05
IDEQ	24-Jul-96	35.8	132	25.4	3.58	4.88	3.24	-0.29	-0.01	-0.13
IDEQ	21-Aug-96	23.342375	314	39.4	3.15	5.75	3.67	-0.48	0.77	-0.10
IDEQ	26-Sep-96	19.5	588	61.7	2.97	6.38	4.12	-0.54	1.94	-0.04
IDEQ	29-Oct-96	23.5	408	51.6	3.16	6.01	3.94	-0.48	1.17	-0.07
IDEQ	27-Nov-96	21.7	76	8.9	3.08	4.33	2.18	-0.50	-0.25	-0.17

IDEQ	13-Dec-96	29.7	100	16.0	3.39	4.61	2.77	-0.38	-0.15	-0.15
IDEQ	30-Jan-97	31.4	71	12.0	3.45	4.26	2.48	-0.36	-0.27	-0.16
IDEQ	21-Feb-97	38.9	91	19.0	3.66	4.51	2.95	-0.24	-0.19	-0.14
IDEQ	26-Mar-97	144	0.12	0.1	4.97	-2.12	-2.38	1.35	-0.58	-0.19
IDEQ	16-Apr-97	55.3	112	33.3	4.01	4.72	3.51	0.01	-0.10	-0.11
IDEQ	24-Jun-97	124	46	30.7	4.82	3.83	3.42	1.05	-0.38	-0.12
IDEQ	23-Jul-97	111	564	336.8	4.71	6.34	5.82	0.85	1.84	0.60
IDEQ	14-Aug-97	37.8	94	19.1	3.63	4.54	2.95	-0.26	-0.18	-0.14
IDEQ	4-Sep-97	34	325	59.4	3.53	5.78	4.09	-0.32	0.81	-0.05
IDEQ	16-Oct-97	25.4	438	59.9	3.23	6.08	4.09	-0.45	1.30	-0.05
URS	9-Nov-97	32.7	74.7	13.1	3.49	4.31	2.58	-0.34	-0.26	-0.16
IDEQ	26-Nov-97	29.7	124	19.8	3.39	4.82	2.99	-0.38	-0.05	-0.14
IDEQ	19-Dec-97	24.1	288	37.3	3.18	5.66	3.62	-0.47	0.66	-0.10
IDEQ	22-Jan-98	18.1	84	8.2	2.90	4.43	2.10	-0.56	-0.22	-0.17
IDEQ	26-Feb-98	22.3	62	7.4	3.10	4.13	2.01	-0.49	-0.31	-0.17
IDEQ	20-Mar-98	33.1	76	13.5	3.50	4.33	2.61	-0.33	-0.25	-0.16
URS	14-May-98	206	48.8	54.1	5.33	3.89	3.99	2.29	-0.37	-0.06
IDEQ	26-Jun-98	63.5	56	19.1	4.15	4.03	2.95	0.13	-0.34	-0.14
IDEQ	28-Jul-98	24.7	62	8.2	3.21	4.13	2.11	-0.46	-0.31	-0.17
IDEQ	26-Aug-98	19.5	59	6.2	2.97	4.08	1.82	-0.54	-0.32	-0.17
IDEQ	24-Sep-98	17.2	66	6.1	2.84	4.19	1.81	-0.57	-0.29	-0.17
IDEQ	1-Oct-98	16.7	64	5.8	2.82	4.16	1.75	-0.58	-0.30	-0.17
IDEQ	8-Oct-98	15.9	61	5.2	2.77	4.11	1.65	-0.59	-0.32	-0.18
IDEQ	26-Oct-98	16.7	47	4.2	2.82	3.85	1.44	-0.58	-0.38	-0.18
IDEQ	25-Nov-98	26	97	13.6	3.26	4.57	2.61	-0.44	-0.16	-0.16
IDEQ	15-Jan-99	33	68	12.1	3.50	4.22	2.49	-0.33	-0.29	-0.16
IDEQ	23-Feb-99	20	46	4.9	3.00	3.83	1.60	-0.53	-0.38	-0.18
IDEQ	8-Mar-99	23	46	5.7	3.14	3.83	1.74	-0.48	-0.38	-0.17
URS	9-Nov-97	36.6	77.5	15.3	3.60	4.35	2.73	-0.28	-0.25	-0.15
URS	14-May-98	233	51.1	64.1	5.45	3.93	4.16	2.70	-0.36	-0.04
USGS	26-Oct-98	13	42	2.9	2.56	3.74	1.08	-0.63	-0.40	-0.18
USGS	26-Oct-98	13	43	3.0	2.56	3.76	1.10	-0.63	-0.39	-0.18
URS	14-Nov-98	22.53	83.5	10.1	3.11	4.42	2.31	-0.49	-0.22	-0.16
USGS	18-Nov-98	16	49	4.2	2.77	3.89	1.44	-0.59	-0.37	-0.18
USGS	15-Dec-98	25	52	7.0	3.22	3.95	1.95	-0.45	-0.35	-0.17
USGS	28-Dec-98	27	230	33.4	3.30	5.44	3.51	-0.42	0.41	-0.11
USGS	23-Mar-99	97	120	62.6	4.57	4.79	4.14	0.64	-0.06	-0.04
USGS	19-Apr-99	138	370	274.7	4.93	5.91	5.62	1.26	1.01	0.45
USGS	5-May-99	84	55	24.9	4.43	4.01	3.21	0.44	-0.34	-0.13
USGS	24-May-99	384	2000	4131.8	5.95	7.60	8.33	5.00	7.99	9.47
USGS	27-May-99	261	250	351.0	5.56	5.52	5.86	3.13	0.49	0.63
USGS	2-Jun-99	241	99	128.4	5.48	4.60	4.85	2.83	-0.15	0.11
USGS	15-Jun-99	263	150	212.2	5.57	5.01	5.36	3.16	0.06	0.31
USGS	8-Jul-99	107	33.2	19.1	4.67	3.50	2.95	0.79	-0.44	-0.14
USGS	5-Aug-99	34	58.9	10.8	3.53	4.08	2.38	-0.32	-0.33	-0.16
USGS	30-Aug-99	22	50.5	6.0	3.09	3.92	1.79	-0.50	-0.36	-0.17

tPb

Concentration over time analysis r2 Slope, m

tPb CC287/288 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.027** **0.00025**

	Time	Ln[COC]	[COC]
first:	5-Oct-91	3.90	50
mid:	27-Nov-96	4.37	79
last:	30-Aug-99	4.62	101

LnConc.=mTime+b >'96 r2, m: **0.022** **0.00075**

21-Feb-97	3.99	54
30-Aug-99	4.68	107

Load over time analysis

tPb CC287/288 **Load over time**

LnLoad=mTime+b All data r2, m: **0.097** **0.00064**

	Time	LnLoad	Load
first:	5-Oct-91	1.51	5
mid:	27-Nov-96	2.72	15
last:	30-Aug-99	3.36	29

LnLoad=mTime+b >'96 r2, m: **0.027** **0.00107**

21-Feb-97	2.38	11
30-Aug-99	3.36	29

max r2: 0.086 max r2: 0.145

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.027	0.00025	-4.39	0.097	0.00064	-20.01
0.026	0.00025	-4.55	0.090	0.00064	-19.93
0.025	0.00025	-4.49	0.084	0.00062	-19.33
0.025	0.00025	-4.52	0.078	0.00061	-18.74
0.024	0.00025	-4.45	0.071	0.00058	-17.92
0.022	0.00025	-4.37	0.064	0.00056	-17.05
0.022	0.00025	-4.33	0.057	0.00054	-16.28
0.021	0.00024	-4.29	0.052	0.00052	-15.54
0.019	0.00024	-4.10	0.044	0.00048	-14.32
0.018	0.00024	-3.95	0.041	0.00047	-13.83
0.017	0.00023	-3.74	0.037	0.00045	-13.19
0.015	0.00022	-3.36	0.035	0.00045	-13.06
0.012	0.00020	-2.80	0.038	0.00048	-14.13
0.009	0.00018	-1.91	0.040	0.00050	-14.90
0.007	0.00016	-1.12	0.040	0.00051	-15.26
0.005	0.00014	-0.59	0.037	0.00050	-14.86
0.004	0.00013	-0.17	0.033	0.00047	-13.96
0.004	0.00012	0.12	0.028	0.00044	-12.91
0.003	0.00011	0.43	0.022	0.00040	-11.45
0.002	0.00010	1.04	0.017	0.00036	-9.85
0.001	0.00008	1.80	0.012	0.00030	-7.81
0.001	0.00006	2.35	0.008	0.00025	-6.04
0.000	0.00004	3.10	0.005	0.00020	-4.06
0.001	0.00006	2.24	0.005	0.00021	-4.50
0.000	0.00003	3.43	0.004	0.00019	-3.64
0.000	-0.00003	5.42	0.002	0.00013	-1.68
0.000	-0.00004	6.10	0.003	0.00016	-2.78
0.001	-0.00009	7.64	0.002	0.00013	-1.69
0.003	-0.00015	9.92	0.001	0.00008	0.05
0.007	-0.00022	12.32	0.001	0.00008	0.04
0.012	-0.00029	15.10	0.000	0.00001	2.57
0.018	-0.00037	17.75	0.001	-0.00009	6.35
0.025	-0.00045	20.72	0.004	-0.00023	11.49
0.032	-0.00052	23.36	0.011	-0.00039	17.10
0.042	-0.00062	26.67	0.023	-0.00059	24.12
0.030	-0.00053	23.65	0.018	-0.00053	22.07
0.016	-0.00039	18.54	0.007	-0.00033	14.87
0.016	-0.00041	19.12	0.007	-0.00034	15.40
0.010	-0.00034	16.54	0.003	-0.00025	12.04
0.005	-0.00024	13.13	0.000	-0.00005	4.70
0.005	-0.00025	13.51	0.000	0.00001	2.73
0.002	-0.00017	10.41	0.002	0.00020	-4.01
0.003	-0.00020	11.73	0.005	0.00035	-9.51
0.002	-0.00017	10.47	0.007	0.00041	-11.84
0.000	0.00000	4.59	0.011	0.00055	-16.75
0.004	0.00028	-5.61	0.020	0.00077	-24.74
0.016	0.00055	-15.48	0.031	0.00100	-32.98

0.017	0.00060	-17.07	0.027	0.00097	-32.08
0.021	0.00070	-20.75	0.028	0.00105	-34.72
0.022	0.00075	-22.49	0.027	0.00107	-35.51
0.026	0.00085	-26.31	0.030	0.00118	-39.70
0.017	-0.00046	21.07	0.001	0.00017	-2.90
0.015	-0.00047	21.39	0.002	0.00029	-7.42
0.030	-0.00068	28.91	0.003	0.00041	-11.61
0.006	-0.00031	15.60	0.025	0.00113	-37.64
0.007	-0.00033	16.35	0.028	0.00124	-41.82
0.000	0.00000	4.40	0.048	0.00170	-58.42
0.013	0.00047	-12.66	0.074	0.00222	-77.09
0.013	0.00049	-13.37	0.076	0.00236	-82.11
0.023	0.00069	-20.39	0.086	0.00265	-92.95
0.070	0.00123	-40.11	0.115	0.00324	-114.04
0.081	0.00140	-46.16	0.109	0.00331	-116.84
0.079	0.00146	-48.32	0.100	0.00332	-117.16
0.086	0.00160	-53.49	0.103	0.00355	-125.39
0.076	0.00155	-51.71	0.136	0.00422	-149.80
0.070	0.00153	-50.77	0.145	0.00449	-159.62
0.066	0.00152	-50.41	0.138	0.00447	-158.70
0.061	0.00148	-49.16	0.127	0.00433	-153.78
0.058	0.00147	-48.58	0.117	0.00418	-148.11
0.055	0.00144	-47.62	0.107	0.00399	-141.27
0.051	0.00140	-46.09	0.095	0.00376	-132.86

update for EV, CV:

tPb **CC287/288**

LN Analysis **tPb**

Load **Load Data, EV=80.4 lbs/day CV=5.32**

Load Data-based LN

		u	ln tPb Load	tPb Load
Avg:	**80**	3	8.2	3685
SD:	**428**	0	2.70	15
CV:	**5.32**	-3	-2.81	0.1
Min:	**0.1**			
Max:	**4,132**			
Median:	**11**			

80	80.4
5.32	5.32

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.905, EV=48.6lbs/day CV=3.14; max r2=0.97**

r2 u,lnLoad:	0.905	u	lnLoad	Load		
slope, m:	0.647	3	7.33	1519		
intercept, b:	-1.741	0	2.69	15		
N: 93		-3	-1.95	0.1		
E[Load]:	48.6	Parameter Estimates			0.905	0.905
SD[Load]:	153	from LN regression			48.6	48.6
CV[Load]:	3.14	update graph label			3.1	3.14
					max r2	
					0.966	

Date	tPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
		N: 93				
update and rank for new data						
26-Mar-97	**0.1**	1	0.0067	-2.473	-2.376	0.905
26-Oct-98	2.9	2	0.0174	-2.110	1.078	0.907
26-Oct-98	3.0	3	0.0282	-1.909	1.101	0.915
13-Sep-95	**3.2**	4	0.0389	-1.764	1.160	0.921
18-Feb-94	**3.2**	5	0.0496	-1.649	1.161	0.926
17-Dec-93	**3.5**	6	0.0603	-1.552	1.260	0.930
25-Jul-95	**3.6**	7	0.0710	-1.468	1.270	0.934
17-Dec-93	**3.6**	8	0.0818	-1.393	1.288	0.937
16-Oct-94	**3.9**	9	0.0925	-1.326	1.350	0.940
14-Aug-95	**3.9**	10	0.1032	-1.263	1.369	0.943
27-Oct-93	**4.0**	11	0.1139	-1.206	1.387	0.946
30-Nov-93	**4.2**	12	0.1247	-1.152	1.437	0.948
20-Jan-94	**4.2**	13	0.1354	-1.101	1.439	0.951
18-Nov-98	4.2	14	0.1461	-1.053	1.439	0.953
26-Oct-98	**4.2**	15	0.1568	-1.008	1.440	0.955
5-Oct-91	**4.3**	16	0.1676	-0.964	1.456	0.956
16-Aug-94	**4.5**	17	0.1783	-0.922	1.510	0.957
13-Sep-94	**4.5**	18	0.1890	-0.882	1.511	0.959
20-Jan-94	**4.7**	19	0.1997	-0.843	1.538	0.960
11-Jul-95	**4.7**	20	0.2105	-0.805	1.557	0.961
23-Feb-99	**4.9**	21	0.2212	-0.768	1.599	0.962
13-Dec-94	**5.0**	22	0.2319	-0.733	1.607	0.963
16-Nov-94	**5.0**	23	0.2426	-0.698	1.618	0.963
8-Oct-98	**5.2**	24	0.2534	-0.664	1.652	0.964
16-Aug-94	**5.4**	25	0.2641	-0.631	1.693	0.964
25-Jul-94	**5.6**	26	0.2748	-0.598	1.729	0.965
8-Mar-99	**5.7**	27	0.2855	-0.567	1.739	0.965
1-Oct-98	**5.8**	28	0.2962	-0.535	1.749	0.966
30-Aug-99	6.0	29	0.3070	-0.504	1.788	0.966
24-Mar-94	**6.0**	30	0.3177	-0.474	1.796	0.966
24-Sep-98	**6.1**	31	0.3284	-0.444	1.809	0.966
8-Mar-95	**6.1**	32	0.3391	-0.415	1.815	0.966
26-Aug-98	**6.2**	33	0.3499	-0.386	1.823	0.965
8-Mar-94	**6.6**	34	0.3606	-0.357	1.885	0.965
27-Jun-95	**6.8**	35	0.3713	-0.328	1.911	0.964
15-Dec-98	7.0	36	0.3820	-0.300	1.945	0.964
26-Feb-98	**7.4**	37	0.3928	-0.272	2.007	0.963
23-Jun-94	**7.6**	38	0.4035	-0.244	2.033	0.962
22-Jan-98	**8.2**	39	0.4142	-0.217	2.102	0.962
28-Jul-98	**8.2**	40	0.4249	-0.189	2.109	0.961
25-Apr-95	**8.3**	41	0.4357	-0.162	2.120	0.960
27-Nov-96	**8.9**	42	0.4464	-0.135	2.183	0.959
7-Apr-94	**9.6**	43	0.4571	-0.108	2.258	0.958
14-Nov-98	10.1	44	0.4678	-0.081	2.315	0.958
9-Feb-95	**10.2**	45	0.4786	-0.054	2.327	0.957
12-Apr-95	**10.4**	46	0.4893	-0.027	2.344	0.956
5-Aug-99	10.8	47	0.5000	0.000	2.377	0.955

30-Jan-97	**12.0**	48	0.5107	0.027	2.484	0.954
15-Jan-99	**12.1**	49	0.5214	0.054	2.491	0.953
9-Nov-97	**13.1**	50	0.5322	0.081	2.576	0.952
7-Jun-94	**13.3**	51	0.5429	0.108	2.589	0.952
20-Mar-98	**13.5**	52	0.5536	0.135	2.605	0.951
25-Nov-98	**13.6**	53	0.5643	0.162	2.608	0.950
9-Nov-97	15.3	54	0.5751	0.189	2.725	0.948
13-Dec-96	**16.0**	55	0.5858	0.217	2.771	0.947
19-May-94	**18.7**	56	0.5965	0.244	2.926	0.946
21-Feb-97	**19.0**	57	0.6072	0.272	2.947	0.946
8-Jul-99	19.1	58	0.6180	0.300	2.950	0.947
14-Aug-97	**19.1**	59	0.6287	0.328	2.951	0.946
26-Jun-98	**19.1**	60	0.6394	0.357	2.951	0.946
13-Jun-95	**19.2**	61	0.6501	0.386	2.954	0.944
26-Nov-97	**19.8**	62	0.6609	0.415	2.986	0.942
10-Jan-95	**20.8**	63	0.6716	0.444	3.035	0.940
27-Dec-95	**24.5**	64	0.6823	0.474	3.197	0.938
5-May-99	24.9	65	0.6930	0.504	3.213	0.937
4-May-94	**25.1**	66	0.7038	0.535	3.223	0.935
24-Jul-96	**25.4**	67	0.7145	0.567	3.236	0.932
22-Mar-95	**30.6**	68	0.7252	0.598	3.421	0.929
24-Jun-97	**30.7**	69	0.7359	0.631	3.424	0.928
16-Apr-97	**33.3**	70	0.7466	0.664	3.506	0.926
28-Dec-98	33.4	71	0.7574	0.698	3.509	0.924
28-Mar-96	**34.4**	72	0.7681	0.733	3.537	0.921
19-Dec-97	**37.3**	73	0.7788	0.768	3.620	0.917
21-Aug-96	**39.4**	74	0.7895	0.805	3.675	0.912
29-Oct-96	**51.6**	75	0.8003	0.843	3.943	0.908
14-May-98	**54.1**	76	0.8110	0.882	3.991	0.909
19-Jun-96	**58.9**	77	0.8217	0.922	4.076	0.910
4-Sep-97	**59.4**	78	0.8324	0.964	4.085	0.913
16-Oct-97	**59.9**	79	0.8432	1.008	4.092	0.915
26-Sep-96	**61.7**	80	0.8539	1.053	4.122	0.914
23-Mar-99	62.6	81	0.8646	1.101	4.137	0.912
14-May-98	64.1	82	0.8753	1.152	4.160	0.905
17-Jan-96	**69.6**	83	0.8861	1.206	4.242	0.895
18-Oct-95	**71.6**	84	0.8968	1.263	4.271	0.880
8-May-96	**96.0**	85	0.9075	1.326	4.565	0.859
2-Jun-99	128.4	86	0.9182	1.393	4.855	0.833
29-Feb-96	**168.4**	87	0.9290	1.468	5.126	0.808
15-Jun-99	212.2	88	0.9397	1.552	5.358	0.791
19-Apr-99	274.7	89	0.9504	1.649	5.616	0.787
21-Nov-95	**298.2**	90	0.9611	1.764	5.698	
23-Jul-97	**336.8**	91	0.9718	1.909	5.820	
27-May-99	351.0	92	0.9826	2.110	5.861	
24-May-99	4131.8	93	0.9933	2.473	8.326	

update for EV, CV:

tPb		**CC287/288**		135	135
LN Analysis		**tPb**		1.73	1.73
Concentration		**Conc. Data, EV=135 ug/L CV=1.73**			
Avg:	**135**	**Data-based LN**			
SD:	**233**	u	ln[tPb]	[tPb]	
CV:	**1.73**	3	7.7	2305	
Min:	**0**	0	4.21	67	
Max:	**2,000**	-3	0.68	2	
Median:	**61**				

				0.713	0.713
u=mLn{Conc.}+b:				173.9	174
update for r2, EV, CV:	**r2=0.713, EV=174 ug/L CV=1.99; max r2=0.98**			1.988	1.99
r2 u,lnConc:	0.713	u	lnConc.	Conc.	
slope, m:	0.791	3	8.15	3474	
intercept, b:	-3.445	0	4.36	78	
N: 93		-3	0.56	2	
E[Conc]:	173.9	Parameter Estimates			
SD[Conc]:	346	from LN regression			
CV[Conc]:	1.99	update graph label			

						max r2
	tPb	N: 93				0.976
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
26-Mar-97	0.12	1	0.0067	-2.473	-2.120	0.713
8-Mar-95	31	2	0.0174	-2.110	3.434	0.837
8-Jul-99	33.2	3	0.0282	-1.909	3.503	0.842
19-May-94	34	4	0.0389	-1.764	3.526	0.846
25-Apr-95	36	5	0.0496	-1.649	3.584	0.850
27-Jun-95	36	6	0.0603	-1.552	3.584	0.854
13-Jun-95	37	7	0.0710	-1.468	3.611	0.857
7-Jun-94	39	8	0.0818	-1.393	3.664	0.859
4-May-94	42	9	0.0925	-1.326	3.738	0.862
26-Oct-98	42	10	0.1032	-1.263	3.738	0.867
26-Oct-98	43	11	0.1139	-1.206	3.761	0.871
9-Feb-95	44	12	0.1247	-1.152	3.784	0.875
11-Jul-95	44	13	0.1354	-1.101	3.784	0.879
25-Jul-95	45	14	0.1461	-1.053	3.807	0.882
12-Apr-95	46	15	0.1568	-1.008	3.829	0.886
24-Jun-97	46	16	0.1676	-0.964	3.829	0.890
23-Feb-99	46	17	0.1783	-0.922	3.829	0.894
8-Mar-99	46	18	0.1890	-0.882	3.829	0.897
7-Apr-94	47	19	0.1997	-0.843	3.850	0.900
26-Oct-98	47	20	0.2105	-0.805	3.850	0.903
14-May-98	48.8	21	0.2212	-0.768	3.888	0.906
23-Jun-94	49	22	0.2319	-0.733	3.892	0.910
18-Nov-98	49	23	0.2426	-0.698	3.892	0.913
16-Oct-94	50	24	0.2534	-0.664	3.912	0.916
30-Aug-99	50.5	25	0.2641	-0.631	3.922	0.919
14-May-98	51.1	26	0.2748	-0.598	3.934	0.922
18-Feb-94	52	27	0.2855	-0.567	3.951	0.925
13-Sep-95	52	28	0.2962	-0.535	3.951	0.929
15-Dec-98	52	29	0.3070	-0.504	3.951	0.932
24-Mar-94	53	30	0.3177	-0.474	3.970	0.935
13-Sep-94	53	31	0.3284	-0.444	3.970	0.938
13-Dec-94	54	32	0.3391	-0.415	3.989	0.941
5-Oct-91	55	33	0.3499	-0.386	4.007	0.943
8-Mar-94	55	34	0.3606	-0.357	4.007	0.947
25-Jul-94	55	35	0.3713	-0.328	4.007	0.949
5-May-99	55	36	0.3820	-0.300	4.007	0.952
27-Oct-93	56	37	0.3928	-0.272	4.025	0.954
17-Dec-93	56	38	0.4035	-0.244	4.025	0.957
17-Dec-93	56	39	0.4142	-0.217	4.025	0.959
26-Jun-98	56	40	0.4249	-0.189	4.025	0.961
14-Aug-95	58	41	0.4357	-0.162	4.060	0.963
5-Aug-99	58.9	42	0.4464	-0.135	4.076	0.965
20-Jan-94	59	43	0.4571	-0.108	4.078	0.967
20-Jan-94	59	44	0.4678	-0.081	4.078	0.969
16-Nov-94	59	45	0.4786	-0.054	4.078	0.970
26-Aug-98	59	46	0.4893	-0.027	4.078	0.972
8-Oct-98	61	47	0.5000	0.000	4.111	0.973

30-Nov-93	62	48	0.5107	0.027	4.127	0.974
16-Aug-94	62	49	0.5214	0.054	4.127	0.975
16-Aug-94	62	50	0.5322	0.081	4.127	0.976
26-Feb-98	62	51	0.5429	0.108	4.127	0.976
28-Jul-98	62	52	0.5536	0.135	4.127	0.976
1-Oct-98	64	53	0.5643	0.162	4.159	0.976
22-Mar-95	66	54	0.5751	0.189	4.190	0.976
24-Sep-98	66	55	0.5858	0.217	4.190	0.976
15-Jan-99	68	56	0.5965	0.244	4.220	0.975
30-Jan-97	71	57	0.6072	0.272	4.263	0.974
19-Jun-96	74	58	0.6180	0.300	4.304	0.974
9-Nov-97	74.7	59	0.6287	0.328	4.313	0.973
27-Nov-96	76	60	0.6394	0.357	4.331	0.972
20-Mar-98	76	61	0.6501	0.386	4.331	0.971
9-Nov-97	77.5	62	0.6609	0.415	4.350	0.970
14-Nov-98	83.5	63	0.6716	0.444	4.425	0.968
22-Jan-98	84	64	0.6823	0.474	4.431	0.967
21-Feb-97	91	65	0.6930	0.504	4.511	0.965
14-Aug-97	94	66	0.7038	0.535	4.543	0.963
25-Nov-98	97	67	0.7145	0.567	4.575	0.961
28-Mar-96	98	68	0.7252	0.598	4.585	0.959
2-Jun-99	99	69	0.7359	0.631	4.595	0.956
13-Dec-96	100	70	0.7466	0.664	4.605	0.953
27-Dec-95	108	71	0.7574	0.698	4.682	0.951
16-Apr-97	112	72	0.7681	0.733	4.718	0.948
23-Mar-99	120	73	0.7788	0.768	4.787	0.945
26-Nov-97	124	74	0.7895	0.805	4.820	0.942
24-Jul-96	132	75	0.8003	0.843	4.883	0.940
10-Jan-95	137	76	0.8110	0.882	4.920	0.938
15-Jun-99	150	77	0.8217	0.922	5.011	0.940
8-May-96	219	78	0.8324	0.964	5.389	0.945
28-Dec-98	230	79	0.8432	1.008	5.438	0.940
27-May-99	250	80	0.8539	1.053	5.521	0.935
17-Jan-96	254	81	0.8646	1.101	5.537	0.931
29-Feb-96	282	82	0.8753	1.152	5.642	0.924
19-Dec-97	288	83	0.8861	1.206	5.663	0.921
21-Aug-96	314	84	0.8968	1.263	5.749	0.913
4-Sep-97	325	85	0.9075	1.326	5.784	0.907
19-Apr-99	370	86	0.9182	1.393	5.914	0.896
29-Oct-96	408	87	0.9290	1.468	6.011	0.893
18-Oct-95	424	88	0.9397	1.552	6.050	0.900
16-Oct-97	438	89	0.9504	1.649	6.082	0.902
23-Jul-97	564	90	0.9611	1.764	6.335	
26-Sep-96	588	91	0.9718	1.909	6.377	
21-Nov-95	680	92	0.9826	2.110	6.522	
24-May-99	2000	93	0.9933	2.473	7.601	

update for EV, CV:

tPb		**CC287/288**			41	41.1
LN Analysis		**tPb**			0.92	0.92
Discharge, Q		**Q Data, EV=41.1 cfs CV=0.92**				
Avg:	**41**	**Q Data-based LN**				
SD:	**38**	u	lnQ	Q		
CV:	**0.92**	3	5.8	317		
Min:	**11**	0	3.41	30		
Max:	**206**	-3	1.06	3		
Median:	**26**					

					0.936	0.936
					40.8	40.8
u=mLn{Q}+b:					0.88	0.884
update for r2, EV, CV:	**r2=0.936, EV=40.8 cfs CV=0.884; max r2=0.98**					
r2 u,lnQ:	0.936	u	lnQ	Q		
slope, m:	1.316	3	5.70	299		
intercept, b:	-4.498	0	3.42	31		
N: 75		-3	1.14	3		
E[Q]:	40.8	Parameter Estimates				
SD[Q]:	36	from LN regression				
CV[Q]:	0.88	update graph label				

						max r2
	Q	N: 93				0.979
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
13-Sep-95	11.4	1	0.0083	-2.395	2.434	0.936
18-Feb-94	11.41	2	0.0216	-2.022	2.434	0.950
17-Dec-93	11.7	3	0.0349	-1.813	2.460	0.956
17-Dec-93	12.03	4	0.0482	-1.663	2.487	0.960
14-Aug-95	12.6	5	0.0615	-1.543	2.534	0.964
30-Nov-93	12.62	6	0.0748	-1.441	2.535	0.966
27-Oct-93	13.28	7	0.0880	-1.353	2.586	0.968
20-Jan-94	13.28	8	0.1013	-1.274	2.586	0.970
16-Aug-94	13.57	9	0.1146	-1.202	2.608	0.972
16-Oct-94	14.34	10	0.1279	-1.136	2.663	0.973
5-Oct-91	14.5	11	0.1412	-1.075	2.674	0.974
20-Jan-94	14.66	12	0.1545	-1.017	2.685	0.975
25-Jul-95	14.71	13	0.1678	-0.963	2.689	0.976
13-Sep-94	15.89	14	0.1811	-0.911	2.766	0.977
16-Nov-94	15.89	15	0.1944	-0.862	2.766	0.978
8-Oct-98	15.9	16	0.2076	-0.815	2.766	0.978
16-Aug-94	16.3	17	0.2209	-0.769	2.791	0.979
1-Oct-98	16.7	18	0.2342	-0.725	2.815	0.979
26-Oct-98	16.7	19	0.2475	-0.682	2.815	0.979
13-Dec-94	17.17	20	0.2608	-0.641	2.843	0.979
24-Sep-98	17.2	21	0.2741	-0.601	2.845	0.979
22-Jan-98	18.1	22	0.2874	-0.561	2.896	0.978
25-Jul-94	19.04	23	0.3007	-0.522	2.947	0.978
26-Sep-96	19.5	24	0.3140	-0.485	2.970	0.978
26-Aug-98	19.5	25	0.3272	-0.448	2.970	0.978
23-Feb-99	20	26	0.3405	-0.411	2.996	0.978
11-Jul-95	20.05	27	0.3538	-0.375	2.998	0.978
24-Mar-94	21.13	28	0.3671	-0.340	3.051	0.977
27-Nov-96	21.7	29	0.3804	-0.304	3.077	0.977
8-Mar-94	22.26	30	0.3937	-0.270	3.103	0.976
26-Feb-98	22.3	31	0.4070	-0.235	3.105	0.976
8-Mar-99	23	32	0.4203	-0.201	3.135	0.975
21-Aug-96	23.342375	33	0.4336	-0.167	3.150	0.975
29-Oct-96	23.5	34	0.4468	-0.134	3.157	0.974
19-Dec-97	24.1	35	0.4601	-0.100	3.182	0.973
28-Jul-98	24.7	36	0.4734	-0.067	3.207	0.972
16-Oct-97	25.4	37	0.4867	-0.033	3.235	0.971
25-Nov-98	26	38	0.5000	0.000	3.258	0.969
10-Jan-95	28.21	39	0.5133	0.033	3.340	0.968
23-Jun-94	28.96	40	0.5266	0.067	3.366	0.967
13-Dec-96	29.7	41	0.5399	0.100	3.391	0.966
26-Nov-97	29.7	42	0.5532	0.134	3.391	0.965
18-Oct-95	31.4	43	0.5664	0.167	3.447	0.963
30-Jan-97	31.4	44	0.5797	0.201	3.447	0.962
9-Nov-97	32.7	45	0.5930	0.235	3.487	0.960
15-Jan-99	33	46	0.6063	0.270	3.497	0.959
20-Mar-98	33.1	47	0.6196	0.304	3.500	0.956

4-Sep-97	34	48	0.6329	0.340	3.526	0.954
27-Jun-95	34.9	49	0.6462	0.375	3.552	0.951
24-Jul-96	35.8	50	0.6595	0.411	3.578	0.948
8-Mar-95	36.82	51	0.6728	0.448	3.606	0.944
14-Aug-97	37.8	52	0.6860	0.485	3.632	0.940
7-Apr-94	37.82	53	0.6993	0.522	3.633	0.936
21-Feb-97	38.9	54	0.7126	0.561	3.661	0.932
27-Dec-95	42.1	55	0.7259	0.601	3.740	0.929
12-Apr-95	42.13	56	0.7392	0.641	3.741	0.924
25-Apr-95	43	57	0.7525	0.682	3.761	0.922
9-Feb-95	43.28	58	0.7658	0.725	3.768	0.923
17-Jan-96	50.9	59	0.7791	0.769	3.930	0.938
16-Apr-97	55.3	60	0.7924	0.815	4.013	0.943
7-Jun-94	63.45	61	0.8056	0.862	4.150	0.948
26-Jun-98	63.5	62	0.8189	0.911	4.151	0.944
28-Mar-96	65.2	63	0.8322	0.963	4.177	0.949
21-Nov-95	81.5	64	0.8455	1.017	4.401	0.973
8-May-96	81.5	65	0.8588	1.075	4.401	0.969
22-Mar-95	86.16	66	0.8721	1.136	4.456	0.968
13-Jun-95	96.41	67	0.8854	1.202	4.569	0.968
19-May-94	102.01	68	0.8987	1.274	4.625	0.962
29-Feb-96	111	69	0.9120	1.353	4.710	0.955
23-Jul-97	111	70	0.9252	1.441	4.710	0.968
4-May-94	111.05	71	0.9385	1.543	4.710	0.966
24-Jun-97	124	72	0.9518	1.663	4.820	
26-Mar-97	144	73	0.9651	1.813	4.970	
19-Jun-96	148	74	0.9784	2.022	4.997	
14-May-98	206	75	0.9917	2.395	5.328	
9-Nov-97			-0.0050			
14-May-98			-0.0050			
26-Oct-98			-0.0050			
26-Oct-98			-0.0050			
14-Nov-98			-0.0050			
18-Nov-98			-0.0050			
15-Dec-98			-0.0050			
28-Dec-98			-0.0050			
23-Mar-99			-0.0050			
19-Apr-99			-0.0050			
5-May-99			-0.0050			
24-May-99			-0.0050			
27-May-99			-0.0050			
2-Jun-99			-0.0050			
15-Jun-99			-0.0050			
8-Jul-99			-0.0050			
5-Aug-99			-0.0050			
30-Aug-99			-0.0050			

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC287/288 **Date:** 2-Jun-00
Chemical: tZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,353	55	2,856	575	0.00	0.00	0.00
SD:	702	66	1,440	474	1.00	1.00	1.00
CV:	0.02	1.20	0.50	0.83			
Min:	33,516	11	470	140.1	-0.66	-1.66	-0.92
Max:	36,402	384	6,950	2,913	5.00	2.84	4.93
Median:	35,396	29	2,730	478	-0.39	-0.09	-0.20

tZn **CC287/288** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.275) update r2 0.27 0.275 r2: 0.105 0.103

r2 Q,[COC]:	0.27	[tZn]	Q	m:	0.0304	0.00039
slope, m:	-11.5	3,353	11.4	b:	-1019	-10.40
intercept, b:	3484.0	2,856	54.8			
N: 93		-914	384			

LnConc. = mLn{Q}+b (r2=0.476) update r2 0.48 0.476

r2 lnQ,ln[COC]:	0.48	ln[tZn]	ln Q	[tZn]	Q
slope, m:	-0.48	8.34	2.43	4,185	11
intercept, b:	9.50	7.59	4.00	1,980	55
N: 93		6.66	5.95	783	384

for graph
tZn 0
CC287/288

N= 93

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	5-Oct-91	14.5	3430	268	2.67	8.14	5.59	-0.61	0.40	-0.65
IDEQ	27-Oct-93	13.28	3420	244	2.59	8.14	5.50	-0.63	0.39	-0.70
IDEQ	30-Nov-93	12.62	4050	275	2.54	8.31	5.62	-0.64	0.83	-0.63
IDEQ	17-Dec-93	11.7	5180	326	2.46	8.55	5.79	-0.65	1.61	-0.52
IDEQ	17-Dec-93	12.03	5180	335	2.49	8.55	5.81	-0.65	1.61	-0.51
IDEQ	20-Jan-94	13.28	5050	361	2.59	8.53	5.89	-0.63	1.52	-0.45
IDEQ	20-Jan-94	14.66	5050	398	2.69	8.53	5.99	-0.61	1.52	-0.37
IDEQ	18-Feb-94	11.41	4620	284	2.43	8.44	5.65	-0.66	1.22	-0.61
IDEQ	8-Mar-94	22.26	4460	534	3.10	8.40	6.28	-0.49	1.11	-0.09
IDEQ	24-Mar-94	21.13	4600	523	3.05	8.43	6.26	-0.51	1.21	-0.11
IDEQ	7-Apr-94	37.82	2350	478	3.63	7.76	6.17	-0.26	-0.35	-0.20
IDEQ	4-May-94	111.05	1160	693	4.71	7.06	6.54	0.85	-1.18	0.25
IDEQ	19-May-94	102.01	1000	549	4.63	6.91	6.31	0.72	-1.29	-0.05
IDEQ	7-Jun-94	63.45	1520	519	4.15	7.33	6.25	0.13	-0.93	-0.12
IDEQ	23-Jun-94	28.96	1690	263	3.37	7.43	5.57	-0.39	-0.81	-0.66
IDEQ	25-Jul-94	19.04	2390	245	2.95	7.78	5.50	-0.54	-0.32	-0.70
IDEQ	16-Aug-94	16.3	2850	250	2.79	7.96	5.52	-0.58	0.00	-0.68
IDEQ	16-Aug-94	13.57	2850	208	2.61	7.96	5.34	-0.63	0.00	-0.77
IDEQ	13-Sep-94	15.89	2880	246	2.77	7.97	5.51	-0.59	0.02	-0.69
IDEQ	16-Oct-94	14.34	3430	265	2.66	8.14	5.58	-0.61	0.40	-0.65
IDEQ	16-Nov-94	15.89	5500	470	2.77	8.61	6.15	-0.59	1.84	-0.22
IDEQ	13-Dec-94	17.17	6640	613	2.84	8.80	6.42	-0.57	2.63	0.08
IDEQ	10-Jan-95	28.21	6320	959	3.34	8.75	6.87	-0.40	2.41	0.81
IDEQ	9-Feb-95	43.28	3230	752	3.77	8.08	6.62	-0.18	0.26	0.37
IDEQ	8-Mar-95	36.82	2530	501	3.61	7.84	6.22	-0.27	-0.23	-0.16
IDEQ	22-Mar-95	86.16	3970	1840	4.46	8.29	7.52	0.48	0.77	2.67
IDEQ	12-Apr-95	42.13	2550	578	3.74	7.84	6.36	-0.19	-0.21	0.01
IDEQ	25-Apr-95	43	2100	486	3.76	7.65	6.19	-0.18	-0.53	-0.19
IDEQ	13-Jun-95	96.41	919	477	4.57	6.82	6.17	0.63	-1.35	-0.21
IDEQ	27-Jun-95	34.9	1220	229	3.55	7.11	5.43	-0.30	-1.14	-0.73
IDEQ	11-Jul-95	20.05	1690	182	3.00	7.43	5.21	-0.53	-0.81	-0.83
IDEQ	25-Jul-95	14.71	1770	140	2.69	7.48	4.94	-0.61	-0.75	-0.92
IDEQ	14-Aug-95	12.6	2490	169	2.53	7.82	5.13	-0.64	-0.25	-0.86
IDEQ	13-Sep-95	11.4	2780	171	2.43	7.93	5.14	-0.66	-0.05	-0.85
IDEQ	18-Oct-95	31.4	3020	510	3.45	8.01	6.23	-0.36	0.11	-0.14
IDEQ	21-Nov-95	81.5	1960	859	4.40	7.58	6.76	0.40	-0.62	0.60
IDEQ	27-Dec-95	42.1	2500	566	3.74	7.82	6.34	-0.19	-0.25	-0.02
IDEQ	17-Jan-96	50.9	3830	1049	3.93	8.25	6.96	-0.06	0.68	1.00
IDEQ	29-Feb-96	111	2370	1415	4.71	7.77	7.26	0.85	-0.34	1.77
IDEQ	28-Mar-96	65.2	2230	782	4.18	7.71	6.66	0.16	-0.43	0.44
IDEQ	8-May-96	81.5	1660	728	4.40	7.41	6.59	0.40	-0.83	0.32
IDEQ	19-Jun-96	148	836	666	5.00	6.73	6.50	1.41	-1.40	0.19
IDEQ	24-Jul-96	35.8	1550	299	3.58	7.35	5.70	-0.29	-0.91	-0.58
IDEQ	21-Aug-96	23.342375	3730	468	3.15	8.22	6.15	-0.48	0.61	-0.22
IDEQ	26-Sep-96	19.5	2770	291	2.97	7.93	5.67	-0.54	-0.06	-0.60
IDEQ	29-Oct-96	23.5	3840	485	3.16	8.25	6.19	-0.48	0.68	-0.19
IDEQ	27-Nov-96	21.7	4480	523	3.08	8.41	6.26	-0.50	1.13	-0.11

IDEQ	13-Dec-96	29.7	5500	879	3.39	8.61	6.78	-0.38	1.84	0.64
IDEQ	30-Jan-97	31.4	3500	591	3.45	8.16	6.38	-0.36	0.45	0.03
IDEQ	21-Feb-97	38.9	3980	833	3.66	8.29	6.72	-0.24	0.78	0.54
IDEQ	26-Mar-97	144	3760	2913	4.97	8.23	7.98	1.35	0.63	4.93
IDEQ	16-Apr-97	55.3	3340	994	4.01	8.11	6.90	0.01	0.34	0.88
IDEQ	24-Jun-97	124	726	484	4.82	6.59	6.18	1.05	-1.48	-0.19
IDEQ	23-Jul-97	111	1330	794	4.71	7.19	6.68	0.85	-1.06	0.46
IDEQ	14-Aug-97	37.8	1900	386	3.63	7.55	5.96	-0.26	-0.66	-0.40
IDEQ	4-Sep-97	34	2540	465	3.53	7.84	6.14	-0.32	-0.22	-0.23
IDEQ	16-Oct-97	25.4	2850	389	3.23	7.96	5.96	-0.45	0.00	-0.39
URS	9-Nov-97	32.7	2680	471	3.49	7.89	6.16	-0.34	-0.12	-0.22
IDEQ	26-Nov-97	29.7	2750	439	3.39	7.92	6.09	-0.38	-0.07	-0.29
IDEQ	19-Dec-97	24.1	3440	446	3.18	8.14	6.10	-0.47	0.41	-0.27
IDEQ	22-Jan-98	18.1	3320	323	2.90	8.11	5.78	-0.56	0.32	-0.53
IDEQ	26-Feb-98	22.3	3460	415	3.10	8.15	6.03	-0.49	0.42	-0.34
IDEQ	20-Mar-98	33.1	2730	486	3.50	7.91	6.19	-0.33	-0.09	-0.19
URS	14-May-98	206	641	710	5.33	6.46	6.57	2.29	-1.54	0.29
IDEQ	26-Jun-98	63.5	1200	410	4.15	7.09	6.02	0.13	-1.15	-0.35
IDEQ	28-Jul-98	24.7	1700	226	3.21	7.44	5.42	-0.46	-0.80	-0.74
IDEQ	26-Aug-98	19.5	2080	218	2.97	7.64	5.39	-0.54	-0.54	-0.75
IDEQ	24-Sep-98	17.2	2220	205	2.84	7.71	5.33	-0.57	-0.44	-0.78
IDEQ	1-Oct-98	16.7	2220	199	2.82	7.71	5.30	-0.58	-0.44	-0.79
IDEQ	8-Oct-98	15.9	2680	229	2.77	7.89	5.43	-0.59	-0.12	-0.73
IDEQ	26-Oct-98	16.7	2290	206	2.82	7.74	5.33	-0.58	-0.39	-0.78
IDEQ	25-Nov-98	26	6950	972	3.26	8.85	6.88	-0.44	2.84	0.84
IDEQ	15-Jan-99	33	3730	662	3.50	8.22	6.50	-0.33	0.61	0.18
IDEQ	23-Feb-99	20	3710	399	3.00	8.22	5.99	-0.53	0.59	-0.37
IDEQ	8-Mar-99	23	3870	479	3.14	8.26	6.17	-0.48	0.70	-0.20
URS	9-Nov-97	36.6	2750	541	3.60	7.92	6.29	-0.28	-0.07	-0.07
URS	14-May-98	233	675	846	5.45	6.51	6.74	2.70	-1.51	0.57
USGS	26-Oct-98	13	2200	154	2.56	7.70	5.04	-0.63	-0.46	-0.89
USGS	26-Oct-98	13	2300	161	2.56	7.74	5.08	-0.63	-0.39	-0.87
URS	14-Nov-98	22.53	4620	560	3.11	8.44	6.33	-0.49	1.22	-0.03
USGS	18-Nov-98	16	3900	336	2.77	8.27	5.82	-0.59	0.72	-0.50
USGS	15-Dec-98	25	4500	605	3.22	8.41	6.41	-0.45	1.14	0.06
USGS	28-Dec-98	27	4200	610	3.30	8.34	6.41	-0.42	0.93	0.07
USGS	23-Mar-99	97	3600	1879	4.57	8.19	7.54	0.64	0.52	2.75
USGS	19-Apr-99	138	1900	1411	4.93	7.55	7.25	1.26	-0.66	1.76
USGS	5-May-99	84	1300	587	4.43	7.17	6.38	0.44	-1.08	0.03
USGS	24-May-99	384	1400	2892	5.95	7.24	7.97	5.00	-1.01	4.88
USGS	27-May-99	261	660	927	5.56	6.49	6.83	3.13	-1.52	0.74
USGS	2-Jun-99	241	570	739	5.48	6.35	6.61	2.83	-1.59	0.35
USGS	15-Jun-99	263	470	665	5.57	6.15	6.50	3.16	-1.66	0.19
USGS	8-Jul-99	107	664	382	4.67	6.50	5.95	0.79	-1.52	-0.41
USGS	5-Aug-99	34	1390	254	3.53	7.24	5.54	-0.32	-1.02	-0.68
USGS	30-Aug-99	22	1780	211	3.09	7.48	5.35	-0.50	-0.75	-0.77

tZn

Concentration over time analysis r2 Slope, m

	tZn	**CC287/288**		**Concentration over time**	
	LnConc.=mTime+b All data r2, m:			**0.089**	**-0.00025**
	Time	**Ln[COC]**	**[COC]**		
first:	5-Oct-91	8.27	3,910		
mid:	27-Nov-96	7.79	2,424		
last:	30-Aug-99	7.54	1,877		
	LnConc.=mTime+b >'96 r2, m:			**0.058**	**-0.00061**
	21-Feb-97	7.97	2,897		
	30-Aug-99	7.41	1,658		

Load over time analysis

	tZn	**CC287/288**		**Load over time**	
	LnLoad=mTime+b All data r2, m:			**0.025**	**0.00014**
	Time	**LnLoad**	**Load**		
first:	5-Oct-91	5.88	357		
mid:	27-Nov-96	6.14	465		
last:	30-Aug-99	6.28	535		
	LnLoad=mTime+b >'96 r2, m:			**0.011**	**-0.00028**
	21-Feb-97	6.36	577		
	30-Aug-99	6.10	444		

max r2: 0.136 max r2: 0.068

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.089	-0.00025	16.80	0.025	0.00014	1.17
0.087	-0.00026	17.00	0.019	0.00013	1.62
0.083	-0.00026	16.95	0.015	0.00011	2.11
0.078	-0.00025	16.73	0.012	0.00010	2.51
0.069	-0.00024	16.24	0.010	0.00010	2.77
0.060	-0.00022	15.70	0.008	0.00009	3.02
0.051	-0.00021	15.15	0.007	0.00008	3.21
0.043	-0.00019	14.56	0.007	0.00008	3.31
0.036	-0.00018	14.02	0.004	0.00007	3.80
0.029	-0.00016	13.47	0.005	0.00007	3.60
0.023	-0.00014	12.85	0.006	0.00008	3.40
0.023	-0.00015	13.00	0.006	0.00008	3.30
0.033	-0.00018	14.05	0.008	0.00010	2.72
0.047	-0.00022	15.39	0.009	0.00011	2.40
0.057	-0.00024	16.27	0.010	0.00011	2.14
0.066	-0.00026	17.08	0.007	0.00009	2.81
0.068	-0.00027	17.44	0.004	0.00007	3.64
0.067	-0.00028	17.55	0.002	0.00005	4.52
0.066	-0.00028	17.68	0.000	0.00001	5.79
0.065	-0.00028	17.79	0.000	-0.00002	6.90
0.060	-0.00028	17.60	0.002	-0.00005	7.99
0.047	-0.00025	16.57	0.002	-0.00006	8.19
0.033	-0.00021	15.09	0.001	-0.00005	7.93
0.021	-0.00016	13.56	0.000	-0.00002	6.82
0.017	-0.00015	13.13	0.000	0.00000	6.07
0.016	-0.00015	13.14	0.000	0.00000	6.03
0.011	-0.00013	12.21	0.004	0.00008	3.33
0.010	-0.00012	12.12	0.005	0.00009	2.79
0.011	-0.00013	12.45	0.005	0.00010	2.59
0.023	-0.00020	14.70	0.005	0.00011	2.42
0.035	-0.00025	16.54	0.002	0.00006	4.00
0.043	-0.00028	17.80	0.000	-0.00001	6.40
0.052	-0.00032	19.11	0.005	-0.00010	9.88
0.053	-0.00033	19.60	0.017	-0.00020	13.34
0.051	-0.00034	19.80	0.040	-0.00031	17.24
0.047	-0.00034	19.72	0.043	-0.00033	18.14
0.054	-0.00037	21.04	0.036	-0.00031	17.38
0.055	-0.00039	21.65	0.037	-0.00033	17.93
0.045	-0.00036	20.73	0.025	-0.00028	16.23
0.047	-0.00038	21.50	0.012	-0.00019	13.07
0.050	-0.00042	22.60	0.007	-0.00016	11.82
0.063	-0.00048	25.08	0.004	-0.00012	10.66
0.108	-0.00065	30.95	0.002	-0.00010	9.71
0.136	-0.00075	34.72	0.007	-0.00017	12.40
0.125	-0.00075	34.60	0.008	-0.00020	13.27
0.127	-0.00078	35.91	0.017	-0.00029	16.78
0.114	-0.00077	35.47	0.020	-0.00033	17.97

0.095	-0.00073	33.89	0.021	-0.00035	18.88
0.069	-0.00064	30.54	0.013	-0.00029	16.57
0.058	-0.00061	29.48	0.011	-0.00028	16.46
0.043	-0.00054	27.15	0.006	-0.00021	13.76
0.030	-0.00047	24.65	0.003	0.00015	0.69
0.021	-0.00041	22.46	0.016	0.00035	-6.35
0.056	-0.00069	32.53	0.018	0.00039	-8.00
0.082	-0.00087	39.01	0.035	0.00056	-14.23
0.095	-0.00099	43.33	0.033	0.00058	-14.84
0.096	-0.00105	45.45	0.037	0.00065	-17.38
0.091	-0.00107	46.24	0.036	0.00067	-18.19
0.089	-0.00111	47.61	0.041	0.00076	-21.14
0.084	-0.00114	48.76	0.044	0.00083	-23.80
0.070	-0.00109	46.88	0.049	0.00092	-27.06
0.056	-0.00102	44.59	0.041	0.00089	-26.09
0.042	-0.00092	40.83	0.042	0.00095	-28.02
0.035	-0.00088	39.49	0.048	0.00107	-32.41
0.084	-0.00136	56.86	0.068	0.00131	-41.23
0.114	-0.00162	66.04	0.068	0.00135	-42.81
0.127	-0.00175	70.87	0.053	0.00120	-37.42
0.131	-0.00181	73.09	0.040	0.00104	-31.53
0.132	-0.00184	74.16	0.029	0.00087	-25.36
0.133	-0.00187	75.21	0.018	0.00068	-18.44
0.128	-0.00185	74.64	0.011	0.00051	-12.13

update for EV, CV:

tZn **CC287/288**

LN Analysis **tZn**

Load **Load Data, EV=575 lbs/day CV=0.76**

Load Data-based LN

		u	ln tZn Load	tZn Load
Avg:	**575**			
SD:	**474**	3	8.3	3853
CV:	**0.83**	0	6.09	443
Min:	**140.1**	-3	3.93	51.0
Max:	**2,913**			
Median:	**478**			
		575	575	
		0.83	0.76	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.97, EV=569lbs/day CV=0.65; max r2=0.977**

r2 u,lnLoad:	0.973	u	lnLoad	Load		
slope, m:	1.548	3	8.07	3208		
intercept, b:	-9.499	0	6.14	462		
N: 93		-3	4.20	66.6		
E[Load]:	569.3	Parameter Estimates			0.970	0.97
SD[Load]:	410	from LN regression			569.3	569
CV[Load]:	0.72	update graph label			0.7	0.65
					max r2	
					0.977	

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
		N: 93				
update and rank for new data						
25-Jul-95	**140**	1	0.0067	-2.473	4.942	0.973
26-Oct-98	154	2	0.0174	-2.110	5.036	0.976
26-Oct-98	161	3	0.0282	-1.909	5.081	0.977
14-Aug-95	**169**	4	0.0389	-1.764	5.129	0.977
13-Sep-95	**171**	5	0.0496	-1.649	5.139	0.977
11-Jul-95	**182**	6	0.0603	-1.552	5.206	0.977
1-Oct-98	**199**	7	0.0710	-1.468	5.296	0.976
24-Sep-98	**205**	8	0.0818	-1.393	5.325	0.976
26-Oct-98	**206**	9	0.0925	-1.326	5.327	0.976
16-Aug-94	**208**	10	0.1032	-1.263	5.338	0.976
30-Aug-99	211	11	0.1139	-1.206	5.350	0.975
26-Aug-98	**218**	12	0.1247	-1.152	5.385	0.975
28-Jul-98	**226**	13	0.1354	-1.101	5.420	0.974
27-Jun-95	**229**	14	0.1461	-1.053	5.434	0.973
8-Oct-98	**229**	15	0.1568	-1.008	5.435	0.972
27-Oct-93	**244**	16	0.1676	-0.964	5.499	0.971
25-Jul-94	**245**	17	0.1783	-0.922	5.501	0.971
13-Sep-94	**246**	18	0.1890	-0.882	5.506	0.970
16-Aug-94	**250**	19	0.1997	-0.843	5.521	0.969
5-Aug-99	254	20	0.2105	-0.805	5.538	0.968
23-Jun-94	**263**	21	0.2212	-0.768	5.573	0.966
16-Oct-94	**265**	22	0.2319	-0.733	5.578	0.965
5-Oct-91	**268**	23	0.2426	-0.698	5.589	0.964
30-Nov-93	**275**	24	0.2534	-0.664	5.617	0.963
18-Feb-94	**284**	25	0.2641	-0.631	5.648	0.962
26-Sep-96	**291**	26	0.2748	-0.598	5.672	0.961
24-Jul-96	**299**	27	0.2855	-0.567	5.699	0.959
22-Jan-98	**323**	28	0.2962	-0.535	5.779	0.958
17-Dec-93	**326**	29	0.3070	-0.504	5.787	0.957
17-Dec-93	**335**	30	0.3177	-0.474	5.815	0.955
18-Nov-98	336	31	0.3284	-0.444	5.816	0.954
20-Jan-94	**361**	32	0.3391	-0.415	5.888	0.952
8-Jul-99	382	33	0.3499	-0.386	5.946	0.951
14-Aug-97	**386**	34	0.3606	-0.357	5.957	0.951
16-Oct-97	**389**	35	0.3713	-0.328	5.965	0.950
20-Jan-94	**398**	36	0.3820	-0.300	5.987	0.949
23-Feb-99	**399**	37	0.3928	-0.272	5.989	0.949
26-Jun-98	**410**	38	0.4035	-0.244	6.016	0.948
26-Feb-98	**415**	39	0.4142	-0.217	6.029	0.947
26-Nov-97	**439**	40	0.4249	-0.189	6.085	0.947
19-Dec-97	**446**	41	0.4357	-0.162	6.100	0.947
4-Sep-97	**465**	42	0.4464	-0.135	6.141	0.948
21-Aug-96	**468**	43	0.4571	-0.108	6.149	0.949
16-Nov-94	**470**	44	0.4678	-0.081	6.153	0.951
9-Nov-97	**471**	45	0.4786	-0.054	6.156	0.952
13-Jun-95	**477**	46	0.4893	-0.027	6.167	0.953
7-Apr-94	**478**	47	0.5000	0.000	6.170	0.955

8-Mar-99	**479**	48	0.5107	0.027	6.171	0.956
24-Jun-97	**484**	49	0.5214	0.054	6.183	0.956
29-Oct-96	**485**	50	0.5322	0.081	6.185	0.957
25-Apr-95	**486**	51	0.5429	0.108	6.186	0.957
20-Mar-98	**486**	52	0.5536	0.135	6.187	0.957
8-Mar-95	**501**	53	0.5643	0.162	6.217	0.957
18-Oct-95	**510**	54	0.5751	0.189	6.235	0.957
7-Jun-94	**519**	55	0.5858	0.217	6.252	0.958
24-Mar-94	**523**	56	0.5965	0.244	6.259	0.958
27-Nov-96	**523**	57	0.6072	0.272	6.260	0.958
8-Mar-94	**534**	58	0.6180	0.300	6.281	0.958
9-Nov-97	541	59	0.6287	0.328	6.294	0.958
19-May-94	**549**	60	0.6394	0.357	6.308	0.958
14-Nov-98	560	61	0.6501	0.386	6.328	0.957
27-Dec-95	**566**	62	0.6609	0.415	6.339	0.957
12-Apr-95	**578**	63	0.6716	0.444	6.360	0.957
5-May-99	587	64	0.6823	0.474	6.376	0.957
30-Jan-97	**591**	65	0.6930	0.504	6.382	0.956
15-Dec-98	605	66	0.7038	0.535	6.406	0.956
28-Dec-98	610	67	0.7145	0.567	6.414	0.955
13-Dec-94	**613**	68	0.7252	0.598	6.419	0.954
15-Jan-99	**662**	69	0.7359	0.631	6.496	0.952
15-Jun-99	665	70	0.7466	0.664	6.500	0.953
19-Jun-96	**666**	71	0.7574	0.698	6.501	0.952
4-May-94	**693**	72	0.7681	0.733	6.541	0.951
14-May-98	**710**	73	0.7788	0.768	6.566	0.951
8-May-96	**728**	74	0.7895	0.805	6.590	0.951
2-Jun-99	739	75	0.8003	0.843	6.605	0.951
9-Feb-95	**752**	76	0.8110	0.882	6.623	0.950
28-Mar-96	**782**	77	0.8217	0.922	6.662	0.949
23-Jul-97	**794**	78	0.8324	0.964	6.677	0.948
21-Feb-97	**833**	79	0.8432	1.008	6.725	0.946
14-May-98	846	80	0.8539	1.053	6.741	0.946
21-Nov-95	**859**	81	0.8646	1.101	6.756	0.944
13-Dec-96	**879**	82	0.8753	1.152	6.779	0.940
27-May-99	927	83	0.8861	1.206	6.832	0.934
10-Jan-95	**959**	84	0.8968	1.263	6.866	0.927
25-Nov-98	**972**	85	0.9075	1.326	6.880	0.916
16-Apr-97	**994**	86	0.9182	1.393	6.901	0.898
17-Jan-96	**1049**	87	0.9290	1.468	6.955	0.877
19-Apr-99	1411	88	0.9397	1.552	7.252	0.867
29-Feb-96	**1415**	89	0.9504	1.649	7.255	0.823
22-Mar-95	**1840**	90	0.9611	1.764	7.518	
23-Mar-99	1879	91	0.9718	1.909	7.538	
24-May-99	2892	92	0.9826	2.110	7.970	
26-Mar-97	**2913**	93	0.9933	2.473	7.977	

update for EV, CV:

tZn		**CC287/288**		2,856	2860
LN Analysis		**tZn**		0.50	0.504
Concentration		**Conc. Data, EV=2860 ug/L CV=0.504**			
Avg:	**2,856**	**Data-based LN**			
SD:	**1,440**	u	ln[tZn]	[tZn]	
CV:	**0.50**	3	9.3	10634	
Min:	**470**	0	7.84	2550	
Max:	**6,950**	-3	6.42	612	
Median:	**2,730**				

				0.951	0.951
u=mLn{Conc.}+b:				2975.8	2980
update for r2, EV, CV: **r2=0.951, EV=2980 ug/L CV=0.689; max r2=0.988**				0.689	0.689
r2 u,lnConc:	0.951	u	lnConc.	Conc.	
slope, m:	1.604	3	9.67	15896	
intercept, b:	-12.521	0	7.80	2450	
N: 93		-3	5.93	378	
E[Conc]:	2975.8	Parameter Estimates			
SD[Conc]:	2050	from LN regression			
CV[Conc]:	0.69	update graph label			

						max r2
	tZn	N: 93				0.988
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
15-Jun-99	470	1	0.0067	-2.473	6.153	0.951
2-Jun-99	570	2	0.0174	-2.110	6.346	0.948
14-May-98	641	3	0.0282	-1.909	6.463	0.946
27-May-99	660	4	0.0389	-1.764	6.492	0.944
8-Jul-99	664	5	0.0496	-1.649	6.498	0.944
14-May-98	675	6	0.0603	-1.552	6.515	0.946
24-Jun-97	726	7	0.0710	-1.468	6.588	0.951
19-Jun-96	836	8	0.0818	-1.393	6.729	0.957
13-Jun-95	919	9	0.0925	-1.326	6.823	0.962
19-May-94	1000	10	0.1032	-1.263	6.908	0.966
4-May-94	1160	11	0.1139	-1.206	7.056	0.969
26-Jun-98	1200	12	0.1247	-1.152	7.090	0.969
27-Jun-95	1220	13	0.1354	-1.101	7.107	0.970
5-May-99	1300	14	0.1461	-1.053	7.170	0.972
23-Jul-97	1330	15	0.1568	-1.008	7.193	0.972
5-Aug-99	1390	16	0.1676	-0.964	7.237	0.974
24-May-99	1400	17	0.1783	-0.922	7.244	0.975
7-Jun-94	1520	18	0.1890	-0.882	7.326	0.977
24-Jul-96	1550	19	0.1997	-0.843	7.346	0.977
8-May-96	1660	20	0.2105	-0.805	7.415	0.978
23-Jun-94	1690	21	0.2212	-0.768	7.432	0.978
11-Jul-95	1690	22	0.2319	-0.733	7.432	0.978
28-Jul-98	1700	23	0.2426	-0.698	7.438	0.979
25-Jul-95	1770	24	0.2534	-0.664	7.479	0.980
30-Aug-99	1780	25	0.2641	-0.631	7.484	0.981
14-Aug-97	1900	26	0.2748	-0.598	7.550	0.982
19-Apr-99	1900	27	0.2855	-0.567	7.550	0.983
21-Nov-95	1960	28	0.2962	-0.535	7.581	0.984
26-Aug-98	2080	29	0.3070	-0.504	7.640	0.984
25-Apr-95	2100	30	0.3177	-0.474	7.650	0.984
26-Oct-98	2200	31	0.3284	-0.444	7.696	0.984
24-Sep-98	2220	32	0.3391	-0.415	7.705	0.983
1-Oct-98	2220	33	0.3499	-0.386	7.705	0.983
28-Mar-96	2230	34	0.3606	-0.357	7.710	0.982
26-Oct-98	2290	35	0.3713	-0.328	7.736	0.982
26-Oct-98	2300	36	0.3820	-0.300	7.741	0.982
7-Apr-94	2350	37	0.3928	-0.272	7.762	0.981
29-Feb-96	2370	38	0.4035	-0.244	7.771	0.981
25-Jul-94	2390	39	0.4142	-0.217	7.779	0.981
14-Aug-95	2490	40	0.4249	-0.189	7.820	0.981
27-Dec-95	2500	41	0.4357	-0.162	7.824	0.980
8-Mar-95	2530	42	0.4464	-0.135	7.836	0.980
4-Sep-97	2540	43	0.4571	-0.108	7.840	0.979
12-Apr-95	2550	44	0.4678	-0.081	7.844	0.979
9-Nov-97	2680	45	0.4786	-0.054	7.894	0.979
8-Oct-98	2680	46	0.4893	-0.027	7.894	0.978
20-Mar-98	2730	47	0.5000	0.000	7.912	0.978

26-Nov-97	2750	48	0.5107	0.027	7.919	0.977
9-Nov-97	2750	49	0.5214	0.054	7.919	0.977
26-Sep-96	2770	50	0.5322	0.081	7.927	0.976
13-Sep-95	2780	51	0.5429	0.108	7.930	0.976
16-Aug-94	2850	52	0.5536	0.135	7.955	0.977
16-Aug-94	2850	53	0.5643	0.162	7.955	0.977
16-Oct-97	2850	54	0.5751	0.189	7.955	0.979
13-Sep-94	2880	55	0.5858	0.217	7.966	0.982
18-Oct-95	3020	56	0.5965	0.244	8.013	0.986
9-Feb-95	3230	57	0.6072	0.272	8.080	0.988
22-Jan-98	3320	58	0.6180	0.300	8.108	0.987
16-Apr-97	3340	59	0.6287	0.328	8.114	0.986
27-Oct-93	3420	60	0.6394	0.357	8.137	0.986
5-Oct-91	3430	61	0.6501	0.386	8.140	0.985
16-Oct-94	3430	62	0.6609	0.415	8.140	0.985
19-Dec-97	3440	63	0.6716	0.444	8.143	0.984
26-Feb-98	3460	64	0.6823	0.474	8.149	0.983
30-Jan-97	3500	65	0.6930	0.504	8.161	0.982
23-Mar-99	3600	66	0.7038	0.535	8.189	0.981
23-Feb-99	3710	67	0.7145	0.567	8.219	0.980
21-Aug-96	3730	68	0.7252	0.598	8.224	0.980
15-Jan-99	3730	69	0.7359	0.631	8.224	0.979
26-Mar-97	3760	70	0.7466	0.664	8.232	0.977
17-Jan-96	3830	71	0.7574	0.698	8.251	0.976
29-Oct-96	3840	72	0.7681	0.733	8.253	0.974
8-Mar-99	3870	73	0.7788	0.768	8.261	0.972
18-Nov-98	3900	74	0.7895	0.805	8.269	0.970
22-Mar-95	3970	75	0.8003	0.843	8.287	0.968
21-Feb-97	3980	76	0.8110	0.882	8.289	0.966
30-Nov-93	4050	77	0.8217	0.922	8.306	0.965
28-Dec-98	4200	78	0.8324	0.964	8.343	0.966
8-Mar-94	4460	79	0.8432	1.008	8.403	0.964
27-Nov-96	4480	80	0.8539	1.053	8.407	0.961
15-Dec-98	4500	81	0.8646	1.101	8.412	0.957
24-Mar-94	4600	82	0.8753	1.152	8.434	0.952
18-Feb-94	4620	83	0.8861	1.206	8.438	0.945
14-Nov-98	4620	84	0.8968	1.263	8.438	0.936
20-Jan-94	5050	85	0.9075	1.326	8.527	0.934
20-Jan-94	5050	86	0.9182	1.393	8.527	0.928
17-Dec-93	5180	87	0.9290	1.468	8.553	0.913
17-Dec-93	5180	88	0.9397	1.552	8.553	0.891
16-Nov-94	5500	89	0.9504	1.649	8.613	0.855
13-Dec-96	5500	90	0.9611	1.764	8.613	
10-Jan-95	6320	91	0.9718	1.909	8.751	
13-Dec-94	6640	92	0.9826	2.110	8.801	
25-Nov-98	6950	93	0.9933	2.473	8.846	

update for EV, CV:

tZn		**CC287/288**			41	41.1
LN Analysis		**tZn**			0.92	0.92
Discharge, Q		**Q Data, EV=41.1 cfs CV=0.92**				
Avg:	**41**	**Q Data-based LN**				
SD:	**38**	u	lnQ	Q		
CV:	**0.92**	3	5.8	317		
Min:	**11**	0	3.41	30		
Max:	**206**	-3	1.06	3		
Median:	**26**					

					0.936	0.936
					40.8	40.8
u=mLn{Q}+b:					0.88	0.884
update for r2, EV, CV:	**r2=0.936, EV=40.8 cfs CV=0.884; max r2=0.98**					
r2 u,lnQ:	0.936	u	lnQ	Q		
slope, m:	1.316	3	5.70	299		
intercept, b:	-4.498	0	3.42	31		
N: 75		-3	1.14	3		
E[Q]:	40.8	Parameter Estimates				
SD[Q]:	36	from LN regression				
CV[Q]:	0.88	update graph label				

						max r2
	Q	N: 75				0.979
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
13-Sep-95	11.4	1	0.0083	-2.395	2.434	0.936
18-Feb-94	11.41	2	0.0216	-2.022	2.434	0.950
17-Dec-93	11.7	3	0.0349	-1.813	2.460	0.956
17-Dec-93	12.03	4	0.0482	-1.663	2.487	0.960
14-Aug-95	12.6	5	0.0615	-1.543	2.534	0.964
30-Nov-93	12.62	6	0.0748	-1.441	2.535	0.966
27-Oct-93	13.28	7	0.0880	-1.353	2.586	0.968
20-Jan-94	13.28	8	0.1013	-1.274	2.586	0.970
16-Aug-94	13.57	9	0.1146	-1.202	2.608	0.972
16-Oct-94	14.34	10	0.1279	-1.136	2.663	0.973
5-Oct-91	14.5	11	0.1412	-1.075	2.674	0.974
20-Jan-94	14.66	12	0.1545	-1.017	2.685	0.975
25-Jul-95	14.71	13	0.1678	-0.963	2.689	0.976
13-Sep-94	15.89	14	0.1811	-0.911	2.766	0.977
16-Nov-94	15.89	15	0.1944	-0.862	2.766	0.978
8-Oct-98	15.9	16	0.2076	-0.815	2.766	0.978
16-Aug-94	16.3	17	0.2209	-0.769	2.791	0.979
1-Oct-98	16.7	18	0.2342	-0.725	2.815	0.979
26-Oct-98	16.7	19	0.2475	-0.682	2.815	0.979
13-Dec-94	17.17	20	0.2608	-0.641	2.843	0.979
24-Sep-98	17.2	21	0.2741	-0.601	2.845	0.979
22-Jan-98	18.1	22	0.2874	-0.561	2.896	0.978
25-Jul-94	19.04	23	0.3007	-0.522	2.947	0.978
26-Sep-96	19.5	24	0.3140	-0.485	2.970	0.978
26-Aug-98	19.5	25	0.3272	-0.448	2.970	0.978
23-Feb-99	20	26	0.3405	-0.411	2.996	0.978
11-Jul-95	20.05	27	0.3538	-0.375	2.998	0.978
24-Mar-94	21.13	28	0.3671	-0.340	3.051	0.977
27-Nov-96	21.7	29	0.3804	-0.304	3.077	0.977
8-Mar-94	22.26	30	0.3937	-0.270	3.103	0.976
26-Feb-98	22.3	31	0.4070	-0.235	3.105	0.976
8-Mar-99	23	32	0.4203	-0.201	3.135	0.975
21-Aug-96	23.342375	33	0.4336	-0.167	3.150	0.975
29-Oct-96	23.5	34	0.4468	-0.134	3.157	0.974
19-Dec-97	24.1	35	0.4601	-0.100	3.182	0.973
28-Jul-98	24.7	36	0.4734	-0.067	3.207	0.972
16-Oct-97	25.4	37	0.4867	-0.033	3.235	0.971
25-Nov-98	26	38	0.5000	0.000	3.258	0.969
10-Jan-95	28.21	39	0.5133	0.033	3.340	0.968
23-Jun-94	28.96	40	0.5266	0.067	3.366	0.967
13-Dec-96	29.7	41	0.5399	0.100	3.391	0.966
26-Nov-97	29.7	42	0.5532	0.134	3.391	0.965
18-Oct-95	31.4	43	0.5664	0.167	3.447	0.963
30-Jan-97	31.4	44	0.5797	0.201	3.447	0.962
9-Nov-97	32.7	45	0.5930	0.235	3.487	0.960
15-Jan-99	33	46	0.6063	0.270	3.497	0.959
20-Mar-98	33.1	47	0.6196	0.304	3.500	0.956

4-Sep-97	34	48	0.6329	0.340	3.526	0.954
27-Jun-95	34.9	49	0.6462	0.375	3.552	0.951
24-Jul-96	35.8	50	0.6595	0.411	3.578	0.948
8-Mar-95	36.82	51	0.6728	0.448	3.606	0.944
14-Aug-97	37.8	52	0.6860	0.485	3.632	0.940
7-Apr-94	37.82	53	0.6993	0.522	3.633	0.936
21-Feb-97	38.9	54	0.7126	0.561	3.661	0.932
27-Dec-95	42.1	55	0.7259	0.601	3.740	0.929
12-Apr-95	42.13	56	0.7392	0.641	3.741	0.924
25-Apr-95	43	57	0.7525	0.682	3.761	0.922
9-Feb-95	43.28	58	0.7658	0.725	3.768	0.923
17-Jan-96	50.9	59	0.7791	0.769	3.930	0.938
16-Apr-97	55.3	60	0.7924	0.815	4.013	0.943
7-Jun-94	63.45	61	0.8056	0.862	4.150	0.948
26-Jun-98	63.5	62	0.8189	0.911	4.151	0.944
28-Mar-96	65.2	63	0.8322	0.963	4.177	0.949
21-Nov-95	81.5	64	0.8455	1.017	4.401	0.973
8-May-96	81.5	65	0.8588	1.075	4.401	0.969
22-Mar-95	86.16	66	0.8721	1.136	4.456	0.968
13-Jun-95	96.41	67	0.8854	1.202	4.569	0.968
19-May-94	102.01	68	0.8987	1.274	4.625	0.962
29-Feb-96	111	69	0.9120	1.353	4.710	0.955
23-Jul-97	111	70	0.9252	1.441	4.710	0.968
4-May-94	111.05	71	0.9385	1.543	4.710	0.966
24-Jun-97	124	72	0.9518	1.663	4.820	
26-Mar-97	144	73	0.9651	1.813	4.970	
19-Jun-96	148	74	0.9784	2.022	4.997	
14-May-98	206	75	0.9917	2.395	5.328	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC291 **Date:** 29-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,617	33	4	0.5	0.00	0.00	0.00	
SD:	306	49	1	0.4	1.00	1.00	1.00	
CV:	0.01	1.49	0.37	0.8				first:
Min:	34,269	8	1	0.2	-0.51	-1.77	-0.66	mid:
Max:	35,929	274	6	2.4	4.88	1.31	4.85	last:
Median:	34,540	15	4	0.3	-0.37	0.05	-0.38	

dCd **CC291** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.34) update r2

r2 Q,[COC]:	0.34	[dCd]	Q	r2:	0.463	0.277
slope, m:	-0.02	4	8.0	m:	0.1096	0.00147
intercept, b:	4.4	4	33.1	b:	-3762	-47.83
N: 35		-0.2	274			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.69) update r2

r2 lnQ,ln[COC]:	0.69	ln[dCd]	ln Q	[dCd]	Q
slope, m:	-0.42	1.65	2.08	5	8
intercept, b:	2.53	1.04	3.50	3	33
N: 35		0.15	5.61	1	274

for graph
dCd 0
CC291

N= 35

update for new data	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	27-Oct-93	11.31	5.1	0.3	2.43	1.63	-1.17	-0.44	0.89	-0.38
IDEQ	30-Nov-93	13.26	5.2	0.4	2.58	1.65	-0.99	-0.40	0.96	-0.23
IDEQ	17-Dec-93	9.65	5.5	0.3	2.27	1.70	-1.25	-0.48	1.17	-0.45
IDEQ	17-Dec-93	8.03	5.5	0.2	2.08	1.70	-1.44	-0.51	1.17	-0.57
IDEQ	20-Jan-94	10.17	5.6	0.3	2.32	1.72	-1.18	-0.47	1.24	-0.39
IDEQ	20-Jan-94	9.74	5.6	0.3	2.28	1.72	-1.23	-0.47	1.24	-0.43
IDEQ	18-Feb-94	9.91	5.7	0.3	2.29	1.74	-1.19	-0.47	1.31	-0.40
IDEQ	18-Feb-94	9	5.7	0.3	2.20	1.74	-1.29	-0.49	1.31	-0.47
IDEQ	8-Mar-94	14.75	5.5	0.4	2.69	1.70	-0.83	-0.37	1.17	-0.06
IDEQ	24-Mar-94	15.56	5	0.4	2.74	1.61	-0.87	-0.36	0.82	-0.11
IDEQ	24-Mar-94	16.98	5	0.5	2.83	1.61	-0.78	-0.33	0.82	-0.01
IDEQ	7-Apr-94	26.08	3.9	0.5	3.26	1.36	-0.60	-0.14	0.05	0.22
IDEQ	7-Apr-94	35.7	3.9	0.7	3.58	1.36	-0.29	0.05	0.05	0.74
IDEQ	4-May-94	71.93	1.8	0.7	4.28	0.59	-0.36	0.79	-1.42	0.60
IDEQ	19-May-94	118.23	1.5	1.0	4.77	0.41	-0.05	1.73	-1.63	1.26
IDEQ	7-Jun-94	45.54	2.2	0.5	3.82	0.79	-0.62	0.25	-1.14	0.20
IDEQ	23-Jun-94	17.8	2.5	0.2	2.88	0.92	-1.43	-0.31	-0.93	-0.56
IDEQ	25-Jul-94	12.91	3.4	0.2	2.56	1.22	-1.44	-0.41	-0.30	-0.57
IDEQ	16-Aug-94	11.92	3.9	0.3	2.48	1.36	-1.39	-0.43	0.05	-0.54
IDEQ	13-Sep-94	10.45	4	0.2	2.35	1.39	-1.49	-0.46	0.12	-0.60
IDEQ	6-Oct-94	10.17	4.4	0.2	2.32	1.48	-1.42	-0.47	0.40	-0.56
IDEQ	16-Nov-94	10.17	5.2	0.3	2.32	1.65	-1.26	-0.47	0.96	-0.45
IDEQ	13-Dec-94	8.7	5.2	0.2	2.16	1.65	-1.41	-0.50	0.96	-0.55
IDEQ	9-Feb-95	33.45	2.6	0.5	3.51	0.96	-0.76	0.01	-0.86	0.02
IDEQ	8-Mar-95	29.12	2.5	0.4	3.37	0.92	-0.94	-0.08	-0.93	-0.18
IDEQ	22-Mar-95	45.54	4.4	1.1	3.82	1.48	0.08	0.25	0.40	1.58
IDEQ	12-Apr-95	30.78	2.9	0.5	3.43	1.06	-0.73	-0.05	-0.65	0.05
IDEQ	25-Apr-95	31	2.4	0.4	3.43	0.88	-0.92	-0.04	-1.00	-0.15
IDEQ	13-Jun-95	121.78	1.3	0.9	4.80	0.26	-0.16	1.80	-1.77	1.00
IDEQ	27-Jun-95	34.4	1.8	0.3	3.54	0.59	-1.10	0.03	-1.42	-0.33
IDEQ	11-Jul-95	17.8	2.3	0.2	2.88	0.83	-1.51	-0.31	-1.07	-0.61
IDEQ	25-Jul-95	13.61	3	0.2	2.61	1.10	-1.52	-0.40	-0.58	-0.62
IDEQ	14-Aug-95	11.01	3.5	0.2	2.40	1.25	-1.57	-0.45	-0.23	-0.65
IDEQ	13-Sep-95	8.93	4.2	0.2	2.19	1.44	-1.60	-0.49	0.26	-0.66
URS	14-May-98	274	1.6	2.4	5.61	0.47	0.86	4.88	-1.56	4.85

dCd

Concentration over time analysis r2 Slope, m

dCd CC291 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.314** **-0.00080**

Time	Ln[COC]	[COC]
27-Oct-93	1.53	5
25-Jul-94	1.32	4
14-May-98	0.21	1

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

dCd CC291 **Load over time**

LnLoad=mTime+b All data r2, m: **0.139** **0.00067**

Time	LnLoad	Load
27-Oct-93	-1.20	0.3
25-Jul-94	-1.02	0.4
14-May-98	-0.09	1

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.609 max r2: 0.992

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rov		
0.314	-0.00080	28.95	0.139	0.00067	-24.10
0.300	-0.00079	28.57	0.136	0.00067	-24.22
0.285	-0.00077	28.00	0.139	0.00069	-24.94
0.268	-0.00075	27.12	0.132	0.00068	-24.66
0.248	-0.00072	26.11	0.119	0.00065	-23.57
0.228	-0.00068	24.90	0.114	0.00065	-23.37
0.206	-0.00064	23.50	0.106	0.00064	-22.96
0.183	-0.00060	21.89	0.100	0.00063	-22.60
0.157	-0.00054	20.02	0.090	0.00060	-21.74
0.132	-0.00049	18.09	0.097	0.00063	-22.87
0.110	-0.00044	16.36	0.102	0.00066	-23.88
0.085	-0.00038	14.32	0.111	0.00071	-25.51
0.072	-0.00035	13.32	0.133	0.00079	-28.29
0.057	-0.00032	12.11	0.186	0.00094	-33.51
0.096	-0.00041	15.38	0.247	0.00109	-38.74
0.189	-0.00055	20.30	0.381	0.00131	-46.75
0.248	-0.00064	23.39	0.458	0.00147	-52.07
0.296	-0.00072	26.07	0.447	0.00148	-52.43
0.296	-0.00074	26.74	0.433	0.00148	-52.41
0.279	-0.00072	26.36	0.420	0.00148	-52.57
0.256	-0.00070	25.57	0.398	0.00145	-51.61
0.223	-0.00065	23.75	0.377	0.00143	-50.76
0.182	-0.00055	20.20	0.363	0.00143	-50.67
0.139	-0.00043	15.96	0.339	0.00138	-49.00
0.142	-0.00044	16.42	0.359	0.00145	-51.38
0.149	-0.00046	17.14	0.362	0.00148	-52.55
0.114	-0.00037	13.65	0.556	0.00173	-61.59
0.097	-0.00034	12.69	0.612	0.00185	-65.83
0.099	-0.00035	13.12	0.649	0.00196	-69.57
0.316	-0.00051	18.95	0.941	0.00225	-79.84
0.609	-0.00065	23.89	0.992	0.00237	-84.44

update for EV, CV:

dCd **CC291**

LN Analysis **dCd**

Load **Load Data, EV=0.5 lbs/day CV=.8**

Load Data-based LN

		u	ln dCd Load	dCd Load
Avg:	**0.5**			
SD:	**0.4**			
CV:	**0.8**	3	1.2	3.2
Min:	**0.2**	0	-1.05	0.4
Max:	**2.4**	-3	-3.26	0.0
Median:	**0.3**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.877, EV=0.5 #/d CV=0.67; max r2=0.962**

r2 u,lnLoad:	0.877	u	lnLoad	Load
slope, m:	1.642	3	0.86	2
intercept, b:	1.588	0	-0.97	0.4
N: 35		-3	-2.79	0.06
E[Load]:	0.5	Parameter Estimates		
SD[Load]:	0	from LN regression		
CV[Load]:	0.67	update graph label		

N: 35

max r2 0.962

	Date	dCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
ws	update and rank for new data						
	13-Sep-95	0.2	1	0.0177	-2.103	-1.601	0.877
	14-Aug-95	0.2	2	0.0461	-1.684	-1.573	0.901
	25-Jul-95	0.2	3	0.0745	-1.443	-1.516	0.914
	11-Jul-95	0.2	4	0.1028	-1.266	-1.513	0.925
	13-Sep-94	0.2	5	0.1312	-1.121	-1.492	0.933
	25-Jul-94	0.2	6	0.1596	-0.996	-1.443	0.939
	17-Dec-93	0.2	7	0.1879	-0.885	-1.437	0.946
	23-Jun-94	0.2	8	0.2163	-0.785	-1.430	0.951
	6-Oct-94	0.2	9	0.2447	-0.691	-1.424	0.954
	13-Dec-94	0.2	10	0.2730	-0.604	-1.413	0.956
	16-Aug-94	0.3	11	0.3014	-0.520	-1.386	0.956
	18-Feb-94	0.3	12	0.3298	-0.441	-1.287	0.955
	16-Nov-94	0.3	13	0.3582	-0.363	-1.257	0.958
	17-Dec-93	0.3	14	0.3865	-0.288	-1.253	0.961
	20-Jan-94	0.3	15	0.4149	-0.215	-1.226	0.961
	18-Feb-94	0.3	16	0.4433	-0.143	-1.191	0.962
	20-Jan-94	0.3	17	0.4716	-0.071	-1.183	0.962
	27-Oct-93	0.3	18	0.5000	0.000	-1.170	0.960
	27-Jun-95	0.3	19	0.5284	0.071	-1.099	0.957
	30-Nov-93	0.4	20	0.5567	0.143	-0.992	0.954
	8-Mar-95	0.4	21	0.5851	0.215	-0.937	0.954
	25-Apr-95	0.4	22	0.6135	0.288	-0.916	0.957
	24-Mar-94	0.4	23	0.6418	0.363	-0.871	0.958
	8-Mar-94	0.4	24	0.6702	0.441	-0.829	0.959
	24-Mar-94	0.5	25	0.6986	0.520	-0.784	0.960
	9-Feb-95	0.5	26	0.7270	0.604	-0.760	0.961
	12-Apr-95	0.5	27	0.7553	0.691	-0.733	0.958
	7-Jun-94	0.5	28	0.7837	0.785	-0.618	0.951
	7-Apr-94	0.5	29	0.8121	0.885	-0.603	0.943
	4-May-94	0.7	30	0.8404	0.996	-0.362	0.925
	7-Apr-94	0.7	31	0.8688	1.121	-0.289	0.925
	13-Jun-95	0.9	32	0.8972	1.266	-0.160	
	19-May-94	1.0	33	0.9255	1.443	-0.047	
	22-Mar-95	1.1	34	0.9539	1.684	0.075	
	14-May-98	2.4	35	0.9823	2.103	0.858	

update for EV, CV:

dCd **CC291**
LN Analysis **dCd**

Concentration **Conc. Data, EV=4 ug/L CV=.37**

Avg:	**4**	**Data-based LN**		
SD:	**1**	u	ln[dCd]	[dCd]
CV:	**0.37**	3	2.4	11
Min:	**1**	0	1.28	4
Max:	**6**	-3	0.19	1
Median:	**4**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.905, EV=3.9 ug/L CV=0.51; max r2=0.905**

r2 u,lnConc:	0.905	u	lnConc.	Conc.
slope, m:	2.093	3	2.69	15
intercept, b:	-2.627	0	1.26	4
N: 35		-3	-0.18	1
E[Conc]:	3.9	Parameter Estimates		
SD[Conc]:	2	from LN regression		
CV[Conc]:	0.51	update graph label		

Date	**dCd Concentration ug/L Ranked**	**i rank** (N: 35)	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	max r2 0.905 r2 forward
update and rank for new data						
13-Jun-95	1.3	1	0.0177	-2.103	0.262	0.905
19-May-94	1.5	2	0.0461	-1.684	0.405	0.890
14-May-98	1.6	3	0.0745	-1.443	0.470	0.876
4-May-94	1.8	4	0.1028	-1.266	0.588	0.865
27-Jun-95	1.8	5	0.1312	-1.121	0.588	0.853
7-Jun-94	2.2	6	0.1596	-0.996	0.788	0.847
11-Jul-95	2.3	7	0.1879	-0.885	0.833	0.833
25-Apr-95	2.4	8	0.2163	-0.785	0.875	0.819
23-Jun-94	2.5	9	0.2447	-0.691	0.916	0.805
8-Mar-95	2.5	10	0.2730	-0.604	0.916	0.791
9-Feb-95	2.6	11	0.3014	-0.520	0.956	0.784
12-Apr-95	2.9	12	0.3298	-0.441	1.065	0.788
25-Jul-95	3	13	0.3582	-0.363	1.099	0.784
25-Jul-94	3.4	14	0.3865	-0.288	1.224	0.792
14-Aug-95	3.5	15	0.4149	-0.215	1.253	0.781
7-Apr-94	3.9	16	0.4433	-0.143	1.361	0.774
7-Apr-94	3.9	17	0.4716	-0.071	1.361	0.751
16-Aug-94	3.9	18	0.5000	0.000	1.361	0.727
13-Sep-94	4	19	0.5284	0.071	1.386	0.711
13-Sep-95	4.2	20	0.5567	0.143	1.435	0.705
6-Oct-94	4.4	21	0.5851	0.215	1.482	0.699
22-Mar-95	4.4	22	0.6135	0.288	1.482	0.689
24-Mar-94	5	23	0.6418	0.363	1.609	0.835
24-Mar-94	5	24	0.6702	0.441	1.609	0.811
27-Oct-93	5.1	25	0.6986	0.520	1.629	0.794
30-Nov-93	5.2	26	0.7270	0.604	1.649	0.763
16-Nov-94	5.2	27	0.7553	0.691	1.649	0.715
13-Dec-94	5.2	28	0.7837	0.785	1.649	0.663
17-Dec-93	5.5	29	0.8121	0.885	1.705	0.867
17-Dec-93	5.5	30	0.8404	0.996	1.705	0.840
8-Mar-94	5.5	31	0.8688	1.121	1.705	0.780
20-Jan-94	5.6	32	0.8972	1.266	1.723	
20-Jan-94	5.6	33	0.9255	1.443	1.723	
18-Feb-94	5.7	34	0.9539	1.684	1.740	
18-Feb-94	5.7	35	0.9823	2.103	1.740	

update for EV, CV:

dCd **CC291**

LN Analysis **dCd**

Discharge, Q **Q Data, EV=33 cfs CV=1.49**

Q Data-based LN

		u	lnQ	Q
Avg:	**33**			
SD:	**49**			
CV:	**1.49**	3	6.2	473
Min:	**8**	0	2.92	18
Max:	**274**	-3	-0.33	1
Median:	**15**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.856, EV=31.9 cfs CV=1.23; max r2=0.970**

r2 u,lnQ:	0.856	u	lnQ	Q
slope, m:	1.041	3	5.88	359
intercept, b:	-3.125	0	3.00	20
N: 35		-3	0.12	1
E[Q]:	31.9	Parameter Estimates		
SD[Q]:	39	from LN regression		
CV[Q]:	1.23	update graph label		

N: 35

max r2 0.970

Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
17-Dec-93	8.03	1	0.0177	-2.103	2.083	0.856
13-Dec-94	8.7	2	0.0461	-1.684	2.163	0.883
13-Sep-95	8.93	3	0.0745	-1.443	2.189	0.901
18-Feb-94	9	4	0.1028	-1.266	2.197	0.915
17-Dec-93	9.65	5	0.1312	-1.121	2.267	0.925
20-Jan-94	9.74	6	0.1596	-0.996	2.276	0.936
18-Feb-94	9.91	7	0.1879	-0.885	2.294	0.945
20-Jan-94	10.17	8	0.2163	-0.785	2.319	0.953
6-Oct-94	10.17	9	0.2447	-0.691	2.319	0.959
16-Nov-94	10.17	10	0.2730	-0.604	2.319	0.964
13-Sep-94	10.45	11	0.3014	-0.520	2.347	0.966
14-Aug-95	11.01	12	0.3298	-0.441	2.399	0.968
27-Oct-93	11.31	13	0.3582	-0.363	2.426	0.969
16-Aug-94	11.92	14	0.3865	-0.288	2.478	0.970
25-Jul-94	12.91	15	0.4149	-0.215	2.558	0.970
30-Nov-93	13.26	16	0.4433	-0.143	2.585	0.970
25-Jul-95	13.61	17	0.4716	-0.071	2.611	0.970
8-Mar-94	14.75	18	0.5000	0.000	2.691	0.967
24-Mar-94	15.56	19	0.5284	0.071	2.745	0.965
24-Mar-94	16.98	20	0.5567	0.143	2.832	0.962
23-Jun-94	17.8	21	0.5851	0.215	2.879	0.958
11-Jul-95	17.8	22	0.6135	0.288	2.879	0.953
7-Apr-94	26.08	23	0.6418	0.363	3.261	0.947
8-Mar-95	29.12	24	0.6702	0.441	3.371	0.948
12-Apr-95	30.78	25	0.6986	0.520	3.427	0.955
25-Apr-95	31	26	0.7270	0.604	3.434	0.963
9-Feb-95	33.45	27	0.7553	0.691	3.510	0.966
27-Jun-95	34.4	28	0.7837	0.785	3.538	0.969
7-Apr-94	35.7	29	0.8121	0.885	3.575	0.965
7-Jun-94	45.54	30	0.8404	0.996	3.819	0.954
22-Mar-95	45.54	31	0.8688	1.121	3.819	0.940
4-May-94	71.93	32	0.8972	1.266	4.276	
19-May-94	118.23	33	0.9255	1.443	4.773	
13-Jun-95	121.78	34	0.9539	1.684	4.802	
14-May-98	274	35	0.9823	2.103	5.613	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC291 **Date:** 30-May-00
Chemical: dPb **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	34,617	33	11	2	0.00	0.00	0.00		
SD:	306	49	3	2	1.00	1.00	1.00		
CV:	0.01	1.49	0.29	1.09					first:
Min:	34,269	8	5	0.4	-0.51	-1.94	-0.68		mid:
Max:	35,929	274	18	7	4.88	2.21	3.07		last:
Median:	34,540	15	11	1	-0.37	0.01	-0.43		

dPb **CC291** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.15) update r2

r2 Q,[COC]:	0.15	[dPb]	Q	r2:	0.463	0.277
slope, m:	-0.02	12	8.0	m:	0.1096	0.00147
intercept, b:	11.8	11	33.1	b:	-3762	-47.83
N: 35		5	274			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.21) update r2

r2 lnQ,ln[COC]:	0.21	ln[dPb]	ln Q	[dPb]	Q
slope, m:	-0.17	2.50	2.08	12	8
intercept, b:	2.85	2.27	3.50	10	33
N: 35		1.91	5.61	7	274

for graph
dPb 0
CC291

N= 35

	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	27-Oct-93	11.31	12	0.7	2.43	2.48	-0.31	-0.44	0.33	-0.51
IDEQ	30-Nov-93	13.26	14	1.0	2.58	2.64	0.00	-0.40	0.95	-0.36
IDEQ	17-Dec-93	9.65	14	0.7	2.27	2.64	-0.32	-0.48	0.95	-0.51
IDEQ	17-Dec-93	8.03	14	0.6	2.08	2.64	-0.50	-0.51	0.95	-0.58
IDEQ	20-Jan-94	10.17	12	0.7	2.32	2.48	-0.42	-0.47	0.33	-0.55
IDEQ	20-Jan-94	9.74	12	0.6	2.28	2.48	-0.46	-0.47	0.33	-0.57
IDEQ	18-Feb-94	9.91	12	0.6	2.29	2.48	-0.45	-0.47	0.33	-0.56
IDEQ	18-Feb-94	9	12	0.6	2.20	2.48	-0.54	-0.49	0.33	-0.59
IDEQ	8-Mar-94	14.75	11	0.9	2.69	2.40	-0.14	-0.37	0.01	-0.43
IDEQ	24-Mar-94	15.56	9	0.8	2.74	2.20	-0.28	-0.36	-0.62	-0.50
IDEQ	24-Mar-94	16.98	9	0.8	2.83	2.20	-0.20	-0.33	-0.62	-0.46
IDEQ	7-Apr-94	26.08	18	2.5	3.26	2.89	0.93	-0.14	2.21	0.50
IDEQ	7-Apr-94	35.7	18	3.5	3.58	2.89	1.24	0.05	2.21	1.03
IDEQ	4-May-94	71.93	8	3.1	4.28	2.08	1.13	0.79	-0.93	0.83
IDEQ	19-May-94	118.23	11	7.0	4.77	2.40	1.95	1.73	0.01	3.03
IDEQ	7-Jun-94	45.54	8	2.0	3.82	2.08	0.67	0.25	-0.93	0.18
IDEQ	23-Jun-94	17.8	11	1.1	2.88	2.40	0.05	-0.31	0.01	-0.33
IDEQ	25-Jul-94	12.91	10	0.7	2.56	2.30	-0.36	-0.41	-0.30	-0.53
IDEQ	16-Aug-94	11.92	15	1.0	2.48	2.71	-0.04	-0.43	1.27	-0.38
IDEQ	13-Sep-94	10.45	10	0.6	2.35	2.30	-0.58	-0.46	-0.30	-0.60
IDEQ	6-Oct-94	10.17	13	0.7	2.32	2.56	-0.34	-0.47	0.64	-0.52
IDEQ	16-Nov-94	10.17	9	0.5	2.32	2.20	-0.71	-0.47	-0.62	-0.64
IDEQ	13-Dec-94	8.7	9	0.4	2.16	2.20	-0.86	-0.50	-0.62	-0.68
IDEQ	9-Feb-95	33.45	6	1.1	3.51	1.79	0.08	0.01	-1.56	-0.31
IDEQ	8-Mar-95	29.12	6	0.9	3.37	1.79	-0.06	-0.08	-1.56	-0.39
IDEQ	22-Mar-95	45.54	11	2.7	3.82	2.40	0.99	0.25	0.01	0.60
IDEQ	12-Apr-95	30.78	5	0.8	3.43	1.61	-0.19	-0.05	-1.88	-0.45
IDEQ	25-Apr-95	31	9	1.5	3.43	2.20	0.41	-0.04	-0.62	-0.07
IDEQ	13-Jun-95	121.78	10	6.6	4.80	2.30	1.88	1.80	-0.30	2.78
IDEQ	27-Jun-95	34.4	11	2.0	3.54	2.40	0.71	0.03	0.01	0.23
IDEQ	11-Jul-95	17.8	11	1.1	2.88	2.40	0.05	-0.31	0.01	-0.33
IDEQ	25-Jul-95	13.61	17	1.2	2.61	2.83	0.22	-0.40	1.90	-0.22
IDEQ	14-Aug-95	11.01	12	0.7	2.40	2.48	-0.34	-0.45	0.33	-0.52
IDEQ	13-Sep-95	8.93	10	0.5	2.19	2.30	-0.73	-0.49	-0.30	-0.65
URS	14-May-98	274	4.8	7.1	5.61	1.57	1.96	4.88	-1.94	3.07

dPb

Concentration over time analysis r2 Slope, m

dPb CC291 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.263** **-0.00052**

Time	Ln[COC]	[COC]
27-Oct-93	2.53	13
25-Jul-94	2.39	11
14-May-98	1.66	5

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

dPb CC291 **Load over time**

LnLoad=mTime+b All data r2, m: **0.143** **0.00095**

Time	LnLoad	Load
27-Oct-93	-0.20	1
25-Jul-94	0.05	1
14-May-98	1.37	4

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.831 max r2: 0.838

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rov		
0.263	-0.00052	20.46	0.143	0.00095	-32.59
0.259	-0.00053	20.64	0.136	0.00093	-32.15
0.244	-0.00051	20.17	0.136	0.00095	-32.77
0.228	-0.00050	19.63	0.128	0.00093	-32.15
0.211	-0.00048	19.01	0.115	0.00089	-30.67
0.204	-0.00048	18.92	0.104	0.00085	-29.35
0.196	-0.00048	18.82	0.091	0.00080	-27.64
0.187	-0.00047	18.66	0.079	0.00075	-25.83
0.178	-0.00047	18.47	0.064	0.00068	-23.30
0.175	-0.00047	18.62	0.057	0.00065	-22.34
0.192	-0.00050	19.71	0.048	0.00060	-20.53
0.212	-0.00054	20.99	0.039	0.00055	-18.85
0.178	-0.00047	18.66	0.056	0.00067	-22.95
0.138	-0.00039	15.86	0.094	0.00086	-29.76
0.168	-0.00044	17.56	0.141	0.00106	-36.56
0.159	-0.00044	17.47	0.309	0.00143	-49.58
0.193	-0.00049	19.43	0.383	0.00161	-56.03
0.184	-0.00049	19.44	0.400	0.00170	-59.06
0.186	-0.00051	20.02	0.387	0.00170	-59.12
0.148	-0.00044	17.57	0.394	0.00176	-61.35
0.144	-0.00045	17.77	0.368	0.00171	-59.41
0.112	-0.00039	15.81	0.349	0.00169	-58.70
0.116	-0.00041	16.40	0.316	0.00157	-54.48
0.119	-0.00042	16.99	0.279	0.00138	-47.97
0.188	-0.00052	20.28	0.268	0.00137	-47.52
0.298	-0.00062	23.92	0.250	0.00132	-45.77
0.285	-0.00061	23.71	0.314	0.00149	-51.54
0.666	-0.00078	29.75	0.288	0.00141	-48.77
0.765	-0.00085	32.28	0.292	0.00145	-50.41
0.812	-0.00090	33.92	0.672	0.00186	-64.87
0.831	-0.00094	35.16	0.838	0.00209	-73.17

update for EV, CV:

dPb		**CC291**		
LN Analysis		**dPb**		
Load		**Load Data, EV=2 lbs/day CV=1.09**		
Avg:	**2**	**Load Data-based LN**		
SD:	**2**	u	ln dPb Load	dPb Load
CV:	**1.09**	3	2.7	16
Min:	**0.4**	0	0.10	1.1
Max:	**7**	-3	-2.55	0.1
Median:	**1**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.872, EV=1.6 lbs/day CV=1.03; max r2=0.954**

r2 u,lnLoad:	0.872	u	lnLoad	Load
slope, m:	1.175	3	2.68	15
intercept, b:	-0.148	0	0.13	1
N: 35		-3	-2.43	0.09
E[Load]:	1.6	Parameter Estimates		
SD[Load]:	2	from LN regression		
CV[Load]:	1.03	update graph label		

	Date	dPb Load lbs/day Ranked	N: 35 i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.954 r2 forward
ws	update and rank for new data						
	13-Dec-94	**0.4**	1	0.0177	-2.103	-0.865	0.872
	13-Sep-95	**0.5**	2	0.0461	-1.684	-0.733	0.885
	16-Nov-94	**0.5**	3	0.0745	-1.443	-0.708	0.895
	13-Sep-94	**0.6**	4	0.1028	-1.266	-0.576	0.899
	18-Feb-94	**0.6**	5	0.1312	-1.121	-0.543	0.908
	17-Dec-93	**0.6**	6	0.1596	-0.996	-0.503	0.915
	20-Jan-94	**0.6**	7	0.1879	-0.885	-0.464	0.922
	18-Feb-94	**0.6**	8	0.2163	-0.785	-0.447	0.928
	20-Jan-94	**0.7**	9	0.2447	-0.691	-0.421	0.934
	25-Jul-94	**0.7**	10	0.2730	-0.604	-0.364	0.938
	14-Aug-95	**0.7**	11	0.3014	-0.520	-0.341	0.944
	6-Oct-94	**0.7**	12	0.3298	-0.441	-0.341	0.949
	17-Dec-93	**0.7**	13	0.3582	-0.363	-0.319	0.952
	27-Oct-93	**0.7**	14	0.3865	-0.288	-0.314	0.954
	24-Mar-94	**0.8**	15	0.4149	-0.215	-0.283	0.954
	24-Mar-94	**0.8**	16	0.4433	-0.143	-0.196	0.954
	12-Apr-95	**0.8**	17	0.4716	-0.071	-0.189	0.954
	8-Mar-94	**0.9**	18	0.5000	0.000	-0.136	0.952
	8-Mar-95	**0.9**	19	0.5284	0.071	-0.062	0.950
	16-Aug-94	**1.0**	20	0.5567	0.143	-0.039	0.948
	30-Nov-93	**1.0**	21	0.5851	0.215	-0.001	0.944
	23-Jun-94	**1.1**	22	0.6135	0.288	0.052	0.937
	11-Jul-95	**1.1**	23	0.6418	0.363	0.052	0.929
	9-Feb-95	**1.1**	24	0.6702	0.441	0.077	0.919
	25-Jul-95	**1.2**	25	0.6986	0.520	0.219	0.910
	25-Apr-95	**1.5**	26	0.7270	0.604	0.406	0.900
	7-Jun-94	**2.0**	27	0.7553	0.691	0.673	0.883
	27-Jun-95	**2.0**	28	0.7837	0.785	0.711	0.858
	7-Apr-94	**2.5**	29	0.8121	0.885	0.926	0.821
	22-Mar-95	**2.7**	30	0.8404	0.996	0.991	0.769
	4-May-94	**3.1**	31	0.8688	1.121	1.130	0.681
	7-Apr-94	**3.5**	32	0.8972	1.266	1.240	
	13-Jun-95	**6.6**	33	0.9255	1.443	1.880	
	19-May-94	**7.0**	34	0.9539	1.684	1.945	
	14-May-98	**7.1**	35	0.9823	2.103	1.957	

update for EV, CV:

dPb **CC291**

LN Analysis **dPb**

Concentration **Conc. Data, EV=11 ug/L CV=.29**

Data-based LN

		u	ln[dPb]	[dPb]
Avg:	**11**			
SD:	**3**	3	3.2	25
CV:	**0.29**	0	2.35	11
Min:	**5**	-3	1.50	4
Max:	**18**			
Median:	**11**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.941, EV=11.1 ug/L CV= 0.34; max r2=0.971**

r2 u,lnConc:	0.941	u	lnConc.	Conc.
slope, m:	2.984	3	3.35	29
intercept, b:	-7.010	0	2.35	10
N: 35		-3	1.34	4
E[Conc]:	11.1	Parameter Estimates		
SD[Conc]:	4	from LN regression		
CV[Conc]:	0.34	update graph label		

N: 35

max r2 0.971

Date	dPb Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
14-May-98	4.8	1	0.0177	-2.103	1.569	0.941
12-Apr-95	5	2	0.0461	-1.684	1.609	0.934
9-Feb-95	6	3	0.0745	-1.443	1.792	0.943
8-Mar-95	6	4	0.1028	-1.266	1.792	0.946
4-May-94	8	5	0.1312	-1.121	2.079	0.971
7-Jun-94	8	6	0.1596	-0.996	2.079	0.968
24-Mar-94	9	7	0.1879	-0.885	2.197	0.966
24-Mar-94	9	8	0.2163	-0.785	2.197	0.966
16-Nov-94	9	9	0.2447	-0.691	2.197	0.964
13-Dec-94	9	10	0.2730	-0.604	2.197	0.960
25-Apr-95	9	11	0.3014	-0.520	2.197	0.957
25-Jul-94	10	12	0.3298	-0.441	2.303	0.954
13-Sep-94	10	13	0.3582	-0.363	2.303	0.953
13-Jun-95	10	14	0.3865	-0.288	2.303	0.950
13-Sep-95	10	15	0.4149	-0.215	2.303	0.945
8-Mar-94	11	16	0.4433	-0.143	2.398	0.940
19-May-94	11	17	0.4716	-0.071	2.398	0.944
23-Jun-94	11	18	0.5000	0.000	2.398	0.945
22-Mar-95	11	19	0.5284	0.071	2.398	0.944
27-Jun-95	11	20	0.5567	0.143	2.398	0.940
11-Jul-95	11	21	0.5851	0.215	2.398	0.933
27-Oct-93	12	22	0.6135	0.288	2.485	0.924
20-Jan-94	12	23	0.6418	0.363	2.485	0.928
20-Jan-94	12	24	0.6702	0.441	2.485	0.927
18-Feb-94	12	25	0.6986	0.520	2.485	0.921
18-Feb-94	12	26	0.7270	0.604	2.485	0.908
14-Aug-95	12	27	0.7553	0.691	2.485	0.890
6-Oct-94	13	28	0.7837	0.785	2.565	0.880
30-Nov-93	14	29	0.8121	0.885	2.639	0.849
17-Dec-93	14	30	0.8404	0.996	2.639	0.823
17-Dec-93	14	31	0.8688	1.121	2.639	0.759
16-Aug-94	15	32	0.8972	1.266	2.708	
25-Jul-95	17	33	0.9255	1.443	2.833	
7-Apr-94	18	34	0.9539	1.684	2.890	
7-Apr-94	18	35	0.9823	2.103	2.890	

update for EV, CV:

dPb **CC291**

LN Analysis **dPb**

Discharge, Q **Q Data, EV=33 cfs CV=1.49**

Avg:	**33**	**Q Data-based LN**		
SD:	**49**	u	lnQ	Q
CV:	**1.49**	3	6.2	473
Min:	**8**	0	2.92	18
Max:	**274**	-3	-0.33	1
Median:	**15**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.856, EV=31.9 cfs CV=1.23; max r2=0.970**

r2 u,lnQ:	0.856	u	lnQ	Q
slope, m:	1.041	3	5.88	359
intercept, b:	-3.125	0	3.00	20
N: 35		-3	0.12	1.1
E[Q]:	31.9	Parameter Estimates		
SD[Q]:	39	from LN regression		
CV[Q]:	1.23	update graph label		

N: 35

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.970 r2 forward
update and rank for new data						
17-Dec-93	8.03	1	0.0177	-2.103	2.083	0.856
13-Dec-94	8.7	2	0.0461	-1.684	2.163	0.883
13-Sep-95	8.93	3	0.0745	-1.443	2.189	0.901
18-Feb-94	9	4	0.1028	-1.266	2.197	0.915
17-Dec-93	9.65	5	0.1312	-1.121	2.267	0.925
20-Jan-94	9.74	6	0.1596	-0.996	2.276	0.936
18-Feb-94	9.91	7	0.1879	-0.885	2.294	0.945
20-Jan-94	10.17	8	0.2163	-0.785	2.319	0.953
6-Oct-94	10.17	9	0.2447	-0.691	2.319	0.959
16-Nov-94	10.17	10	0.2730	-0.604	2.319	0.964
13-Sep-94	10.45	11	0.3014	-0.520	2.347	0.966
14-Aug-95	11.01	12	0.3298	-0.441	2.399	0.968
27-Oct-93	11.31	13	0.3582	-0.363	2.426	0.969
16-Aug-94	11.92	14	0.3865	-0.288	2.478	0.970
25-Jul-94	12.91	15	0.4149	-0.215	2.558	0.970
30-Nov-93	13.26	16	0.4433	-0.143	2.585	0.970
25-Jul-95	13.61	17	0.4716	-0.071	2.611	0.970
8-Mar-94	14.75	18	0.5000	0.000	2.691	0.967
24-Mar-94	15.56	19	0.5284	0.071	2.745	0.965
24-Mar-94	16.98	20	0.5567	0.143	2.832	0.962
23-Jun-94	17.8	21	0.5851	0.215	2.879	0.958
11-Jul-95	17.8	22	0.6135	0.288	2.879	0.953
7-Apr-94	26.08	23	0.6418	0.363	3.261	0.947
8-Mar-95	29.12	24	0.6702	0.441	3.371	0.948
12-Apr-95	30.78	25	0.6986	0.520	3.427	0.955
25-Apr-95	31	26	0.7270	0.604	3.434	0.963
9-Feb-95	33.45	27	0.7553	0.691	3.510	0.966
27-Jun-95	34.4	28	0.7837	0.785	3.538	0.969
7-Apr-94	35.7	29	0.8121	0.885	3.575	0.965
7-Jun-94	45.54	30	0.8404	0.996	3.819	0.954
22-Mar-95	45.54	31	0.8688	1.121	3.819	0.940
4-May-94	71.93	32	0.8972	1.266	4.276	
19-May-94	118.23	33	0.9255	1.443	4.773	
13-Jun-95	121.78	34	0.9539	1.684	4.802	
14-May-98	274	35	0.9823	2.103	5.613	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC291 **Date:** 29-May-00
Chemical: dZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,617	33	625	75	0.00	0.00	0.00	
SD:	306	49	299	69	1.00	1.00	1.00	
CV:	0.01	1.49	0.48	0.92				first:
Min:	34,269	8	168	25	-0.51	-1.53	-0.73	mid:
Max:	35,929	274	1,280	370	4.88	2.19	4.26	last:
Median:	34,540	15	598	48	-0.37	-0.09	-0.39	

dZn CC291 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.21) update r2

r2 Q,[COC]:	0.21	[dZn]	Q	r2:	0.463	0.277
slope, m:	-2.7	694	8.0	m:	0.1096	0.00147
intercept, b:	716.0	625	33.1	b:	-3762	-47.83
N: 35		-37	274			first:

LnConc. = mLn{Q}+b (r2=0.46) update r2 mid:

r2 lnQ,ln[COC]:	0.46	ln[dZn]	ln Q	[dZn]	Q	last:
slope, m:	-0.44	6.70	2.08	816	8	
intercept, b:	7.62	6.08	3.50	438	33	
N: 35		5.16	5.61	174	274	

for graph
dZn 0
CC291

N= 35

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	27-Oct-93	11.31	759	46	2.43	6.63	3.83	-0.44	0.45	-0.42
IDEQ	30-Nov-93	13.26	861	61	2.58	6.76	4.12	-0.40	0.79	-0.20
IDEQ	17-Dec-93	9.65	907	47	2.27	6.81	3.85	-0.48	0.94	-0.41
IDEQ	17-Dec-93	8.03	907	39	2.08	6.81	3.67	-0.51	0.94	-0.52
IDEQ	20-Jan-94	10.17	920	50	2.32	6.82	3.92	-0.47	0.99	-0.36
IDEQ	20-Jan-94	9.74	920	48	2.28	6.82	3.88	-0.47	0.99	-0.39
IDEQ	18-Feb-94	9.91	897	48	2.29	6.80	3.87	-0.47	0.91	-0.40
IDEQ	18-Feb-94	9	897	43	2.20	6.80	3.77	-0.49	0.91	-0.46
IDEQ	8-Mar-94	14.75	842	67	2.69	6.74	4.20	-0.37	0.73	-0.12
IDEQ	24-Mar-94	15.56	789	66	2.74	6.67	4.19	-0.36	0.55	-0.14
IDEQ	24-Mar-94	16.98	789	72	2.83	6.67	4.28	-0.33	0.55	-0.05
IDEQ	7-Apr-94	26.08	1280	180	3.26	7.15	5.19	-0.14	2.19	1.51
IDEQ	7-Apr-94	35.7	1280	246	3.58	7.15	5.50	0.05	2.19	2.47
IDEQ	4-May-94	71.93	230	89	4.28	5.44	4.49	0.79	-1.32	0.20
IDEQ	19-May-94	118.23	191	121	4.77	5.25	4.80	1.73	-1.45	0.67
IDEQ	7-Jun-94	45.54	301	74	3.82	5.71	4.30	0.25	-1.08	-0.02
IDEQ	23-Jun-94	17.8	311	30	2.88	5.74	3.39	-0.31	-1.05	-0.66
IDEQ	25-Jul-94	12.91	451	31	2.56	6.11	3.44	-0.41	-0.58	-0.64
IDEQ	16-Aug-94	11.92	562	36	2.48	6.33	3.58	-0.43	-0.21	-0.57
IDEQ	13-Sep-94	10.45	571	32	2.35	6.35	3.47	-0.46	-0.18	-0.63
IDEQ	6-Oct-94	10.17	660	36	2.32	6.49	3.59	-0.47	0.12	-0.57
IDEQ	16-Nov-94	10.17	856	47	2.32	6.75	3.85	-0.47	0.77	-0.41
IDEQ	13-Dec-94	8.7	915	43	2.16	6.82	3.76	-0.50	0.97	-0.47
IDEQ	9-Feb-95	33.45	453	82	3.51	6.12	4.40	0.01	-0.58	0.09
IDEQ	8-Mar-95	29.12	398	62	3.37	5.99	4.13	-0.08	-0.76	-0.19
IDEQ	22-Mar-95	45.54	696	171	3.82	6.55	5.14	0.25	0.24	1.38
IDEQ	12-Apr-95	30.78	452	75	3.43	6.11	4.32	-0.05	-0.58	-0.01
IDEQ	25-Apr-95	31	381	64	3.43	5.94	4.15	-0.04	-0.82	-0.17
IDEQ	13-Jun-95	121.78	168	110	4.80	5.12	4.70	1.80	-1.53	0.50
IDEQ	27-Jun-95	34.4	217	40	3.54	5.38	3.69	0.03	-1.37	-0.51
IDEQ	11-Jul-95	17.8	260	25	2.88	5.56	3.21	-0.31	-1.22	-0.73
IDEQ	25-Jul-95	13.61	415	30	2.61	6.03	3.41	-0.40	-0.70	-0.65
IDEQ	14-Aug-95	11.01	489	29	2.40	6.19	3.37	-0.45	-0.46	-0.67
IDEQ	13-Sep-95	8.93	598	29	2.19	6.39	3.36	-0.49	-0.09	-0.68
URS	14-May-98	274	251	370	5.61	5.53	5.91	4.88	-1.25	4.26

dZn

Concentration over time analysis r2 Slope, m

dZn CC291 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.275** **-0.00095**

Time	Ln[COC]	[COC]
27-Oct-93	6.63	758
25-Jul-94	6.37	587
14-May-98	5.06	157

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

dZn CC291 **Load over time**

LnLoad=mTime+b All data r2, m: **0.064** **0.00052**

Time	LnLoad	Load
27-Oct-93	3.90	49
25-Jul-94	4.04	57
14-May-98	4.76	117

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.316 max r2: 0.996

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rov		
0.275	-0.00095	39.10	0.064	0.00052	-13.95
0.268	-0.00095	39.10	0.060	0.00051	-13.69
0.255	-0.00093	38.49	0.063	0.00054	-14.45
0.239	-0.00090	37.57	0.060	0.00053	-14.21
0.222	-0.00087	36.51	0.052	0.00050	-13.17
0.204	-0.00084	35.24	0.049	0.00049	-13.02
0.185	-0.00080	33.79	0.046	0.00048	-12.68
0.166	-0.00075	32.27	0.042	0.00047	-12.22
0.146	-0.00070	30.51	0.036	0.00044	-11.25
0.127	-0.00065	28.82	0.039	0.00047	-12.14
0.110	-0.00061	27.20	0.042	0.00049	-13.03
0.091	-0.00055	25.29	0.047	0.00054	-14.54
0.058	-0.00042	20.47	0.090	0.00073	-21.14
0.025	-0.00025	14.66	0.200	0.00101	-30.95
0.053	-0.00036	18.49	0.249	0.00114	-35.63
0.122	-0.00052	24.09	0.355	0.00135	-42.96
0.168	-0.00062	27.50	0.416	0.00149	-47.96
0.225	-0.00072	31.23	0.395	0.00147	-47.27
0.237	-0.00076	32.62	0.376	0.00145	-46.52
0.225	-0.00076	32.47	0.361	0.00145	-46.45
0.209	-0.00074	32.02	0.338	0.00141	-45.17
0.180	-0.00069	30.17	0.318	0.00139	-44.34
0.139	-0.00057	25.86	0.313	0.00141	-45.01
0.094	-0.00041	20.19	0.300	0.00140	-44.77
0.082	-0.00038	19.30	0.337	0.00151	-48.51
0.077	-0.00038	19.13	0.350	0.00156	-50.57
0.044	-0.00025	14.60	0.555	0.00185	-60.64
0.026	-0.00019	12.50	0.633	0.00200	-66.02
0.017	-0.00016	11.26	0.700	0.00215	-71.43
0.104	-0.00032	17.07	0.965	0.00244	-81.72
0.316	-0.00048	22.74	0.996	0.00255	-85.59

update for EV, CV:

dZn **CC291**

LN Analysis **dZn**

Load **Load Data, EV=75 lbs/day CV=.92**

Load Data-based LN

Avg:	**75**	u	ln dZn Load	dZn Load
SD:	**69**	3	6.4	578
CV:	**0.92**	0	4.02	56
Min:	**25**	-3	1.68	5
Max:	**370**			
Median:	**48**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.911, EV=74.7 lbs/day CV=0.77; max r2=0.987**

r2 u,lnLoad:	0.911	u	lnLoad	Load
slope, m:	1.459	3	6.14	462
intercept, b:	-5.948	0	4.08	59
N: 35		-3	2.02	8
E[Load]:	74.7	Parameter Estimates		
SD[Load]:	58	from LN regression		
CV[Load]:	0.77	update graph label		

N: 35

max r2 0.987

	Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
ws	update and rank for new data						
	11-Jul-95	**25**	1	0.0177	-2.103	3.215	0.911
	13-Sep-95	**29**	2	0.0461	-1.684	3.358	0.924
	14-Aug-95	**29**	3	0.0745	-1.443	3.366	0.936
	23-Jun-94	**30**	4	0.1028	-1.266	3.394	0.942
	25-Jul-95	**30**	5	0.1312	-1.121	3.414	0.946
	25-Jul-94	**31**	6	0.1596	-0.996	3.444	0.948
	13-Sep-94	**32**	7	0.1879	-0.885	3.469	0.948
	16-Aug-94	**36**	8	0.2163	-0.785	3.585	0.947
	6-Oct-94	**36**	9	0.2447	-0.691	3.587	0.950
	17-Dec-93	**39**	10	0.2730	-0.604	3.668	0.950
	27-Jun-95	**40**	11	0.3014	-0.520	3.693	0.952
	13-Dec-94	**43**	12	0.3298	-0.441	3.757	0.954
	18-Feb-94	**43**	13	0.3582	-0.363	3.771	0.957
	27-Oct-93	**46**	14	0.3865	-0.288	3.833	0.959
	16-Nov-94	**47**	15	0.4149	-0.215	3.847	0.963
	17-Dec-93	**47**	16	0.4433	-0.143	3.852	0.966
	18-Feb-94	**48**	17	0.4716	-0.071	3.868	0.967
	20-Jan-94	**48**	18	0.5000	0.000	3.876	0.967
	20-Jan-94	**50**	19	0.5284	0.071	3.919	0.964
	30-Nov-93	**61**	20	0.5567	0.143	4.118	0.961
	8-Mar-95	**62**	21	0.5851	0.215	4.133	0.968
	25-Apr-95	**64**	22	0.6135	0.288	4.152	0.974
	24-Mar-94	**66**	23	0.6418	0.363	4.190	0.978
	8-Mar-94	**67**	24	0.6702	0.441	4.202	0.982
	24-Mar-94	**72**	25	0.6986	0.520	4.278	0.984
	7-Jun-94	**74**	26	0.7270	0.604	4.301	0.987
	12-Apr-95	**75**	27	0.7553	0.691	4.315	0.987
	9-Feb-95	**82**	28	0.7837	0.785	4.401	0.984
	4-May-94	**89**	29	0.8121	0.885	4.489	0.980
	13-Jun-95	**110**	30	0.8404	0.996	4.701	0.980
	19-May-94	**121**	31	0.8688	1.121	4.800	0.973
	22-Mar-95	**171**	32	0.8972	1.266	5.139	
	7-Apr-94	**180**	33	0.9255	1.443	5.191	
	7-Apr-94	**246**	34	0.9539	1.684	5.505	
	14-May-98	**370**	35	0.9823	2.103	5.914	

update for EV, CV:

dZn **CC291**

LN Analysis **dZn**

Concentration **Conc. Data, EV=625 ug/L CV=.48**

Avg:	**625**	**Data-based LN**		
SD:	**299**	u	ln[dZn]	[dZn]
CV:	**0.48**	3	7.7	2199
Min:	**168**	0	6.33	564
Max:	**1,280**	-3	4.97	145
Median:	**598**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.938, EV=650.2 ug/L CV=0.65; max r2=0.938**

r2 u,lnConc:	0.938	u	lnConc.	Conc.
slope, m:	1.685	3	8.08	3234
intercept, b:	-10.619	0	6.30	545
N: 35		-3	4.52	92
E[Conc]:	650.2	Parameter Estimates		
SD[Conc]:	422	from LN regression		
CV[Conc]:	0.65	update graph label		

N: 35

max r2 0.938

Date	**dZn Concentration ug/L Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	r2 forward
update and rank for new data						
13-Jun-95	168	1	0.0177	-2.103	5.124	0.938
19-May-94	191	2	0.0461	-1.684	5.252	0.929
27-Jun-95	217	3	0.0745	-1.443	5.380	0.920
4-May-94	230	4	0.1028	-1.266	5.438	0.911
14-May-98	251	5	0.1312	-1.121	5.525	0.904
11-Jul-95	260	6	0.1596	-0.996	5.561	0.898
7-Jun-94	301	7	0.1879	-0.885	5.707	0.897
23-Jun-94	311	8	0.2163	-0.785	5.740	0.893
25-Apr-95	381	9	0.2447	-0.691	5.943	0.894
8-Mar-95	398	10	0.2730	-0.604	5.986	0.885
25-Jul-95	415	11	0.3014	-0.520	6.028	0.877
25-Jul-94	451	12	0.3298	-0.441	6.111	0.869
12-Apr-95	452	13	0.3582	-0.363	6.114	0.858
9-Feb-95	453	14	0.3865	-0.288	6.116	0.851
14-Aug-95	489	15	0.4149	-0.215	6.192	0.856
16-Aug-94	562	16	0.4433	-0.143	6.332	0.864
13-Sep-94	571	17	0.4716	-0.071	6.347	0.857
13-Sep-95	598	18	0.5000	0.000	6.394	0.856
6-Oct-94	660	19	0.5284	0.071	6.492	0.861
22-Mar-95	696	20	0.5567	0.143	6.545	0.851
27-Oct-93	759	21	0.5851	0.215	6.632	0.835
24-Mar-94	789	22	0.6135	0.288	6.671	0.815
24-Mar-94	789	23	0.6418	0.363	6.671	0.797
8-Mar-94	842	24	0.6702	0.441	6.736	0.770
16-Nov-94	856	25	0.6986	0.520	6.752	0.760
30-Nov-93	861	26	0.7270	0.604	6.758	0.753
18-Feb-94	897	27	0.7553	0.691	6.799	0.740
18-Feb-94	897	28	0.7837	0.785	6.799	0.756
17-Dec-93	907	29	0.8121	0.885	6.810	0.764
17-Dec-93	907	30	0.8404	0.996	6.810	0.776
13-Dec-94	915	31	0.8688	1.121	6.819	0.771
20-Jan-94	920	32	0.8972	1.266	6.824	
20-Jan-94	920	33	0.9255	1.443	6.824	
7-Apr-94	1280	34	0.9539	1.684	7.155	
7-Apr-94	1280	35	0.9823	2.103	7.155	

update for EV, CV:

dZn **CC291**

LN Analysis **dZn**

Discharge, Q **Q Data, EV=33 cfs CV=1.49**

Q Data-based LN

		u	lnQ	Q
Avg:	**33**			
SD:	**49**			
CV:	**1.49**	3	6.2	473
Min:	**8**	0	2.92	18
Max:	**274**	-3	-0.33	1
Median:	**15**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.856, EV=31.9 cfs CV=1.23; max r2=0.970**

r2 u,lnQ:	0.856	u	lnQ	Q
slope, m:	1.041	3	5.88	359
intercept, b:	-3.125	0	3.00	20
N: 35		-3	0.12	1
E[Q]:	31.9	Parameter Estimates		
SD[Q]:	39	from LN regression		
CV[Q]:	1.23	update graph label		

N: 35

max r2 0.970

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
17-Dec-93	8.03	1	0.0177	-2.103	2.083	0.856
13-Dec-94	8.7	2	0.0461	-1.684	2.163	0.883
13-Sep-95	8.93	3	0.0745	-1.443	2.189	0.901
18-Feb-94	9	4	0.1028	-1.266	2.197	0.915
17-Dec-93	9.65	5	0.1312	-1.121	2.267	0.925
20-Jan-94	9.74	6	0.1596	-0.996	2.276	0.936
18-Feb-94	9.91	7	0.1879	-0.885	2.294	0.945
20-Jan-94	10.17	8	0.2163	-0.785	2.319	0.953
6-Oct-94	10.17	9	0.2447	-0.691	2.319	0.959
16-Nov-94	10.17	10	0.2730	-0.604	2.319	0.964
13-Sep-94	10.45	11	0.3014	-0.520	2.347	0.966
14-Aug-95	11.01	12	0.3298	-0.441	2.399	0.968
27-Oct-93	11.31	13	0.3582	-0.363	2.426	0.969
16-Aug-94	11.92	14	0.3865	-0.288	2.478	0.970
25-Jul-94	12.91	15	0.4149	-0.215	2.558	0.970
30-Nov-93	13.26	16	0.4433	-0.143	2.585	0.970
25-Jul-95	13.61	17	0.4716	-0.071	2.611	0.970
8-Mar-94	14.75	18	0.5000	0.000	2.691	0.967
24-Mar-94	15.56	19	0.5284	0.071	2.745	0.965
24-Mar-94	16.98	20	0.5567	0.143	2.832	0.962
23-Jun-94	17.8	21	0.5851	0.215	2.879	0.958
11-Jul-95	17.8	22	0.6135	0.288	2.879	0.953
7-Apr-94	26.08	23	0.6418	0.363	3.261	0.947
8-Mar-95	29.12	24	0.6702	0.441	3.371	0.948
12-Apr-95	30.78	25	0.6986	0.520	3.427	0.955
25-Apr-95	31	26	0.7270	0.604	3.434	0.963
9-Feb-95	33.45	27	0.7553	0.691	3.510	0.966
27-Jun-95	34.4	28	0.7837	0.785	3.538	0.969
7-Apr-94	35.7	29	0.8121	0.885	3.575	0.965
7-Jun-94	45.54	30	0.8404	0.996	3.819	0.954
22-Mar-95	45.54	31	0.8688	1.121	3.819	0.940
4-May-94	71.93	32	0.8972	1.266	4.276	
19-May-94	118.23	33	0.9255	1.443	4.773	
13-Jun-95	121.78	34	0.9539	1.684	4.802	
14-May-98	274	35	0.9823	2.103	5.613	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC291 **Date:** 2-Jun-00
Chemical: tCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	34,617	33	4	0.5	0.00	0.00	0.00		
SD:	306	49	1	0.4	1.00	1.00	1.00		
CV:	0.01	1.49	0.36	0.81					first:
Min:	34,269	8	1	0.2	-0.51	-1.75	-0.71		mid:
Max:	35,929	274	6	2	4.88	1.44	4.73		last:
Median:	34,540	15	4	0.3	-0.37	0.14	-0.42		

tCd **CC291** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.37)		update r2	0.37	0.37	r2:	0.463	0.277	
r2 Q,[COC]:	0.37	[tCd]	Q		m:	0.1096	0.00147	
slope, m:	-0.02	4	8.0		b:	-3762	-47.83	
intercept, b:	4.4	4	33.1					
N: 35		-0.3	274					first:
LnConc. = mLn{Q}+b (r2=0.737)		update r2		0.74	0.737			mid:
r2 lnQ,ln[COC]:	0.74	ln[tCd]	ln Q	[tCd]	Q			last:
slope, m:	-0.43	1.65	2.08	5	8			
intercept, b:	2.54	1.04	3.50	3	33			
N: 35		0.14	5.61	1	274			

for graph
tCd 0
CC291

N= 35

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	27-Oct-93	11.31	4.8	0.3	2.43	1.57	-1.23	-0.44	0.72	-0.44
IDEQ	30-Nov-93	13.26	5.2	0.4	2.58	1.65	-0.99	-0.40	1.01	-0.23
IDEQ	17-Dec-93	9.65	5.8	0.3	2.27	1.76	-1.20	-0.48	1.44	-0.42
IDEQ	17-Dec-93	8.03	5.8	0.3	2.08	1.76	-1.38	-0.51	1.44	-0.56
IDEQ	20-Jan-94	10.17	5.5	0.3	2.32	1.70	-1.20	-0.47	1.22	-0.42
IDEQ	20-Jan-94	9.74	5.5	0.3	2.28	1.70	-1.24	-0.47	1.22	-0.45
IDEQ	18-Feb-94	9.91	5.6	0.3	2.29	1.72	-1.21	-0.47	1.29	-0.43
IDEQ	18-Feb-94	9	5.6	0.3	2.20	1.72	-1.31	-0.49	1.29	-0.50
IDEQ	8-Mar-94	14.75	5.2	0.4	2.69	1.65	-0.89	-0.37	1.01	-0.12
IDEQ	24-Mar-94	15.56	4.6	0.4	2.74	1.53	-0.95	-0.36	0.57	-0.19
IDEQ	24-Mar-94	16.98	4.6	0.4	2.83	1.53	-0.87	-0.33	0.57	-0.10
IDEQ	7-Apr-94	26.08	3.6	0.5	3.26	1.28	-0.68	-0.14	-0.15	0.13
IDEQ	7-Apr-94	35.7	3.6	0.7	3.58	1.28	-0.37	0.05	-0.15	0.63
IDEQ	4-May-94	71.93	1.8	0.7	4.28	0.59	-0.36	0.79	-1.46	0.65
IDEQ	19-May-94	118.23	1.4	0.9	4.77	0.34	-0.12	1.73	-1.75	1.17
IDEQ	7-Jun-94	45.54	2.1	0.5	3.82	0.74	-0.66	0.25	-1.24	0.16
IDEQ	23-Jun-94	17.8	3	0.3	2.88	1.10	-1.25	-0.31	-0.59	-0.46
IDEQ	25-Jul-94	12.91	3.7	0.3	2.56	1.31	-1.36	-0.41	-0.08	-0.54
IDEQ	16-Aug-94	11.92	4	0.3	2.48	1.39	-1.36	-0.43	0.14	-0.54
IDEQ	13-Sep-94	10.45	4.2	0.2	2.35	1.44	-1.44	-0.46	0.28	-0.59
IDEQ	6-Oct-94	10.17	4.8	0.3	2.32	1.57	-1.34	-0.47	0.72	-0.52
IDEQ	16-Nov-94	10.17	5.2	0.3	2.32	1.65	-1.26	-0.47	1.01	-0.46
IDEQ	13-Dec-94	8.7	5	0.2	2.16	1.61	-1.45	-0.50	0.86	-0.60
IDEQ	9-Feb-95	33.45	3	0.5	3.51	1.10	-0.62	0.01	-0.59	0.23
IDEQ	8-Mar-95	29.12	2.4	0.4	3.37	0.88	-0.98	-0.08	-1.02	-0.22
IDEQ	22-Mar-95	45.54	4.1	1.0	3.82	1.41	0.00	0.25	0.21	1.48
IDEQ	12-Apr-95	30.78	3.1	0.5	3.43	1.13	-0.67	-0.05	-0.51	0.15
IDEQ	25-Apr-95	31	2.5	0.4	3.43	0.92	-0.87	-0.04	-0.95	-0.11
IDEQ	13-Jun-95	121.78	1.6	1.0	4.80	0.47	0.05	1.80	-1.60	1.60
IDEQ	27-Jun-95	34.4	1.6	0.3	3.54	0.47	-1.22	0.03	-1.60	-0.43
IDEQ	11-Jul-95	17.8	2.4	0.2	2.88	0.88	-1.47	-0.31	-1.02	-0.61
IDEQ	25-Jul-95	13.61	3.2	0.2	2.61	1.16	-1.45	-0.40	-0.44	-0.60
IDEQ	14-Aug-95	11.01	3.4	0.2	2.40	1.22	-1.60	-0.45	-0.30	-0.69
IDEQ	13-Sep-95	8.93	4	0.2	2.19	1.39	-1.65	-0.49	0.14	-0.71
URS	14-May-98	274	1.5	2.2	5.61	0.41	0.79	4.88	-1.67	4.73

tCd

Concentration over time analysis r2 Slope, m

tCd CC291 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.323** **-0.00079**

Time	Ln[COC]	[COC]
27-Oct-93	1.53	5
25-Jul-94	1.32	4
14-May-98	0.22	1

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

tCd CC291 **Load over time**

LnLoad=mTime+b All data r2, m: **0.150** **0.00068**

Time	LnLoad	Load
27-Oct-93	-1.20	0
25-Jul-94	-1.02	0
14-May-98	-0.08	1

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.728 max r2: 0.983

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rov		
0.323	-0.00079	28.66	0.150	0.00068	-24.39
0.313	-0.00079	28.52	0.144	0.00067	-24.27
0.298	-0.00077	27.96	0.147	0.00069	-24.98
0.278	-0.00074	26.89	0.142	0.00069	-24.89
0.256	-0.00071	25.66	0.130	0.00067	-24.02
0.236	-0.00067	24.50	0.124	0.00066	-23.77
0.214	-0.00063	23.18	0.115	0.00065	-23.29
0.191	-0.00059	21.63	0.108	0.00063	-22.86
0.165	-0.00054	19.84	0.097	0.00061	-21.92
0.141	-0.00049	18.17	0.101	0.00063	-22.79
0.122	-0.00045	16.87	0.103	0.00065	-23.37
0.100	-0.00041	15.34	0.108	0.00068	-24.50
0.091	-0.00040	14.88	0.124	0.00074	-26.73
0.081	-0.00038	14.33	0.168	0.00087	-31.28
0.130	-0.00048	17.84	0.224	0.00102	-36.28
0.265	-0.00064	23.48	0.336	0.00122	-43.57
0.361	-0.00075	27.25	0.396	0.00136	-48.21
0.389	-0.00080	29.09	0.396	0.00139	-49.42
0.383	-0.00081	29.48	0.385	0.00140	-49.66
0.365	-0.00081	29.22	0.371	0.00140	-49.71
0.340	-0.00078	28.37	0.350	0.00137	-48.82
0.302	-0.00072	26.14	0.333	0.00136	-48.37
0.265	-0.00062	22.81	0.319	0.00135	-48.06
0.225	-0.00052	19.12	0.291	0.00129	-45.84
0.213	-0.00051	18.81	0.322	0.00138	-48.99
0.233	-0.00054	19.95	0.322	0.00140	-49.75
0.201	-0.00047	17.19	0.476	0.00163	-58.05
0.176	-0.00043	15.99	0.534	0.00176	-62.53
0.175	-0.00044	16.33	0.571	0.00187	-66.36
0.323	-0.00056	20.52	0.952	0.00220	-78.27
0.728	-0.00073	26.54	0.983	0.00230	-81.78

update for EV, CV:

tCd		**CC291**		
LN Analysis		**tCd**		
Load		**Load Data, EV=0.456 lbs/day CV=0.812**		
Avg:	**0**	**Load Data-based LN**		
SD:	**0**	u	ln tCd Load	tCd Load
CV:	**0.81**	3	1.1	3
Min:	**0.2**	0	-1.04	0
Max:	**2**	-3	-3.17	0.0
Median:	**0**			
		0	0.456	
		0.81	0.812	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.872, EV=0.455lbs/day CV=0.653; max r2=0.97**

r2 u,lnLoad:	0.872	u	lnLoad	Load	
slope, m:	1.678	3	0.82	2	
intercept, b:	1.621	0	-0.97	0	
N: 35		-3	-2.75	0.1	
E[Load]:	0.5	Parameter Estimates			0.872
SD[Load]:	0	from LN regression			0.5
CV[Load]:	0.65	update graph label			0.7
					max r2
					0.968

N: 35

	tCd Load lbs/day Ranked	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2 forward**
Date						
ws	update and rank for new data					
13-Sep-95	**0.2**	1	0.0177	-2.103	-1.649	0.872
14-Aug-95	**0.2**	2	0.0461	-1.684	-1.602	0.887
11-Jul-95	**0.2**	3	0.0745	-1.443	-1.470	0.893
13-Dec-94	**0.2**	4	0.1028	-1.266	-1.452	0.906
25-Jul-95	**0.2**	5	0.1312	-1.121	-1.451	0.915
13-Sep-94	**0.2**	6	0.1596	-0.996	-1.443	0.922
17-Dec-93	**0.3**	7	0.1879	-0.885	-1.384	0.927
16-Aug-94	**0.3**	8	0.2163	-0.785	-1.361	0.933
25-Jul-94	**0.3**	9	0.2447	-0.691	-1.359	0.939
6-Oct-94	**0.3**	10	0.2730	-0.604	-1.337	0.944
18-Feb-94	**0.3**	11	0.3014	-0.520	-1.305	0.948
16-Nov-94	**0.3**	12	0.3298	-0.441	-1.257	0.952
23-Jun-94	**0.3**	13	0.3582	-0.363	-1.247	0.958
20-Jan-94	**0.3**	14	0.3865	-0.288	-1.244	0.962
27-Oct-93	**0.3**	15	0.4149	-0.215	-1.231	0.965
27-Jun-95	**0.3**	16	0.4433	-0.143	-1.217	0.967
18-Feb-94	**0.3**	17	0.4716	-0.071	-1.209	0.968
20-Jan-94	**0.3**	18	0.5000	0.000	-1.201	0.967
17-Dec-93	**0.3**	19	0.5284	0.071	-1.200	0.964
30-Nov-93	**0.4**	20	0.5567	0.143	-0.992	0.959
8-Mar-95	**0.4**	21	0.5851	0.215	-0.978	0.962
24-Mar-94	**0.4**	22	0.6135	0.288	-0.954	0.962
8-Mar-94	**0.4**	23	0.6418	0.363	-0.885	0.961
25-Apr-95	**0.4**	24	0.6702	0.441	-0.875	0.962
24-Mar-94	**0.4**	25	0.6986	0.520	-0.867	0.959
7-Apr-94	**0.5**	26	0.7270	0.604	-0.683	0.952
12-Apr-95	**0.5**	27	0.7553	0.691	-0.667	0.956
7-Jun-94	**0.5**	28	0.7837	0.785	-0.665	0.955
9-Feb-95	**0.5**	29	0.8121	0.885	-0.616	0.944
7-Apr-94	**0.7**	30	0.8404	0.996	-0.369	0.927
4-May-94	**0.7**	31	0.8688	1.121	-0.362	0.924
19-May-94	**0.9**	32	0.8972	1.266	-0.116	
22-Mar-95	**1.0**	33	0.9255	1.443	0.005	
13-Jun-95	**1.0**	34	0.9539	1.684	0.047	
14-May-98	**2.2**	35	0.9823	2.103	0.794	

update for EV, CV:

tCd		**CC291**		4	3.81
LN Analysis		**tCd**		0.36	0.362
Concentration		**Conc. Data, EV=3.81 ug/L CV=0.362**			
Avg:	**4**	**Data-based LN**			
SD:	**1**	u	ln[tCd]	[tCd]	
CV:	**0.36**	3	2.3	10	
Min:	**1**	0	1.28	4	
Max:	**6**	-3	0.22	1	
Median:	**4**				

					0.910	0.91
	u=mLn{Conc.}+b:				3.9	3.92
update for r2, EV, CV:	**r2=0.91, EV=3.92 ug/L CV=0.491; max r2=0.91**				0.491	0.491
	r2 u,lnConc:	0.910	u	lnConc.	Conc.	
	slope, m:	2.153	3	2.65	14	
	intercept, b:	-2.706	0	1.26	4	
	N: 35		-3	-0.14	1	
0.872	E[Conc]:	3.9	Parameter Estimates			
0.455	SD[Conc]:	2	from LN regression			
0.653	CV[Conc]:	0.49	update graph label			

						max r2
	tCd	N: 35				0.910
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
19-May-94	1.4	1	0.0177	-2.103	0.336	0.910
14-May-98	1.5	2	0.0461	-1.684	0.405	0.896
13-Jun-95	1.6	3	0.0745	-1.443	0.470	0.884
27-Jun-95	1.6	4	0.1028	-1.266	0.470	0.874
4-May-94	1.8	5	0.1312	-1.121	0.588	0.877
7-Jun-94	2.1	6	0.1596	-0.996	0.742	0.882
8-Mar-95	2.4	7	0.1879	-0.885	0.875	0.881
11-Jul-95	2.4	8	0.2163	-0.785	0.875	0.873
25-Apr-95	2.5	9	0.2447	-0.691	0.916	0.874
23-Jun-94	3	10	0.2730	-0.604	1.099	0.883
9-Feb-95	3	11	0.3014	-0.520	1.099	0.874
12-Apr-95	3.1	12	0.3298	-0.441	1.131	0.867
25-Jul-95	3.2	13	0.3582	-0.363	1.163	0.862
14-Aug-95	3.4	14	0.3865	-0.288	1.224	0.860
7-Apr-94	3.6	15	0.4149	-0.215	1.281	0.854
7-Apr-94	3.6	16	0.4433	-0.143	1.281	0.842
25-Jul-94	3.7	17	0.4716	-0.071	1.308	0.837
16-Aug-94	4	18	0.5000	0.000	1.386	0.838
13-Sep-95	4	19	0.5284	0.071	1.386	0.824
22-Mar-95	4.1	20	0.5567	0.143	1.411	0.819
13-Sep-94	4.2	21	0.5851	0.215	1.435	0.825
24-Mar-94	4.6	22	0.6135	0.288	1.526	0.859
24-Mar-94	4.6	23	0.6418	0.363	1.526	0.844
27-Oct-93	4.8	24	0.6702	0.441	1.569	0.846
6-Oct-94	4.8	25	0.6986	0.520	1.569	0.828
13-Dec-94	5	26	0.7270	0.604	1.609	0.848
30-Nov-93	5.2	27	0.7553	0.691	1.649	0.843
8-Mar-94	5.2	28	0.7837	0.785	1.649	0.807
16-Nov-94	5.2	29	0.8121	0.885	1.649	0.763
20-Jan-94	5.5	30	0.8404	0.996	1.705	0.865
20-Jan-94	5.5	31	0.8688	1.121	1.705	0.825
18-Feb-94	5.6	32	0.8972	1.266	1.723	
18-Feb-94	5.6	33	0.9255	1.443	1.723	
17-Dec-93	5.8	34	0.9539	1.684	1.758	
17-Dec-93	5.8	35	0.9823	2.103	1.758	

update for EV, CV:

tCd		**CC291**			33	33.1
LN Analysis		**tCd**			1.49	1.49
Discharge, Q		**Q Data, EV=33.1 cfs CV=1.49**				
Avg:	**33**	**Q Data-based LN**				
SD:	**49**	u	lnQ	Q		
CV:	**1.49**	3	6.2	473		
Min:	**8**	0	2.92	18		
Max:	**274**	-3	-0.33	1		
Median:	**15**					

					0.856	0.856
					31.9	31.9
u=mLn{Q}+b:					1.23	1.23
update for r2, EV, CV:	**r2=0.856, EV=31.9 cfs CV=1.23; max r2=0.97**					
r2 u,lnQ:	0.856	u	lnQ	Q		
slope, m:	1.041	3	5.88	359		
intercept, b:	-3.125	0	3.00	20		
N: 35		-3	0.12	1		
E[Q]:	31.9	Parameter Estimates				
SD[Q]:	39	from LN regression				
CV[Q]:	1.23	update graph label				

						max r2
	Q	N: 35				0.970
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
17-Dec-93	8.03	1	0.0177	-2.103	2.083	0.856
13-Dec-94	8.7	2	0.0461	-1.684	2.163	0.883
13-Sep-95	8.93	3	0.0745	-1.443	2.189	0.901
18-Feb-94	9	4	0.1028	-1.266	2.197	0.915
17-Dec-93	9.65	5	0.1312	-1.121	2.267	0.925
20-Jan-94	9.74	6	0.1596	-0.996	2.276	0.936
18-Feb-94	9.91	7	0.1879	-0.885	2.294	0.945
20-Jan-94	10.17	8	0.2163	-0.785	2.319	0.953
6-Oct-94	10.17	9	0.2447	-0.691	2.319	0.959
16-Nov-94	10.17	10	0.2730	-0.604	2.319	0.964
13-Sep-94	10.45	11	0.3014	-0.520	2.347	0.966
14-Aug-95	11.01	12	0.3298	-0.441	2.399	0.968
27-Oct-93	11.31	13	0.3582	-0.363	2.426	0.969
16-Aug-94	11.92	14	0.3865	-0.288	2.478	0.970
25-Jul-94	12.91	15	0.4149	-0.215	2.558	0.970
30-Nov-93	13.26	16	0.4433	-0.143	2.585	0.970
25-Jul-95	13.61	17	0.4716	-0.071	2.611	0.970
8-Mar-94	14.75	18	0.5000	0.000	2.691	0.967
24-Mar-94	15.56	19	0.5284	0.071	2.745	0.965
24-Mar-94	16.98	20	0.5567	0.143	2.832	0.962
23-Jun-94	17.8	21	0.5851	0.215	2.879	0.958
11-Jul-95	17.8	22	0.6135	0.288	2.879	0.953
7-Apr-94	26.08	23	0.6418	0.363	3.261	0.947
8-Mar-95	29.12	24	0.6702	0.441	3.371	0.948
12-Apr-95	30.78	25	0.6986	0.520	3.427	0.955
25-Apr-95	31	26	0.7270	0.604	3.434	0.963
9-Feb-95	33.45	27	0.7553	0.691	3.510	0.966
27-Jun-95	34.4	28	0.7837	0.785	3.538	0.969
7-Apr-94	35.7	29	0.8121	0.885	3.575	0.965
7-Jun-94	45.54	30	0.8404	0.996	3.819	0.954
22-Mar-95	45.54	31	0.8688	1.121	3.819	0.940
4-May-94	71.93	32	0.8972	1.266	4.276	
19-May-94	118.23	33	0.9255	1.443	4.773	
13-Jun-95	121.78	34	0.9539	1.684	4.802	
14-May-98	274	35	0.9823	2.103	5.613	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC291 **Date:** 2-Jun-00
Chemical: tPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	34,617	33	20	3	0.00	0.00	0.00		
SD:	306	49	6	3	1.00	1.00	1.00		
CV:	0.01	1.49	0.30	1.13					first:
Min:	34,269	8	10	0.7	-0.51	-1.66	-0.66		mid:
Max:	35,929	274	33	16	4.88	2.07	3.72		last:
Median:	34,540	15	21	1	-0.37	0.12	-0.44		

tPb **CC291** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.138)		update r2	0.14	0.138	r2:	0.463	0.277	
r2 Q,[COC]:	0.14	[tPb]	Q		m:	0.1096	0.00147	
slope, m:	0.0	21	8.0		b:	-3762	-47.83	
intercept, b:	21.8	20	33.1					
N: 35		9	274					first:
LnConc. = mLn{Q}+b (r2=0.234)		update r2		0.23	0.234			mid:
r2 lnQ,ln[COC]:	0.23	ln[tPb]	ln Q	[tPb]	Q			last:
slope, m:	-0.18	3.13	2.08	23	8			
intercept, b:	3.50	2.87	3.50	18	33			
N: 35		2.48	5.61	12	274			

for graph
tPb 0
CC291

N= 35

	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	27-Oct-93	11.31	33	2.0	2.43	3.50	0.70	-0.44	2.07	-0.29
IDEQ	30-Nov-93	13.26	21	1.5	2.58	3.04	0.40	-0.40	0.12	-0.44
IDEQ	17-Dec-93	9.65	23	1.2	2.27	3.14	0.18	-0.48	0.45	-0.53
IDEQ	17-Dec-93	8.03	23	1.0	2.08	3.14	-0.01	-0.51	0.45	-0.59
IDEQ	20-Jan-94	10.17	23	1.3	2.32	3.14	0.23	-0.47	0.45	-0.51
IDEQ	20-Jan-94	9.74	23	1.2	2.28	3.14	0.19	-0.47	0.45	-0.53
IDEQ	18-Feb-94	9.91	26	1.4	2.29	3.26	0.33	-0.47	0.93	-0.48
IDEQ	18-Feb-94	9	26	1.3	2.20	3.26	0.23	-0.49	0.93	-0.51
IDEQ	8-Mar-94	14.75	15	1.2	2.69	2.71	0.17	-0.37	-0.85	-0.53
IDEQ	24-Mar-94	15.56	14	1.2	2.74	2.64	0.16	-0.36	-1.01	-0.54
IDEQ	24-Mar-94	16.98	14	1.3	2.83	2.64	0.25	-0.33	-1.01	-0.51
IDEQ	7-Apr-94	26.08	28	3.9	3.26	3.33	1.37	-0.14	1.26	0.27
IDEQ	7-Apr-94	35.7	28	5.4	3.58	3.33	1.68	0.05	1.26	0.70
IDEQ	4-May-94	71.93	14	5.4	4.28	2.64	1.69	0.79	-1.01	0.71
IDEQ	19-May-94	118.23	12	7.6	4.77	2.48	2.03	1.73	-1.34	1.37
IDEQ	7-Jun-94	45.54	16	3.9	3.82	2.77	1.37	0.25	-0.69	0.27
IDEQ	23-Jun-94	17.8	15	1.4	2.88	2.71	0.36	-0.31	-0.85	-0.46
IDEQ	25-Jul-94	12.91	19	1.3	2.56	2.94	0.28	-0.41	-0.20	-0.50
IDEQ	16-Aug-94	11.92	24	1.5	2.48	3.18	0.43	-0.43	0.61	-0.43
IDEQ	13-Sep-94	10.45	24	1.3	2.35	3.18	0.30	-0.46	0.61	-0.49
IDEQ	6-Oct-94	10.17	24	1.3	2.32	3.18	0.27	-0.47	0.61	-0.50
IDEQ	16-Nov-94	10.17	20	1.1	2.32	3.00	0.09	-0.47	-0.04	-0.56
IDEQ	13-Dec-94	8.7	16	0.7	2.16	2.77	-0.29	-0.50	-0.69	-0.66
IDEQ	9-Feb-95	33.45	12	2.2	3.51	2.48	0.77	0.01	-1.34	-0.25
IDEQ	8-Mar-95	29.12	12	1.9	3.37	2.48	0.63	-0.08	-1.34	-0.33
IDEQ	22-Mar-95	45.54	22	5.4	3.82	3.09	1.68	0.25	0.28	0.70
IDEQ	12-Apr-95	30.78	10	1.7	3.43	2.30	0.50	-0.05	-1.66	-0.40
IDEQ	25-Apr-95	31	32	5.3	3.43	3.47	1.67	-0.04	1.91	0.69
IDEQ	13-Jun-95	121.78	22	14.4	4.80	3.09	2.67	1.80	0.28	3.37
IDEQ	27-Jun-95	34.4	17	3.1	3.54	2.83	1.15	0.03	-0.53	0.04
IDEQ	11-Jul-95	17.8	16	1.5	2.88	2.77	0.43	-0.31	-0.69	-0.43
IDEQ	25-Jul-95	13.61	25	1.8	2.61	3.22	0.60	-0.40	0.77	-0.35
IDEQ	14-Aug-95	11.01	19	1.1	2.40	2.94	0.12	-0.45	-0.20	-0.55
IDEQ	13-Sep-95	8.93	30	1.4	2.19	3.40	0.37	-0.49	1.58	-0.46
URS	14-May-98	274	10.6	15.6	5.61	2.36	2.75	4.88	-1.57	3.72

tPb

Concentration over time analysis r2 Slope, m

tPb CC291 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.105** **-0.00034**

Time	Ln[COC]	[COC]
27-Oct-93	3.08	22
25-Jul-94	2.98	20
14-May-98	2.51	12

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

tPb CC291 **Load over time**

LnLoad=mTime+b All data r2, m: **0.211** **0.00113**

Time	LnLoad	Load
27-Oct-93	0.34	1
25-Jul-94	0.65	2
14-May-98	2.22	9

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.601 max r2: 0.964

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rov		
0.105	-0.00034	14.68	0.211	0.00113	-38.37
0.081	-0.00029	13.01	0.217	0.00117	-39.78
0.078	-0.00029	12.99	0.213	0.00118	-39.96
0.070	-0.00028	12.58	0.202	0.00115	-39.19
0.062	-0.00027	12.12	0.184	0.00111	-37.55
0.054	-0.00025	11.61	0.173	0.00108	-36.66
0.046	-0.00023	11.02	0.159	0.00105	-35.44
0.034	-0.00020	9.86	0.149	0.00102	-34.63
0.023	-0.00016	8.52	0.136	0.00098	-33.25
0.031	-0.00019	9.57	0.120	0.00093	-31.39
0.045	-0.00023	11.05	0.104	0.00087	-29.19
0.065	-0.00028	12.79	0.089	0.00081	-27.05
0.045	-0.00023	11.01	0.109	0.00091	-30.60
0.025	-0.00017	8.86	0.152	0.00108	-36.76
0.041	-0.00022	10.62	0.210	0.00128	-43.50
0.081	-0.00031	13.63	0.329	0.00156	-53.42
0.101	-0.00035	15.16	0.405	0.00175	-60.30
0.135	-0.00042	17.39	0.397	0.00178	-61.11
0.141	-0.00044	18.13	0.383	0.00177	-61.01
0.121	-0.00041	17.17	0.375	0.00180	-61.76
0.100	-0.00037	15.97	0.358	0.00178	-61.22
0.078	-0.00033	14.48	0.337	0.00175	-60.03
0.070	-0.00032	14.15	0.307	0.00165	-56.73
0.084	-0.00036	15.50	0.269	0.00145	-49.46
0.140	-0.00045	18.74	0.259	0.00144	-49.07
0.229	-0.00055	22.33	0.241	0.00139	-47.37
0.218	-0.00055	22.05	0.299	0.00155	-53.19
0.529	-0.00071	28.04	0.274	0.00148	-50.48
0.533	-0.00064	25.21	0.345	0.00167	-57.48
0.517	-0.00063	24.97	0.840	0.00213	-73.82
0.601	-0.00069	27.28	0.964	0.00233	-81.05

update for EV, CV:

tPb **CC291**

LN Analysis **tPb**

Load **Load Data, EV=3 lbs/day CV=1.13**

Load Data-based LN

Avg:	**3**	u	ln tPb Load	tPb Load
SD:	**3**	3	3.4	30
CV:	**1.13**	0	0.69	2
Min:	**0.7**	-3	-2.03	0.1
Max:	**16**			
Median:	**1**			
		3	3	
		1.13	1.13	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.838, EV=3.01lbs/day CV=1.04; max r2=0.96**

r2 u,lnLoad:	0.838	u	lnLoad	Load	
slope, m:	1.168	3	3.30	27	
intercept, b:	-0.859	0	0.74	2	
N: 35		-3	-1.83	0.2	
E[Load]:	3.0	Parameter Estimates			0.838
SD[Load]:	3	from LN regression			3.0
CV[Load]:	1.04	update graph label			1.0
					max r2
		N: 35			0.961

	tPb Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day Ranked**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
ws update and rank for new data						
13-Dec-94	**0.7**	1	0.0177	-2.103	-0.289	0.838
17-Dec-93	**1.0**	2	0.0461	-1.684	-0.006	0.843
16-Nov-94	**1.1**	3	0.0745	-1.443	0.090	0.857
14-Aug-95	**1.1**	4	0.1028	-1.266	0.118	0.872
24-Mar-94	**1.2**	5	0.1312	-1.121	0.159	0.885
8-Mar-94	**1.2**	6	0.1596	-0.996	0.174	0.897
17-Dec-93	**1.2**	7	0.1879	-0.885	0.177	0.909
20-Jan-94	**1.2**	8	0.2163	-0.785	0.187	0.918
20-Jan-94	**1.3**	9	0.2447	-0.691	0.230	0.926
18-Feb-94	**1.3**	10	0.2730	-0.604	0.230	0.934
24-Mar-94	**1.3**	11	0.3014	-0.520	0.246	0.941
6-Oct-94	**1.3**	12	0.3298	-0.441	0.272	0.947
25-Jul-94	**1.3**	13	0.3582	-0.363	0.277	0.952
13-Sep-94	**1.3**	14	0.3865	-0.288	0.300	0.955
18-Feb-94	**1.4**	15	0.4149	-0.215	0.327	0.958
23-Jun-94	**1.4**	16	0.4433	-0.143	0.362	0.960
13-Sep-95	**1.4**	17	0.4716	-0.071	0.366	0.961
30-Nov-93	**1.5**	18	0.5000	0.000	0.404	0.960
11-Jul-95	**1.5**	19	0.5284	0.071	0.427	0.958
16-Aug-94	**1.5**	20	0.5567	0.143	0.431	0.954
12-Apr-95	**1.7**	21	0.5851	0.215	0.504	0.948
25-Jul-95	**1.8**	22	0.6135	0.288	0.605	0.941
8-Mar-95	**1.9**	23	0.6418	0.363	0.631	0.933
27-Oct-93	**2.0**	24	0.6702	0.441	0.697	0.924
9-Feb-95	**2.2**	25	0.6986	0.520	0.770	0.918
27-Jun-95	**3.1**	26	0.7270	0.604	1.146	0.923
7-Jun-94	**3.9**	27	0.7553	0.691	1.366	0.907
7-Apr-94	**3.9**	28	0.7837	0.785	1.368	0.893
25-Apr-95	**5.3**	29	0.8121	0.885	1.675	0.866
7-Apr-94	**5.4**	30	0.8404	0.996	1.682	0.877
22-Mar-95	**5.4**	31	0.8688	1.121	1.685	0.872
4-May-94	**5.4**	32	0.8972	1.266	1.690	
19-May-94	**7.6**	33	0.9255	1.443	2.032	
13-Jun-95	**14.4**	34	0.9539	1.684	2.668	
14-May-98	**15.6**	35	0.9823	2.103	2.749	

update for EV, CV:

tPb		**CC291**		20	20.2
LN Analysis		**tPb**		0.30	0.304
Concentration		**Conc. Data, EV=20.2 ug/L CV=0.304**			
Avg:	**20**	**Data-based LN**			
SD:	**6**	u	ln[tPb]	[tPb]	
CV:	**0.30**	3	3.9	47	
Min:	**10**	0	2.96	19	
Max:	**33**	-3	2.07	8	
Median:	**21**				

					0.966	0.966
	u=mLn{Conc.}+b:				20.4	20.4
update for r2, EV, CV:	**r2=0.966, EV=20.4 ug/L CV=0.349; max r2=0.98**				0.349	0.349
	r2 u,lnConc:	0.966	u	lnConc.	Conc.	
	slope, m:	2.949	3	3.98	53	
	intercept, b:	-8.727	0	2.96	19	
	N: 35		-3	1.94	7	
0.838	E[Conc]:	20.4	Parameter Estimates			
3.01	SD[Conc]:	7	from LN regression			
1.04	CV[Conc]:	0.35	update graph label			

						max r2
	tPb	N: 35				0.976
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
12-Apr-95	10	1	0.0177	-2.103	2.303	0.966
14-May-98	10.6	2	0.0461	-1.684	2.361	0.962
19-May-94	12	3	0.0745	-1.443	2.485	0.957
9-Feb-95	12	4	0.1028	-1.266	2.485	0.952
8-Mar-95	12	5	0.1312	-1.121	2.485	0.948
24-Mar-94	14	6	0.1596	-0.996	2.639	0.948
24-Mar-94	14	7	0.1879	-0.885	2.639	0.943
4-May-94	14	8	0.2163	-0.785	2.639	0.938
8-Mar-94	15	9	0.2447	-0.691	2.708	0.936
23-Jun-94	15	10	0.2730	-0.604	2.708	0.931
7-Jun-94	16	11	0.3014	-0.520	2.773	0.930
13-Dec-94	16	12	0.3298	-0.441	2.773	0.927
11-Jul-95	16	13	0.3582	-0.363	2.773	0.929
27-Jun-95	17	14	0.3865	-0.288	2.833	0.947
25-Jul-94	19	15	0.4149	-0.215	2.944	0.967
14-Aug-95	19	16	0.4433	-0.143	2.944	0.967
16-Nov-94	20	17	0.4716	-0.071	2.996	0.974
30-Nov-93	21	18	0.5000	0.000	3.045	0.976
22-Mar-95	22	19	0.5284	0.071	3.091	0.974
13-Jun-95	22	20	0.5567	0.143	3.091	0.972
17-Dec-93	23	21	0.5851	0.215	3.135	0.969
17-Dec-93	23	22	0.6135	0.288	3.135	0.972
20-Jan-94	23	23	0.6418	0.363	3.135	0.972
20-Jan-94	23	24	0.6702	0.441	3.135	0.969
16-Aug-94	24	25	0.6986	0.520	3.178	0.963
13-Sep-94	24	26	0.7270	0.604	3.178	0.960
6-Oct-94	24	27	0.7553	0.691	3.178	0.952
25-Jul-95	25	28	0.7837	0.785	3.219	0.948
18-Feb-94	26	29	0.8121	0.885	3.258	0.936
18-Feb-94	26	30	0.8404	0.996	3.258	0.916
7-Apr-94	28	31	0.8688	1.121	3.332	0.913
7-Apr-94	28	32	0.8972	1.266	3.332	
13-Sep-95	30	33	0.9255	1.443	3.401	
25-Apr-95	32	34	0.9539	1.684	3.466	
27-Oct-93	33	35	0.9823	2.103	3.497	

update for EV, CV:

tPb		**CC291**			33	33.1
LN Analysis		**tPb**			1.49	1.49
Discharge, Q		**Q Data, EV=33.1 cfs CV=1.49**				
Avg:	**33**	**Q Data-based LN**				
SD:	**49**	u	lnQ	Q		
CV:	**1.49**	3	6.2	473		
Min:	**8**	0	2.92	18		
Max:	**274**	-3	-0.33	1		
Median:	**15**					

					0.856	0.856
					31.9	31.9
u=mLn{Q}+b:					1.23	1.23
update for r2, EV, CV:	**r2=0.856, EV=31.9 cfs CV=1.23; max r2=0.97**					
r2 u,lnQ:	0.856	u	lnQ	Q		
slope, m:	1.041	3	5.88	359		
intercept, b:	-3.125	0	3.00	20		
N: 35		-3	0.12	1		
E[Q]:	31.9	Parameter Estimates				
SD[Q]:	39	from LN regression				
CV[Q]:	1.23	update graph label				

						max r2
	Q	N: 35				0.970
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
17-Dec-93	8.03	1	0.0177	-2.103	2.083	0.856
13-Dec-94	8.7	2	0.0461	-1.684	2.163	0.883
13-Sep-95	8.93	3	0.0745	-1.443	2.189	0.901
18-Feb-94	9	4	0.1028	-1.266	2.197	0.915
17-Dec-93	9.65	5	0.1312	-1.121	2.267	0.925
20-Jan-94	9.74	6	0.1596	-0.996	2.276	0.936
18-Feb-94	9.91	7	0.1879	-0.885	2.294	0.945
20-Jan-94	10.17	8	0.2163	-0.785	2.319	0.953
6-Oct-94	10.17	9	0.2447	-0.691	2.319	0.959
16-Nov-94	10.17	10	0.2730	-0.604	2.319	0.964
13-Sep-94	10.45	11	0.3014	-0.520	2.347	0.966
14-Aug-95	11.01	12	0.3298	-0.441	2.399	0.968
27-Oct-93	11.31	13	0.3582	-0.363	2.426	0.969
16-Aug-94	11.92	14	0.3865	-0.288	2.478	0.970
25-Jul-94	12.91	15	0.4149	-0.215	2.558	0.970
30-Nov-93	13.26	16	0.4433	-0.143	2.585	0.970
25-Jul-95	13.61	17	0.4716	-0.071	2.611	0.970
8-Mar-94	14.75	18	0.5000	0.000	2.691	0.967
24-Mar-94	15.56	19	0.5284	0.071	2.745	0.965
24-Mar-94	16.98	20	0.5567	0.143	2.832	0.962
23-Jun-94	17.8	21	0.5851	0.215	2.879	0.958
11-Jul-95	17.8	22	0.6135	0.288	2.879	0.953
7-Apr-94	26.08	23	0.6418	0.363	3.261	0.947
8-Mar-95	29.12	24	0.6702	0.441	3.371	0.948
12-Apr-95	30.78	25	0.6986	0.520	3.427	0.955
25-Apr-95	31	26	0.7270	0.604	3.434	0.963
9-Feb-95	33.45	27	0.7553	0.691	3.510	0.966
27-Jun-95	34.4	28	0.7837	0.785	3.538	0.969
7-Apr-94	35.7	29	0.8121	0.885	3.575	0.965
7-Jun-94	45.54	30	0.8404	0.996	3.819	0.954
22-Mar-95	45.54	31	0.8688	1.121	3.819	0.940
4-May-94	71.93	32	0.8972	1.266	4.276	
19-May-94	118.23	33	0.9255	1.443	4.773	
13-Jun-95	121.78	34	0.9539	1.684	4.802	
14-May-98	274	35	0.9823	2.103	5.613	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: CC291 **Date:** 2-Jun-00
Chemical: tZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	34,617	33	630	76	0.00	0.00	0.00		
SD:	306	49	296	70	1.00	1.00	1.00		
CV:	0.01	1.49	0.47	0.92					first:
Min:	34,269	8	180	26.8	-0.51	-1.52	-0.71		mid:
Max:	35,929	274	1,260	374	4.88	2.13	4.27		last:
Median:	34,540	15	619	50	-0.37	-0.04	-0.37		

tZn **CC291** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.212)		update r2	0.21	0.212	r2:	0.463	0.277	
r2 Q,[COC]:	0.21	[tZn]	Q		m:	0.1096	0.00147	
slope, m:	-2.8	699	8.0		b:	-3762	-47.83	
intercept, b:	721.4	630	33.1					
N: 35		-36	274					first:
LnConc. = mLn{Q}+b (r2=0.468)		update r2		0.47	0.468			mid:
r2 lnQ,ln[COC]:	0.47	ln[tZn]	ln Q	[tZn]	Q			last:
slope, m:	-0.44	6.72	2.08	825	8			
intercept, b:	7.63	6.09	3.50	443	33			
N: 35		5.16	5.61	175	274			

	tZn	for graph
	CC291	0

N= 35

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	27-Oct-93	11.31	763	46	2.43	6.64	3.84	-0.44	0.45	-0.42
IDEQ	30-Nov-93	13.26	861	61	2.58	6.76	4.12	-0.40	0.78	-0.21
IDEQ	17-Dec-93	9.65	912	47	2.27	6.82	3.86	-0.48	0.95	-0.41
IDEQ	17-Dec-93	8.03	912	39	2.08	6.82	3.67	-0.51	0.95	-0.53
IDEQ	20-Jan-94	10.17	922	50	2.32	6.83	3.92	-0.47	0.99	-0.37
IDEQ	20-Jan-94	9.74	922	48	2.28	6.83	3.88	-0.47	0.99	-0.40
IDEQ	18-Feb-94	9.91	937	50	2.29	6.84	3.91	-0.47	1.04	-0.37
IDEQ	18-Feb-94	9	937	45	2.20	6.84	3.81	-0.49	1.04	-0.44
IDEQ	8-Mar-94	14.75	813	65	2.69	6.70	4.17	-0.37	0.62	-0.17
IDEQ	24-Mar-94	15.56	754	63	2.74	6.63	4.15	-0.36	0.42	-0.19
IDEQ	24-Mar-94	16.98	754	69	2.83	6.63	4.23	-0.33	0.42	-0.10
IDEQ	7-Apr-94	26.08	1260	177	3.26	7.14	5.17	-0.14	2.13	1.44
IDEQ	7-Apr-94	35.7	1260	242	3.58	7.14	5.49	0.05	2.13	2.38
IDEQ	4-May-94	71.93	228	88	4.28	5.43	4.48	0.79	-1.36	0.17
IDEQ	19-May-94	118.23	182	116	4.77	5.20	4.75	1.73	-1.51	0.57
IDEQ	7-Jun-94	45.54	293	72	3.82	5.68	4.27	0.25	-1.14	-0.06
IDEQ	23-Jun-94	17.8	323	31	2.88	5.78	3.43	-0.31	-1.04	-0.65
IDEQ	25-Jul-94	12.91	460	32	2.56	6.13	3.46	-0.41	-0.57	-0.63
IDEQ	16-Aug-94	11.92	584	37	2.48	6.37	3.62	-0.43	-0.16	-0.55
IDEQ	13-Sep-94	10.45	611	34	2.35	6.42	3.54	-0.46	-0.06	-0.60
IDEQ	6-Oct-94	10.17	674	37	2.32	6.51	3.61	-0.47	0.15	-0.56
IDEQ	16-Nov-94	10.17	851	47	2.32	6.75	3.84	-0.47	0.75	-0.42
IDEQ	13-Dec-94	8.7	900	42	2.16	6.80	3.74	-0.50	0.91	-0.49
IDEQ	9-Feb-95	33.45	438	79	3.51	6.08	4.37	0.01	-0.65	0.04
IDEQ	8-Mar-95	29.12	412	65	3.37	6.02	4.17	-0.08	-0.74	-0.17
IDEQ	22-Mar-95	45.54	765	187	3.82	6.64	5.23	0.25	0.46	1.59
IDEQ	12-Apr-95	30.78	472	78	3.43	6.16	4.36	-0.05	-0.53	0.03
IDEQ	25-Apr-95	31	404	67	3.43	6.00	4.21	-0.04	-0.76	-0.12
IDEQ	13-Jun-95	121.78	180	118	4.80	5.19	4.77	1.80	-1.52	0.60
IDEQ	27-Jun-95	34.4	209	39	3.54	5.34	3.66	0.03	-1.42	-0.54
IDEQ	11-Jul-95	17.8	280	27	2.88	5.63	3.29	-0.31	-1.18	-0.71
IDEQ	25-Jul-95	13.61	419	31	2.61	6.04	3.42	-0.40	-0.71	-0.65
IDEQ	14-Aug-95	11.01	480	28	2.40	6.17	3.35	-0.45	-0.51	-0.68
IDEQ	13-Sep-95	8.93	619	30	2.19	6.43	3.39	-0.49	-0.04	-0.66
URS	14-May-98	274	254	374	5.61	5.54	5.93	4.88	-1.27	4.27

tZn

Concentration over time analysis r2 Slope, m

tZn CC291 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.263** **-0.00092**

Time	Ln[COC]	[COC]
27-Oct-93	6.63	759
25-Jul-94	6.38	591
14-May-98	5.11	165

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

tZn CC291 **Load over time**

LnLoad=mTime+b All data r2, m: **0.073** **0.00055**

Time	LnLoad	Load
27-Oct-93	3.90	49
25-Jul-94	4.05	57
14-May-98	4.81	123

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.358 max r2: 0.997

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.263	-0.00092	38.13	0.073	0.00055	-14.92
0.255	-0.00092	38.11	0.068	0.00054	-14.69
0.242	-0.00090	37.50	0.071	0.00056	-15.44
0.226	-0.00087	36.56	0.068	0.00056	-15.21
0.209	-0.00084	35.49	0.059	0.00053	-14.18
0.192	-0.00081	34.23	0.057	0.00052	-14.04
0.173	-0.00077	32.77	0.053	0.00051	-13.69
0.154	-0.00072	31.08	0.049	0.00051	-13.40
0.133	-0.00066	29.13	0.044	0.00048	-12.63
0.115	-0.00062	27.59	0.046	0.00050	-13.37
0.100	-0.00058	26.19	0.048	0.00052	-14.05
0.084	-0.00053	24.54	0.052	0.00056	-15.30
0.053	-0.00040	19.85	0.096	0.00074	-21.76
0.022	-0.00024	14.21	0.205	0.00102	-31.41
0.049	-0.00035	18.17	0.253	0.00115	-35.94
0.123	-0.00052	24.20	0.348	0.00135	-42.85
0.177	-0.00063	27.95	0.402	0.00148	-47.51
0.234	-0.00073	31.63	0.382	0.00146	-46.88
0.247	-0.00077	33.08	0.362	0.00144	-46.06
0.234	-0.00077	32.87	0.348	0.00144	-46.06
0.214	-0.00075	32.11	0.327	0.00141	-45.08
0.185	-0.00069	30.28	0.308	0.00139	-44.23
0.145	-0.00058	26.20	0.300	0.00140	-44.67
0.101	-0.00043	20.88	0.285	0.00138	-44.08
0.092	-0.00042	20.45	0.313	0.00147	-47.36
0.088	-0.00041	20.32	0.326	0.00153	-49.38
0.052	-0.00027	15.38	0.537	0.00183	-59.87
0.033	-0.00021	13.18	0.615	0.00198	-65.34
0.021	-0.00017	11.67	0.688	0.00214	-71.02
0.101	-0.00032	17.06	0.974	0.00244	-81.73
0.358	-0.00049	23.26	0.997	0.00253	-85.07

update for EV, CV:

tZn **CC291**
LN Analysis **tZn**

Load **Load Data, EV=76.1 lbs/day CV=0.917**
Load Data-based LN

Avg:	**76**	u	ln tZn Load	tZn Load
SD:	**70**	3	6.4	585
CV:	**0.92**	0	4.03	56
Min:	**26.8**	-3	1.68	5.4
Max:	**374**			
Median:	**50**			
		76	76.1	
		0.92	0.917	

u=mLn{Load}+ b:
update for r2, EV, CV: **r2=0.901, EV=75.4lbs/day CV=0.773; max r2=0.98**

r2 u,lnLoad:	0.901	u	lnLoad	Load	
slope, m:	1.462	3	6.14	465	
intercept, b:	-5.976	0	4.09	60	
N: 35		-3	2.04	7.7	
E[Load]:	75.4	Parameter Estimates			0.901
SD[Load]:	58	from LN regression			75.4
CV[Load]:	0.77	update graph label			0.8
					max r2
					0.981

N: 35

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
11-Jul-95	**27**	1	0.0177	-2.103	3.289	0.901
14-Aug-95	**28**	2	0.0461	-1.684	3.348	0.918
13-Sep-95	**30**	3	0.0745	-1.443	3.392	0.928
25-Jul-95	**31**	4	0.1028	-1.266	3.424	0.934
23-Jun-94	**31**	5	0.1312	-1.121	3.432	0.938
25-Jul-94	**32**	6	0.1596	-0.996	3.464	0.940
13-Sep-94	**34**	7	0.1879	-0.885	3.537	0.940
6-Oct-94	**37**	8	0.2163	-0.785	3.608	0.942
16-Aug-94	**37**	9	0.2447	-0.691	3.623	0.945
27-Jun-95	**39**	10	0.2730	-0.604	3.655	0.947
17-Dec-93	**39**	11	0.3014	-0.520	3.674	0.948
13-Dec-94	**42**	12	0.3298	-0.441	3.741	0.948
18-Feb-94	**45**	13	0.3582	-0.363	3.815	0.950
27-Oct-93	**46**	14	0.3865	-0.288	3.838	0.954
16-Nov-94	**47**	15	0.4149	-0.215	3.841	0.958
17-Dec-93	**47**	16	0.4433	-0.143	3.858	0.960
20-Jan-94	**48**	17	0.4716	-0.071	3.878	0.961
18-Feb-94	**50**	18	0.5000	0.000	3.911	0.961
20-Jan-94	**50**	19	0.5284	0.071	3.921	0.959
30-Nov-93	**61**	20	0.5567	0.143	4.118	0.956
24-Mar-94	**63**	21	0.5851	0.215	4.145	0.963
8-Mar-94	**65**	22	0.6135	0.288	4.167	0.970
8-Mar-95	**65**	23	0.6418	0.363	4.167	0.976
25-Apr-95	**67**	24	0.6702	0.441	4.210	0.978
24-Mar-94	**69**	25	0.6986	0.520	4.232	0.981
7-Jun-94	**72**	26	0.7270	0.604	4.274	0.980
12-Apr-95	**78**	27	0.7553	0.691	4.359	0.977
9-Feb-95	**79**	28	0.7837	0.785	4.367	0.973
4-May-94	**88**	29	0.8121	0.885	4.480	0.968
19-May-94	**116**	30	0.8404	0.996	4.752	0.968
13-Jun-95	**118**	31	0.8688	1.121	4.770	0.957
7-Apr-94	**177**	32	0.8972	1.266	5.175	
22-Mar-95	**187**	33	0.9255	1.443	5.233	
7-Apr-94	**242**	34	0.9539	1.684	5.489	
14-May-98	**374**	35	0.9823	2.103	5.925	

update for EV, CV:

tZn		**CC291**	630	630	
LN Analysis		**tZn**	0.47	0.47	

Concentration

Conc. Data, EV=630 ug/L CV=0.47

Data-based LN

		u	ln[tZn]	[tZn]
Avg:	**630**			
SD:	**296**	3	7.7	2176
CV:	**0.47**	0	6.35	570
Min:	**180**	-3	5.01	149
Max:	**1,260**			
Median:	**619**			

0.934 0.934

u=mLn{Conc.}+b: 656.1 656

update for r2, EV, CV: **r2=0.934, EV=656 ug/L CV=0.646; max r2=0.93** 0.646 0.646

r2 u,lnConc:	0.934	u	lnConc.	Conc.
slope, m:	1.693	3	8.08	3243
intercept, b:	-10.683	0	6.31	551
N: 35		-3	4.54	94
E[Conc]:	656.1	Parameter Estimates		
SD[Conc]:	424	from LN regression		
CV[Conc]:	0.65	update graph label		

0.901
75.4
0.773

max r2
0.934

N: 35

Date	tZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
13-Jun-95	180	1	0.0177	-2.103	5.193	0.934
19-May-94	182	2	0.0461	-1.684	5.204	0.925
27-Jun-95	209	3	0.0745	-1.443	5.342	0.917
4-May-94	228	4	0.1028	-1.266	5.429	0.909
14-May-98	254	5	0.1312	-1.121	5.537	0.904
11-Jul-95	280	6	0.1596	-0.996	5.635	0.899
7-Jun-94	293	7	0.1879	-0.885	5.680	0.894
23-Jun-94	323	8	0.2163	-0.785	5.778	0.895
25-Apr-95	404	9	0.2447	-0.691	6.001	0.896
8-Mar-95	412	10	0.2730	-0.604	6.021	0.887
25-Jul-95	419	11	0.3014	-0.520	6.038	0.878
9-Feb-95	438	12	0.3298	-0.441	6.082	0.871
25-Jul-94	460	13	0.3582	-0.363	6.131	0.866
12-Apr-95	472	14	0.3865	-0.288	6.157	0.862
14-Aug-95	480	15	0.4149	-0.215	6.174	0.867
16-Aug-94	584	16	0.4433	-0.143	6.370	0.898
13-Sep-94	611	17	0.4716	-0.071	6.415	0.895
13-Sep-95	619	18	0.5000	0.000	6.428	0.890
6-Oct-94	674	19	0.5284	0.071	6.513	0.896
24-Mar-94	754	20	0.5567	0.143	6.625	0.890
24-Mar-94	754	21	0.5851	0.215	6.625	0.879
27-Oct-93	763	22	0.6135	0.288	6.637	0.865
22-Mar-95	765	23	0.6418	0.363	6.640	0.846
8-Mar-94	813	24	0.6702	0.441	6.701	0.822
16-Nov-94	851	25	0.6986	0.520	6.746	0.798
30-Nov-93	861	26	0.7270	0.604	6.758	0.783
13-Dec-94	900	27	0.7553	0.691	6.802	0.763
17-Dec-93	912	28	0.7837	0.785	6.816	0.769
17-Dec-93	912	29	0.8121	0.885	6.816	0.782
20-Jan-94	922	30	0.8404	0.996	6.827	0.784
20-Jan-94	922	31	0.8688	1.121	6.827	0.781
18-Feb-94	937	32	0.8972	1.266	6.843	
18-Feb-94	937	33	0.9255	1.443	6.843	
7-Apr-94	1260	34	0.9539	1.684	7.139	
7-Apr-94	1260	35	0.9823	2.103	7.139	

update for EV, CV:

tZn		**CC291**			33	33.1
LN Analysis		**tZn**			1.49	1.49
Discharge, Q		**Q Data, EV=33.1 cfs CV=1.49**				
Avg:	**33**	**Q Data-based LN**				
SD:	**49**	u	lnQ	Q		
CV:	**1.49**	3	6.2	473		
Min:	**8**	0	2.92	18		
Max:	**274**	-3	-0.33	1		
Median:	**15**					

					0.856	0.856
					31.9	31.9
u=mLn{Q}+b:					1.23	1.23
update for r2, EV, CV:	**r2=0.856, EV=31.9 cfs CV=1.23; max r2=0.97**					
r2 u,lnQ:	0.856	u	lnQ	Q		
slope, m:	1.041	3	5.88	359		
intercept, b:	-3.125	0	3.00	20		
N: 35		-3	0.12	1		
E[Q]:	31.9	Parameter Estimates				
SD[Q]:	39	from LN regression				
CV[Q]:	1.23	update graph label				

						max r2
	Q	N: 35				0.970
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
17-Dec-93	8.03	1	0.0177	-2.103	2.083	0.856
13-Dec-94	8.7	2	0.0461	-1.684	2.163	0.883
13-Sep-95	8.93	3	0.0745	-1.443	2.189	0.901
18-Feb-94	9	4	0.1028	-1.266	2.197	0.915
17-Dec-93	9.65	5	0.1312	-1.121	2.267	0.925
20-Jan-94	9.74	6	0.1596	-0.996	2.276	0.936
18-Feb-94	9.91	7	0.1879	-0.885	2.294	0.945
20-Jan-94	10.17	8	0.2163	-0.785	2.319	0.953
6-Oct-94	10.17	9	0.2447	-0.691	2.319	0.959
16-Nov-94	10.17	10	0.2730	-0.604	2.319	0.964
13-Sep-94	10.45	11	0.3014	-0.520	2.347	0.966
14-Aug-95	11.01	12	0.3298	-0.441	2.399	0.968
27-Oct-93	11.31	13	0.3582	-0.363	2.426	0.969
16-Aug-94	11.92	14	0.3865	-0.288	2.478	0.970
25-Jul-94	12.91	15	0.4149	-0.215	2.558	0.970
30-Nov-93	13.26	16	0.4433	-0.143	2.585	0.970
25-Jul-95	13.61	17	0.4716	-0.071	2.611	0.970
8-Mar-94	14.75	18	0.5000	0.000	2.691	0.967
24-Mar-94	15.56	19	0.5284	0.071	2.745	0.965
24-Mar-94	16.98	20	0.5567	0.143	2.832	0.962
23-Jun-94	17.8	21	0.5851	0.215	2.879	0.958
11-Jul-95	17.8	22	0.6135	0.288	2.879	0.953
7-Apr-94	26.08	23	0.6418	0.363	3.261	0.947
8-Mar-95	29.12	24	0.6702	0.441	3.371	0.948
12-Apr-95	30.78	25	0.6986	0.520	3.427	0.955
25-Apr-95	31	26	0.7270	0.604	3.434	0.963
9-Feb-95	33.45	27	0.7553	0.691	3.510	0.966
27-Jun-95	34.4	28	0.7837	0.785	3.538	0.969
7-Apr-94	35.7	29	0.8121	0.885	3.575	0.965
7-Jun-94	45.54	30	0.8404	0.996	3.819	0.954
22-Mar-95	45.54	31	0.8688	1.121	3.819	0.940
4-May-94	71.93	32	0.8972	1.266	4.276	
19-May-94	118.23	33	0.9255	1.443	4.773	
13-Jun-95	121.78	34	0.9539	1.684	4.802	
14-May-98	274	35	0.9823	2.103	5.613	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC50	**Date:**	12-Jul-00
Chemical:	dCd	**Analyst:**	B.Walthall

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,184	2,602	2	24	0.00	0.00	0.00	
SD:	761	2,718	1	21	1.00	1.00	1.00	
CV:	0.02	1.04	0.44	0.88				first:
Min:	33,947	244	0	0.3	-0.87	-2.27	-1.12	mid:
Max:	36,453	16,000	6	107	4.93	3.36	4.00	last:
Median:	35,123	1,600	2	18	-0.37	-0.17	-0.26	

dCd **LC50** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.308)		update r2	0.31	0.308	r2:	0.006	0.003	
r2 Q,[COC]:	0.31	[dCd]	Q		m:	-0.2724	-0.00008	
slope, m:	0.0	3	244.0		b:	12184	10.01	
intercept, b:	2.8	2	2601.6					
N: 101		0	16000					first:
LnConc. = mLn{Q}+b (r2=0.229)		update r2	0.23	0.229				mid:
r2 lnQ,ln[COC]:	0.23	ln[dCd]	ln Q	[dCd]	Q			last:
slope, m:	-0.36	1.33	5.50	4	244			
intercept, b:	3.31	0.47	7.86	2	2,602			
N: 101		-0.18	9.68	1	16,000			

for graph
dCd 0
LC50

N= 101

	Sampling Date	Q Discharge	dCd Concentration	dCd Load	Ln Q	Ln dCd Conc.	Ln dCd Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data		cfs	ug/L	lbs/day						
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	9-Dec-92	485	3.83	10.0	6.18	1.34	2.30	-0.78	1.58	-0.66
IDEQ	20-Jan-93	391	3.83	8.1	5.97	1.34	2.09	-0.81	1.58	-0.75
IDEQ	23-Feb-93	625	2.88	9.7	6.44	1.06	2.27	-0.73	0.62	-0.67
IDEQ	9-Mar-93	1500	3.83	30.9	7.31	1.34	3.43	-0.41	1.58	0.34
IDEQ	23-Mar-93	4170	4.79	107.5	8.34	1.57	4.68	0.58	2.54	4.00
IDEQ	5-Apr-93	10600	0.97	55.3	9.27	-0.03	4.01	2.94	-1.31	1.51
IDEQ	21-Apr-93	7300	0.97	38.1	8.90	-0.03	3.64	1.73	-1.31	0.69
IDEQ	3-May-93	9070	1.93	94.2	9.11	0.66	4.55	2.38	-0.34	3.36
IDEQ	18-May-93	6100	1.93	63.3	8.72	0.66	4.15	1.29	-0.34	1.89
IDEQ	1-Jun-93	2980	1.93	30.9	8.00	0.66	3.43	0.14	-0.34	0.34
IDEQ	22-Jun-93	1400	2.88	21.7	7.24	1.06	3.08	-0.44	0.62	-0.10
IDEQ	20-Jul-93	1650	2.88	25.6	7.41	1.06	3.24	-0.35	0.62	0.09
IDEQ	24-Aug-93	632	1.93	6.6	6.45	0.66	1.88	-0.72	-0.34	-0.82
IDEQ	22-Sep-93	465	2.88	7.2	6.14	1.06	1.97	-0.79	0.62	-0.79
IDEQ	21-Oct-93	481	2.88	7.5	6.18	1.06	2.01	-0.78	0.62	-0.78
IDEQ	19-Nov-93	386	2.88	6.0	5.96	1.06	1.79	-0.82	0.62	-0.85
IDEQ	14-Dec-93	739	3.83	15.2	6.61	1.34	2.72	-0.69	1.58	-0.41
IDEQ	19-Jan-94	1360	3.83	28.0	7.22	1.34	3.33	-0.46	1.58	0.21
IDEQ	15-Feb-94	612	2.88	9.5	6.42	1.06	2.25	-0.73	0.62	-0.68
IDEQ	6-Mar-94	4630	1.93	48.1	8.44	0.66	3.87	0.75	-0.34	1.16
IDEQ	16-Mar-94	2490	1.93	25.9	7.82	0.66	3.25	-0.04	-0.34	0.10
IDEQ	5-Apr-94	5040	0.97	26.3	8.53	-0.03	3.27	0.90	-1.31	0.12
IDEQ	13-Apr-94	4610	0.02	0.5	8.44	-3.91	-0.70	0.74	-2.27	-1.11
IDEQ	19-Apr-94	8270	0.97	43.2	9.02	-0.03	3.76	2.09	-1.31	0.93
IDEQ	11-May-94	3120	0.02	0.3	8.05	-3.91	-1.09	0.19	-2.27	-1.12
IDEQ	15-Jun-94	1000	1.93	10.4	6.91	0.66	2.34	-0.59	-0.34	-0.64
IDEQ	21-Jul-94	429	2.88	6.6	6.06	1.06	1.89	-0.80	0.62	-0.81
IDEQ	17-Aug-94	278	2.88	4.3	5.63	1.06	1.46	-0.85	0.62	-0.93
IDEQ	21-Sep-94	263	2.88	4.1	5.57	1.06	1.40	-0.86	0.62	-0.94
IDEQ	6-Oct-94	244	2.59	3.4	5.50	0.95	1.22	-0.87	0.32	-0.97
IDEQ	22-Nov-94	410	3.36	7.4	6.02	1.21	2.00	-0.81	1.10	-0.78
IDEQ	16-Dec-94	736	2.69	10.7	6.60	0.99	2.37	-0.69	0.42	-0.62
IDEQ	12-Jan-95	4960	2.31	61.6	8.51	0.84	4.12	0.87	0.04	1.81
IDEQ	16-Feb-95	2530	1.26	17.2	7.84	0.23	2.84	-0.03	-1.02	-0.31
IDEQ	7-Mar-95	3140	1.26	21.3	8.05	0.23	3.06	0.20	-1.02	-0.12
IDEQ	23-Mar-95	8230	1.93	85.5	9.02	0.66	4.45	2.07	-0.34	2.95
IDEQ	14-Apr-95	4680	1.73	43.6	8.45	0.55	3.77	0.76	-0.54	0.95
IDEQ	25-Apr-95	3590	1.54	29.7	8.19	0.43	3.39	0.36	-0.74	0.29

dCd

Concentration over time analysis r2 Slope, m

dCd	**LC50**		**Concentration over time**	
LnConc.=mTime+b All data r2, m:			**0.001**	**0.00004**
Time	**Ln[COC]**	**[COC]**		
9-Dec-92	0.61	2		
28-Feb-96	0.65	2		
20-Oct-99	0.70	2		
LnConc.=mTime+b >'96 r2, m:			**0.001**	**-0.00003**
18-Jan-96	0.73	2		
20-Oct-99	0.69	2		

Load over time analysis

dCd	**LC50**		**Load over time**	
LnLoad=mTime+b All data r2, m:			**0.001**	**-0.00004**
Time	**LnLoad**	**Load**		
9-Dec-92	2.84	17		
28-Feb-96	2.79	16		
20-Oct-99	2.74	15		
LnLoad=mTime+b >'96 r2, m:			**0.090**	**-0.00052**
18-Jan-96	3.23	25		
20-Oct-99	2.52	12		

max r2: 0.822 max r2: 0.911

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.001	0.00004	-0.64	0.001	-0.00004	4.15
0.003	0.00005	-1.21	0.002	-0.00005	4.57
0.004	0.00007	-1.80	0.003	-0.00007	5.17
0.006	0.00008	-2.20	0.004	-0.00008	5.65
0.008	0.00010	-2.84	0.003	-0.00007	5.22
0.013	0.00012	-3.72	0.000	-0.00003	3.73
0.010	0.00011	-3.28	0.000	0.00000	2.70
0.008	0.00010	-2.82	0.000	0.00002	1.93
0.008	0.00010	-2.95	0.003	0.00007	0.29
0.009	0.00011	-3.08	0.007	0.00011	-1.09
0.009	0.00011	-3.22	0.009	0.00013	-1.90
0.011	0.00012	-3.76	0.011	0.00014	-2.40
0.014	0.00014	-4.33	0.014	0.00016	-3.10
0.015	0.00015	-4.52	0.011	0.00015	-2.45
0.018	0.00016	-5.14	0.008	0.00013	-1.86
0.021	0.00018	-5.78	0.006	0.00011	-1.26
0.025	0.00020	-6.47	0.004	0.00009	-0.38
0.033	0.00023	-7.50	0.004	0.00009	-0.46
0.041	0.00026	-8.58	0.006	0.00011	-1.22
0.047	0.00028	-9.40	0.004	0.00010	-0.80
0.049	0.00029	-9.82	0.008	0.00014	-2.22
0.052	0.00031	-10.26	0.011	0.00016	-3.02
0.047	0.00030	-9.89	0.014	0.00019	-3.90
0.017	0.00015	-4.52	0.002	0.00007	0.23
0.013	0.00013	-3.81	0.006	0.00011	-1.22
0.004	-0.00005	2.33	0.001	-0.00003	3.92
0.005	-0.00005	2.48	0.001	-0.00005	4.60
0.003	-0.00004	2.06	0.004	-0.00009	5.97
0.001	-0.00003	1.61	0.012	-0.00015	8.07
0.000	-0.00001	1.13	0.025	-0.00021	10.40
0.000	0.00000	0.77	0.049	-0.00029	13.22
0.001	0.00002	-0.02	0.065	-0.00034	14.98
0.002	0.00003	-0.52	0.078	-0.00038	16.29
0.003	0.00004	-0.80	0.062	-0.00034	14.84
0.001	0.00002	-0.11	0.065	-0.00035	15.37
0.000	0.00000	0.65	0.064	-0.00036	15.57
0.000	0.00000	0.73	0.045	-0.00029	13.32
0.000	-0.00001	1.01	0.035	-0.00026	12.08

update for EV, CV:

dCd **LC50**
LN Analysis **dCd**

Load **Load Data, EV=23.7 lbs/day CV=0.883**

Avg:	**24**	**Load Data-based LN**		
SD:	**21**	u	ln dCd Load	dCd Load
CV:	**0.88**	3	5.2	174
Min:	**0.3**	0	2.88	18
Max:	**107**	-3	0.60	1.8
Median:	**18**			
		24	23.7	
		0.88	0.883	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.936, EV=26.9lbs/day CV=1.32; max r2=0.99**

r2 u,lnLoad:	0.936	u	lnLoad	Load	
slope, m:	0.995	3	5.80	332	
intercept, b:	-2.774	0	2.79	16	
N: 101		-3	-0.23	0.8	
E[Load]:	26.9	Parameter Estimates			0.936
SD[Load]:	36	from LN regression			26.9
CV[Load]:	1.32	update graph label			1.3
					max r2
	dCd	N: 101			0.988

Date	**Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
11-May-94	**0.3**	1	0.0062	-2.502	-1.092	0.936
13-Apr-94	**0.5**	2	0.0160	-2.143	-0.701	0.955
6-Oct-94	**3.4**	3	0.0259	-1.944	1.224	0.988
21-Sep-94	**4.1**	4	0.0358	-1.802	1.405	0.987
17-Aug-94	**4.3**	5	0.0457	-1.688	1.460	0.987
26-Sep-96	**4.7**	6	0.0556	-1.593	1.538	0.987
26-Oct-98	**4.7**	7	0.0654	-1.511	1.540	0.987
14-Sep-95	**5.4**	8	0.0753	-1.437	1.678	0.986
23-Sep-98	**5.5**	9	0.0852	-1.371	1.708	0.986
20-Oct-99	**5.9**	10	0.0951	-1.310	1.773	0.986
19-Nov-93	**6.0**	11	0.1049	-1.254	1.789	0.986
22-Sep-99	**6.0**	12	0.1148	-1.201	1.790	0.985
15-Aug-95	**6.4**	13	0.1247	-1.152	1.853	0.985
22-Oct-98	**6.5**	14	0.1346	-1.105	1.865	0.985
25-Aug-98	**6.6**	15	0.1444	-1.061	1.880	0.984
24-Aug-93	**6.6**	16	0.1543	-1.018	1.881	0.984
21-Jul-94	**6.6**	17	0.1642	-0.977	1.894	0.983
21-Aug-96	**7.0**	18	0.1741	-0.938	1.939	0.983
22-Sep-93	**7.2**	19	0.1840	-0.900	1.975	0.982
22-Nov-94	**7.4**	20	0.1938	-0.864	2.003	0.981
21-Oct-93	**7.5**	21	0.2037	-0.828	2.009	0.981
26-Jul-95	**7.6**	22	0.2136	-0.794	2.023	0.980
1-Sep-99	**7.6**	23	0.2235	-0.761	2.028	0.980
11-Aug-99	**7.7**	24	0.2333	-0.728	2.042	0.980
3-Sep-97	**7.9**	25	0.2432	-0.696	2.065	0.980
20-Jan-93	**8.1**	26	0.2531	-0.665	2.087	0.980
13-Aug-97	**8.3**	27	0.2630	-0.634	2.119	0.980
10-May-99	**9.2**	28	0.2728	-0.604	2.219	0.980
27-Jul-98	**9.3**	29	0.2827	-0.575	2.234	0.980
15-Feb-94	**9.5**	30	0.2926	-0.546	2.249	0.980
23-Feb-93	**9.7**	31	0.3025	-0.517	2.270	0.980
23-Jul-96	**9.7**	32	0.3123	-0.489	2.272	0.980
9-Dec-92	**10.0**	33	0.3222	-0.461	2.302	0.980
12-Jul-95	**10.1**	34	0.3321	-0.434	2.309	0.981
15-Jun-94	**10.4**	35	0.3420	-0.407	2.340	0.982
16-Dec-94	**10.7**	36	0.3519	-0.380	2.366	0.983
24-Jul-97	**11.1**	37	0.3617	-0.354	2.405	0.984
28-Jun-95	**12.1**	38	0.3716	-0.328	2.492	0.986

update for EV, CV:

dCd		**LC50**		2	2.27
LN Analysis		**dCd**		0.44	0.437
Concentration		**Conc. Data, EV=2.27 ug/L CV=0.437**			
Avg:	**2**	**Data-based LN**			
SD:	**1**	u	ln[dCd]	[dCd]	
CV:	**0.44**	3	2.0	7	
Min:	**0**	0	0.73	2	
Max:	**6**	-3	-0.52	1	
Median:	**2**				

					0.628	0.628
	u=mLn{Conc.}+b:				3.2	3.19
update for r2, EV, CV:	**r2=0.628, EV=3.19 ug/L CV=1.32; max r2=0.97**				1.321	1.32
	r2 u,lnConc:	0.628	u	lnConc.	Conc.	
	slope, m:	0.995	3	3.67	39	
	intercept, b:	-0.653	0	0.66	2	
	N: 101		-3	-2.36	0	
0.936	E[Conc]:	3.2	Parameter Estimates			
26.9	SD[Conc]:	4	from LN regression			
1.32	CV[Conc]:	1.32	update graph label			

						max r2
	dCd	N: 101				0.972
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
13-Apr-94	0.02	1	0.0062	-2.502	-3.912	0.628
11-May-94	0.02	2	0.0160	-2.143	-3.912	0.672
25-May-99	0.5	3	0.0259	-1.944	-0.693	0.952
23-Apr-98	0.7	4	0.0358	-1.802	-0.357	0.963
18-Apr-96	0.88	5	0.0457	-1.688	-0.128	0.965
5-Apr-93	0.97	6	0.0556	-1.593	-0.030	0.964
21-Apr-93	0.97	7	0.0654	-1.511	-0.030	0.963
5-Apr-94	0.97	8	0.0753	-1.437	-0.030	0.962
19-Apr-94	0.97	9	0.0852	-1.371	-0.030	0.962
10-May-99	1	10	0.0951	-1.310	0.000	0.962
8-Jun-99	1	11	0.1049	-1.254	0.000	0.963
16-Apr-97	1.1	12	0.1148	-1.201	0.095	0.965
19-Mar-98	1.1	13	0.1247	-1.152	0.095	0.966
28-May-98	1.2	14	0.1346	-1.105	0.182	0.968
13-Apr-99	1.2	15	0.1444	-1.061	0.182	0.968
16-Feb-95	1.26	16	0.1543	-1.018	0.231	0.968
7-Mar-95	1.26	17	0.1642	-0.977	0.231	0.969
24-Jun-97	1.3	18	0.1741	-0.938	0.262	0.970
18-Jan-96	1.35	19	0.1840	-0.900	0.300	0.970
27-Mar-96	1.35	20	0.1938	-0.864	0.300	0.971
15-Dec-98	1.5	21	0.2037	-0.828	0.405	0.972
25-Apr-95	1.54	22	0.2136	-0.794	0.432	0.972
21-Nov-95	1.54	23	0.2235	-0.761	0.432	0.971
9-May-96	1.54	24	0.2333	-0.728	0.432	0.970
14-Jan-99	1.6	25	0.2432	-0.696	0.470	0.970
12-Jun-95	1.64	26	0.2531	-0.665	0.495	0.969
28-Jun-95	1.64	27	0.2630	-0.634	0.495	0.968
26-Mar-97	1.7	28	0.2728	-0.604	0.531	0.967
25-Feb-98	1.7	29	0.2827	-0.575	0.531	0.966
27-Jan-99	1.7	30	0.2926	-0.546	0.531	0.965
14-Apr-95	1.73	31	0.3025	-0.517	0.548	0.965
24-Jun-98	1.8	32	0.3123	-0.489	0.588	0.964
15-Dec-98	1.8	33	0.3222	-0.461	0.588	0.963
24-May-95	1.83	34	0.3321	-0.434	0.604	0.961
28-Feb-96	1.83	35	0.3420	-0.407	0.604	0.960
20-Jun-96	1.83	36	0.3519	-0.380	0.604	0.959
24-Nov-97	1.9	37	0.3617	-0.354	0.642	0.958
3-May-93	1.93	38	0.3716	-0.328	0.658	0.957

update for EV, CV:

dCd		**LC50**			2,602	2600
LN Analysis		**dCd**			1.04	1.04
Discharge, Q		**Q Data, EV=2600 cfs CV=1.04**				
Avg:	**2,602**	**Q Data-based LN**				
SD:	**2,718**	u	lnQ	Q		
CV:	**1.04**	3	10.1	23666		
Min:	**244**	0	7.50	1799		
Max:	**16,000**	-3	4.92	137		
Median:	**1,600**					

					0.971	0.971
					2785.8	2790
u=mLn{Q}+b:					1.47	1.47
update for r2, EV, CV:	**r2=0.971, EV=2790 cfs CV=1.47; max r2=0.98**					
r2 u,lnQ:	0.971	u	lnQ	Q		
slope, m:	0.932	3	10.58	39169		
intercept, b:	-6.856	0	7.36	1567		
N: 101		-3	4.14	63		
E[Q]:	2785.8	Parameter Estimates				
SD[Q]:	4097	from LN regression				
CV[Q]:	1.47	update graph label				

						max r2
		N: 101				0.981
	Q					
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
6-Oct-94	244	1	0.0062	-2.502	5.497	0.971
21-Sep-94	263	2	0.0160	-2.143	5.572	0.976
17-Aug-94	278	3	0.0259	-1.944	5.628	0.977
26-Oct-98	299	4	0.0358	-1.802	5.700	0.978
23-Sep-98	342	5	0.0457	-1.688	5.835	0.979
22-Oct-98	343	6	0.0556	-1.593	5.838	0.979
26-Sep-96	346	7	0.0654	-1.511	5.846	0.980
20-Oct-99	365	8	0.0753	-1.437	5.900	0.979
22-Sep-99	371	9	0.0852	-1.371	5.916	0.979
19-Nov-93	386	10	0.0951	-1.310	5.956	0.979
20-Jan-93	391	11	0.1049	-1.254	5.969	0.978
14-Sep-95	398	12	0.1148	-1.201	5.986	0.977
22-Nov-94	410	13	0.1247	-1.152	6.016	0.977
21-Jul-94	429	14	0.1346	-1.105	6.061	0.976
21-Aug-96	435	15	0.1444	-1.061	6.075	0.975
25-Aug-98	435	16	0.1543	-1.018	6.075	0.974
22-Sep-93	465	17	0.1642	-0.977	6.142	0.974
1-Sep-99	471	18	0.1741	-0.938	6.155	0.973
3-Sep-97	473	19	0.1840	-0.900	6.159	0.972
21-Oct-93	481	20	0.1938	-0.864	6.176	0.972
9-Dec-92	485	21	0.2037	-0.828	6.184	0.971
15-Aug-95	494	22	0.2136	-0.794	6.203	0.971
16-Oct-97	550	23	0.2235	-0.761	6.310	0.971
15-Feb-94	612	24	0.2333	-0.728	6.417	0.971
13-Aug-97	619	25	0.2432	-0.696	6.428	0.970
27-Jul-98	620	26	0.2531	-0.665	6.430	0.969
23-Feb-93	625	27	0.2630	-0.634	6.438	0.969
24-Aug-93	632	28	0.2728	-0.604	6.449	0.969
26-Jul-95	636	29	0.2827	-0.575	6.455	0.970
11-Aug-99	716	30	0.2926	-0.546	6.574	0.971
23-Jul-96	721	31	0.3025	-0.517	6.581	0.971
16-Dec-94	736	32	0.3123	-0.489	6.601	0.972
14-Dec-93	739	33	0.3222	-0.461	6.605	0.973
18-Nov-98	819	34	0.3321	-0.434	6.708	0.975
26-Nov-96	828	35	0.3420	-0.407	6.719	0.977
12-Jul-95	926	36	0.3519	-0.380	6.831	0.979
15-Jun-94	1000	37	0.3617	-0.354	6.908	0.980
24-Jul-97	1030	38	0.3716	-0.328	6.937	0.980

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC50	**Date:**	14-Jul-00
Chemical:	dPb	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,185	2,629	3	58	0.00	0.00	0.00	
SD:	764	2,729	2	81	1.00	1.00	1.00	
CV:	0.02	1.04	0.53	1.41				first:
Min:	33,947	244	0	1.3	-0.87	-1.82	-0.69	mid:
Max:	36,453	16,000	10	432	4.90	3.55	4.62	last:
Median:	35,123	1,600	3	23	-0.38	-0.21	-0.43	

dPb **LC50** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.138)		update r2	0.14	0.138	r2:	0.004	0.002	
r2 Q,[COC]:	0.14	[dPb]	Q		m:	-0.2186	-0.00006	
slope, m:	0.0	3	244.0		b:	10319	9.44	
intercept, b:	2.7	3	2628.7					
N: 101		7	16000					first:
LnConc. = mLn{Q}+b (r2=0.0709)		update r2	0.07	0.0709				mid:
r2 lnQ,ln[COC]:	0.07	ln[dPb]	ln Q	[dPb]	Q			last:
slope, m:	0.15	0.78	5.50	2	244			
intercept, b:	-0.07	1.14	7.87	3	2,629			
N: 101		1.42	9.68	4	16,000			

for graph
dPb 0
LC50

N= 101

update for new data	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	9-Dec-92	485	2.5	6.5	6.18	0.92	1.88	-0.79	-0.50	-0.63
IDEQ	20-Jan-93	391	3	6.3	5.97	1.10	1.84	-0.82	-0.21	-0.63
IDEQ	23-Feb-93	625	2.5	8.4	6.44	0.92	2.13	-0.73	-0.50	-0.61
IDEQ	9-Mar-93	1500	2.8	22.6	7.31	1.03	3.12	-0.41	-0.33	-0.43
IDEQ	23-Mar-93	4170	8.4	188.5	8.34	2.13	5.24	0.56	2.82	1.62
IDEQ	5-Apr-93	10600	6.5	370.7	9.27	1.87	5.92	2.92	1.75	3.87
IDEQ	21-Apr-93	7300	3.9	153.2	8.90	1.36	5.03	1.71	0.29	1.18
IDEQ	3-May-93	9070	6.2	302.5	9.11	1.82	5.71	2.36	1.59	3.03
IDEQ	18-May-93	6100	6.8	223.2	8.72	1.92	5.41	1.27	1.92	2.05
IDEQ	1-Jun-93	2980	3.9	62.5	8.00	1.36	4.14	0.13	0.29	0.06
IDEQ	22-Jun-93	1400	3.9	29.4	7.24	1.36	3.38	-0.45	0.29	-0.35
IDEQ	20-Jul-93	1650	3.4	30.2	7.41	1.22	3.41	-0.36	0.01	-0.34
IDEQ	24-Aug-93	632	3.2	10.9	6.45	1.16	2.39	-0.73	-0.10	-0.58
IDEQ	22-Sep-93	465	3.7	9.3	6.14	1.31	2.23	-0.79	0.18	-0.60
IDEQ	21-Oct-93	481	3	7.8	6.18	1.10	2.05	-0.79	-0.21	-0.61
IDEQ	19-Nov-93	386	3.4	7.1	5.96	1.22	1.95	-0.82	0.01	-0.62
IDEQ	14-Dec-93	739	3.7	14.7	6.61	1.31	2.69	-0.69	0.18	-0.53
IDEQ	19-Jan-94	1360	3	22.0	7.22	1.10	3.09	-0.46	-0.21	-0.44
IDEQ	15-Feb-94	612	2.5	8.2	6.42	0.92	2.11	-0.74	-0.50	-0.61
IDEQ	6-Mar-94	4630	6.2	154.4	8.44	1.82	5.04	0.73	1.59	1.20
IDEQ	16-Mar-94	2490	4.2	56.3	7.82	1.44	4.03	-0.05	0.46	-0.02
IDEQ	5-Apr-94	5040	5.1	138.3	8.53	1.63	4.93	0.88	0.97	1.00
IDEQ	13-Apr-94	4610	4.8	119.0	8.44	1.57	4.78	0.73	0.80	0.76
IDEQ	19-Apr-94	8270	9.7	431.6	9.02	2.27	6.07	2.07	3.55	4.62
IDEQ	11-May-94	3120	3.2	53.7	8.05	1.16	3.98	0.18	-0.10	-0.05
IDEQ	15-Jun-94	1000	2.7	14.5	6.91	0.99	2.68	-0.60	-0.38	-0.53
IDEQ	21-Jul-94	429	2.7	6.2	6.06	0.99	1.83	-0.81	-0.38	-0.63
IDEQ	17-Aug-94	278	4.2	6.3	5.63	1.44	1.84	-0.86	0.46	-0.63
IDEQ	21-Sep-94	263	3.2	4.5	5.57	1.16	1.51	-0.87	-0.10	-0.65
IDEQ	6-Oct-94	244	1.5	2.0	5.50	0.41	0.68	-0.87	-1.06	-0.69
IDEQ	22-Nov-94	410	1.5	3.3	6.02	0.41	1.20	-0.81	-1.06	-0.67
IDEQ	16-Dec-94	736	1.5	5.9	6.60	0.41	1.78	-0.69	-1.06	-0.64
IDEQ	12-Jan-95	4960	1.5	40.0	8.51	0.41	3.69	0.85	-1.06	-0.22
IDEQ	16-Feb-95	2530	3	40.8	7.84	1.10	3.71	-0.04	-0.21	-0.21
IDEQ	7-Mar-95	3140	1.5	25.3	8.05	0.41	3.23	0.19	-1.06	-0.40
IDEQ	23-Mar-95	8230	4	177.1	9.02	1.39	5.18	2.05	0.35	1.48
IDEQ	14-Apr-95	4680	4	100.7	8.45	1.39	4.61	0.75	0.35	0.53
IDEQ	25-Apr-95	3590	5	96.6	8.19	1.61	4.57	0.35	0.91	0.48

dPb

Concentration over time analysis r2 Slope, m

dPb LC50 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.172** **-0.00033**

Time	Ln[COC]	[COC]
9-Dec-92	1.47	4
28-Feb-96	1.08	3
20-Oct-99	0.65	2

LnConc.=mTime+b >'96 r2, m: **0.125** **-0.00057**

18-Jan-96	1.30	4
20-Oct-99	0.51	2

Load over time analysis

dPb LC50 **Load over time**

LnLoad=mTime+b All data r2, m: **0.049** **-0.00039**

Time	LnLoad	Load
9-Dec-92	3.68	40
28-Feb-96	3.23	25
20-Oct-99	2.71	15

LnLoad=mTime+b >'96 r2, m: **0.106** **-0.00101**

18-Jan-96	3.78	44
20-Oct-99	2.39	11

max r2: 0.739

Forward time Regression on Ln Concentration(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.172	-0.00033	12.65
0.180	-0.00034	13.08
0.184	-0.00035	13.38
0.193	-0.00036	13.82
0.199	-0.00037	14.20
0.184	-0.00036	13.69
0.173	-0.00035	13.35
0.171	-0.00035	13.44
0.161	-0.00034	13.11
0.148	-0.00033	12.67
0.145	-0.00033	12.72
0.142	-0.00033	12.77
0.142	-0.00034	12.94
0.144	-0.00034	13.18
0.142	-0.00035	13.27
0.144	-0.00036	13.58
0.144	-0.00036	13.76
0.142	-0.00036	13.86
0.144	-0.00037	14.17
0.151	-0.00039	14.70
0.139	-0.00037	14.21
0.134	-0.00037	14.14
0.125	-0.00036	13.82
0.117	-0.00035	13.55
0.097	-0.00032	12.31
0.096	-0.00032	12.48
0.099	-0.00034	12.88
0.102	-0.00035	13.29
0.095	-0.00034	13.07
0.094	-0.00035	13.23
0.112	-0.00038	14.55
0.132	-0.00042	15.93
0.154	-0.00046	17.40
0.180	-0.00051	18.96
0.183	-0.00052	19.47
0.212	-0.00057	21.19
0.208	-0.00057	21.33
0.203	-0.00057	21.46

max r2: 0.997

Forward time Regression on Ln Load(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.049	-0.00039	16.87
0.058	-0.00043	18.27
0.069	-0.00047	19.75
0.079	-0.00051	21.05
0.082	-0.00052	21.63
0.072	-0.00049	20.49
0.059	-0.00044	18.70
0.050	-0.00041	17.55
0.039	-0.00036	15.70
0.029	-0.00031	14.00
0.025	-0.00029	13.38
0.025	-0.00029	13.45
0.024	-0.00029	13.49
0.029	-0.00032	14.55
0.034	-0.00036	15.83
0.042	-0.00040	17.36
0.051	-0.00045	19.08
0.056	-0.00048	20.10
0.059	-0.00050	20.72
0.069	-0.00054	22.46
0.058	-0.00050	20.96
0.054	-0.00049	20.52
0.044	-0.00045	18.94
0.036	-0.00040	17.41
0.022	-0.00031	14.00
0.018	-0.00029	13.16
0.020	-0.00031	14.07
0.028	-0.00037	16.22
0.038	-0.00043	18.52
0.052	-0.00052	21.44
0.082	-0.00064	25.90
0.111	-0.00075	29.77
0.137	-0.00084	33.01
0.135	-0.00085	33.39
0.133	-0.00086	33.71
0.138	-0.00089	34.84
0.119	-0.00083	32.64
0.106	-0.00079	31.22

update for EV, CV:

dPb **LC50**

LN Analysis **dPb**

Load **Load Data, EV=57.5 lbs/day CV=1.41**

Load Data-based LN

		u	ln dPb Load	dPb Load
Avg:	**58**			
SD:	**81**	3	6.6	766
CV:	**1.41**	0	3.51	33
Min:	**1.3**	-3	0.37	1.4
Max:	**432**			
Median:	**23**			

58 57.5
1.41 1.41

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.983, EV=63.4lbs/day CV=2.37; max r2=0.99**

r2 u,lnLoad:	0.983	u	lnLoad	Load	
slope, m:	0.727	3	7.33	1523	
intercept, b:	-2.330	0	3.20	25	
N: 101		-3	-0.92	0.4	
E[Load]:	63.4	Parameter Estimates			0.983
SD[Load]:	150	from LN regression			63.4
CV[Load]:	2.37	update graph label			2.4
					max r2
		N: 101			0.987

Date	dPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
29-Oct-96	1.3	1	0.0062	-2.502	0.298	0.983
20-Oct-99	2.0	2	0.0160	-2.143	0.675	0.984
6-Oct-94	2.0	3	0.0259	-1.944	0.678	0.984
22-Nov-94	3.3	4	0.0358	-1.802	1.197	0.984
21-Aug-96	3.5	5	0.0457	-1.688	1.256	0.985
25-Aug-98	3.5	6	0.0556	-1.593	1.256	0.986
15-Aug-95	4.0	7	0.0654	-1.511	1.383	0.986
22-Sep-99	4.0	8	0.0753	-1.437	1.384	0.986
16-Oct-97	4.4	9	0.0852	-1.371	1.490	0.986
21-Sep-94	4.5	10	0.0951	-1.310	1.510	0.987
22-Oct-98	4.6	11	0.1049	-1.254	1.529	0.987
26-Oct-98	4.8	12	0.1148	-1.201	1.574	0.987
18-Nov-98	4.8	13	0.1247	-1.152	1.578	0.986
23-Sep-98	5.5	14	0.1346	-1.105	1.708	0.986
16-Dec-94	5.9	15	0.1444	-1.061	1.782	0.986
21-Jul-94	6.2	16	0.1543	-1.018	1.830	0.986
17-Aug-94	6.3	17	0.1642	-0.977	1.838	0.985
20-Jan-93	6.3	18	0.1741	-0.938	1.842	0.985
14-Sep-95	6.4	19	0.1840	-0.900	1.860	0.985
9-Dec-92	6.5	20	0.1938	-0.864	1.875	0.984
19-Nov-93	7.1	21	0.2037	-0.828	1.955	0.984
26-Sep-96	7.4	22	0.2136	-0.794	2.008	0.983
1-Sep-99	7.6	23	0.2235	-0.761	2.028	0.983
3-Sep-97	7.6	24	0.2333	-0.728	2.033	0.982
21-Oct-93	7.8	25	0.2432	-0.696	2.049	0.982
15-Feb-94	8.2	26	0.2531	-0.665	2.108	0.981
23-Feb-93	8.4	27	0.2630	-0.634	2.129	0.981
22-Sep-93	9.3	28	0.2728	-0.604	2.225	0.980
27-Jul-98	10.0	29	0.2827	-0.575	2.303	0.980
26-Jul-95	10.3	30	0.2926	-0.546	2.329	0.979
21-Jan-98	10.5	31	0.3025	-0.517	2.351	0.978
24-Aug-93	10.9	32	0.3123	-0.489	2.387	0.978
10-May-99	11.0	33	0.3222	-0.461	2.402	0.977
9-Feb-99	11.3	34	0.3321	-0.434	2.425	0.976
11-Aug-99	11.6	35	0.3420	-0.407	2.447	0.976
23-Jul-96	11.6	36	0.3519	-0.380	2.454	0.975
24-Nov-98	12.0	37	0.3617	-0.354	2.487	0.975
27-Jan-99	12.7	38	0.3716	-0.328	2.539	0.974

update for EV, CV:

dPb		**LC50**		3	3.38
LN Analysis		**dPb**		0.53	0.526
Concentration		**Conc. Data, EV=3.38 ug/L CV=0.526**			
Avg:	**3**	**Data-based LN**			
SD:	**2**	u	ln[dPb]	[dPb]	
CV:	**0.53**	3	2.6	13	
Min:	**0**	0	1.10	3	
Max:	**10**	-3	-0.39	1	
Median:	**3**				

					0.897	0.897
	u=mLn{Conc.}+b:				3.6	3.58
update for r2, EV, CV:	**r2=0.897, EV=3.58 ug/L CV=0.726; max r2=0.98**				0.726	0.726
	r2 u,lnConc:	0.897	u	lnConc.	Conc.	
	slope, m:	1.537	3	3.02	20	
	intercept, b:	-1.636	0	1.06	3	
	N: 101		-3	-0.89	0	
0.983	E[Conc]:	3.6	Parameter Estimates			
63.4	SD[Conc]:	3	from LN regression			
2.37	CV[Conc]:	0.73	update graph label			

						max r2
	dPb	N: 101				0.976
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
29-Oct-96	0.15	1	0.0062	-2.502	-1.897	0.897
15-Dec-98	1	2	0.0160	-2.143	0.000	0.950
13-Apr-99	1	3	0.0259	-1.944	0.000	0.948
8-Jun-99	1	4	0.0358	-1.802	0.000	0.946
20-Oct-99	1	5	0.0457	-1.688	0.000	0.944
18-Nov-98	1.1	6	0.0556	-1.593	0.095	0.942
27-Jan-99	1.1	7	0.0654	-1.511	0.095	0.940
9-Feb-99	1.1	8	0.0753	-1.437	0.095	0.938
10-May-99	1.2	9	0.0852	-1.371	0.182	0.938
6-Oct-94	1.5	10	0.0951	-1.310	0.405	0.936
22-Nov-94	1.5	11	0.1049	-1.254	0.405	0.934
16-Dec-94	1.5	12	0.1148	-1.201	0.405	0.932
12-Jan-95	1.5	13	0.1247	-1.152	0.405	0.930
7-Mar-95	1.5	14	0.1346	-1.105	0.405	0.927
15-Aug-95	1.5	15	0.1444	-1.061	0.405	0.925
21-Aug-96	1.5	16	0.1543	-1.018	0.405	0.923
16-Oct-97	1.5	17	0.1642	-0.977	0.405	0.922
21-Jan-98	1.5	18	0.1741	-0.938	0.405	0.921
25-Feb-98	1.5	19	0.1840	-0.900	0.405	0.921
25-Aug-98	1.5	20	0.1938	-0.864	0.405	0.922
24-Nov-98	1.5	21	0.2037	-0.828	0.405	0.925
4-Jan-99	1.5	22	0.2136	-0.794	0.405	0.930
14-Jan-99	1.5	23	0.2235	-0.761	0.405	0.938
8-Jun-99	1.8	24	0.2333	-0.728	0.588	0.949
22-Sep-99	2	25	0.2432	-0.696	0.693	0.953
9-Dec-92	2.5	26	0.2531	-0.665	0.916	0.953
23-Feb-93	2.5	27	0.2630	-0.634	0.916	0.953
15-Feb-94	2.5	28	0.2728	-0.604	0.916	0.952
22-Oct-98	2.5	29	0.2827	-0.575	0.916	0.951
15-Jun-94	2.7	30	0.2926	-0.546	0.993	0.949
21-Jul-94	2.7	31	0.3025	-0.517	0.993	0.949
9-Mar-93	2.8	32	0.3123	-0.489	1.030	0.949
20-Jan-93	3	33	0.3222	-0.461	1.099	0.949
21-Oct-93	3	34	0.3321	-0.434	1.099	0.952
19-Jan-94	3	35	0.3420	-0.407	1.099	0.955
16-Feb-95	3	36	0.3519	-0.380	1.099	0.958
26-Jul-95	3	37	0.3617	-0.354	1.099	0.961
14-Sep-95	3	38	0.3716	-0.328	1.099	0.963

update for EV, CV:

dPb		**LC50**			2,629	2630
LN Analysis		**dPb**			1.04	1.04
Discharge, Q		**Q Data, EV=2630 cfs CV=1.04**				
Avg:	**2,629**	**Q Data-based LN**				
SD:	**2,729**	u	lnQ	Q		
CV:	**1.04**	3	10.1	23721		
Min:	**244**	0	7.51	1824		
Max:	**16,000**	-3	4.94	140		
Median:	**1,600**					

					0.969	0.969
					2827.5	2830
u=mLn{Q}+b:					1.49	1.49
update for r2, EV, CV:	**r2=0.969, EV=2830 cfs CV=1.49; max r2=0.98**					
r2 u,lnQ:	0.969	u	lnQ	Q		
slope, m:	0.926	3	10.60	40274		
intercept, b:	-6.820	0	7.36	1578		
N: 101		-3	4.12	62		
E[Q]:	2827.5	Parameter Estimates				
SD[Q]:	4202	from LN regression				
CV[Q]:	1.49	update graph label				

N: 101

max r2
0.978

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
6-Oct-94	244	1	0.0062	-2.502	5.497	0.969
21-Sep-94	263	2	0.0160	-2.143	5.572	0.974
17-Aug-94	278	3	0.0259	-1.944	5.628	0.976
26-Oct-98	299	4	0.0358	-1.802	5.700	0.977
23-Sep-98	342	5	0.0457	-1.688	5.835	0.977
22-Oct-98	343	6	0.0556	-1.593	5.838	0.978
26-Sep-96	346	7	0.0654	-1.511	5.846	0.978
20-Oct-99	365	8	0.0753	-1.437	5.900	0.978
22-Sep-99	371	9	0.0852	-1.371	5.916	0.977
19-Nov-93	386	10	0.0951	-1.310	5.956	0.977
20-Jan-93	391	11	0.1049	-1.254	5.969	0.976
14-Sep-95	398	12	0.1148	-1.201	5.986	0.976
22-Nov-94	410	13	0.1247	-1.152	6.016	0.975
21-Jul-94	429	14	0.1346	-1.105	6.061	0.974
21-Aug-96	435	15	0.1444	-1.061	6.075	0.973
25-Aug-98	435	16	0.1543	-1.018	6.075	0.972
22-Sep-93	465	17	0.1642	-0.977	6.142	0.971
1-Sep-99	471	18	0.1741	-0.938	6.155	0.971
3-Sep-97	473	19	0.1840	-0.900	6.159	0.970
21-Oct-93	481	20	0.1938	-0.864	6.176	0.969
9-Dec-92	485	21	0.2037	-0.828	6.184	0.969
15-Aug-95	494	22	0.2136	-0.794	6.203	0.968
16-Oct-97	550	23	0.2235	-0.761	6.310	0.968
15-Feb-94	612	24	0.2333	-0.728	6.417	0.968
13-Aug-97	619	25	0.2432	-0.696	6.428	0.967
27-Jul-98	620	26	0.2531	-0.665	6.430	0.966
23-Feb-93	625	27	0.2630	-0.634	6.438	0.966
24-Aug-93	632	28	0.2728	-0.604	6.449	0.966
26-Jul-95	636	29	0.2827	-0.575	6.455	0.967
11-Aug-99	716	30	0.2926	-0.546	6.574	0.968
23-Jul-96	721	31	0.3025	-0.517	6.581	0.968
16-Dec-94	736	32	0.3123	-0.489	6.601	0.968
14-Dec-93	739	33	0.3222	-0.461	6.605	0.970
18-Nov-98	819	34	0.3321	-0.434	6.708	0.972
26-Nov-96	828	35	0.3420	-0.407	6.719	0.973
12-Jul-95	926	36	0.3519	-0.380	6.831	0.975
15-Jun-94	1000	37	0.3617	-0.354	6.908	0.976
24-Jul-97	1030	38	0.3716	-0.328	6.937	0.976

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC50	**Date:**	3-Jun-00
Chemical:	dZn	**Analyst:**	J.Johnston

Notes:

Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load		
Avg:	35,195	2,626	370	3,315	0.00	0.00
SD:	766	2,716	187	2,080	1.00	1.00
CV:	0.02	1.03	0.51	0.63		
Min:	33,947	244	51	132.8	-0.88	-1.70
Max:	36,453	16,000	809	10,191	4.92	2.35
Median:	35,137	1,625	342	3,011	-0.37	-0.15

dZn **LC50** **: Concentration v. Discharge, Q**

Conc. = mQ+b (r2=0.489)		update r2	0.49	0.489		**Q = mTime +b**	**LnQ = mTime +b**
r2 Q,[COC]:	0.49	[dZn]	Q			r2: 0.004	0.001
slope, m:	0.0	485	244.0			m: -0.2190	-0.00005
intercept, b:	496.4	370	2626.4			b: 10335	9.18
N: 102		-274	16000				
LnConc. = mLn{Q}+b (r2=0.64)		update r2	0.64		0.64		
r2 lnQ,ln[COC]:	0.64	ln[dZn]	ln Q	[dZn]	Q		
slope, m:	-0.45	6.60	5.50	736	244		
intercept, b:	9.06	5.54	7.87	254	2,626		
N: 102		4.73	9.68	113	16,000		

N= 102

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	dZn LC50 **Standardized Values = (x - Avg)/SD** Q	for graph 0 Conc
update for new data									
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis		
IDEQ	9-Dec-92	485	669.5	1746.9	6.18	6.51	7.47	-0.79	1.60
IDEQ	20-Jan-93	391	809	1701.8	5.97	6.70	7.44	-0.82	2.35
IDEQ	23-Feb-93	625	539.9	1815.4	6.44	6.29	7.50	-0.74	0.91
IDEQ	9-Mar-93	1500	380.3	3069.0	7.31	5.94	8.03	-0.41	0.06
IDEQ	23-Mar-93	4170	290.6	6519.5	8.34	5.67	8.78	0.57	-0.42
IDEQ	5-Apr-93	10600	141.1	8046.7	9.27	4.95	8.99	2.94	-1.22
IDEQ	21-Apr-93	7300	131.1	5148.8	8.90	4.88	8.55	1.72	-1.28
IDEQ	3-May-93	9070	141.1	6885.2	9.11	4.95	8.84	2.37	-1.22
IDEQ	18-May-93	6100	200.9	6593.1	8.72	5.30	8.79	1.28	-0.90
IDEQ	1-Jun-93	2980	270.7	4340.0	8.00	5.60	8.38	0.13	-0.53
IDEQ	22-Jun-93	1400	420.2	3164.9	7.24	6.04	8.06	-0.45	0.27
IDEQ	20-Jul-93	1650	340.5	3022.6	7.41	5.83	8.01	-0.36	-0.16
IDEQ	24-Aug-93	632	430.2	1462.7	6.45	6.06	7.29	-0.73	0.32
IDEQ	22-Sep-93	465	589.7	1475.3	6.14	6.38	7.30	-0.80	1.17
IDEQ	21-Oct-93	481	51.3	132.8	6.18	3.94	4.89	-0.79	-1.70
IDEQ	19-Nov-93	386	639.6	1328.2	5.96	6.46	7.19	-0.82	1.44
IDEQ	14-Dec-93	739	589.7	2344.5	6.61	6.38	7.76	-0.69	1.17
IDEQ	19-Jan-94	1360	340.5	2491.4	7.22	5.83	7.82	-0.47	-0.16
IDEQ	15-Feb-94	612	500	1646.3	6.42	6.21	7.41	-0.74	0.70
IDEQ	6-Mar-94	4630	200.9	5004.3	8.44	5.30	8.52	0.74	-0.90
IDEQ	16-Mar-94	2490	250.7	3358.4	7.82	5.52	8.12	-0.05	-0.64
IDEQ	5-Apr-94	5040	131.1	3554.8	8.53	4.88	8.18	0.89	-1.28
IDEQ	13-Apr-94	4610	131.1	3251.5	8.44	4.88	8.09	0.73	-1.28
IDEQ	19-Apr-94	8270	171	7608.2	9.02	5.14	8.94	2.08	-1.06
IDEQ	11-May-94	3120	101.2	1698.7	8.05	4.62	7.44	0.18	-1.44
IDEQ	15-Jun-94	1000	380.3	2046.0	6.91	5.94	7.62	-0.60	0.06
IDEQ	21-Jul-94	429	629.6	1453.1	6.06	6.45	7.28	-0.81	1.39
IDEQ	17-Aug-94	278	589.7	882.0	5.63	6.38	6.78	-0.86	1.17
IDEQ	21-Sep-94	263	669.5	947.3	5.57	6.51	6.85	-0.87	1.60
IDEQ	6-Oct-94	244	641.5	842.1	5.50	6.46	6.74	-0.88	1.45
IDEQ	22-Nov-94	410	595.7	1314.0	6.02	6.39	7.18	-0.82	1.21
IDEQ	16-Dec-94	736	507.9	2011.1	6.60	6.23	7.61	-0.70	0.74
IDEQ	12-Jan-95	4960	207.8	5545.1	8.51	5.34	8.62	0.86	-0.87
IDEQ	16-Feb-95	2530	245.7	3344.3	7.84	5.50	8.12	-0.04	-0.66
IDEQ	7-Mar-95	3140	253.7	4285.8	8.05	5.54	8.36	0.19	-0.62
IDEQ	23-Mar-95	8230	199.9	8851.1	9.02	5.30	9.09	2.06	-0.91
IDEQ	14-Apr-95	4680	189.9	4781.4	8.45	5.25	8.47	0.76	-0.96
IDEQ	25-Apr-95	3590	175.9	3397.4	8.19	5.17	8.13	0.35	-1.04

dZn

Concentration over time analysis r2 Slope, m

dZn LC50 **Concentration over time**

0.00 **LnConc.=mTime+b All data r2, m:** **0.000** **-0.00001**

1.00

		Time	Ln[COC]	[COC]
	first:	9-Dec-92	5.78	323
-1.53	mid:	13-Mar-96	5.76	318
3.31	last:	20-Oct-99	5.75	313

-0.15 **LnConc.=mTime+b >'96 r2, m:** **0.064** **-0.00035**

18-Jan-96	6.06	426
20-Oct-99	5.58	265

Load over time analysis

dZn LC50 **Load over time**

LnLoad=mTime+b All data r2, m: **0.005** **-0.00006**

		Time	LnLoad	Load
	first:	9-Dec-92	7.99	2,938
	mid:	13-Mar-96	7.91	2,722
	last:	20-Oct-99	7.82	2,502

LnLoad=mTime+b >'96 r2, m: **0.264** **-0.00076**

18-Jan-96	8.53	5,048
20-Oct-99	7.48	1,771

max r2: 0.908 max r2: 0.922

Load	**Forward time Regression on Ln Concentration(t)**			**Forward time Regression on Ln Load(t)**		
	r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
	only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
-0.75	0.000	-0.00001	6.20	0.005	-0.00006	10.16
-0.78	0.000	0.00000	5.64	0.007	-0.00008	10.56
-0.72	0.001	0.00002	4.91	0.009	-0.00009	11.00
-0.12	0.002	0.00004	4.46	0.012	-0.00010	11.40
1.54	0.003	0.00004	4.27	0.012	-0.00010	11.41
2.27	0.003	0.00004	4.28	0.008	-0.00008	10.79
0.88	0.001	0.00002	4.91	0.004	-0.00006	9.96
1.72	0.000	0.00000	5.63	0.002	-0.00004	9.46
1.58	0.000	-0.00002	6.35	0.001	-0.00002	8.66
0.49	0.001	-0.00003	6.79	0.000	0.00000	7.85
-0.07	0.002	-0.00003	6.98	0.000	0.00001	7.37
-0.14	0.001	-0.00003	6.76	0.000	0.00002	7.17
-0.89	0.001	-0.00003	6.73	0.001	0.00002	7.00
-0.88	0.001	-0.00002	6.47	0.000	0.00001	7.54
-1.53	0.000	0.00000	5.86	0.000	-0.00001	8.11
-0.96	0.004	-0.00006	7.75	0.011	-0.00009	11.21
-0.47	0.002	-0.00004	7.10	0.017	-0.00012	12.08
-0.40	0.001	-0.00002	6.49	0.019	-0.00013	12.38
-0.80	0.000	-0.00002	6.44	0.020	-0.00013	12.63
0.81	0.000	-0.00001	5.96	0.026	-0.00015	13.35
0.02	0.001	-0.00002	6.48	0.021	-0.00014	12.86
0.12	0.001	-0.00003	6.79	0.020	-0.00014	12.80
-0.03	0.004	-0.00006	7.90	0.018	-0.00013	12.65
2.06	0.011	-0.00009	9.12	0.017	-0.00013	12.61
-0.78	0.018	-0.00012	10.10	0.010	-0.00010	11.44
-0.61	0.037	-0.00017	11.87	0.014	-0.00012	12.20
-0.90	0.036	-0.00017	11.93	0.017	-0.00014	12.76
-1.17	0.028	-0.00015	11.28	0.025	-0.00017	13.83
-1.14	0.022	-0.00014	10.66	0.043	-0.00022	15.70
-1.19	0.015	-0.00011	9.81	0.067	-0.00027	17.59
-0.96	0.009	-0.00009	8.94	0.103	-0.00033	19.83
-0.63	0.005	-0.00007	8.12	0.132	-0.00038	21.49
1.07	0.003	-0.00005	7.48	0.150	-0.00041	22.61
0.01	0.005	-0.00007	8.23	0.138	-0.00040	22.16
0.47	0.007	-0.00008	8.76	0.139	-0.00041	22.49
2.66	0.009	-0.00010	9.27	0.133	-0.00041	22.42
0.70	0.015	-0.00013	10.25	0.111	-0.00037	21.06
0.04	0.023	-0.00016	11.41	0.102	-0.00036	20.67

update for EV, CV:

dZn **LC50**

LN Analysis **dZn**

Load **Load Data, EV=3320 lbs/day CV=0.623**

Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**3,324**	3	9.7	15728
SD:	**2,071**	0	7.94	2821
CV:	**0.62**	-3	6.23	506.1
Min:	**132.8**			
Max:	**10,191**			
Median:	**3,011**			

3,324 3320
0.62 0.623

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.937, EV=3220lbs/day CV=0.725; max r2=0.98**

r2 u,lnLoad:	0.937	u	lnLoad	Load		
slope, m:	1.539	3	9.81	18295		
intercept, b:	-12.105	0	7.87	2605		
N:	102	-3	5.92	370.9		
E[Load]:	3217.0	Parameter Estimates			0.937	0.937
SD[Load]:	2332	from LN regression			3217.0	3220
CV[Load]:	0.72	update graph label			0.7	0.725
					max r2	
					0.984	

N: 102

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
21-Oct-93	**132.8**	1	0.0063	-2.495	4.888	0.937
6-Oct-94	**842.1**	2	0.0164	-2.135	6.736	0.984
17-Aug-94	**882.0**	3	0.0264	-1.936	6.782	0.984
21-Sep-94	**947.3**	4	0.0365	-1.793	6.854	0.983
26-Oct-98	**949.1**	5	0.0466	-1.679	6.855	0.982
10-May-99	**1021.2**	6	0.0567	-1.583	6.929	0.982
23-Sep-98	**1115.0**	7	0.0668	-1.500	7.017	0.981
26-Sep-96	**1173.8**	8	0.0768	-1.427	7.068	0.980
22-Oct-98	**1206.9**	9	0.0869	-1.360	7.096	0.980
25-Aug-98	**1252.1**	10	0.0970	-1.299	7.133	0.979
22-Nov-94	**1314.0**	11	0.1071	-1.242	7.181	0.978
19-Nov-93	**1328.2**	12	0.1171	-1.189	7.192	0.978
14-Sep-95	**1352.4**	13	0.1272	-1.140	7.210	0.977
11-Aug-99	**1413.7**	14	0.1373	-1.093	7.254	0.977
11-Aug-99	**1413.7**	15	0.1474	-1.048	7.254	0.976
11-Aug-99	**1413.7**	16	0.1574	-1.005	7.254	0.975
11-Aug-99	**1413.7**	17	0.1675	-0.964	7.254	0.974
21-Jul-94	**1453.1**	18	0.1776	-0.925	7.281	0.974
24-Aug-93	**1462.7**	19	0.1877	-0.887	7.288	0.973
15-Aug-95	**1469.2**	20	0.1977	-0.850	7.292	0.973
22-Sep-93	**1475.3**	21	0.2078	-0.814	7.297	0.973
16-Oct-97	**1624.5**	22	0.2179	-0.779	7.393	0.973
15-Feb-94	**1646.3**	23	0.2280	-0.746	7.406	0.973
3-Sep-97	**1679.5**	24	0.2380	-0.713	7.426	0.972
26-Jul-95	**1690.3**	25	0.2481	-0.680	7.433	0.972
11-May-94	**1698.7**	26	0.2582	-0.649	7.438	0.971
27-Jul-98	**1701.2**	27	0.2683	-0.618	7.439	0.971
20-Jan-93	**1701.8**	28	0.2783	-0.588	7.439	0.971
9-Dec-92	**1746.9**	29	0.2884	-0.558	7.466	0.972
23-Feb-93	**1815.4**	30	0.2985	-0.529	7.504	0.972
21-Aug-96	**1865.5**	31	0.3086	-0.500	7.531	0.973
13-Jul-99	**1952.3**	32	0.3186	-0.472	7.577	0.973
12-Jul-95	**1999.2**	33	0.3287	-0.443	7.601	0.973
16-Dec-94	**2011.1**	34	0.3388	-0.416	7.606	0.973
18-Nov-98	**2022.5**	35	0.3489	-0.388	7.612	0.973
15-Jun-94	**2046.0**	36	0.3589	-0.361	7.624	0.974
13-Aug-97	**2111.4**	37	0.3690	-0.334	7.655	0.975
23-Feb-99	**2269.8**	38	0.3791	-0.308	7.727	0.975

update for EV, CV:

dZn		**LC50**		366	366
LN Analysis		**dZn**		0.51	0.507
Concentration		**Conc. Data, EV=366 ug/L CV=0.507**			
Avg:	**366**	**Data-based LN**			
SD:	**185**	u	ln[dZn]	[dZn]	
CV:	**0.51**	3	7.2	1370	
Min:	**51**	0	5.79	326	
Max:	**809**	-3	4.35	78	
Median:	**342**				

				0.941	0.941
u=mLn{Conc.}+b:				354.3	354
update for r2, EV, CV: **r2=0.941, EV=354 ug/L CV=0.612; max r2=0.94**				0.612	0.612
r2 u,lnConc:	0.941	u	lnConc.	Conc.	
slope, m:	1.773	3	7.40	1641	
intercept, b:	-10.125	0	5.71	302	
N: 102		-3	4.02	56	
E[Conc]:	354.3	Parameter Estimates			
SD[Conc]:	217	from LN regression			
CV[Conc]:	0.61	update graph label			

						max r2
	dZn	N: 102				0.943
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
21-Oct-93	51.3	1	0.0063	-2.495	3.938	0.941
25-May-99	67	2	0.0164	-2.135	4.205	0.942
11-May-94	101.2	3	0.0264	-1.936	4.617	0.943
10-May-99	111	4	0.0365	-1.793	4.710	0.940
8-Jun-99	111	5	0.0466	-1.679	4.710	0.938
23-Apr-98	126	6	0.0567	-1.583	4.836	0.936
8-Jun-99	128	7	0.0668	-1.500	4.852	0.934
21-Apr-93	131.1	8	0.0768	-1.427	4.876	0.932
5-Apr-94	131.1	9	0.0869	-1.360	4.876	0.930
13-Apr-94	131.1	10	0.0970	-1.299	4.876	0.928
5-Apr-93	141.1	11	0.1071	-1.242	4.949	0.927
3-May-93	141.1	12	0.1171	-1.189	4.949	0.926
28-May-98	145	13	0.1272	-1.140	4.977	0.925
11-May-95	165	14	0.1373	-1.093	5.106	0.924
18-Jan-96	169	15	0.1474	-1.048	5.130	0.922
19-Apr-94	171	16	0.1574	-1.005	5.142	0.921
19-Mar-98	174	17	0.1675	-0.964	5.159	0.919
25-Apr-95	175.9	18	0.1776	-0.925	5.170	0.917
14-Apr-95	189.9	19	0.1877	-0.887	5.246	0.916
13-Apr-99	191	20	0.1977	-0.850	5.252	0.914
16-Apr-97	192	21	0.2078	-0.814	5.257	0.912
18-Apr-96	192.9	22	0.2179	-0.779	5.262	0.910
23-Mar-95	199.9	23	0.2280	-0.746	5.298	0.908
18-May-93	200.9	24	0.2380	-0.713	5.303	0.906
6-Mar-94	200.9	25	0.2481	-0.680	5.303	0.905
12-Jan-95	207.8	26	0.2582	-0.649	5.337	0.904
4-Jan-99	222	27	0.2683	-0.618	5.403	0.902
21-Nov-95	226.8	28	0.2783	-0.588	5.424	0.900
24-May-95	230.8	29	0.2884	-0.558	5.442	0.898
14-Jan-99	234	30	0.2985	-0.529	5.455	0.896
15-Dec-98	237	31	0.3086	-0.500	5.468	0.893
26-Mar-97	241	32	0.3186	-0.472	5.485	0.891
16-Feb-95	245.7	33	0.3287	-0.443	5.504	0.889
15-Dec-98	249	34	0.3388	-0.416	5.517	0.887
16-Mar-94	250.7	35	0.3489	-0.388	5.524	0.884
13-Jul-99	252	36	0.3589	-0.361	5.529	0.882
7-Mar-95	253.7	37	0.3690	-0.334	5.536	0.880
27-Mar-96	255.7	38	0.3791	-0.308	5.544	0.879

update for EV, CV:

dZn		**LC50**			2,636	2640
LN Analysis		**dZn**			1.03	1.03
Discharge, Q		**Q Data, EV=2640 cfs CV=1.03**				
Avg:	**2,636**	**Q Data-based LN**				
SD:	**2,709**	u	lnQ	Q		
CV:	**1.03**	3	10.1	23472		
Min:	**244**	0	7.52	1838		
Max:	**16,000**	-3	4.97	144		
Median:	**1,625**					

					0.966	0.966
					2436.8	2440
u=mLn{Q}+b:					1.28	1.28
update for r2, EV, CV:	**r2=0.966, EV=2440 cfs CV=1.28; max r2=0.97**					
	r2 u,lnQ:	0.966	u	lnQ	Q	
	slope, m:	1.015	3	10.27	28818	
	intercept, b:	-7.423	0	7.31	1500	
	N: 102		-3	4.36	78	
	E[Q]:	2436.8	Parameter Estimates			
	SD[Q]:	3120	from LN regression			
	CV[Q]:	1.28	update graph label			

						max r2
		N: 102				0.968
	Q					
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
6-Oct-94	244	1	0.0063	-2.495	5.497	0.966
21-Sep-94	263	2	0.0164	-2.135	5.572	0.968
17-Aug-94	278	3	0.0264	-1.936	5.628	0.968
26-Oct-98	299	4	0.0365	-1.793	5.700	0.968
23-Sep-98	342	5	0.0466	-1.679	5.835	0.967
22-Oct-98	343	6	0.0567	-1.583	5.838	0.966
26-Sep-96	346	7	0.0668	-1.500	5.846	0.965
19-Nov-93	386	8	0.0768	-1.427	5.956	0.964
20-Jan-93	391	9	0.0869	-1.360	5.969	0.963
14-Sep-95	398	10	0.0970	-1.299	5.986	0.962
22-Nov-94	410	11	0.1071	-1.242	6.016	0.961
21-Jul-94	429	12	0.1171	-1.189	6.061	0.960
21-Aug-96	435	13	0.1272	-1.140	6.075	0.959
25-Aug-98	435	14	0.1373	-1.093	6.075	0.957
22-Sep-93	465	15	0.1474	-1.048	6.142	0.956
3-Sep-97	473	16	0.1574	-1.005	6.159	0.955
21-Oct-93	481	17	0.1675	-0.964	6.176	0.954
9-Dec-92	485	18	0.1776	-0.925	6.184	0.953
15-Aug-95	494	19	0.1877	-0.887	6.203	0.952
16-Oct-97	550	20	0.1977	-0.850	6.310	0.951
15-Feb-94	612	21	0.2078	-0.814	6.417	0.950
13-Aug-97	619	22	0.2179	-0.779	6.428	0.949
27-Jul-98	620	23	0.2280	-0.746	6.430	0.948
23-Feb-93	625	24	0.2380	-0.713	6.438	0.947
24-Aug-93	632	25	0.2481	-0.680	6.449	0.946
26-Jul-95	636	26	0.2582	-0.649	6.455	0.945
11-Aug-99	716	27	0.2683	-0.618	6.574	0.945
11-Aug-99	716	28	0.2783	-0.588	6.574	0.944
11-Aug-99	716	29	0.2884	-0.558	6.574	0.943
11-Aug-99	716	30	0.2985	-0.529	6.574	0.942
23-Jul-96	721	31	0.3086	-0.500	6.581	0.943
16-Dec-94	736	32	0.3186	-0.472	6.601	0.943
14-Dec-93	739	33	0.3287	-0.443	6.605	0.945
18-Nov-98	819	34	0.3388	-0.416	6.708	0.947
26-Nov-96	828	35	0.3489	-0.388	6.719	0.948
12-Jul-95	926	36	0.3589	-0.361	6.831	0.950
15-Jun-94	1000	37	0.3690	-0.334	6.908	0.951
24-Jul-97	1030	38	0.3791	-0.308	6.937	0.952

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC50	**Date:**	14-Jul-00
Chemical:	tCd	**Analyst:**	B.Walthall

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,947	2,885	2	29	0.00	0.00	0.00	
SD:	320	4,179	1	40	1.00	1.00	1.00	
CV:	0.01	1.45	0.38	1.36				first:
Min:	35,367	299	1	4.8	-0.62	-1.54	-0.61	mid:
Max:	36,453	22,900	5	209	4.79	3.23	4.49	last:
Median:	36,003	1,590	3	18	-0.31	0.12	-0.28	

tCd	**LC50**		**: Concentration v. Discharge, Q**		**Q = mTime +b**		**LnQ = mTime +b**	
Conc. = mQ+b (r2=0.137)		update r2	0.14	0.137	r2:	0.020	0.049	
r2 Q,[COC]:	0.14	[tCd]	Q		m:	-1.8513	-0.00072	
slope, m:	0.0	3	299.0		b:	69435	33.22	
intercept, b:	2.6	2	2885.4					
N: 41		1	22900					first:
LnConc. = mLn{Q}+b (r2=0.355)			update r2	0.36	0.355			mid:
r2 lnQ,ln[COC]:	0.36	ln[tCd]	ln Q	[tCd]	Q			last:
slope, m:	-0.22	1.16	5.70	3	299			
intercept, b:	2.44	0.65	7.97	2	2,885			
N: 41		0.19	10.04	1	22,900			

								tCd	for graph	
N= 43								LC50		
	Sampling Date	**Q Discharge**	**tCd Concentration**	**tCd Load**	**Ln Q**	**Ln tCd Conc.**	**Ln tCd Load**	**Standardized Values = (x - Avg)/SD**		
update for new data		**cfs**	**ug/L**	**lbs/day**				**Q**	**Conc**	**Load**
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	29-Oct-96	1670	3	27.0	7.42	1.10	3.29	-0.29	0.68	-0.06
IDEQ	26-Nov-96	828	4.1	18.3	6.72	1.41	2.90	-0.49	1.89	-0.28
IDEQ	13-Dec-96	2400	5.3	68.4	7.78	1.67	4.23	-0.12	3.23	0.97
IDEQ	29-Jan-97	1600	2.2	18.9	7.38	0.79	2.94	-0.31	-0.21	-0.26
IDEQ	21-Feb-97	3910	2.7	56.8	8.27	0.99	4.04	0.25	0.34	0.68
IDEQ	26-Mar-97	7860	1.7	71.9	8.97	0.53	4.28	1.19	-0.77	1.06
IDEQ	16-Apr-97	5050	1.2	32.6	8.53	0.18	3.48	0.52	-1.32	0.08
IDEQ	16-May-97	22900	1.7	209.4	10.04	0.53	5.34	4.79	-0.77	4.49
IDEQ	24-Jun-97	2310	1.3	16.2	7.75	0.26	2.78	-0.14	-1.21	-0.33
IDEQ	24-Jul-97	1030	2.1	11.6	6.94	0.74	2.45	-0.44	-0.32	-0.44
IDEQ	13-Aug-97	619	2.5	8.3	6.43	0.92	2.12	-0.54	0.12	-0.53
IDEQ	3-Sep-97	473	3.1	7.9	6.16	1.13	2.07	-0.58	0.79	-0.54
IDEQ	16-Oct-97	550	3.1	9.2	6.31	1.13	2.22	-0.56	0.79	-0.50
IDEQ	24-Nov-97	1420	2.1	16.0	7.26	0.74	2.78	-0.35	-0.32	-0.33
IDEQ	17-Dec-97	1390	3.7	27.7	7.24	1.31	3.32	-0.36	1.45	-0.04
IDEQ	21-Jan-98	1300	2.6	18.2	7.17	0.96	2.90	-0.38	0.23	-0.28
IDEQ	25-Feb-98	2090	1.8	20.2	7.64	0.59	3.01	-0.19	-0.65	-0.23
IDEQ	19-Mar-98	4160	1.2	26.9	8.33	0.18	3.29	0.31	-1.32	-0.06
IDEQ	23-Apr-98	6310	1.1	37.3	8.75	0.10	3.62	0.82	-1.43	0.20
IDEQ	28-May-98	7760	1.2	50.1	8.96	0.18	3.91	1.17	-1.32	0.52
IDEQ	24-Jun-98	1590	1.8	15.4	7.37	0.59	2.73	-0.31	-0.65	-0.35
IDEQ	27-Jul-98	620	2.8	9.3	6.43	1.03	2.23	-0.54	0.45	-0.50
IDEQ	25-Aug-98	435	2.8	6.6	6.08	1.03	1.88	-0.59	0.45	-0.57
IDEQ	23-Sep-98	342	3	5.5	5.83	1.10	1.71	-0.61	0.68	-0.60
USGS	22-Oct-98	343	3	5.5	5.84	1.10	1.71	-0.61	0.68	-0.60
IDEQ	26-Oct-98	299	3	4.8	5.70	1.10	1.57	-0.62	0.68	-0.61
USGS	18-Nov-98	819	3	13.2	6.71	1.10	2.58	-0.49	0.68	-0.40
IDEQ	24-Nov-98	1490	3.3	26.5	7.31	1.19	3.28	-0.33	1.01	-0.07
USGS	15-Dec-98	2390			7.78			-0.12		
IDEQ	4-Jan-99	2430	1.8	23.5	7.80	0.59	3.16	-0.11	-0.65	-0.15
IDEQ	14-Jan-99	2820	1.4	21.2	7.94	0.34	3.06	-0.02	-1.10	-0.20
USGS	27-Jan-99	2140	2	23.0	7.67	0.69	3.14	-0.18	-0.43	-0.16
USGS	9-Feb-99	1910	3	30.8	7.55	1.10	3.43	-0.23	0.68	0.04
IDEQ	23-Feb-99	1230	2.7	17.9	7.11	0.99	2.88	-0.40	0.34	-0.29
USGS	13-Apr-99	3380			8.13			0.12		
USGS	10-May-99	1710	1	9.2	7.44	0.00	2.22	-0.28	-1.54	-0.50
USGS	25-May-99	16000	2	172.2	9.68	0.69	5.15	3.14	-0.43	3.56
USGS	8-Jun-99	5130	1	27.6	8.54	0.00	3.32	0.54	-1.54	-0.05

tCd

Concentration over time analysis r2 Slope, m

tCd LC50 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.017** **-0.00016**

Time	Ln[COC]	[COC]
29-Oct-96	0.89	2
27-Jul-98	0.79	2
20-Oct-99	0.71	2

LnConc.=mTime+b >'96 r2, m: **#REF!** **#REF!**

#REF!	#REF!	#REF!
20-Oct-99	#REF!	#REF!

Load over time analysis

tCd LC50 **Load over time**

LnLoad=mTime+b All data r2, m: **0.129** **-0.00098**

Time	LnLoad	Load
29-Oct-96	3.47	32
27-Jul-98	2.84	17
20-Oct-99	2.40	11

LnLoad=mTime+b >'96 r2, m: **#REF!** **#REF!**

#REF!	#REF!	#REF!
20-Oct-99	#REF!	#REF!

max r2: 0.851 max r2: 0.918

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.017	-0.00016	6.60	0.129	-0.00098	38.28
0.010	-0.00013	5.47	0.126	-0.00101	39.21
0.001	-0.00004	2.34	0.137	-0.00110	42.37
0.007	0.00011	-3.07	0.104	-0.00097	37.89
0.009	0.00012	-3.67	0.111	-0.00105	40.62
0.018	0.00018	-5.79	0.083	-0.00093	36.20
0.012	0.00016	-4.90	0.050	-0.00073	28.97
0.001	0.00005	-1.01	0.037	-0.00065	26.23
0.000	0.00000	0.79	0.001	-0.00011	6.78
0.007	-0.00013	5.38	0.001	-0.00010	6.40
0.009	-0.00015	6.34	0.003	-0.00018	9.08
0.006	-0.00014	5.66	0.011	-0.00037	16.07
0.000	-0.00004	2.15	0.029	-0.00064	25.72
0.002	0.00008	-2.24	0.052	-0.00091	35.47
0.002	0.00009	-2.42	0.058	-0.00102	39.59
0.025	0.00033	-11.17	0.043	-0.00093	36.43
0.045	0.00048	-16.47	0.043	-0.00099	38.67
0.040	0.00048	-16.53	0.038	-0.00101	39.07
0.011	0.00025	-8.39	0.024	-0.00085	33.57
0.002	-0.00010	4.28	0.006	-0.00044	18.74
0.039	-0.00049	18.63	0.002	0.00028	-7.48
0.076	-0.00073	27.30	0.005	0.00043	-12.82
0.061	-0.00070	26.23	0.001	0.00024	-6.18
0.046	-0.00065	24.28	0.001	-0.00027	12.51
0.026	-0.00051	19.23	0.021	-0.00106	41.11
0.010	-0.00032	12.51	0.071	-0.00201	75.60
0.000	-0.00005	2.61	0.215	-0.00353	130.95
0.008	0.00032	-10.99	0.289	-0.00442	163.11
0.077	0.00105	-37.53	0.286	-0.00482	177.91
0.077	0.00105	-37.53	0.286	-0.00482	177.91
0.072	0.00111	-39.48	0.289	-0.00524	193.10
0.028	0.00074	-26.15	0.309	-0.00600	220.66
0.031	0.00088	-31.18	0.326	-0.00697	256.07
0.184	0.00247	-89.06	0.295	-0.00775	284.43
0.720	0.00640	-231.93	0.441	-0.01281	468.42
0.720	0.00640	-231.93	0.441	-0.01281	468.42
0.616	0.00558	-202.17	0.763	-0.01955	713.95
0.851	0.00807	-292.97	0.918	-0.01197	437.80

update for EV, CV:

tCd **LC50**

LN Analysis **tCd**

Load **Load Data, EV=29.4 lbs/day CV=1.36**

Load Data-based LN

Avg:	**29**	u	ln tCd Load	tCd Load
SD:	**40**	3	5.9	376
CV:	**1.36**	0	2.86	17
Min:	**4.8**	-3	-0.22	0.8
Max:	**209**			
Median:	**18**			

29 29.4
1.36 1.36

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.946, EV=27.8lbs/day CV=1.17; max r2=0.97**

r2 u,lnLoad:	0.946	u	lnLoad	Load	
slope, m:	1.077	3	5.68	292	
intercept, b:	-3.116	0	2.89	18	
N: 39		-3	0.11	1.1	
E[Load]:	27.8	Parameter Estimates			0.946
SD[Load]:	32	from LN regression			27.8
CV[Load]:	1.17	update graph label			1.2
					max r2
					0.966

N: 43

Date	tCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
26-Oct-98	4.8	1	0.0145	-2.185	1.574	0.946
23-Sep-98	5.5	2	0.0376	-1.780	1.708	0.957
22-Oct-98	5.5	3	0.0607	-1.549	1.711	0.963
20-Oct-99	5.7	4	0.0838	-1.380	1.740	0.965
22-Sep-99	5.8	5	0.1069	-1.243	1.756	0.966
25-Aug-98	6.6	6	0.1301	-1.126	1.880	0.964
1-Sep-99	7.1	7	0.1532	-1.023	1.959	0.963
3-Sep-97	7.9	8	0.1763	-0.930	2.065	0.962
13-Aug-97	8.3	9	0.1994	-0.844	2.119	0.962
13-Apr-99		10	0.2225	-0.764		
16-Oct-97	9.2	11	0.2457	-0.688	2.216	0.961
10-May-99	9.2	12	0.2688	-0.616	2.219	0.960
11-Aug-99	9.2	13	0.2919	-0.548	2.224	0.958
27-Jul-98	9.3	14	0.3150	-0.482	2.234	0.955
24-Jul-97	11.6	15	0.3382	-0.418	2.454	0.951
15-Dec-98		16	0.3613	-0.355		
13-Jul-99	13.2	17	0.3844	-0.294	2.578	0.949
18-Nov-98	13.2	18	0.4075	-0.234	2.582	0.947
24-Jun-98	15.4	19	0.4306	-0.175	2.734	0.944
24-Nov-97	16.0	20	0.4538	-0.116	2.775	0.945
24-Jun-97	16.2	21	0.4769	-0.058	2.782	0.945
23-Feb-99	17.9	22	0.5000	0.000	2.883	0.944
21-Jan-98	18.2	23	0.5231	0.058	2.901	0.946
26-Nov-96	18.3	24	0.5462	0.116	2.905	0.947
29-Jan-97	18.9	25	0.5694	0.175	2.941	0.946
25-Feb-98	20.2	26	0.5925	0.234	3.008	0.945
14-Jan-99	21.2	27	0.6156	0.294	3.056	0.945
27-Jan-99	23.0	28	0.6387	0.355	3.137	0.945
4-Jan-99	23.5	29	0.6618	0.418		
24-Nov-98	26.5	30	0.6850	0.482	3.275	0.948
19-Mar-98	26.9	31	0.7081	0.548	3.291	0.954
29-Oct-96	27.0	32	0.7312	0.616	3.294	0.959
8-Jun-99	27.6	33	0.7543	0.688	3.318	0.960
17-Dec-97	27.7	34	0.7775	0.764	3.320	0.957
9-Feb-99	30.8	35	0.8006	0.844		
16-Apr-97	32.6	36	0.8237	0.930	3.484	0.947
23-Apr-98	37.3	37	0.8468	1.023	3.620	0.934
28-May-98	50.1	38	0.8699	1.126	3.914	0.914

update for EV, CV:

tCd		**LC50**		2	2.39
LN Analysis		**tCd**		0.38	0.377
Concentration		**Conc. Data, EV=2.39 ug/L CV=0.377**			
Avg:	**2**	**Data-based LN**			
SD:	**1**	u	ln[tCd]	[tCd]	
CV:	**0.38**	3	1.9	7	
Min:	**1**	0	0.80	2	
Max:	**5**	-3	-0.29	1	
Median:	**3**				

				0.935	0.935
	u=mLn{Conc.}+b:			2.4	2.36
update for r2, EV, CV:	**r2=0.935, EV=2.36 ug/L CV=0.494; max r2=0.997**			0.494	0.494
	r2 u,lnConc:	0.935	u	lnConc.	Conc.
	slope, m:	2.141	3	2.15	9
	intercept, b:	-1.608	0	0.75	2
	N: 41		-3	-0.65	1
0.946	E[Conc]:	2.4	Parameter Estimates		
27.8	SD[Conc]:	1	from LN regression		
1.17	CV[Conc]:	0.49	update graph label		

						max r2
	tCd	N: 43				0.997
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
13-Apr-99		1	0.0145	-2.185		
15-Dec-98		2	0.0376	-1.780		
10-May-99	1	3	0.0607	-1.549	0.000	0.935
8-Jun-99	1	4	0.0838	-1.380	0.000	0.929
23-Apr-98	1.1	5	0.1069	-1.243	0.095	0.925
16-Apr-97	1.2	6	0.1301	-1.126	0.182	0.921
19-Mar-98	1.2	7	0.1532	-1.023	0.182	0.916
28-May-98	1.2	8	0.1763	-0.930	0.182	0.914
24-Jun-97	1.3	9	0.1994	-0.844	0.262	0.918
14-Jan-99	1.4	10	0.2225	-0.764	0.336	0.922
26-Mar-97	1.7	11	0.2457	-0.688	0.531	0.926
16-May-97	1.7	12	0.2688	-0.616	0.531	0.921
13-Jul-99	1.7	13	0.2919	-0.548	0.531	0.915
25-Feb-98	1.8	14	0.3150	-0.482	0.588	0.911
24-Jun-98	1.8	15	0.3382	-0.418	0.588	0.905
4-Jan-99	1.8	16	0.3613	-0.355	0.588	0.902
27-Jan-99	2	17	0.3844	-0.294	0.693	0.903
25-May-99	2	18	0.4075	-0.234	0.693	0.897
24-Jul-97	2.1	19	0.4306	-0.175	0.742	0.893
24-Nov-97	2.1	20	0.4538	-0.116	0.742	0.886
29-Jan-97	2.2	21	0.4769	-0.058	0.788	0.883
11-Aug-99	2.4	22	0.5000	0.000	0.875	0.878
13-Aug-97	2.5	23	0.5231	0.058	0.916	0.867
21-Jan-98	2.6	24	0.5462	0.116	0.956	0.856
21-Feb-97	2.7	25	0.5694	0.175	0.993	0.847
23-Feb-99	2.7	26	0.5925	0.234	0.993	0.845
27-Jul-98	2.8	27	0.6156	0.294	1.030	0.839
25-Aug-98	2.8	28	0.6387	0.355	1.030	0.843
1-Sep-99	2.8	29	0.6618	0.418	1.030	0.844
22-Sep-99	2.9	30	0.6850	0.482	1.065	0.842
20-Oct-99	2.9	31	0.7081	0.548	1.065	0.852
29-Oct-96	3	32	0.7312	0.616	1.099	0.859
23-Sep-98	3	33	0.7543	0.688	1.099	0.884
22-Oct-98	3	34	0.7775	0.764	1.099	0.909
26-Oct-98	3	35	0.8006	0.844	1.099	0.934
18-Nov-98	3	36	0.8237	0.930	1.099	0.956
9-Feb-99	3	37	0.8468	1.023	1.099	0.973
3-Sep-97	3.1	38	0.8699	1.126	1.131	0.982

update for EV, CV:

tCd		**LC50**			2,885	2890
LN Analysis		**tCd**			1.45	1.45
Discharge, Q		**Q Data, EV=2890 cfs CV=1.45**				
Avg:	**2,885**	**Q Data-based LN**				
SD:	**4,179**	u	lnQ	Q		
CV:	**1.45**	3	10.6	39812		
Min:	**299**	0	7.40	1640		
Max:	**22,900**	-3	4.21	68		
Median:	**1,590**					

					0.972	0.972
					2876.3	2880
u=mLn{Q}+b:					1.52	1.52
update for r2, EV, CV:	**r2=0.972, EV=2880 cfs CV=1.52; max r2=0.99**					
r2 u,lnQ:	0.972	u	lnQ	Q		
slope, m:	0.915	3	10.65	42039		
intercept, b:	-6.739	0	7.37	1582		
N: 43		-3	4.09	60		
E[Q]:	2876.3	Parameter Estimates				
SD[Q]:	4366	from LN regression				
CV[Q]:	1.52	update graph label				

						max r2
		N: 43				0.987
	Q					
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
26-Oct-98	299	1	0.0145	-2.185	5.700	0.972
23-Sep-98	342	2	0.0376	-1.780	5.835	0.981
22-Oct-98	343	3	0.0607	-1.549	5.838	0.986
20-Oct-99	365	4	0.0838	-1.380	5.900	0.987
22-Sep-99	371	5	0.1069	-1.243	5.916	0.986
25-Aug-98	435	6	0.1301	-1.126	6.075	0.985
1-Sep-99	471	7	0.1532	-1.023	6.155	0.984
3-Sep-97	473	8	0.1763	-0.930	6.159	0.983
16-Oct-97	550	9	0.1994	-0.844	6.310	0.982
13-Aug-97	619	10	0.2225	-0.764	6.428	0.981
27-Jul-98	620	11	0.2457	-0.688	6.430	0.979
11-Aug-99	716	12	0.2688	-0.616	6.574	0.978
18-Nov-98	819	13	0.2919	-0.548	6.708	0.976
26-Nov-96	828	14	0.3150	-0.482	6.719	0.975
24-Jul-97	1030	15	0.3382	-0.418	6.937	0.973
23-Feb-99	1230	16	0.3613	-0.355	7.115	0.971
21-Jan-98	1300	17	0.3844	-0.294	7.170	0.973
17-Dec-97	1390	18	0.4075	-0.234	7.237	0.974
24-Nov-97	1420	19	0.4306	-0.175	7.258	0.977
13-Jul-99	1440	20	0.4538	-0.116	7.272	0.979
24-Nov-98	1490	21	0.4769	-0.058	7.307	0.980
24-Jun-98	1590	22	0.5000	0.000	7.371	0.981
29-Jan-97	1600	23	0.5231	0.058	7.378	0.982
29-Oct-96	1670	24	0.5462	0.116	7.421	0.982
10-May-99	1710	25	0.5694	0.175	7.444	0.982
9-Feb-99	1910	26	0.5925	0.234	7.555	0.981
25-Feb-98	2090	27	0.6156	0.294	7.645	0.981
27-Jan-99	2140	28	0.6387	0.355	7.669	0.982
24-Jun-97	2310	29	0.6618	0.418	7.745	0.982
15-Dec-98	2390	30	0.6850	0.482	7.779	0.983
13-Dec-96	2400	31	0.7081	0.548	7.783	0.982
4-Jan-99	2430	32	0.7312	0.616	7.796	0.980
14-Jan-99	2820	33	0.7543	0.688	7.944	0.977
13-Apr-99	3380	34	0.7775	0.764	8.126	0.974
21-Feb-97	3910	35	0.8006	0.844	8.271	0.969
19-Mar-98	4160	36	0.8237	0.930	8.333	0.965
16-Apr-97	5050	37	0.8468	1.023	8.527	0.957
8-Jun-99	5130	38	0.8699	1.126	8.543	0.955

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC50	**Date:**	14-Jul-00
Chemical:	tPb	**Analyst:**	B.Walthall

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,951	2,874	25	1,639	0.00	0.00	0.00	
SD:	317	4,131	61	7,061	1.00	1.00	1.00	
CV:	0.01	1.44	2.39	4.31				first:
Min:	35,367	299	4	9.6	-0.62	-0.35	-0.23	mid:
Max:	36,453	22,900	355	43,737	4.85	5.44	5.96	last:
Median:	36,018	1,595	9	75	-0.31	-0.27	-0.22	

tPb **LC50** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.86) update r2 0.86 0.86

r2 Q,[COC]:	0.86	[tPb]	Q	r2:	0.020	0.046
slope, m:	0.0	-10	299.0	m:	-1.8570	-0.00070
intercept, b:	-13.8	25	2874.1	b:	69636	32.37
N: 44		298	22900			

first:

LnConc. = mLn{Q}+b (r2=0.494) update r2 0.49 0.494

mid:

r2 lnQ,ln[COC]:	0.49	ln[tPb]	ln Q	[tPb]	Q
slope, m:	0.61	1.47	5.70	4	299
intercept, b:	-1.98	2.84	7.96	17	2,874
N: 44		4.10	10.04	60	22,900

last:

tPb for graph
LC50 0

N= 44

	Sampling Date	Q Discharge	tPb Concentration	tPb Load	Ln Q	Ln tPb Conc.	Ln tPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data		cfs	ug/L	lbs/day						
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	29-Oct-96	1670	9	80.9	7.42	2.20	4.39	-0.29	-0.27	-0.22
IDEQ	26-Nov-96	828	9	40.1	6.72	2.20	3.69	-0.50	-0.27	-0.23
IDEQ	13-Dec-96	2400	15	193.7	7.78	2.71	5.27	-0.11	-0.17	-0.20
IDEQ	29-Jan-97	1600	8	68.9	7.38	2.08	4.23	-0.31	-0.29	-0.22
IDEQ	21-Feb-97	3910	21	441.8	8.27	3.04	6.09	0.25	-0.07	-0.17
IDEQ	26-Mar-97	7860	27	1141.7	8.97	3.30	7.04	1.21	0.03	-0.07
IDEQ	16-Apr-97	5050	20	543.4	8.53	3.00	6.30	0.53	-0.09	-0.16
IDEQ	16-May-97	22900	355	43736.7	10.04	5.87	10.69	4.85	5.44	5.96
IDEQ	24-Jun-97	2310	22	273.4	7.75	3.09	5.61	-0.14	-0.05	-0.19
IDEQ	24-Jul-97	1030	13	72.0	6.94	2.56	4.28	-0.45	-0.20	-0.22
IDEQ	13-Aug-97	619	9	30.0	6.43	2.20	3.40	-0.55	-0.27	-0.23
IDEQ	3-Sep-97	473	14	35.6	6.16	2.64	3.57	-0.58	-0.19	-0.23
IDEQ	16-Oct-97	550	8	23.7	6.31	2.08	3.16	-0.56	-0.29	-0.23
IDEQ	24-Nov-97	1420	11	84.0	7.26	2.40	4.43	-0.35	-0.24	-0.22
IDEQ	17-Dec-97	1390	46	344.0	7.24	3.83	5.84	-0.36	0.34	-0.18
IDEQ	21-Jan-98	1300	10	69.9	7.17	2.30	4.25	-0.38	-0.25	-0.22
IDEQ	25-Feb-98	2090	7	78.7	7.64	1.95	4.37	-0.19	-0.30	-0.22
IDEQ	19-Mar-98	4160	15	335.7	8.33	2.71	5.82	0.31	-0.17	-0.18
IDEQ	23-Apr-98	6310	46	1561.6	8.75	3.83	7.35	0.83	0.34	-0.01
IDEQ	28-May-98	7760	37	1544.7	8.96	3.61	7.34	1.18	0.19	-0.01
IDEQ	24-Jun-98	1590	7	59.9	7.37	1.95	4.09	-0.31	-0.30	-0.22
IDEQ	27-Jul-98	620	7	23.3	6.43	1.95	3.15	-0.55	-0.30	-0.23
IDEQ	25-Aug-98	435	8	18.7	6.08	2.08	2.93	-0.59	-0.29	-0.23
IDEQ	23-Sep-98	342	7	12.9	5.83	1.95	2.56	-0.61	-0.30	-0.23
USGS	22-Oct-98	343	6	11.1	5.84	1.79	2.40	-0.61	-0.32	-0.23
IDEQ	26-Oct-98	299	9	14.5	5.70	2.20	2.67	-0.62	-0.27	-0.23
USGS	18-Nov-98	819	9	39.7	6.71	2.20	3.68	-0.50	-0.27	-0.23
IDEQ	24-Nov-98	1490	12	96.2	7.31	2.48	4.57	-0.34	-0.22	-0.22
USGS	15-Dec-98	2390	8	102.9	7.78	2.08	4.63	-0.12	-0.29	-0.22
USGS	15-Dec-98	2390	9	115.7	7.78	2.20	4.75	-0.12	-0.27	-0.22
IDEQ	4-Jan-99	2430	7	91.5	7.80	1.95	4.52	-0.11	-0.30	-0.22
IDEQ	14-Jan-99	2820	7	106.2	7.94	1.95	4.67	-0.01	-0.30	-0.22
USGS	27-Jan-99	2140	4	46.1	7.67	1.39	3.83	-0.18	-0.35	-0.23
USGS	9-Feb-99	1910	5	51.4	7.55	1.61	3.94	-0.23	-0.34	-0.22
IDEQ	23-Feb-99	1230	10	66.2	7.11	2.30	4.19	-0.40	-0.25	-0.22
USGS	13-Apr-99	3380	6	109.1	8.13	1.79	4.69	0.12	-0.32	-0.22
USGS	10-May-99	1710	10	92.0	7.44	2.30	4.52	-0.28	-0.25	-0.22
USGS	25-May-99	16000	230	19798.4	9.68	5.44	9.89	3.18	3.38	2.57

tPb

Concentration over time analysis r2 Slope, m

tPb LC50 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.091** **-0.00085**

Time	Ln[COC]	[COC]
29-Oct-96	2.98	20
10-Aug-98	2.43	11
20-Oct-99	2.06	8

LnConc.=mTime+b >'96 r2, m: **#REF!** **#REF!**

#REF!	#REF!	#REF!
20-Oct-99	#REF!	#REF!

Load over time analysis

tPb LC50 **Load over time**

LnLoad=mTime+b All data r2, m: **0.076** **-0.00154**

Time	LnLoad	Load
29-Oct-96	5.54	254
10-Aug-98	4.54	93
20-Oct-99	3.86	48

LnLoad=mTime+b >'96 r2, m: **#REF!** **#REF!**

#REF!	#REF!	#REF!
20-Oct-99	#REF!	#REF!

max r2: 0.966 max r2: 0.930

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.091	-0.00085	32.93	0.076	-0.00154	60.08
0.109	-0.00096	37.09	0.086	-0.00171	66.15
0.129	-0.00109	41.84	0.110	-0.00201	76.98
0.134	-0.00116	44.36	0.110	-0.00210	80.29
0.164	-0.00134	50.91	0.128	-0.00237	90.02
0.158	-0.00138	52.04	0.115	-0.00234	88.74
0.142	-0.00135	51.24	0.087	-0.00209	79.79
0.135	-0.00139	52.40	0.069	-0.00193	74.26
0.054	-0.00074	28.99	0.012	-0.00070	29.63
0.037	-0.00064	25.45	0.005	-0.00047	21.11
0.035	-0.00066	25.99	0.006	-0.00053	23.36
0.044	-0.00078	30.48	0.013	-0.00086	35.53
0.040	-0.00079	30.82	0.024	-0.00124	49.06
0.055	-0.00099	37.93	0.047	-0.00183	70.42
0.060	-0.00110	41.97	0.053	-0.00206	78.99
0.020	-0.00064	25.37	0.035	-0.00177	68.30
0.022	-0.00072	28.50	0.042	-0.00208	79.43
0.037	-0.00099	38.21	0.047	-0.00238	90.28
0.028	-0.00093	35.96	0.029	-0.00197	75.57
0.001	-0.00019	9.11	0.002	-0.00053	23.30
0.013	0.00062	-20.31	0.013	0.00130	-43.14
0.009	0.00058	-18.71	0.015	0.00154	-51.61
0.006	0.00051	-16.25	0.008	0.00116	-37.95
0.006	0.00051	-16.22	0.001	0.00052	-14.69
0.003	0.00040	-12.41	0.001	-0.00052	23.01
0.001	0.00017	-3.94	0.016	-0.00180	69.70
0.000	0.00018	-4.14	0.049	-0.00331	124.54
0.000	0.00018	-4.27	0.074	-0.00426	159.05
0.003	0.00045	-14.08	0.080	-0.00471	175.44
0.002	0.00039	-11.86	0.084	-0.00512	190.13
0.002	0.00044	-13.68	0.086	-0.00559	207.13
0.000	0.00016	-3.69	0.096	-0.00639	236.42
0.000	-0.00026	11.81	0.103	-0.00729	269.10
0.026	-0.00208	77.93	0.163	-0.01025	376.92
0.105	-0.00477	175.61	0.263	-0.01508	552.48
0.180	-0.00770	282.27	0.440	-0.02407	879.61
0.404	-0.01332	486.89	0.579	-0.03252	1187.23
0.617	-0.01926	703.13	0.785	-0.04439	1619.25

update for EV, CV:

tPb **LC50**
LN Analysis **tPb**

Load **Load Data, EV=1640 lbs/day CV=4.31**

Load Data-based LN

		u	ln tPb Load	tPb Load
Avg:	**1,639**			
SD:	**7,061**	3	11.1	65404
CV:	**4.31**	0	5.92	371
Min:	**9.6**	-3	0.74	2.1
Max:	**43,737**			
Median:	**75**			

1,639 1640
4.31 4.31

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.872, EV=708lbs/day CV=6.78; max r2=0.95**

r2 u,lnLoad:	0.872	u	lnLoad	Load	
slope, m:	0.510	3	10.52	37195	
intercept, b:	-2.364	0	4.64	103	
N: 44		-3	-1.25	0.3	
E[Load]:	708.1	Parameter Estimates			0.872
SD[Load]:	4802	from LN regression			708.1
CV[Load]:	6.78	update graph label			6.8
					max r2
		N: 44			0.946

Date	tPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
20-Oct-99	9.6	1	0.0141	-2.194	2.264	0.872
22-Oct-98	11.1	2	0.0367	-1.790	2.404	0.884
22-Sep-99	11.4	3	0.0593	-1.560	2.432	0.888
23-Sep-98	12.9	4	0.0819	-1.392	2.556	0.888
26-Oct-98	14.5	5	0.1045	-1.256	2.673	0.887
1-Sep-99	17.7	6	0.1271	-1.140	2.876	0.886
25-Aug-98	18.7	7	0.1497	-1.038	2.930	0.885
27-Jul-98	23.3	8	0.1723	-0.945	3.151	0.883
16-Oct-97	23.7	9	0.1949	-0.860	3.164	0.883
11-Aug-99	27.3	10	0.2175	-0.781	3.309	0.882
13-Aug-97	30.0	11	0.2401	-0.706	3.400	0.881
3-Sep-97	35.6	12	0.2627	-0.635	3.573	0.881
18-Nov-98	39.7	13	0.2853	-0.567	3.680	0.882
26-Nov-96	40.1	14	0.3079	-0.502	3.691	0.883
27-Jan-99	46.1	15	0.3305	-0.439	3.830	0.884
9-Feb-99	51.4	16	0.3531	-0.377	3.939	0.886
24-Jun-98	59.9	17	0.3757	-0.317	4.092	0.889
23-Feb-99	66.2	18	0.3983	-0.258	4.192	0.894
29-Jan-97	68.9	19	0.4209	-0.200	4.232	0.901
21-Jan-98	69.9	20	0.4435	-0.142	4.248	0.908
24-Jul-97	72.0	21	0.4661	-0.085	4.277	0.914
13-Jul-99	72.0	22	0.4887	-0.028	4.277	0.920
25-Feb-98	78.7	23	0.5113	0.028	4.366	0.925
29-Oct-96	80.9	24	0.5339	0.085	4.393	0.930
24-Nov-97	84.0	25	0.5565	0.142	4.431	0.935
4-Jan-99	91.5	26	0.5791	0.200	4.516	0.939
10-May-99	92.0	27	0.6017	0.258	4.522	0.943
24-Nov-98	96.2	28	0.6243	0.317	4.566	0.945
15-Dec-98	102.9	29	0.6469	0.377	4.633	0.946
14-Jan-99	106.2	30	0.6695	0.439	4.665	0.946
13-Apr-99	109.1	31	0.6921	0.502	4.692	0.943
15-Dec-98	115.7	32	0.7147	0.567	4.751	0.937
13-Dec-96	193.7	33	0.7373	0.635	5.266	0.928
24-Jun-97	273.4	34	0.7599	0.706	5.611	0.924
19-Mar-98	335.7	35	0.7825	0.781	5.816	0.925
17-Dec-97	344.0	36	0.8051	0.860	5.841	0.930
8-Jun-99	441.6	37	0.8277	0.945	6.090	0.929
21-Feb-97	441.8	38	0.8503	1.038	6.091	0.930

update for EV, CV:

tPb		**LC50**		25	25.3
LN Analysis		**tPb**		2.39	2.39
Concentration		**Conc. Data, EV=25.3 ug/L CV=2.39**			
Avg:	**25**	**Data-based LN**			
SD:	**61**	u	ln[tPb]	[tPb]	
CV:	**2.39**	3	6.4	614	
Min:	**4**	0	2.28	10	
Max:	**355**	-3	-1.87	0	
Median:	**9**				

				0.760	0.76
	u=mLn{Conc.}+b:			20.9	20.9
update for r2, EV, CV:	**r2=0.76, EV=20.9 ug/L CV=1.43; max r2=0.93**			1.426	1.43
	r2 u,lnConc:	0.760	u	lnConc.	Conc.
	slope, m:	0.949	3	5.65	283
	intercept, b:	-2.361	0	2.49	12
	N: 44		-3	-0.67	1
0.872	E[Conc]:	20.9	Parameter Estimates		
708	SD[Conc]:	30	from LN regression		
6.78	CV[Conc]:	1.43	update graph label		

						max r2
	tPb	N: 44				0.929
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
27-Jan-99	4	1	0.0141	-2.194	1.386	0.760
20-Oct-99	4.9	2	0.0367	-1.790	1.589	0.766
9-Feb-99	5	3	0.0593	-1.560	1.609	0.774
22-Sep-99	5.7	4	0.0819	-1.392	1.740	0.777
22-Oct-98	6	5	0.1045	-1.256	1.792	0.784
13-Apr-99	6	6	0.1271	-1.140	1.792	0.791
25-Feb-98	7	7	0.1497	-1.038	1.946	0.796
24-Jun-98	7	8	0.1723	-0.945	1.946	0.806
27-Jul-98	7	9	0.1949	-0.860	1.946	0.816
23-Sep-98	7	10	0.2175	-0.781	1.946	0.824
4-Jan-99	7	11	0.2401	-0.706	1.946	0.832
14-Jan-99	7	12	0.2627	-0.635	1.946	0.838
1-Sep-99	7	13	0.2853	-0.567	1.946	0.843
11-Aug-99	7.1	14	0.3079	-0.502	1.960	0.847
29-Jan-97	8	15	0.3305	-0.439	2.079	0.850
16-Oct-97	8	16	0.3531	-0.377	2.079	0.857
25-Aug-98	8	17	0.3757	-0.317	2.079	0.864
15-Dec-98	8	18	0.3983	-0.258	2.079	0.869
29-Oct-96	9	19	0.4209	-0.200	2.197	0.874
26-Nov-96	9	20	0.4435	-0.142	2.197	0.883
13-Aug-97	9	21	0.4661	-0.085	2.197	0.891
26-Oct-98	9	22	0.4887	-0.028	2.197	0.898
18-Nov-98	9	23	0.5113	0.028	2.197	0.904
15-Dec-98	9	24	0.5339	0.085	2.197	0.908
13-Jul-99	9.3	25	0.5565	0.142	2.230	0.911
21-Jan-98	10	26	0.5791	0.200	2.303	0.913
23-Feb-99	10	27	0.6017	0.258	2.303	0.917
10-May-99	10	28	0.6243	0.317	2.303	0.919
24-Nov-97	11	29	0.6469	0.377	2.398	0.918
24-Nov-98	12	30	0.6695	0.439	2.485	0.918
24-Jul-97	13	31	0.6921	0.502	2.565	0.919
3-Sep-97	14	32	0.7147	0.567	2.639	0.922
13-Dec-96	15	33	0.7373	0.635	2.708	0.925
19-Mar-98	15	34	0.7599	0.706	2.708	0.929
8-Jun-99	16	35	0.7825	0.781	2.773	0.927
16-Apr-97	20	36	0.8051	0.860	2.996	0.922
21-Feb-97	21	37	0.8277	0.945	3.045	0.925
24-Jun-97	22	38	0.8503	1.038	3.091	0.921

update for EV, CV:

tPb		**LC50**			2,874	2870
LN Analysis		**tPb**			1.44	1.44
Discharge, Q		**Q Data, EV=2870 cfs CV=1.44**				
Avg:	**2,874**	**Q Data-based LN**				
SD:	**4,131**	u	lnQ	Q		
CV:	**1.44**	3	10.6	39295		
Min:	**299**	0	7.40	1641		
Max:	**22,900**	-3	4.23	69		
Median:	**1,595**					

					0.972	0.972
					2867.4	2870
u=mLn{Q}+b:					1.49	1.49
update for r2, EV, CV:	**r2=0.972, EV=2870 cfs CV=1.49; max r2=0.99**					
r2 u,lnQ:	0.972	u	lnQ	Q		
slope, m:	0.924	3	10.62	40998		
intercept, b:	-6.819	0	7.38	1597		
N: 44		-3	4.13	62		
E[Q]:	2867.4	Parameter Estimates				
SD[Q]:	4275	from LN regression				
CV[Q]:	1.49	update graph label				

						max r2
		N: 44				0.985
	Q					
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
26-Oct-98	299	1	0.0141	-2.194	5.700	0.972
23-Sep-98	342	2	0.0367	-1.790	5.835	0.981
22-Oct-98	343	3	0.0593	-1.560	5.838	0.985
20-Oct-99	365	4	0.0819	-1.392	5.900	0.985
22-Sep-99	371	5	0.1045	-1.256	5.916	0.985
25-Aug-98	435	6	0.1271	-1.140	6.075	0.983
1-Sep-99	471	7	0.1497	-1.038	6.155	0.982
3-Sep-97	473	8	0.1723	-0.945	6.159	0.981
16-Oct-97	550	9	0.1949	-0.860	6.310	0.980
13-Aug-97	619	10	0.2175	-0.781	6.428	0.978
27-Jul-98	620	11	0.2401	-0.706	6.430	0.977
11-Aug-99	716	12	0.2627	-0.635	6.574	0.975
18-Nov-98	819	13	0.2853	-0.567	6.708	0.974
26-Nov-96	828	14	0.3079	-0.502	6.719	0.972
24-Jul-97	1030	15	0.3305	-0.439	6.937	0.970
23-Feb-99	1230	16	0.3531	-0.377	7.115	0.968
21-Jan-98	1300	17	0.3757	-0.317	7.170	0.969
17-Dec-97	1390	18	0.3983	-0.258	7.237	0.970
24-Nov-97	1420	19	0.4209	-0.200	7.258	0.972
13-Jul-99	1440	20	0.4435	-0.142	7.272	0.974
24-Nov-98	1490	21	0.4661	-0.085	7.307	0.975
24-Jun-98	1590	22	0.4887	-0.028	7.371	0.975
29-Jan-97	1600	23	0.5113	0.028	7.378	0.976
29-Oct-96	1670	24	0.5339	0.085	7.421	0.976
10-May-99	1710	25	0.5565	0.142	7.444	0.976
9-Feb-99	1910	26	0.5791	0.200	7.555	0.975
25-Feb-98	2090	27	0.6017	0.258	7.645	0.975
27-Jan-99	2140	28	0.6243	0.317	7.669	0.977
24-Jun-97	2310	29	0.6469	0.377	7.745	0.979
15-Dec-98	2390	30	0.6695	0.439	7.779	0.981
15-Dec-98	2390	31	0.6921	0.502	7.779	0.983
13-Dec-96	2400	32	0.7147	0.567	7.783	0.982
4-Jan-99	2430	33	0.7373	0.635	7.796	0.979
14-Jan-99	2820	34	0.7599	0.706	7.944	0.978
13-Apr-99	3380	35	0.7825	0.781	8.126	0.974
21-Feb-97	3910	36	0.8051	0.860	8.271	0.969
19-Mar-98	4160	37	0.8277	0.945	8.333	0.965
16-Apr-97	5050	38	0.8503	1.038	8.527	0.957

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC50	**Date:**	14-Jul-00
Chemical:	tZn	**Analyst:**	B.Walthall

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,947	2,885	380	4,310	0.00	0.00	0.00	
SD:	320	4,179	160	6,064	1.00	1.00	1.00	
CV:	0.01	1.45	0.42	1.41				first:
Min:	35,367	299	110	977.9	-0.62	-1.68	-0.55	mid:
Max:	36,453	22,900	668	38,562	4.79	1.80	5.65	last:
Median:	36,003	1,590	354	2,976	-0.31	-0.16	-0.22	

tZn LC50 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.192)		update r2	0.19	0.192	r2:	0.020	0.049	
r2 Q,[COC]:	0.19	[tZn]	Q		m:	-1.8513	-0.00072	
slope, m:	0.0	423	299.0		b:	69435	33.22	
intercept, b:	428.2	380	2885.4					
N: 43		42	22900					first:
LnConc. = mLn{Q}+b (r2=0.544)		update r2	0.54	0.544				mid:
r2 lnQ,ln[COC]:	0.54	ln[tZn]	ln Q	[tZn]	Q			last:
slope, m:	-0.33	6.39	5.70	596	299			
intercept, b:	8.28	5.64	7.97	281	2,885			
N: 43		4.95	10.04	141	22,900			

N= 43

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	tZn LC50 Standardized Values = (x - Avg)/SD Q	for graph 0 Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	29-Oct-96	1670	593	5327.9	7.42	6.39	8.58	-0.29	1.33	0.17
IDEQ	26-Nov-96	828	668	2975.7	6.72	6.50	8.00	-0.49	1.80	-0.22
IDEQ	13-Dec-96	2400	538	6946.7	7.78	6.29	8.85	-0.12	0.99	0.43
IDEQ	29-Jan-97	1600	427	3675.6	7.38	6.06	8.21	-0.31	0.30	-0.10
IDEQ	21-Feb-97	3910	338	7110.1	8.27	5.82	8.87	0.25	-0.26	0.46
IDEQ	26-Mar-97	7860	243	10275.7	8.97	5.49	9.24	1.19	-0.85	0.98
IDEQ	16-Apr-97	5050	219	5950.0	8.53	5.39	8.69	0.52	-1.00	0.27
IDEQ	16-May-97	22900	313	38562.2	10.04	5.75	10.56	4.79	-0.41	5.65
IDEQ	24-Jun-97	2310	260	3231.2	7.75	5.56	8.08	-0.14	-0.75	-0.18
IDEQ	24-Jul-97	1030	441	2443.8	6.94	6.09	7.80	-0.44	0.38	-0.31
IDEQ	13-Aug-97	619	624	2078.1	6.43	6.44	7.64	-0.54	1.52	-0.37
IDEQ	3-Sep-97	473	652	1659.2	6.16	6.48	7.41	-0.58	1.70	-0.44
IDEQ	16-Oct-97	550	554	1639.3	6.31	6.32	7.40	-0.56	1.09	-0.44
IDEQ	24-Nov-97	1420	354	2704.4	7.26	5.87	7.90	-0.35	-0.16	-0.26
IDEQ	17-Dec-97	1390	430	3215.6	7.24	6.06	8.08	-0.36	0.31	-0.18
IDEQ	21-Jan-98	1300	410	2867.5	7.17	6.02	7.96	-0.38	0.19	-0.24
IDEQ	25-Feb-98	2090	274	3080.9	7.64	5.61	8.03	-0.19	-0.66	-0.20
IDEQ	19-Mar-98	4160	196	4386.6	8.33	5.28	8.39	0.31	-1.14	0.01
IDEQ	23-Apr-98	6310	151	5126.1	8.75	5.02	8.54	0.82	-1.42	0.13
IDEQ	28-May-98	7760	162	6763.3	8.96	5.09	8.82	1.17	-1.36	0.40
IDEQ	24-Jun-98	1590	309	2643.2	7.37	5.73	7.88	-0.31	-0.44	-0.27
IDEQ	27-Jul-98	620	518	1727.8	6.43	6.25	7.45	-0.54	0.86	-0.43
IDEQ	25-Aug-98	435	549	1284.8	6.08	6.31	7.16	-0.59	1.06	-0.50
IDEQ	23-Sep-98	342	619	1138.9	5.83	6.43	7.04	-0.61	1.49	-0.52
USGS	22-Oct-98	343	630	1162.6	5.84	6.45	7.06	-0.61	1.56	-0.52
IDEQ	26-Oct-98	299	612	984.5	5.70	6.42	6.89	-0.62	1.45	-0.55
USGS	18-Nov-98	819	450	1982.8	6.71	6.11	7.59	-0.49	0.44	-0.38
IDEQ	24-Nov-98	1490	375	3006.1	7.31	5.93	8.01	-0.33	-0.03	-0.21
USGS	15-Dec-98	2390	250	3214.6	7.78	5.52	8.08	-0.12	-0.81	-0.18
IDEQ	4-Jan-99	2430	218	2850.0	7.80	5.38	7.96	-0.11	-1.01	-0.24
IDEQ	14-Jan-99	2820	239	3626.0	7.94	5.48	8.20	-0.02	-0.88	-0.11
USGS	27-Jan-99	2140	270	3108.6	7.67	5.60	8.04	-0.18	-0.68	-0.20
USGS	9-Feb-99	1910	330	3391.0	7.55	5.80	8.13	-0.23	-0.31	-0.15
IDEQ	23-Feb-99	1230	353	2335.9	7.11	5.87	7.76	-0.40	-0.17	-0.33
USGS	13-Apr-99	3380	200	3636.9	8.13	5.30	8.20	0.12	-1.12	-0.11
USGS	10-May-99	1710	110	1012.0	7.44	4.70	6.92	-0.28	-1.68	-0.54
USGS	25-May-99	16000	210	18076.8	9.68	5.35	9.80	3.14	-1.06	2.27
USGS	8-Jun-99	5130	130	3587.9	8.54	4.87	8.19	0.54	-1.56	-0.12

tZn

Concentration over time analysis

			r2	Slope, m
tZn	**LC50**		**Concentration over time**	
LnConc.=mTime+b All data r2, m:			**0.068**	**-0.00038**
Time	**Ln[COC]**	**[COC]**		
29-Oct-96	6.06	428		
27-Jul-98	5.82	336		
20-Oct-99	5.64	283		
LnConc.=mTime+b >'96 r2, m:			**#REF!**	**#REF!**
#REF!	#REF!	#REF!		
20-Oct-99	#REF!	#REF!		

Load over time analysis

tZn	**LC50**		**Load over time**	
LnLoad=mTime+b All data r2, m:			**0.212**	**-0.00110**
Time	**LnLoad**	**Load**		
29-Oct-96	8.62	5,533		
27-Jul-98	7.92	2,745		
20-Oct-99	7.42	1,672		
LnLoad=mTime+b >'96 r2, m:			**#REF!**	**#REF!**
#REF!	#REF!	#REF!		
20-Oct-99	#REF!	#REF!		

max r2: 0.881

Forward time Regression on Ln Concentration(t)

r2	**slope**	**intercept**
only on >4 data points: delete last 4 rows		
0.068	-0.00038	19.60
0.050	-0.00034	17.87
0.029	-0.00026	15.12
0.016	-0.00020	13.06
0.011	-0.00018	12.09
0.012	-0.00019	12.48
0.022	-0.00026	15.29
0.041	-0.00038	19.53
0.049	-0.00044	21.60
0.070	-0.00055	25.60
0.061	-0.00054	25.28
0.035	-0.00042	21.04
0.012	-0.00025	14.88
0.002	-0.00009	9.14
0.001	-0.00006	7.97
0.001	0.00006	3.49
0.005	0.00020	-1.44
0.003	0.00018	-0.62
0.000	-0.00004	7.14
0.019	-0.00047	22.64
0.075	-0.00096	40.58
0.094	-0.00116	47.83
0.067	-0.00103	42.95
0.037	-0.00079	34.47
0.009	-0.00040	20.15
0.000	0.00009	2.35
0.034	0.00075	-21.50
0.094	0.00128	-40.85
0.173	0.00184	-61.24
0.187	0.00207	-69.53
0.174	0.00215	-72.37
0.178	0.00238	-80.88
0.217	0.00295	-101.49
0.368	0.00444	-155.60
0.771	0.00782	-278.72
0.876	0.00966	-345.61
0.835	0.00879	-314.17
0.881	0.01050	-376.24

max r2: 0.914

Forward time Regression on Ln Load(t)

r2	**slope**	**intercept**
only on >4 data points: delete last 4 rows		
0.212	-0.00110	47.60
0.200	-0.00111	47.79
0.216	-0.00120	51.13
0.192	-0.00116	49.87
0.195	-0.00123	52.07
0.168	-0.00117	50.05
0.126	-0.00102	44.70
0.103	-0.00095	42.23
0.029	-0.00042	23.08
0.023	-0.00040	22.06
0.024	-0.00043	23.38
0.032	-0.00052	26.70
0.052	-0.00071	33.59
0.082	-0.00095	41.94
0.086	-0.00103	45.11
0.080	-0.00107	46.31
0.080	-0.00114	49.10
0.076	-0.00119	50.72
0.052	-0.00104	45.45
0.024	-0.00074	34.59
0.001	-0.00017	13.91
0.000	-0.00005	9.44
0.001	-0.00019	14.52
0.010	-0.00058	28.62
0.035	-0.00113	48.80
0.078	-0.00175	71.31
0.184	-0.00276	107.76
0.237	-0.00332	128.38
0.248	-0.00366	140.76
0.250	-0.00395	151.28
0.265	-0.00441	167.73
0.250	-0.00464	176.42
0.254	-0.00522	197.51
0.245	-0.00588	221.27
0.341	-0.00855	318.63
0.322	-0.00955	354.73
0.737	-0.01634	601.95
0.902	-0.00954	354.53

update for EV, CV:

tZn **LC50**

LN Analysis **tZn**

Load **Load Data, EV=4310 lbs/day CV=1.41**

Load Data-based LN

		u	ln tZn Load	tZn Load
Avg:	**4,310**			
SD:	**6,064**	3	11.0	57381
CV:	**1.41**	0	7.82	2496
Min:	**977.9**	-3	4.69	108.6
Max:	**38,562**			
Median:	**2,976**			
		4,310	4310	
		1.41	1.41	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.923, EV=4100lbs/day CV=0.985; max r2=0.98**

r2 u,lnLoad:	0.923	u	lnLoad	Load	
slope, m:	1.214	3	10.45	34524	
intercept, b:	-9.691	0	7.98	2920	
N: 43		-3	5.51	246.9	
E[Load]:	4097.8	Parameter Estimates			0.923
SD[Load]:	4036	from LN regression			4097.8
CV[Load]:	0.98	update graph label			1.0
					max r2
					0.982

N: 43

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
20-Oct-99	977.9	1	0.0145	-2.185	6.885	0.923
26-Oct-98	984.5	2	0.0376	-1.780	6.892	0.935
10-May-99	1012.0	3	0.0607	-1.549	6.920	0.937
22-Sep-99	1081.8	4	0.0838	-1.380	6.986	0.936
23-Sep-98	1138.9	5	0.1069	-1.243	7.038	0.934
1-Sep-99	1158.0	6	0.1301	-1.126	7.054	0.931
22-Oct-98	1162.6	7	0.1532	-1.023	7.058	0.927
25-Aug-98	1284.8	8	0.1763	-0.930	7.158	0.922
11-Aug-99	1371.3	9	0.1994	-0.844	7.224	0.917
16-Oct-97	1639.3	10	0.2225	-0.764	7.402	0.911
3-Sep-97	1659.2	11	0.2457	-0.688	7.414	0.908
27-Jul-98	1727.8	12	0.2688	-0.616	7.455	0.904
13-Jul-99	1929.1	13	0.2919	-0.548	7.565	0.899
18-Nov-98	1982.8	14	0.3150	-0.482	7.592	0.895
13-Aug-97	2078.1	15	0.3382	-0.418	7.639	0.892
23-Feb-99	2335.9	16	0.3613	-0.355	7.756	0.888
24-Jul-97	2443.8	17	0.3844	-0.294	7.801	0.887
24-Jun-98	2643.2	18	0.4075	-0.234	7.880	0.888
24-Nov-97	2704.4	19	0.4306	-0.175	7.903	0.891
4-Jan-99	2850.0	20	0.4538	-0.116	7.955	0.895
21-Jan-98	2867.5	21	0.4769	-0.058	7.961	0.901
26-Nov-96	2975.7	22	0.5000	0.000	7.998	0.907
24-Nov-98	3006.1	23	0.5231	0.058	8.008	0.914
25-Feb-98	3080.9	24	0.5462	0.116	8.033	0.920
27-Jan-99	3108.6	25	0.5694	0.175	8.042	0.926
15-Dec-98	3214.6	26	0.5925	0.234	8.075	0.932
17-Dec-97	3215.6	27	0.6156	0.294	8.076	0.938
24-Jun-97	3231.2	28	0.6387	0.355	8.081	0.943
9-Feb-99	3391.0	29	0.6618	0.418	8.129	0.945
8-Jun-99	3587.9	30	0.6850	0.482	8.185	0.948
14-Jan-99	3626.0	31	0.7081	0.548	8.196	0.952
13-Apr-99	3636.9	32	0.7312	0.616	8.199	0.953
29-Jan-97	3675.6	33	0.7543	0.688	8.209	0.950
19-Mar-98	4386.6	34	0.7775	0.764	8.386	0.943
23-Apr-98	5126.1	35	0.8006	0.844	8.542	0.940
29-Oct-96	5327.9	36	0.8237	0.930	8.581	0.946
16-Apr-97	5950.0	37	0.8468	1.023	8.691	0.949
28-May-98	6763.3	38	0.8699	1.126	8.819	0.958

update for EV, CV:

tZn		**LC50**	380	380	
LN Analysis		**tZn**	0.42	0.423	
Concentration		**Conc. Data, EV=380 ug/L CV=0.423**			
Avg:	**380**	**Data-based LN**			
SD:	**160**	u	ln[tZn]	[tZn]	
CV:	**0.42**	3	7.1	1180	
Min:	**110**	0	5.86	350	
Max:	**668**	-3	4.64	104	
Median:	**354**				

				0.961	0.961
	u=mLn{Conc.}+b:			387.6	388
update for r2, EV, CV:	**r2=0.961, EV=388 ug/L CV=0.527; max r2=0.98**			0.527	0.527
	r2 u,lnConc: 0.961	u	lnConc.	Conc.	
	slope, m: 2.020	3	7.32	1514	
	intercept, b: -11.793	0	5.84	343	
	N: 43	-3	4.35	78	
0.923	E[Conc]: 387.6	Parameter Estimates			
4100	SD[Conc]: 204	from LN regression			
0.985	CV[Conc]: 0.53	update graph label			

						max r2
	tZn	N: 43				0.979
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
10-May-99	110	1	0.0145	-2.185	4.700	0.961
8-Jun-99	130	2	0.0376	-1.780	4.868	0.956
23-Apr-98	151	3	0.0607	-1.549	5.017	0.952
28-May-98	162	4	0.0838	-1.380	5.088	0.949
19-Mar-98	196	5	0.1069	-1.243	5.278	0.946
13-Apr-99	200	6	0.1301	-1.126	5.298	0.942
25-May-99	210	7	0.1532	-1.023	5.347	0.937
4-Jan-99	218	8	0.1763	-0.930	5.384	0.932
16-Apr-97	219	9	0.1994	-0.844	5.389	0.927
14-Jan-99	239	10	0.2225	-0.764	5.476	0.923
26-Mar-97	243	11	0.2457	-0.688	5.493	0.917
13-Jul-99	249	12	0.2688	-0.616	5.517	0.911
15-Dec-98	250	13	0.2919	-0.548	5.521	0.906
24-Jun-97	260	14	0.3150	-0.482	5.561	0.902
27-Jan-99	270	15	0.3382	-0.418	5.598	0.899
25-Feb-98	274	16	0.3613	-0.355	5.613	0.897
24-Jun-98	309	17	0.3844	-0.294	5.733	0.899
16-May-97	313	18	0.4075	-0.234	5.746	0.892
9-Feb-99	330	19	0.4306	-0.175	5.799	0.888
21-Feb-97	338	20	0.4538	-0.116	5.823	0.881
23-Feb-99	353	21	0.4769	-0.058	5.866	0.874
24-Nov-97	354	22	0.5000	0.000	5.869	0.866
11-Aug-99	356	23	0.5231	0.058	5.875	0.861
24-Nov-98	375	24	0.5462	0.116	5.927	0.867
21-Jan-98	410	25	0.5694	0.175	6.016	0.873
29-Jan-97	427	26	0.5925	0.234	6.057	0.865
17-Dec-97	430	27	0.6156	0.294	6.064	0.853
24-Jul-97	441	28	0.6387	0.355	6.089	0.844
18-Nov-98	450	29	0.6618	0.418	6.109	0.838
1-Sep-99	457	30	0.6850	0.482	6.125	0.840
20-Oct-99	498	31	0.7081	0.548	6.211	0.880
27-Jul-98	518	32	0.7312	0.616	6.250	0.882
13-Dec-96	538	33	0.7543	0.688	6.288	0.874
22-Sep-99	542	34	0.7775	0.764	6.295	0.852
25-Aug-98	549	35	0.8006	0.844	6.308	0.831
16-Oct-97	554	36	0.8237	0.930	6.317	0.817
29-Oct-96	593	37	0.8468	1.023	6.385	0.953
26-Oct-98	612	38	0.8699	1.126	6.417	0.979

update for EV, CV:

tZn		**LC50**			2,885	2890
LN Analysis		**tZn**			1.45	1.45
Discharge, Q		**Q Data, EV=2890 cfs CV=1.45**				
Avg:	**2,885**	**Q Data-based LN**				
SD:	**4,179**	u	lnQ	Q		
CV:	**1.45**	3	10.6	39812		
Min:	**299**	0	7.40	1640		
Max:	**22,900**	-3	4.21	68		
Median:	**1,590**					

					0.972	0.972
					2876.3	2880
u=mLn{Q}+b:					1.52	1.52
update for r2, EV, CV:	**r2=0.972, EV=2880 cfs CV=1.52; max r2=0.99**					
r2 u,lnQ:	0.972	u	lnQ	Q		
slope, m:	0.915	3	10.65	42039		
intercept, b:	-6.739	0	7.37	1582		
N: 43		-3	4.09	60		
E[Q]:	2876.3	Parameter Estimates				
SD[Q]:	4366	from LN regression				
CV[Q]:	1.52	update graph label				

						max r2
	Q		N: 43			0.987
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
26-Oct-98	299	1	0.0145	-2.185	5.700	0.972
23-Sep-98	342	2	0.0376	-1.780	5.835	0.981
22-Oct-98	343	3	0.0607	-1.549	5.838	0.986
20-Oct-99	365	4	0.0838	-1.380	5.900	0.987
22-Sep-99	371	5	0.1069	-1.243	5.916	0.986
25-Aug-98	435	6	0.1301	-1.126	6.075	0.985
1-Sep-99	471	7	0.1532	-1.023	6.155	0.984
3-Sep-97	473	8	0.1763	-0.930	6.159	0.983
16-Oct-97	550	9	0.1994	-0.844	6.310	0.982
13-Aug-97	619	10	0.2225	-0.764	6.428	0.981
27-Jul-98	620	11	0.2457	-0.688	6.430	0.979
11-Aug-99	716	12	0.2688	-0.616	6.574	0.978
18-Nov-98	819	13	0.2919	-0.548	6.708	0.976
26-Nov-96	828	14	0.3150	-0.482	6.719	0.975
24-Jul-97	1030	15	0.3382	-0.418	6.937	0.973
23-Feb-99	1230	16	0.3613	-0.355	7.115	0.971
21-Jan-98	1300	17	0.3844	-0.294	7.170	0.973
17-Dec-97	1390	18	0.4075	-0.234	7.237	0.974
24-Nov-97	1420	19	0.4306	-0.175	7.258	0.977
13-Jul-99	1440	20	0.4538	-0.116	7.272	0.979
24-Nov-98	1490	21	0.4769	-0.058	7.307	0.980
24-Jun-98	1590	22	0.5000	0.000	7.371	0.981
29-Jan-97	1600	23	0.5231	0.058	7.378	0.982
29-Oct-96	1670	24	0.5462	0.116	7.421	0.982
10-May-99	1710	25	0.5694	0.175	7.444	0.982
9-Feb-99	1910	26	0.5925	0.234	7.555	0.981
25-Feb-98	2090	27	0.6156	0.294	7.645	0.981
27-Jan-99	2140	28	0.6387	0.355	7.669	0.982
24-Jun-97	2310	29	0.6618	0.418	7.745	0.982
15-Dec-98	2390	30	0.6850	0.482	7.779	0.983
13-Dec-96	2400	31	0.7081	0.548	7.783	0.982
4-Jan-99	2430	32	0.7312	0.616	7.796	0.980
14-Jan-99	2820	33	0.7543	0.688	7.944	0.977
13-Apr-99	3380	34	0.7775	0.764	8.126	0.974
21-Feb-97	3910	35	0.8006	0.844	8.271	0.969
19-Mar-98	4160	36	0.8237	0.930	8.333	0.965
16-Apr-97	5050	37	0.8468	1.023	8.527	0.957
8-Jun-99	5130	38	0.8699	1.126	8.543	0.955

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC55	**Date:**	3-Jun-00
Chemical:	dCd	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,332	3,204	2	25	0.00	0.00	0.00
SD:	614	3,136	1	22	1.00	1.00	1.00
CV:	0.02	0.98	0.41	0.87			
Min:	34,398	253	0	0.5	-0.94	-2.42	-1.13
Max:	36,405	15,600	5	85	3.95	3.95	2.74
Median:	35,269	2,100	2	19	-0.35	0.09	-0.29

dCd **LC55** **: Concentration v. Discharge, Q**

Q = mTime +b **LnQ = mTime +b**

Conc. = mQ+b (r2=0.262)		update r2	0.26	0.262	r2:	0.036	0.012
r2 Q,[COC]:	0.26	[dCd]	Q		m:	0.9667	0.00019
slope, m:	0.0	2	253.0		b:	-30950	0.90
intercept, b:	2.2	2	3204.1				
N: 71		0	15600				

LnConc. = mLn{Q}+b (r2=0.2)		update r2	0.20		0.2	
r2 lnQ,ln[COC]:	0.20	ln[dCd]	ln Q	[dCd]	Q	
slope, m:	-0.27	1.03	5.53	3	253	
intercept, b:	2.52	0.35	8.07	1	3,204	
N: 71		-0.07	9.66	1	15,600	

for graph
dCd 0
LC55

N= 71

	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	5-Mar-94	5240	2.88	81.2	8.56	1.06	4.40	0.65	1.39	2.58
IDEQ	17-Mar-94	3800	0.97	19.8	8.24	-0.03	2.99	0.19	-1.15	-0.24
IDEQ	7-Apr-94	4800	0.02	0.5	8.48	-3.91	-0.66	0.51	-2.42	-1.13
IDEQ	12-Apr-94	3840	0.97	20.0	8.25	-0.03	3.00	0.20	-1.15	-0.23
IDEQ	19-Apr-94	8170	1.93	84.8	9.01	0.66	4.44	1.58	0.13	2.74
IDEQ	10-May-94	3820	0.97	19.9	8.25	-0.03	2.99	0.20	-1.15	-0.24
IDEQ	16-Jun-94	990	1.93	10.3	6.90	0.66	2.33	-0.71	0.13	-0.68
IDEQ	20-Jul-94	538	1.93	5.6	6.29	0.66	1.72	-0.85	0.13	-0.90
IDEQ	16-Aug-94	373	1.93	3.9	5.92	0.66	1.35	-0.90	0.13	-0.98
IDEQ	19-Sep-94	253	1.93	2.6	5.53	0.66	0.97	-0.94	0.13	-1.03
IDEQ	6-Oct-94	264	2.21	3.1	5.58	0.79	1.14	-0.94	0.50	-1.01
IDEQ	22-Nov-94	430	3.36	7.8	6.06	1.21	2.05	-0.88	2.03	-0.80
IDEQ	16-Dec-94	754	2.5	10.1	6.63	0.92	2.32	-0.78	0.89	-0.69
IDEQ	12-Jan-95	4897	2.02	53.2	8.50	0.70	3.97	0.54	0.25	1.29
IDEQ	7-Mar-95	3243	1.16	20.2	8.08	0.15	3.01	0.01	-0.90	-0.23
IDEQ	23-Mar-95	8310	1.26	56.3	9.03	0.23	4.03	1.63	-0.77	1.43
IDEQ	14-Apr-95	4363	1.35	31.7	8.38	0.30	3.46	0.37	-0.65	0.30
IDEQ	25-Apr-95	3570	1.35	25.9	8.18	0.30	3.26	0.12	-0.65	0.04
IDEQ	11-May-95	5484	1.45	42.8	8.61	0.37	3.76	0.73	-0.51	0.81
IDEQ	24-May-95	3085	1.54	25.6	8.03	0.43	3.24	-0.04	-0.39	0.02
IDEQ	12-Jun-95	1878	1.54	15.6	7.54	0.43	2.74	-0.42	-0.39	-0.44
IDEQ	28-Jun-95	1371	1.73	12.8	7.22	0.55	2.55	-0.58	-0.14	-0.57
IDEQ	12-Jul-95	930	1.93	9.7	6.84	0.66	2.27	-0.73	0.13	-0.71
IDEQ	26-Jul-95	634	2.5	8.5	6.45	0.92	2.14	-0.82	0.89	-0.76
IDEQ	15-Aug-95	500	2.21	5.9	6.21	0.79	1.78	-0.86	0.50	-0.88
IDEQ	14-Sep-95	406	1.93	4.2	6.01	0.66	1.44	-0.89	0.13	-0.96
IDEQ	18-Oct-95	1377	2.78	20.6	7.23	1.02	3.03	-0.58	1.26	-0.21
IDEQ	21-Nov-95	3135	1.54	26.0	8.05	0.43	3.26	-0.02	-0.39	0.04
IDEQ	28-Dec-95	2330	1.83	22.9	7.75	0.60	3.13	-0.28	-0.01	-0.10
IDEQ	18-Jan-96	8518	1.35	61.9	9.05	0.30	4.12	1.69	-0.65	1.69
IDEQ	28-Feb-96	3943	1.83	38.8	8.28	0.60	3.66	0.24	-0.01	0.63
IDEQ	27-Mar-96	2960	1.45	23.1	7.99	0.37	3.14	-0.08	-0.51	-0.09
IDEQ	18-Apr-96	7292	0.97	38.1	8.89	-0.03	3.64	1.30	-1.15	0.59
IDEQ	9-May-96	3435	1.45	26.8	8.14	0.37	3.29	0.07	-0.51	0.08
IDEQ	20-Jun-96	1734	1.73	16.1	7.46	0.55	2.78	-0.47	-0.14	-0.41
IDEQ	23-Jul-96	716	2.5	9.6	6.57	0.92	2.26	-0.79	0.89	-0.71
IDEQ	21-Aug-96	430	2.5	5.8	6.06	0.92	1.76	-0.88	0.89	-0.89
IDEQ	26-Sep-96	358	2.21	4.3	5.88	0.79	1.45	-0.91	0.50	-0.96

dCd

Concentration over time analysis r2 Slope, m

	dCd	**LC55**		**Concentration over time**	
	LnConc.=mTime+b All data r2, m:			**0.003**	**0.00006**
	Time	**Ln[COC]**	**[COC]**		
first:	5-Mar-94	0.43	2		
mid:	23-Jul-96	0.48	2		
last:	2-Sep-99	0.55	2		
	LnConc.=mTime+b >'96 r2, m:			**0.125**	**-0.00062**
	24-Nov-97	0.62	2		
	2-Sep-99	0.22	1		

Load over time analysis

	dCd	**LC55**		**Load over time**	
	LnLoad=mTime+b All data r2, m:			**0.025**	**0.00025**
	Time	**LnLoad**	**Load**		
first:	5-Mar-94	2.59	13		
mid:	23-Jul-96	2.81	17		
last:	2-Sep-99	3.09	22		
	LnLoad=mTime+b >'96 r2, m:			**0.032**	**0.00071**
	24-Nov-97	2.73	15		
	2-Sep-99	3.19	24		

max r2:	0.893		max r2:	0.910	
Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.003	0.00006	-1.69	0.025	0.00025	-6.02
0.006	0.00008	-2.51	0.040	0.00032	-8.38
0.004	0.00007	-1.93	0.043	0.00033	-9.03
0.026	-0.00010	4.11	0.021	0.00021	-4.64
0.043	-0.00013	5.10	0.023	0.00023	-5.15
0.042	-0.00013	5.14	0.041	0.00030	-7.92
0.065	-0.00016	6.26	0.045	0.00032	-8.63
0.064	-0.00016	6.35	0.041	0.00031	-8.32
0.064	-0.00017	6.44	0.031	0.00028	-6.96
0.063	-0.00017	6.53	0.019	0.00022	-4.85
0.062	-0.00017	6.62	0.008	0.00014	-1.90
0.057	-0.00017	6.47	0.001	0.00005	1.03
0.041	-0.00014	5.54	0.000	0.00001	2.53
0.033	-0.00013	5.07	0.000	-0.00002	3.67
0.030	-0.00012	4.96	0.000	0.00003	1.77
0.043	-0.00015	5.86	0.001	0.00004	1.60
0.056	-0.00017	6.69	0.004	0.00010	-0.59
0.068	-0.00019	7.46	0.007	0.00013	-1.82
0.083	-0.00022	8.30	0.009	0.00016	-2.76
0.096	-0.00024	9.08	0.017	0.00022	-4.91
0.108	-0.00026	9.80	0.022	0.00025	-6.11
0.121	-0.00028	10.59	0.022	0.00026	-6.25
0.129	-0.00030	11.18	0.019	0.00025	-5.89
0.131	-0.00031	11.54	0.014	0.00021	-4.72
0.118	-0.00030	11.21	0.008	0.00017	-3.01
0.111	-0.00030	11.17	0.002	0.00008	0.04
0.112	-0.00031	11.54	0.001	-0.00005	4.61
0.093	-0.00028	10.72	0.001	-0.00004	4.55
0.106	-0.00031	11.78	0.000	-0.00002	3.68
0.109	-0.00033	12.33	0.000	0.00000	3.14
0.136	-0.00038	14.09	0.003	0.00012	-1.26
0.141	-0.00040	14.83	0.009	0.00020	-4.39
0.167	-0.00045	16.61	0.012	0.00024	-5.85
0.249	-0.00055	20.43	0.024	0.00035	-9.75
0.295	-0.00063	23.01	0.034	0.00043	-12.70
0.323	-0.00068	25.00	0.035	0.00046	-13.50
0.311	-0.00069	25.29	0.026	0.00041	-11.67
0.297	-0.00070	25.53	0.011	0.00027	-6.59

update for EV, CV:

dCd **LC55**
LN Analysis **dCd**

Load **Load Data, EV=25.1 lbs/day CV=0.866**
Load Data-based LN

		u	ln dCd Load	dCd Load
Avg:	**25**			
SD:	**22**			
CV:	**0.87**	3	5.2	179
Min:	**0.5**	0	2.94	19
Max:	**85**	-3	0.70	2.0
Median:	**19**			
		25	25.1	
		0.87	0.866	

u=mLn{Load}+ b:
update for r2, EV, CV: **r2=0.965, EV=28.1lbs/day CV=1.34; max r2=0.99**

		u	lnLoad	Load	
r2 u,lnLoad:	0.965				
slope, m:	0.987	3	5.86	352	
intercept, b:	-2.789	0	2.82	17	
N: 71		-3	-0.21	0.8	
E[Load]:	28.1	Parameter Estimates			0.965
SD[Load]:	38	from LN regression			28.1
CV[Load]:	1.34	update graph label			1.3
					max r2
	dCd	N: 71			0.985
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
7-Apr-94	**0.5**	1	0.0088	-2.375	-0.661	0.965
19-Sep-94	**2.6**	2	0.0228	-1.999	0.966	0.985
6-Oct-94	**3.1**	3	0.0368	-1.789	1.144	0.984
16-Aug-94	**3.9**	4	0.0509	-1.636	1.354	0.983
14-Sep-95	**4.2**	5	0.0649	-1.515	1.439	0.982
23-Sep-98	**4.2**	6	0.0789	-1.412	1.441	0.981
26-Sep-96	**4.3**	7	0.0930	-1.323	1.448	0.980
25-Aug-98	**4.4**	8	0.1070	-1.243	1.492	0.980
20-Jul-94	**5.6**	9	0.1211	-1.170	1.720	0.979
21-Aug-96	**5.8**	10	0.1351	-1.103	1.755	0.979
15-Aug-95	**5.9**	11	0.1491	-1.040	1.783	0.978
2-Sep-99	**6.8**	12	0.1632	-0.982	1.922	0.977
29-Oct-96	**7.1**	13	0.1772	-0.926	1.964	0.976
27-Jul-98	**7.4**	14	0.1912	-0.873	1.996	0.975
13-Aug-97	**7.6**	15	0.2053	-0.823	2.025	0.974
22-Nov-94	**7.8**	16	0.2193	-0.775	2.051	0.973
16-Oct-97	**8.0**	17	0.2333	-0.728	2.081	0.972
26-Jul-95	**8.5**	18	0.2474	-0.683	2.143	0.971
11-Aug-99	**8.6**	19	0.2614	-0.639	2.146	0.970
23-Jul-96	**9.6**	20	0.2754	-0.596	2.265	0.970
12-Jul-95	**9.7**	21	0.2895	-0.555	2.268	0.969
16-Dec-94	**10.1**	22	0.3035	-0.514	2.317	0.969
16-Jun-94	**10.3**	23	0.3175	-0.475	2.330	0.968
24-Jul-97	**10.5**	24	0.3316	-0.436	2.354	0.968
24-Nov-97	**12.1**	25	0.3456	-0.397	2.496	0.968
16-Nov-98	**12.3**	26	0.3596	-0.359	2.510	0.967
28-Jun-95	**12.8**	27	0.3737	-0.322	2.546	0.966
7-Jul-99	**12.9**	28	0.3877	-0.285	2.558	0.965
17-Dec-97	**15.0**	29	0.4018	-0.249	2.710	0.964
12-Jun-95	**15.6**	30	0.4158	-0.213	2.745	0.963
26-Nov-96	**15.9**	31	0.4298	-0.177	2.763	0.961
20-Jun-96	**16.1**	32	0.4439	-0.141	2.781	0.959
21-Jan-98	**17.4**	33	0.4579	-0.106	2.854	0.957
25-Feb-98	**18.1**	34	0.4719	-0.070	2.895	0.955
24-Jun-97	**18.7**	35	0.4860	-0.035	2.930	0.953
24-Jun-98	**18.8**	36	0.5000	0.000	2.935	0.950
29-Jan-97	**19.4**	37	0.5140	0.035	2.966	0.948
17-Mar-94	**19.8**	38	0.5281	0.070	2.987	0.945

update for EV, CV:

dCd		**LC55**		2	1.83
LN Analysis		**dCd**		0.41	0.409
Concentration		**Conc. Data, EV=1.83 ug/L CV=0.409**			
Avg:	**2**	**Data-based LN**			
SD:	**1**	u	ln[dCd]	[dCd]	
CV:	**0.41**	3	1.7	6	
Min:	**0**	0	0.53	2	
Max:	**5**	-3	-0.65	1	
Median:	**2**				

				0.610	0.61
	u=mLn{Conc.}+b:			2.3	2.32
update for r2, EV, CV:	**r2=0.61, EV=2.32 ug/L CV=1.02; max r2=0.97**			1.018	1.02
	r2 u,lnConc:	0.610	u	lnConc.	Conc.
	slope, m:	1.186	3	3.02	20
	intercept, b:	-0.578	0	0.49	2
	N: 71		-3	-2.04	0
0.965	E[Conc]:	2.3	Parameter Estimates		
28.1	SD[Conc]:	2	from LN regression		
1.34	CV[Conc]:	1.02	update graph label		

						max r2
	dCd	N: 71				0.971
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
7-Apr-94	0.02	1	0.0088	-2.375	-3.912	0.610
23-Apr-98	0.9	2	0.0228	-1.999	-0.105	0.967
17-Mar-94	0.97	3	0.0368	-1.789	-0.030	0.968
12-Apr-94	0.97	4	0.0509	-1.636	-0.030	0.969
10-May-94	0.97	5	0.0649	-1.515	-0.030	0.969
18-Apr-96	0.97	6	0.0789	-1.412	-0.030	0.968
16-Apr-97	1	7	0.0930	-1.323	0.000	0.966
23-Mar-99	1	8	0.1070	-1.243	0.000	0.964
21-Apr-99	1	9	0.1211	-1.170	0.000	0.963
6-May-99	1	10	0.1351	-1.103	0.000	0.961
26-May-99	1	11	0.1491	-1.040	0.000	0.960
17-Jun-99	1	12	0.1632	-0.982	0.000	0.959
17-Jun-99	1	13	0.1772	-0.926	0.000	0.960
7-Jul-99	1	14	0.1912	-0.873	0.000	0.963
7-Mar-95	1.16	15	0.2053	-0.823	0.148	0.970
19-Mar-98	1.2	16	0.2193	-0.775	0.182	0.970
28-May-98	1.2	17	0.2333	-0.728	0.182	0.970
23-Mar-95	1.26	18	0.2474	-0.683	0.231	0.970
14-Apr-95	1.35	19	0.2614	-0.639	0.300	0.970
25-Apr-95	1.35	20	0.2754	-0.596	0.300	0.969
18-Jan-96	1.35	21	0.2895	-0.555	0.300	0.968
11-May-95	1.45	22	0.3035	-0.514	0.372	0.968
27-Mar-96	1.45	23	0.3175	-0.475	0.372	0.966
9-May-96	1.45	24	0.3316	-0.436	0.372	0.965
24-Jun-97	1.5	25	0.3456	-0.397	0.405	0.964
24-May-95	1.54	26	0.3596	-0.359	0.432	0.962
12-Jun-95	1.54	27	0.3737	-0.322	0.432	0.960
21-Nov-95	1.54	28	0.3877	-0.285	0.432	0.959
26-Mar-97	1.6	29	0.4018	-0.249	0.470	0.957
24-Nov-97	1.6	30	0.4158	-0.213	0.470	0.955
25-Feb-98	1.6	31	0.4298	-0.177	0.470	0.953
28-Jun-95	1.73	32	0.4439	-0.141	0.548	0.952
20-Jun-96	1.73	33	0.4579	-0.106	0.548	0.950
28-Dec-95	1.83	34	0.4719	-0.070	0.604	0.947
28-Feb-96	1.83	35	0.4860	-0.035	0.604	0.947
24-Jul-97	1.9	36	0.5000	0.000	0.642	0.946
25-Aug-98	1.9	37	0.5140	0.035	0.642	0.947
19-Apr-94	1.93	38	0.5281	0.070	0.658	0.947

update for EV, CV:

dCd		**LC55**			3,204	3200
LN Analysis		**dCd**			0.98	0.979
Discharge, Q		**Q Data, EV=3200 cfs CV=0.979**				
Avg:	**3,204**	**Q Data-based LN**				
SD:	**3,136**	u	lnQ	Q		
CV:	**0.98**	3	10.2	26778		
Min:	**253**	0	7.74	2290		
Max:	**15,600**	-3	5.28	196		
Median:	**2,100**					

					0.968	0.968
					3579.5	3580
u=mLn{Q}+b:					1.57	1.57
update for r2, EV, CV:	**r2=0.968, EV=3580 cfs CV=1.57; max r2=0.97**					
r2 u,lnQ:	0.968	u	lnQ	Q		
slope, m:	0.897	3	10.91	54457		
intercept, b:	-6.786	0	7.56	1924		
N: 71		-3	4.22	68		
E[Q]:	3579.5	Parameter Estimates				
SD[Q]:	5616	from LN regression				
CV[Q]:	1.57	update graph label				

						max r2
	Q	N: 71				0.972
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
19-Sep-94	253	1	0.0088	-2.375	5.533	0.968
6-Oct-94	264	2	0.0228	-1.999	5.576	0.971
23-Sep-98	357	3	0.0368	-1.789	5.878	0.970
26-Sep-96	358	4	0.0509	-1.636	5.881	0.970
16-Aug-94	373	5	0.0649	-1.515	5.922	0.969
14-Sep-95	406	6	0.0789	-1.412	6.006	0.968
22-Nov-94	430	7	0.0930	-1.323	6.064	0.966
21-Aug-96	430	8	0.1070	-1.243	6.064	0.964
25-Aug-98	435	9	0.1211	-1.170	6.075	0.963
15-Aug-95	500	10	0.1351	-1.103	6.215	0.961
20-Jul-94	538	11	0.1491	-1.040	6.288	0.959
16-Oct-97	573	12	0.1632	-0.982	6.351	0.957
29-Oct-96	576	13	0.1772	-0.926	6.356	0.955
13-Aug-97	612	14	0.1912	-0.873	6.417	0.954
27-Jul-98	622	15	0.2053	-0.823	6.433	0.952
26-Jul-95	634	16	0.2193	-0.775	6.452	0.950
2-Sep-99	635	17	0.2333	-0.728	6.454	0.949
23-Jul-96	716	18	0.2474	-0.683	6.574	0.949
16-Dec-94	754	19	0.2614	-0.639	6.625	0.949
11-Aug-99	795	20	0.2754	-0.596	6.678	0.949
26-Nov-96	842	21	0.2895	-0.555	6.736	0.949
12-Jul-95	930	22	0.3035	-0.514	6.835	0.949
16-Jun-94	990	23	0.3175	-0.475	6.898	0.949
16-Nov-98	994	24	0.3316	-0.436	6.902	0.949
24-Jul-97	1030	25	0.3456	-0.397	6.937	0.950
21-Jan-98	1290	26	0.3596	-0.359	7.162	0.953
17-Dec-97	1330	27	0.3737	-0.322	7.193	0.952
28-Jun-95	1371	28	0.3877	-0.285	7.223	0.951
18-Oct-95	1377	29	0.4018	-0.249	7.228	0.951
24-Nov-97	1410	30	0.4158	-0.213	7.251	0.952
24-Jun-98	1590	31	0.4298	-0.177	7.371	0.955
29-Jan-97	1640	32	0.4439	-0.141	7.402	0.956
20-Jun-96	1734	33	0.4579	-0.106	7.458	0.959
12-Jun-95	1878	34	0.4719	-0.070	7.538	0.961
14-Dec-98	2080	35	0.4860	-0.035	7.640	0.963
25-Feb-98	2100	36	0.5000	0.000	7.650	0.963
24-Jun-97	2320	37	0.5140	0.035	7.749	0.964
28-Dec-95	2330	38	0.5281	0.070	7.754	0.964

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC55	**Date:**	14-Jul-00
Chemical:	dPb	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	36,273	5,581	3	96	0.00	0.00	0.00		
SD:	96	4,909	1	105	1.00	1.00	1.00		
CV:	0.00	0.88	0.41	1.09					first:
Min:	36,115	635	2	11.8	-1.01	-1.34	-0.81		mid:
Max:	36,405	15,600	6	394	2.04	1.99	2.85		last:
Median:	36,296	4,635	3	64	-0.19	-0.27	-0.31		

dPb	**LC55**		**: Concentration v. Discharge, Q**			**Q = mTime +b**		**LnQ = mTime +b**	
Conc. = mQ+b (r2=0.00848)		update r2	0.01	0.00848		r2:	0.023	0.014	
r2 Q,[COC]:	0.01	[dPb]	Q			m:	7.8141	0.00136	
slope, m:	0.0	3	635.0			b:	-277856	-41.17	
intercept, b:	3.4	3	5580.7						
N: 12		3	15600						first:
LnConc. = mLn{Q}+b (r2=0.0428)			update r2	0.04	0.0428				mid:
r2 lnQ,ln[COC]:	0.04	ln[dPb]	ln Q	[dPb]	Q				last:
slope, m:	-0.08	1.24	6.45	3	635				
intercept, b:	1.73	1.07	8.63	3	5,581				
N: 12		0.99	9.66	3	15,600				

								dPb	for graph 0	
N= 12								LC55		
	Sampling Date	**Q Discharge**	**dPb Concentration**	**dPb Load**	**Ln Q**	**Ln dPb Conc.**	**Ln dPb Load**	**Standardized Values = (x - Avg)/SD Q**	**Conc**	**Load**
update for new data		**cfs**	**ug/L**	**lbs/day**						
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
USGS	16-Nov-98	994	2.2	11.8	6.90	0.79	2.47	-0.93	-0.82	-0.81
USGS	16-Nov-98	994	2.9	15.5	6.90	1.06	2.74	-0.93	-0.30	-0.77
USGS	14-Dec-98	2080	1.5	16.8	7.64	0.41	2.82	-0.71	-1.34	-0.76
USGS	23-Mar-99	9040	2.2	107.0	9.11	0.79	4.67	0.70	-0.82	0.10
USGS	21-Apr-99	13200	2	142.0	9.49	0.69	4.96	1.55	-0.97	0.44
USGS	6-May-99	7490	2.2	88.7	8.92	0.79	4.48	0.39	-0.82	-0.07
USGS	26-May-99	15600	4.7	394.5	9.66	1.55	5.98	2.04	1.03	2.85
USGS	17-Jun-99	6870	4	147.8	8.83	1.39	5.00	0.26	0.51	0.50
USGS	17-Jun-99	6870	4	147.8	8.83	1.39	5.00	0.26	0.51	0.50
USGS	7-Jul-99	2400	3	38.7	7.78	1.10	3.66	-0.65	-0.23	-0.55
USGS	11-Aug-99	795	5	21.4	6.68	1.61	3.06	-0.97	1.25	-0.71
USGS	2-Sep-99	635	6	20.5	6.45	1.79	3.02	-1.01	1.99	-0.72

dPb

Concentration over time analysis r2 Slope, m

dPb LC55 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.529** **0.00313**

Time	Ln[COC]	[COC]
16-Nov-98	0.62	2
16-May-99	1.19	3
2-Sep-99	1.53	5

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
2-Sep-99	0.00	1

Load over time analysis

dPb LC55 **Load over time**

LnLoad=mTime+b All data r2, m: **0.150** **0.00449**

Time	LnLoad	Load
16-Nov-98	3.28	27
16-May-99	4.09	60
2-Sep-99	4.58	98

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
2-Sep-99	0.00	1

max r2: #DIV/0!

Forward time Regression on Ln Concentration(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.529	0.00313	-112.43
0.523	0.00348	-125.11
0.776	0.00542	-195.62
0.703	0.00647	-233.75
0.650	0.00692	-249.96
0.514	0.00576	-208.12
0.275	0.00332	-119.21
0.578	0.00578	-208.84
0.641	0.00693	-250.44
0.982	0.01238	-449.01
1.000	0.00829	-299.91
#DIV/0!	#DIV/0!	#DIV/0!

max r2: #DIV/0!

Forward time Regression on Ln Load(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.150	0.00449	-158.82
0.053	0.00280	-97.63
0.002	-0.00056	24.61
0.479	-0.01309	479.70
0.612	-0.01795	656.55
0.654	-0.02147	784.40
0.889	-0.03054	1114.23
0.850	-0.02656	969.57
0.808	-0.02398	875.91
0.893	-0.01170	428.83
1.000	-0.00193	73.18
#DIV/0!	#DIV/0!	#DIV/0!

update for EV, CV:

dPb **LC55**

LN Analysis **dPb**

Load **Load Data, EV=96 lbs/day CV=1.09**

Load Data-based LN

Avg:	**96**			
SD:	**105**	u	ln dPb Load	dPb Load
CV:	**1.09**	3	6.8	922
Min:	**11.8**	0	4.17	65
Max:	**394**	-3	1.52	4.6
Median:	**64**			
		96	96	
		1.09	1.09	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.922, EV=121lbs/day CV=2.02; max r2=0.93**

r2 u,lnLoad:	0.922	u	lnLoad	Load	
slope, m:	0.785	3	7.81	2465	
intercept, b:	-3.130	0	3.99	54	
N: 12		-3	0.17	1.2	
E[Load]:	121.4	Parameter Estimates			0.922
SD[Load]:	245	from LN regression			121.4
CV[Load]:	2.02	update graph label			2.0
					max r2
					0.926

	dPb	N: 12				
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
16-Nov-98	**11.8**	1	0.0510	-1.635	2.465	0.922
16-Nov-98	**15.5**	2	0.1327	-1.114	2.741	0.926
14-Dec-98	**16.8**	3	0.2143	-0.792	2.821	0.919
2-Sep-99	**20.5**	4	0.2959	-0.536	3.020	0.895
11-Aug-99	**21.4**	5	0.3776	-0.312	3.063	0.860
7-Jul-99	**38.7**	6	0.4592	-0.102	3.657	0.858
6-May-99	**88.7**	7	0.5408	0.102	4.485	0.871
23-Mar-99	**107.0**	8	0.6224	0.312	4.673	0.829
21-Apr-99	**142.0**	9	0.7041	0.536	4.956	
17-Jun-99	**147.8**	10	0.7857	0.792	4.996	
17-Jun-99	**147.8**	11	0.8673	1.114	4.996	
26-May-99	**394.5**	12	0.9490	1.635	5.978	

update for EV, CV:

dPb		**LC55**		3	3.31
LN Analysis		**dPb**		0.41	0.409
Concentration		**Conc. Data, EV=3.31 ug/L CV=0.409**			
Avg:	**3**	**Data-based LN**			
SD:	**1**	u	ln[dPb]	[dPb]	
CV:	**0.41**	3	2.3	10	
Min:	**2**	0	1.12	3	
Max:	**6**	-3	-0.06	1	
Median:	**3**				

					0.960	0.96
	u=mLn{Conc.}+b:				3.4	3.39
update for r2, EV, CV:	**r2=0.96, EV=3.39 ug/L CV=0.49; max r2=0.97**				0.490	0.49
	r2 u,lnConc:	0.960	u	lnConc.	Conc.	
	slope, m:	2.155	3	2.50	12	
	intercept, b:	-2.398	0	1.11	3	
	N: 12		-3	-0.28	1	
0.922	E[Conc]:	3.4	Parameter Estimates			
121	SD[Conc]:	2	from LN regression			
2.02	CV[Conc]:	0.49	update graph label			

						max r2
	dPb	N: 12				0.965
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
14-Dec-98	1.5	1	0.0510	-1.635	0.405	0.960
21-Apr-99	2	2	0.1327	-1.114	0.693	0.946
16-Nov-98	2.2	3	0.2143	-0.792	0.788	0.944
23-Mar-99	2.2	4	0.2959	-0.536	0.788	0.939
6-May-99	2.2	5	0.3776	-0.312	0.788	0.920
16-Nov-98	2.9	6	0.4592	-0.102	1.065	0.933
7-Jul-99	3	7	0.5408	0.102	1.099	0.908
17-Jun-99	4	8	0.6224	0.312	1.386	0.965
17-Jun-99	4	9	0.7041	0.536	1.386	
26-May-99	4.7	10	0.7857	0.792	1.548	
11-Aug-99	5	11	0.8673	1.114	1.609	
2-Sep-99	6	12	0.9490	1.635	1.792	

update for EV, CV:

dPb		**LC55**			5,581	5580
LN Analysis		**dPb**			0.88	0.88
Discharge, Q		**Q Data, EV=5580 cfs CV=0.88**				
Avg:	**5,581**	**Q Data-based LN**				
SD:	**4,909**	u	lnQ	Q		
CV:	**0.88**	3	10.6	40605		
Min:	**635**	0	8.34	4190		
Max:	**15,600**	-3	6.07	432		
Median:	**4,635**					

					0.918	0.918
					7549.3	7550
u=mLn{Q}+b:					2.06	2.06
update for r2, EV, CV:	**r2=0.918, EV=7550 cfs CV=2.06; max r2=0.95**					
r2 u,lnQ:	0.918	u	lnQ	Q		
slope, m:	0.777	3	11.96	156862		
intercept, b:	-6.291	0	8.10	3295		
N: 12		-3	4.24	69		
E[Q]:	7549.3	Parameter Estimates				
SD[Q]:	15561	from LN regression				
CV[Q]:	2.06	update graph label				

						max r2
	Q	N: 12				0.954
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
2-Sep-99	635	1	0.0510	-1.635	6.454	0.918
11-Aug-99	795	2	0.1327	-1.114	6.678	0.909
16-Nov-98	994	3	0.2143	-0.792	6.902	0.883
16-Nov-98	994	4	0.2959	-0.536	6.902	0.845
14-Dec-98	2080	5	0.3776	-0.312	7.640	0.834
7-Jul-99	2400	6	0.4592	-0.102	7.783	0.787
17-Jun-99	6870	7	0.5408	0.102	8.835	0.941
17-Jun-99	6870	8	0.6224	0.312	8.835	0.954
6-May-99	7490	9	0.7041	0.536	8.921	0.933
23-Mar-99	9040	10	0.7857	0.792	9.109	
21-Apr-99	13200	11	0.8673	1.114	9.488	
26-May-99	15600	12	0.9490	1.635	9.655	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC55	**Date:**	14-Jul-00
Chemical:	dZn	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	36,273	5,581	241	4,016	0.00	0.00	0.00
SD:	96	4,909	142	1,944	1.00	1.00	1.00
CV:	0.00	0.88	0.59	0.48			
Min:	36,115	635	78	1,360.1	-1.01	-1.15	-1.37
Max:	36,405	15,600	455	7,198	2.04	1.50	1.64
Median:	36,296	4,635	196	4,029	-0.19	-0.32	0.01

dZn LC55 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.736)		update r2	0.74	0.736		**Q = mTime +b**	**LnQ = mTime +b**
r2 Q,[COC]:	0.74	[dZn]	Q		r2:	0.023	0.014
slope, m:	0.0	364	635.0		m:	7.8141	0.00136
intercept, b:	379.8	241	5580.7		b:	-277856	-41.17
N: 12		-8	15600				
LnConc. = mLn{Q}+b (r2=0.898)		update r2	0.90	0.898			
r2 lnQ,ln[COC]:	0.90	ln[dZn]	ln Q	[dZn]	Q		
slope, m:	-0.55	6.19	6.45	487	635		
intercept, b:	9.72	5.00	8.63	148	5,581		
N: 12		4.44	9.66	84	15,600		

for graph
dZn 0
LC55

N= 12

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
USGS	16-Nov-98	994	428	2288.8	6.90	6.06	7.74	-0.93	1.31	-0.89
USGS	16-Nov-98	994	455	2433.2	6.90	6.12	7.80	-0.93	1.50	-0.81
USGS	14-Dec-98	2080	387	4330.7	7.64	5.96	8.37	-0.71	1.03	0.16
USGS	23-Mar-99	9040	148	7198.0	9.11	5.00	8.88	0.70	-0.65	1.64
USGS	21-Apr-99	13200	97	6888.6	9.49	4.57	8.84	1.55	-1.01	1.48
USGS	6-May-99	7490	113	4553.5	8.92	4.73	8.42	0.39	-0.90	0.28
USGS	26-May-99	15600	78	6546.4	9.66	4.36	8.79	2.04	-1.15	1.30
USGS	17-Jun-99	6870	109	4028.7	8.83	4.69	8.30	0.26	-0.93	0.01
USGS	17-Jun-99	6870	109	4028.7	8.83	4.69	8.30	0.26	-0.93	0.01
USGS	7-Jul-99	2400	244	3150.5	7.78	5.50	8.06	-0.65	0.02	-0.45
USGS	11-Aug-99	795	318	1360.1	6.68	5.76	7.22	-0.97	0.54	-1.37
USGS	2-Sep-99	635	407	1390.4	6.45	6.01	7.24	-1.01	1.17	-1.35

dZn

Concentration over time analysis r2 Slope, m

dZn LC55 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.133** **-0.00246**

	Time	Ln[COC]	[COC]
first:	16-Nov-98	5.67	291
mid:	16-May-99	5.23	187
last:	2-Sep-99	4.96	143

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
2-Sep-99	0.00	1

Load over time analysis

dZn LC55 **Load over time**

LnLoad=mTime+b All data r2, m: **0.037** **-0.00110**

	Time	LnLoad	Load
first:	16-Nov-98	8.34	4,167
mid:	16-May-99	8.14	3,417
last:	2-Sep-99	8.02	3,031

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
2-Sep-99	0.00	1

max r2: 0.927 max r2: 0.956

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.133	-0.00246	94.36	0.037	-0.00110	47.97
0.053	-0.00166	65.45	0.134	-0.00234	92.94
0.006	0.00064	-18.26	0.449	-0.00534	201.96
0.558	0.00828	-295.83	0.871	-0.01127	417.62
0.800	0.01210	-434.42	0.885	-0.01277	472.08
0.829	0.01390	-500.06	0.861	-0.01333	492.46
0.927	0.01736	-625.70	0.956	-0.01650	607.74
0.892	0.01677	-604.22	0.939	-0.01558	574.18

update for EV, CV:

dZn **LC55**

LN Analysis **dZn**

Load **Load Data, EV=4020 lbs/day CV=0.484**

Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**4,016**			
SD:	**1,944**	3	9.6	14318
CV:	**0.48**	0	8.19	3615
Min:	**1,360.1**	-3	6.82	912.8
Max:	**7,198**			
Median:	**4,029**			

4,016	4020
0.48	0.484

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.94, EV=4260lbs/day CV=0.688; max r2=0.94**

r2 u,lnLoad:	0.940	u	lnLoad	Load
slope, m:	1.607	3	10.03	22683
intercept, b:	-13.114	0	8.16	3506
N: 12		-3	6.29	541.8
E[Load]:	4255.1	Parameter Estimates		
SD[Load]:	2927	from LN regression		
CV[Load]:	0.69	update graph label		

						0.940
						4255.1
						0.7
						max r2
	dZn	N: 12				0.940
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
11-Aug-99	**1360.1**	1	0.0510	-1.635	7.215	0.940
2-Sep-99	**1390.4**	2	0.1327	-1.114	7.237	0.917
16-Nov-98	**2288.8**	3	0.2143	-0.792	7.736	0.926
16-Nov-98	**2433.2**	4	0.2959	-0.536	7.797	0.903
7-Jul-99	**3150.5**	5	0.3776	-0.312	8.055	0.897
17-Jun-99	**4028.7**	6	0.4592	-0.102	8.301	0.865
17-Jun-99	**4028.7**	7	0.5408	0.102	8.301	0.843
14-Dec-98	**4330.7**	8	0.6224	0.312	8.373	0.774
6-May-99	**4553.5**	9	0.7041	0.536	8.424	
26-May-99	**6546.4**	10	0.7857	0.792	8.787	
21-Apr-99	**6888.6**	11	0.8673	1.114	8.838	
23-Mar-99	**7198.0**	12	0.9490	1.635	8.882	

update for EV, CV:

dZn		**LC55**		241	241
LN Analysis		**dZn**		0.59	0.59
Concentration		**Conc. Data, EV=241 ug/L CV=0.59**			
Avg:	**241**	**Data-based LN**			
SD:	**142**	u	ln[dZn]	[dZn]	
CV:	**0.59**	3	7.0	1070	
Min:	**78**	0	5.34	208	
Max:	**455**	-3	3.70	40	
Median:	**196**				

					0.889	0.889
	u=mLn{Conc.}+b:				263.1	263
update for r2, EV, CV:	**r2=0.889, EV=263 ug/L CV=0.877; max r2=0.89**				0.877	0.877
	r2 u,lnConc:	0.889	u	lnConc.	Conc.	
	slope, m:	1.324	3	7.55	1908	
	intercept, b:	-6.998	0	5.29	198	
	N: 12		-3	3.02	21	
0.94	E[Conc]:	263.1	Parameter Estimates			
4260	SD[Conc]:	231	from LN regression			
0.688	CV[Conc]:	0.88	update graph label			

						max r2
	dZn	N: 12				0.889
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
26-May-99	78	1	0.0510	-1.635	4.357	0.889
21-Apr-99	97	2	0.1327	-1.114	4.575	0.874
17-Jun-99	109	3	0.2143	-0.792	4.691	0.853
17-Jun-99	109	4	0.2959	-0.536	4.691	0.819
6-May-99	113	5	0.3776	-0.312	4.727	0.760
23-Mar-99	148	6	0.4592	-0.102	4.997	0.705
7-Jul-99	244	7	0.5408	0.102	5.497	0.753
11-Aug-99	318	8	0.6224	0.312	5.762	0.799
14-Dec-98	387	9	0.7041	0.536	5.958	
2-Sep-99	407	10	0.7857	0.792	6.009	
16-Nov-98	428	11	0.8673	1.114	6.059	
16-Nov-98	455	12	0.9490	1.635	6.120	

update for EV, CV:

dZn		**LC55**			5,581	5580
LN Analysis		**dZn**			0.88	0.88
Discharge, Q		**Q Data, EV=5580 cfs CV=0.88**				
Avg:	**5,581**	**Q Data-based LN**				
SD:	**4,909**	u	lnQ	Q		
CV:	**0.88**	3	10.6	40605		
Min:	**635**	0	8.34	4190		
Max:	**15,600**	-3	6.07	432		
Median:	**4,635**					

					0.918	0.918
					7549.3	7550
u=mLn{Q}+b:					2.06	2.06
update for r2, EV, CV:	**r2=0.918, EV=7550 cfs CV=2.06; max r2=0.95**					
r2 u,lnQ:	0.918	u	lnQ	Q		
slope, m:	0.777	3	11.96	156862		
intercept, b:	-6.291	0	8.10	3295		
N: 12		-3	4.24	69		
E[Q]:	7549.3	Parameter Estimates				
SD[Q]:	15561	from LN regression				
CV[Q]:	2.06	update graph label				

						max r2
	Q	N: 12				0.954
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
2-Sep-99	635	1	0.0510	-1.635	6.454	0.918
11-Aug-99	795	2	0.1327	-1.114	6.678	0.909
16-Nov-98	994	3	0.2143	-0.792	6.902	0.883
16-Nov-98	994	4	0.2959	-0.536	6.902	0.845
14-Dec-98	2080	5	0.3776	-0.312	7.640	0.834
7-Jul-99	2400	6	0.4592	-0.102	7.783	0.787
17-Jun-99	6870	7	0.5408	0.102	8.835	0.941
17-Jun-99	6870	8	0.6224	0.312	8.835	0.954
6-May-99	7490	9	0.7041	0.536	8.921	
23-Mar-99	9040	10	0.7857	0.792	9.109	
21-Apr-99	13200	11	0.8673	1.114	9.488	
26-May-99	15600	12	0.9490	1.635	9.655	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC55	**Date:**	3-Jun-00
Chemical:	tCd	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,897	4,180	2	35	0.00	0.00	0.00	
SD:	326	4,925	1	42	1.00	1.00	1.00	
CV:	0.01	1.18	0.39	1.20				first:
Min:	35,367	357	1	5.1	-0.78	-1.45	-0.71	mid:
Max:	36,405	22,800	5	196	3.78	3.07	3.87	last:
Median:	35,891	2,090	2	19	-0.42	0.07	-0.38	

tCd	**LC55**		**: Concentration v. Discharge, Q**		**Q = mTime +b**		**LnQ = mTime +b**	
Conc. = mQ+b (r2=0.166)		update r2	0.17	0.166	r2:	0.022	0.024	
r2 Q,[COC]:	0.17	[tCd]	Q		m:	2.2601	0.00053	
slope, m:	0.0	2	357.0		b:	-76952	-11.15	
intercept, b:	2.3	2	4180.0					
N: 33		1	22800					first:
LnConc. = mLn{Q}+b (r2=0.363)		update r2	0.36	0.363				mid:
r2 lnQ,ln[COC]:	0.36	ln[tCd]	ln Q	[tCd]	Q			last:
slope, m:	-0.22	1.04	5.88	3	357			
intercept, b:	2.35	0.49	8.34	2	4,180			
N: 33		0.11	10.03	1	22,800			

								tCd	for graph	
N= 34								LC55	0	
	Sampling Date	**Q Discharge**	**tCd Concentration**	**tCd Load**	**Ln Q**	**Ln tCd Conc.**	**Ln tCd Load**	**Standardized Values = (x - Avg)/SD**		
update for new data		**cfs**	**ug/L**	**lbs/day**				**Q**	**Conc**	**Load**
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	29-Oct-96	576	2.3	7.1	6.36	0.83	1.96	-0.73	0.32	-0.66
IDEQ	26-Nov-96	842	3.3	14.9	6.74	1.19	2.70	-0.68	1.57	-0.47
IDEQ	13-Dec-96	2470	4.5	59.8	7.81	1.50	4.09	-0.35	3.07	0.60
IDEQ	29-Jan-97	1640	2.4	21.2	7.40	0.88	3.05	-0.52	0.44	-0.32
IDEQ	21-Feb-97	4120	2.9	64.3	8.32	1.06	4.16	-0.01	1.07	0.71
IDEQ	26-Mar-97	7500	1.7	68.6	8.92	0.53	4.23	0.67	-0.44	0.81
IDEQ	16-Apr-97	4730	1	25.4	8.46	0.00	3.24	0.11	-1.31	-0.22
IDEQ	16-May-97	22800	1.6	196.3	10.03	0.47	5.28	3.78	-0.56	3.87
IDEQ	24-Jun-97	2320	1.4	17.5	7.75	0.34	2.86	-0.38	-0.81	-0.41
IDEQ	24-Jul-97	1030	1.8	10.0	6.94	0.59	2.30	-0.64	-0.31	-0.59
IDEQ	13-Aug-97	612	2.3	7.6	6.42	0.83	2.02	-0.72	0.32	-0.65
IDEQ	16-Oct-97	573	2.6	8.0	6.35	0.96	2.08	-0.73	0.69	-0.64
IDEQ	24-Nov-97	1410	1.8	13.7	7.25	0.59	2.61	-0.56	-0.31	-0.51
IDEQ	17-Dec-97	1330	2.3	16.5	7.19	0.83	2.80	-0.58	0.32	-0.44
IDEQ	21-Jan-98	1290	2.7	18.7	7.16	0.99	2.93	-0.59	0.82	-0.38
IDEQ	25-Feb-98	2100	1.6	18.1	7.65	0.47	2.89	-0.42	-0.56	-0.40
IDEQ	19-Mar-98	4190	1.3	29.3	8.34	0.26	3.38	0.00	-0.94	-0.13
IDEQ	23-Apr-98	6000	1.2	38.7	8.70	0.18	3.66	0.37	-1.06	0.10
IDEQ	28-May-98	7610	1.6	65.5	8.94	0.47	4.18	0.70	-0.56	0.74
IDEQ	24-Jun-98	1590	2.1	18.0	7.37	0.74	2.89	-0.53	0.07	-0.40
IDEQ	27-Jul-98	622	2.2	7.4	6.43	0.79	2.00	-0.72	0.19	-0.66
IDEQ	25-Aug-98	435	2.2	5.1	6.08	0.79	1.64	-0.76	0.19	-0.71
IDEQ	23-Sep-98	357	3	5.8	5.88	1.10	1.75	-0.78	1.19	-0.69
USGS	16-Nov-98	994	3	16.0	6.90	1.10	2.78	-0.65	1.19	-0.45
USGS	14-Dec-98	2080	3	33.6	7.64	1.10	3.51	-0.43	1.19	-0.03
USGS	23-Mar-99	9040	1	48.6	9.11	0.00	3.88	0.99	-1.31	0.33
USGS	21-Apr-99	13200			9.49			1.83		
USGS	6-May-99	7490	1	40.3	8.92	0.00	3.70	0.67	-1.31	0.13
USGS	26-May-99	15600	2	167.9	9.66	0.69	5.12	2.32	-0.06	3.19
USGS	17-Jun-99	6870	0.89	32.9	8.83	-0.12	3.49	0.55	-1.45	-0.04
USGS	17-Jun-99	6870	0.89	32.9	8.83	-0.12	3.49	0.55	-1.45	-0.04
USGS	7-Jul-99	2400	1.5	19.4	7.78	0.41	2.96	-0.36	-0.69	-0.37
USGS	11-Aug-99	795	2.1	9.0	6.68	0.74	2.20	-0.69	0.07	-0.62
USGS	2-Sep-99	635	2.4	8.2	6.45	0.88	2.10	-0.72	0.44	-0.64

tCd

Concentration over time analysis r2 Slope, m

tCd LC55 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.120 -0.00043**

Time	Ln[COC]	[COC]
29-Oct-96	0.86	2
5-Apr-98	0.64	2
2-Sep-99	0.42	2

LnConc.=mTime+b >'96 r2, m: **#REF! #REF!**

#REF!	#REF!	#REF!
2-Sep-99	#REF!	#REF!

Load over time analysis

tCd LC55 **Load over time**

LnLoad=mTime+b All data r2, m: **0.001 -0.00008**

Time	LnLoad	Load
29-Oct-96	3.13	23
5-Apr-98	3.09	22
2-Sep-99	3.05	21

LnLoad=mTime+b >'96 r2, m: **#REF! #REF!**

#REF!	#REF!	#REF!
2-Sep-99	#REF!	#REF!

max r2: 0.933 max r2: 0.962

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.120	-0.00043	16.07	0.001	-0.00008	5.86
0.114	-0.00043	16.24	0.009	-0.00027	12.89
0.082	-0.00037	14.05	0.016	-0.00037	16.48
0.036	-0.00024	9.10	0.005	-0.00022	11.07
0.024	-0.00020	7.81	0.006	-0.00025	12.24
0.007	-0.00011	4.66	0.000	-0.00005	4.80
0.009	-0.00013	5.33	0.004	0.00022	-4.87
0.044	-0.00029	11.16	0.007	0.00030	-7.77
0.059	-0.00036	13.63	0.091	0.00098	-32.46
0.096	-0.00048	18.04	0.099	0.00109	-36.22
0.110	-0.00055	20.51	0.079	0.00102	-33.82
0.095	-0.00055	20.26	0.046	0.00081	-26.39
0.066	-0.00048	17.72	0.021	0.00057	-17.38
0.073	-0.00053	19.80	0.012	0.00046	-13.65
0.054	-0.00049	18.17	0.008	0.00041	-11.63
0.023	-0.00033	12.60	0.007	0.00039	-11.13
0.032	-0.00042	15.83	0.004	0.00035	-9.40
0.073	-0.00069	25.45	0.011	0.00060	-18.68
0.167	-0.00112	40.95	0.036	0.00117	-39.39
0.233	-0.00146	53.31	0.144	0.00245	-85.86
0.242	-0.00166	60.76	0.173	0.00302	-106.30
0.240	-0.00187	68.30	0.109	0.00262	-91.89
0.236	-0.00216	79.02	0.016	0.00108	-36.01
0.124	-0.00182	66.49	0.059	-0.00223	84.19
0.010	-0.00059	21.92	0.257	-0.00587	216.47
0.436	0.00529	-191.79	0.565	-0.01404	513.42
0.420	0.00666	-241.54	0.703	-0.02057	750.97
0.420	0.00666	-241.54	0.703	-0.02057	750.97
0.331	0.00673	-244.36	0.842	-0.02712	989.09
0.933	0.01308	-475.26	0.962	-0.01926	703.14

update for EV, CV:

tCd **LC55**
LN Analysis **tCd**

Load **Load Data, EV=34.7 lbs/day CV=1.2**
Load Data-based LN

		u	ln tCd Load	tCd Load
Avg:	**35**			
SD:	**42**			
CV:	**1.20**	3	5.9	379
Min:	**5.1**	0	3.10	22
Max:	**196**	-3	0.26	1.3
Median:	**19**			
		35	34.7	
		1.20	1.2	

u=mLn{Load}+ b:
update for r2, EV, CV: **r2=0.967, EV=35.1lbs/day CV=1.21; max r2=0.98**

r2 u,lnLoad:	0.967	u	lnLoad	Load	
slope, m:	1.052	3	5.96	387	
intercept, b:	-3.267	0	3.11	22	
N: 33		-3	0.25	1.3	
E[Load]:	35.1	Parameter Estimates			0.967
SD[Load]:	43	from LN regression			35.1
CV[Load]:	1.21	update graph label			1.2
					max r2
					0.978

N: 34

Date	tCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
25-Aug-98	5.1	1	0.0182	-2.091	1.639	0.967
23-Sep-98	5.8	2	0.0474	-1.670	1.751	0.975
29-Oct-96	7.1	3	0.0766	-1.428	1.964	0.976
27-Jul-98	7.4	4	0.1058	-1.249	1.996	0.978
13-Aug-97	7.6	5	0.1350	-1.103	2.025	0.978
16-Oct-97	8.0	6	0.1642	-0.977	2.081	0.977
2-Sep-99	8.2	7	0.1934	-0.865	2.104	0.975
11-Aug-99	9.0	8	0.2226	-0.763	2.195	0.972
24-Jul-97	10.0	9	0.2518	-0.669	2.300	0.970
24-Nov-97	13.7	10	0.2810	-0.580	2.614	0.967
26-Nov-96	14.9	11	0.3102	-0.495	2.705	0.967
16-Nov-98	16.0	12	0.3394	-0.414	2.775	0.966
17-Dec-97	16.5	13	0.3686	-0.336	2.801	0.967
24-Jun-97	17.5	14	0.3978	-0.259	2.861	0.966
24-Jun-98	18.0	15	0.4270	-0.184	2.888	0.966
25-Feb-98	18.1	16	0.4562	-0.110	2.895	0.964
21-Jan-98	18.7	17	0.4854	-0.037	2.931	0.960
7-Jul-99	19.4	18	0.5146	0.037	2.964	0.955
29-Jan-97	21.2	19	0.5438	0.110	3.053	0.950
16-Apr-97	25.4	20	0.5730	0.184	3.237	0.943
19-Mar-98	29.3	21	0.6022	0.259	3.378	0.936
17-Jun-99	32.9	22	0.6314	0.336	3.493	0.932
17-Jun-99	32.9	23	0.6606	0.414	3.493	0.933
14-Dec-98	33.6	24	0.6898	0.495	3.514	0.929
21-Apr-99		25	0.7190	0.580		
23-Apr-98	38.7	26	0.7482	0.669	3.657	0.918
6-May-99	40.3	27	0.7774	0.763	3.696	0.904
23-Mar-99	48.6	28	0.8066	0.865	3.884	0.880
13-Dec-96	59.8	29	0.8358	0.977	4.091	0.853
21-Feb-97	64.3	30	0.8650	1.103	4.163	0.847
28-May-98	65.5	31	0.8942	1.249	4.182	
26-Mar-97	68.6	32	0.9234	1.428	4.228	
26-May-99	167.9	33	0.9526	1.670	5.123	
16-May-97	196.3	34	0.9818	2.091	5.279	

update for EV, CV:

tCd		**LC55**		2	2.05
LN Analysis		**tCd**		0.39	0.39
Concentration		**Conc. Data, EV=2.05 ug/L CV=0.39**			
Avg:	**2**	**Data-based LN**			
SD:	**1**	u	ln[tCd]	[tCd]	
CV:	**0.39**	3	1.8	6	
Min:	**1**	0	0.65	2	
Max:	**5**	-3	-0.48	1	
Median:	**2**				

				0.966	0.966
	u=mLn{Conc.}+b:			2.0	2.04
update for r2, EV, CV:	**r2=0.966, EV=2.04 ug/L CV=0.479; max r2=0.97**			0.479	0.479
	r2 u,lnConc:	0.966	u	lnConc.	Conc.
	slope, m:	2.202	3	1.97	7
	intercept, b:	-1.343	0	0.61	2
	N: 33		-3	-0.75	0
0.967	E[Conc]:	2.0	Parameter Estimates		
35.1	SD[Conc]:	1	from LN regression		
1.21	CV[Conc]:	0.48	update graph label		

						max r2
	tCd	N: 34				0.972
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
21-Apr-99		1	0.0182	-2.091		
17-Jun-99	0.89	2	0.0474	-1.670	-0.117	0.966
17-Jun-99	0.89	3	0.0766	-1.428	-0.117	0.962
16-Apr-97	1	4	0.1058	-1.249	0.000	0.959
23-Mar-99	1	5	0.1350	-1.103	0.000	0.956
6-May-99	1	6	0.1642	-0.977	0.000	0.957
23-Apr-98	1.2	7	0.1934	-0.865	0.182	0.969
19-Mar-98	1.3	8	0.2226	-0.763	0.262	0.971
24-Jun-97	1.4	9	0.2518	-0.669	0.336	0.972
7-Jul-99	1.5	10	0.2810	-0.580	0.405	0.971
16-May-97	1.6	11	0.3102	-0.495	0.470	0.968
25-Feb-98	1.6	12	0.3394	-0.414	0.470	0.965
28-May-98	1.6	13	0.3686	-0.336	0.470	0.963
26-Mar-97	1.7	14	0.3978	-0.259	0.531	0.963
24-Jul-97	1.8	15	0.4270	-0.184	0.588	0.961
24-Nov-97	1.8	16	0.4562	-0.110	0.588	0.958
26-May-99	2	17	0.4854	-0.037	0.693	0.958
24-Jun-98	2.1	18	0.5146	0.037	0.742	0.953
11-Aug-99	2.1	19	0.5438	0.110	0.742	0.951
27-Jul-98	2.2	20	0.5730	0.184	0.788	0.946
25-Aug-98	2.2	21	0.6022	0.259	0.788	0.944
29-Oct-96	2.3	22	0.6314	0.336	0.833	0.939
13-Aug-97	2.3	23	0.6606	0.414	0.833	0.938
17-Dec-97	2.3	24	0.6898	0.495	0.833	0.931
29-Jan-97	2.4	25	0.7190	0.580	0.875	0.919
2-Sep-99	2.4	26	0.7482	0.669	0.875	0.905
16-Oct-97	2.6	27	0.7774	0.763	0.956	0.883
21-Jan-98	2.7	28	0.8066	0.865	0.993	0.861
21-Feb-97	2.9	29	0.8358	0.977	1.065	0.834
23-Sep-98	3	30	0.8650	1.103	1.099	0.851
16-Nov-98	3	31	0.8942	1.249	1.099	
14-Dec-98	3	32	0.9234	1.428	1.099	
26-Nov-96	3.3	33	0.9526	1.670	1.194	
13-Dec-96	4.5	34	0.9818	2.091	1.504	

update for EV, CV:

tCd		**LC55**			4,180	4180
LN Analysis		**tCd**			1.18	1.18
Discharge, Q		**Q Data, EV=4180 cfs CV=1.18**				
Avg:	**4,180**	**Q Data-based LN**				
SD:	**4,925**	u	lnQ	Q		
CV:	**1.18**	3	10.7	44443		
Min:	**357**	0	7.90	2705		
Max:	**22,800**	-3	5.10	165		
Median:	**2,090**					

					0.968	0.968
					4573.3	4570
u=mLn{Q}+b:					1.74	1.74
update for r2, EV, CV:	**r2=0.968, EV=4570 cfs CV=1.74; max r2=0.98**					
	r2 u,lnQ:	0.968	u	lnQ	Q	
	slope, m:	0.846	3	11.28	78882	
	intercept, b:	-6.538	0	7.73	2274	
	N: 34		-3	4.18	66	
	E[Q]:	4573.3	Parameter Estimates			
	SD[Q]:	7980	from LN regression			
	CV[Q]:	1.74	update graph label			

						max r2
		N: 34				0.980
	Q					
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
23-Sep-98	357	1	0.0182	-2.091	5.878	0.968
25-Aug-98	435	2	0.0474	-1.670	6.075	0.974
16-Oct-97	573	3	0.0766	-1.428	6.351	0.976
29-Oct-96	576	4	0.1058	-1.249	6.356	0.979
13-Aug-97	612	5	0.1350	-1.103	6.417	0.980
27-Jul-98	622	6	0.1642	-0.977	6.433	0.979
2-Sep-99	635	7	0.1934	-0.865	6.454	0.977
11-Aug-99	795	8	0.2226	-0.763	6.678	0.975
26-Nov-96	842	9	0.2518	-0.669	6.736	0.972
16-Nov-98	994	10	0.2810	-0.580	6.902	0.970
24-Jul-97	1030	11	0.3102	-0.495	6.937	0.967
21-Jan-98	1290	12	0.3394	-0.414	7.162	0.964
17-Dec-97	1330	13	0.3686	-0.336	7.193	0.960
24-Nov-97	1410	14	0.3978	-0.259	7.251	0.957
24-Jun-98	1590	15	0.4270	-0.184	7.371	0.953
29-Jan-97	1640	16	0.4562	-0.110	7.402	0.948
14-Dec-98	2080	17	0.4854	-0.037	7.640	0.945
25-Feb-98	2100	18	0.5146	0.037	7.650	0.939
24-Jun-97	2320	19	0.5438	0.110	7.749	0.934
7-Jul-99	2400	20	0.5730	0.184	7.783	0.930
13-Dec-96	2470	21	0.6022	0.259	7.812	0.933
21-Feb-97	4120	22	0.6314	0.336	8.324	0.966
19-Mar-98	4190	23	0.6606	0.414	8.340	0.961
16-Apr-97	4730	24	0.6898	0.495	8.462	0.958
23-Apr-98	6000	25	0.7190	0.580	8.700	0.953
17-Jun-99	6870	26	0.7482	0.669	8.835	0.948
17-Jun-99	6870	27	0.7774	0.763	8.835	0.959
6-May-99	7490	28	0.8066	0.865	8.921	0.960
26-Mar-97	7500	29	0.8358	0.977	8.923	0.970
28-May-98	7610	30	0.8650	1.103	8.937	0.964
23-Mar-99	9040	31	0.8942	1.249	9.109	
21-Apr-99	13200	32	0.9234	1.428	9.488	
26-May-99	15600	33	0.9526	1.670	9.655	
16-May-97	22800	34	0.9818	2.091	10.035	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: LC55 **Date:** 15-Jul-00
Chemical: tPb **Analyst:** B.Walthall
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,903	4,089	37	2,152	0.00	0.00	0.00
SD:	324	4,883	59	6,835	1.00	1.00	1.00
CV:	0.01	1.19	1.61	3.18			
Min:	35,367	357	3	15.4	-0.76	-0.58	-0.31
Max:	36,405	22,800	303	37,167	3.83	4.49	5.12
Median:	35,908	2,080	21	134	-0.41	-0.27	-0.30

tPb LC55 **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.74) update r2 **0.74** 0.74

r2 Q,[COC]:	0.74	[tPb]	Q		r2:	0.018	0.019
slope, m:	0.0	-2	357.0		m:	2.0478	0.00047
intercept, b:	-5.8	37	4089.0		b:	-69432	-9.22
N: 35		232	22800				

LnConc. = mLn(Q)+b (r2=0.3) update r2 0.30 0.3

r2 lnQ,ln[COC]:	0.30	ln[tPb]	ln Q	[tPb]	Q
slope, m:	0.46	2.20	5.88	9	357
intercept, b:	-0.52	3.33	8.32	28	4,089
N: 35		4.12	10.03	62	22,800

for graph
tPb 0
LC55

N= 35

update for new data	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	29-Oct-96	576	10	31.0	6.36	2.30	3.43	-0.72	-0.45	-0.31
IDEQ	26-Nov-96	842	10	45.3	6.74	2.30	3.81	-0.66	-0.45	-0.31
IDEQ	13-Dec-96	2470	21	279.1	7.81	3.04	5.63	-0.33	-0.27	-0.27
IDEQ	29-Jan-97	1640	11	97.1	7.40	2.40	4.58	-0.50	-0.44	-0.30
IDEQ	21-Feb-97	4120	46	1019.6	8.32	3.83	6.93	0.01	0.15	-0.17
IDEQ	26-Mar-97	7500	24	968.4	8.92	3.18	6.88	0.70	-0.22	-0.17
IDEQ	16-Apr-97	4730	8	203.6	8.46	2.08	5.32	0.13	-0.49	-0.29
IDEQ	16-May-97	22800	303	37167.2	10.03	5.71	10.52	3.83	4.49	5.12
IDEQ	24-Jun-97	2320	17	212.2	7.75	2.83	5.36	-0.36	-0.34	-0.28
IDEQ	24-Jul-97	1030	20	110.8	6.94	3.00	4.71	-0.63	-0.28	-0.30
IDEQ	13-Aug-97	612	23	75.7	6.42	3.14	4.33	-0.71	-0.23	-0.30
IDEQ	16-Oct-97	573	10	30.8	6.35	2.30	3.43	-0.72	-0.45	-0.31
IDEQ	24-Nov-97	1410	9	68.3	7.25	2.20	4.22	-0.55	-0.47	-0.30
IDEQ	17-Dec-97	1330	40	286.2	7.19	3.69	5.66	-0.56	0.05	-0.27
IDEQ	21-Jan-98	1290	10	69.4	7.16	2.30	4.24	-0.57	-0.45	-0.30
IDEQ	25-Feb-98	2100	9	101.7	7.65	2.20	4.62	-0.41	-0.47	-0.30
IDEQ	19-Mar-98	4190	2.5	56.4	8.34	0.92	4.03	0.02	-0.58	-0.31
IDEQ	23-Apr-98	6000	42	1355.8	8.70	3.74	7.21	0.39	0.09	-0.12
IDEQ	28-May-98	7610	64	2620.3	8.94	4.16	7.87	0.72	0.46	0.07
IDEQ	24-Jun-98	1590	11	94.1	7.37	2.40	4.54	-0.51	-0.44	-0.30
IDEQ	27-Jul-98	622	26	87.0	6.43	3.26	4.47	-0.71	-0.18	-0.30
IDEQ	25-Aug-98	435	21	49.1	6.08	3.04	3.89	-0.75	-0.27	-0.31
IDEQ	23-Sep-98	357	8	15.4	5.88	2.08	2.73	-0.76	-0.49	-0.31
USGS	16-Nov-98	994	25	133.7	6.90	3.22	4.90	-0.63	-0.20	-0.30
USGS	16-Nov-98	994	26	139.0	6.90	3.26	4.93	-0.63	-0.18	-0.29
USGS	14-Dec-98	2080	14	156.7	7.64	2.64	5.05	-0.41	-0.39	-0.29
USGS	23-Mar-99	9040	49	2383.1	9.11	3.89	7.78	1.01	0.20	0.03
USGS	21-Apr-99	13200	67	4758.1	9.49	4.20	8.47	1.87	0.51	0.38
USGS	6-May-99	7490	11	443.3	8.92	2.40	6.09	0.70	-0.44	-0.25
USGS	26-May-99	15600	230	19303.4	9.66	5.44	9.87	2.36	3.26	2.51
USGS	17-Jun-99	6870	36.1	1334.3	8.83	3.59	7.20	0.57	-0.01	-0.12
USGS	17-Jun-99	6870	36.1	1334.3	8.83	3.59	7.20	0.57	-0.01	-0.12
USGS	7-Jul-99	2400	8.5	109.8	7.78	2.14	4.70	-0.35	-0.48	-0.30
USGS	11-Aug-99	795	24.4	104.4	6.68	3.19	4.65	-0.67	-0.21	-0.30
USGS	2-Sep-99	635	18	61.5	6.45	2.89	4.12	-0.71	-0.32	-0.31

tPb

Concentration over time analysis

				r2	Slope, m
	tPb	**LC55**		**Concentration over time**	
	LnConc.=mTime+b All data r2, m:			**0.031**	**0.00051**
	Time	**Ln[COC]**	**[COC]**		
first:	29-Oct-96	2.77	16		
mid:	23-Apr-98	3.05	21		
last:	2-Sep-99	3.30	27		
	LnConc.=mTime+b >'96 r2, m:			**#REF!**	**#REF!**
	#REF!	#REF!	#REF!		
	2-Sep-99	#REF!	#REF!		

Load over time analysis

	tPb	**LC55**		**Load over time**	
	LnLoad=mTime+b All data r2, m:			**0.031**	**0.00098**
	Time	**LnLoad**	**Load**		
first:	29-Oct-96	5.00	148		
mid:	23-Apr-98	5.53	252		
last:	2-Sep-99	6.02	411		
	LnLoad=mTime+b >'96 r2, m:			**#REF!**	**#REF!**
	#REF!	#REF!	#REF!		
	2-Sep-99	#REF!	#REF!		

	max r2:	0.396		max r2:	0.790
	Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**	
	r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
	only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
	0.031	0.00051	-15.39	0.031	0.00098	-29.83
	0.021	0.00044	-12.63	0.016	0.00073	-20.60
	0.012	0.00034	-9.26	0.007	0.00049	-11.83
	0.013	0.00037	-10.20	0.008	0.00053	-13.53
	0.006	0.00027	-6.54	0.003	0.00037	-7.78
	0.017	0.00045	-13.16	0.011	0.00068	-19.00
	0.020	0.00052	-15.68	0.023	0.00105	-32.11
	0.007	0.00032	-8.57	0.022	0.00110	-34.08
	0.097	0.00110	-36.47	0.150	0.00263	-89.30
	0.100	0.00118	-39.50	0.167	0.00295	-100.96
	0.111	0.00133	-44.96	0.165	0.00312	-107.13
	0.135	0.00158	-53.97	0.151	0.00318	-109.37
	0.113	0.00152	-51.81	0.111	0.00283	-96.56
	0.084	0.00138	-46.56	0.089	0.00266	-90.55
	0.137	0.00187	-64.49	0.103	0.00309	-105.95
	0.110	0.00177	-61.03	0.078	0.00286	-97.72
	0.075	0.00155	-52.90	0.062	0.00272	-92.50
	0.005	0.00035	-9.30	0.032	0.00208	-69.23
	0.019	0.00076	-24.25	0.078	0.00351	-121.21
	0.082	0.00169	-57.99	0.205	0.00603	-212.66
	0.040	0.00128	-43.24	0.188	0.00635	-224.47
	0.051	0.00163	-55.71	0.162	0.00652	-230.41
	0.049	0.00182	-62.61	0.101	0.00567	-199.54
	0.001	0.00021	-4.29	0.007	0.00157	-50.68
	0.000	-0.00003	4.59	0.001	-0.00071	32.08
	0.002	-0.00052	22.45	0.066	-0.00651	242.68
	0.151	-0.00740	272.34	0.530	-0.02696	985.80
	0.137	-0.00850	312.41	0.572	-0.03337	1218.91
	0.069	-0.00680	250.42	0.498	-0.03403	1242.93
	0.396	-0.01852	676.57	0.790	-0.05237	1910.01
	0.107	-0.00571	210.68	0.761	-0.03805	1389.08

update for EV, CV

tPb **LC55**

LN Analysis **tPb**

Load

Load Data, EV=2150 lbs/day CV=3.18

Avg:	**2,152**	**Load Data-based LN**		
SD:	**6,835**	u	ln tPb Load	tPb Load
CV:	**3.18**	3	11.1	67809
Min:	**15.4**	0	6.47	646
Max:	**37,167**	-3	1.82	6.2
Median:	**134**			
		2,152	2150	
		3.18	3.18	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.906, EV=1750lbs/day CV=6.89; max r2=0.98**

r2 u,lnLoad:	0.906	u	lnLoad	Load	
slope, m:	0.508	3	11.43	92435	
intercept, b:	-2.804	0	5.52	251	
N:	35	-3	-0.39	0.7	
E[Load]:	1745.5	Parameter Estimates			0.906
SD[Load]:	12024	from LN regression			1745.5
CV[Load]:	6.89	update graph label			6.9
					max r2
	N: 35				0.978

Date	tPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
23-Sep-98	**15.4**	1	0.0177	-2.103	2.732	0.906
16-Oct-97	**30.8**	2	0.0461	-1.684	3.428	0.909
29-Oct-96	**31.0**	3	0.0745	-1.443	3.434	0.917
26-Nov-96	**45.3**	4	0.1028	-1.266	3.813	0.920
25-Aug-98	**49.1**	5	0.1312	-1.121	3.895	0.927
19-Mar-98	**56.4**	6	0.1596	-0.996	4.032	0.933
2-Sep-99	**61.5**	7	0.1879	-0.885	4.119	0.939
24-Nov-97	**68.3**	8	0.2163	-0.785	4.224	0.945
21-Jan-98	**69.4**	9	0.2447	-0.691	4.240	0.951
13-Aug-97	**75.7**	10	0.2730	-0.604	4.327	0.956
27-Jul-98	**87.0**	11	0.3014	-0.520	4.466	0.960
24-Jun-98	**94.1**	12	0.3298	-0.441	4.544	0.965
29-Jan-97	**97.1**	13	0.3582	-0.363	4.575	0.970
25-Feb-98	**101.7**	14	0.3865	-0.288	4.622	0.974
11-Aug-99	**104.4**	15	0.4149	-0.215	4.648	0.977
7-Jul-99	**109.8**	16	0.4433	-0.143	4.698	0.978
24-Jul-97	**110.8**	17	0.4716	-0.071	4.708	0.978
16-Nov-98	**133.7**	18	0.5000	0.000	4.896	0.977
16-Nov-98	**139.0**	19	0.5284	0.071	4.935	0.976
14-Dec-98	**156.7**	20	0.5567	0.143	5.054	0.973
16-Apr-97	**203.6**	21	0.5851	0.215	5.316	0.970
24-Jun-97	**212.2**	22	0.6135	0.288	5.357	0.966
13-Dec-96	**279.1**	23	0.6418	0.363	5.631	0.961
17-Dec-97	**286.2**	24	0.6702	0.441	5.657	0.955
6-May-99	**443.3**	25	0.6986	0.520	6.094	0.952
26-Mar-97	**968.4**	26	0.7270	0.604	6.876	0.944
21-Feb-97	**1019.6**	27	0.7553	0.691	6.927	0.949
17-Jun-99	**1334.3**	28	0.7837	0.785	7.196	0.949
17-Jun-99	**1334.3**	29	0.8121	0.885	7.196	0.959
23-Apr-98	**1355.8**	30	0.8404	0.996	7.212	0.958
23-Mar-99	**2383.1**	31	0.8688	1.121	7.776	0.942
28-May-98	**2620.3**	32	0.8972	1.266	7.871	
21-Apr-99	**4758.1**	33	0.9255	1.443	8.468	
26-May-99	**19303.4**	34	0.9539	1.684	9.868	
16-May-97	**37167.2**	35	0.9823	2.103	10.523	

update for EV, CV:

tPb		**LC55**	37	36.9
LN Analysis		**tPb**	1.61	1.61

Concentration

		Conc. Data, EV=36.9 ug/L CV=1.61		
Avg:	**37**	**Data-based LN**		
SD:	**59**	u	ln[tPb]	[tPb]
CV:	**1.61**	3	6.4	578
Min:	**3**	0	2.97	19
Max:	**303**	-3	-0.42	1
Median:	**21**			

					0.923	0.923
	u=mLn(Conc.)+b:				35.1	35.1
update for r2, EV, CV:	**r2=0.923, EV=35.1 ug/L CV=1.34; max r2=0.94**				1.342	1.34
	r2 u,lnConc:	0.923	u	lnConc.	Conc.	
	slope, m:	0.985	3	6.09	441	
	intercept, b:	-2.999	0	3.04	21	
	N:	35	-3	0.00	1	
0.906	E[Conc]:	35.1	Parameter Estimates			
1750	SD[Conc]:	47	from LN regression			
6.89	CV[Conc]:	1.34	update graph label			

						max r2
	tPb	N: 35				0.939
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L Ranked**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
update and rank for new data						
19-Mar-98	2.5	1	0.0177	-2.103	0.916	0.923
16-Apr-97	8	2	0.0461	-1.684	2.079	0.910
23-Sep-98	8	3	0.0745	-1.443	2.079	0.922
7-Jul-99	8.5	4	0.1028	-1.266	2.140	0.928
24-Nov-97	9	5	0.1312	-1.121	2.197	0.932
25-Feb-98	9	6	0.1596	-0.996	2.197	0.936
29-Oct-96	10	7	0.1879	-0.885	2.303	0.937
26-Nov-96	10	8	0.2163	-0.785	2.303	0.939
16-Oct-97	10	9	0.2447	-0.691	2.303	0.939
21-Jan-98	10	10	0.2730	-0.604	2.303	0.936
29-Jan-97	11	11	0.3014	-0.520	2.398	0.932
24-Jun-98	11	12	0.3298	-0.441	2.398	0.928
6-May-99	11	13	0.3582	-0.363	2.398	0.921
14-Dec-98	14	14	0.3865	-0.288	2.639	0.914
24-Jun-97	17	15	0.4149	-0.215	2.833	0.907
2-Sep-99	18	16	0.4433	-0.143	2.890	0.906
24-Jul-97	20	17	0.4716	-0.071	2.996	0.905
13-Dec-96	21	18	0.5000	0.000	3.045	0.907
25-Aug-98	21	19	0.5284	0.071	3.045	0.910
13-Aug-97	23	20	0.5567	0.143	3.135	0.910
26-Mar-97	24	21	0.5851	0.215	3.178	0.912
11-Aug-99	24.4	22	0.6135	0.288	3.195	0.915
16-Nov-98	25	23	0.6418	0.363	3.219	0.915
27-Jul-98	26	24	0.6702	0.441	3.258	0.912
16-Nov-98	26	25	0.6986	0.520	3.258	0.906
17-Jun-99	36.1	26	0.7270	0.604	3.586	0.893
17-Jun-99	36.1	27	0.7553	0.691	3.586	0.901
17-Dec-97	40	28	0.7837	0.785	3.689	0.901
23-Apr-98	42	29	0.8121	0.885	3.738	0.904
21-Feb-97	46	30	0.8404	0.996	3.829	0.901
23-Mar-99	49	31	0.8688	1.121	3.892	0.889
28-May-98	64	32	0.8972	1.266	4.159	
21-Apr-99	67	33	0.9255	1.443	4.205	
26-May-99	230	34	0.9539	1.684	5.438	
16-May-97	303	35	0.9823	2.103	5.714	

update for EV, CV:

tPb		**LC55**			4,089	4090
LN Analysis		**tPb**			1.19	1.19
Discharge, Q		**Q Data, EV=4090 cfs CV=1.19**				
Avg:	**4,089**	**Q Data-based LN**				
SD:	**4,883**	u	lnQ	Q		
CV:	**1.19**	3	10.7	44235		
Min:	**357**	0	7.87	2625		
Max:	**22,800**	-3	5.05	156		
Median:	**2,080**					

					0.966	0.966
					4425.7	4430
u=mLn(Q)+b:					1.72	1.72
update for r2, EV, CV:	**r2=0.966, EV=4430 cfs CV=1.72; max r2=0.98**					
	r2 u,lnQ:	0.966	u	lnQ	Q	
	slope, m:	0.852	3	11.23	75262	
	intercept, b:	-6.561	0	7.71	2221	
	N: 35		-3	4.18	66	
	E[Q]:	4425.7	Parameter Estimates			
	SD[Q]:	7629	from LN regression			
	CV[Q]:	1.72	update graph label			

						max r2 0.980
	Q	N: 35				
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
23-Sep-98	357	1	0.0177	-2.103	5.878	0.966
25-Aug-98	435	2	0.0461	-1.684	6.075	0.972
16-Oct-97	573	3	0.0745	-1.443	6.351	0.974
29-Oct-96	576	4	0.1028	-1.266	6.356	0.979
13-Aug-97	612	5	0.1312	-1.121	6.417	0.980
27-Jul-98	622	6	0.1596	-0.996	6.433	0.979
2-Sep-99	635	7	0.1879	-0.885	6.454	0.978
11-Aug-99	795	8	0.2163	-0.785	6.678	0.975
26-Nov-96	842	9	0.2447	-0.691	6.736	0.973
16-Nov-98	994	10	0.2730	-0.604	6.902	0.971
16-Nov-98	994	11	0.3014	-0.520	6.902	0.969
24-Jul-97	1030	12	0.3298	-0.441	6.937	0.966
21-Jan-98	1290	13	0.3582	-0.363	7.162	0.963
17-Dec-97	1330	14	0.3865	-0.288	7.193	0.959
24-Nov-97	1410	15	0.4149	-0.215	7.251	0.955
24-Jun-98	1590	16	0.4433	-0.143	7.371	0.952
29-Jan-97	1640	17	0.4716	-0.071	7.402	0.947
14-Dec-98	2080	18	0.5000	0.000	7.640	0.944
25-Feb-98	2100	19	0.5284	0.071	7.650	0.938
24-Jun-97	2320	20	0.5567	0.143	7.749	0.933
7-Jul-99	2400	21	0.5851	0.215	7.783	0.929
13-Dec-96	2470	22	0.6135	0.288	7.812	0.932
21-Feb-97	4120	23	0.6418	0.363	8.324	0.966
19-Mar-98	4190	24	0.6702	0.441	8.340	0.961
16-Apr-97	4730	25	0.6986	0.520	8.462	0.958
23-Apr-98	6000	26	0.7270	0.604	8.700	0.953
17-Jun-99	6870	27	0.7553	0.691	8.835	0.948
17-Jun-99	6870	28	0.7837	0.785	8.835	0.959
6-May-99	7490	29	0.8121	0.885	8.921	0.960
26-Mar-97	7500	30	0.8404	0.996	8.923	0.970
28-May-98	7610	31	0.8688	1.121	8.937	0.964
23-Mar-99	9040	32	0.8972	1.266	9.109	
21-Apr-99	13200	33	0.9255	1.443	9.488	
26-May-99	15600	34	0.9539	1.684	9.655	
16-May-97	22800	35	0.9823	2.103	10.035	

Secondary Scale For LN graphs

u	Cumulative Frequecny secondary y-axis	Candidate x-axis positions x-axis position	
-4.00	0.00003	10000	1000
-3.00	0.00135	10000	1000
-2.00	0.02275	10000	1000
-1.00	0.15866	10000	1000
0.00	0.50000	10000	1000
1.00	0.84134	10000	1000
2.00	0.97725	10000	1000
3.00	0.99865	10000	1000
4.00	0.99997	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC55	**Date:**	3-Jun-00
Chemical:	tZn	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,885	3,834	339	5,069	0.00	0.00	0.00	
SD:	323	4,574	145	6,178	1.00	1.00	1.00	
CV:	0.01	1.19	0.43	1.22				first:
Min:	35,367	357	120	1,000.7	-0.76	-1.51	-0.66	mid:
Max:	36,405	22,800	690	36,799	4.15	2.41	5.14	last:
Median:	35,873	2,080	328	3,406	-0.38	-0.08	-0.27	

tZn LC55 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.29)		update r2	0.29	0.29				
r2 Q,[COC]:	0.29	[tZn]	Q					
slope, m:	0.0	399	357.0					
intercept, b:	404.9	339	3834.0					
N: 33		14	22800					first:
LnConc. = mLn{Q}+b (r2=0.577)		update r2		0.58	0.577			mid:
r2 lnQ,ln[COC]:	0.58	ln[tZn]	ln Q	[tZn]	Q			last:
slope, m:	-0.33	6.32	5.88	555	357			
intercept, b:	8.27	5.53	8.25	252	3,834			
N: 33		4.94	10.03	139	22,800			

Q = mTime +b

r2:	0.005	0.009
m:	0.9783	0.00032
b:	-31270	-3.70

LnQ = mTime +b

	tZn	for graph
	LC55	0

N= 33

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	29-Oct-96	576	454	1406.9	6.36	6.12	7.25	-0.71	0.79	-0.59
IDEQ	26-Nov-96	842	613	2776.9	6.74	6.42	7.93	-0.65	1.88	-0.37
IDEQ	13-Dec-96	2470	489	6498.1	7.81	6.19	8.78	-0.30	1.03	0.23
IDEQ	29-Jan-97	1640	434	3829.3	7.40	6.07	8.25	-0.48	0.65	-0.20
IDEQ	21-Feb-97	4120	328	7270.3	8.32	5.79	8.89	0.06	-0.08	0.36
IDEQ	26-Mar-97	7500	247	9966.5	8.92	5.51	9.21	0.80	-0.63	0.79
IDEQ	16-Apr-97	4730	196	4987.7	8.46	5.28	8.51	0.20	-0.98	-0.01
IDEQ	16-May-97	22800	300	36799.2	10.03	5.70	10.51	4.15	-0.27	5.14
IDEQ	24-Jun-97	2320	278	3469.9	7.75	5.63	8.15	-0.33	-0.42	-0.26
IDEQ	24-Jul-97	1030	368	2039.2	6.94	5.91	7.62	-0.61	0.20	-0.49
IDEQ	13-Aug-97	612	513	1689.1	6.42	6.24	7.43	-0.70	1.20	-0.55
IDEQ	16-Oct-97	573	516	1590.7	6.35	6.25	7.37	-0.71	1.22	-0.56
IDEQ	24-Nov-97	1410	336	2548.8	7.25	5.82	7.84	-0.53	-0.02	-0.41
IDEQ	17-Dec-97	1330	476	3406.0	7.19	6.17	8.13	-0.55	0.94	-0.27
IDEQ	21-Jan-98	1290	396	2748.3	7.16	5.98	7.92	-0.56	0.39	-0.38
IDEQ	25-Feb-98	2100	262	2960.1	7.65	5.57	7.99	-0.38	-0.53	-0.34
IDEQ	19-Mar-98	4190	209	4711.3	8.34	5.34	8.46	0.08	-0.90	-0.06
IDEQ	23-Apr-98	6000	179	5778.1	8.70	5.19	8.66	0.47	-1.10	0.11
IDEQ	28-May-98	7610	202	8270.2	8.94	5.31	9.02	0.83	-0.94	0.52
IDEQ	24-Jun-98	1590	320	2737.3	7.37	5.77	7.91	-0.49	-0.13	-0.38
IDEQ	27-Jul-98	622	369	1234.8	6.43	5.91	7.12	-0.70	0.20	-0.62
IDEQ	25-Aug-98	435	440	1029.7	6.08	6.09	6.94	-0.74	0.69	-0.65
IDEQ	23-Sep-98	357	521	1000.7	5.88	6.26	6.91	-0.76	1.25	-0.66
USGS	16-Nov-98	994	420	2246.0	6.90	6.04	7.72	-0.62	0.56	-0.46
USGS	14-Dec-98	2080	690	7721.4	7.64	6.54	8.95	-0.38	2.41	0.43
USGS	23-Mar-99	9040	180	8754.3	9.11	5.19	9.08	1.14	-1.09	0.60
USGS	21-Apr-99	13200	139	9871.2	9.49	4.93	9.20	2.05	-1.38	0.78
USGS	6-May-99	7490	120	4835.5	8.92	4.79	8.48	0.80	-1.51	-0.04
USGS	17-Jun-99	6870	126	4657.0	8.83	4.84	8.45	0.66	-1.47	-0.07
USGS	17-Jun-99	6870	126	4657.0	8.83	4.84	8.45	0.66	-1.47	-0.07
USGS	7-Jul-99	2400	239	3086.0	7.78	5.48	8.03	-0.31	-0.69	-0.32
USGS	11-Aug-99	795	313	1338.7	6.68	5.75	7.20	-0.66	-0.18	-0.60
USGS	2-Sep-99	635	395	1349.4	6.45	5.98	7.21	-0.70	0.38	-0.60

tZn

Concentration over time analysis r2 Slope, m

tZn LC55 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.189** **-0.00064**

Time	Ln[COC]	[COC]
29-Oct-96	6.05	425
19-Mar-98	5.73	308
2-Sep-99	5.39	220

LnConc.=mTime+b >'96 r2, m: **#REF!** **#REF!**

#REF!	#REF!	#REF!
2-Sep-99	#REF!	#REF!

Load over time analysis

tZn LC55 **Load over time**

LnLoad=mTime+b All data r2, m: **0.017** **-0.00032**

Time	LnLoad	Load
29-Oct-96	8.33	4,167
19-Mar-98	8.17	3,543
2-Sep-99	8.00	2,988

LnLoad=mTime+b >'96 r2, m: **#REF!** **#REF!**

#REF!	#REF!	#REF!
2-Sep-99	#REF!	#REF!

max r2: 0.919 max r2: 0.946

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.189	-0.00064	28.60	0.017	-0.00032	19.67
0.172	-0.00063	28.21	0.041	-0.00050	26.26
0.134	-0.00056	25.68	0.053	-0.00060	29.65
0.107	-0.00051	24.09	0.041	-0.00054	27.72
0.088	-0.00048	22.92	0.043	-0.00058	29.15
0.087	-0.00050	23.64	0.028	-0.00049	25.68
0.109	-0.00059	26.81	0.010	-0.00029	18.59
0.166	-0.00076	32.92	0.005	-0.00022	16.08
0.182	-0.00084	36.03	0.028	0.00044	-8.00
0.212	-0.00096	40.42	0.037	0.00055	-11.65
0.209	-0.00102	42.29	0.027	0.00049	-9.61
0.167	-0.00095	39.82	0.011	0.00033	-4.00
0.123	-0.00084	35.85	0.001	0.00011	4.02
0.116	-0.00087	36.88	0.000	0.00003	7.08
0.076	-0.00073	31.84	0.000	0.00005	6.19
0.050	-0.00062	28.13	0.000	-0.00003	9.16
0.056	-0.00072	31.44	0.000	-0.00010	11.59
0.091	-0.00099	41.53	0.001	0.00013	3.42
0.175	-0.00149	59.56	0.014	0.00061	-14.10
0.281	-0.00207	80.59	0.091	0.00163	-51.13
0.308	-0.00243	93.59	0.108	0.00200	-64.34
0.305	-0.00273	104.39	0.047	0.00143	-43.89
0.254	-0.00282	107.90	0.000	-0.00003	9.28
0.135	-0.00236	91.21	0.204	-0.00341	132.04
0.044	-0.00161	63.88	0.679	-0.00765	286.07
0.522	0.00598	-212.10	0.898	-0.01281	473.42
0.774	0.00906	-323.95	0.904	-0.01436	530.10
0.867	0.01147	-411.67	0.853	-0.01333	492.53
0.919	0.01457	-524.43	0.946	-0.01777	653.97

update for EV, CV:

tZn **LC55**

LN Analysis **tZn**

Load **Load Data, EV=5070 lbs/day CV=1.22**

Load Data-based LN

		u	ln tZn Load	tZn Load
Avg:	**5,069**			
SD:	**6,178**	3	10.9	56291
CV:	**1.22**	0	8.08	3215
Min:	**1,000.7**	-3	5.21	183.6
Max:	**36,799**			
Median:	**3,406**			
		5,069	5070	
		1.22	1.22	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.958, EV=5010lbs/day CV=1.01; max r2=0.96**

r2 u,lnLoad:	0.958	u	lnLoad	Load	
slope, m:	1.196	3	10.68	43333	
intercept, b:	-9.773	0	8.17	3530	
N: 33		-3	5.66	287.6	
E[Load]:	5006.0	Parameter Estimates			0.958
SD[Load]:	5034	from LN regression			5006.0
CV[Load]:	1.01	update graph label			1.0
					max r2
					0.964

	tZn	N: 33				
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
23-Sep-98	**1000.7**	1	0.0188	-2.079	6.908	0.958
25-Aug-98	**1029.7**	2	0.0489	-1.656	6.937	0.964
27-Jul-98	**1234.8**	3	0.0789	-1.412	7.119	0.963
11-Aug-99	**1338.7**	4	0.1090	-1.232	7.199	0.962
2-Sep-99	**1349.4**	5	0.1391	-1.084	7.207	0.960
29-Oct-96	**1406.9**	6	0.1692	-0.957	7.249	0.956
16-Oct-97	**1590.7**	7	0.1992	-0.844	7.372	0.951
13-Aug-97	**1689.1**	8	0.2293	-0.741	7.432	0.946
24-Jul-97	**2039.2**	9	0.2594	-0.645	7.620	0.941
16-Nov-98	**2246.0**	10	0.2895	-0.555	7.717	0.936
24-Nov-97	**2548.8**	11	0.3195	-0.469	7.843	0.931
24-Jun-98	**2737.3**	12	0.3496	-0.386	7.915	0.928
21-Jan-98	**2748.3**	13	0.3797	-0.306	7.919	0.926
26-Nov-96	**2776.9**	14	0.4098	-0.228	7.929	0.921
25-Feb-98	**2960.1**	15	0.4398	-0.151	7.993	0.915
7-Jul-99	**3086.0**	16	0.4699	-0.075	8.035	0.907
17-Dec-97	**3406.0**	17	0.5000	0.000	8.133	0.898
24-Jun-97	**3469.9**	18	0.5301	0.075	8.152	0.889
29-Jan-97	**3829.3**	19	0.5602	0.151	8.250	0.876
17-Jun-99	**4657.0**	20	0.5902	0.228	8.446	0.864
17-Jun-99	**4657.0**	21	0.6203	0.306	8.446	0.865
19-Mar-98	**4711.3**	22	0.6504	0.386	8.458	0.860
6-May-99	**4835.5**	23	0.6805	0.469	8.484	0.851
16-Apr-97	**4987.7**	24	0.7105	0.555	8.515	0.835
23-Apr-98	**5778.1**	25	0.7406	0.645	8.662	0.810
13-Dec-96	**6498.1**	26	0.7707	0.741	8.779	0.791
21-Feb-97	**7270.3**	27	0.8008	0.844	8.892	0.780
14-Dec-98	**7721.4**	28	0.8308	0.957	8.952	0.788
28-May-98	**8270.2**	29	0.8609	1.084	9.020	0.803
23-Mar-99	**8754.3**	30	0.8910	1.232	9.077	
21-Apr-99	**9871.2**	31	0.9211	1.412	9.197	
26-Mar-97	**9966.5**	32	0.9511	1.656	9.207	
16-May-97	**36799.2**	33	0.9812	2.079	10.513	

update for EV, CV:

tZn		**LC55**		339	339
LN Analysis		**tZn**		0.43	0.429
Concentration		**Conc. Data, EV=339 ug/L CV=0.429**			
Avg:	**339**	**Data-based LN**			
SD:	**145**	u	ln[tZn]	[tZn]	
CV:	**0.43**	3	7.0	1069	
Min:	**120**	0	5.74	312	
Max:	**690**	-3	4.51	91	
Median:	**328**				

				0.963	0.963
	u=mLn{Conc.}+b:			347.1	347
update for r2, EV, CV:	**r2=0.963, EV=347 ug/L CV=0.537; max r2=0.98**			0.537	0.537
	r2 u,lnConc:	0.963	u	lnConc.	Conc.
	slope, m:	1.988	3	7.23	1383
	intercept, b:	-11.378	0	5.72	306
	N: 33		-3	4.21	68
0.958	E[Conc]:	347.1	Parameter Estimates		
5010	SD[Conc]:	186	from LN regression		
1.01	CV[Conc]:	0.54	update graph label		

						max r2
	tZn	N: 33				0.980
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
6-May-99	120	1	0.0188	-2.079	4.787	0.963
17-Jun-99	126	2	0.0489	-1.656	4.836	0.959
17-Jun-99	126	3	0.0789	-1.412	4.836	0.954
21-Apr-99	139	4	0.1090	-1.232	4.934	0.955
23-Apr-98	179	5	0.1391	-1.084	5.187	0.960
23-Mar-99	180	6	0.1692	-0.957	5.193	0.956
16-Apr-97	196	7	0.1992	-0.844	5.278	0.956
28-May-98	202	8	0.2293	-0.741	5.308	0.954
19-Mar-98	209	9	0.2594	-0.645	5.342	0.956
7-Jul-99	239	10	0.2895	-0.555	5.476	0.965
26-Mar-97	247	11	0.3195	-0.469	5.509	0.965
25-Feb-98	262	12	0.3496	-0.386	5.568	0.969
24-Jun-97	278	13	0.3797	-0.306	5.628	0.973
16-May-97	300	14	0.4098	-0.228	5.704	0.975
11-Aug-99	313	15	0.4398	-0.151	5.746	0.974
24-Jun-98	320	16	0.4699	-0.075	5.768	0.973
21-Feb-97	328	17	0.5000	0.000	5.793	0.972
24-Nov-97	336	18	0.5301	0.075	5.817	0.974
24-Jul-97	368	19	0.5602	0.151	5.908	0.980
27-Jul-98	369	20	0.5902	0.228	5.911	0.977
2-Sep-99	395	21	0.6203	0.306	5.979	0.978
21-Jan-98	396	22	0.6504	0.386	5.981	0.975
16-Nov-98	420	23	0.6805	0.469	6.040	0.973
29-Jan-97	434	24	0.7105	0.555	6.073	0.968
25-Aug-98	440	25	0.7406	0.645	6.087	0.963
29-Oct-96	454	26	0.7707	0.741	6.118	0.955
17-Dec-97	476	27	0.8008	0.844	6.165	0.943
13-Dec-96	489	28	0.8308	0.957	6.192	0.936
13-Aug-97	513	29	0.8609	1.084	6.240	0.926
16-Oct-97	516	30	0.8910	1.232	6.246	
23-Sep-98	521	31	0.9211	1.412	6.256	
26-Nov-96	613	32	0.9511	1.656	6.418	
14-Dec-98	690	33	0.9812	2.079	6.537	

update for EV, CV:

tZn		**LC55**			3,834	3830
LN Analysis		**tZn**			1.19	1.19

Discharge, Q

Q Data, EV=3830 cfs CV=1.19

Q Data-based LN

		u	lnQ	Q
Avg:	**3,834**	3	10.6	41421
SD:	**4,574**	0	7.81	2463
CV:	**1.19**	-3	4.99	146
Min:	**357**			
Max:	**22,800**			
Median:	**2,080**			

0.967	0.967	
4137.6	4140	
1.65	1.65	

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.967, EV=4140 cfs CV=1.65; max r2=0.98**

		u	lnQ	Q
r2 u,lnQ:	0.967	u	lnQ	Q
slope, m:	0.872	3	11.11	66817
intercept, b:	-6.692	0	7.67	2145
N: 33		-3	4.23	69
E[Q]:	4137.6	Parameter Estimates		
SD[Q]:	6825	from LN regression		
CV[Q]:	1.65	update graph label		

N: 33

max r2
0.979

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
23-Sep-98	357	1	0.0188	-2.079	5.878	0.967
25-Aug-98	435	2	0.0489	-1.656	6.075	0.973
16-Oct-97	573	3	0.0789	-1.412	6.351	0.975
29-Oct-96	576	4	0.1090	-1.232	6.356	0.978
13-Aug-97	612	5	0.1391	-1.084	6.417	0.979
27-Jul-98	622	6	0.1692	-0.957	6.433	0.977
2-Sep-99	635	7	0.1992	-0.844	6.454	0.975
11-Aug-99	795	8	0.2293	-0.741	6.678	0.973
26-Nov-96	842	9	0.2594	-0.645	6.736	0.970
16-Nov-98	994	10	0.2895	-0.555	6.902	0.967
24-Jul-97	1030	11	0.3195	-0.469	6.937	0.964
21-Jan-98	1290	12	0.3496	-0.386	7.162	0.961
17-Dec-97	1330	13	0.3797	-0.306	7.193	0.957
24-Nov-97	1410	14	0.4098	-0.228	7.251	0.952
24-Jun-98	1590	15	0.4398	-0.151	7.371	0.948
29-Jan-97	1640	16	0.4699	-0.075	7.402	0.942
14-Dec-98	2080	17	0.5000	0.000	7.640	0.938
25-Feb-98	2100	18	0.5301	0.075	7.650	0.931
24-Jun-97	2320	19	0.5602	0.151	7.749	0.923
7-Jul-99	2400	20	0.5902	0.228	7.783	0.916
13-Dec-96	2470	21	0.6203	0.306	7.812	0.915
21-Feb-97	4120	22	0.6504	0.386	8.324	0.944
19-Mar-98	4190	23	0.6805	0.469	8.340	0.934
16-Apr-97	4730	24	0.7105	0.555	8.462	0.924
23-Apr-98	6000	25	0.7406	0.645	8.700	0.909
17-Jun-99	6870	26	0.7707	0.741	8.835	0.902
17-Jun-99	6870	27	0.8008	0.844	8.835	0.923
6-May-99	7490	28	0.8308	0.957	8.921	0.936
26-Mar-97	7500	29	0.8609	1.084	8.923	0.972
28-May-98	7610	30	0.8910	1.232	8.937	
23-Mar-99	9040	31	0.9211	1.412	9.109	
21-Apr-99	13200	32	0.9511	1.656	9.488	
16-May-97	22800	33	0.9812	2.079	10.035	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC60	**Date:**	14-Jul-00
Chemical:	dCd	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,038	3,031	2	28	0.00	0.00	0.00	
SD:	735	3,048	1	29	1.00	1.00	1.00	
CV:	0.02	1.01	0.37	1.04				first:
Min:	33,883	202	1	1.8	-0.93	-1.33	-0.90	mid:
Max:	36,412	12,400	5	165	3.07	4.09	4.82	last:
Median:	34,926	1,800	2	18	-0.40	0.03	-0.34	

dCd	**LC60**		**: Concentration v. Discharge, Q**		**Q = mTime +b**		**LnQ = mTime +b**	
Conc. = mQ+b (r2=0.0993)		update r2	0.10	0.0993	r2:	0.004	0.004	
r2 Q,[COC]:	0.10	[dCd]	Q		m:	0.2674	0.00010	
slope, m:	0.0	2	202.0		b:	-6339	4.00	
intercept, b:	2.1	2	3031.4					
N: 91		1	12400					first:
LnConc. = mLn{Q}+b (r2=0.147)		update r2	0.15	0.147				mid:
r2 lnQ,ln[COC]:	0.15	ln[dCd]	ln Q	[dCd]	Q			last:
slope, m:	-0.12	0.85	5.31	2	202			
intercept, b:	1.49	0.52	8.02	2	3,031			
N: 91		0.35	9.43	1	12,400			

								dCd	for graph 0		
N= 91								LC60			
	Sampling Date	**Q Discharge**	**dCd Concentration**	**dCd Load**	**Ln Q**	**Ln dCd Conc.**	**Ln dCd Load**	**Standardized Values = (x - Avg)/SD**			
update for new data		**cfs**	**ug/L**	**lbs/day**				**Q**	**Conc**	**Load**	
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis				
IDEQ	6-Oct-92	202	2.88	3.1	5.31	1.06	1.14	-0.93	1.37	-0.85	
IDEQ	20-Oct-92	507	1.93	5.3	6.23	0.66	1.66	-0.83	0.03	-0.78	
IDEQ	17-Nov-92	776	1.93	8.1	6.65	0.66	2.09	-0.74	0.03	-0.68	
IDEQ	9-Dec-92	704	1.93	7.3	6.56	0.66	1.99	-0.76	0.03	-0.71	
IDEQ	16-Feb-93	789	2.88	12.2	6.67	1.06	2.50	-0.74	1.37	-0.53	
IDEQ	10-Mar-93	1970	2.88	30.5	7.59	1.06	3.42	-0.35	1.37	0.11	
IDEQ	24-Mar-93	8030	3.83	165.5	8.99	1.34	5.11	1.64	2.72	4.82	
IDEQ	26-Mar-93	9040	1.93	93.9	9.11	0.66	4.54	1.97	0.03	2.32	
IDEQ	12-Apr-93	9680	1.93	100.5	9.18	0.66	4.61	2.18	0.03	2.55	
IDEQ	20-Apr-93	9100	0.97	47.5	9.12	-0.03	3.86	1.99	-1.33	0.70	
IDEQ	5-May-93	8720	1.93	90.5	9.07	0.66	4.51	1.87	0.03	2.20	
IDEQ	17-May-93	8590	1.93	89.2	9.06	0.66	4.49	1.82	0.03	2.15	
IDEQ	2-Jun-93	3250	1.93	33.7	8.09	0.66	3.52	0.07	0.03	0.22	
IDEQ	21-Jun-93	1400	1.93	14.5	7.24	0.66	2.68	-0.54	0.03	-0.45	
IDEQ	22-Jul-93	1900	1.93	19.7	7.55	0.66	2.98	-0.37	0.03	-0.27	
IDEQ	17-Aug-93	1010	1.93	10.5	6.92	0.66	2.35	-0.66	0.03	-0.59	
IDEQ	20-Sep-93	626	1.93	6.5	6.44	0.66	1.87	-0.79	0.03	-0.73	
IDEQ	20-Oct-93	674	1.93	7.0	6.51	0.66	1.95	-0.77	0.03	-0.72	
IDEQ	16-Nov-93	465	1.93	4.8	6.14	0.66	1.57	-0.84	0.03	-0.79	
IDEQ	13-Dec-93	877	3.83	18.1	6.78	1.34	2.89	-0.71	2.72	-0.33	
IDEQ	18-Jan-94	1800	1.93	18.7	7.50	0.66	2.93	-0.40	0.03	-0.31	
IDEQ	23-Feb-94	820	1.93	8.5	6.71	0.66	2.14	-0.73	0.03	-0.66	
IDEQ	14-Mar-94	2080	1.93	21.6	7.64	0.66	3.07	-0.31	0.03	-0.21	
IDEQ	6-Apr-94	4750	0.97	24.8	8.47	-0.03	3.21	0.56	-1.33	-0.10	
IDEQ	20-Apr-94	7780	1.93	80.8	8.96	0.66	4.39	1.56	0.03	1.86	
IDEQ	11-May-94	2760	0.97	14.4	7.92	-0.03	2.67	-0.09	-1.33	-0.46	
IDEQ	14-Jun-94	1280	2.88	19.8	7.15	1.06	2.99	-0.57	1.37	-0.27	
IDEQ	20-Jul-94	648	1.93	6.7	6.47	0.66	1.91	-0.78	0.03	-0.73	
IDEQ	15-Aug-94	346	0.97	1.8	5.85	-0.03	0.59	-0.88	-1.33	-0.90	
IDEQ	20-Sep-94	221	1.93	2.3	5.40	0.66	0.83	-0.92	0.03	-0.88	
IDEQ	6-Oct-94	281	1.64	2.5	5.64	0.49	0.91	-0.90	-0.38	-0.87	
IDEQ	22-Nov-94	444	2.88	6.9	6.10	1.06	1.93	-0.85	1.37	-0.72	
IDEQ	16-Dec-94	774	2.12	8.8	6.65	0.75	2.18	-0.74	0.30	-0.65	
IDEQ	12-Jan-95	4822	3.74	97.0	8.48	1.32	4.57	0.59	2.59	2.43	
IDEQ	16-Feb-95	2626	1.16	16.4	7.87	0.15	2.80	-0.13	-1.06	-0.39	
IDEQ	7-Mar-95	3326	0.97	17.4	8.11	-0.03	2.85	0.10	-1.33	-0.35	
IDEQ	23-Mar-95	8328	1.35	60.5	9.03	0.30	4.10	1.74	-0.79	1.15	
IDEQ	14-Apr-95	4631	1.64	40.9	8.44	0.49	3.71	0.52	-0.38	0.47	

dCd

Concentration over time analysis r2 Slope, m

dCd	LC60		Concentration over time	
LnConc.=mTime+b All data r2, m:			**0.073**	**-0.00013**
Time	**Ln[COC]**	**[COC]**		
6-Oct-92	0.73	2		
15-Aug-95	0.60	2		
9-Sep-99	0.41	2		
LnConc.=mTime+b >'96 r2, m:			**0.105**	**-0.00028**
28-Dec-95	0.71	2		
9-Sep-99	0.34	1		

Load over time analysis

dCd	LC60		Load over time	
LnLoad=mTime+b All data r2, m:			**0.000**	**-0.00003**
Time	**LnLoad**	**Load**		
6-Oct-92	2.86	18		
15-Aug-95	2.84	17		
9-Sep-99	2.79	16		
LnLoad=mTime+b >'96 r2, m:			**0.008**	**-0.00020**
28-Dec-95	3.00	20		
9-Sep-99	2.73	15		

max r2: 0.776			max r2: 0.958		
Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.073	-0.00013	5.02	0.000	-0.00003	3.80
0.064	-0.00012	4.74	0.003	-0.00007	5.29
0.063	-0.00012	4.79	0.005	-0.00010	6.43
0.063	-0.00012	4.85	0.008	-0.00012	7.24
0.063	-0.00012	4.90	0.011	-0.00015	8.18
0.054	-0.00011	4.59	0.013	-0.00016	8.68
0.045	-0.00010	4.25	0.012	-0.00016	8.35
0.033	-0.00009	3.63	0.005	-0.00010	6.39
0.032	-0.00009	3.62	0.002	-0.00006	4.84
0.030	-0.00009	3.61	0.000	-0.00001	3.10
0.046	-0.00011	4.33	0.000	0.00002	2.01
0.046	-0.00011	4.35	0.003	0.00008	0.14
0.045	-0.00011	4.37	0.009	0.00013	-1.87
0.044	-0.00011	4.40	0.013	0.00016	-2.92
0.043	-0.00011	4.42	0.013	0.00016	-3.04
0.042	-0.00011	4.44	0.014	0.00018	-3.53
0.041	-0.00011	4.45	0.013	0.00017	-3.27
0.040	-0.00011	4.47	0.009	0.00015	-2.38
0.038	-0.00011	4.48	0.006	0.00012	-1.51
0.037	-0.00011	4.49	0.003	0.00008	-0.08
0.023	-0.00009	3.56	0.003	0.00009	-0.33
0.021	-0.00008	3.51	0.004	0.00010	-0.64
0.020	-0.00008	3.46	0.002	0.00008	0.13
0.018	-0.00008	3.39	0.003	0.00009	-0.36
0.032	-0.00011	4.34	0.004	0.00011	-1.10
0.031	-0.00011	4.31	0.012	0.00018	-3.72
0.050	-0.00014	5.37	0.012	0.00019	-3.83
0.038	-0.00012	4.75	0.013	0.00020	-4.46
0.036	-0.00012	4.73	0.009	0.00017	-3.36
0.059	-0.00015	5.86	0.002	0.00008	0.05
0.057	-0.00015	5.89	0.000	-0.00001	3.30
0.062	-0.00016	6.20	0.004	-0.00011	6.72
0.048	-0.00014	5.53	0.009	-0.00016	8.53
0.043	-0.00014	5.35	0.014	-0.00020	10.04
0.025	-0.00010	4.10	0.005	-0.00012	7.24
0.038	-0.00012	4.94	0.006	-0.00013	7.55
0.063	-0.00016	6.20	0.006	-0.00014	7.77
0.078	-0.00018	6.91	0.002	-0.00008	5.52

update for EV, CV:

dCd **LC60**
LN Analysis **dCd**

Load **Load Data, EV=27.5 lbs/day CV=1.04**

Load Data-based LN

		u	ln dCd Load	dCd Load
Avg:	**28**			
SD:	**29**	3	5.5	249
CV:	**1.04**	0	2.95	19
Min:	**1.8**	-3	0.38	1.5
Max:	**165**			
Median:	**18**			

28 27.5
1.04 1.04

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.99, EV=29lbs/day CV=1.39; max r2=0.99** update

r2 u,lnLoad:	0.990	u	lnLoad	Load		
slope, m:	0.965	3	5.94	380		
intercept, b:	-2.734	0	2.83	17		
N: 91		-3	-0.28	0.8		
E[Load]:	29.0	Parameter Estimates			0.990	0.99
SD[Load]:	40	from LN regression			29.0	29
CV[Load]:	1.39	update graph label			1.4	1.39

Date	dCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.990 r2 forward
		N: 91				
update and rank for new data						
15-Aug-94	**1.8**	1	0.0068	-2.465	0.591	0.990
20-Sep-94	**2.3**	2	0.0178	-2.101	0.831	0.990
6-Oct-94	**2.5**	3	0.0288	-1.899	0.908	0.990
23-Sep-98	**2.8**	4	0.0397	-1.754	1.017	0.989
25-Aug-98	**3.0**	5	0.0507	-1.638	1.110	0.989
6-Oct-92	**3.1**	6	0.0616	-1.541	1.141	0.988
9-Sep-99	**3.9**	7	0.0726	-1.457	1.360	0.988
26-Sep-96	**4.4**	8	0.0836	-1.382	1.476	0.987
14-Sep-95	**4.5**	9	0.0945	-1.313	1.504	0.987
16-Nov-93	**4.8**	10	0.1055	-1.251	1.574	0.987
20-Oct-92	**5.3**	11	0.1164	-1.193	1.661	0.986
3-Sep-97	**5.5**	12	0.1274	-1.139	1.697	0.986
21-Aug-96	**5.5**	13	0.1384	-1.088	1.707	0.986
29-Oct-96	**6.0**	14	0.1493	-1.039	1.795	0.985
15-Aug-95	**6.3**	15	0.1603	-0.993	1.835	0.985
27-Jul-98	**6.4**	16	0.1712	-0.949	1.853	0.984
16-Oct-97	**6.4**	17	0.1822	-0.907	1.855	0.984
20-Sep-93	**6.5**	18	0.1932	-0.866	1.872	0.983
13-Aug-97	**6.5**	19	0.2041	-0.827	1.877	0.983
20-Jul-94	**6.7**	20	0.2151	-0.789	1.906	0.982
11-Aug-99	**6.7**	21	0.2260	-0.752	1.909	0.982
22-Nov-94	**6.9**	22	0.2370	-0.716	1.929	0.981
20-Oct-93	**7.0**	23	0.2479	-0.681	1.946	0.981
26-Jul-95	**7.2**	24	0.2589	-0.647	1.978	0.981
9-Dec-92	**7.3**	25	0.2699	-0.613	1.989	0.981
17-Nov-92	**8.1**	26	0.2808	-0.580	2.087	0.982
23-Feb-94	**8.5**	27	0.2918	-0.548	2.142	0.982
16-Dec-94	**8.8**	28	0.3027	-0.517	2.178	0.982
12-Jul-95	**9.2**	29	0.3137	-0.485	2.219	0.982
23-Jul-96	**9.6**	30	0.3247	-0.455	2.258	0.982
14-Jul-99	**10.2**	31	0.3356	-0.424	2.319	0.982
17-Aug-93	**10.5**	32	0.3466	-0.395	2.350	0.981
24-Jul-97	**10.6**	33	0.3575	-0.365	2.364	0.981
17-Dec-97	**11.3**	34	0.3685	-0.336	2.423	0.982
28-Jun-95	**12.1**	35	0.3795	-0.307	2.491	0.982
16-Feb-93	**12.2**	36	0.3904	-0.278	2.503	0.981
11-May-94	**14.4**	37	0.4014	-0.250	2.667	0.981
21-Jun-93	**14.5**	38	0.4123	-0.222	2.677	0.980

update for EV, CV:

dCd		**LC60**	2	1.91
LN Analysis		**dCd**	0.37	0.37
Concentration		**Conc. Data, EV=1.91 ug/L CV=0.37**		
Avg:	**2**	**Data-based LN**		
SD:	**1**	u	ln[dCd]	[dCd]
CV:	**0.37**	3	1.7	5
Min:	**1**	0	0.58	2
Max:	**5**	-3	-0.49	1
Median:	**2**			

			0.951	0.951
u=mLn{Conc.}+b:			1.9	1.92
e for r2, EV, CV: **r2=0.951, EV=1.92 ug/L CV=0.371; max r2=0.97**			0.371	0.371
r2 u,lnConc:	0.951	u	lnConc.	Conc.
slope, m:	2.785	3	1.66	5
intercept, b:	-1.634	0	0.59	2
N: 91		-3	-0.49	1
E[Conc]:	1.9	Parameter Estimates		
SD[Conc]:	1	from LN regression		
CV[Conc]:	0.37	update graph label		

						max r2
	dCd	N: 91				0.970
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
20-Apr-93	0.97	1	0.0068	-2.465	-0.030	0.951
6-Apr-94	0.97	2	0.0178	-2.101	-0.030	0.955
11-May-94	0.97	3	0.0288	-1.899	-0.030	0.955
15-Aug-94	0.97	4	0.0397	-1.754	-0.030	0.953
7-Mar-95	0.97	5	0.0507	-1.638	-0.030	0.951
21-Apr-99	1	6	0.0616	-1.541	0.000	0.949
6-May-99	1	7	0.0726	-1.457	0.000	0.947
27-May-99	1	8	0.0836	-1.382	0.000	0.945
17-Jun-99	1	9	0.0945	-1.313	0.000	0.943
14-Jul-99	1	10	0.1055	-1.251	0.000	0.942
16-Feb-95	1.16	11	0.1164	-1.193	0.148	0.942
16-Apr-97	1.2	12	0.1274	-1.139	0.182	0.940
19-Mar-98	1.2	13	0.1384	-1.088	0.182	0.938
23-Mar-99	1.2	14	0.1493	-1.039	0.182	0.936
18-Apr-96	1.26	15	0.1603	-0.993	0.231	0.934
9-May-96	1.26	16	0.1712	-0.949	0.231	0.931
23-Apr-98	1.3	17	0.1822	-0.907	0.262	0.929
25-Aug-98	1.3	18	0.1932	-0.866	0.262	0.926
23-Mar-95	1.35	19	0.2041	-0.827	0.300	0.924
21-Nov-95	1.35	20	0.2151	-0.789	0.300	0.921
27-Mar-97	1.4	21	0.2260	-0.752	0.336	0.918
24-Jun-97	1.4	22	0.2370	-0.716	0.336	0.916
23-Sep-98	1.4	23	0.2479	-0.681	0.336	0.913
11-May-95	1.45	24	0.2589	-0.647	0.372	0.910
28-Feb-96	1.45	25	0.2699	-0.613	0.372	0.907
27-Mar-96	1.45	26	0.2808	-0.580	0.372	0.904
28-May-98	1.5	27	0.2918	-0.548	0.405	0.900
18-Jan-96	1.54	28	0.3027	-0.517	0.432	0.897
17-Dec-97	1.6	29	0.3137	-0.485	0.470	0.893
6-Oct-94	1.64	30	0.3247	-0.455	0.495	0.891
14-Apr-95	1.64	31	0.3356	-0.424	0.495	0.889
28-Jun-95	1.64	32	0.3466	-0.395	0.495	0.886
25-Feb-98	1.7	33	0.3575	-0.365	0.531	0.883
24-May-95	1.73	34	0.3685	-0.336	0.548	0.881
30-Jan-97	1.8	35	0.3795	-0.307	0.588	0.880
27-Apr-95	1.83	36	0.3904	-0.278	0.604	0.882
14-Jun-95	1.83	37	0.4014	-0.250	0.604	0.884
12-Jul-95	1.83	38	0.4123	-0.222	0.604	0.886

update for EV, CV:

dCd		**LC60**			3,031	3030
LN Analysis		**dCd**			1.01	1.01
Discharge, Q		**Q Data, EV=3030 cfs CV=1.01**				
Avg:	**3,031**	**Q Data-based LN**				
SD:	**3,048**	u	lnQ	Q		
CV:	**1.01**	3	10.2	26234		
Min:	**202**	0	7.67	2138		
Max:	**12,400**	-3	5.16	174		
Median:	**1,800**					

					0.964	0.964
					3335.8	3340
u=mLn{Q}+b:					1.62	1.62
ate for r2, EV, CV:	**r2=0.964, EV=3340 cfs CV=1.62; max r2=0.99**					
r2 u,lnQ:	0.964	u	lnQ	Q		
slope, m:	0.882	3	10.87	52596		
intercept, b:	-6.591	0	7.47	1755		
N: 91		-3	4.07	59		
E[Q]:	3335.8	Parameter Estimates				
SD[Q]:	5393	from LN regression				
CV[Q]:	1.62	update graph label				

						max r2
	Q	N: 91				0.985
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Dat	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
##	202	1	0.0068	-2.465	5.308	0.964
##	221	2	0.0178	-2.101	5.398	0.965
##	281	3	0.0288	-1.899	5.638	0.964
##	346	4	0.0397	-1.754	5.846	0.964
##	362	5	0.0507	-1.638	5.892	0.964
##	367	6	0.0616	-1.541	5.905	0.964
##	368	7	0.0726	-1.457	5.908	0.964
##	414	8	0.0836	-1.382	6.026	0.963
##	427	9	0.0945	-1.313	6.057	0.962
##	434	10	0.1055	-1.251	6.073	0.961
##	444	11	0.1164	-1.193	6.096	0.960
##	461	12	0.1274	-1.139	6.133	0.959
##	465	13	0.1384	-1.088	6.142	0.957
##	504	14	0.1493	-1.039	6.223	0.956
##	507	15	0.1603	-0.993	6.229	0.954
##	589	16	0.1712	-0.949	6.378	0.952
##	594	17	0.1822	-0.907	6.387	0.951
##	607	18	0.1932	-0.866	6.409	0.949
##	624	19	0.2041	-0.827	6.436	0.948
##	626	20	0.2151	-0.789	6.439	0.946
##	627	21	0.2260	-0.752	6.441	0.944
##	634	22	0.2370	-0.716	6.452	0.942
##	648	23	0.2479	-0.681	6.474	0.940
##	674	24	0.2589	-0.647	6.513	0.938
##	704	25	0.2699	-0.613	6.557	0.937
##	711	26	0.2808	-0.580	6.567	0.935
##	774	27	0.2918	-0.548	6.652	0.933
##	776	28	0.3027	-0.517	6.654	0.931
##	789	29	0.3137	-0.485	6.671	0.929
##	820	30	0.3247	-0.455	6.709	0.928
##	851	31	0.3356	-0.424	6.746	0.927
##	877	32	0.3466	-0.395	6.777	0.925
##	934	33	0.3575	-0.365	6.839	0.924
##	1010	34	0.3685	-0.336	6.918	0.923
##	1040	35	0.3795	-0.307	6.947	0.922
##	1100	36	0.3904	-0.278	7.003	0.920
##	1280	37	0.4014	-0.250	7.155	0.919
##	1280	38	0.4123	-0.222	7.155	0.916

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC60	**Date:**	14-Jul-00
Chemical:	dPb	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	35,038	3,031	8	150	0.00	0.00	0.00		
SD:	735	3,048	4	184	1.00	1.00	1.00		
CV:	0.02	1.01	0.48	1.23					first:
Min:	33,883	202	2	2.3	-0.93	-1.67	-0.80		mid:
Max:	36,412	12,400	22	934	3.07	3.79	4.25		last:
Median:	34,926	1,800	7	67	-0.40	-0.21	-0.45		

dPb	**LC60**		**: Concentration v. Discharge, Q**			**Q = mTime +b**		**LnQ = mTime +b**	
Conc. = mQ+b (r2=0.142)		update r2	0.14	0.142		r2:	0.004	0.004	
r2 Q,[COC]:	0.14	[dPb]	Q			m:	0.2674	0.00010	
slope, m:	0.0	6	202.0			b:	-6339	4.00	
intercept, b:	6.4	8	3031.4						
N: 91		12	12400						first:
LnConc. = mLn{Q}+b (r2=0.269)		update r2		0.27	0.269				mid:
r2 lnQ,ln[COC]:	0.27	ln[dPb]	ln Q	[dPb]	Q				last:
slope, m:	0.24	1.40	5.31	4	202				
intercept, b:	0.11	2.06	8.02	8	3,031				
N: 91		2.40	9.43	11	12,400				

								dPb	for graph	
N= 91								LC60	0	
	Sampling Date	**Q Discharge**	**dPb Concentration**	**dPb Load**	**Ln Q**	**Ln dPb Conc.**	**Ln dPb Load**	**Standardized Values = (x - Avg)/SD**		
update for new data		**cfs**	**ug/L**	**lbs/day**				**Q**	**Conc**	**Load**
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	6-Oct-92	202	5.3	5.8	5.31	1.67	1.75	-0.93	-0.66	-0.78
IDEQ	20-Oct-92	507	5.7	15.5	6.23	1.74	2.74	-0.83	-0.55	-0.73
IDEQ	17-Nov-92	776	4.2	17.5	6.65	1.44	2.86	-0.74	-0.95	-0.72
IDEQ	9-Dec-92	704	5.7	21.6	6.56	1.74	3.07	-0.76	-0.55	-0.70
IDEQ	16-Feb-93	789	9.7	41.2	6.67	2.27	3.72	-0.74	0.51	-0.59
IDEQ	10-Mar-93	1970	5.9	62.5	7.59	1.77	4.14	-0.35	-0.50	-0.47
IDEQ	24-Mar-93	8030	4.9	211.7	8.99	1.59	5.36	1.64	-0.77	0.33
IDEQ	26-Mar-93	9040	13.1	637.1	9.11	2.57	6.46	1.97	1.42	2.64
IDEQ	12-Apr-93	9680	9.8	510.4	9.18	2.28	6.24	2.18	0.54	1.95
IDEQ	20-Apr-93	9100	9.9	484.7	9.12	2.29	6.18	1.99	0.57	1.82
IDEQ	5-May-93	8720	9	422.2	9.07	2.20	6.05	1.87	0.33	1.48
IDEQ	17-May-93	8590	8.6	397.4	9.06	2.15	5.99	1.82	0.22	1.34
IDEQ	2-Jun-93	3250	5.2	90.9	8.09	1.65	4.51	0.07	-0.69	-0.32
IDEQ	21-Jun-93	1400	6.1	45.9	7.24	1.81	3.83	-0.54	-0.45	-0.56
IDEQ	22-Jul-93	1900	4.8	49.1	7.55	1.57	3.89	-0.37	-0.79	-0.55
IDEQ	17-Aug-93	1010	5.8	31.5	6.92	1.76	3.45	-0.66	-0.53	-0.64
IDEQ	20-Sep-93	626	5.2	17.5	6.44	1.65	2.86	-0.79	-0.69	-0.72
IDEQ	20-Oct-93	674	4.9	17.8	6.51	1.59	2.88	-0.77	-0.77	-0.72
IDEQ	16-Nov-93	465	5.6	14.0	6.14	1.72	2.64	-0.84	-0.58	-0.74
IDEQ	13-Dec-93	877	6.6	31.1	6.78	1.89	3.44	-0.71	-0.31	-0.65
IDEQ	18-Jan-94	1800	4.5	43.6	7.50	1.50	3.77	-0.40	-0.87	-0.58
IDEQ	23-Feb-94	820	7.6	33.5	6.71	2.03	3.51	-0.73	-0.05	-0.63
IDEQ	14-Mar-94	2080	5.1	57.1	7.64	1.63	4.04	-0.31	-0.71	-0.50
IDEQ	6-Apr-94	4750	7.8	199.3	8.47	2.05	5.29	0.56	0.01	0.27
IDEQ	20-Apr-94	7780	4.5	188.4	8.96	1.50	5.24	1.56	-0.87	0.21
IDEQ	11-May-94	2760	4.9	72.8	7.92	1.59	4.29	-0.09	-0.77	-0.42
IDEQ	14-Jun-94	1280	5.1	35.1	7.15	1.63	3.56	-0.57	-0.71	-0.62
IDEQ	20-Jul-94	648	5.7	19.9	6.47	1.74	2.99	-0.78	-0.55	-0.71
IDEQ	15-Aug-94	346	5.5	10.2	5.85	1.70	2.33	-0.88	-0.61	-0.76
IDEQ	20-Sep-94	221	5.6	6.7	5.40	1.72	1.90	-0.92	-0.58	-0.78
IDEQ	6-Oct-94	281	1.5	2.3	5.64	0.41	0.82	-0.90	-1.67	-0.80
IDEQ	22-Nov-94	444	5	11.9	6.10	1.61	2.48	-0.85	-0.74	-0.75
IDEQ	16-Dec-94	774	7	29.1	6.65	1.95	3.37	-0.74	-0.21	-0.66
IDEQ	12-Jan-95	4822	7	181.6	8.48	1.95	5.20	0.59	-0.21	0.17
IDEQ	16-Feb-95	2626	5	70.6	7.87	1.61	4.26	-0.13	-0.74	-0.43
IDEQ	7-Mar-95	3326	22	393.7	8.11	3.09	5.98	0.10	3.79	1.32
IDEQ	23-Mar-95	8328	12	537.7	9.03	2.48	6.29	1.74	1.13	2.10
IDEQ	14-Apr-95	4631	10	249.1	8.44	2.30	5.52	0.52	0.59	0.54

dPb

Concentration over time analysis r2 Slope, m

dPb LC60 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.000 0.00001**

Time	Ln[COC]	[COC]
6-Oct-92	1.92	7
15-Aug-95	1.93	7
9-Sep-99	1.94	7

LnConc.=mTime+b >'96 r2, m: **0.101 -0.00044**

28-Dec-95	2.27	10
9-Sep-99	1.68	5

Load over time analysis

dPb LC60 **Load over time**

LnLoad=mTime+b All data r2, m: **0.003 0.00011**

Time	LnLoad	Load
6-Oct-92	4.05	57
15-Aug-95	4.16	64
9-Sep-99	4.33	76

LnLoad=mTime+b >'96 r2, m: **0.010 -0.00036**

28-Dec-95	4.55	95
9-Sep-99	4.07	59

max r2: 0.542 max r2: 0.954

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.000	0.00001	1.54	0.003	0.00011	0.32
0.000	0.00000	1.76	0.001	0.00005	2.32
0.000	0.00000	1.93	0.000	0.00002	3.56
0.000	-0.00001	2.38	0.000	-0.00002	4.77
0.001	-0.00002	2.58	0.001	-0.00005	5.86
0.000	-0.00001	2.30	0.001	-0.00006	6.38
0.000	-0.00001	2.46	0.001	-0.00007	6.55
0.001	-0.00002	2.81	0.000	-0.00004	5.58
0.000	-0.00001	2.21	0.000	0.00002	3.43
0.000	0.00000	1.87	0.002	0.00008	1.36
0.000	0.00001	1.50	0.005	0.00014	-0.82
0.001	0.00002	1.19	0.009	0.00020	-3.02
0.001	0.00003	0.91	0.016	0.00027	-5.33
0.001	0.00002	1.19	0.018	0.00029	-6.12
0.000	0.00002	1.31	0.018	0.00029	-6.15
0.000	0.00001	1.72	0.018	0.00029	-6.25
0.000	0.00000	1.93	0.016	0.00028	-5.79
0.000	-0.00001	2.29	0.012	0.00025	-4.55
0.001	-0.00002	2.76	0.008	0.00021	-3.23
0.001	-0.00003	3.08	0.005	0.00016	-1.49
0.002	-0.00004	3.20	0.003	0.00014	-0.69
0.003	-0.00005	3.86	0.003	0.00013	-0.29
0.003	-0.00005	3.83	0.002	0.00010	0.50
0.005	-0.00007	4.36	0.002	0.00010	0.60
0.005	-0.00007	4.31	0.004	0.00015	-1.13
0.008	-0.00009	5.09	0.006	0.00020	-2.94
0.012	-0.00011	5.81	0.007	0.00021	-3.39
0.016	-0.00013	6.51	0.005	0.00019	-2.70
0.019	-0.00014	7.07	0.003	0.00015	-1.01
0.023	-0.00016	7.74	0.001	0.00007	1.93
0.028	-0.00018	8.41	0.000	-0.00004	5.82
0.066	-0.00027	11.45	0.007	-0.00022	11.97
0.079	-0.00030	12.54	0.014	-0.00031	15.54
0.084	-0.00031	13.09	0.020	-0.00038	17.78
0.090	-0.00033	13.67	0.016	-0.00035	16.81
0.106	-0.00036	14.90	0.018	-0.00037	17.51
0.085	-0.00032	13.37	0.011	-0.00030	14.95
0.076	-0.00031	12.90	0.005	-0.00020	11.50

update for EV, CV:

dPb **LC60**

LN Analysis **dPb**

Load **Load Data, EV=150 lbs/day CV=1.23**

Load Data-based LN

		u	ln dPb Load	dPb Load
Avg:	**150**			
SD:	**184**	u	ln dPb Load	dPb Load
CV:	**1.23**	3	7.4	1683
Min:	**2.3**	0	4.55	95
Max:	**934**	-3	1.67	5.3
Median:	**67**			
		150	150	
		1.23	1.23	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.98, EV=191lbs/day CV=2.76; max r2=0.98**

r2 u,lnLoad:	0.980	u	lnLoad	Load	
slope, m:	0.681	3	8.58	5318	
intercept, b:	-2.844	0	4.17	65	
N: 91		-3	-0.23	0.8	
E[Load]:	191.0	Parameter Estimates			0.980
SD[Load]:	528	from LN regression			191.0
CV[Load]:	2.76	update graph label			2.8
					max r2
					0.981

N: 91

Date	dPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
6-Oct-94	**2.3**	1	0.0068	-2.465	0.819	0.980
21-Aug-96	**3.4**	2	0.0178	-2.101	1.237	0.979
6-Oct-92	**5.8**	3	0.0288	-1.899	1.751	0.978
9-Sep-99	**5.8**	4	0.0397	-1.754	1.765	0.978
23-Sep-98	**5.9**	5	0.0507	-1.638	1.779	0.977
20-Sep-94	**6.7**	6	0.0616	-1.541	1.896	0.976
14-Sep-95	**6.7**	7	0.0726	-1.457	1.899	0.975
25-Aug-98	**7.0**	8	0.0836	-1.382	1.947	0.974
3-Sep-97	**7.4**	9	0.0945	-1.313	2.007	0.973
26-Sep-96	**7.9**	10	0.1055	-1.251	2.069	0.972
15-Aug-94	**10.2**	11	0.1164	-1.193	2.326	0.972
15-Aug-95	**10.8**	12	0.1274	-1.139	2.384	0.971
22-Nov-94	**11.9**	13	0.1384	-1.088	2.480	0.970
11-Aug-99	**13.5**	14	0.1493	-1.039	2.602	0.969
16-Nov-93	**14.0**	15	0.1603	-0.993	2.640	0.968
20-Oct-92	**15.5**	16	0.1712	-0.949	2.744	0.967
27-Jul-98	**16.8**	17	0.1822	-0.907	2.821	0.965
20-Sep-93	**17.5**	18	0.1932	-0.866	2.863	0.964
17-Nov-92	**17.5**	19	0.2041	-0.827	2.864	0.963
20-Oct-93	**17.8**	20	0.2151	-0.789	2.877	0.962
29-Oct-96	**19.0**	21	0.2260	-0.752	2.945	0.961
20-Jul-94	**19.9**	22	0.2370	-0.716	2.989	0.960
26-Jul-95	**20.5**	23	0.2479	-0.681	3.019	0.959
9-Dec-92	**21.6**	24	0.2589	-0.647	3.072	0.958
23-Jul-96	**23.0**	25	0.2699	-0.613	3.133	0.957
16-Oct-97	**25.6**	26	0.2808	-0.580	3.241	0.956
16-Dec-94	**29.1**	27	0.2918	-0.548	3.372	0.955
13-Aug-97	**29.4**	28	0.3027	-0.517	3.381	0.954
13-Dec-93	**31.1**	29	0.3137	-0.485	3.439	0.953
17-Aug-93	**31.5**	30	0.3247	-0.455	3.450	0.951
16-Nov-98	**32.5**	31	0.3356	-0.424	3.483	0.950
14-Dec-98	**32.8**	32	0.3466	-0.395	3.491	0.949
23-Feb-94	**33.5**	33	0.3575	-0.365	3.512	0.948
14-Jun-94	**35.1**	34	0.3685	-0.336	3.559	0.947
26-Nov-96	**36.6**	35	0.3795	-0.307	3.601	0.947
16-Feb-93	**41.2**	36	0.3904	-0.278	3.718	0.947
18-Jan-94	**43.6**	37	0.4014	-0.250	3.775	0.946
24-Nov-97	**45.5**	38	0.4123	-0.222	3.818	0.945

update for EV, CV:

dPb		**LC60**		8	7.78
LN Analysis		**dPb**		0.48	0.482
Concentration		**Conc. Data, EV=7.78 ug/L CV=0.482**			
Avg:	**8**	**Data-based LN**			
SD:	**4**	u	ln[dPb]	[dPb]	
CV:	**0.48**	3	3.3	28	
Min:	**2**	0	1.95	7	
Max:	**22**	-3	0.58	2	
Median:	**7**				

					0.971	0.971
	u=mLn{Conc.}+b:				7.9	7.92
update for r2, EV, CV:	**r2=0.971, EV=7.92 ug/L CV=0.569; max r2=0.98**				0.569	0.569
	r2 u,lnConc:	0.971	u	lnConc.	Conc.	
	slope, m:	1.889	3	3.52	34	
	intercept, b:	-3.646	0	1.93	7	
	N: 91		-3	0.34	1	
0.98	E[Conc]:	7.9	Parameter Estimates			
191	SD[Conc]:	5	from LN regression			
2.76	CV[Conc]:	0.57	update graph label			

						max r2
	dPb	N: 91				0.980
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
6-Oct-94	1.5	1	0.0068	-2.465	0.405	0.971
21-Aug-96	1.5	2	0.0178	-2.101	0.405	0.972
14-Dec-98	2.5	3	0.0288	-1.899	0.916	0.980
14-Sep-95	3	4	0.0397	-1.754	1.099	0.979
3-Sep-97	3	5	0.0507	-1.638	1.099	0.978
25-Aug-98	3	6	0.0616	-1.541	1.099	0.977
23-Sep-98	3	7	0.0726	-1.457	1.099	0.977
9-Sep-99	3	8	0.0836	-1.382	1.099	0.977
6-May-99	3.7	9	0.0945	-1.313	1.308	0.977
15-Aug-95	4	10	0.1055	-1.251	1.386	0.977
21-Nov-95	4	11	0.1164	-1.193	1.386	0.976
26-Sep-96	4	12	0.1274	-1.139	1.386	0.975
11-Aug-99	4	13	0.1384	-1.088	1.386	0.974
17-Nov-92	4.2	14	0.1493	-1.039	1.435	0.973
17-Jun-99	4.2	15	0.1603	-0.993	1.435	0.972
18-Jan-94	4.5	16	0.1712	-0.949	1.504	0.971
20-Apr-94	4.5	17	0.1822	-0.907	1.504	0.970
22-Jul-93	4.8	18	0.1932	-0.866	1.569	0.969
24-Mar-93	4.9	19	0.2041	-0.827	1.589	0.969
20-Oct-93	4.9	20	0.2151	-0.789	1.589	0.968
11-May-94	4.9	21	0.2260	-0.752	1.589	0.967
22-Nov-94	5	22	0.2370	-0.716	1.609	0.966
16-Feb-95	5	23	0.2479	-0.681	1.609	0.965
27-Jul-98	5	24	0.2589	-0.647	1.609	0.964
14-Mar-94	5.1	25	0.2699	-0.613	1.629	0.962
14-Jun-94	5.1	26	0.2808	-0.580	1.629	0.961
2-Jun-93	5.2	27	0.2918	-0.548	1.649	0.960
20-Sep-93	5.2	28	0.3027	-0.517	1.649	0.959
6-Oct-92	5.3	29	0.3137	-0.485	1.668	0.957
15-Aug-94	5.5	30	0.3247	-0.455	1.705	0.956
16-Nov-98	5.5	31	0.3356	-0.424	1.705	0.954
16-Nov-93	5.6	32	0.3466	-0.395	1.723	0.953
20-Sep-94	5.6	33	0.3575	-0.365	1.723	0.951
20-Oct-92	5.7	34	0.3685	-0.336	1.740	0.950
9-Dec-92	5.7	35	0.3795	-0.307	1.740	0.948
20-Jul-94	5.7	36	0.3904	-0.278	1.740	0.947
17-Aug-93	5.8	37	0.4014	-0.250	1.758	0.946
10-Mar-93	5.9	38	0.4123	-0.222	1.775	0.945

update for EV, CV:

dPb		**LC60**			3,031	3030
LN Analysis		**dPb**			1.01	1.01
Discharge, Q		**Q Data, EV=3030 cfs CV=1.01**				
Avg:	**3,031**	**Q Data-based LN**				
SD:	**3,048**	u	lnQ	Q		
CV:	**1.01**	3	10.2	26234		
Min:	**202**	0	7.67	2138		
Max:	**12,400**	-3	5.16	174		
Median:	**1,800**					

					0.964	0.964
					3335.8	3340
u=mLn{Q}+b:					1.62	1.62
update for r2, EV, CV:	**r2=0.964, EV=3340 cfs CV=1.62; max r2=0.99**					
r2 u,lnQ:	0.964	u	lnQ	Q		
slope, m:	0.882	3	10.87	52596		
intercept, b:	-6.591	0	7.47	1755		
N: 91		-3	4.07	59		
E[Q]:	3335.8	Parameter Estimates				
SD[Q]:	5393	from LN regression				
CV[Q]:	1.62	update graph label				

						max r2
	Q	N: 91				0.985
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
6-Oct-92	202	1	0.0068	-2.465	5.308	0.964
20-Sep-94	221	2	0.0178	-2.101	5.398	0.965
6-Oct-94	281	3	0.0288	-1.899	5.638	0.964
15-Aug-94	346	4	0.0397	-1.754	5.846	0.964
9-Sep-99	362	5	0.0507	-1.638	5.892	0.964
23-Sep-98	367	6	0.0616	-1.541	5.905	0.964
26-Sep-96	368	7	0.0726	-1.457	5.908	0.964
14-Sep-95	414	8	0.0836	-1.382	6.026	0.963
21-Aug-96	427	9	0.0945	-1.313	6.057	0.962
25-Aug-98	434	10	0.1055	-1.251	6.073	0.961
22-Nov-94	444	11	0.1164	-1.193	6.096	0.960
3-Sep-97	461	12	0.1274	-1.139	6.133	0.959
16-Nov-93	465	13	0.1384	-1.088	6.142	0.957
15-Aug-95	504	14	0.1493	-1.039	6.223	0.956
20-Oct-92	507	15	0.1603	-0.993	6.229	0.954
29-Oct-96	589	16	0.1712	-0.949	6.378	0.952
16-Oct-97	594	17	0.1822	-0.907	6.387	0.951
13-Aug-97	607	18	0.1932	-0.866	6.409	0.949
27-Jul-98	624	19	0.2041	-0.827	6.436	0.948
20-Sep-93	626	20	0.2151	-0.789	6.439	0.946
11-Aug-99	627	21	0.2260	-0.752	6.441	0.944
26-Jul-95	634	22	0.2370	-0.716	6.452	0.942
20-Jul-94	648	23	0.2479	-0.681	6.474	0.940
20-Oct-93	674	24	0.2589	-0.647	6.513	0.938
9-Dec-92	704	25	0.2699	-0.613	6.557	0.937
23-Jul-96	711	26	0.2808	-0.580	6.567	0.935
16-Dec-94	774	27	0.2918	-0.548	6.652	0.933
17-Nov-92	776	28	0.3027	-0.517	6.654	0.931
16-Feb-93	789	29	0.3137	-0.485	6.671	0.929
23-Feb-94	820	30	0.3247	-0.455	6.709	0.928
26-Nov-96	851	31	0.3356	-0.424	6.746	0.927
13-Dec-93	877	32	0.3466	-0.395	6.777	0.925
12-Jul-95	934	33	0.3575	-0.365	6.839	0.924
17-Aug-93	1010	34	0.3685	-0.336	6.918	0.923
24-Jul-97	1040	35	0.3795	-0.307	6.947	0.922
16-Nov-98	1100	36	0.3904	-0.278	7.003	0.920
14-Jun-94	1280	37	0.4014	-0.250	7.155	0.919
21-Jan-98	1280	38	0.4123	-0.222	7.155	0.916

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC60	**Date:**	12-Jul-00
Chemical:	dZn	**Analyst:**	B.Walthall

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,038	3,031	342	4,028	0.00	0.00	0.00	
SD:	735	3,048	148	3,263	1.00	1.00	1.00	
CV:	0.02	1.01	0.43	0.81				first:
Min:	33,883	202	90	499.6	-0.93	-1.70	-1.08	mid:
Max:	36,412	12,400	12,400	18,153	3.07	3.92	4.33	last:
Median:	34,926	1,800	322	2,868	-0.40	-0.14	-0.36	

dZn	**LC60**		**: Concentration v. Discharge, Q**		**Q = mTime +b**		**LnQ = mTime +b**	
Conc. = mQ+b (r2=0.406)		update r2	0.41	0.406	r2:	0.004	0.004	
r2 Q,[COC]:	0.41	[tCd]	Q		m:	0.2674	0.00010	
slope, m:	0.0	429	202.0		b:	-6339	4.00	
intercept, b:	435.1	342	3031.4					
N: 91		52	12400					first:
LnConc. = mLn{Q}+b (r2=0.544)		update r2	0.54	0.544				mid:
r2 lnQ,ln[COC]:	0.54	ln[tCd]	ln Q	[tCd]	Q			last:
slope, m:	-0.30	6.38	5.31	592	202			
intercept, b:	7.96	5.58	8.02	264	3,031			
N: 91		5.16	9.43	174	12,400			

N= 91

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	dZn LC60 Standardized Values = (x - Avg)/SD Q	for graph 0 Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	6-Oct-92	202	659.5	716.7	5.31	6.49	6.57	-0.93	2.15	-1.01
IDEQ	20-Oct-92	507	450.1	1227.7	6.23	6.11	7.11	-0.83	0.74	-0.86
IDEQ	17-Nov-92	776	380.3	1587.7	6.65	5.94	7.37	-0.74	0.26	-0.75
IDEQ	9-Dec-92	704	509.9	1931.3	6.56	6.23	7.57	-0.76	1.14	-0.64
IDEQ	16-Feb-93	789	509.9	2164.4	6.67	6.23	7.68	-0.74	1.14	-0.57
IDEQ	10-Mar-93	1970	440.2	4665.5	7.59	6.09	8.45	-0.35	0.67	0.20
IDEQ	24-Mar-93	8030	420.2	18153.2	8.99	6.04	9.81	1.64	0.53	4.33
IDEQ	26-Mar-93	9040	240.8	11711.4	9.11	5.48	9.37	1.97	-0.68	2.35
IDEQ	12-Apr-93	9680	161	8384.6	9.18	5.08	9.03	2.18	-1.22	1.34
IDEQ	20-Apr-93	9100	161	7882.2	9.12	5.08	8.97	1.99	-1.22	1.18
IDEQ	5-May-93	8720	171	8022.2	9.07	5.14	8.99	1.87	-1.15	1.22
IDEQ	17-May-93	8590	190.9	8822.3	9.06	5.25	9.09	1.82	-1.02	1.47
IDEQ	2-Jun-93	3250	280.6	4906.3	8.09	5.64	8.50	0.07	-0.41	0.27
IDEQ	21-Jun-93	1400	350.4	2639.2	7.24	5.86	7.88	-0.54	0.06	-0.43
IDEQ	22-Jul-93	1900	280.6	2868.3	7.55	5.64	7.96	-0.37	-0.41	-0.36
IDEQ	17-Aug-93	1010	370.4	2012.7	6.92	5.91	7.61	-0.66	0.20	-0.62
IDEQ	20-Sep-93	626	430.2	1448.9	6.44	6.06	7.28	-0.79	0.60	-0.79
IDEQ	20-Oct-93	674	500	1813.1	6.51	6.21	7.50	-0.77	1.07	-0.68
IDEQ	16-Nov-93	465	569.8	1425.5	6.14	6.35	7.26	-0.84	1.55	-0.80
IDEQ	13-Dec-93	877	599.7	2829.5	6.78	6.40	7.95	-0.71	1.75	-0.37
IDEQ	18-Jan-94	1800	280.6	2717.3	7.50	5.64	7.91	-0.40	-0.41	-0.40
IDEQ	23-Feb-94	820	480	2117.6	6.71	6.17	7.66	-0.73	0.94	-0.59
IDEQ	14-Mar-94	2080	280.6	3140.0	7.64	5.64	8.05	-0.31	-0.41	-0.27
IDEQ	6-Apr-94	4750	180.9	4622.9	8.47	5.20	8.44	0.56	-1.09	0.18
IDEQ	20-Apr-94	7780	190.9	7990.4	8.96	5.25	8.99	1.56	-1.02	1.21
IDEQ	11-May-94	2760	190.9	2834.6	7.92	5.25	7.95	-0.09	-1.02	-0.37
IDEQ	14-Jun-94	1280	340.5	2344.8	7.15	5.83	7.76	-0.57	-0.01	-0.52
IDEQ	20-Jul-94	648	410.2	1430.1	6.47	6.02	7.27	-0.78	0.46	-0.80
IDEQ	15-Aug-94	346	270.7	503.9	5.85	5.60	6.22	-0.88	-0.48	-1.08
IDEQ	20-Sep-94	221	420.2	499.6	5.40	6.04	6.21	-0.92	0.53	-1.08
IDEQ	6-Oct-94	281	396.3	599.1	5.64	5.98	6.40	-0.90	0.37	-1.05
IDEQ	22-Nov-94	444	500	1194.4	6.10	6.21	7.09	-0.85	1.07	-0.87
IDEQ	16-Dec-94	774	386.3	1608.6	6.65	5.96	7.38	-0.74	0.30	-0.74
IDEQ	12-Jan-95	4822	364.4	9453.4	8.48	5.90	9.15	0.59	0.15	1.66
IDEQ	16-Feb-95	2626	226.8	3204.2	7.87	5.42	8.07	-0.13	-0.78	-0.25
IDEQ	7-Mar-95	3326	204.9	3666.5	8.11	5.32	8.21	0.10	-0.93	-0.11
IDEQ	23-Mar-95	8328	174	7796.0	9.03	5.16	8.96	1.74	-1.13	1.15
IDEQ	14-Apr-95	4631	219.8	5476.3	8.44	5.39	8.61	0.52	-0.82	0.44

dZn

Concentration over time analysis r2 Slope, m

dZn LC60 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.035** **-0.00011**

Time	Ln[COC]	[COC]
6-Oct-92	5.87	354
15-Aug-95	5.75	315
9-Sep-99	5.59	266

LnConc.=mTime+b >'96 r2, m: **0.180** **-0.00051**

28-Dec-95	6.07	431
9-Sep-99	5.38	216

Load over time analysis

dZn LC60 **Load over time**

LnLoad=mTime+b All data r2, m: **0.000** **-0.00001**

Time	LnLoad	Load
6-Oct-92	8.00	2,983
15-Aug-95	7.99	2,941
9-Sep-99	7.97	2,882

LnLoad=mTime+b >'96 r2, m: **0.047** **-0.00043**

28-Dec-95	8.35	4,247
9-Sep-99	7.77	2,368

max r2: 0.912 max r2: 0.984

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.035	-0.00011	9.69	0.000	-0.00001	8.46
0.026	-0.00010	9.15	0.002	-0.00005	9.70
0.022	-0.00009	8.91	0.004	-0.00007	10.54
0.021	-0.00009	8.81	0.006	-0.00009	11.20
0.016	-0.00008	8.43	0.008	-0.00011	11.71
0.011	-0.00007	8.04	0.010	-0.00012	12.13
0.009	-0.00006	7.76	0.009	-0.00011	11.85
0.007	-0.00005	7.50	0.003	-0.00006	10.27
0.008	-0.00006	7.77	0.001	-0.00003	8.99
0.015	-0.00008	8.47	0.000	0.00000	7.96
0.024	-0.00010	9.22	0.001	0.00003	6.91
0.035	-0.00012	9.97	0.003	0.00006	5.76
0.046	-0.00014	10.65	0.007	0.00010	4.41
0.049	-0.00015	10.94	0.010	0.00012	3.63
0.049	-0.00015	10.98	0.010	0.00012	3.53
0.053	-0.00016	11.29	0.011	0.00013	3.32
0.051	-0.00016	11.28	0.010	0.00012	3.55
0.045	-0.00015	11.06	0.007	0.00011	4.21
0.038	-0.00014	10.63	0.005	0.00009	4.64
0.028	-0.00012	9.99	0.003	0.00007	5.42
0.019	-0.00010	9.22	0.003	0.00007	5.33
0.021	-0.00011	9.45	0.003	0.00008	5.30
0.015	-0.00009	8.94	0.002	0.00007	5.61
0.017	-0.00010	9.15	0.003	0.00007	5.39
0.026	-0.00012	10.02	0.004	0.00010	4.58
0.036	-0.00015	10.89	0.010	0.00014	2.86
0.049	-0.00017	11.83	0.010	0.00015	2.63
0.049	-0.00017	11.90	0.010	0.00015	2.70
0.044	-0.00017	11.67	0.007	0.00012	3.58
0.048	-0.00018	12.10	0.001	0.00005	6.29
0.043	-0.00017	11.80	0.001	-0.00003	9.22
0.038	-0.00017	11.58	0.006	-0.00011	12.10
0.030	-0.00015	10.92	0.013	-0.00017	13.92
0.026	-0.00014	10.66	0.019	-0.00021	15.36
0.023	-0.00014	10.49	0.011	-0.00016	13.62
0.030	-0.00015	11.17	0.011	-0.00016	13.78
0.039	-0.00018	12.12	0.011	-0.00016	13.69
0.057	-0.00022	13.47	0.005	-0.00011	12.07

update for EV, CV:

dZn **LC60**

LN Analysis **dZn**

Load **Load Data, EV=4030 lbs/day CV=0.81**

Load Data-based LN

		u	ln tCd Load	tCd Load
Avg:	**4,028**			
SD:	**3,263**	3	10.2	26367
CV:	**0.81**	0	8.05	3130
Min:	**499.6**	-3	5.92	371.5
Max:	**18,153**			
Median:	**2,868**			

4,028 4030
0.81 0.81

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.99, EV=4190lbs/day CV=1.02; max r2=0.99**

r2 u,lnLoad:	0.990	u	lnLoad	Load
slope, m:	1.187	3	10.51	36768
intercept, b:	-9.478	0	7.98	2936
N: 91		-3	5.46	234.5
E[Load]:	4187.4	Parameter Estimates		
SD[Load]:	4257	from LN regression		
CV[Load]:	1.02	update graph label		

0.990
4187.4
1.0
max r2
0.991

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
		N: 91				
update and rank for new data						
20-Sep-94	**499.6**	1	0.0068	-2.465	6.214	0.990
15-Aug-94	**503.9**	2	0.0178	-2.101	6.222	0.991
25-Aug-98	**581.4**	3	0.0288	-1.899	6.365	0.990
6-Oct-94	**599.1**	4	0.0397	-1.754	6.395	0.990
9-Sep-99	**644.6**	5	0.0507	-1.638	6.469	0.990
23-Sep-98	**687.1**	6	0.0616	-1.541	6.532	0.989
6-Oct-92	**716.7**	7	0.0726	-1.457	6.575	0.990
27-Jul-98	**913.1**	8	0.0836	-1.382	6.817	0.990
14-Sep-95	**986.9**	9	0.0945	-1.313	6.895	0.990
11-Aug-99	**998.5**	10	0.1055	-1.251	6.906	0.989
3-Sep-97	**1123.5**	11	0.1164	-1.193	7.024	0.989
16-Oct-97	**1163.2**	12	0.1274	-1.139	7.059	0.988
22-Nov-94	**1194.4**	13	0.1384	-1.088	7.085	0.988
21-Aug-96	**1196.6**	14	0.1493	-1.039	7.087	0.988
15-Aug-95	**1217.7**	15	0.1603	-0.993	7.105	0.987
20-Oct-92	**1227.7**	16	0.1712	-0.949	7.113	0.987
26-Jul-95	**1246.4**	17	0.1822	-0.907	7.128	0.987
26-Sep-96	**1248.5**	18	0.1932	-0.866	7.130	0.987
16-Nov-93	**1425.5**	19	0.2041	-0.827	7.262	0.987
20-Jul-94	**1430.1**	20	0.2151	-0.789	7.265	0.987
20-Sep-93	**1448.9**	21	0.2260	-0.752	7.279	0.987
13-Aug-97	**1476.1**	22	0.2370	-0.716	7.297	0.987
17-Nov-92	**1587.7**	23	0.2479	-0.681	7.370	0.987
16-Dec-94	**1608.6**	24	0.2589	-0.647	7.383	0.987
12-Jul-95	**1715.5**	25	0.2699	-0.613	7.447	0.987
20-Oct-93	**1813.1**	26	0.2808	-0.580	7.503	0.987
9-Dec-92	**1931.3**	27	0.2918	-0.548	7.566	0.987
17-Aug-93	**2012.7**	28	0.3027	-0.517	7.607	0.986
24-Jul-97	**2070.2**	29	0.3137	-0.485	7.635	0.986
23-Jul-96	**2091.6**	30	0.3247	-0.455	7.646	0.985
29-Oct-96	**2110.4**	31	0.3356	-0.424	7.655	0.985
23-Feb-94	**2117.6**	32	0.3466	-0.395	7.658	0.984
28-Jun-95	**2125.6**	33	0.3575	-0.365	7.662	0.984
16-Feb-93	**2164.4**	34	0.3685	-0.336	7.680	0.984
14-Jun-94	**2344.8**	35	0.3795	-0.307	7.760	0.984
14-Jul-99	**2430.2**	36	0.3904	-0.278	7.796	0.983
16-Oct-95	**2448.4**	37	0.4014	-0.250	7.803	0.983
21-Jun-93	**2639.2**	38	0.4123	-0.222	7.878	0.982

update for EV, CV:

dZn		**LC60**		342	342
LN Analysis		**dZn**		0.43	0.432
Concentration		**Conc. Data, EV=342 ug/L CV=0.432**			
Avg:	**342**	**Data-based LN**			
SD:	**148**	u	ln[tCd]	[tCd]	
CV:	**0.43**	3	7.0	1085	
Min:	**90**	0	5.75	313	
Max:	**920**	-3	4.51	91	
Median:	**322**				

				0.990	0.99
	u=mLn{Conc.}+b:			344.4	344
update for r2, EV, CV:	**r2=0.99, EV=344 ug/L CV=0.475; max r2=0.99**			0.475	0.475
	r2 u,lnConc:	0.990	u	lnConc.	Conc.
	slope, m:	2.216	3	7.09	1204
	intercept, b:	-12.720	0	5.74	311
	N: 91		-3	4.39	80
0.99	E[Conc]:	344.4	Parameter Estimates		
4190	SD[Conc]:	164	from LN regression		
1.02	CV[Conc]:	0.48	update graph label		

						max r2
	dZn	N: 91				0.991
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
27-May-99	90	1	0.0068	-2.465	4.500	0.990
6-May-99	110	2	0.0178	-2.101	4.700	0.990
21-Apr-99	117	3	0.0288	-1.899	4.762	0.991
17-Jun-99	137	4	0.0397	-1.754	4.920	0.991
12-Apr-93	161	5	0.0507	-1.638	5.081	0.991
20-Apr-93	161	6	0.0616	-1.541	5.081	0.991
23-Mar-99	170	7	0.0726	-1.457	5.136	0.991
5-May-93	171	8	0.0836	-1.382	5.142	0.990
23-Mar-95	174	9	0.0945	-1.313	5.159	0.990
6-Apr-94	180.9	10	0.1055	-1.251	5.198	0.990
11-May-95	188.9	11	0.1164	-1.193	5.241	0.989
17-May-93	190.9	12	0.1274	-1.139	5.252	0.989
20-Apr-94	190.9	13	0.1384	-1.088	5.252	0.989
11-May-94	190.9	14	0.1493	-1.039	5.252	0.988
18-Jan-96	199.9	15	0.1603	-0.993	5.298	0.988
24-May-95	201.9	16	0.1712	-0.949	5.308	0.987
19-Mar-98	203	17	0.1822	-0.907	5.313	0.987
7-Mar-95	204.9	18	0.1932	-0.866	5.323	0.987
21-Nov-95	211.8	19	0.2041	-0.827	5.356	0.987
24-Jun-97	215	20	0.2151	-0.789	5.371	0.986
14-Apr-95	219.8	21	0.2260	-0.752	5.393	0.986
23-Apr-98	221	22	0.2370	-0.716	5.398	0.986
16-Feb-95	226.8	23	0.2479	-0.681	5.424	0.985
16-Apr-97	232	24	0.2589	-0.647	5.447	0.985
9-May-96	237.8	25	0.2699	-0.613	5.471	0.985
14-Jul-99	239	26	0.2808	-0.580	5.476	0.984
26-Mar-93	240.8	27	0.2918	-0.548	5.484	0.984
27-Apr-95	240.8	28	0.3027	-0.517	5.484	0.983
28-May-98	248	29	0.3137	-0.485	5.513	0.983
25-Aug-98	249	30	0.3247	-0.455	5.517	0.983
18-Apr-96	249.7	31	0.3356	-0.424	5.520	0.983
28-Feb-96	251.7	32	0.3466	-0.395	5.528	0.983
27-Mar-97	252	33	0.3575	-0.365	5.529	0.984
15-Aug-94	270.7	34	0.3685	-0.336	5.601	0.985
27-Jul-98	272	35	0.3795	-0.307	5.606	0.984
2-Jun-93	280.6	36	0.3904	-0.278	5.637	0.984
22-Jul-93	280.6	37	0.4014	-0.250	5.637	0.984
18-Jan-94	280.6	38	0.4123	-0.222	5.637	0.983

update for EV, CV:

dZn		**LC60**			3,031	3030
LN Analysis		**dZn**			1.01	1.01
Discharge, Q		**Q Data, EV=3030 cfs CV=1.01**				
Avg:	**3,031**	**Q Data-based LN**				
SD:	**3,048**	u	lnQ	Q		
CV:	**1.01**	3	10.2	26234		
Min:	**202**	0	7.67	2138		
Max:	**12,400**	-3	5.16	174		
Median:	**1,800**					

					0.964	0.964
					3335.8	3340
u=mLn{Q}+b:					1.62	1.62
update for r2, EV, CV:	**r2=0.964, EV=3340 cfs CV=1.62; max r2=0.99**					
r2 u,lnQ:	0.964	u	lnQ	Q		
slope, m:	0.882	3	10.87	52596		
intercept, b:	-6.591	0	7.47	1755		
N: 91		-3	4.07	59		
E[Q]:	3335.8	Parameter Estimates				
SD[Q]:	5393	from LN regression				
CV[Q]:	1.62	update graph label				

						max r2
	Q	N: 91				0.985
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
6-Oct-92	202	1	0.0068	-2.465	5.308	0.964
20-Sep-94	221	2	0.0178	-2.101	5.398	0.965
6-Oct-94	281	3	0.0288	-1.899	5.638	0.964
15-Aug-94	346	4	0.0397	-1.754	5.846	0.964
9-Sep-99	362	5	0.0507	-1.638	5.892	0.964
23-Sep-98	367	6	0.0616	-1.541	5.905	0.964
26-Sep-96	368	7	0.0726	-1.457	5.908	0.964
14-Sep-95	414	8	0.0836	-1.382	6.026	0.963
21-Aug-96	427	9	0.0945	-1.313	6.057	0.962
25-Aug-98	434	10	0.1055	-1.251	6.073	0.961
22-Nov-94	444	11	0.1164	-1.193	6.096	0.960
3-Sep-97	461	12	0.1274	-1.139	6.133	0.959
16-Nov-93	465	13	0.1384	-1.088	6.142	0.957
15-Aug-95	504	14	0.1493	-1.039	6.223	0.956
20-Oct-92	507	15	0.1603	-0.993	6.229	0.954
29-Oct-96	589	16	0.1712	-0.949	6.378	0.952
16-Oct-97	594	17	0.1822	-0.907	6.387	0.951
13-Aug-97	607	18	0.1932	-0.866	6.409	0.949
27-Jul-98	624	19	0.2041	-0.827	6.436	0.948
20-Sep-93	626	20	0.2151	-0.789	6.439	0.946
11-Aug-99	627	21	0.2260	-0.752	6.441	0.944
26-Jul-95	634	22	0.2370	-0.716	6.452	0.942
20-Jul-94	648	23	0.2479	-0.681	6.474	0.940
20-Oct-93	674	24	0.2589	-0.647	6.513	0.938
9-Dec-92	704	25	0.2699	-0.613	6.557	0.937
23-Jul-96	711	26	0.2808	-0.580	6.567	0.935
16-Dec-94	774	27	0.2918	-0.548	6.652	0.933
17-Nov-92	776	28	0.3027	-0.517	6.654	0.931
16-Feb-93	789	29	0.3137	-0.485	6.671	0.929
23-Feb-94	820	30	0.3247	-0.455	6.709	0.928
26-Nov-96	851	31	0.3356	-0.424	6.746	0.927
13-Dec-93	877	32	0.3466	-0.395	6.777	0.925
12-Jul-95	934	33	0.3575	-0.365	6.839	0.924
17-Aug-93	1010	34	0.3685	-0.336	6.918	0.923
24-Jul-97	1040	35	0.3795	-0.307	6.947	0.922
16-Nov-98	1100	36	0.3904	-0.278	7.003	0.920
14-Jun-94	1280	37	0.4014	-0.250	7.155	0.919
21-Jan-98	1280	38	0.4123	-0.222	7.155	0.916

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC60	**Date:**	14-Jul-00
Chemical:	tCd	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,885	3,263	2	31	0.00	0.00	0.00	
SD:	325	3,315	1	32	1.00	1.00	1.00	
CV:	0.01	1.02	0.37	1.03				first:
Min:	35,367	362	1	3.2	-0.88	-1.32	-0.87	mid:
Max:	36,412	12,400	5	133	2.76	3.88	3.22	last:
Median:	35,862	1,920	2	18	-0.41	0.05	-0.41	

tCd **LC60** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.0781)		update r2	0.08	0.0781	r2:	0.095	0.025
r2 Q,[COC]:	0.08	[tCd]	Q		m:	3.1452	0.00052
slope, m:	0.0	2	362.0		b:	-109605	-11.12
intercept, b:	2.2	2	3263.0				
N: 32		1	12400				first:
LnConc. = mLn{Q}+b (r2=0.115)		update r2	0.11	0.115			mid:
r2 lnQ,ln[COC]:	0.11	ln[tCd]	ln Q	[tCd]	Q		last:
slope, m:	-0.10	0.79	5.89	2	362		
intercept, b:	1.38	0.57	8.09	2	3,263		
N: 32		0.43	9.43	2	12,400		

for graph
tCd 0
LC60

N= 32

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	29-Oct-96	589	1.9	6.0	6.38	0.64	1.80	-0.81	-0.09	-0.78
IDEQ	26-Nov-96	851	3.6	16.5	6.75	1.28	2.80	-0.73	2.24	-0.45
IDEQ	13-Dec-96	2620	4.8	67.7	7.87	1.57	4.21	-0.19	3.88	1.15
IDEQ	30-Jan-97	1950	2.1	22.0	7.58	0.74	3.09	-0.40	0.18	-0.28
IDEQ	19-Feb-97	3100	1.9	31.7	8.04	0.64	3.46	-0.05	-0.09	0.03
IDEQ	27-Mar-97	8590	1.5	69.3	9.06	0.41	4.24	1.61	-0.64	1.21
IDEQ	16-Apr-97	4700	1.4	35.4	8.46	0.34	3.57	0.43	-0.77	0.14
IDEQ	24-Jun-97	2330	1.3	16.3	7.75	0.26	2.79	-0.28	-0.91	-0.46
IDEQ	24-Jul-97	1040	2	11.2	6.95	0.69	2.42	-0.67	0.05	-0.62
IDEQ	13-Aug-97	607	2.1	6.9	6.41	0.74	1.93	-0.80	0.18	-0.75
IDEQ	3-Sep-97	461	2.2	5.5	6.13	0.79	1.70	-0.85	0.32	-0.80
IDEQ	16-Oct-97	594	2.1	6.7	6.39	0.74	1.90	-0.81	0.18	-0.76
IDEQ	24-Nov-97	1410	2.2	16.7	7.25	0.79	2.81	-0.56	0.32	-0.44
IDEQ	17-Dec-97	1310	2	14.1	7.18	0.69	2.65	-0.59	0.05	-0.53
IDEQ	21-Jan-98	1280	2.6	17.9	7.15	0.96	2.89	-0.60	0.87	-0.41
IDEQ	25-Feb-98	2110	1.6	18.2	7.65	0.47	2.90	-0.35	-0.50	-0.40
IDEQ	19-Mar-98	4180	1.3	29.2	8.34	0.26	3.38	0.28	-0.91	-0.05
IDEQ	23-Apr-98	5890	1.3	41.2	8.68	0.26	3.72	0.79	-0.91	0.32
IDEQ	28-May-98	7540	1.5	60.8	8.93	0.41	4.11	1.29	-0.64	0.94
IDEQ	27-Jul-98	624	1.8	6.0	6.44	0.59	1.80	-0.80	-0.23	-0.78
IDEQ	25-Aug-98	434	1.4	3.3	6.07	0.34	1.18	-0.85	-0.77	-0.87
IDEQ	23-Sep-98	367	1.6	3.2	5.91	0.47	1.15	-0.87	-0.50	-0.87
USGS	16-Nov-98	1100	3	17.8	7.00	1.10	2.88	-0.65	1.42	-0.41
USGS	14-Dec-98	2440	2	26.3	7.80	0.69	3.27	-0.25	0.05	-0.14
USGS	23-Mar-99	7850	2	84.5	8.97	0.69	4.44	1.38	0.05	1.68
USGS	21-Apr-99	10700	2	115.1	9.28	0.69	4.75	2.24	0.05	2.64
USGS	6-May-99	8320	1	44.8	9.03	0.00	3.80	1.53	-1.32	0.44
USGS	27-May-99	12400	2	133.4	9.43	0.69	4.89	2.76	0.05	3.22
USGS	17-Jun-99	6150	1	33.1	8.72	0.00	3.50	0.87	-1.32	0.07
USGS	14-Jul-99	1890	1.6	16.3	7.54	0.47	2.79	-0.41	-0.50	-0.46
USGS	11-Aug-99	627	2	6.7	6.44	0.69	1.91	-0.80	0.05	-0.76
USGS	9-Sep-99	362	2.1	4.1	5.89	0.74	1.41	-0.88	0.18	-0.84

tCd

Concentration over time analysis r2 Slope, m

tCd LC60 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.105** **-0.00032**

Time	Ln[COC]	[COC]
29-Oct-96	0.79	2
8-Mar-98	0.63	2
9-Sep-99	0.45	2

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Sep-99	0.00	1

Load over time analysis

tCd LC60 **Load over time**

LnLoad=mTime+b All data r2, m: **0.004** **0.00020**

Time	LnLoad	Load
29-Oct-96	2.84	17
8-Mar-98	2.94	19
9-Sep-99	3.05	21

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Sep-99	0.00	1

max r2: 0.427 max r2: 0.948

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.105	-0.00032	12.11	0.004	0.00020	-4.23
0.112	-0.00035	13.01	0.000	0.00002	2.25
0.065	-0.00026	9.77	0.000	-0.00001	3.35
0.010	-0.00008	3.58	0.005	0.00024	-5.67
0.004	-0.00005	2.52	0.007	0.00030	-7.69
0.002	-0.00004	2.04	0.014	0.00045	-13.25
0.007	-0.00008	3.55	0.047	0.00083	-27.03
0.023	-0.00016	6.20	0.078	0.00113	-37.94
0.061	-0.00026	9.90	0.085	0.00125	-42.02
0.054	-0.00026	9.79	0.079	0.00126	-42.66
0.040	-0.00023	8.99	0.056	0.00111	-37.24
0.022	-0.00018	7.20	0.028	0.00082	-26.46
0.011	-0.00014	5.46	0.010	0.00050	-15.12
0.001	-0.00005	2.36	0.008	0.00049	-14.68
0.000	0.00002	-0.22	0.004	0.00038	-10.72
0.033	0.00027	-9.27	0.003	0.00036	-9.95
0.034	0.00030	-10.36	0.002	0.00033	-8.88
0.010	0.00018	-5.83	0.007	0.00066	-20.89
0.000	-0.00003	1.61	0.030	0.00150	-51.26
0.009	-0.00020	7.95	0.121	0.00334	-118.02
0.008	-0.00022	8.41	0.072	0.00285	-100.27
0.057	-0.00068	25.22	0.004	0.00069	-21.71
0.137	-0.00131	47.96	0.127	-0.00428	158.83
0.004	-0.00023	8.74	0.329	-0.00864	317.14
0.023	0.00083	-29.51	0.824	-0.02039	744.19
0.132	0.00235	-84.76	0.872	-0.02417	881.46
0.427	0.00480	-174.00	0.835	-0.02471	901.31
0.200	0.00330	-119.35	0.948	-0.03188	1161.96

update for EV, CV:

tCd		**LC60**		
LN Analysis		**tCd**		
Load		**Load Data, EV=30.9 lbs/day CV=1.03**		
Avg:	**31**	**Load Data-based LN**		
SD:	**32**	u	ln tCd Load	tCd Load
CV:	**1.03**	3	5.6	277
Min:	**3.2**	0	3.07	21
Max:	**133**	-3	0.51	1.7
Median:	**18**			
		31	30.9	
		1.03	1.03	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.979, EV=33.6lbs/day CV=1.47; max r2=0.98**

r2 u,lnLoad:	0.979	u	lnLoad	Load	
slope, m:	0.934	3	6.15	470	
intercept, b:	-2.746	0	2.94	19	
N: 32		-3	-0.27	0.8	
E[Load]:	33.6	Parameter Estimates			0.979
SD[Load]:	49	from LN regression			33.6
CV[Load]:	1.47	update graph label			1.5
					max r2
	tCd	N: 32			0.983
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
23-Sep-98	**3.2**	1	0.0194	-2.067	1.150	0.979
25-Aug-98	**3.3**	2	0.0504	-1.641	1.184	0.983
9-Sep-99	**4.1**	3	0.0814	-1.396	1.409	0.981
3-Sep-97	**5.5**	4	0.1124	-1.214	1.697	0.978
29-Oct-96	**6.0**	5	0.1434	-1.065	1.795	0.977
27-Jul-98	**6.0**	6	0.1744	-0.937	1.799	0.974
16-Oct-97	**6.7**	7	0.2054	-0.822	1.904	0.972
11-Aug-99	**6.7**	8	0.2364	-0.718	1.909	0.970
13-Aug-97	**6.9**	9	0.2674	-0.621	1.925	0.971
24-Jul-97	**11.2**	10	0.2984	-0.529	2.415	0.980
17-Dec-97	**14.1**	11	0.3295	-0.441	2.646	0.977
14-Jul-99	**16.3**	12	0.3605	-0.357	2.789	0.977
24-Jun-97	**16.3**	13	0.3915	-0.275	2.791	0.979
26-Nov-96	**16.5**	14	0.4225	-0.196	2.802	0.979
24-Nov-97	**16.7**	15	0.4535	-0.117	2.815	0.978
16-Nov-98	**17.8**	16	0.4845	-0.039	2.877	0.975
21-Jan-98	**17.9**	17	0.5155	0.039	2.885	0.972
25-Feb-98	**18.2**	18	0.5465	0.117	2.899	0.970
30-Jan-97	**22.0**	19	0.5775	0.196	3.092	0.973
14-Dec-98	**26.3**	20	0.6085	0.275	3.268	0.972
19-Mar-98	**29.2**	21	0.6395	0.357	3.375	0.968
19-Feb-97	**31.7**	22	0.6705	0.441	3.456	0.963
17-Jun-99	**33.1**	23	0.7016	0.529	3.499	0.956
16-Apr-97	**35.4**	24	0.7326	0.621	3.567	0.948
23-Apr-98	**41.2**	25	0.7636	0.718	3.718	0.945
6-May-99	**44.8**	26	0.7946	0.822	3.801	0.938
28-May-98	**60.8**	27	0.8256	0.937	4.108	0.956
13-Dec-96	**67.7**	28	0.8566	1.065	4.214	0.941
27-Mar-97	**69.3**	29	0.8876	1.214	4.239	
23-Mar-99	**84.5**	30	0.9186	1.396	4.436	
21-Apr-99	**115.1**	31	0.9496	1.641	4.746	
27-May-99	**133.4**	32	0.9806	2.067	4.894	

update for EV, CV:

tCd		**LC60**		2	1.97
LN Analysis		**tCd**		0.37	0.372
Concentration		**Conc. Data, EV=1.97 ug/L CV=0.372**			
Avg:	**2**	**Data-based LN**			
SD:	**1**	u	ln[tCd]	[tCd]	
CV:	**0.37**	3	1.7	5	
Min:	**1**	0	0.61	2	
Max:	**5**	-3	-0.47	1	
Median:	**2**				

					0.925	0.925
	u=mLn{Conc.}+b:				2.0	1.98
update for r2, EV, CV:	**r2=0.925, EV=1.98 ug/L CV=0.359; max r2=0.99**				0.359	0.359
	r2 u,lnConc:	0.925	u	lnConc.	Conc.	
	slope, m:	2.869	3	1.67	5	
	intercept, b:	-1.780	0	0.62	2	
	N: 32		-3	-0.43	1	
0.979	E[Conc]:	2.0	Parameter Estimates			
33.6	SD[Conc]:	1	from LN regression			
1.47	CV[Conc]:	0.36	update graph label			

						max r2
	tCd	N: 32				0.992
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
6-May-99	1	1	0.0194	-2.067	0.000	0.925
17-Jun-99	1	2	0.0504	-1.641	0.000	0.916
19-Mar-98	1.3	3	0.0814	-1.396	0.262	0.905
23-Apr-98	1.3	4	0.1124	-1.214	0.262	0.902
24-Jun-97	1.3	5	0.1434	-1.065	0.262	0.895
16-Apr-97	1.4	6	0.1744	-0.937	0.336	0.885
25-Aug-98	1.4	7	0.2054	-0.822	0.336	0.876
27-Mar-97	1.5	8	0.2364	-0.718	0.405	0.865
28-May-98	1.5	9	0.2674	-0.621	0.405	0.855
23-Sep-98	1.6	10	0.2984	-0.529	0.470	0.843
25-Feb-98	1.6	11	0.3295	-0.441	0.470	0.833
14-Jul-99	1.6	12	0.3605	-0.357	0.470	0.820
27-Jul-98	1.8	13	0.3915	-0.275	0.588	0.803
19-Feb-97	1.9	14	0.4225	-0.196	0.642	0.799
29-Oct-96	1.9	15	0.4535	-0.117	0.642	0.806
17-Dec-97	2	16	0.4845	-0.039	0.693	0.811
24-Jul-97	2	17	0.5155	0.039	0.693	0.832
11-Aug-99	2	18	0.5465	0.117	0.693	0.852
14-Dec-98	2	19	0.5775	0.196	0.693	0.871
21-Apr-99	2	20	0.6085	0.275	0.693	0.889
23-Mar-99	2	21	0.6395	0.357	0.693	0.905
27-May-99	2	22	0.6705	0.441	0.693	0.918
13-Aug-97	2.1	23	0.7016	0.529	0.742	0.927
16-Oct-97	2.1	24	0.7326	0.621	0.742	0.950
30-Jan-97	2.1	25	0.7636	0.718	0.742	0.971
9-Sep-99	2.1	26	0.7946	0.822	0.742	0.985
3-Sep-97	2.2	27	0.8256	0.937	0.788	0.989
24-Nov-97	2.2	28	0.8566	1.065	0.788	0.992
21-Jan-98	2.6	29	0.8876	1.214	0.956	
16-Nov-98	3	30	0.9186	1.396	1.099	
26-Nov-96	3.6	31	0.9496	1.641	1.281	
13-Dec-96	4.8	32	0.9806	2.067	1.569	

update for EV, CV:

tCd		**LC60**			3,263	3260
LN Analysis		**tCd**			1.02	1.02
Discharge, Q		**Q Data, EV=3260 cfs CV=1.02**				
Avg:	**3,263**	**Q Data-based LN**				
SD:	**3,315**	u	lnQ	Q		
CV:	**1.02**	3	10.3	28626		
Min:	**362**	0	7.74	2289		
Max:	**12,400**	-3	5.21	183		
Median:	**1,920**					

					0.958	0.958
					3666.3	3670
u=mLn{Q}+b:					1.66	1.66
update for r2, EV, CV:	**r2=0.958, EV=3670 cfs CV=1.66; max r2=0.97**					
r2 u,lnQ:	0.958	u	lnQ	Q		
slope, m:	0.869	3	11.00	59636		
intercept, b:	-6.560	0	7.55	1892		
N: 32		-3	4.09	60		
E[Q]:	3666.3	Parameter Estimates				
SD[Q]:	6085	from LN regression				
CV[Q]:	1.66	update graph label				

						max r2
	Q	N: 32				0.968
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
9-Sep-99	362	1	0.0194	-2.067	5.892	0.958
23-Sep-98	367	2	0.0504	-1.641	5.905	0.968
25-Aug-98	434	3	0.0814	-1.396	6.073	0.968
3-Sep-97	461	4	0.1124	-1.214	6.133	0.966
29-Oct-96	589	5	0.1434	-1.065	6.378	0.963
16-Oct-97	594	6	0.1744	-0.937	6.387	0.962
13-Aug-97	607	7	0.2054	-0.822	6.409	0.958
27-Jul-98	624	8	0.2364	-0.718	6.436	0.954
11-Aug-99	627	9	0.2674	-0.621	6.441	0.950
26-Nov-96	851	10	0.2984	-0.529	6.746	0.949
24-Jul-97	1040	11	0.3295	-0.441	6.947	0.945
16-Nov-98	1100	12	0.3605	-0.357	7.003	0.939
21-Jan-98	1280	13	0.3915	-0.275	7.155	0.933
17-Dec-97	1310	14	0.4225	-0.196	7.178	0.926
24-Nov-97	1410	15	0.4535	-0.117	7.251	0.920
14-Jul-99	1890	16	0.4845	-0.039	7.544	0.916
30-Jan-97	1950	17	0.5155	0.039	7.576	0.905
25-Feb-98	2110	18	0.5465	0.117	7.654	0.894
24-Jun-97	2330	19	0.5775	0.196	7.754	0.881
14-Dec-98	2440	20	0.6085	0.275	7.800	0.867
13-Dec-96	2620	21	0.6395	0.357	7.871	0.859
19-Feb-97	3100	22	0.6705	0.441	8.039	0.871
19-Mar-98	4180	23	0.7016	0.529	8.338	0.911
16-Apr-97	4700	24	0.7326	0.621	8.455	0.921
23-Apr-98	5890	25	0.7636	0.718	8.681	0.953
17-Jun-99	6150	26	0.7946	0.822	8.724	0.947
28-May-98	7540	27	0.8256	0.937	8.928	0.967
23-Mar-99	7850	28	0.8566	1.065	8.968	0.963
6-May-99	8320	29	0.8876	1.214	9.026	
27-Mar-97	8590	30	0.9186	1.396	9.058	
21-Apr-99	10700	31	0.9496	1.641	9.278	
27-May-99	12400	32	0.9806	2.067	9.425	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: LC50 **Date:** 3-Jun-00
Chemical: tPb **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,885	3,263	54	1,920	0.00	0.00	0.00
SD:	325	3,315	84	5,382	1.00	1.00	1.00
CV:	0.01	1.02	1.55	2.80			
Min:	35,367	362	15	29.6	-0.88	-0.47	-0.35
Max:	36,412	12,400	430	24,753	2.76	4.47	4.24
Median:	35,862	1,920	30	328	-0.41	-0.29	-0.30

tPb LC50 **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.417) update r2 **0.42** 0.417

r2 Q,[COC]:	0.42	[tPb]	Q		r2	0.095	0.025
slope, m:	0.0	?	362.0		m	3.1452	0.00052
intercept, b:	0.9	54	3263.0		b	-109605	-11.12
N: 32		204	12400				

LnConc. = mLn(Q)+b (r2=0.231) update r2 0.23 0.231

r2 lnQ,ln[COC]:	0.23	ln[tPb]	ln Q	[tPb]	Q
slope, m:	0.33	3.01	5.89	20	362
intercept, b:	1.08	3.74	8.09	42	3,263
N: 32		4.17	9.43	65	12,400

for graph
tPb 0
LC50

N= 32

	Sampling Date	Q Discharge	tPb Concentration	tPb Load	Ln Q	Ln tPb Conc.	Ln tPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data		cfs	ug/L	lbs/day						
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	29-Oct-96	589	28	88.7	6.38	3.33	4.49	-0.81	-0.31	-0.34
IDEQ	26-Nov-96	851	30	137.4	6.75	3.40	4.92	-0.73	-0.29	-0.33
IDEQ	13-Dec-96	2620	26	366.5	7.87	3.26	5.90	-0.19	-0.34	-0.29
IDEQ	30-Jan-97	1950	40	419.6	7.58	3.69	6.04	-0.40	-0.17	-0.28
IDEQ	19-Feb-97	3100	36	600.4	8.04	3.58	6.40	-0.05	-0.22	-0.25
IDEQ	27-Mar-97	8590	40	1848.6	9.06	3.69	7.52	1.61	-0.17	-0.01
IDEQ	16-Apr-97	4700	25	632.2	8.46	3.22	6.45	0.43	-0.35	-0.24
IDEQ	24-Jun-97	2330	31	388.6	7.75	3.43	5.96	-0.28	-0.28	-0.28
IDEQ	24-Jul-97	1040	83	464.4	6.95	4.42	6.14	-0.67	0.34	-0.27
IDEQ	13-Aug-97	607	32	104.5	6.41	3.47	4.65	-0.80	-0.27	-0.34
IDEQ	3-Sep-97	461	25	62.0	6.13	3.22	4.13	-0.85	-0.35	-0.35
IDEQ	16-Oct-97	594	30	95.9	6.39	3.40	4.56	-0.81	-0.29	-0.34
IDEQ	24-Nov-97	1410	18	136.5	7.25	2.89	4.92	-0.56	-0.43	-0.33
IDEQ	17-Dec-97	1310	56	394.7	7.18	4.03	5.98	-0.59	0.02	-0.28
IDEQ	21-Jan-98	1280	27	185.9	7.15	3.30	5.23	-0.60	-0.32	-0.32
IDEQ	25-Feb-98	2110	16	181.6	7.65	2.77	5.20	-0.35	-0.46	-0.32
IDEQ	19-Mar-98	4180	44	989.5	8.34	3.78	6.90	0.28	-0.12	-0.17
IDEQ	23-Apr-98	5890	30	950.6	8.68	3.40	6.86	0.79	-0.29	-0.18
IDEQ	28-May-98	7540	21	851.9	8.93	3.04	6.75	1.29	-0.40	-0.20
IDEQ	27-Jul-98	624	47	157.8	6.44	3.85	5.06	-0.80	-0.09	-0.33
IDEQ	25-Aug-98	434	19	44.4	6.07	2.94	3.79	-0.85	-0.42	-0.35
IDEQ	23-Sep-98	367	15	29.6	5.91	2.71	3.39	-0.87	-0.47	-0.35
USGS	16-Nov-98	1100	27	159.8	7.00	3.30	5.07	-0.65	-0.32	-0.33
USGS	14-Dec-98	2440	22	288.8	7.80	3.09	5.67	-0.25	-0.38	-0.30
USGS	23-Mar-99	7850	110	4645.6	8.97	4.70	8.44	1.38	0.66	0.51
USGS	21-Apr-99	10700	430	24753.4	9.28	6.06	10.12	2.24	4.47	4.24
USGS	6-May-99	8320	22	984.8	9.03	3.09	6.89	1.53	-0.38	-0.17
USGS	27-May-99	12400	300	20013.6	9.43	5.70	9.90	2.76	2.93	3.36
USGS	17-Jun-99	6150	32	1058.8	8.72	3.47	6.96	0.87	-0.27	-0.16
USGS	14-Jul-99	1890	27.2	276.6	7.54	3.30	5.62	-0.41	-0.32	-0.31
USGS	11-Aug-99	627	30.4	102.5	6.44	3.41	4.63	-0.80	-0.28	-0.34
USGS	9-Sep-99	362	17.9	34.9	5.89	2.88	3.55	-0.88	-0.43	-0.35

tPb

Concentration over time analysis

	tPb	LC50		r2	Slope, m
				Concentration over time	
	LnConc.=mTime+b All data r2, m:			**0.036**	**0.00043**
	Time	**Ln[COC]**	**[COC]**		
first:	29-Oct-96	3.34	28		
mid:	8-Mar-98	3.55	35		
last:	9-Sep-99	3.78	44		
	LnConc.=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	9-Sep-99	0.00	1		

Load over time analysis

	tPb	LC50		Load over time	
	LnLoad=mTime+b All data r2, m:			**0.038**	**0.00095**
	Time	**LnLoad**	**Load**		
first:	29-Oct-96	5.39	219		
mid:	8-Mar-98	5.86	349		
last:	9-Sep-99	6.38	588		
	LnLoad=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	9-Sep-99	0.00	1		

max r2: 0.601

Forward time Regression on Ln Concentration(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.036	0.00043	-11.76
0.033	0.00043	-11.73
0.031	0.00044	-12.08
0.026	0.00042	-11.40
0.032	0.00048	-13.74
0.035	0.00054	-15.71
0.043	0.00063	-18.92
0.036	0.00061	-18.20
0.035	0.00063	-19.11
0.075	0.00095	-30.69
0.080	0.00104	-34.03
0.073	0.00106	-34.79
0.075	0.00115	-37.80
0.052	0.00101	-32.78
0.085	0.00139	-46.44
0.080	0.00146	-49.14
0.047	0.00119	-39.34
0.065	0.00156	-52.78
0.063	0.00173	-58.78
0.037	0.00150	-50.60
0.057	0.00211	-72.82
0.022	0.00152	-51.41
0.002	-0.00054	23.41
0.042	-0.00304	114.46
0.397	-0.01351	494.95
0.408	-0.01625	594.60
0.186	-0.00939	344.94
0.601	-0.02056	751.24

max r2: 0.908

Forward time Regression on Ln Load(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.038	0.00095	-28.10
0.025	0.00079	-22.49
0.017	0.00068	-18.50
0.019	0.00074	-20.65
0.021	0.00083	-23.96
0.029	0.00103	-31.00
0.061	0.00154	-49.51
0.083	0.00189	-62.35
0.094	0.00213	-71.04
0.113	0.00247	-83.14
0.096	0.00239	-80.25
0.065	0.00206	-68.45
0.044	0.00179	-58.38
0.030	0.00155	-49.82
0.032	0.00175	-56.95
0.022	0.00155	-49.82
0.011	0.00122	-37.86
0.026	0.00205	-67.83
0.053	0.00325	-111.65
0.096	0.00504	-176.57
0.080	0.00518	-181.50
0.020	0.00289	-98.34
0.024	-0.00352	134.29
0.166	-0.01146	422.87
0.714	-0.03473	1268.65
0.782	-0.04277	1560.82
0.693	-0.03890	1420.26
0.908	-0.05574	2032.55

update for EV, CV

tPb **LC50**

LN Analysis **tPb**

Load

Load Data, EV=1920 lbs/day CV=2.8

Avg:	**1,920**	**Load Data-based LN**		
SD:	**5,382**	u	ln tPb Load	tPb Load
CV:	**2.80**	3	10.9	54187
Min:	**29.6**	0	6.47	645
Max:	**24,753**	-3	2.04	7.7
Median:	**328**			
		1,920	1920	
		2.80	2.8	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.932, EV=1510lbs/day CV=4.11; max r2=0.94**

r2 u,lnLoad:	0.932	u	lnLoad	Load	
slope, m	0.589	3	10.97	58161	
intercept, b	-3.462	0	5.88	357	
N	32	-3	0.78	2.2	
E[Load]	1508.7	Parameter Estimates			0.932
SD[Load]	6193	from LN regression			1508.7
CV[Load]	4.11	update graph label			4.1
					max r2
					0.937

Date	tPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
		N: 32				
update and rank for new data						
23-Sep-98	**29.6**	1	0.0194	-2.067	3.388	0.932
9-Sep-99	**34.9**	2	0.0504	-1.641	3.551	0.937
25-Aug-98	**44.4**	3	0.0814	-1.396	3.792	0.934
3-Sep-97	**62.0**	4	0.1124	-1.214	4.127	0.930
29-Oct-96	**88.7**	5	0.1434	-1.065	4.486	0.928
16-Oct-97	**95.9**	6	0.1744	-0.937	4.563	0.930
11-Aug-99	**102.5**	7	0.2054	-0.822	4.630	0.931
13-Aug-97	**104.5**	8	0.2364	-0.718	4.649	0.931
24-Nov-97	**136.5**	9	0.2674	-0.621	4.917	0.928
26-Nov-96	**137.4**	10	0.2984	-0.529	4.923	0.929
27-Jul-98	**157.8**	11	0.3295	-0.441	5.061	0.927
16-Nov-98	**159.8**	12	0.3605	-0.357	5.074	0.925
25-Feb-98	**181.6**	13	0.3915	-0.275	5.202	0.921
21-Jan-98	**185.9**	14	0.4225	-0.196	5.225	0.916
14-Jul-99	**276.6**	15	0.4535	-0.117	5.622	0.909
14-Dec-98	**288.8**	16	0.4845	-0.039	5.666	0.909
13-Dec-96	**366.5**	17	0.5155	0.039	5.904	0.906
24-Jun-97	**388.6**	18	0.5465	0.117	5.963	0.910
17-Dec-97	**394.7**	19	0.5775	0.196	5.978	0.912
30-Jan-97	**419.6**	20	0.6085	0.275	6.039	0.911
24-Jul-97	**464.4**	21	0.6395	0.357	6.141	0.907
19-Feb-97	**600.4**	22	0.6705	0.441	6.398	0.902
16-Apr-97	**632.2**	23	0.7016	0.529	6.449	0.902
28-May-98	**851.9**	24	0.7326	0.621	6.747	0.898
23-Apr-98	**950.6**	25	0.7636	0.718	6.857	0.905
6-May-99	**984.8**	26	0.7946	0.822	6.892	0.914
19-Mar-98	**989.5**	27	0.8256	0.937	6.897	0.912
17-Jun-99	**1058.8**	28	0.8566	1.065	6.965	
27-Mar-97	**1848.6**	29	0.8876	1.214	7.522	
23-Mar-99	**4645.6**	30	0.9186	1.396	8.444	
27-May-99	**20013.6**	31	0.9496	1.641	9.904	
21-Apr-99	**24753.4**	32	0.9806	2.067	10.117	

update for EV, CV

tPb		**LC50**	54	54.3
LN Analysis		**tPb**	1.55	1.55

Concentration

Conc. Data, EV=54.3 ug/L CV=1.55

Avg:	**54**	**Data-based LN**		
SD:	**84**	u	ln[tPb]	[tPb]
CV:	**1.55**	3	6.7	812
Min:	**15**	0	3.38	29
Max:	**430**	-3	0.07	1
Median:	**30**			

					0.765	0.765
	u=mLn{Conc.}+b:				51.6	51.6
update for r2, EV, CV:	**r2=0.765, EV=51.6 ug/L CV=1.08; max r2=0.96**				1.078	1.08
	r2 u,lnConc:	0.765	u	lnConc	Conc	
	slope, m:	1.139	3	6.19	488	
	intercept, b:	-4.052	0	3.56	35	
	N:	32	-3	0.92	3	
0.932	E[Conc]:	51.6	Parameter Estimates			
1510	SD[Conc]:	56	from LN regression			
4.11	CV[Conc]:	1.08	update graph label			

						max r2
	tPb	N: 32				0.958
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	**forward**
	Ranked					
update and rank for new data						
23-Sep-98	15	1	0.0194	-2.067	2.708	0.765
25-Feb-98	16	2	0.0504	-1.641	2.773	0.775
9-Sep-99	17.9	3	0.0814	-1.396	2.885	0.778
24-Nov-97	18	4	0.1124	-1.214	2.890	0.783
25-Aug-98	19	5	0.1434	-1.065	2.944	0.784
28-May-98	21	6	0.1744	-0.937	3.045	0.784
14-Dec-98	22	7	0.2054	-0.822	3.091	0.789
6-May-99	22	8	0.2364	-0.718	3.091	0.794
16-Apr-97	25	9	0.2674	-0.621	3.219	0.797
3-Sep-97	25	10	0.2984	-0.529	3.219	0.808
13-Dec-96	26	11	0.3295	-0.441	3.258	0.817
21-Jan-98	27	12	0.3605	-0.357	3.296	0.828
16-Nov-98	27	13	0.3915	-0.275	3.296	0.840
14-Jul-99	27.2	14	0.4225	-0.196	3.303	0.851
29-Oct-96	28	15	0.4535	-0.117	3.332	0.861
26-Nov-96	30	16	0.4845	-0.039	3.401	0.872
16-Oct-97	30	17	0.5155	0.039	3.401	0.887
23-Apr-98	30	18	0.5465	0.117	3.401	0.901
11-Aug-99	30.4	19	0.5775	0.196	3.414	0.912
24-Jun-97	31	20	0.6085	0.275	3.434	0.922
13-Aug-97	32	21	0.6395	0.357	3.466	0.931
17-Jun-99	32	22	0.6705	0.441	3.466	0.938
19-Feb-97	36	23	0.7016	0.529	3.584	0.941
30-Jan-97	40	24	0.7326	0.621	3.689	0.946
27-Mar-97	40	25	0.7636	0.718	3.689	0.957
19-Mar-98	44	26	0.7946	0.822	3.784	0.958
27-Jul-98	47	27	0.8256	0.937	3.850	0.954
17-Dec-97	56	28	0.8566	1.065	4.025	0.938
24-Jul-97	83	29	0.8876	1.214	4.419	
23-Mar-99	110	30	0.9186	1.396	4.700	
27-May-99	300	31	0.9496	1.641	5.704	
21-Apr-99	430	32	0.9806	2.067	6.064	

update for EV, CV:

tPb	**LC50**		3,263	3260
LN Analysis	**tPb**		1.02	1.02

Discharge, Q

Q Data, EV=3260 cfs CV=1.02

Q Data-based LN

		u	lnQ	Q
Avg:	**3,263**	3	10.3	28626
SD:	**3,315**	0	7.74	2289
CV:	**1.02**	-3	5.21	183
Min:	**362**			
Max:	**12,400**			
Median:	**1,920**			

0.958	0.958
3666.3	3670
1.66	1.66

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.958, EV=3670 cfs CV=1.66; max r2=0.97**

		u	lnQ	Q
r2 u,lnQ:	0.958	3	11.00	59636
slope, m:	0.869	0	7.55	1892
intercept, b:	-6.560	-3	4.09	60
N: 32				
E[Q]:	3666.3	Parameter Estimates		
SD[Q]:	6085	from LN regression		
CV[Q]:	1.66	update graph label		

N: 32

max r2
0.968

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
9-Sep-99	362	1	0.0194	-2.067	5.892	0.958
23-Sep-98	367	2	0.0504	-1.641	5.905	0.968
25-Aug-98	434	3	0.0814	-1.396	6.073	0.968
3-Sep-97	461	4	0.1124	-1.214	6.133	0.966
29-Oct-96	589	5	0.1434	-1.065	6.378	0.963
16-Oct-97	594	6	0.1744	-0.937	6.387	0.962
13-Aug-97	607	7	0.2054	-0.822	6.409	0.958
27-Jul-98	624	8	0.2364	-0.718	6.436	0.954
11-Aug-99	627	9	0.2674	-0.621	6.441	0.950
26-Nov-96	851	10	0.2984	-0.529	6.746	0.949
24-Jul-97	1040	11	0.3295	-0.441	6.947	0.945
16-Nov-98	1100	12	0.3605	-0.357	7.003	0.939
21-Jan-98	1280	13	0.3915	-0.275	7.155	0.933
17-Dec-97	1310	14	0.4225	-0.196	7.178	0.926
24-Nov-97	1410	15	0.4535	-0.117	7.251	0.920
14-Jul-99	1890	16	0.4845	-0.039	7.544	0.916
30-Jan-97	1950	17	0.5155	0.039	7.576	0.905
25-Feb-98	2110	18	0.5465	0.117	7.654	0.894
24-Jun-97	2330	19	0.5775	0.196	7.754	0.881
14-Dec-98	2440	20	0.6085	0.275	7.800	0.867
13-Dec-96	2620	21	0.6395	0.357	7.871	0.859
19-Feb-97	3100	22	0.6705	0.441	8.039	0.871
19-Mar-98	4180	23	0.7016	0.529	8.338	0.911
16-Apr-97	4700	24	0.7326	0.621	8.455	0.921
23-Apr-98	5890	25	0.7636	0.718	8.681	0.953
17-Jun-99	6150	26	0.7946	0.822	8.724	0.947
28-May-98	7540	27	0.8256	0.937	8.928	0.967
23-Mar-99	7850	28	0.8566	1.065	8.968	0.963
6-May-99	8320	29	0.8876	1.214	9.026	
27-Mar-97	8590	30	0.9186	1.396	9.058	
21-Apr-99	10700	31	0.9496	1.641	9.278	
27-May-99	12400	32	0.9806	2.067	9.425	

Secondary Scale For LN graphs

u	Cumulative Frequecny secondary y-axis	Candidate x-axis positions x-axis position	
-4.00	0.00003	10000	1000
-3.00	0.00135	10000	1000
-2.00	0.02275	10000	1000
-1.00	0.15866	10000	1000
0.00	0.50000	10000	1000
1.00	0.84134	10000	1000
2.00	0.97725	10000	1000
3.00	0.99865	10000	1000
4.00	0.99997	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	LC60	**Date:**	20-Sep-00
Chemical:	tZn	**Analyst:**	S.R. Peterson

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,885	3,263	339	4,691	0.00	0.00	0.00	
SD:	325	3,315	116	4,094	1.00	1.00	1.00	
CV:	0.01	1.02	0.34	0.87				first:
Min:	35,367	362	120	656.1	-0.88	-1.88	-0.99	mid:
Max:	36,412	12,400	600	17,270	2.76	2.25	3.07	last:
Median:	35,862	1,920	326	3,434	-0.41	-0.11	-0.31	

tZn LC60 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.366)		update r2	0.37	0.366				
r2 Q,[COC]:	0.37	[tCd]	Q					
slope, m:	0.0	400	362.0					
intercept, b:	407.9	339	3263.0					
N: 32		145	12400					first:
LnConc. = mLn{Q}+b (r2=0.378)		update r2	0.38	0.378				mid:
r2 lnQ,ln[COC]:	0.38	ln[tCd]	ln Q	[tCd]	Q			last:
slope, m:	-0.21	6.11	5.89	450	362			
intercept, b:	7.36	5.65	8.09	283	3,263			
N: 32		5.36	9.43	213	12,400			

Q = mTime +b

r2:	0.095	0.025
m:	3.1452	0.00052
b:	-109605	-11.12

LnQ = mTime +b

for graph 0

N= 32

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	tZn LC60 Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	29-Oct-96	589	444	1407.0	6.38	6.10	7.25	-0.81	0.91	-0.80
IDEQ	26-Nov-96	851	592	2710.4	6.75	6.38	7.90	-0.73	2.18	-0.48
IDEQ	13-Dec-96	2620	494	6963.2	7.87	6.20	8.85	-0.19	1.34	0.56
IDEQ	30-Jan-97	1950	382	4007.6	7.58	5.95	8.30	-0.40	0.37	-0.17
IDEQ	19-Feb-97	3100	436	7271.6	8.04	6.08	8.89	-0.05	0.84	0.63
IDEQ	27-Mar-97	8590	238	10999.0	9.06	5.47	9.31	1.61	-0.87	1.54
IDEQ	16-Apr-97	4700	244	6169.8	8.46	5.50	8.73	0.43	-0.81	0.36
IDEQ	24-Jun-97	2330	281	3522.4	7.75	5.64	8.17	-0.28	-0.50	-0.29
IDEQ	24-Jul-97	1040	401	2243.7	6.95	5.99	7.72	-0.67	0.54	-0.60
IDEQ	13-Aug-97	607	428	1397.7	6.41	6.06	7.24	-0.80	0.77	-0.80
IDEQ	3-Sep-97	461	454	1126.0	6.13	6.12	7.03	-0.85	0.99	-0.87
IDEQ	16-Oct-97	594	373	1192.0	6.39	5.92	7.08	-0.81	0.30	-0.85
IDEQ	24-Nov-97	1410	441	3345.3	7.25	6.09	8.12	-0.56	0.88	-0.33
IDEQ	17-Dec-97	1310	391	2755.7	7.18	5.97	7.92	-0.59	0.45	-0.47
IDEQ	21-Jan-98	1280	466	3209.1	7.15	6.14	8.07	-0.60	1.10	-0.36
IDEQ	25-Feb-98	2110	290	3292.0	7.65	5.67	8.10	-0.35	-0.42	-0.34
IDEQ	19-Mar-98	4180	212	4767.5	8.34	5.36	8.47	0.28	-1.09	0.02
IDEQ	23-Apr-98	5890	222	7034.8	8.68	5.40	8.86	0.79	-1.00	0.57
IDEQ	28-May-98	7540	234	9492.3	8.93	5.46	9.16	1.29	-0.90	1.17
IDEQ	27-Jul-98	624	309	1037.4	6.44	5.73	6.94	-0.80	-0.26	-0.89
IDEQ	25-Aug-98	434	281	656.1	6.07	5.64	6.49	-0.85	-0.50	-0.99
IDEQ	23-Sep-98	367	345	681.2	5.91	5.84	6.52	-0.87	0.05	-0.98
USGS	16-Nov-98	1100	600	3550.8	7.00	6.40	8.17	-0.65	2.25	-0.28
USGS	14-Dec-98	2440	380	4988.3	7.80	5.94	8.51	-0.25	0.36	0.07
USGS	23-Mar-99	7850	210	8868.9	8.97	5.35	9.09	1.38	-1.11	1.02
USGS	21-Apr-99	10700	300	17269.8	9.28	5.70	9.76	2.24	-0.33	3.07
USGS	6-May-99	8320	120	5371.4	9.03	4.79	8.59	1.53	-1.88	0.17
USGS	27-May-99	12400	240	16010.9	9.43	5.48	9.68	2.76	-0.85	2.76
USGS	17-Jun-99	6150	140	4632.2	8.72	4.94	8.44	0.87	-1.71	-0.01
USGS	14-Jul-99	1890	237	2409.9	7.54	5.47	7.79	-0.41	-0.87	-0.56
USGS	11-Aug-99	627	312	1052.5	6.44	5.74	6.96	-0.80	-0.23	-0.89
USGS	9-Sep-99	362	340	662.2	5.89	5.83	6.50	-0.88	0.01	-0.98

tZn

Concentration over time analysis r2 Slope, m

tZn LC60 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.259** **-0.00058**

Time	Ln[COC]	[COC]
29-Oct-96	6.06	429
8-Mar-98	5.77	322
9-Sep-99	5.45	234

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Sep-99	0.00	1

Load over time analysis

tZn LC60 **Load over time**

LnLoad=mTime+b All data r2, m: **0.000** **-0.00006**

Time	LnLoad	Load
29-Oct-96	8.11	3,336
8-Mar-98	8.08	3,238
9-Sep-99	8.05	3,131

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
9-Sep-99	0.00	1

max r2: #DIV/0!

Forward time Regression on Ln Concentration(t)

max r2: #DIV/0!

Forward time Regression on Ln Load(t)

r2	slope	intercept	r2	slope	intercept
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.259	-0.00058	26.60	0.000	-0.00006	10.26
0.239	-0.00057	26.39	0.005	-0.00021	15.63
0.192	-0.00051	24.11	0.008	-0.00027	17.69
0.155	-0.00047	22.53	0.002	-0.00014	13.29
0.141	-0.00047	22.46	0.001	-0.00012	12.24
0.113	-0.00043	21.17	0.000	0.00006	5.88
0.159	-0.00053	24.90	0.012	0.00038	-5.68
0.217	-0.00066	29.39	0.031	0.00063	-14.75
0.254	-0.00075	32.72	0.040	0.00075	-19.21
0.234	-0.00075	32.79	0.037	0.00077	-19.66
0.203	-0.00073	31.91	0.022	0.00062	-14.31
0.159	-0.00067	29.70	0.006	0.00033	-3.96
0.138	-0.00066	29.34	0.000	-0.00002	8.76
0.093	-0.00056	25.77	0.000	-0.00002	8.73
0.061	-0.00048	22.78	0.000	-0.00012	12.28
0.016	-0.00025	14.61	0.001	-0.00016	13.93
0.012	-0.00023	14.06	0.001	-0.00021	15.54
0.038	-0.00046	22.19	0.000	0.00003	7.13
0.083	-0.00076	32.95	0.010	0.00077	-19.93
0.150	-0.00117	47.82	0.078	0.00238	-78.15
0.154	-0.00134	54.23	0.034	0.00172	-54.45
0.195	-0.00177	69.87	0.002	-0.00041	22.95
0.176	-0.00205	80.03	0.210	-0.00503	190.91
0.004	-0.00030	16.52	0.394	-0.00872	324.93
0.202	0.00292	-100.65	0.781	-0.01830	673.06
0.247	0.00391	-136.72	0.865	-0.02260	829.50
0.691	0.00741	-263.96	0.813	-0.02210	811.35
0.512	0.00591	-209.34	0.953	-0.02927	1071.98
0.889	0.01043	-373.84	0.987	-0.02377	871.94
0.911	0.00631	-223.95	0.971	-0.02262	830.20
1.000	0.00296	-102.08	1.000	-0.01598	588.28
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

update for EV, CV:

tZn **LC60**

LN Analysis **tZn**

Load **Load Data, EV=4690 lbs/day CV=0.873**

Load Data-based LN

		u	ln tCd Load	tCd Load
Avg:	**4,691**			
SD:	**4,094**	u	ln tCd Load	tCd Load
CV:	**0.87**	3	10.4	33790
Min:	**656.1**	0	8.17	3534
Max:	**17,270**	-3	5.91	369.5
Median:	**3,434**			
		4,691	4690	
		0.87	0.873	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.977, EV=5080lbs/day CV=1.21; max r2=0.99**

r2 u,lnLoad:	0.977	u	lnLoad	Load	
slope, m:	1.053	3	10.93	55861	
intercept, b:	-8.508	0	8.08	3233	
N: 32		-3	5.23	187.1	
E[Load]:	5076	Parameter Estimates			0.977
SD[Load]:	6144	from LN regression			5075.9
CV[Load]:	1.21	update graph label			1.2
					max r2
					0.990

	tZn	N: 32				
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
25-Aug-98	**656.1**	1	0.0194	-2.067	6.486	0.977
9-Sep-99	**662.2**	2	0.0504	-1.641	6.496	0.980
23-Sep-98	**681.2**	3	0.0814	-1.396	6.524	0.977
27-Jul-98	**1037.4**	4	0.1124	-1.214	6.944	0.976
11-Aug-99	**1052.5**	5	0.1434	-1.065	6.959	0.973
3-Sep-97	**1126.0**	6	0.1744	-0.937	7.026	0.971
16-Oct-97	**1192.0**	7	0.2054	-0.822	7.083	0.970
13-Aug-97	**1397.7**	8	0.2364	-0.718	7.243	0.973
29-Oct-96	**1407.0**	9	0.2674	-0.621	7.249	0.976
24-Jul-97	**2243.7**	10	0.2984	-0.529	7.716	0.990
14-Jul-99	**2409.9**	11	0.3295	-0.441	7.787	0.989
26-Nov-96	**2710.4**	12	0.3605	-0.357	7.905	0.988
17-Dec-97	**2755.7**	13	0.3915	-0.275	7.921	0.987
21-Jan-98	**3209.1**	14	0.4225	-0.196	8.074	0.985
25-Feb-98	**3292.0**	15	0.4535	-0.117	8.099	0.985
24-Nov-97	**3345.3**	16	0.4845	-0.039	8.115	0.984
24-Jun-97	**3522.4**	17	0.5155	0.039	8.167	0.982
16-Nov-98	**3550.8**	18	0.5465	0.117	8.175	0.979
30-Jan-97	**4007.6**	19	0.5775	0.196	8.296	0.979
17-Jun-99	**4632.2**	20	0.6085	0.275	8.441	0.977
19-Mar-98	**4767.5**	21	0.6395	0.357	8.470	0.974
14-Dec-98	**4988.3**	22	0.6705	0.441	8.515	0.969
6-May-99	**5371.4**	23	0.7016	0.529	8.589	0.964
16-Apr-97	**6169.8**	24	0.7326	0.621	8.727	0.958
13-Dec-96	**6963.2**	25	0.7636	0.718	8.848	0.949
23-Apr-98	**7034.8**	26	0.7946	0.822	8.859	0.944
19-Feb-97	**7271.6**	27	0.8256	0.937	8.892	0.927
23-Mar-99	**8868.9**	28	0.8566	1.065	9.090	0.905
28-May-98	**9492.3**	29	0.8876	1.214	9.158	
27-Mar-97	**10999.0**	30	0.9186	1.396	9.306	
27-May-99	**16010.9**	31	0.9496	1.641	9.681	
21-Apr-99	**17269.8**	32	0.9806	2.067	9.757	

update for EV, CV:

tZn		**LC60**		339	339
LN Analysis		**tZn**		0.34	0.343
Concentration		**Conc. Data, EV=339 ug/L CV=0.343**			
Avg:	**339**	**Data-based LN**			
SD:	**116**	u	ln[tCd]	[tCd]	
CV:	**0.34**	3	6.8	872	
Min:	**120**	0	5.77	320	
Max:	**600**	-3	4.77	118	
Median:	**326**				

				0.961	0.961
	u=mLn{Conc.}+b:			343.3	343
update for r2, EV, CV:	**r2=0.961, EV=343 ug/L CV=0.411; max r2=0.975**			0.411	0.411
	r2 u,lnConc:	0.961	u	lnConc.	Conc.
	slope, m:	2.533	3	6.95	1038
	intercept, b:	-14.590	0	5.76	318
	N: 32		-3	4.58	97
0.977	E[Conc]:	343.3	Parameter Estimates		
5080	SD[Conc]:	141	from LN regression		
1.21	CV[Conc]:	0.41	update graph label		

						max r2
	tZn	N: 32				0.975
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
6-May-99	120	1	0.0194	-2.067	4.787	0.961
17-Jun-99	140	2	0.0504	-1.641	4.942	0.962
23-Mar-99	210	3	0.0814	-1.396	5.347	0.975
19-Mar-98	212	4	0.1124	-1.214	5.357	0.974
23-Apr-98	222	5	0.1434	-1.065	5.403	0.971
28-May-98	234	6	0.1744	-0.937	5.455	0.968
14-Jul-99	237	7	0.2054	-0.822	5.468	0.965
27-Mar-97	238	8	0.2364	-0.718	5.472	0.962
27-May-99	240	9	0.2674	-0.621	5.481	0.959
16-Apr-97	244	10	0.2984	-0.529	5.497	0.959
24-Jun-97	281	11	0.3295	-0.441	5.638	0.965
25-Aug-98	281	12	0.3605	-0.357	5.638	0.962
25-Feb-98	290	13	0.3915	-0.275	5.670	0.960
21-Apr-99	300	14	0.4225	-0.196	5.704	0.958
27-Jul-98	309	15	0.4535	-0.117	5.733	0.956
11-Aug-99	312	16	0.4845	-0.039	5.743	0.955
9-Sep-99	340	17	0.5155	0.039	5.829	0.961
23-Sep-98	345	18	0.5465	0.117	5.844	0.957
16-Oct-97	373	19	0.5775	0.196	5.922	0.955
14-Dec-98	380	20	0.6085	0.275	5.940	0.950
30-Jan-97	382	21	0.6395	0.357	5.945	0.944
17-Dec-97	391	22	0.6705	0.441	5.969	0.934
24-Jul-97	401	23	0.7016	0.529	5.994	0.922
13-Aug-97	428	24	0.7326	0.621	6.059	0.906
19-Feb-97	436	25	0.7636	0.718	6.078	0.903
24-Nov-97	441	26	0.7946	0.822	6.089	0.902
29-Oct-96	444	27	0.8256	0.937	6.096	0.896
3-Sep-97	454	28	0.8566	1.065	6.118	0.869
21-Jan-98	466	29	0.8876	1.214	6.144	
13-Dec-96	494	30	0.9186	1.396	6.203	
26-Nov-96	592	31	0.9496	1.641	6.384	
16-Nov-98	600	32	0.9806	2.067	6.397	

update for EV, CV:

tZn		**LC60**			3,263	3260
LN Analysis		**tZn**			1.02	1.02
Discharge, Q		**Q Data, EV=3260 cfs CV=1.02**				
Avg:	**3,263**	**Q Data-based LN**				
SD:	**3,315**	u	lnQ	Q		
CV:	**1.02**	3	10.3	28626		
Min:	**362**	0	7.74	2289		
Max:	**12,400**	-3	5.21	183		
Median:	**1,920**					

					0.958	0.958
					3666.3	3670
u=mLn{Q}+b:					1.66	1.66
update for r2, EV, CV:	**r2=0.958, EV=3670 cfs CV=1.66; max r2=0.968**					
	r2 u,lnQ:	0.958	u	lnQ	Q	
	slope, m:	0.869	3	11.00	59636	
	intercept, b:	-6.560	0	7.55	1892	
	N: 32		-3	4.09	60	
	E[Q]:	3666.3	Parameter Estimates			
	SD[Q]:	6085	from LN regression			
	CV[Q]:	1.66	update graph label			

						max r2
	Q	N: 32				0.968
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
9-Sep-99	362	1	0.0194	-2.067	5.892	0.958
23-Sep-98	367	2	0.0504	-1.641	5.905	0.968
25-Aug-98	434	3	0.0814	-1.396	6.073	0.968
3-Sep-97	461	4	0.1124	-1.214	6.133	0.966
29-Oct-96	589	5	0.1434	-1.065	6.378	0.963
16-Oct-97	594	6	0.1744	-0.937	6.387	0.962
13-Aug-97	607	7	0.2054	-0.822	6.409	0.958
27-Jul-98	624	8	0.2364	-0.718	6.436	0.954
11-Aug-99	627	9	0.2674	-0.621	6.441	0.950
26-Nov-96	851	10	0.2984	-0.529	6.746	0.949
24-Jul-97	1040	11	0.3295	-0.441	6.947	0.945
16-Nov-98	1100	12	0.3605	-0.357	7.003	0.939
21-Jan-98	1280	13	0.3915	-0.275	7.155	0.933
17-Dec-97	1310	14	0.4225	-0.196	7.178	0.926
24-Nov-97	1410	15	0.4535	-0.117	7.251	0.920
14-Jul-99	1890	16	0.4845	-0.039	7.544	0.916
30-Jan-97	1950	17	0.5155	0.039	7.576	0.905
25-Feb-98	2110	18	0.5465	0.117	7.654	0.894
24-Jun-97	2330	19	0.5775	0.196	7.754	0.881
14-Dec-98	2440	20	0.6085	0.275	7.800	0.867
13-Dec-96	2620	21	0.6395	0.357	7.871	0.859
19-Feb-97	3100	22	0.6705	0.441	8.039	0.871
19-Mar-98	4180	23	0.7016	0.529	8.338	0.911
16-Apr-97	4700	24	0.7326	0.621	8.455	0.921
23-Apr-98	5890	25	0.7636	0.718	8.681	0.953
17-Jun-99	6150	26	0.7946	0.822	8.724	0.947
28-May-98	7540	27	0.8256	0.937	8.928	0.967
23-Mar-99	7850	28	0.8566	1.065	8.968	0.963
6-May-99	8320	29	0.8876	1.214	9.026	
27-Mar-97	8590	30	0.9186	1.396	9.058	
21-Apr-99	10700	31	0.9496	1.641	9.278	
27-May-99	12400	32	0.9806	2.067	9.425	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	MC262	**Date:**	20-Jun-00
Chemical:	dCd	**Analyst:**	J.MacLachlan

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,090	14	1	0.05	0.00	0.00	0.00
SD:	810	26	0.2	0.08	1.00	1.00	1.00
CV:	0.02	1.82	0.32	1.74			
Min:	33,372	0.4	0.4	0.0	-0.53	-1.43	-0.56
Max:	36,403	137	2	0.39	4.70	4.59	4.31
Median:	34,808	5	1	0.02	-0.37	-0.14	-0.34

dCd MC262 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.0000695)			0.00	0.0000695			
r2 Q,[COC]:	0.0001	[tCd]	Q				
slope, m:	0.0001	1	0.4				
intercept, b:	0.7	1	14.3				
N: 47		1	137				
LnConc. = mLn{Q}+b (r2=0.0317)			update r2	0.03	0.0317		
r2 lnQ,ln[COC]:	0.03	ln[tCd]	ln Q	[tCd]	Q		
slope, m:	0.04	-0.47	-0.97	1	0.4		
intercept, b:	-0.43	-0.31	2.66	1	14		
N: 47		-0.21	4.92	1	137		

Q = mTime +b

r2:	0.013	0.020
m:	0.0037	0.00021
b:	-115	-5.58

LnQ = mTime +b

for graph
dCd 0

N= 58

MC262
Standardized Values = (x - Avg)/SD

	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	14-May-91	14.9	0.5	0.040	2.70	-0.69	-3.22	0.02	-1.00	-0.07
MFG	1-Oct-91	0.93	0.4	0.002	-0.07	-0.92	-6.21	-0.51	-1.43	-0.55
IDEQ	29-Oct-93	2.46	0.6	0.008	0.90	-0.51	-4.84	-0.46	-0.57	-0.47
IDEQ	1-Dec-93	2.69	0.7	0.010	0.99	-0.36	-4.59	-0.45	-0.14	-0.45
IDEQ	21-Dec-93	3.06	0.7	0.012	1.12	-0.36	-4.46	-0.43	-0.14	-0.43
IDEQ	21-Dec-93	2.21	0.7	0.008	0.79	-0.36	-4.79	-0.46	-0.14	-0.47
IDEQ	21-Jan-94	7.08	0.6	0.023	1.96	-0.51	-3.78	-0.28	-0.57	-0.29
IDEQ	21-Jan-94	7.13	0.6	0.023	1.96	-0.51	-3.77	-0.28	-0.57	-0.28
IDEQ	17-Feb-94	3.81	0.8	0.016	1.34	-0.22	-4.11	-0.40	0.29	-0.37
IDEQ	7-Mar-94	23.22	0.6	0.075	3.15	-0.51	-2.59	0.34	-0.57	0.37
IDEQ	23-Mar-94	16.04	0.5	0.043	2.78	-0.69	-3.14	0.07	-1.00	-0.03
IDEQ	23-Mar-94	15.34	0.5	0.041	2.73	-0.69	-3.19	0.04	-1.00	-0.05
IDEQ	6-Apr-94	13.97	1	0.075	2.64	0.00	-2.59	-0.01	1.15	0.37
IDEQ	18-Apr-94	10.63	0.6	0.034	2.36	-0.51	-3.37	-0.14	-0.57	-0.14
IDEQ	3-May-94	6.19	0.9	0.030	1.82	-0.11	-3.51	-0.31	0.72	-0.20
IDEQ	20-May-94	4.34	0.8	0.019	1.47	-0.22	-3.98	-0.38	0.29	-0.34
IDEQ	7-Jun-94	4.34	0.8	0.019	1.47	-0.22	-3.98	-0.38	0.29	-0.34
IDEQ	24-Jun-94	2.8	0.8	0.012	1.03	-0.22	-4.42	-0.44	0.29	-0.42
IDEQ	22-Jul-94	1.99	0.6	0.006	0.69	-0.51	-5.05	-0.47	-0.57	-0.49
IDEQ	17-Aug-94	1.41	0.6	0.005	0.34	-0.51	-5.39	-0.50	-0.57	-0.52
IDEQ	17-Aug-94	0.38	0.6	0.001	-0.97	-0.51	-6.70	-0.53	-0.57	-0.56
IDEQ	5-Oct-94	1.75	0.5	0.005	0.56	-0.69	-5.36	-0.48	-1.00	-0.52
IDEQ	16-Nov-94	3.81	0.5	0.010	1.34	-0.69	-4.58	-0.40	-1.00	-0.45
IDEQ	14-Dec-94	3.49	0.8	0.015	1.25	-0.22	-4.20	-0.42	0.29	-0.39
IDEQ	10-Jan-95	8.48	0.7	0.032	2.14	-0.36	-3.44	-0.22	-0.14	-0.17
IDEQ	9-Feb-95	62.77	0.7	0.236	4.14	-0.36	-1.44	1.86	-0.14	2.41
IDEQ	8-Mar-95	112.47	0.6	0.363	4.72	-0.51	-1.01	3.77	-0.57	4.00
IDEQ	22-Mar-95	79.93	0.9	0.387	4.38	-0.11	-0.95	2.52	0.72	4.31
IDEQ	12-Apr-95	16.04	0.7	0.060	2.78	-0.36	-2.81	0.07	-0.14	0.19
IDEQ	25-Apr-95	14.63	1.2	0.094	2.68	0.18	-2.36	0.01	2.01	0.62
IDEQ	9-May-95	6.77	0.8	0.029	1.91	-0.22	-3.54	-0.29	0.29	-0.21
IDEQ	23-May-95	4.16	1.1	0.025	1.43	0.10	-3.70	-0.39	1.58	-0.26
IDEQ	12-Jun-95	4.16	0.7	0.016	1.43	-0.36	-4.16	-0.39	-0.14	-0.38
IDEQ	27-Jun-95	2.93	0.7	0.011	1.08	-0.36	-4.51	-0.44	-0.14	-0.44
IDEQ	11-Jul-95	2.8	0.7	0.011	1.03	-0.36	-4.55	-0.44	-0.14	-0.44
IDEQ	25-Jul-95	2.07	0.7	0.008	0.73	-0.36	-4.85	-0.47	-0.14	-0.48
IDEQ	14-Aug-95	1.82	0.7	0.007	0.60	-0.36	-4.98	-0.48	-0.14	-0.49
IDEQ	13-Sep-95	1.75	0.8	0.008	0.56	-0.22	-4.89	-0.48	0.29	-0.48
URS	5-Nov-97	2.44	0.59	0.008	0.89	-0.53	-4.86	-0.46	-0.61	-0.48
IDEQ	23-Apr-98	14.62806909	0.6	0.047	2.68	-0.51	-3.05	0.01	-0.57	0.02
URS	5-May-98	6.86	1.8	0.066	1.93	0.59	-2.71	-0.29	4.59	0.26
IDEQ	*28-May-98*	*136.9458147*			4.92			4.70		
IDEQ	25-Jun-98	7.082855593	0.6	0.023	1.96	-0.51	-3.78	-0.28	-0.57	-0.29
IDEQ	27-Jul-98	3.196210553	0.6	0.010	1.16	-0.51	-4.57	-0.43	-0.57	-0.44
IDEQ	25-Aug-98	2.571760751	0.5	0.007	0.94	-0.69	-4.97	-0.45	-1.00	-0.49

IDEQ	*24-Sep-98*	*2.462807903*			0.90			-0.45		
USGS	*28-Oct-98*	*1.3*			0.26			-0.50		
USGS	*18-Nov-98*	*1.6*			0.47			-0.49		
USGS	*14-Dec-98*	*4.8*			1.57			-0.37		
USGS	*21-Jan-99*	*21*			3.04			0.26		
USGS	*22-Mar-99*	*63*			4.14			1.87		
USGS	*20-Apr-99*	*43*			3.76			1.10		
USGS	4-May-99	17	1	0.091	2.83	0.00	-2.39	0.10	1.15	0.58
USGS	23-May-99	8.7	1	0.047	2.16	0.00	-3.06	-0.22	1.15	0.02
USGS	16-Jun-99	4.2	1	0.023	1.44	0.00	-3.79	-0.39	1.15	-0.29
USGS	*20-Jul-99*	*5*			1.61			-0.36		
USGS	*4-Aug-99*	*5*			1.61			-0.36		
USGS	*31-Aug-99*	*5*			1.61			-0.36		

dCd

Concentration over time analysis r2 Slope, m

dCd MC262 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.141** **0.00015**

	Time	Ln[COC]	[COC]
first:	14-May-91	-0.57	1
mid:	18-Apr-95	-0.36	1
last:	31-Aug-99	-0.11	1

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

21-Jan-99	0.00	1
31-Aug-99	0.00	1

Load over time analysis

dCd MC262 **Load over time**

LnLoad=mTime+b All data r2, m: **0.023** **0.00027**

	Time	LnLoad	Load
first:	14-May-91	-4.27	0.01
mid:	18-Apr-95	-3.88	0.02
last:	31-Aug-99	-3.45	0.03

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

21-Jan-99	0.00	1
31-Aug-99	0.00	1

max r2: 0.984 max r2: 0.664

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.141	0.00015	-5.64	0.023	0.00027	-13.32
0.115	0.00014	-5.31	0.036	0.00035	-16.23
0.071	0.00011	-4.23	0.012	0.00021	-11.00
0.065	0.00011	-4.08	0.008	0.00017	-9.83
0.065	0.00011	-4.13	0.006	0.00015	-8.93
0.066	0.00011	-4.18	0.004	0.00012	-8.15
0.066	0.00011	-4.23	0.002	0.00009	-6.82
0.060	0.00011	-4.07	0.002	0.00009	-6.87
0.053	0.00010	-3.88	0.002	0.00009	-6.93
0.059	0.00011	-4.11	0.002	0.00008	-6.48
0.053	0.00010	-3.92	0.004	0.00013	-8.34
0.040	0.00009	-3.41	0.007	0.00016	-9.47
0.028	0.00007	-2.85	0.009	0.00020	-10.66
0.042	0.00009	-3.44	0.017	0.00026	-13.00
0.035	0.00008	-3.16	0.020	0.00029	-14.16
0.046	0.00009	-3.61	0.024	0.00032	-15.18
0.052	0.00010	-3.88	0.024	0.00033	-15.38
0.058	0.00011	-4.17	0.024	0.00033	-15.58
0.066	0.00012	-4.50	0.020	0.00031	-14.86
0.057	0.00011	-4.22	0.013	0.00025	-12.65
0.047	0.00010	-3.90	0.005	0.00016	-9.39
0.037	0.00009	-3.53	0.000	-0.00004	-2.33
0.021	0.00007	-2.65	0.006	-0.00016	2.04
0.008	0.00004	-1.68	0.014	-0.00024	4.86
0.009	0.00004	-1.81	0.022	-0.00030	7.02
0.006	0.00004	-1.60	0.022	-0.00031	7.38
0.004	0.00003	-1.35	0.006	-0.00016	1.94
0.000	0.00001	-0.58	0.001	0.00006	-5.71
0.002	0.00002	-1.02	0.046	0.00032	-15.11
0.000	0.00001	-0.63	0.092	0.00044	-19.70
0.013	0.00006	-2.32	0.228	0.00065	-27.25
0.016	0.00007	-2.64	0.299	0.00077	-31.50
0.057	0.00013	-4.74	0.376	0.00090	-36.23
0.053	0.00013	-4.82	0.412	0.00100	-39.83
0.048	0.00013	-4.93	0.413	0.00107	-42.39
0.042	0.00014	-5.09	0.414	0.00117	-45.96
0.035	0.00014	-5.36	0.369	0.00124	-48.23
0.027	0.00016	-6.01	0.278	0.00129	-50.22
0.131	0.00073	-26.48	0.174	0.00193	-73.36
0.072	0.00064	-23.22	0.044	0.00105	-41.42
0.029	0.00042	-15.49	0.114	0.00182	-69.53
0.899	0.00181	-65.79	0.482	0.00393	-145.85
0.899	0.00181	-65.79	0.482	0.00393	-145.85
0.926	0.00204	-74.13	0.664	0.00546	-201.24
0.984	0.00250	-90.78	0.613	0.00630	-231.69

update for EV, CV:

dCd **MC262**
LN Analysis **dCd**

Load **Load Data, EV=0.0456 lbs/day CV=1.74**

Avg:	**0.05**	**Load Data-based LN**		
SD:	**0.08**	u	ln tCd Load	tCd Load
CV:	**1.74**	3	-0.2	1
Min:	**0.001**	0	-3.79	0.02
Max:	**0.39**	-3	-7.33	0.001
Median:	**0.02**			
		0	0.0456	
		1.74	1.74	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.986, EV=0.0466lbs/day CV=2.24; max r2=0.99**

r2 u,lnLoad:	0.986	u	lnLoad	Load	
slope, m:	0.747	3	0.06	1	
intercept, b:	2.958	0	-3.96	0.02	
N:	47	-3	-7.98	0.0003	
E[Load]:	0.05	Parameter Estimates			0.986
SD[Load]:	0.1	from LN regression			0.0
CV[Load]:	2.24	update graph label			2.2
					max r2
	dCd	N: 58			0.990

Date	**Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2 forward**
update and rank for new data						
21-Jan-99		1	0.0107	-2.300		
17-Aug-94	**0.001**	2	0.0279	-1.913	-6.703	0.986
1-Oct-91	**0.002**	3	0.0451	-1.695	-6.214	0.985
24-Sep-98		4	0.0622	-1.536		
28-Oct-98		5	0.0794	-1.409		
18-Nov-98		6	0.0966	-1.301		
17-Aug-94	**0.005**	7	0.1137	-1.207	-5.392	0.984
5-Oct-94	**0.005**	8	0.1309	-1.122	-5.359	0.983
22-Jul-94	**0.006**	9	0.1481	-1.045	-5.048	0.982
14-Aug-95	**0.007**	10	0.1652	-0.973	-4.983	0.984
25-Aug-98	**0.007**	11	0.1824	-0.906	-4.974	0.985
13-Sep-95	**0.008**	12	0.1996	-0.843	-4.889	0.986
5-Nov-97	**0.008**	13	0.2167	-0.783	-4.861	0.987
25-Jul-95	**0.008**	14	0.2339	-0.726	-4.854	0.987
29-Oct-93	**0.008**	15	0.2511	-0.671	-4.836	0.988
21-Dec-93	**0.008**	16	0.2682	-0.618	-4.789	0.987
1-Dec-93	**0.010**	17	0.2854	-0.567	-4.592	0.987
16-Nov-94	**0.010**	18	0.3026	-0.517	-4.581	0.988
27-Jul-98	**0.010**	19	0.3197	-0.468	-4.574	0.989
11-Jul-95	**0.011**	20	0.3369	-0.421	-4.552	0.990
27-Jun-95	**0.011**	21	0.3541	-0.374	-4.507	0.990
21-Dec-93	**0.012**	22	0.3712	-0.329	-4.463	0.990
24-Jun-94	**0.012**	23	0.3884	-0.283	-4.419	0.990
14-Dec-98		24	0.4056	-0.239		
20-Jul-99		25	0.4227	-0.195		
4-Aug-99		26	0.4399	-0.151		
31-Aug-99		27	0.4571	-0.108		
14-Dec-94	**0.015**	28	0.4742	-0.065	-4.198	0.990
12-Jun-95	**0.016**	29	0.4914	-0.022	-4.156	0.989
17-Feb-94	**0.016**	30	0.5086	0.022	-4.111	0.989
20-May-94	**0.019**	31	0.5258	0.065	-3.980	0.988
7-Jun-94	**0.019**	32	0.5429	0.108	-3.980	0.987
16-Jun-99	**0.023**	33	0.5601	0.151	-3.790	0.986
21-Jan-94	**0.023**	34	0.5773	0.195	-3.779	0.986
25-Jun-98	**0.023**	35	0.5944	0.239	-3.778	0.986
21-Jan-94	**0.023**	36	0.6116	0.283	-3.772	0.985
23-May-95	**0.025**	37	0.6288	0.329	-3.704	0.984
9-May-95	**0.029**	38	0.6459	0.374	-3.536	0.983
3-May-94	**0.030**	39	0.6631	0.421	-3.507	0.982
10-Jan-95	**0.032**	40	0.6803	0.468	-3.444	0.980
18-Apr-94	**0.034**	41	0.6974	0.517	-3.372	0.979
14-May-91	**0.040**	42	0.7146	0.567	-3.217	0.977
23-Mar-94	**0.041**	43	0.7318	0.618	-3.188	0.975
23-Mar-94	**0.043**	44	0.7489	0.671	-3.143	0.973
23-May-99	**0.047**	45	0.7661	0.726	-3.062	0.970

23-Apr-98	**0.047**	46	0.7833	0.783	-3.053	0.967
12-Apr-95	**0.060**	47	0.8004	0.843	-2.807	0.966
5-May-98	**0.066**	48	0.8176	0.906	-2.712	0.961
7-Mar-94	**0.075**	49	0.8348	0.973	-2.591	0.954
6-Apr-94	**0.075**	50	0.8519	1.045	-2.588	0.945
4-May-99	**0.091**	51	0.8691	1.122	-2.392	0.929
25-Apr-95	**0.094**	52	0.8863	1.207	-2.360	0.890
20-Apr-99		53	0.9034	1.301		
22-Mar-99		54	0.9206	1.409		
28-May-98		55	0.9378	1.536		
9-Feb-95	**0.236**	56	0.9549	1.695	-1.442	
8-Mar-95	**0.363**	57	0.9721	1.913	-1.013	
22-Mar-95	**0.387**	58	0.9893	2.300	-0.949	

update for EV, CV:

dCd		**MC262**		1	0.73
LN Analysis		**dCd**		0.32	0.32
Concentration		**Conc. Data, EV=0.73 ug/L CV=0.32**			
Avg:	**1**	**Data-based LN**			
SD:	**0.2**	u	ln[tCd]	[tCd]	
CV:	**0.32**	3	0.6	2	
Min:	**0.4**	0	-0.36	1	
Max:	**2**	-3	-1.29	0.3	
Median:	**1**				

					0.926	0.93
	u=mLn{Conc.}+b:				0.7	0.68
update for r2, EV, CV:	**r2=0.93, EV=0.68 ug/L CV=0.33; max r2=0.94**				0.329	0.33
	r2 u,lnConc:	0.926	u	lnConc.	Conc.	
	slope, m:	3.124	3	0.53	2	
	intercept, b:	1.346	0	-0.43	1	
	N: 47		-3	-1.39	0.2	
0.986	E[Conc]:	0.7	Parameter Estimates			
0.0466	SD[Conc]:	0.2	from LN regression			
2.24	CV[Conc]:	0.33	update graph label			

						max r2
	dCd	N: 58				0.936
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
21-Jan-99		1	0.0107	-2.300		
28-May-98		2	0.0279	-1.913		
24-Sep-98		3	0.0451	-1.695		
1-Oct-91	0.4	4	0.0622	-1.536	-0.916	0.926
14-May-91	0.5	5	0.0794	-1.409	-0.693	0.919
23-Mar-94	0.5	6	0.0966	-1.301	-0.693	0.923
23-Mar-94	0.5	7	0.1137	-1.207	-0.693	0.926
5-Oct-94	0.5	8	0.1309	-1.122	-0.693	0.928
16-Nov-94	0.5	9	0.1481	-1.045	-0.693	0.929
25-Aug-98	0.5	10	0.1652	-0.973	-0.693	0.928
28-Oct-98		11	0.1824	-0.906		
18-Nov-98		12	0.1996	-0.843		
14-Dec-98		13	0.2167	-0.783		
22-Mar-99		14	0.2339	-0.726		
20-Apr-99		15	0.2511	-0.671		
20-Jul-99		16	0.2682	-0.618		
4-Aug-99		17	0.2854	-0.567		
31-Aug-99		18	0.3026	-0.517		
5-Nov-97	0.59	19	0.3197	-0.468	-0.528	0.927
29-Oct-93	0.6	20	0.3369	-0.421	-0.511	0.929
21-Jan-94	0.6	21	0.3541	-0.374	-0.511	0.932
21-Jan-94	0.6	22	0.3712	-0.329	-0.511	0.934
7-Mar-94	0.6	23	0.3884	-0.283	-0.511	0.935
18-Apr-94	0.6	24	0.4056	-0.239	-0.511	0.936
22-Jul-94	0.6	25	0.4227	-0.195	-0.511	0.936
17-Aug-94	0.6	26	0.4399	-0.151	-0.511	0.935
17-Aug-94	0.6	27	0.4571	-0.108	-0.511	0.933
8-Mar-95	0.6	28	0.4742	-0.065	-0.511	0.930
23-Apr-98	0.6	29	0.4914	-0.022	-0.511	0.926
25-Jun-98	0.6	30	0.5086	0.022	-0.511	0.922
27-Jul-98	0.6	31	0.5258	0.065	-0.511	0.917
1-Dec-93	0.7	32	0.5429	0.108	-0.357	0.911
21-Dec-93	0.7	33	0.5601	0.151	-0.357	0.917
21-Dec-93	0.7	34	0.5773	0.195	-0.357	0.922
10-Jan-95	0.7	35	0.5944	0.239	-0.357	0.926
9-Feb-95	0.7	36	0.6116	0.283	-0.357	0.929
12-Apr-95	0.7	37	0.6288	0.329	-0.357	0.930
12-Jun-95	0.7	38	0.6459	0.374	-0.357	0.930
27-Jun-95	0.7	39	0.6631	0.421	-0.357	0.929
11-Jul-95	0.7	40	0.6803	0.468	-0.357	0.925
25-Jul-95	0.7	41	0.6974	0.517	-0.357	0.920
14-Aug-95	0.7	42	0.7146	0.567	-0.357	0.912
17-Feb-94	0.8	43	0.7318	0.618	-0.223	0.903
20-May-94	0.8	44	0.7489	0.671	-0.223	0.910
7-Jun-94	0.8	45	0.7661	0.726	-0.223	0.915

24-Jun-94	0.8	46	0.7833	0.783	-0.223	0.917
14-Dec-94	0.8	47	0.8004	0.843	-0.223	0.915
9-May-95	0.8	48	0.8176	0.906	-0.223	0.907
13-Sep-95	0.8	49	0.8348	0.973	-0.223	0.894
3-May-94	0.9	50	0.8519	1.045	-0.105	0.874
22-Mar-95	0.9	51	0.8691	1.122	-0.105	0.869
6-Apr-94	1	52	0.8863	1.207	0.000	0.850
4-May-99	1	53	0.9034	1.301	0.000	0.890
23-May-99	1	54	0.9206	1.409	0.000	0.930
16-Jun-99	1	55	0.9378	1.536	0.000	
23-May-95	1.1	56	0.9549	1.695	0.095	
25-Apr-95	1.2	57	0.9721	1.913	0.182	
5-May-98	1.8	58	0.9893	2.300	0.588	

update for EV, CV:

dCd		**MC262**			14	14.3
LN Analysis		**dCd**			1.82	1.82
Discharge, Q		**Q Data, EV=14.3 cfs CV=1.82**				
Avg:	**14**	**Q Data-based LN**				
SD:	**26**	u	lnQ	Q		
CV:	**1.82**	3	5.6	259		
Min:	**0.4**	0	1.93	7		
Max:	**137**	-3	-1.70	0.2		
Median:	**5**					

					0.952	0.952
					13.3	13.3
	u=mLn{Q}+b:				1.99	1.99
update for r2, EV, CV:	**r2=0.952, EV=13.3 cfs CV=1.99; max r2=0.97**					
	r2 u,lnQ:	0.952	u	lnQ	Q	
	slope, m:	0.790	3	5.59	266	
	intercept, b:	-1.415	0	1.79	6	
	N: 58		-3	-2.01	0.1	
	E[Q]:	13.3	Parameter Estimates			
	SD[Q]:	27	from LN regression			
	CV[Q]:	1.99	update graph label			

						max r2
	Q	N: 58				0.972
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
17-Aug-94	0.38	1	0.0107	-2.300	-0.968	0.952
1-Oct-91	0.93	2	0.0279	-1.913	-0.073	0.947
28-Oct-98	*1.3*	3	0.0451	-1.695	0.262	0.947
17-Aug-94	1.41	4	0.0622	-1.536	0.344	0.950
18-Nov-98	*1.6*	5	0.0794	-1.409	0.470	0.952
5-Oct-94	1.75	6	0.0966	-1.301	0.560	0.954
13-Sep-95	1.75	7	0.1137	-1.207	0.560	0.957
14-Aug-95	1.82	8	0.1309	-1.122	0.599	0.958
22-Jul-94	1.99	9	0.1481	-1.045	0.688	0.960
25-Jul-95	2.07	10	0.1652	-0.973	0.728	0.961
21-Dec-93	2.21	11	0.1824	-0.906	0.793	0.962
5-Nov-97	2.44	12	0.1996	-0.843	0.892	0.964
29-Oct-93	2.46	13	0.2167	-0.783	0.900	0.966
24-Sep-98	*2.462807903*	14	0.2339	-0.726	0.901	0.967
25-Aug-98	2.571760751	15	0.2511	-0.671	0.945	0.968
1-Dec-93	2.69	16	0.2682	-0.618	0.990	0.969
24-Jun-94	2.8	17	0.2854	-0.567	1.030	0.970
11-Jul-95	2.8	18	0.3026	-0.517	1.030	0.970
27-Jun-95	2.93	19	0.3197	-0.468	1.075	0.970
21-Dec-93	3.06	20	0.3369	-0.421	1.118	0.970
27-Jul-98	3.196210553	21	0.3541	-0.374	1.162	0.970
14-Dec-94	3.49	22	0.3712	-0.329	1.250	0.970
17-Feb-94	3.81	23	0.3884	-0.283	1.338	0.970
16-Nov-94	3.81	24	0.4056	-0.239	1.338	0.971
23-May-95	4.16	25	0.4227	-0.195	1.426	0.971
12-Jun-95	4.16	26	0.4399	-0.151	1.426	0.972
16-Jun-99	4.2	27	0.4571	-0.108	1.435	0.972
20-May-94	4.34	28	0.4742	-0.065	1.468	0.971
7-Jun-94	4.34	29	0.4914	-0.022	1.468	0.971
14-Dec-98	*4.8*	30	0.5086	0.022	1.569	0.969
20-Jul-99	*5*	31	0.5258	0.065	1.609	0.968
4-Aug-99	*5*	32	0.5429	0.108	1.609	0.967
31-Aug-99	*5*	33	0.5601	0.151	1.609	0.964
3-May-94	6.19	34	0.5773	0.195	1.823	0.962
9-May-95	6.77	35	0.5944	0.239	1.913	0.960
5-May-98	6.86	36	0.6116	0.283	1.926	0.958
21-Jan-94	7.08	37	0.6288	0.329	1.957	0.956
25-Jun-98	7.082855593	38	0.6459	0.374	1.958	0.953
21-Jan-94	7.13	39	0.6631	0.421	1.964	0.949
10-Jan-95	8.48	40	0.6803	0.468	2.138	0.944
23-May-99	8.7	41	0.6974	0.517	2.163	0.939
18-Apr-94	10.63	42	0.7146	0.567	2.364	0.933
6-Apr-94	13.97	43	0.7318	0.618	2.637	0.927
23-Apr-98	14.62806909	44	0.7489	0.671	2.683	0.927
25-Apr-95	14.63	45	0.7661	0.726	2.683	0.927

14-May-91	14.9	46	0.7833	0.783	2.701	0.924
23-Mar-94	15.34	47	0.8004	0.843	2.730	0.918
23-Mar-94	16.04	48	0.8176	0.906	2.775	0.907
12-Apr-95	16.04	49	0.8348	0.973	2.775	0.892
4-May-99	17	50	0.8519	1.045	2.833	0.873
21-Jan-99	*21*	51	0.8691	1.122	3.045	0.855
7-Mar-94	23.22	52	0.8863	1.207	3.145	0.835
20-Apr-99	*43*	53	0.9034	1.301	3.761	0.929
9-Feb-95	62.77	54	0.9206	1.409	4.139	0.944
22-Mar-99	*63*	55	0.9378	1.536	4.143	
22-Mar-95	79.93	56	0.9549	1.695	4.381	
8-Mar-95	112.47	57	0.9721	1.913	4.723	
28-May-98	*136.9458147*	58	0.9893	2.300	4.920	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	MC262	**Date:**	20-Jun-00
Chemical:	dPb	**Analyst:**	J.MacLachlan

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	35,090	14	6	0.2	0.00	0.00	0.00		
SD:	810	26	16	1	1.00	1.00	1.00		
CV:	0.02	1.82	2.91	2.42					first:
Min:	33,372	0.4	0.001	0.0001	-0.53	-0.34	-0.41		mid:
Max:	36,403	137	80	3	4.70	4.56	4.35		last:
Median:	34,808	5	1	0.04	-0.37	-0.25	-0.34		

dPb	**MC262**		**: Concentration v. Discharge, Q**			**Q = mTime +b**		**LnQ = mTime +b**		
Conc. = mQ+b (r2=0.0115)		update r2	0.01	0.0115		r2:	0.013	0.020		
r2 Q,[COC]:	0.01	[tCd]	Q			m:	0.0037	0.00021		
slope, m:	-0.1	7	0.4			b:	-115	-5.58		
intercept, b:	6.8	6	14.3							
N: 22		-5	137							first:
LnConc. = mLn{Q}+b (r2=0.0626)		update r2		0.06	0.0626					mid:
r2 lnQ,ln[COC]:	0.06	ln[tCd]	ln Q	[tCd]	Q					last:
slope, m:	-0.36	1.32	-0.97	4	0.4					
intercept, b:	0.98	0.03	2.66	1	14					
N: 22		-0.78	4.92	0.5	137				for graph	
								dPb	0	
N= 58								MC262		

	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	*14-May-91*	*14.9*			2.70			0.02		
MFG	*1-Oct-91*	*0.93*			-0.07			-0.51		
IDEQ	*29-Oct-93*	*2.46*			0.90			-0.46		
IDEQ	*1-Dec-93*	*2.69*			0.99			-0.45		
IDEQ	*21-Dec-93*	*3.06*			1.12			-0.43		
IDEQ	*21-Dec-93*	*2.21*			0.79			-0.46		
IDEQ	*21-Jan-94*	*7.08*			1.96			-0.28		
IDEQ	*21-Jan-94*	*7.13*			1.96			-0.28		
IDEQ	*17-Feb-94*	*3.81*			1.34			-0.40		
IDEQ	*7-Mar-94*	*23.22*			3.15			0.34		
IDEQ	*23-Mar-94*	*16.04*			2.78			0.07		
IDEQ	*23-Mar-94*	*15.34*			2.73			0.04		
IDEQ	*6-Apr-94*	*13.97*			2.64			-0.01		
IDEQ	*18-Apr-94*	*10.63*			2.36			-0.14		
IDEQ	*3-May-94*	*6.19*			1.82			-0.31		
IDEQ	*20-May-94*	*4.34*			1.47			-0.38		
IDEQ	*7-Jun-94*	*4.34*			1.47			-0.38		
IDEQ	*24-Jun-94*	*2.8*			1.03			-0.44		
IDEQ	*22-Jul-94*	*1.99*			0.69			-0.47		
IDEQ	17-Aug-94	1.41	2.5	0.019	0.34	0.92	-3.97	-0.50	-0.19	-0.38
IDEQ	17-Aug-94	0.38	2.5	0.005	-0.97	0.92	-5.28	-0.53	-0.19	-0.40
IDEQ	*5-Oct-94*	*1.75*			0.56			-0.48		
IDEQ	*16-Nov-94*	*3.81*			1.34			-0.40		
IDEQ	*14-Dec-94*	*3.49*			1.25			-0.42		
IDEQ	*10-Jan-95*	*8.48*			2.14			-0.22		
IDEQ	*9-Feb-95*	*62.77*			4.14			1.86		
IDEQ	*8-Mar-95*	*112.47*			4.72			3.77		
IDEQ	22-Mar-95	79.93	6	2.580	4.38	1.79	0.95	2.52	0.02	4.35
IDEQ	*12-Apr-95*	*16.04*			2.78			0.07		
IDEQ	25-Apr-95	14.63	3	0.236	2.68	1.10	-1.44	0.01	-0.16	0.02
IDEQ	9-May-95	6.77	4	0.146	1.91	1.39	-1.93	-0.29	-0.10	-0.14
IDEQ	23-May-95	4.16	3	0.067	1.43	1.10	-2.70	-0.39	-0.16	-0.29
IDEQ	12-Jun-95	4.16	4	0.090	1.43	1.39	-2.41	-0.39	-0.10	-0.25
IDEQ	*27-Jun-95*	*2.93*			1.08			-0.44		
IDEQ	*11-Jul-95*	*2.8*			1.03			-0.44		
IDEQ	25-Jul-95	2.07	3	0.033	0.73	1.10	-3.40	-0.47	-0.16	-0.35
IDEQ	14-Aug-95	1.82	80	0.783	0.60	4.38	-0.24	-0.48	4.56	1.03
IDEQ	13-Sep-95	1.75	4	0.038	0.56	1.39	-3.28	-0.48	-0.10	-0.34

dPb

Concentration over time analysis r2 Slope, m

dPb MC262 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.280** **-0.00150**

Time	Ln[COC]	[COC]
14-May-91	3.58	36
18-Apr-95	1.43	4
31-Aug-99	-0.96	0

LnConc.=mTime+b >'96 r2, m: **0.680** **0.04514**

21-Jan-99	-5.06	0
31-Aug-99	4.96	142

Load over time analysis

dPb MC262 **Load over time**

LnLoad=mTime+b All data r2, m: **0.068** **-0.00079**

Time	LnLoad	Load
14-May-91	-1.43	0
18-Apr-95	-2.56	0
31-Aug-99	-3.82	0

LnLoad=mTime+b >'96 r2, m: **0.343** **0.03325**

21-Jan-99	-6.36	0
31-Aug-99	1.02	3

max r2: 0.680 max r2: 0.343

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.280	-0.00150	53.53	0.068	-0.00079	24.91
0.288	-0.00159	57.03	0.093	-0.00097	31.25
0.300	-0.00173	61.85	0.178	-0.00138	46.20
0.300	-0.00173	61.85	0.178	-0.00138	46.20
0.300	-0.00173	61.85	0.178	-0.00138	46.20
0.300	-0.00173	61.85	0.178	-0.00138	46.20
0.300	-0.00173	61.85	0.178	-0.00138	46.20
0.300	-0.00173	61.85	0.178	-0.00138	46.20
0.300	-0.00173	61.85	0.178	-0.00138	46.20
0.279	-0.00172	61.69	0.114	-0.00105	34.10
0.279	-0.00172	61.69	0.114	-0.00105	34.10
0.277	-0.00180	64.62	0.084	-0.00093	29.87
0.264	-0.00187	66.90	0.062	-0.00084	26.69
0.263	-0.00202	72.26	0.056	-0.00086	27.53
0.250	-0.00217	77.98	0.041	-0.00082	25.96
0.250	-0.00217	77.98	0.041	-0.00082	25.96
0.250	-0.00217	77.98	0.041	-0.00082	25.96
0.255	-0.00255	91.43	0.053	-0.00110	35.95
0.054	-0.00127	45.30	0.003	0.00033	-15.44

update for EV, CV:

dPb **MC262**

LN Analysis **dPb**

Load **Load Data, EV=0.224 lbs/day CV=2.42**

Load Data-based LN

		u	ln tCd Load	tCd Load
Avg:	**0.2**			
SD:	**1**	3	1.7	5
CV:	**2.42**	3	-2.46	0.1
Min:	**0.0001**	0	-6.62	0.001
Max:	**3**	-3		
Median:	**0.04**			

0	0.224
2.42	2.42

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.937, EV=0.161lbs/day CV=5.44; max r2=0.99**

r2 u,lnLoad:	0.937	u	lnLoad	Load	
slope, m:	0.541	3	2.01	7	
intercept, b:	1.911	0	-3.53	0.03	
N: 22		-3	-9.08	0.0001	
E[Load]:	0.2	Parameter Estimates			0.937
SD[Load]:	1	from LN regression			0.2
CV[Load]:	5.44	update graph label			5.4
					max r2
					0.993

	dPb	N: 58				
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
21-Jan-99	**0.0001**	1	0.0107	-2.300	-9.088	0.937
1-Oct-91		2	0.0279	-1.913		
5-Nov-97	**0.0030**	3	0.0451	-1.695	-5.803	0.957
17-Aug-94	**0.0051**	4	0.0622	-1.536	-5.276	0.950
5-Oct-94		5	0.0794	-1.409		
22-Jul-94		6	0.0966	-1.301		
18-Nov-98	**0.0086**	7	0.1137	-1.207	-4.755	0.950
21-Dec-93		8	0.1309	-1.122		
28-Oct-98	**0.0098**	9	0.1481	-1.045	-4.626	0.961
29-Oct-93		10	0.1652	-0.973		
1-Dec-93		11	0.1824	-0.906		
24-Jun-94		12	0.1996	-0.843		
11-Jul-95		13	0.2167	-0.783		
27-Jun-95		14	0.2339	-0.726		
21-Dec-93		15	0.2511	-0.671		
20-Jul-99		16	0.2682	-0.618		
4-Aug-99		17	0.2854	-0.567		
31-Aug-99		18	0.3026	-0.517		
14-Dec-94		19	0.3197	-0.468		
17-Feb-94		20	0.3369	-0.421		
16-Nov-94		21	0.3541	-0.374		
20-May-94		22	0.3712	-0.329		
7-Jun-94		23	0.3884	-0.283		
17-Aug-94	**0.0190**	24	0.4056	-0.239	-3.965	0.987
24-Sep-98		25	0.4227	-0.195		
25-Aug-98		26	0.4399	-0.151		
16-Jun-99	**0.0226**	27	0.4571	-0.108	-3.790	0.988
3-May-94		28	0.4742	-0.065		
27-Jul-98		29	0.4914	-0.022		
14-Dec-98	**0.0258**	30	0.5086	0.022	-3.656	0.990
21-Jan-94		31	0.5258	0.065		
21-Jan-94		32	0.5429	0.108		
25-Jul-95	**0.0334**	33	0.5601	0.151	-3.399	0.990
10-Jan-95		34	0.5773	0.195		
5-May-98	**0.0369**	35	0.5944	0.239	-3.299	0.991
13-Sep-95	**0.0377**	36	0.6116	0.283	-3.279	0.992
18-Apr-94		37	0.6288	0.329		
23-May-99	**0.0468**	38	0.6459	0.374	-3.062	0.991

update for EV, CV:

dPb		**MC262**		6	5.6	
LN Analysis		**dPb**		2.91	2.91	
Concentration		**Conc. Data, EV=5.6 ug/L CV=2.91**				
Avg:	**6**	**Data-based LN**				
SD:	**16**	u	ln[tCd]	[tCd]		
CV:	**2.91**	3	5.1	164		
Min:	**0.001**	0	0.60	2		
Max:	**80**	-3	-3.90	0.02		
Median:	**1**					

					0.813	0.813
	u=mLn{Conc.}+b:				3.1	3.08
update for r2, EV, CV:	**r2=0.813, EV=3.08 ug/L CV=7.68; max r2=0.84**				7.680	7.68
	r2 u,lnConc:	0.813	u	lnConc.	Conc.	
	slope, m:	0.494	3	5.15	172	
	intercept, b:	0.455	0	-0.92	0.4	
	N: 22		-3	-6.99	0.001	
0.937	E[Conc]:	3.1	Parameter Estimates			
0.161	SD[Conc]:	24	from LN regression			
5.44	CV[Conc]:	7.68	update graph label			

						max r2
	dPb	N: 58				0.835
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
21-Jan-99	0.001	1	0.0107	-2.300	-6.908	0.813
5-Nov-97	0.23	2	0.0279	-1.913	-1.470	0.797
1-Oct-91		3	0.0451	-1.695		
20-Jul-99		4	0.0622	-1.536		
4-Aug-99		5	0.0794	-1.409		
31-Aug-99		6	0.0966	-1.301		
29-Oct-93		7	0.1137	-1.207		
1-Dec-93		8	0.1309	-1.122		
21-Dec-93		9	0.1481	-1.045		
21-Dec-93		10	0.1652	-0.973		
21-Jan-94		11	0.1824	-0.906		
21-Jan-94		12	0.1996	-0.843		
17-Feb-94		13	0.2167	-0.783		
7-Mar-94		14	0.2339	-0.726		
23-Mar-94		15	0.2511	-0.671		
23-Mar-94		16	0.2682	-0.618		
6-Apr-94		17	0.2854	-0.567		
18-Apr-94		18	0.3026	-0.517		
3-May-94		19	0.3197	-0.468		
20-May-94		20	0.3369	-0.421		
7-Jun-94		21	0.3541	-0.374		
24-Jun-94		22	0.3712	-0.329		
22-Jul-94		23	0.3884	-0.283		
5-Oct-94		24	0.4056	-0.239		
16-Nov-94		25	0.4227	-0.195		
14-Dec-94		26	0.4399	-0.151		
10-Jan-95		27	0.4571	-0.108		
9-Feb-95		28	0.4742	-0.065		
8-Mar-95		29	0.4914	-0.022		
12-Apr-95		30	0.5086	0.022		
27-Jun-95		31	0.5258	0.065		
11-Jul-95		32	0.5429	0.108		
5-May-98	1	33	0.5601	0.151	0.000	0.835
18-Nov-98	1	34	0.5773	0.195	0.000	0.835
14-Dec-98	1	35	0.5944	0.239	0.000	0.833
22-Mar-99	1	36	0.6116	0.283	0.000	0.830
20-Apr-99	1	37	0.6288	0.329	0.000	0.824
4-May-99	1	38	0.6459	0.374	0.000	0.816

update for EV, CV:

dPb		**MC262**			14	14.3
LN Analysis		**dPb**			1.82	1.82
Discharge, Q		**Q Data, EV=14.3 cfs CV=1.82**				
Avg:	**14**	**Q Data-based LN**				
SD:	**26**	u	lnQ	Q		
CV:	**1.82**	3	5.6	259		
Min:	**0.4**	0	1.93	7		
Max:	**137**	-3	-1.70	0.2		
Median:	**5**					

					0.952	0.952
					13.3	13.3
u=mLn{Q}+b:					1.99	1.99
update for r2, EV, CV:	**r2=0.952, EV=13.3 cfs CV=1.99; max r2=0.97**					
r2 u,lnQ:	0.952	u	lnQ	Q		
slope, m:	0.790	3	5.59	266		
intercept, b:	-1.415	0	1.79	6		
N: 58		-3	-2.01	0.1		
E[Q]:	13.3	Parameter Estimates				
SD[Q]:	27	from LN regression				
CV[Q]:	1.99	update graph label				

						max r2
	Q	N: 58				0.972
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
17-Aug-94	0.38	1	0.0107	-2.300	-0.968	0.952
1-Oct-91	*0.93*	2	0.0279	-1.913	-0.073	0.947
28-Oct-98	1.3	3	0.0451	-1.695	0.262	0.947
17-Aug-94	1.41	4	0.0622	-1.536	0.344	0.950
18-Nov-98	1.6	5	0.0794	-1.409	0.470	0.952
5-Oct-94	*1.75*	6	0.0966	-1.301	0.560	0.954
13-Sep-95	1.75	7	0.1137	-1.207	0.560	0.957
14-Aug-95	1.82	8	0.1309	-1.122	0.599	0.958
22-Jul-94	*1.99*	9	0.1481	-1.045	0.688	0.960
25-Jul-95	2.07	10	0.1652	-0.973	0.728	0.961
21-Dec-93	*2.21*	11	0.1824	-0.906	0.793	0.962
5-Nov-97	2.44	12	0.1996	-0.843	0.892	0.964
29-Oct-93	*2.46*	13	0.2167	-0.783	0.900	0.966
24-Sep-98	*2.462807903*	14	0.2339	-0.726	0.901	0.967
25-Aug-98	*2.571760751*	15	0.2511	-0.671	0.945	0.968
1-Dec-93	*2.69*	16	0.2682	-0.618	0.990	0.969
24-Jun-94	*2.8*	17	0.2854	-0.567	1.030	0.970
11-Jul-95	*2.8*	18	0.3026	-0.517	1.030	0.970
27-Jun-95	*2.93*	19	0.3197	-0.468	1.075	0.970
21-Dec-93	*3.06*	20	0.3369	-0.421	1.118	0.970
27-Jul-98	*3.196210553*	21	0.3541	-0.374	1.162	0.970
14-Dec-94	*3.49*	22	0.3712	-0.329	1.250	0.970
17-Feb-94	*3.81*	23	0.3884	-0.283	1.338	0.970
16-Nov-94	*3.81*	24	0.4056	-0.239	1.338	0.971
23-May-95	4.16	25	0.4227	-0.195	1.426	0.971
12-Jun-95	4.16	26	0.4399	-0.151	1.426	0.972
16-Jun-99	4.2	27	0.4571	-0.108	1.435	0.972
20-May-94	*4.34*	28	0.4742	-0.065	1.468	0.971
7-Jun-94	*4.34*	29	0.4914	-0.022	1.468	0.971
14-Dec-98	4.8	30	0.5086	0.022	1.569	0.969
20-Jul-99	*5*	31	0.5258	0.065	1.609	0.968
4-Aug-99	*5*	32	0.5429	0.108	1.609	0.967
31-Aug-99	*5*	33	0.5601	0.151	1.609	0.964
3-May-94	*6.19*	34	0.5773	0.195	1.823	0.962
9-May-95	6.77	35	0.5944	0.239	1.913	0.960
5-May-98	6.86	36	0.6116	0.283	1.926	0.958
21-Jan-94	*7.08*	37	0.6288	0.329	1.957	0.956
25-Jun-98	*7.082855593*	38	0.6459	0.374	1.958	0.953

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	MC262	**Date:**	20-Jun-00
Chemical:	dZn	**Analyst:**	J.MacLachlan

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,090	14	119	8	0.00	0.00	0.00
SD:	810	26	47	15	1.00	1.00	1.00
CV:	0.02	1.85	0.39	1.85			
Min:	33,372	0	0	0.0	-0.53	-2.55	-0.54
Max:	36,403	137	318	73	4.70	4.26	4.40
Median:	34,808	4	116	3	-0.38	-0.08	-0.34

dZn **MC262** **: Concentration v. Discharge, Q**

Q = mTime +b **LnQ = mTime +b**

Conc. = mQ+b (r2=0.0292) update r2 0.03 0.0292

r2 Q,[COC]:	0.03	[tCd]	Q	r2:	0.011	0.004
slope, m:	-0.3	123	0.4	m:	0.0033	0.00010
intercept, b:	123.6	119	14.1	b:	-103	-1.66
N: 58		82	137			

LnConc. = mLn{Q}+b (r2=0.0292) update r2 0.03 0.0292

r2 lnQ,ln[COC]:	0.03	ln[tCd]	ln Q	[tCd]	Q
slope, m:	-0.14	4.98	-0.97	146	0
intercept, b:	4.85	4.49	2.65	89	14
N: 58		4.19	4.92	66	137

for graph
dZn 0
MC262

N= 58

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	14-May-91	14.9	102	8.2	2.70	4.62	2.10	0.03	-0.37	0.01
MFG	1-Oct-91	0.93	84	0.4	-0.07	4.43	-0.87	-0.51	-0.76	-0.51
IDEQ	29-Oct-93	2.46	160	2.1	0.90	5.08	0.75	-0.45	0.87	-0.40
IDEQ	1-Dec-93	2.69	160	2.3	0.99	5.08	0.84	-0.44	0.87	-0.38
IDEQ	21-Dec-93	3.06	187	3.1	1.12	5.23	1.12	-0.42	1.45	-0.33
IDEQ	21-Dec-93	2.21	187	2.2	0.79	5.23	0.80	-0.46	1.45	-0.39
IDEQ	21-Jan-94	7.08	160	6.1	1.96	5.08	1.81	-0.27	0.87	-0.13
IDEQ	21-Jan-94	7.13	160	6.1	1.96	5.08	1.81	-0.27	0.87	-0.12
IDEQ	17-Feb-94	3.81	156	3.2	1.34	5.05	1.16	-0.40	0.79	-0.32
IDEQ	7-Mar-94	23.22	114	14.2	3.15	4.74	2.66	0.35	-0.11	0.43
IDEQ	23-Mar-94	16.04	119	10.3	2.78	4.78	2.33	0.07	-0.01	0.16
IDEQ	23-Mar-94	15.34	119	9.8	2.73	4.78	2.28	0.05	-0.01	0.13
IDEQ	6-Apr-94	13.97	101	7.6	2.64	4.62	2.03	-0.01	-0.39	-0.02
IDEQ	18-Apr-94	10.63	97	5.5	2.36	4.57	1.71	-0.13	-0.48	-0.16
IDEQ	3-May-94	6.19	104	3.5	1.82	4.64	1.24	-0.30	-0.33	-0.30
IDEQ	20-May-94	4.34	127	3.0	1.47	4.84	1.09	-0.38	0.17	-0.34
IDEQ	7-Jun-94	4.34	141	3.3	1.47	4.95	1.19	-0.38	0.47	-0.32
IDEQ	24-Jun-94	2.8	121	1.8	1.03	4.80	0.60	-0.43	0.04	-0.42
IDEQ	22-Jul-94	1.99	104	1.1	0.69	4.64	0.11	-0.47	-0.33	-0.46
IDEQ	17-Aug-94	1.41	74	0.6	0.34	4.30	-0.58	-0.49	-0.97	-0.50
IDEQ	17-Aug-94	0.38	74	0.2	-0.97	4.30	-1.89	-0.53	-0.97	-0.53
IDEQ	5-Oct-94	1.75	78	0.7	0.56	4.36	-0.31	-0.47	-0.88	-0.49
IDEQ	16-Nov-94	3.81	152	3.1	1.34	5.02	1.14	-0.40	0.70	-0.33
IDEQ	14-Dec-94	3.49	159	3.0	1.25	5.07	1.09	-0.41	0.85	-0.34
IDEQ	10-Jan-95	8.48	160	7.3	2.14	5.08	1.99	-0.22	0.87	-0.04
IDEQ	9-Feb-95	62.77	114	38.5	4.14	4.74	3.65	1.86	-0.11	2.07
IDEQ	8-Mar-95	112.47	120	72.6	4.72	4.79	4.29	3.76	0.02	4.38
IDEQ	22-Mar-95	79.93	113	48.6	4.38	4.73	3.88	2.52	-0.13	2.75
IDEQ	12-Apr-95	16.04	117	10.1	2.78	4.76	2.31	0.07	-0.05	0.14
IDEQ	25-Apr-95	14.63	114	9.0	2.68	4.74	2.19	0.02	-0.11	0.07
IDEQ	9-May-95	6.77	128	4.7	1.91	4.85	1.54	-0.28	0.19	-0.22
IDEQ	23-May-95	4.16	125	2.8	1.43	4.83	1.03	-0.38	0.12	-0.35
IDEQ	12-Jun-95	4.16	134	3.0	1.43	4.90	1.10	-0.38	0.32	-0.34
IDEQ	27-Jun-95	2.93	96	1.5	1.08	4.56	0.41	-0.43	-0.50	-0.44
IDEQ	11-Jul-95	2.8	139	2.1	1.03	4.93	0.74	-0.43	0.42	-0.40
IDEQ	25-Jul-95	2.07	106	1.2	0.73	4.66	0.17	-0.46	-0.28	-0.46
IDEQ	14-Aug-95	1.82	226	2.2	0.60	5.42	0.79	-0.47	2.29	-0.39
IDEQ	13-Sep-95	1.75	110	1.0	0.56	4.70	0.04	-0.47	-0.20	-0.47
URS	5-Nov-97	2.44	130	1.7	0.89	4.87	0.53	-0.45	0.23	-0.42
IDEQ	23-Apr-98	14.62806909	151	11.9	2.68	5.02	2.48	0.02	0.68	0.27
URS	5-May-98	6.86	318	11.7	1.93	5.76	2.46	-0.28	4.26	0.26
IDEQ	28-May-98	136.9458147	99	72.9	4.92	4.60	4.29	4.70	-0.43	4.40
IDEQ	25-Jun-98	7.082855593	138	5.3	1.96	4.93	1.66	-0.27	0.40	-0.18
IDEQ	27-Jul-98	3.196210553	87	1.5	1.16	4.47	0.40	-0.42	-0.69	-0.44
IDEQ	25-Aug-98	2.571760751	84	1.2	0.94	4.43	0.15	-0.44	-0.76	-0.46
IDEQ	24-Sep-98	2.462807903	100	1.3	0.90	4.61	0.28	-0.45	-0.41	-0.45
USGS	28-Oct-98	1.3	127	0.9	0.26	4.84	-0.12	-0.49	0.17	-0.48

USGS	18-Nov-98	1.6	123	1.1	0.47	4.81	0.06	-0.48	0.08	-0.47
USGS	14-Dec-98	4.8	167	4.3	1.57	5.12	1.46	-0.36	1.02	-0.25
USGS	21-Jan-99	21	0.101	0.0	3.04	-2.29	-4.47	0.26	-2.55	-0.54
USGS	22-Mar-99	63	57	19.3	4.14	4.04	2.96	1.87	-1.33	0.77
USGS	20-Apr-99	43	45	10.4	3.76	3.81	2.34	1.10	-1.59	0.17
USGS	4-May-99	17	56	5.1	2.83	4.03	1.63	0.11	-1.36	-0.19
USGS	23-May-99	8.7	61	2.9	2.16	4.11	1.05	-0.21	-1.25	-0.35
USGS	16-Jun-99	4.2	74	1.7	1.44	4.30	0.51	-0.38	-0.97	-0.43
USGS	20-Jul-99	2.1	93	1.1	0.74	4.53	0.05	-0.46	-0.56	-0.47
USGS	4-Aug-99	1.5	81	0.7	0.41	4.39	-0.43	-0.48	-0.82	-0.49
USGS	31-Aug-99	1.4	85	0.6	0.34	4.44	-0.45	-0.49	-0.73	-0.50

dZn

Concentration over time analysis r2 Slope, m

dZn MC262 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.079** **-0.00034**

	Time	Ln[COC]	[COC]
first:	14-May-91	5.20	182
mid:	18-Apr-95	4.71	111
last:	31-Aug-99	4.17	65

LnConc.=mTime+b >'96 r2, m: **0.531** **0.02263**

21-Jan-99	0.68	2
31-Aug-99	5.70	299

Load over time analysis

dZn MC262 **Load over time**

LnLoad=mTime+b All data r2, m: **0.019** **-0.00024**

	Time	LnLoad	Load
first:	14-May-91	1.54	5
mid:	18-Apr-95	1.19	3
last:	31-Aug-99	0.80	2

LnLoad=mTime+b >'96 r2, m: **0.024** **0.00474**

21-Jan-99	-0.23	1
31-Aug-99	0.82	2

max r2: 0.823 max r2: 0.953

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.079	-0.00034	16.55	0.019	-0.00024	9.67
0.086	-0.00037	17.57	0.014	-0.00022	8.68
0.097	-0.00041	18.97	0.031	-0.00033	12.84
0.094	-0.00041	18.87	0.034	-0.00035	13.53
0.091	-0.00040	18.75	0.037	-0.00037	14.16
0.086	-0.00039	18.46	0.038	-0.00038	14.52
0.080	-0.00039	18.14	0.041	-0.00040	15.26
0.077	-0.00038	17.96	0.038	-0.00039	14.93
0.073	-0.00037	17.76	0.035	-0.00038	14.56
0.069	-0.00037	17.56	0.036	-0.00039	14.92
0.069	-0.00037	17.72	0.029	-0.00035	13.49
0.068	-0.00038	17.84	0.024	-0.00032	12.35
0.067	-0.00038	17.96	0.019	-0.00029	11.14
0.068	-0.00039	18.32	0.015	-0.00026	10.15
0.070	-0.00040	18.76	0.012	-0.00024	9.51
0.071	-0.00041	19.14	0.012	-0.00024	9.49
0.070	-0.00042	19.23	0.012	-0.00025	9.71
0.066	-0.00041	19.16	0.012	-0.00025	9.78
0.065	-0.00042	19.32	0.014	-0.00028	10.86
0.066	-0.00043	19.75	0.020	-0.00034	12.94
0.072	-0.00046	20.85	0.033	-0.00044	16.52
0.080	-0.00050	22.13	0.071	-0.00062	23.34
0.087	-0.00053	23.39	0.097	-0.00074	27.56
0.082	-0.00053	23.32	0.103	-0.00078	29.12
0.077	-0.00052	23.10	0.111	-0.00084	30.95
0.070	-0.00051	22.80	0.105	-0.00083	30.86
0.070	-0.00053	23.28	0.077	-0.00071	26.46
0.068	-0.00054	23.66	0.044	-0.00052	19.53
0.068	-0.00056	24.28	0.018	-0.00032	12.35
0.067	-0.00057	24.87	0.008	-0.00022	8.73
0.066	-0.00059	25.69	0.002	-0.00011	4.61
0.063	-0.00061	26.22	0.000	-0.00003	2.02
0.060	-0.00063	27.00	0.000	-0.00001	1.01
0.055	-0.00065	27.61	0.000	0.00004	-0.77
0.059	-0.00073	30.72	0.000	-0.00001	1.30
0.054	-0.00078	32.35	0.000	-0.00003	1.76
0.059	-0.00095	38.61	0.003	-0.00025	9.74
0.034	-0.00092	37.40	0.006	-0.00041	15.70
0.053	-0.00199	76.11	0.075	-0.00264	96.17
0.046	-0.00212	81.00	0.116	-0.00379	137.75
0.034	-0.00195	74.65	0.084	-0.00337	122.61
0.010	-0.00113	45.05	0.049	-0.00274	99.89
0.006	-0.00091	37.16	0.000	-0.00021	8.02
0.000	-0.00023	12.45	0.006	0.00095	-34.21
0.000	0.00027	-5.94	0.008	0.00123	-44.26
0.004	0.00102	-32.94	0.006	0.00128	-45.87
0.017	0.00248	-86.18	0.007	0.00150	-54.10

0.059	0.00525	-186.60	0.002	0.00099	-35.61
0.168	0.01037	-372.56	0.000	0.00040	-14.11
0.531	0.02263	-818.27	0.024	0.00474	-171.55
0.755	0.00386	-136.00	0.953	-0.02209	803.29
0.823	0.00474	-167.88	0.936	-0.02060	749.24
0.778	0.00382	-134.69	0.951	-0.01787	649.74
0.635	0.00323	-113.06	0.941	-0.01568	570.32

update for EV, CV:

dZn **MC262**

LN Analysis **dZn**

Load **Load Data, EV=7.96 lbs/day CV=1.85**

Load Data-based LN

		u	ln tCd Load	tCd Load
Avg:	**8**			
SD:	**15**	3	5.0	147
CV:	**1.85**	0	1.33	4
Min:	**0.0**	-3	-2.33	0.1
Max:	**73**			
Median:	**3**			

8 7.96

1.85 1.85

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.934, EV=9.9lbs/day CV=3.06; max r2=0.98**

r2 u,lnLoad:	0.934	u	lnLoad	Load
slope, m:	0.654	3	5.71	302
intercept, b:	-0.736	0	1.12	3
N:	58	-3	-3.46	0.0
E[Load]:	9.9	Parameter Estimates		
SD[Load]:	30	from LN regression		
CV[Load]:	3.06	update graph label		

0.934
9.9
3.1
max r2
0.980

N: 58

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
21-Jan-99	**0.0**	1	0.0107	-2.300	-4.473	0.934
17-Aug-94	**0.2**	2	0.0279	-1.913	-1.889	0.978
1-Oct-91	**0.4**	3	0.0451	-1.695	-0.867	0.980
17-Aug-94	**0.6**	4	0.0622	-1.536	-0.577	0.979
31-Aug-99	**0.6**	5	0.0794	-1.409	-0.446	0.978
4-Aug-99	**0.7**	6	0.0966	-1.301	-0.425	0.978
5-Oct-94	**0.7**	7	0.1137	-1.207	-0.309	0.977
28-Oct-98	**0.9**	8	0.1309	-1.122	-0.119	0.976
13-Sep-95	**1.0**	9	0.1481	-1.045	0.035	0.976
20-Jul-99	**1.1**	10	0.1652	-0.973	0.049	0.977
18-Nov-98	**1.1**	11	0.1824	-0.906	0.057	0.977
22-Jul-94	**1.1**	12	0.1996	-0.843	0.107	0.977
25-Aug-98	**1.2**	13	0.2167	-0.783	0.150	0.976
25-Jul-95	**1.2**	14	0.2339	-0.726	0.166	0.975
24-Sep-98	**1.3**	15	0.2511	-0.671	0.281	0.974
27-Jul-98	**1.5**	16	0.2682	-0.618	0.403	0.973
27-Jun-95	**1.5**	17	0.2854	-0.567	0.414	0.972
16-Jun-99	**1.7**	18	0.3026	-0.517	0.514	0.971
5-Nov-97	**1.7**	19	0.3197	-0.468	0.534	0.971
24-Jun-94	**1.8**	20	0.3369	-0.421	0.600	0.970
11-Jul-95	**2.1**	21	0.3541	-0.374	0.739	0.969
29-Oct-93	**2.1**	22	0.3712	-0.329	0.750	0.969
14-Aug-95	**2.2**	23	0.3884	-0.283	0.794	0.968
21-Dec-93	**2.2**	24	0.4056	-0.239	0.799	0.967
1-Dec-93	**2.3**	25	0.4227	-0.195	0.840	0.966
23-May-95	**2.8**	26	0.4399	-0.151	1.029	0.965
23-May-99	**2.9**	27	0.4571	-0.108	1.049	0.965
20-May-94	**3.0**	28	0.4742	-0.065	1.087	0.966
14-Dec-94	**3.0**	29	0.4914	-0.022	1.094	0.966
12-Jun-95	**3.0**	30	0.5086	0.022	1.098	0.965
21-Dec-93	**3.1**	31	0.5258	0.065	1.124	0.964
16-Nov-94	**3.1**	32	0.5429	0.108	1.136	0.962
17-Feb-94	**3.2**	33	0.5601	0.151	1.162	0.959
7-Jun-94	**3.3**	34	0.5773	0.195	1.192	0.956
3-May-94	**3.5**	35	0.5944	0.239	1.242	0.953
14-Dec-98	**4.3**	36	0.6116	0.283	1.462	0.950
9-May-95	**4.7**	37	0.6288	0.329	1.539	0.947
4-May-99	**5.1**	38	0.6459	0.374	1.633	0.944
25-Jun-98	**5.3**	39	0.6631	0.421	1.660	0.941
18-Apr-94	**5.5**	40	0.6803	0.468	1.713	0.937
21-Jan-94	**6.1**	41	0.6974	0.517	1.807	0.933
21-Jan-94	**6.1**	42	0.7146	0.567	1.814	0.930
10-Jan-95	**7.3**	43	0.7318	0.618	1.988	0.923
6-Apr-94	**7.6**	44	0.7489	0.671	2.027	0.921
14-May-91	**8.2**	45	0.7661	0.726	2.101	0.916
25-Apr-95	**9.0**	46	0.7833	0.783	2.194	0.912
23-Mar-94	**9.8**	47	0.8004	0.843	2.285	0.909

12-Apr-95	**10.1**	48	0.8176	0.906	2.312	0.907
23-Mar-94	**10.3**	49	0.8348	0.973	2.329	0.901
20-Apr-99	**10.4**	50	0.8519	1.045	2.343	0.889
5-May-98	**11.7**	51	0.8691	1.122	2.463	0.867
23-Apr-98	**11.9**	52	0.8863	1.207	2.475	0.835
7-Mar-94	**14.2**	53	0.9034	1.301	2.656	0.789
22-Mar-99	**19.3**	54	0.9206	1.409	2.961	0.734
9-Feb-95	**38.5**	55	0.9378	1.536	3.651	
22-Mar-95	**48.6**	56	0.9549	1.695	3.883	
8-Mar-95	**72.6**	57	0.9721	1.913	4.285	
28-May-98	**72.9**	58	0.9893	2.300	4.290	

update for EV, CV:

dZn		**MC262**		119	119	
LN Analysis		**dZn**		0.39	0.39	
Concentration		**Conc. Data, EV=119 ug/L CV=0.39**				
Avg:	**119**	**Data-based LN**				
SD:	**47**	u	ln[tCd]	[tCd]		
CV:	**0.39**	3	5.8	345		
Min:	**0**	0	4.71	111		
Max:	**318**	-3	3.58	36		
Median:	**116**					

					0.968	0.97
	u=mLn{Conc.}+b:				120.9	121
update for r2, EV, CV:	**r2=0.97, EV=121 ug/L CV=0.39; max r2=0.97**				0.393	0.39
	r2 u,lnConc:	0.968	u	lnConc.	Conc.	
	slope, m:	2.638	3	5.86	351	
	intercept, b:	-12.460	0	4.72	112	
	N: 57		-3	3.59	36	
0.934	E[Conc]:	120.9	Parameter Estimates			
9.9	SD[Conc]:	48	from LN regression			
3.06	CV[Conc]:	0.39	update graph label			

						max r2
	dZn	N: 58				0.974
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
21-Jan-99	0.101	1	0.0107	-2.300		0.968
20-Apr-99	45	2	0.0279	-1.913	3.807	0.968
4-May-99	56	3	0.0451	-1.695	4.025	0.972
22-Mar-99	57	4	0.0622	-1.536	4.043	0.971
23-May-99	61	5	0.0794	-1.409	4.111	0.972
17-Aug-94	74	6	0.0966	-1.301	4.304	0.974
17-Aug-94	74	7	0.1137	-1.207	4.304	0.972
16-Jun-99	74	8	0.1309	-1.122	4.304	0.971
5-Oct-94	78	9	0.1481	-1.045	4.357	0.969
4-Aug-99	81	10	0.1652	-0.973	4.394	0.968
1-Oct-91	84	11	0.1824	-0.906	4.431	0.966
25-Aug-98	84	12	0.1996	-0.843	4.431	0.964
31-Aug-99	85	13	0.2167	-0.783	4.443	0.962
27-Jul-98	87	14	0.2339	-0.726	4.466	0.960
20-Jul-99	93	15	0.2511	-0.671	4.533	0.958
27-Jun-95	96	16	0.2682	-0.618	4.564	0.956
18-Apr-94	97	17	0.2854	-0.567	4.575	0.954
28-May-98	99	18	0.3026	-0.517	4.595	0.952
24-Sep-98	100	19	0.3197	-0.468	4.605	0.951
6-Apr-94	101	20	0.3369	-0.421	4.615	0.949
14-May-91	102	21	0.3541	-0.374	4.625	0.946
3-May-94	104	22	0.3712	-0.329	4.644	0.944
22-Jul-94	104	23	0.3884	-0.283	4.644	0.942
25-Jul-95	106	24	0.4056	-0.239	4.663	0.939
13-Sep-95	110	25	0.4227	-0.195	4.700	0.935
22-Mar-95	113	26	0.4399	-0.151	4.727	0.933
7-Mar-94	114	27	0.4571	-0.108	4.736	0.932
9-Feb-95	114	28	0.4742	-0.065	4.736	0.931
25-Apr-95	114	29	0.4914	-0.022	4.736	0.929
12-Apr-95	117	30	0.5086	0.022	4.762	0.926
23-Mar-94	119	31	0.5258	0.065	4.779	0.924
23-Mar-94	119	32	0.5429	0.108	4.779	0.922
8-Mar-95	120	33	0.5601	0.151	4.787	0.919
24-Jun-94	121	34	0.5773	0.195	4.796	0.916
18-Nov-98	123	35	0.5944	0.239	4.812	0.911
23-May-95	125	36	0.6116	0.283	4.828	0.907
20-May-94	127	37	0.6288	0.329	4.844	0.903
28-Oct-98	127	38	0.6459	0.374	4.844	0.898
9-May-95	128	39	0.6631	0.421	4.852	0.892
5-Nov-97	130	40	0.6803	0.468	4.868	0.883
12-Jun-95	134	41	0.6974	0.517	4.898	0.874
25-Jun-98	138	42	0.7146	0.567	4.927	0.866
11-Jul-95	139	43	0.7318	0.618	4.934	0.859
7-Jun-94	141	44	0.7489	0.671	4.949	0.849
23-Apr-98	151	45	0.7661	0.726	5.017	0.838
16-Nov-94	152	46	0.7833	0.783	5.024	0.843
17-Feb-94	156	47	0.8004	0.843	5.050	0.848

14-Dec-94	159	48	0.8176	0.906	5.069	0.861
29-Oct-93	160	49	0.8348	0.973	5.075	0.884
1-Dec-93	160	50	0.8519	1.045	5.075	0.909
21-Jan-94	160	51	0.8691	1.122	5.075	0.932
21-Jan-94	160	52	0.8863	1.207	5.075	0.952
10-Jan-95	160	53	0.9034	1.301	5.075	0.965
14-Dec-98	167	54	0.9206	1.409	5.118	0.964
21-Dec-93	187	55	0.9378	1.536	5.231	
21-Dec-93	187	56	0.9549	1.695	5.231	
14-Aug-95	226	57	0.9721	1.913	5.421	
5-May-98	318	58	0.9893	2.300	5.762	

update for EV, CV:

dZn		**MC262**			14	14.1
LN Analysis		**dZn**			1.85	1.9
Discharge, Q		**Q Data, EV=14.1 cfs CV=1.9**				
Avg:	**14**	**Q Data-based LN**				
SD:	**26**	u	lnQ	Q		
CV:	**1.85**	3	5.6	260		
Min:	**0**	0	1.91	7		
Max:	**137**	-3	-1.75	0		
Median:	**4**					

					0.950	0.95
					13.2	13.2
u=mLn{Q}+b:					2.11	2.11
update for r2, EV, CV:	**r2=0.95, EV=13.2 cfs CV=2.11; max r2=0.98**					
r2 u,lnQ:	0.948	u	lnQ	Q		
slope, m:	0.767	3	5.64	282		
intercept, b:	-1.329	0	1.73	6		
N: 58		-3	-2.18	0		
E[Q]:	13.2	Parameter Estimates				
SD[Q]:	28	from LN regression				
CV[Q]:	2.11	update graph label				

						max r2
	Q	N: 58				0.977
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
17-Aug-94	0.38	1	0.0107	-2.300	-0.968	0.948
1-Oct-91	0.93	2	0.0279	-1.913	-0.073	0.944
28-Oct-98	1.3	3	0.0451	-1.695	0.262	0.946
31-Aug-99	1.4	4	0.0622	-1.536	0.336	0.951
17-Aug-94	1.41	5	0.0794	-1.409	0.344	0.955
4-Aug-99	1.5	6	0.0966	-1.301	0.405	0.958
18-Nov-98	1.6	7	0.1137	-1.207	0.470	0.960
5-Oct-94	1.75	8	0.1309	-1.122	0.560	0.962
13-Sep-95	1.75	9	0.1481	-1.045	0.560	0.965
14-Aug-95	1.82	10	0.1652	-0.973	0.599	0.966
22-Jul-94	1.99	11	0.1824	-0.906	0.688	0.968
25-Jul-95	2.07	12	0.1996	-0.843	0.728	0.969
20-Jul-99	2.1	13	0.2167	-0.783	0.742	0.971
21-Dec-93	2.21	14	0.2339	-0.726	0.793	0.972
5-Nov-97	2.44	15	0.2511	-0.671	0.892	0.973
29-Oct-93	2.46	16	0.2682	-0.618	0.900	0.974
24-Sep-98	2.462807903	17	0.2854	-0.567	0.901	0.976
25-Aug-98	2.571760751	18	0.3026	-0.517	0.945	0.976
1-Dec-93	2.69	19	0.3197	-0.468	0.990	0.977
24-Jun-94	2.8	20	0.3369	-0.421	1.030	0.977
11-Jul-95	2.8	21	0.3541	-0.374	1.030	0.977
27-Jun-95	2.93	22	0.3712	-0.329	1.075	0.977
21-Dec-93	3.06	23	0.3884	-0.283	1.118	0.976
27-Jul-98	3.196210553	24	0.4056	-0.239	1.162	0.976
14-Dec-94	3.49	25	0.4227	-0.195	1.250	0.975
17-Feb-94	3.81	26	0.4399	-0.151	1.338	0.974
16-Nov-94	3.81	27	0.4571	-0.108	1.338	0.974
23-May-95	4.16	28	0.4742	-0.065	1.426	0.973
12-Jun-95	4.16	29	0.4914	-0.022	1.426	0.972
16-Jun-99	4.2	30	0.5086	0.022	1.435	0.971
20-May-94	4.34	31	0.5258	0.065	1.468	0.969
7-Jun-94	4.34	32	0.5429	0.108	1.468	0.967
14-Dec-98	4.8	33	0.5601	0.151	1.569	0.964
3-May-94	6.19	34	0.5773	0.195	1.823	0.962
9-May-95	6.77	35	0.5944	0.239	1.913	0.960
5-May-98	6.86	36	0.6116	0.283	1.926	0.958
21-Jan-94	7.08	37	0.6288	0.329	1.957	0.956
25-Jun-98	7.08	38	0.6459	0.374	1.958	0.953
21-Jan-94	7.13	39	0.6631	0.421	1.964	0.949
10-Jan-95	8.48	40	0.6803	0.468	2.138	0.944
23-May-99	8.7	41	0.6974	0.517	2.163	0.939
18-Apr-94	10.63	42	0.7146	0.567	2.364	0.933
6-Apr-94	13.97	43	0.7318	0.618	2.637	0.927
23-Apr-98	14.63	44	0.7489	0.671	2.683	0.927
25-Apr-95	14.63	45	0.7661	0.726	2.683	0.927
14-May-91	14.9	46	0.7833	0.783	2.701	0.924
23-Mar-94	15.34	47	0.8004	0.843	2.730	0.918

23-Mar-94	16.04	48	0.8176	0.906	2.775	0.907
12-Apr-95	16.04	49	0.8348	0.973	2.775	0.892
4-May-99	17	50	0.8519	1.045	2.833	0.873
21-Jan-99	21	51	0.8691	1.122	3.045	0.855
7-Mar-94	23.22	52	0.8863	1.207	3.145	0.835
20-Apr-99	43	53	0.9034	1.301	3.761	0.929
9-Feb-95	62.77	54	0.9206	1.409	4.139	0.944
22-Mar-99	63	55	0.9378	1.536	4.143	
22-Mar-95	79.93	56	0.9549	1.695	4.381	
8-Mar-95	112.47	57	0.9721	1.913	4.723	
28-May-98	136.95	58	0.9893	2.300	4.920	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: MC262 **Date:** 20-Jun-00
Chemical: tCd **Analyst:** J.MacLachlan
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,946	15	1	0.04	0.00	0.00	0.00	
SD:	728	27	0	0.08	1.00	1.00	1.00	
CV:	0.02	1.81	0.35	1.87				first:
Min:	33,372	0.4	1	0.0	-0.54	-0.83	-0.51	mid:
Max:	36,270	137	2	0.39	4.45	4.86	4.35	last:
Median:	34,753	4	1	0.02	-0.40	-0.42	-0.33	

tCd **MC262** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.000977) update r2 0.00 0.000977 r2: 0.037 0.024

r2 Q,[COC]:	0.001	[tCd]	Q		m:	0.0072	0.00027
slope, m:	-0.0004	1	0.4		b:	-236	-7.56
intercept, b:	0.7	1	15.1				
N: 45		1	137				first:

LnConc. = mLn{Q}+b (r2=0.00441) update r2 0.00 0.00441 mid:

						last:
r2 lnQ,ln[COC]:	0.004	ln[tCd]	ln Q	[tCd]	Q	
slope, m:	-0.02	-0.35	-0.97	1	0.4	
intercept, b:	-0.37	-0.41	2.72	1	15	
N: 45		-0.45	4.92	1	137	

for graph
tCd 0
MC262

N= 52

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	14-May-91	14.9	0.5	0.040	2.70	-0.69	-3.22	-0.01	-0.83	-0.03
MFG	1-Oct-91	0.93	0.5	0.003	-0.07	-0.69	-5.99	-0.52	-0.83	-0.50
IDEQ	29-Oct-93	2.46	0.6	0.008	0.90	-0.51	-4.84	-0.46	-0.42	-0.43
IDEQ	1-Dec-93	2.69	0.7	0.010	0.99	-0.36	-4.59	-0.45	-0.01	-0.41
IDEQ	21-Dec-93	3.06	0.7	0.012	1.12	-0.36	-4.46	-0.44	-0.01	-0.39
IDEQ	21-Dec-93	2.21	0.7	0.008	0.79	-0.36	-4.79	-0.47	-0.01	-0.43
IDEQ	21-Jan-94	7.08	0.5	0.019	1.96	-0.69	-3.96	-0.29	-0.83	-0.29
IDEQ	21-Jan-94	7.13	0.5	0.019	1.96	-0.69	-3.95	-0.29	-0.83	-0.29
IDEQ	17-Feb-94	3.81	0.8	0.016	1.34	-0.22	-4.11	-0.41	0.39	-0.33
IDEQ	7-Mar-94	23.22	0.5	0.062	3.15	-0.69	-2.77	0.30	-0.83	0.26
IDEQ	23-Mar-94	16.04	0.5	0.043	2.78	-0.69	-3.14	0.03	-0.83	0.01
IDEQ	23-Mar-94	15.34	0.5	0.041	2.73	-0.69	-3.19	0.01	-0.83	-0.01
IDEQ	6-Apr-94	13.97	0.6	0.045	2.64	-0.51	-3.10	-0.04	-0.42	0.04
IDEQ	18-Apr-94	10.63	0.6	0.034	2.36	-0.51	-3.37	-0.16	-0.42	-0.10
IDEQ	3-May-94	6.19	0.6	0.020	1.82	-0.51	-3.91	-0.33	-0.42	-0.28
IDEQ	20-May-94	4.34	0.8	0.019	1.47	-0.22	-3.98	-0.39	0.39	-0.30
IDEQ	7-Jun-94	4.34	0.7	0.016	1.47	-0.36	-4.11	-0.39	-0.01	-0.33
IDEQ	24-Jun-94	2.8	0.7	0.011	1.03	-0.36	-4.55	-0.45	-0.01	-0.40
IDEQ	22-Jul-94	1.99	0.8	0.009	0.69	-0.22	-4.76	-0.48	0.39	-0.43
IDEQ	17-Aug-94	1.41	0.8	0.006	0.34	-0.22	-5.10	-0.50	0.39	-0.46
IDEQ	17-Aug-94	0.38	0.8	0.002	-0.97	-0.22	-6.42	-0.54	0.39	-0.51
IDEQ	5-Oct-94	1.75	0.5	0.005	0.56	-0.69	-5.36	-0.49	-0.83	-0.47
IDEQ	16-Nov-94	3.81	0.5	0.010	1.34	-0.69	-4.58	-0.41	-0.83	-0.40
IDEQ	14-Dec-94	3.49	0.7	0.013	1.25	-0.36	-4.33	-0.42	-0.01	-0.37
IDEQ	10-Jan-95	8.48	0.5	0.023	2.14	-0.69	-3.78	-0.24	-0.83	-0.25
IDEQ	9-Feb-95	62.77	0.6	0.203	4.14	-0.51	-1.60	1.74	-0.42	2.02
IDEQ	8-Mar-95	112.47	0.6	0.363	4.72	-0.51	-1.01	3.56	-0.42	4.05
IDEQ	22-Mar-95	79.93	0.9	0.387	4.38	-0.11	-0.95	2.37	0.80	4.35
IDEQ	12-Apr-95	16.04	0.8	0.069	2.78	-0.22	-2.67	0.03	0.39	0.34
IDEQ	25-Apr-95	14.63	1.2	0.094	2.68	0.18	-2.36	-0.02	2.02	0.66
IDEQ	9-May-95	6.77	1	0.036	1.91	0.00	-3.31	-0.30	1.20	-0.07
IDEQ	23-May-95	4.16	1.1	0.025	1.43	0.10	-3.70	-0.40	1.61	-0.22
IDEQ	12-Jun-95	4.16	0.8	0.018	1.43	-0.22	-4.02	-0.40	0.39	-0.31
IDEQ	27-Jun-95	2.93	0.6	0.009	1.08	-0.51	-4.66	-0.44	-0.42	-0.41
IDEQ	11-Jul-95	2.8	0.8	0.012	1.03	-0.22	-4.42	-0.45	0.39	-0.38
IDEQ	25-Jul-95	2.07	0.7	0.008	0.73	-0.36	-4.85	-0.48	-0.01	-0.44
IDEQ	14-Aug-95	1.82	0.6	0.006	0.60	-0.51	-5.14	-0.49	-0.42	-0.46
IDEQ	13-Sep-95	1.75	0.6	0.006	0.56	-0.51	-5.18	-0.49	-0.42	-0.46
URS	5-Nov-97	2.44	0.56	0.007	0.89	-0.58	-4.91	-0.46	-0.58	-0.44
IDEQ	23-Apr-98	14.62806909	0.6	0.047	2.68	-0.51	-3.05	-0.02	-0.42	0.06
URS	5-May-98	6.86	1.9	0.070	1.93	0.64	-2.66	-0.30	4.86	0.35
IDEQ	*28-May-98*	*136.9458147*			4.92			4.45		
IDEQ	25-Jun-98	7.082855593	0.6	0.023	1.96	-0.51	-3.78	-0.29	-0.42	-0.24
IDEQ	27-Jul-98	3.196210553	0.6	0.010	1.16	-0.51	-4.57	-0.44	-0.42	-0.40
IDEQ	25-Aug-98	2.571760751	0.5	0.007	0.94	-0.69	-4.97	-0.46	-0.83	-0.45
IDEQ	*24-Sep-98*	*2.462807903*			0.90			-0.46		
USGS	28-Oct-98	1.3	1	0.007	0.26	0.00	-4.96	-0.50	1.20	-0.45

USGS	*18-Nov-98*	*1.6*	0.47	-0.49
USGS	*14-Dec-98*	*4.8*	1.57	-0.38
USGS	*21-Jan-99*	*21*	3.04	0.22
USGS	*22-Mar-99*	*63*	4.14	1.75
USGS	*20-Apr-99*	*43*	3.76	1.02

tCd

Concentration over time analysis r2 Slope, m

tCd MC262 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.084** **0.00013**

Time	Ln[COC]	[COC]
14-May-91	-0.58	1
22-Feb-95	-0.40	1
20-Apr-99	-0.19	1

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

21-Jan-99	0.00	1
20-Apr-99	0.00	1

Load over time analysis

tCd MC262 **Load over time**

LnLoad=mTime+b All data r2, m: **0.001** **0.00005**

Time	LnLoad	Load
14-May-91	-4.05	0.02
22-Feb-95	-3.98	0.02
20-Apr-99	-3.91	0.02

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

21-Jan-99	0.00	1
20-Apr-99	0.00	1

max r2: 0.712 max r2: 0.855

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.084	0.00013	-5.08	0.001	0.00005	-5.59
0.064	0.00012	-4.69	0.004	0.00013	-8.53
0.044	0.00011	-4.15	0.001	-0.00006	-1.76
0.041	0.00010	-4.04	0.002	-0.00011	-0.24
0.043	0.00011	-4.16	0.004	-0.00014	0.93
0.044	0.00011	-4.29	0.006	-0.00017	1.96
0.047	0.00012	-4.44	0.010	-0.00022	3.66
0.037	0.00010	-4.00	0.011	-0.00023	3.99
0.028	0.00009	-3.52	0.011	-0.00024	4.35
0.034	0.00010	-3.86	0.013	-0.00025	5.01
0.025	0.00009	-3.35	0.008	-0.00020	3.21
0.017	0.00007	-2.79	0.005	-0.00017	1.95
0.010	0.00005	-2.16	0.003	-0.00013	0.64
0.007	0.00004	-1.85	0.001	-0.00008	-1.00
0.004	0.00003	-1.51	0.000	-0.00005	-2.23
0.002	0.00002	-1.13	0.000	-0.00005	-2.34
0.003	0.00003	-1.39	0.000	-0.00005	-2.31
0.003	0.00003	-1.35	0.001	-0.00006	-1.94
0.002	0.00003	-1.30	0.002	-0.00010	-0.39
0.004	0.00004	-1.61	0.004	-0.00017	1.88
0.006	0.00005	-1.94	0.011	-0.00026	5.35
0.009	0.00006	-2.34	0.041	-0.00049	13.41
0.002	0.00003	-1.35	0.072	-0.00064	18.92
0.000	0.00000	-0.25	0.094	-0.00074	22.53
0.000	-0.00001	-0.08	0.115	-0.00084	25.76
0.005	-0.00004	1.23	0.124	-0.00089	27.57
0.012	-0.00007	2.09	0.092	-0.00073	22.09
0.024	-0.00009	3.09	0.053	-0.00050	13.59
0.018	-0.00008	2.70	0.014	-0.00020	3.06
0.017	-0.00008	2.72	0.001	-0.00005	-2.41
0.003	-0.00003	0.83	0.016	0.00018	-10.76
0.000	0.00001	-0.64	0.057	0.00034	-16.46
0.016	0.00008	-3.20	0.112	0.00049	-21.65
0.030	0.00012	-4.44	0.166	0.00062	-26.52
0.018	0.00009	-3.72	0.164	0.00066	-28.03
0.039	0.00016	-5.91	0.200	0.00081	-33.33
0.053	0.00021	-7.90	0.180	0.00089	-36.05
0.034	0.00022	-8.33	0.097	0.00082	-33.77
0.012	0.00046	-16.71	0.039	-0.00167	55.98
0.032	-0.00126	45.16	0.855	-0.01298	463.07
0.150	-0.00319	114.73	0.819	-0.01351	482.20
0.535	0.00410	-148.23	0.672	-0.00864	306.81
0.535	0.00410	-148.23	0.672	-0.00864	306.81
0.712	0.00637	-230.10	0.524	-0.00346	119.98

update for EV, CV:

tCd **MC262**
LN Analysis **tCd**

Load **Load Data, EV=0.0423 lbs/day CV=1.87**

Avg:	**0.04**	**Load Data-based LN**		
SD:	**0.08**	u	ln tCd Load	tCd Load
CV:	**1.87**	3	-0.2	1
Min:	**0.0**	0	-3.92	0.02
Max:	**0.39**	-3	-7.60	0.001
Median:	**0.02**			
		0	0.0423	
		1.87	1.87	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.974, EV=0.0438lbs/day CV=2.01; max r2=0.99**

r2 u,lnLoad:	0.974	u	lnLoad	Load	
slope, m:	0.787	3	-0.12	1	
intercept, b:	3.098	0	-3.94	0.02	
N: 45		-3	-7.75	0.0004	
E[Load]:	0.04	Parameter Estimates			0.974
SD[Load]:	0.1	from LN regression			0.0
CV[Load]:	2.01	update graph label			2.0
					max r2
					0.989

Date	tCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
		N: 52				
update and rank for new data						
17-Aug-94	0.002	1	0.0120	-2.258	-6.416	0.974
1-Oct-91	0.003	2	0.0311	-1.865	-5.991	0.973
24-Sep-98		3	0.0502	-1.643		
18-Nov-98		4	0.0694	-1.480		
5-Oct-94	0.005	5	0.0885	-1.350	-5.359	0.973
13-Sep-95	0.006	6	0.1077	-1.239	-5.176	0.974
14-Aug-95	0.006	7	0.1268	-1.142	-5.137	0.976
17-Aug-94	0.006	8	0.1459	-1.054	-5.105	0.978
25-Aug-98	0.007	9	0.1651	-0.974	-4.974	0.979
28-Oct-98	0.007	10	0.1842	-0.899	-4.963	0.982
5-Nov-97	0.007	11	0.2033	-0.830	-4.913	0.983
25-Jul-95	0.008	12	0.2225	-0.764	-4.854	0.985
29-Oct-93	0.008	13	0.2416	-0.701	-4.836	0.986
21-Dec-93	0.008	14	0.2608	-0.641	-4.789	0.986
22-Jul-94	0.009	15	0.2799	-0.583	-4.760	0.987
27-Jun-95	0.009	16	0.2990	-0.527	-4.661	0.987
1-Dec-93	0.010	17	0.3182	-0.473	-4.592	0.988
16-Nov-94	0.010	18	0.3373	-0.420	-4.581	0.988
27-Jul-98	0.010	19	0.3565	-0.368	-4.574	0.989
24-Jun-94	0.011	20	0.3756	-0.317	-4.552	0.988
21-Dec-93	0.012	21	0.3947	-0.267	-4.463	0.987
11-Jul-95	0.012	22	0.4139	-0.218	-4.419	0.987
14-Dec-98		23	0.4330	-0.169		
14-Dec-94	0.013	24	0.4522	-0.120	-4.332	0.986
7-Jun-94	0.016	25	0.4713	-0.072	-4.114	0.985
17-Feb-94	0.016	26	0.4904	-0.024	-4.111	0.985
12-Jun-95	0.018	27	0.5096	0.024	-4.023	0.984
20-May-94	0.019	28	0.5287	0.072	-3.980	0.984
21-Jan-94	0.019	29	0.5478	0.120	-3.961	0.983
21-Jan-94	0.019	30	0.5670	0.169	-3.954	0.982
3-May-94	0.020	31	0.5861	0.218	-3.913	0.981
10-Jan-95	0.023	32	0.6053	0.267	-3.781	0.980
25-Jun-98	0.023	33	0.6244	0.317	-3.778	0.978
23-May-95	0.025	34	0.6435	0.368	-3.704	0.978
18-Apr-94	0.034	35	0.6627	0.420	-3.372	0.978
9-May-95	0.036	36	0.6818	0.473	-3.313	0.977
14-May-91	0.040	37	0.7010	0.527	-3.217	0.976
23-Mar-94	0.041	38	0.7201	0.583	-3.188	0.975
23-Mar-94	0.043	39	0.7392	0.641	-3.143	0.974
6-Apr-94	0.045	40	0.7584	0.701	-3.099	0.970
23-Apr-98	0.047	41	0.7775	0.764	-3.053	0.965
21-Jan-99		42	0.7967	0.830		
7-Mar-94	0.062	43	0.8158	0.899	-2.773	0.958
12-Apr-95	0.069	44	0.8349	0.974	-2.673	0.949
5-May-98	0.070	45	0.8541	1.054	-2.658	0.933
25-Apr-95	0.094	46	0.8732	1.142	-2.360	0.906
20-Apr-99		47	0.8923	1.239		

22-Mar-99		48	0.9115	1.350	
28-May-98		49	0.9306	1.480	
9-Feb-95	**0.203**	50	0.9498	1.643	-1.596
8-Mar-95	**0.363**	51	0.9689	1.865	-1.013
22-Mar-95	**0.387**	52	0.9880	2.258	-0.949

update for EV, CV:

tCd		**MC262**		1	0.704
LN Analysis		**tCd**		0.35	0.35
Concentration		**Conc. Data, EV=0.704 ug/L CV=0.35**			
Avg:	**1**	**Data-based LN**			
SD:	**0.2**	u	ln[tCd]	[tCd]	
CV:	**0.35**	3	0.6	2	
Min:	**1**	0	-0.41	1	
Max:	**2**	-3	-1.43	0.2	
Median:	**1**				

				0.875	0.875
	u=mLn{Conc.}+b:			0.7	0.676
update for r2, EV, CV:	**r2=0.875, EV=0.676 ug/L CV=0.331; max r2=0.95**			0.331	0.331
	r2 u,lnConc:	0.875	u	lnConc.	Conc.
	slope, m:	3.105	3	0.52	2
	intercept, b:	1.379	0	-0.44	1
	N: 45		-3	-1.41	0.2
0.974	E[Conc]:	0.7	Parameter Estimates		
0.0438	SD[Conc]:	0.2	from LN regression		
2.01	CV[Conc]:	0.33	update graph label		

						max r2
	tCd	N: 52				0.949
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
28-May-98		1	0.0120	-2.258		
24-Sep-98		2	0.0311	-1.865		
14-May-91	0.5	3	0.0502	-1.643	-0.693	0.875
1-Oct-91	0.5	4	0.0694	-1.480	-0.693	0.886
21-Jan-94	0.5	5	0.0885	-1.350	-0.693	0.895
21-Jan-94	0.5	6	0.1077	-1.239	-0.693	0.901
7-Mar-94	0.5	7	0.1268	-1.142	-0.693	0.906
23-Mar-94	0.5	8	0.1459	-1.054	-0.693	0.910
23-Mar-94	0.5	9	0.1651	-0.974	-0.693	0.912
5-Oct-94	0.5	10	0.1842	-0.899	-0.693	0.913
16-Nov-94	0.5	11	0.2033	-0.830	-0.693	0.913
10-Jan-95	0.5	12	0.2225	-0.764	-0.693	0.912
25-Aug-98	0.5	13	0.2416	-0.701	-0.693	0.909
18-Nov-98		14	0.2608	-0.641		
14-Dec-98		15	0.2799	-0.583		
21-Jan-99		16	0.2990	-0.527		
22-Mar-99		17	0.3182	-0.473		
20-Apr-99		18	0.3373	-0.420		
5-Nov-97	0.56	19	0.3565	-0.368	-0.580	0.904
29-Oct-93	0.6	20	0.3756	-0.317	-0.511	0.902
6-Apr-94	0.6	21	0.3947	-0.267	-0.511	0.907
18-Apr-94	0.6	22	0.4139	-0.218	-0.511	0.911
3-May-94	0.6	23	0.4330	-0.169	-0.511	0.914
9-Feb-95	0.6	24	0.4522	-0.120	-0.511	0.916
8-Mar-95	0.6	25	0.4713	-0.072	-0.511	0.916
27-Jun-95	0.6	26	0.4904	-0.024	-0.511	0.916
14-Aug-95	0.6	27	0.5096	0.024	-0.511	0.914
13-Sep-95	0.6	28	0.5287	0.072	-0.511	0.911
23-Apr-98	0.6	29	0.5478	0.120	-0.511	0.906
25-Jun-98	0.6	30	0.5670	0.169	-0.511	0.900
27-Jul-98	0.6	31	0.5861	0.218	-0.511	0.892
1-Dec-93	0.7	32	0.6053	0.267	-0.357	0.883
21-Dec-93	0.7	33	0.6244	0.317	-0.357	0.887
21-Dec-93	0.7	34	0.6435	0.368	-0.357	0.891
7-Jun-94	0.7	35	0.6627	0.420	-0.357	0.892
24-Jun-94	0.7	36	0.6818	0.473	-0.357	0.891
14-Dec-94	0.7	37	0.7010	0.527	-0.357	0.888
25-Jul-95	0.7	38	0.7201	0.583	-0.357	0.880
17-Feb-94	0.8	39	0.7392	0.641	-0.223	0.869
20-May-94	0.8	40	0.7584	0.701	-0.223	0.887
22-Jul-94	0.8	41	0.7775	0.764	-0.223	0.905
17-Aug-94	0.8	42	0.7967	0.830	-0.223	0.921
17-Aug-94	0.8	43	0.8158	0.899	-0.223	0.935
12-Apr-95	0.8	44	0.8349	0.974	-0.223	0.945
12-Jun-95	0.8	45	0.8541	1.054	-0.223	0.949
11-Jul-95	0.8	46	0.8732	1.142	-0.223	0.944
22-Mar-95	0.9	47	0.8923	1.239	-0.105	0.927

9-May-95	1	48	0.9115	1.350	0.000	0.915
28-Oct-98	1	49	0.9306	1.480	0.000	
23-May-95	1.1	50	0.9498	1.643	0.095	
25-Apr-95	1.2	51	0.9689	1.865	0.182	
5-May-98	1.9	52	0.9880	2.258	0.642	

update for EV, CV:

tCd		**MC262**			15	15.1
LN Analysis		**tCd**			1.81	1.81
Discharge, Q		**Q Data, EV=15.1 cfs CV=1.81**				
Avg:	**15**	**Q Data-based LN**				
SD:	**27**	u	lnQ	Q		
CV:	**1.81**	3	5.6	272		
Min:	**0.4**	0	1.99	7		
Max:	**137**	-3	-1.63	0.2		
Median:	**4**					

					0.948	0.948
					14.4	14.4
	u=mLn{Q}+b:				2.21	2.21
update for r2, EV, CV:	**r2=0.948, EV=14.4 cfs CV=2.21; max r2=0.98**					
	r2 u,lnQ:	0.948	u	lnQ	Q	
	slope, m:	0.752	3	5.77	321	
	intercept, b:	-1.338	0	1.78	6	
	N: 52		-3	-2.21	0.1	
	E[Q]:	14.4	Parameter Estimates			
	SD[Q]:	32	from LN regression			
	CV[Q]:	2.21	update graph label			

						max r2
	Q	N: 52				0.976
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
17-Aug-94	0.38	1	0.0120	-2.258	-0.968	0.948
1-Oct-91	0.93	2	0.0311	-1.865	-0.073	0.943
28-Oct-98	1.3	3	0.0502	-1.643	0.262	0.944
17-Aug-94	1.41	4	0.0694	-1.480	0.344	0.948
18-Nov-98	*1.6*	5	0.0885	-1.350	0.470	0.951
5-Oct-94	1.75	6	0.1077	-1.239	0.560	0.954
13-Sep-95	1.75	7	0.1268	-1.142	0.560	0.958
14-Aug-95	1.82	8	0.1459	-1.054	0.599	0.960
22-Jul-94	1.99	9	0.1651	-0.974	0.688	0.962
25-Jul-95	2.07	10	0.1842	-0.899	0.728	0.964
21-Dec-93	2.21	11	0.2033	-0.830	0.793	0.966
5-Nov-97	2.44	12	0.2225	-0.764	0.892	0.968
29-Oct-93	2.46	13	0.2416	-0.701	0.900	0.970
24-Sep-98	*2.462807903*	14	0.2608	-0.641	0.901	0.972
25-Aug-98	2.571760751	15	0.2799	-0.583	0.945	0.974
1-Dec-93	2.69	16	0.2990	-0.527	0.990	0.975
24-Jun-94	2.8	17	0.3182	-0.473	1.030	0.975
11-Jul-95	2.8	18	0.3373	-0.420	1.030	0.976
27-Jun-95	2.93	19	0.3565	-0.368	1.075	0.976
21-Dec-93	3.06	20	0.3756	-0.317	1.118	0.975
27-Jul-98	3.196210553	21	0.3947	-0.267	1.162	0.975
14-Dec-94	3.49	22	0.4139	-0.218	1.250	0.974
17-Feb-94	3.81	23	0.4330	-0.169	1.338	0.973
16-Nov-94	3.81	24	0.4522	-0.120	1.338	0.973
23-May-95	4.16	25	0.4713	-0.072	1.426	0.971
12-Jun-95	4.16	26	0.4904	-0.024	1.426	0.970
20-May-94	4.34	27	0.5096	0.024	1.468	0.968
7-Jun-94	4.34	28	0.5287	0.072	1.468	0.966
14-Dec-98	*4.8*	29	0.5478	0.120	1.569	0.963
3-May-94	6.19	30	0.5670	0.169	1.823	0.961
9-May-95	6.77	31	0.5861	0.218	1.913	0.958
5-May-98	6.86	32	0.6053	0.267	1.926	0.957
21-Jan-94	7.08	33	0.6244	0.317	1.957	0.953
25-Jun-98	7.082855593	34	0.6435	0.368	1.958	0.949
21-Jan-94	7.13	35	0.6627	0.420	1.964	0.944
10-Jan-95	8.48	36	0.6818	0.473	2.138	0.940
18-Apr-94	10.63	37	0.7010	0.527	2.364	0.933
6-Apr-94	13.97	38	0.7201	0.583	2.637	0.926
23-Apr-98	14.62806909	39	0.7392	0.641	2.683	0.925
25-Apr-95	14.63	40	0.7584	0.701	2.683	0.924
14-May-91	14.9	41	0.7775	0.764	2.701	0.917
23-Mar-94	15.34	42	0.7967	0.830	2.730	0.907
23-Mar-94	16.04	43	0.8158	0.899	2.775	0.891
12-Apr-95	16.04	44	0.8349	0.974	2.775	0.871
21-Jan-99	*21*	45	0.8541	1.054	3.045	0.856
7-Mar-94	23.22	46	0.8732	1.142	3.145	0.837
20-Apr-99	*43*	47	0.8923	1.239	3.761	0.930

9-Feb-95	62.77	48	0.9115	1.350	4.139	0.944
22-Mar-99	*63*	49	0.9306	1.480	4.143	
22-Mar-95	79.93	50	0.9498	1.643	4.381	
8-Mar-95	112.47	51	0.9689	1.865	4.723	
28-May-98	*136.9458147*	52	0.9880	2.258	4.920	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	MC262	**Date:**	20-Jun-00
Chemical:	tPb	**Analyst:**	J.MacLachlan

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,069	14	6	1	0.00	0.00	0.00
SD:	801	26	8	3	1.00	1.00	1.00
CV:	0.02	1.82	1.43	2.94			
Min:	33,372	0.4	0.3	0.01	-0.53	-0.66	-0.34
Max:	36,403	137	47	16	4.66	4.98	4.55
Median:	34,801	4	5	0.1	-0.38	-0.10	-0.31

tPb MC262 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.204)		update r2	0.20	0.204			
r2 Q,[COC]:	0.20	[tCd]	Q				
slope, m:	0.1	4	0.4				
intercept, b:	3.7	5	14.4				
N: 29		21	137				
LnConc. = mLn{Q}+b (r2=0.0962)		update r2		0.10	0.0962		
r2 lnQ,ln[COC]:	0.10	ln[tCd]	ln Q	[tCd]	Q		
slope, m:	0.26	0.47	-0.97	2	0.4		
intercept, b:	0.72	1.42	2.67	4	14		
N: 29		2.01	4.92	7	137		

Q = mTime +b		**LnQ = mTime +b**		
r2:	0.015	0.019		
m:	0.0040	0.00021		
b:	-127	-5.45		

									for graph
								tPb	0
N= 57								MC262	
	Sampling Date	**Q Discharge cfs**	**tPb Concentration ug/L**	**tPb Load lbs/day**	**Ln Q**	**Ln tPb Conc.**	**Ln tPb Load**	**Standardized Values = (x - Avg)/SD Q**	**Conc**	**Load**
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	14-May-91	14.9	4	0.32	2.70	1.39	-1.14	0.02	-0.22	-0.24
MFG	1-Oct-91	0.93	5	0.03	-0.07	1.61	-3.69	-0.51	-0.10	-0.33
IDEQ	*29-Oct-93*	*2.46*			0.90			-0.46		
IDEQ	*1-Dec-93*	*2.69*			0.99			-0.45		
IDEQ	21-Dec-93	3.06	7	0.12	1.12	1.95	-2.16	-0.43	0.15	-0.31
IDEQ	21-Dec-93	2.21	7	0.08	0.79	1.95	-2.49	-0.46	0.15	-0.31
IDEQ	*21-Jan-94*	*7.08*			1.96			-0.28		
IDEQ	*21-Jan-94*	*7.13*			1.96			-0.28		
IDEQ	*17-Feb-94*	*3.81*			1.34			-0.40		
IDEQ	*7-Mar-94*	*23.22*			3.15			0.33		
IDEQ	*23-Mar-94*	*16.04*			2.78			0.06		
IDEQ	*23-Mar-94*	*15.34*			2.73			0.04		
IDEQ	*6-Apr-94*	*13.97*			2.64			-0.02		
IDEQ	*18-Apr-94*	*10.63*			2.36			-0.14		
IDEQ	*3-May-94*	*6.19*			1.82			-0.31		
IDEQ	*20-May-94*	*4.34*			1.47			-0.38		
IDEQ	*7-Jun-94*	*4.34*			1.47			-0.38		
IDEQ	*24-Jun-94*	*2.8*			1.03			-0.44		
IDEQ	*22-Jul-94*	*1.99*			0.69			-0.47		
IDEQ	*17-Aug-94*	*1.41*			0.34			-0.49		
IDEQ	*17-Aug-94*	*0.38*			-0.97			-0.53		
IDEQ	*5-Oct-94*	*1.75*			0.56			-0.48		
IDEQ	*16-Nov-94*	*3.81*			1.34			-0.40		
IDEQ	*14-Dec-94*	*3.49*			1.25			-0.42		
IDEQ	*10-Jan-95*	*8.48*			2.14			-0.23		
IDEQ	*9-Feb-95*	*62.77*			4.14			1.84		
IDEQ	*8-Mar-95*	*112.47*			4.72			3.73		
IDEQ	22-Mar-95	79.93	7	3.01	4.38	1.95	1.10	2.49	0.15	0.58
IDEQ	12-Apr-95	16.04	6	0.52	2.78	1.79	-0.66	0.06	0.03	-0.18
IDEQ	25-Apr-95	14.63	7	0.55	2.68	1.95	-0.60	0.01	0.15	-0.17
IDEQ	9-May-95	6.77	7	0.25	1.91	1.95	-1.37	-0.29	0.15	-0.26
IDEQ	*23-May-95*	*4.16*			1.43			-0.39		
IDEQ	12-Jun-95	4.16	5	0.11	1.43	1.61	-2.19	-0.39	-0.10	-0.31
IDEQ	27-Jun-95	2.93	7	0.11	1.08	1.95	-2.20	-0.44	0.15	-0.31
IDEQ	*11-Jul-95*	*2.8*			1.03			-0.44		
IDEQ	25-Jul-95	2.07	6	0.07	0.73	1.79	-2.71	-0.47	0.03	-0.32
IDEQ	14-Aug-95	1.82	5	0.05	0.60	1.61	-3.02	-0.48	-0.10	-0.33
IDEQ	13-Sep-95	1.75	7	0.07	0.56	1.95	-2.72	-0.48	0.15	-0.32
URS	5-Nov-97	2.44	0.47	0.01	0.89	-0.76	-5.09	-0.46	-0.64	-0.34
IDEQ	23-Apr-98	14.62806909	2.5	0.20	2.68	0.92	-1.63	0.01	-0.40	-0.28
URS	5-May-98	6.86	2.6	0.10	1.93	0.96	-2.34	-0.29	-0.39	-0.31
IDEQ	28-May-98	136.9458147	12	8.84	4.92	2.48	2.18	4.66	0.75	2.37
IDEQ	*25-Jun-98*	*7.082855593*			1.96			-0.28		
IDEQ	*27-Jul-98*	*3.196210553*			1.16			-0.43		
IDEQ	25-Aug-98	2.571760751	6	0.08	0.94	1.79	-2.49	-0.45	0.03	-0.32
IDEQ	*24-Sep-98*	*2.462807903*			0.90			-0.45		
USGS	28-Oct-98	1.3	2	0.01	0.26	0.69	-4.27	-0.50	-0.46	-0.34

USGS	18-Nov-98	1.6	2	0.02	0.47	0.69	-4.06	-0.49	-0.46	-0.34
USGS	14-Dec-98	4.8	2	0.05	1.57	0.69	-2.96	-0.37	-0.46	-0.32
USGS	21-Jan-99	21	3	0.34	3.04	1.10	-1.08	0.25	-0.34	-0.24
USGS	22-Mar-99	63	47	15.93	4.14	3.85	2.77	1.85	4.98	4.55
USGS	20-Apr-99	43	5	1.16	3.76	1.61	0.15	1.09	-0.10	0.01
USGS	4-May-99	17	1	0.09	2.83	0.00	-2.39	0.10	-0.58	-0.31
USGS	16-Jun-99	4.2	1	0.02	1.44	0.00	-3.79	-0.39	-0.58	-0.33
USGS	20-Jul-99	5	0.49	0.01	1.61	-0.71	-4.33	-0.36	-0.64	-0.34
USGS	4-Aug-99	5	0.34	0.01	1.61	-1.08	-4.69	-0.36	-0.66	-0.34
USGS	31-Aug-99	5	0.6	0.02	1.61	-0.51	-4.13	-0.36	-0.63	-0.34

tPb

Concentration over time analysis r2 Slope, m

tPb MC262 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.202** **-0.00056**

	Time	Ln[COC]	[COC]
first:	14-May-91	2.36	11
mid:	12-Apr-95	1.56	5
last:	31-Aug-99	0.67	2

LnConc.=mTime+b >'96 r2, m: **0.512** **-0.01541**

21-Jan-99	2.45	12
31-Aug-99	-0.97	0.4

Load over time analysis

tPb MC262 **Load over time**

LnLoad=mTime+b All data r2, m: **0.013** **-0.00025**

	Time	LnLoad	Load
first:	14-May-91	-1.62	0.2
mid:	12-Apr-95	-1.98	0.1
last:	31-Aug-99	-2.38	0.1

LnLoad=mTime+b >'96 r2, m: **0.583** **-0.02677**

21-Jan-99	1.14	3
31-Aug-99	-4.80	0.0

max r2: 0.712 max r2: 0.788

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.202	-0.00056	20.91	0.013	-0.00025	6.75
0.238	-0.00067	25.12	0.006	-0.00019	4.66
0.270	-0.00082	30.28	0.031	-0.00048	15.06
0.270	-0.00082	30.28	0.031	-0.00048	15.06
0.270	-0.00082	30.28	0.031	-0.00048	15.06
0.260	-0.00085	31.36	0.036	-0.00055	17.63
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.249	-0.00089	32.93	0.049	-0.00070	22.93
0.232	-0.00089	32.89	0.020	-0.00044	13.50
0.220	-0.00090	33.40	0.009	-0.00031	8.66
0.200	-0.00090	33.29	0.001	-0.00012	1.85
0.176	-0.00089	33.06	0.000	0.00002	-3.29
0.176	-0.00089	33.06	0.000	0.00002	-3.29
0.167	-0.00094	34.84	0.000	0.00007	-5.11
0.136	-0.00094	34.58	0.001	0.00015	-7.92
0.136	-0.00094	34.58	0.001	0.00015	-7.92
0.109	-0.00097	35.71	0.001	0.00012	-6.74
0.094	-0.00114	42.09	0.001	-0.00015	3.04
0.047	-0.00144	52.72	0.009	-0.00116	39.40
0.240	-0.00371	135.05	0.111	-0.00463	165.39
0.287	-0.00451	164.00	0.115	-0.00521	186.31
0.363	-0.00585	212.51	0.158	-0.00706	253.26
0.266	-0.00569	206.73	0.019	-0.00251	88.49
0.266	-0.00569	206.73	0.019	-0.00251	88.49
0.266	-0.00569	206.73	0.019	-0.00251	88.49
0.212	-0.00577	209.84	0.023	-0.00327	115.81
0.212	-0.00577	209.84	0.023	-0.00327	115.81

0.261	-0.00733	266.59	0.097	-0.00752	270.22
0.345	-0.01003	364.61	0.289	-0.01500	542.19
0.512	-0.01541	559.98	0.583	-0.02677	969.73
0.712	-0.02424	881.01	0.788	-0.04132	1498.65
0.655	-0.01450	526.82	0.724	-0.02943	1066.14
0.527	-0.00736	267.15	0.728	-0.01643	593.26

update for EV, CV:

tPb
LN Analysis

MC262
tPb

Load

Load Data, EV=1.1 lbs/day CV=2.94
Load Data-based LN

		u	ln tCd Load	tCd Load
Avg:	**1**			
SD:	**3**	3	3.5	33
CV:	**2.94**	3	-1.03	0.4
Min:	**0.01**	0	-5.54	0.004
Max:	**16**	-3		
Median:	**0.1**			

1	1.1
2.94	2.94

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.91, EV=0.42lbs/day CV=6; max r2=0.981**

r2 u,lnLoad:	0.909	u	lnLoad	Load	
slope, m:	0.526	3	3.05	21	
intercept, b:	1.397	0	-2.65	0.1	
N: 29		-3	-8.35	0.0002	
E[Load]:	0.4	Parameter Estimates			0.909
SD[Load]:	3	from LN regression			0.4
CV[Load]:	6.00	update graph label			6.0
					max r2
					0.981

Date	tPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
		N: 57				
update and rank for new data						
17-Aug-94		1	0.0109	-2.293		
5-Nov-97	**0.01**	2	0.0284	-1.905	-5.088	0.909
4-Aug-99	**0.01**	3	0.0459	-1.686	-4.694	0.909
17-Aug-94		4	0.0633	-1.527		
5-Oct-94		5	0.0808	-1.400		
20-Jul-99	**0.01**	6	0.0983	-1.292	-4.329	0.915
22-Jul-94		7	0.1157	-1.197		
28-Oct-98	**0.01**	8	0.1332	-1.111	-4.270	0.919
31-Aug-99	**0.02**	9	0.1507	-1.034	-4.126	0.920
29-Oct-93		10	0.1681	-0.962		
18-Nov-98	**0.02**	11	0.1856	-0.894	-4.062	0.926
1-Dec-93		12	0.2031	-0.831		
24-Jun-94		13	0.2205	-0.770		
11-Jul-95		14	0.2380	-0.713		
16-Jun-99	**0.02**	15	0.2555	-0.657	-3.790	0.931
14-Dec-94		16	0.2729	-0.604		
1-Oct-91	**0.03**	17	0.2904	-0.552	-3.688	0.937
17-Feb-94		18	0.3079	-0.502		
16-Nov-94		19	0.3253	-0.453		
23-May-95		20	0.3428	-0.405		
20-May-94		21	0.3603	-0.358		
7-Jun-94		22	0.3777	-0.311		
24-Sep-98		23	0.3952	-0.266		
3-May-94		24	0.4127	-0.221		
27-Jul-98		25	0.4301	-0.176		
21-Jan-94		26	0.4476	-0.132		
21-Jan-94		27	0.4651	-0.088		
14-Aug-95	**0.05**	28	0.4825	-0.044	-3.017	0.945
14-Dec-98	**0.05**	29	0.5000	0.000	-2.963	0.945
10-Jan-95		30	0.5175	0.044		
13-Sep-95	**0.07**	31	0.5349	0.088	-2.720	0.946
25-Jul-95	**0.07**	32	0.5524	0.132	-2.706	0.949
18-Apr-94		33	0.5699	0.176		
25-Aug-98	**0.08**	34	0.5873	0.221	-2.489	0.952
21-Dec-93	**0.08**	35	0.6048	0.266	-2.486	0.959
4-May-99	**0.09**	36	0.6223	0.311	-2.392	0.965
6-Apr-94		37	0.6397	0.358		
25-Jun-98		38	0.6572	0.405		
5-May-98	**0.10**	39	0.6747	0.453	-2.344	0.976
23-Mar-94		40	0.6921	0.502		
23-Mar-94		41	0.7096	0.552		
27-Jun-95	**0.11**	42	0.7271	0.604	-2.204	0.981
12-Jun-95	**0.11**	43	0.7445	0.657	-2.190	0.980
21-Dec-93	**0.12**	44	0.7620	0.713	-2.161	0.977
7-Mar-94		45	0.7795	0.770		
23-Apr-98	**0.20**	46	0.7969	0.831	-1.626	0.973
9-May-95	**0.25**	47	0.8144	0.894	-1.367	0.969

14-May-91	**0.32**	48	0.8319	0.962	-1.137	0.966
21-Jan-99	**0.34**	49	0.8493	1.034	-1.082	0.966
9-Feb-95		50	0.8668	1.111		
12-Apr-95	**0.52**	51	0.8843	1.197	-0.658	0.958
25-Apr-95	**0.55**	52	0.9017	1.292	-0.596	0.946
8-Mar-95		53	0.9192	1.400		
20-Apr-99	**1.16**	54	0.9367	1.527	0.146	
22-Mar-95	**3.01**	55	0.9541	1.686	1.102	
28-May-98	**8.84**	56	0.9716	1.905	2.179	
22-Mar-99	**15.93**	57	0.9891	2.293	2.768	

update for EV, CV:

tPb		**MC262**		6	5.8
LN Analysis		**tPb**		1.43	1.4
Concentration		**Conc. Data, EV=5.8 ug/L CV=1.4**			
Avg:	**6**	**Data-based LN**			
SD:	**8**	u	ln[tCd]	[tCd]	
CV:	**1.43**	3	4.4	79	
Min:	**0.3**	0	1.20	3	
Max:	**47**	-3	-1.96	0.1	
Median:	**5**				

				0.937	0.94
	u=mLn{Conc.}+b:			3.7	3.7
update for r2, EV, CV:	**r2=0.94, EV=3.7 ug/L CV=1.2; max r2=0.937**			1.204	1.2
	r2 u,lnConc:	0.937	u	lnConc.	Conc.
	slope, m:	1.056	3	3.69	40
	intercept, b:	-0.898	0	0.85	2
	N: 29		-3	-1.99	0.1
0.91	E[Conc]:	3.7	Parameter Estimates		
0.42	SD[Conc]:	4	from LN regression		
6	CV[Conc]:	1.20	update graph label		

						max r2
	tPb	N: 57				0.937
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Aug-99	0.34	1	0.0109	-2.293	-1.079	0.937
5-Nov-97	0.47	2	0.0284	-1.905	-0.755	0.926
20-Jul-99	0.49	3	0.0459	-1.686	-0.713	0.913
31-Aug-99	0.6	4	0.0633	-1.527	-0.511	0.892
4-May-99	1	5	0.0808	-1.400	0.000	0.865
16-Jun-99	1	6	0.0983	-1.292	0.000	0.856
29-Oct-93		7	0.1157	-1.197		
1-Dec-93		8	0.1332	-1.111		
21-Jan-94		9	0.1507	-1.034		
21-Jan-94		10	0.1681	-0.962		
17-Feb-94		11	0.1856	-0.894		
7-Mar-94		12	0.2031	-0.831		
23-Mar-94		13	0.2205	-0.770		
23-Mar-94		14	0.2380	-0.713		
6-Apr-94		15	0.2555	-0.657		
18-Apr-94		16	0.2729	-0.604		
3-May-94		17	0.2904	-0.552		
20-May-94		18	0.3079	-0.502		
7-Jun-94		19	0.3253	-0.453		
24-Jun-94		20	0.3428	-0.405		
22-Jul-94		21	0.3603	-0.358		
17-Aug-94		22	0.3777	-0.311		
17-Aug-94		23	0.3952	-0.266		
5-Oct-94		24	0.4127	-0.221		
16-Nov-94		25	0.4301	-0.176		
14-Dec-94		26	0.4476	-0.132		
10-Jan-95		27	0.4651	-0.088		
9-Feb-95		28	0.4825	-0.044		
8-Mar-95		29	0.5000	0.000		
23-May-95		30	0.5175	0.044		
11-Jul-95		31	0.5349	0.088		
28-Oct-98	2	32	0.5524	0.132	0.693	0.855
18-Nov-98	2	33	0.5699	0.176	0.693	0.841
14-Dec-98	2	34	0.5873	0.221	0.693	0.824
23-Apr-98	2.5	35	0.6048	0.266	0.916	0.803
25-Jun-98		36	0.6223	0.311		
27-Jul-98		37	0.6397	0.358		
24-Sep-98		38	0.6572	0.405		
5-May-98	2.6	39	0.6747	0.453	0.956	0.778
21-Jan-99	3	40	0.6921	0.502	1.099	0.758
14-May-91	4	41	0.7096	0.552	1.386	0.734
1-Oct-91	5	42	0.7271	0.604	1.609	0.713
12-Jun-95	5	43	0.7445	0.657	1.609	0.712
14-Aug-95	5	44	0.7620	0.713	1.609	0.706
20-Apr-99	5	45	0.7795	0.770	1.609	0.696
12-Apr-95	6	46	0.7969	0.831	1.792	0.680
25-Jul-95	6	47	0.8144	0.894	1.792	0.689

25-Aug-98	6	48	0.8319	0.962	1.792	0.695
21-Dec-93	7	49	0.8493	1.034	1.946	0.696
21-Dec-93	7	50	0.8668	1.111	1.946	0.734
22-Mar-95	7	51	0.8843	1.197	1.946	0.777
25-Apr-95	7	52	0.9017	1.292	1.946	0.825
9-May-95	7	53	0.9192	1.400	1.946	0.879
27-Jun-95	7	54	0.9367	1.527	1.946	
13-Sep-95	7	55	0.9541	1.686	1.946	
28-May-98	12	56	0.9716	1.905	2.485	
22-Mar-99	47	57	0.9891	2.293	3.850	

update for EV, CV:

tPb		**MC262**			14	14.4
LN Analysis		**tPb**			1.82	1.82
Discharge, Q		**Q Data, EV=14.4 cfs CV=1.82**				
Avg:	**14**	**Q Data-based LN**				
SD:	**26**	u	lnQ	Q		
CV:	**1.82**	3	5.6	261		
Min:	**0.4**	0	1.94	7		
Max:	**137**	-3	-1.69	0.2		
Median:	**4**					

					0.949	0.949
					13.5	13.5
u=mLn{Q}+b:					2.03	2.03
update for r2, EV, CV:	**r2=0.949, EV=13.5 cfs CV=2.03; max r2=0.971**					
r2 u,lnQ:	0.949	u	lnQ	Q		
slope, m:	0.783	3	5.62	275		
intercept, b:	-1.396	0	1.78	6		
N: 57		-3	-2.05	0.1		
E[Q]:	13.5	Parameter Estimates				
SD[Q]:	27	from LN regression				
CV[Q]:	2.03	update graph label				

						max r2
	Q	N: 57				0.971
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
17-Aug-94	*0.38*	1	0.0109	-2.293	-0.968	0.949
1-Oct-91	0.93	2	0.0284	-1.905	-0.073	0.944
28-Oct-98	1.3	3	0.0459	-1.686	0.262	0.944
17-Aug-94	*1.41*	4	0.0633	-1.527	0.344	0.947
18-Nov-98	1.6	5	0.0808	-1.400	0.470	0.949
5-Oct-94	*1.75*	6	0.0983	-1.292	0.560	0.952
13-Sep-95	1.75	7	0.1157	-1.197	0.560	0.955
14-Aug-95	1.82	8	0.1332	-1.111	0.599	0.956
22-Jul-94	*1.99*	9	0.1507	-1.034	0.688	0.958
25-Jul-95	2.07	10	0.1681	-0.962	0.728	0.959
21-Dec-93	2.21	11	0.1856	-0.894	0.793	0.961
5-Nov-97	2.44	12	0.2031	-0.831	0.892	0.962
29-Oct-93	*2.46*	13	0.2205	-0.770	0.900	0.964
24-Sep-98	*2.462807903*	14	0.2380	-0.713	0.901	0.966
25-Aug-98	2.571760751	15	0.2555	-0.657	0.945	0.967
1-Dec-93	*2.69*	16	0.2729	-0.604	0.990	0.968
24-Jun-94	*2.8*	17	0.2904	-0.552	1.030	0.969
11-Jul-95	*2.8*	18	0.3079	-0.502	1.030	0.970
27-Jun-95	2.93	19	0.3253	-0.453	1.075	0.970
21-Dec-93	3.06	20	0.3428	-0.405	1.118	0.970
27-Jul-98	*3.196210553*	21	0.3603	-0.358	1.162	0.970
14-Dec-94	*3.49*	22	0.3777	-0.311	1.250	0.969
17-Feb-94	*3.81*	23	0.3952	-0.266	1.338	0.970
16-Nov-94	*3.81*	24	0.4127	-0.221	1.338	0.970
23-May-95	*4.16*	25	0.4301	-0.176	1.426	0.971
12-Jun-95	4.16	26	0.4476	-0.132	1.426	0.971
16-Jun-99	4.2	27	0.4651	-0.088	1.435	0.971
20-May-94	*4.34*	28	0.4825	-0.044	1.468	0.971
7-Jun-94	*4.34*	29	0.5000	0.000	1.468	0.970
14-Dec-98	4.8	30	0.5175	0.044	1.569	0.968
20-Jul-99	5	31	0.5349	0.088	1.609	0.967
4-Aug-99	5	32	0.5524	0.132	1.609	0.965
31-Aug-99	5	33	0.5699	0.176	1.609	0.963
3-May-94	*6.19*	34	0.5873	0.221	1.823	0.960
9-May-95	6.77	35	0.6048	0.266	1.913	0.958
5-May-98	6.86	36	0.6223	0.311	1.926	0.955
21-Jan-94	*7.08*	37	0.6397	0.358	1.957	0.952
25-Jun-98	*7.082855593*	38	0.6572	0.405	1.958	0.948
21-Jan-94	*7.13*	39	0.6747	0.453	1.964	0.943
10-Jan-95	*8.48*	40	0.6921	0.502	2.138	0.939
18-Apr-94	*10.63*	41	0.7096	0.552	2.364	0.933
6-Apr-94	*13.97*	42	0.7271	0.604	2.637	0.927
23-Apr-98	14.62806909	43	0.7445	0.657	2.683	0.927
25-Apr-95	14.63	44	0.7620	0.713	2.683	0.928
14-May-91	14.9	45	0.7795	0.770	2.701	0.924
23-Mar-94	*15.34*	46	0.7969	0.831	2.730	0.918
23-Mar-94	*16.04*	47	0.8144	0.894	2.775	0.907

12-Apr-95	16.04	48	0.8319	0.962	2.775	0.892
4-May-99	17	49	0.8493	1.034	2.833	0.873
21-Jan-99	21	50	0.8668	1.111	3.045	0.855
7-Mar-94	*23.22*	51	0.8843	1.197	3.145	0.835
20-Apr-99	43	52	0.9017	1.292	3.761	0.929
9-Feb-95	*62.77*	53	0.9192	1.400	4.139	0.944
22-Mar-99	63	54	0.9367	1.527	4.143	
22-Mar-95	79.93	55	0.9541	1.686	4.381	
8-Mar-95	*112.47*	56	0.9716	1.905	4.723	
28-May-98	136.9458147	57	0.9891	2.293	4.920	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: MC262 **Date:** 20-Jun-00
Chemical: tZn **Analyst:** J.MacLachlan
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,090	14	122	9	0.00	0.00	0.00
SD:	810	26	39	16	1.00	1.00	1.00
CV:	0.02	1.85	0.32	1.84			
Min:	33,372	0	40	0.2	-0.53	-2.09	-0.53
Max:	36,403	137	316	77	4.70	4.94	4.32
Median:	34,808	4	118	3	-0.38	-0.11	-0.35

tZn **MC262** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.0129) update r2 0.01 0.0129

r2 Q,[COC]:	0.01	[tCd]	Q	r2:	0.011	0.004
slope, m:	-0.2	124	0.4	m:	0.0033	0.00010
intercept, b:	124.4	122	14.1	b:	-103	-1.66
N: 58		101	137			

LnConc. = mLn{Q}+b (r2=0.00362) update r2 0.00 0.00362

r2 lnQ,ln[COC]:	0.00	ln[tCd]	ln Q	[tCd]	Q
slope, m:	-0.02	4.80	-0.97	121	0
intercept, b:	4.78	4.74	2.65	115	14
N: 58		4.71	4.92	111	137

for graph
tZn 0
MC262

N= 58

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	14-May-91	14.9	113	9.1	2.70	4.73	2.20	0.03	-0.23	0.03
MFG	1-Oct-91	0.93	158	0.8	-0.07	5.06	-0.24	-0.51	0.92	-0.49
IDEQ	29-Oct-93	2.46	152	2.0	0.90	5.02	0.70	-0.45	0.77	-0.42
IDEQ	1-Dec-93	2.69	157	2.3	0.99	5.06	0.82	-0.44	0.89	-0.40
IDEQ	21-Dec-93	3.06	178	2.9	1.12	5.18	1.08	-0.42	1.43	-0.36
IDEQ	21-Dec-93	2.21	178	2.1	0.79	5.18	0.75	-0.46	1.43	-0.41
IDEQ	21-Jan-94	7.08	155	5.9	1.96	5.04	1.78	-0.27	0.84	-0.17
IDEQ	21-Jan-94	7.13	155	5.9	1.96	5.04	1.78	-0.27	0.84	-0.17
IDEQ	17-Feb-94	3.81	156	3.2	1.34	5.05	1.16	-0.40	0.87	-0.34
IDEQ	7-Mar-94	23.22	116	14.5	3.15	4.75	2.67	0.35	-0.15	0.37
IDEQ	23-Mar-94	16.04	117	10.1	2.78	4.76	2.31	0.07	-0.13	0.09
IDEQ	23-Mar-94	15.34	117	9.7	2.73	4.76	2.27	0.05	-0.13	0.06
IDEQ	6-Apr-94	13.97	106	8.0	2.64	4.66	2.08	-0.01	-0.41	-0.04
IDEQ	18-Apr-94	10.63	97	5.5	2.36	4.57	1.71	-0.13	-0.64	-0.20
IDEQ	3-May-94	6.19	101	3.4	1.82	4.62	1.21	-0.30	-0.53	-0.33
IDEQ	20-May-94	4.34	125	2.9	1.47	4.83	1.07	-0.38	0.08	-0.36
IDEQ	7-Jun-94	4.34	137	3.2	1.47	4.92	1.16	-0.38	0.38	-0.34
IDEQ	24-Jun-94	2.8	125	1.9	1.03	4.83	0.63	-0.43	0.08	-0.43
IDEQ	22-Jul-94	1.99	103	1.1	0.69	4.63	0.10	-0.47	-0.48	-0.47
IDEQ	17-Aug-94	1.41	74	0.6	0.34	4.30	-0.58	-0.49	-1.22	-0.51
IDEQ	17-Aug-94	0.38	74	0.2	-0.97	4.30	-1.89	-0.53	-1.22	-0.53
IDEQ	5-Oct-94	1.75	88	0.8	0.56	4.48	-0.19	-0.47	-0.86	-0.49
IDEQ	16-Nov-94	3.81	151	3.1	1.34	5.02	1.13	-0.40	0.74	-0.35
IDEQ	14-Dec-94	3.49	162	3.0	1.25	5.09	1.11	-0.41	1.02	-0.35
IDEQ	10-Jan-95	8.48	160	7.3	2.14	5.08	1.99	-0.22	0.97	-0.09
IDEQ	9-Feb-95	62.77	113	38.2	4.14	4.73	3.64	1.86	-0.23	1.86
IDEQ	8-Mar-95	112.47	127	76.8	4.72	4.84	4.34	3.76	0.13	4.29
IDEQ	22-Mar-95	79.93	120	51.6	4.38	4.79	3.94	2.52	-0.05	2.70
IDEQ	12-Apr-95	16.04	128	11.0	2.78	4.85	2.40	0.07	0.15	0.15
IDEQ	25-Apr-95	14.63	117	9.2	2.68	4.76	2.22	0.02	-0.13	0.03
IDEQ	9-May-95	6.77	153	5.6	1.91	5.03	1.72	-0.28	0.79	-0.19
IDEQ	23-May-95	4.16	127	2.8	1.43	4.84	1.04	-0.38	0.13	-0.37
IDEQ	12-Jun-95	4.16	137	3.1	1.43	4.92	1.12	-0.38	0.38	-0.35
IDEQ	27-Jun-95	2.93	105	1.7	1.08	4.65	0.50	-0.43	-0.43	-0.44
IDEQ	11-Jul-95	2.8	130	2.0	1.03	4.87	0.67	-0.43	0.21	-0.42
IDEQ	25-Jul-95	2.07	109	1.2	0.73	4.69	0.19	-0.46	-0.33	-0.47
IDEQ	14-Aug-95	1.82	118	1.2	0.60	4.77	0.14	-0.47	-0.10	-0.47
IDEQ	13-Sep-95	1.75	113	1.1	0.56	4.73	0.06	-0.47	-0.23	-0.48
URS	5-Nov-97	2.44	135	1.8	0.89	4.91	0.57	-0.45	0.33	-0.43
IDEQ	23-Apr-98	14.62806909	132	10.4	2.68	4.88	2.34	0.02	0.26	0.11
URS	5-May-98	6.86	316	11.7	1.93	5.76	2.46	-0.28	4.94	0.19
IDEQ	28-May-98	136.9458147	105	77.4	4.92	4.65	4.35	4.70	-0.43	4.32
IDEQ	25-Jun-98	7.082855593	134	5.1	1.96	4.90	1.63	-0.27	0.31	-0.22
IDEQ	27-Jul-98	3.196210553	90	1.5	1.16	4.50	0.44	-0.42	-0.81	-0.45
IDEQ	25-Aug-98	2.571760751	98	1.4	0.94	4.58	0.30	-0.44	-0.61	-0.46
IDEQ	24-Sep-98	2.462807903	109	1.4	0.90	4.69	0.37	-0.45	-0.33	-0.45
USGS	28-Oct-98	1.3	120	0.8	0.26	4.79	-0.18	-0.49	-0.05	-0.49

USGS	18-Nov-98	1.6	120	1.0	0.47	4.79	0.03	-0.48	-0.05	-0.48
USGS	14-Dec-98	4.8	160	4.1	1.57	5.08	1.42	-0.36	0.97	-0.28
USGS	21-Jan-99	21	100	11.3	3.04	4.61	2.42	0.26	-0.56	0.17
USGS	22-Mar-99	63	110	37.3	4.14	4.70	3.62	1.87	-0.30	1.80
USGS	20-Apr-99	43	40	9.3	3.76	3.69	2.23	1.10	-2.09	0.04
USGS	4-May-99	17	60	5.5	2.83	4.09	1.70	0.11	-1.58	-0.20
USGS	23-May-99	8.7	70	3.3	2.16	4.25	1.19	-0.21	-1.32	-0.34
USGS	16-Jun-99	4.2	70	1.6	1.44	4.25	0.46	-0.38	-1.32	-0.44
USGS	20-Jul-99	2.1	90.5	1.0	0.74	4.51	0.02	-0.46	-0.80	-0.48
USGS	4-Aug-99	1.5	78	0.6	0.41	4.36	-0.46	-0.48	-1.12	-0.50
USGS	31-Aug-99	1.4	82.9	0.6	0.34	4.42	-0.47	-0.49	-0.99	-0.50

tZn

Concentration over time analysis r2 Slope, m

tZn MC262 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.154** **-0.00015**

	Time	Ln[COC]	[COC]
first:	14-May-91	5.02	151
mid:	18-Apr-95	4.80	121
last:	31-Aug-99	4.56	95

LnConc.=mTime+b >'96 r2, m: **0.005** **-0.00030**

21-Jan-99	4.36	78
31-Aug-99	4.29	73

Load over time analysis

tZn MC262 **Load over time**

LnLoad=mTime+b All data r2, m: **0.001** **-0.00005**

	Time	LnLoad	Load
first:	14-May-91	1.36	4
mid:	18-Apr-95	1.28	4
last:	31-Aug-99	1.19	3

LnLoad=mTime+b >'96 r2, m: **0.808** **-0.01820**

21-Jan-99	3.45	31
31-Aug-99	-0.59	1

max r2: 0.699 max r2: 0.950

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.154	-0.00015	10.06	0.001	-0.00005	3.17
0.171	-0.00017	10.57	0.000	-0.00001	1.68
0.157	-0.00016	10.50	0.003	-0.00009	4.37
0.148	-0.00016	10.37	0.004	-0.00011	5.03
0.138	-0.00015	10.19	0.005	-0.00012	5.59
0.124	-0.00015	9.87	0.006	-0.00013	5.92
0.110	-0.00014	9.52	0.008	-0.00015	6.64
0.100	-0.00013	9.30	0.007	-0.00014	6.27
0.089	-0.00012	9.05	0.005	-0.00013	5.85
0.078	-0.00012	8.78	0.006	-0.00014	6.13
0.078	-0.00012	8.84	0.003	-0.00009	4.61
0.078	-0.00012	8.89	0.001	-0.00006	3.40
0.078	-0.00012	8.95	0.000	-0.00003	2.12
0.082	-0.00013	9.15	0.000	0.00001	0.98
0.092	-0.00014	9.49	0.000	0.00003	0.23
0.101	-0.00014	9.80	0.000	0.00003	0.16
0.098	-0.00014	9.82	0.000	0.00003	0.30
0.090	-0.00014	9.68	0.000	0.00003	0.30
0.086	-0.00014	9.67	0.000	0.00000	1.22
0.094	-0.00015	10.01	0.001	-0.00006	3.19
0.130	-0.00018	11.00	0.005	-0.00015	6.67
0.179	-0.00021	12.14	0.029	-0.00034	13.35
0.215	-0.00023	13.03	0.050	-0.00044	17.21
0.200	-0.00023	12.85	0.056	-0.00048	18.66
0.179	-0.00022	12.47	0.064	-0.00053	20.32
0.157	-0.00021	12.04	0.060	-0.00052	20.10
0.163	-0.00022	12.42	0.035	-0.00040	15.60
0.158	-0.00022	12.53	0.010	-0.00020	8.40
0.158	-0.00023	12.82	0.000	0.00001	0.90
0.152	-0.00023	12.95	0.004	0.00012	-3.20
0.156	-0.00024	13.43	0.015	0.00024	-7.65
0.129	-0.00023	12.92	0.027	0.00034	-11.28
0.121	-0.00024	13.11	0.030	0.00039	-12.87
0.103	-0.00023	12.93	0.036	0.00046	-15.45
0.121	-0.00027	14.46	0.029	0.00045	-14.96
0.109	-0.00029	15.00	0.025	0.00046	-15.60
0.135	-0.00037	18.13	0.009	0.00033	-10.74
0.167	-0.00053	23.88	0.000	-0.00003	2.19
0.398	-0.00143	56.27	0.081	-0.00208	76.34
0.416	-0.00167	64.85	0.157	-0.00333	121.61
0.408	-0.00175	67.80	0.128	-0.00317	115.76
0.303	-0.00121	48.36	0.091	-0.00282	103.20
0.314	-0.00135	53.24	0.006	-0.00064	24.10
0.249	-0.00127	50.34	0.000	-0.00008	3.68
0.303	-0.00156	60.88	0.004	-0.00060	22.56
0.336	-0.00184	71.11	0.020	-0.00158	58.18
0.327	-0.00204	78.29	0.057	-0.00302	110.38

0.270	-0.00204	78.51	0.204	-0.00630	229.50
0.190	-0.00194	74.70	0.552	-0.01190	433.15
0.005	-0.00030	15.15	0.808	-0.01820	661.86
0.057	0.00128	-42.25	0.931	-0.02467	897.04
0.676	0.00447	-158.22	0.950	-0.02087	758.90
0.699	0.00268	-92.95	0.944	-0.01902	691.48
0.504	0.00199	-68.00	0.921	-0.01692	615.39

update for EV, CV:

tZn **MC262**

LN Analysis **tZn**

Load **Load Data, EV=8.7 lbs/day CV=1.8**

Load Data-based LN

		u	ln tCd Load	tCd Load
Avg:	**9**			
SD:	**16**	3	5.1	158
CV:	**1.84**	0	1.42	4
Min:	**0.2**	-3	-2.23	0.1
Max:	**77**			
Median:	**3**			

9	8.7
1.84	1.8

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.97, EV=8.3lbs/day CV=2.1; max r2=0.97**

r2 u,lnLoad:	0.969	u	lnLoad	Load	
slope, m:	0.763	3	5.19	180	
intercept, b:	-0.964	0	1.26	4	
N: 58		-3	-2.67	0.1	
E[Load]:	8.3	Parameter Estimates			0.969
SD[Load]:	18	from LN regression			8.3
CV[Load]:	2.14	update graph label			2.1
					max r2
					0.972

N: 58

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
17-Aug-94	**0.2**	1	0.0107	-2.300	-1.889	0.969
17-Aug-94	**0.6**	2	0.0279	-1.913	-0.577	0.966
31-Aug-99	**0.6**	3	0.0451	-1.695	-0.471	0.969
4-Aug-99	**0.6**	4	0.0622	-1.536	-0.463	0.970
1-Oct-91	**0.8**	5	0.0794	-1.409	-0.235	0.970
5-Oct-94	**0.8**	6	0.0966	-1.301	-0.188	0.971
28-Oct-98	**0.8**	7	0.1137	-1.207	-0.175	0.972
20-Jul-99	**1.0**	8	0.1309	-1.122	0.022	0.971
18-Nov-98	**1.0**	9	0.1481	-1.045	0.032	0.972
13-Sep-95	**1.1**	10	0.1652	-0.973	0.062	0.972
22-Jul-94	**1.1**	11	0.1824	-0.906	0.098	0.972
14-Aug-95	**1.2**	12	0.1996	-0.843	0.144	0.971
25-Jul-95	**1.2**	13	0.2167	-0.783	0.194	0.970
25-Aug-98	**1.4**	14	0.2339	-0.726	0.304	0.969
24-Sep-98	**1.4**	15	0.2511	-0.671	0.368	0.969
27-Jul-98	**1.5**	16	0.2682	-0.618	0.437	0.968
16-Jun-99	**1.6**	17	0.2854	-0.567	0.459	0.967
27-Jun-95	**1.7**	18	0.3026	-0.517	0.504	0.966
5-Nov-97	**1.8**	19	0.3197	-0.468	0.572	0.965
24-Jun-94	**1.9**	20	0.3369	-0.421	0.633	0.963
11-Jul-95	**2.0**	21	0.3541	-0.374	0.672	0.962
29-Oct-93	**2.0**	22	0.3712	-0.329	0.699	0.961
21-Dec-93	**2.1**	23	0.3884	-0.283	0.750	0.959
1-Dec-93	**2.3**	24	0.4056	-0.239	0.821	0.957
23-May-95	**2.8**	25	0.4227	-0.195	1.045	0.955
20-May-94	**2.9**	26	0.4399	-0.151	1.071	0.955
21-Dec-93	**2.9**	27	0.4571	-0.108	1.075	0.955
14-Dec-94	**3.0**	28	0.4742	-0.065	1.112	0.954
12-Jun-95	**3.1**	29	0.4914	-0.022	1.120	0.953
16-Nov-94	**3.1**	30	0.5086	0.022	1.130	0.951
17-Feb-94	**3.2**	31	0.5258	0.065	1.162	0.948
7-Jun-94	**3.2**	32	0.5429	0.108	1.163	0.945
23-May-99	**3.3**	33	0.5601	0.151	1.187	0.941
3-May-94	**3.4**	34	0.5773	0.195	1.213	0.937
14-Dec-98	**4.1**	35	0.5944	0.239	1.419	0.932
25-Jun-98	**5.1**	36	0.6116	0.283	1.630	0.928
4-May-99	**5.5**	37	0.6288	0.329	1.702	0.925
18-Apr-94	**5.5**	38	0.6459	0.374	1.713	0.923
9-May-95	**5.6**	39	0.6631	0.421	1.718	0.920
21-Jan-94	**5.9**	40	0.6803	0.468	1.776	0.915
21-Jan-94	**5.9**	41	0.6974	0.517	1.783	0.909
10-Jan-95	**7.3**	42	0.7146	0.567	1.988	0.901
6-Apr-94	**8.0**	43	0.7318	0.618	2.075	0.897
14-May-91	**9.1**	44	0.7489	0.671	2.204	0.893
25-Apr-95	**9.2**	45	0.7661	0.726	2.220	0.894
20-Apr-99	**9.3**	46	0.7833	0.783	2.225	0.893
23-Mar-94	**9.7**	47	0.8004	0.843	2.268	0.888

23-Mar-94	**10.1**	48	0.8176	0.906	2.312	0.879
23-Apr-98	**10.4**	49	0.8348	0.973	2.341	0.867
12-Apr-95	**11.0**	50	0.8519	1.045	2.402	0.846
21-Jan-99	**11.3**	51	0.8691	1.122	2.425	0.815
5-May-98	**11.7**	52	0.8863	1.207	2.456	0.769
7-Mar-94	**14.5**	53	0.9034	1.301	2.674	0.720
22-Mar-99	**37.3**	54	0.9206	1.409	3.619	0.836
9-Feb-95	**38.2**	55	0.9378	1.536	3.642	
22-Mar-95	**51.6**	56	0.9549	1.695	3.944	
8-Mar-95	**76.8**	57	0.9721	1.913	4.342	
28-May-98	**77.4**	58	0.9893	2.300	4.348	

update for EV, CV:

tZn		**MC262**		122	122
LN Analysis		**tZn**		0.32	0.322
Concentration		**Conc. Data, EV=122 ug/L CV=0.322**			
Avg:	**122**	**Data-based LN**			
SD:	**39**	u	ln[tCd]	[tCd]	
CV:	**0.32**	3	5.7	298	
Min:	**40**	0	4.75	116	
Max:	**316**	-3	3.81	45	
Median:	**118**				

				0.933	0.933
	u=mLn{Conc.}+b:			122.8	123
update for r2, EV, CV:	**r2=0.933, EV=123 ug/L CV=0.34; max r2=0.95**			0.340	0.34
	r2 u,lnConc:	0.933	u	lnConc.	Conc.
	slope, m:	3.022	3	5.75	314
	intercept, b:	-14.374	0	4.76	116
	N:	58	-3	3.76	43
0.97	E[Conc]:	122.8	Parameter Estimates		
8.3	SD[Conc]:	42	from LN regression		
2.1	CV[Conc]:	0.34	update graph label		

						max r2
	tZn	N: 58				0.948
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
20-Apr-99	40	1	0.0107	-2.300	3.689	0.933
4-May-99	60	2	0.0279	-1.913	4.094	0.948
23-May-99	70	3	0.0451	-1.695	4.248	0.945
16-Jun-99	70	4	0.0622	-1.536	4.248	0.941
17-Aug-94	74	5	0.0794	-1.409	4.304	0.938
17-Aug-94	74	6	0.0966	-1.301	4.304	0.934
4-Aug-99	78	7	0.1137	-1.207	4.357	0.932
31-Aug-99	82.9	8	0.1309	-1.122	4.418	0.929
5-Oct-94	88	9	0.1481	-1.045	4.477	0.925
27-Jul-98	90	10	0.1652	-0.973	4.500	0.921
20-Jul-99	90.5	11	0.1824	-0.906	4.505	0.917
18-Apr-94	97	12	0.1996	-0.843	4.575	0.912
25-Aug-98	98	13	0.2167	-0.783	4.585	0.908
21-Jan-99	100	14	0.2339	-0.726	4.605	0.904
3-May-94	101	15	0.2511	-0.671	4.615	0.901
22-Jul-94	103	16	0.2682	-0.618	4.635	0.897
27-Jun-95	105	17	0.2854	-0.567	4.654	0.893
28-May-98	105	18	0.3026	-0.517	4.654	0.890
6-Apr-94	106	19	0.3197	-0.468	4.663	0.886
25-Jul-95	109	20	0.3369	-0.421	4.691	0.882
24-Sep-98	109	21	0.3541	-0.374	4.691	0.879
22-Mar-99	110	22	0.3712	-0.329	4.700	0.875
14-May-91	113	23	0.3884	-0.283	4.727	0.870
9-Feb-95	113	24	0.4056	-0.239	4.727	0.868
13-Sep-95	113	25	0.4227	-0.195	4.727	0.864
7-Mar-94	116	26	0.4399	-0.151	4.754	0.859
23-Mar-94	117	27	0.4571	-0.108	4.762	0.855
23-Mar-94	117	28	0.4742	-0.065	4.762	0.852
25-Apr-95	117	29	0.4914	-0.022	4.762	0.847
14-Aug-95	118	30	0.5086	0.022	4.771	0.841
22-Mar-95	120	31	0.5258	0.065	4.787	0.834
28-Oct-98	120	32	0.5429	0.108	4.787	0.828
18-Nov-98	120	33	0.5601	0.151	4.787	0.820
20-May-94	125	34	0.5773	0.195	4.828	0.810
24-Jun-94	125	35	0.5944	0.239	4.828	0.804
8-Mar-95	127	36	0.6116	0.283	4.844	0.795
23-May-95	127	37	0.6288	0.329	4.844	0.787
12-Apr-95	128	38	0.6459	0.374	4.852	0.776
11-Jul-95	130	39	0.6631	0.421	4.868	0.763
23-Apr-98	132	40	0.6803	0.468	4.883	0.750
25-Jun-98	134	41	0.6974	0.517	4.898	0.737
5-Nov-97	135	42	0.7146	0.567	4.905	0.722
7-Jun-94	137	43	0.7318	0.618	4.920	0.705
12-Jun-95	137	44	0.7489	0.671	4.920	0.687
16-Nov-94	151	45	0.7661	0.726	5.017	0.662
29-Oct-93	152	46	0.7833	0.783	5.024	0.670
9-May-95	153	47	0.8004	0.843	5.030	0.680

21-Jan-94	155	48	0.8176	0.906	5.043	0.692
21-Jan-94	155	49	0.8348	0.973	5.043	0.711
17-Feb-94	156	50	0.8519	1.045	5.050	0.730
1-Dec-93	157	51	0.8691	1.122	5.056	0.751
1-Oct-91	158	52	0.8863	1.207	5.063	0.776
10-Jan-95	160	53	0.9034	1.301	5.075	0.804
14-Dec-98	160	54	0.9206	1.409	5.075	0.839
14-Dec-94	162	55	0.9378	1.536	5.088	
21-Dec-93	178	56	0.9549	1.695	5.182	
21-Dec-93	178	57	0.9721	1.913	5.182	
5-May-98	316	58	0.9893	2.300	5.756	

update for EV, CV:

tZn		**MC262**			14	14.1
LN Analysis		**tZn**			1.85	1.85
Discharge, Q		**Q Data, EV=14.1 cfs CV=1.85**				
Avg:	**14**	**Q Data-based LN**				
SD:	**26**	u	lnQ	Q		
CV:	**1.85**	3	5.6	260		
Min:	**0**	0	1.91	7		
Max:	**137**	-3	-1.75	0		
Median:	**4**					

					0.948	0.948
					13.2	13.2
u=mLn{Q}+b:					2.11	2.11
update for r2, EV, CV:	**r2=0.948, EV=13.2 cfs CV=2.11; max r2=0.98**					
r2 u,lnQ:	0.948	u	lnQ	Q		
slope, m:	0.767	3	5.64	282		
intercept, b:	-1.329	0	1.73	6		
N: 58		-3	-2.18	0		
E[Q]:	13.2	Parameter Estimates				
SD[Q]:	28	from LN regression				
CV[Q]:	2.11	update graph label				

						max r2
	Q	N: 58				0.977
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
17-Aug-94	0.38	1	0.0107	-2.300	-0.968	0.948
1-Oct-91	0.93	2	0.0279	-1.913	-0.073	0.944
28-Oct-98	1.3	3	0.0451	-1.695	0.262	0.946
31-Aug-99	1.4	4	0.0622	-1.536	0.336	0.951
17-Aug-94	1.41	5	0.0794	-1.409	0.344	0.955
4-Aug-99	1.5	6	0.0966	-1.301	0.405	0.958
18-Nov-98	1.6	7	0.1137	-1.207	0.470	0.960
5-Oct-94	1.75	8	0.1309	-1.122	0.560	0.962
13-Sep-95	1.75	9	0.1481	-1.045	0.560	0.965
14-Aug-95	1.82	10	0.1652	-0.973	0.599	0.966
22-Jul-94	1.99	11	0.1824	-0.906	0.688	0.968
25-Jul-95	2.07	12	0.1996	-0.843	0.728	0.969
20-Jul-99	2.1	13	0.2167	-0.783	0.742	0.971
21-Dec-93	2.21	14	0.2339	-0.726	0.793	0.972
5-Nov-97	2.44	15	0.2511	-0.671	0.892	0.973
29-Oct-93	2.46	16	0.2682	-0.618	0.900	0.974
24-Sep-98	2.462807903	17	0.2854	-0.567	0.901	0.976
25-Aug-98	2.571760751	18	0.3026	-0.517	0.945	0.976
1-Dec-93	2.69	19	0.3197	-0.468	0.990	0.977
24-Jun-94	2.8	20	0.3369	-0.421	1.030	0.977
11-Jul-95	2.8	21	0.3541	-0.374	1.030	0.977
27-Jun-95	2.93	22	0.3712	-0.329	1.075	0.977
21-Dec-93	3.06	23	0.3884	-0.283	1.118	0.976
27-Jul-98	3.196210553	24	0.4056	-0.239	1.162	0.976
14-Dec-94	3.49	25	0.4227	-0.195	1.250	0.975
17-Feb-94	3.81	26	0.4399	-0.151	1.338	0.974
16-Nov-94	3.81	27	0.4571	-0.108	1.338	0.974
23-May-95	4.16	28	0.4742	-0.065	1.426	0.973
12-Jun-95	4.16	29	0.4914	-0.022	1.426	0.972
16-Jun-99	4.2	30	0.5086	0.022	1.435	0.971
20-May-94	4.34	31	0.5258	0.065	1.468	0.969
7-Jun-94	4.34	32	0.5429	0.108	1.468	0.967
14-Dec-98	4.8	33	0.5601	0.151	1.569	0.964
3-May-94	6.19	34	0.5773	0.195	1.823	0.962
9-May-95	6.77	35	0.5944	0.239	1.913	0.960
5-May-98	6.86	36	0.6116	0.283	1.926	0.958
21-Jan-94	7.08	37	0.6288	0.329	1.957	0.956
25-Jun-98	7.082855593	38	0.6459	0.374	1.958	0.953
21-Jan-94	7.13	39	0.6631	0.421	1.964	0.949
10-Jan-95	8.48	40	0.6803	0.468	2.138	0.944
23-May-99	8.7	41	0.6974	0.517	2.163	0.939
18-Apr-94	10.63	42	0.7146	0.567	2.364	0.933
6-Apr-94	13.97	43	0.7318	0.618	2.637	0.927
23-Apr-98	14.62806909	44	0.7489	0.671	2.683	0.927
25-Apr-95	14.63	45	0.7661	0.726	2.683	0.927
14-May-91	14.9	46	0.7833	0.783	2.701	0.924
23-Mar-94	15.34	47	0.8004	0.843	2.730	0.918

23-Mar-94	16.04	48	0.8176	0.906	2.775	0.907
12-Apr-95	16.04	49	0.8348	0.973	2.775	0.892
4-May-99	17	50	0.8519	1.045	2.833	0.873
21-Jan-99	21	51	0.8691	1.122	3.045	0.855
7-Mar-94	23.22	52	0.8863	1.207	3.145	0.835
20-Apr-99	43	53	0.9034	1.301	3.761	0.929
9-Feb-95	62.77	54	0.9206	1.409	4.139	0.944
22-Mar-99	63	55	0.9378	1.536	4.143	
22-Mar-95	79.93	56	0.9549	1.695	4.381	
8-Mar-95	112.47	57	0.9721	1.913	4.723	
28-May-98	136.9458147	58	0.9893	2.300	4.920	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NF13	**Date:**	3-Jun-00
Chemical:	dCd	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	36,229	1,018	3	#DIV/0!		#DIV/0!	0.00	#DIV/0!	
SD:	126	1,271	1	#DIV/0!		#DIV/0!	1.00	#DIV/0!	
CV:	0.00	1.25	0.19	#DIV/0!					first:
Min:	35,931	90	2	0.0		0.00	-1.48	0.00	mid:
Max:	36,411	4,750	4	0		0.00	1.89	0.00	last:
Median:	36,246	477	3	#NUM!		#NUM!	-0.07	#NUM!	

dCd	**NF13**		**: Concentration v. Discharge, Q**		**Q = mTime +b**		**LnQ = mTime +b**	
Conc. = mQ+b (r2=0.763)		update r2	0.76	0.763	r2:	0.033	0.002	
r2 Q,[COC]:	0.76	[dCd]	Q		m:	1.8279	0.00044	
slope, m:	0.0	3	90.0		b:	-65204	-9.64	
intercept, b:	2.7	3	1017.7					
N: 14		5	4750					first:
#DIV/0!			update r2	#DIV/0!	#DIV/0!			mid:
r2 lnQ,ln[COC]:	#DIV/0!	ln[dCd]	ln Q	[dCd]	Q			last:
slope, m:	#DIV/0!	#DIV/0!	4.50	#DIV/0!	90			
intercept, b:	#DIV/0!	#DIV/0!	6.93	#DIV/0!	1,018			
N: 0		#DIV/0!	8.47	#DIV/0!	4,750			

									for graph	
								dCd	0	
N= 14								NF13		
	Sampling Date	**Q Discharge**	**dCd Concentration**	**dCd Load**	**Ln Q**	**Ln dCd Conc.**	**Ln dCd Load**	**Standardized Values = (x - Avg)/SD**		
update for new data		**cfs**	**ug/L**	**lbs/day**				**Q**	**Conc**	**Load**
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
URS	16-May-98	1070	3.487706964		6.98				0.62	
USGS	20-Oct-98	90	2.249904835		4.50				-1.48	
USGS	18-Nov-98	155	2.521712558		5.04				-1.01	
USGS	10-Dec-98	304	2.858513851		5.72				-0.44	
USGS	27-Jan-99	569	3.171940217		6.34				0.09	
USGS	8-Feb-99	408	3.005633587		6.01				-0.19	
USGS	8-Mar-99	545	3.150392897		6.30				0.05	
USGS	15-Apr-99	1160	3.528087642		7.06				0.69	
USGS	10-May-99	1930	3.782637641		7.57				1.12	
USGS	24-May-99	4750	4.232949949		8.47				1.89	
USGS	1-Jun-99	2700	3.950503526		7.90				1.41	
USGS	13-Jul-99	295	2.843487678		5.69				-0.47	
USGS	12-Aug-99	161	2.540702182		5.08				-0.98	
USGS	8-Sep-99	111	2.354765101		4.71				-1.30	

dCd

Concentration over time analysis r2 Slope, m

dCd NF13 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.000** **0.00000**

Time	Ln[COC]	[COC]
16-May-98	0.00	1
27-Mar-99	0.00	1
8-Sep-99	0.00	1

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
8-Sep-99	0.00	1

Load over time analysis

dCd NF13 **Load over time**

LnLoad=mTime+b All data r2, m: **#DIV/0!** **#DIV/0!**

Time	LnLoad	Load
16-May-98	#DIV/0!	#DIV/0!
27-Mar-99	#DIV/0!	#DIV/0!
8-Sep-99	#DIV/0!	#DIV/0!

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
8-Sep-99	0.00	1

max r2: 0.000

Forward time Regression on Ln Concentration(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		

max r2: #DIV/0!

Forward time Regression on Ln Load(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!

update for EV, CV:

dCd **NF13**
LN Analysis **dCd**

Load **######**

Avg:	**#DIV/0!**	**Load Data-based LN**		
SD:	**#DIV/0!**	u	ln dCd Load	dCd Load
CV:	**#DIV/0!**	3	#DIV/0!	#DIV/0!
Min:	**0.0**	0	#DIV/0!	#DIV/0!
Max:	**0**	-3	#DIV/0!	#DIV/0!
Median:	**#NUM!**			
		######	#DIV/0!	
		######	#DIV/0!	

u=mLn{Load}+ b:

update for r2, EV, CV: **#DIV/0!**

r2 u,lnLoad:	######	u	lnLoad	Load	
slope, m:	######	3	#DIV/0!	#DIV/0!	
intercept, b:	######	0	#DIV/0!	#DIV/0!	
N: 0		-3	#DIV/0!	#DIV/0!	
E[Load]:	######	Parameter Estimates			#DIV/0!
SD[Load]:	######	from LN regression			#DIV/0!
CV[Load]:	######	update graph label			#DIV/0!
					max r2
dCd	N: 14				0.000

Date	**Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
16-May-98		1	0.0439	-1.708		
20-Oct-98		2	0.1140	-1.205		
18-Nov-98		3	0.1842	-0.899		
10-Dec-98		4	0.2544	-0.661		
27-Jan-99		5	0.3246	-0.455		
8-Feb-99		6	0.3947	-0.267		
8-Mar-99		7	0.4649	-0.088		
15-Apr-99		8	0.5351	0.088		
10-May-99		9	0.6053	0.267		
24-May-99		10	0.6754	0.455		
1-Jun-99		11	0.7456	0.661		
13-Jul-99		12	0.8158	0.899		
12-Aug-99		13	0.8860	1.205		
8-Sep-99		14	0.9561	1.708		

update for EV, CV:

dCd		**NF13**		0	0.25
LN Analysis		**dCd**		0.57	0.566

Concentration

Conc. Data, EV=0.25 ug/L CV=0.566

Data-based LN

		u	ln[dCd]	[dCd]
Avg:	**0**			
SD:	**0**			
CV:	**0.57**	3	0.1	1
Min:	**0**	0	-1.53	0
Max:	**0**	-3	-3.11	0
Median:	**0**			

#DIV/0! #DIV/0!
#DIV/0! #DIV/0!
#DIV/0! #DIV/0!

u=mLn{Conc.}+b:

update for r2, EV, CV: **#DIV/0!**

r2 u,lnConc:	#DIV/0!	u	lnConc.	Conc.
slope, m:	#DIV/0!	3	#DIV/0!	#DIV/0!
intercept, b:	#DIV/0!	0	#DIV/0!	#DIV/0!
N: 0		-3	#DIV/0!	#DIV/0!
E[Conc]:	#DIV/0!	Parameter Estimates		
SD[Conc]:	#DIV/0!	from LN regression		
CV[Conc]:	#DIV/0!	update graph label		

#DIV/0!
#DIV/0!
#DIV/0!

N: 14

max r2
0.000

Date	dCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
16-May-98	0.021929825	1	0.0439	-1.708		
20-Oct-98	0.057017544	2	0.1140	-1.205		
18-Nov-98	0.092105263	3	0.1842	-0.899		
10-Dec-98	0.127192982	4	0.2544	-0.661		
27-Jan-99	0.162280702	5	0.3246	-0.455		
8-Feb-99	0.197368421	6	0.3947	-0.267		
8-Mar-99	0.23245614	7	0.4649	-0.088		
15-Apr-99	0.26754386	8	0.5351	0.088		
10-May-99	0.302631579	9	0.6053	0.267		
24-May-99	0.337719298	10	0.6754	0.455		
1-Jun-99	0.372807018	11	0.7456	0.661		
13-Jul-99	0.407894737	12	0.8158	0.899		
12-Aug-99	0.442982456	13	0.8860	1.205		
8-Sep-99	0.478070175	14	0.9561	1.708		

update for EV, CV:

dCd		**NF13**			1,018	1020
LN Analysis		**dCd**			1.25	1.25
Discharge, Q		**Q Data, EV=1020 cfs CV=1.25**				
Avg:	**1,018**	**Q Data-based LN**				
SD:	**1,271**	u	lnQ	Q		
CV:	**1.25**	3	9.4	11655		
Min:	**90**	0	6.46	636		
Max:	**4,750**	-3	3.55	35		
Median:	**477**					

					0.976	0.976
					1194.3	1190
u=mLn{Q}+b:					2.10	2.1
update for r2, EV, CV:	**r2=0.976, EV=1190 cfs CV=2.1; max r2=0.98**					
r2 u,lnQ:	0.976	u	lnQ	Q		
slope, m:	0.769	3	10.14	25359		
intercept, b:	-4.799	0	6.24	513		
N: 14		-3	2.34	10		
E[Q]:	1194.3	Parameter Estimates				
SD[Q]:	2512	from LN regression				
CV[Q]:	2.10	update graph label				

						max r2
	Q	N: 14				0.987
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
20-Oct-98	90	1	0.0439	-1.708	4.500	0.976
8-Sep-99	111	2	0.1140	-1.205	4.710	0.987
18-Nov-98	155	3	0.1842	-0.899	5.043	0.987
12-Aug-99	161	4	0.2544	-0.661	5.081	0.986
13-Jul-99	295	5	0.3246	-0.455	5.687	0.984
10-Dec-98	304	6	0.3947	-0.267	5.717	0.985
8-Feb-99	408	7	0.4649	-0.088	6.011	0.980
8-Mar-99	545	8	0.5351	0.088	6.301	0.974
27-Jan-99	569	9	0.6053	0.267	6.344	0.965
16-May-98	1070	10	0.6754	0.455	6.975	0.982
15-Apr-99	1160	11	0.7456	0.661	7.056	
10-May-99	1930	12	0.8158	0.899	7.565	
1-Jun-99	2700	13	0.8860	1.205	7.901	
24-May-99	4750	14	0.9561	1.708	8.466	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NF13	**Date:**	18-Jul-00
Chemical:	dPb	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	36,229	1,018	#DIV/0!	#DIV/0!	0.00	#DIV/0!	#DIV/0!		
SD:	126	1,271	#DIV/0!	#DIV/0!	1.00	#DIV/0!	#DIV/0!		
CV:	0.00	1.25	#DIV/0!	#DIV/0!					first:
Min:	35,931	90	0	0.0	-0.73	0.00	0.00		mid:
Max:	36,411	4,750	0	0	2.94	0.00	0.00		last:
Median:	36,246	477	#NUM!	#NUM!	-0.43	#NUM!	#NUM!		

dPb	**NF13**		**: Concentration v. Discharge, Q**			**Q = mTime +b**		**LnQ = mTime +b**	
#DIV/0!		update r2	#DIV/0!	#DIV/0!		r2:	0.033	0.002	
r2 Q,[COC]:	#DIV/0!	[dPb]	Q			m:	1.8279	0.00044	
slope, m:	#DIV/0!	#DIV/0!	90.0			b:	-65204	-9.64	
intercept, b:	#DIV/0!	#DIV/0!	1017.7						
N: 0		#DIV/0!	4750						first:
#DIV/0!			update r2	#DIV/0!	#DIV/0!				mid:
r2 lnQ,ln[COC]:	#DIV/0!	ln[dPb]	ln Q	[dPb]	Q				last:
slope, m:	#DIV/0!	#DIV/0!	4.50	#DIV/0!	90				
intercept, b:	#DIV/0!	#DIV/0!	6.93	#DIV/0!	1,018				
N: 0		#DIV/0!	8.47	#DIV/0!	4,750				

for graph
dPb 0
NF13

N= 14

update for new data	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
URS	16-May-98	1070			6.98			0.04		
USGS	20-Oct-98	90			4.50			-0.73		
USGS	18-Nov-98	155			5.04			-0.68		
USGS	10-Dec-98	304			5.72			-0.56		
USGS	27-Jan-99	569			6.34			-0.35		
USGS	8-Feb-99	408			6.01			-0.48		
USGS	8-Mar-99	545			6.30			-0.37		
USGS	15-Apr-99	1160			7.06			0.11		
USGS	10-May-99	1930			7.57			0.72		
USGS	24-May-99	4750			8.47			2.94		
USGS	1-Jun-99	2700			7.90			1.32		
USGS	13-Jul-99	295			5.69			-0.57		
USGS	12-Aug-99	161			5.08			-0.67		
USGS	8-Sep-99	111			4.71			-0.71		

dPb

Concentration over time analysis r2 Slope, m

dPb NF13 **Concentration over time**

LnConc.=mTime+b All data r2, m: **#DIV/0! #DIV/0!**

Time	Ln[COC]	[COC]
16-May-98	#DIV/0!	#DIV/0!
27-Mar-99	#DIV/0!	#DIV/0!
8-Sep-99	#DIV/0!	#DIV/0!

LnConc.=mTime+b >'96 r2, m: **0.000 0.00000**

0-Jan-00	0.00	1
8-Sep-99	0.00	1

Load over time analysis

dPb NF13 **Load over time**

LnLoad=mTime+b All data r2, m: **#DIV/0! #DIV/0!**

Time	LnLoad	Load
16-May-98	#DIV/0!	#DIV/0!
27-Mar-99	#DIV/0!	#DIV/0!
8-Sep-99	#DIV/0!	#DIV/0!

LnLoad=mTime+b >'96 r2, m: **0.000 0.00000**

0-Jan-00	0.00	1
8-Sep-99	0.00	1

max r2: #DIV/0! max r2: #DIV/0!

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

update for EV, CV:

dPb **NF13**

LN Analysis **dPb**

Load ######

Avg:	**#DIV/0!**	**Load Data-based LN**		
SD:	**#DIV/0!**	u	ln dPb Load	dPb Load
CV:	**#DIV/0!**	3	#DIV/0!	#DIV/0!
Min:	**0.0**	0	#DIV/0!	#DIV/0!
Max:	**0**	-3	#DIV/0!	#DIV/0!
Median:	**#NUM!**			
		######	#DIV/0!	
		######	#DIV/0!	

u=mLn{Load}+ b:

update for r2, EV, CV: **#DIV/0!**

r2 u,lnLoad:	######	u	lnLoad	Load		
slope, m:	######	3	#DIV/0!	#DIV/0!		
intercept, b:	######	0	#DIV/0!	#DIV/0!		
N: 0		-3	#DIV/0!	#DIV/0!		
E[Load]:	######	Parameter Estimates			#DIV/0!	#DIV/0!
SD[Load]:	######	from LN regression			#DIV/0!	#DIV/0!
CV[Load]:	######	update graph label			#DIV/0!	#DIV/0!
					max r2	
					0.000	

	dPb	N: 14				
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
16-May-98		1	0.0439	-1.708		
20-Oct-98		2	0.1140	-1.205		
18-Nov-98		3	0.1842	-0.899		
10-Dec-98		4	0.2544	-0.661		
27-Jan-99		5	0.3246	-0.455		
8-Feb-99		6	0.3947	-0.267		
8-Mar-99		7	0.4649	-0.088		
15-Apr-99		8	0.5351	0.088		
10-May-99		9	0.6053	0.267		
24-May-99		10	0.6754	0.455		
1-Jun-99		11	0.7456	0.661		
13-Jul-99		12	0.8158	0.899		
12-Aug-99		13	0.8860	1.205		
8-Sep-99		14	0.9561	1.708		

update for EV, CV:

dPb **NF13** #DIV/0! #DIV/0!

LN Analysis **dPb** #DIV/0! #DIV/0!

Concentration

#DIV/0!

Avg:	**#DIV/0!**	**Data-based LN**		
SD:	**#DIV/0!**	u	ln[dPb]	[dPb]
CV:	**#DIV/0!**	3	#DIV/0!	#DIV/0!
Min:	**0**	0	#DIV/0!	#DIV/0!
Max:	**0**	-3	#DIV/0!	#DIV/0!
Median:	**#NUM!**			

#DIV/0! #DIV/0!
#DIV/0! #DIV/0!
#DIV/0! #DIV/0!

u=mLn{Conc.}+b:

update for r2, EV, CV: **#DIV/0!**

r2 u,lnConc:	#DIV/0!	u	lnConc.	Conc.
slope, m:	#DIV/0!	3	#DIV/0!	#DIV/0!
intercept, b:	#DIV/0!	0	#DIV/0!	#DIV/0!
N: 0		-3	#DIV/0!	#DIV/0!
E[Conc]:	#DIV/0!	Parameter Estimates		
SD[Conc]:	#DIV/0!	from LN regression		
CV[Conc]:	#DIV/0!	update graph label		

N: 14

max r2
0.000

Date	dPb Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
16-May-98		1	0.0439	-1.708		
20-Oct-98		2	0.1140	-1.205		
18-Nov-98		3	0.1842	-0.899		
10-Dec-98		4	0.2544	-0.661		
27-Jan-99		5	0.3246	-0.455		
8-Feb-99		6	0.3947	-0.267		
8-Mar-99		7	0.4649	-0.088		
15-Apr-99		8	0.5351	0.088		
10-May-99		9	0.6053	0.267		
24-May-99		10	0.6754	0.455		
1-Jun-99		11	0.7456	0.661		
13-Jul-99		12	0.8158	0.899		
12-Aug-99		13	0.8860	1.205		
8-Sep-99		14	0.9561	1.708		

update for EV, CV:

dPb **NF13** 1,018 1020

LN Analysis **dPb** 1.25 1.25

Discharge, Q

Q Data, EV=1020 cfs CV=1.25

Q Data-based LN

		u	lnQ	Q
Avg:	**1,018**	3	9.4	11655
SD:	**1,271**	0	6.46	636
CV:	**1.25**	-3	3.55	35
Min:	**90**			
Max:	**4,750**			
Median:	**477**			

0.000 0.000394
#NUM! #NUM!
#NUM! #NUM!

u=mLn{Q}+b:

update for r2, EV, CV: **#NUM!**

		u	lnQ	Q
r2 u,lnQ:	0.000			
slope, m:	0.015	3	200.46	########
intercept, b:	-0.096	0	6.24	513
N: 14		-3	-187.98	0

E[Q]: #NUM! Parameter Estimates
SD[Q]: #NUM! from LN regression
CV[Q]: #NUM! update graph label

max r2
#DIV/0!

N: 14

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
16-May-98	1070	1	0.0439	-1.708	6.975	0.000
20-Oct-98	90	2	0.1140	-1.205	4.500	0.017
18-Nov-98	155	3	0.1842	-0.899	5.043	0.006
10-Dec-98	304	4	0.2544	-0.661	5.717	0.076
27-Jan-99	569	5	0.3246	-0.455	6.344	0.180
8-Feb-99	408	6	0.3947	-0.267	6.011	0.255
8-Mar-99	545	7	0.4649	-0.088	6.301	0.440
15-Apr-99	1160	8	0.5351	0.088	7.056	0.667
10-May-99	1930	9	0.6053	0.267	7.565	0.787
24-May-99	4750	10	0.6754	0.455	8.466	0.821
1-Jun-99	2700	11	0.7456	0.661	7.901	0.719
13-Jul-99	295	12	0.8158	0.899	5.687	0.925
12-Aug-99	161	13	0.8860	1.205	5.081	1.000
8-Sep-99	111	14	0.9561	1.708	4.710	#DIV/0!

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NF13	**Date:**	18-Jul-00
Chemical:	dZn	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	36,229	1,018	1	2	0.00	#DIV/0!	#DIV/0!		
SD:	126	1,271	0	0	1.00	#DIV/0!	#DIV/0!		
CV:	0.00	1.25	0.00	0.00					first:
Min:	35,931	90	1	1.6	-0.73	#DIV/0!	#DIV/0!		mid:
Max:	36,411	4,750	1	2	2.94	#DIV/0!	#DIV/0!		last:
Median:	36,246	477	1	2	-0.43	#DIV/0!	#DIV/0!		

dZn	**NF13**		**: Concentration v. Discharge, Q**			**Q = mTime +b**		**LnQ = mTime +b**	
#DIV/0!		update r2	#DIV/0!	#DIV/0!		r2:	0.033	0.002	
r2 Q,[COC]:	#DIV/0!	[dZn]	Q			m:	1.8279	0.00044	
slope, m:	#DIV/0!	#DIV/0!	90.0			b:	-65204	-9.64	
intercept, b:	#DIV/0!	#DIV/0!	1017.7						
N: 1		#DIV/0!	4750						first:
#DIV/0!			update r2	#DIV/0!	#DIV/0!				mid:
r2 lnQ,ln[COC]:	#DIV/0!	ln[dZn]	ln Q	[dZn]	Q				last:
slope, m:	#DIV/0!	#DIV/0!	4.50	#DIV/0!	90				
intercept, b:	#DIV/0!	#DIV/0!	6.93	#DIV/0!	1,018				
N: 1		#DIV/0!	8.47	#DIV/0!	4,750				

for graph
dZn 0
NF13

N= 14

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
URS	16-May-98	1070			6.98			0.04		
USGS	20-Oct-98	90			4.50			-0.73		
USGS	18-Nov-98	155			5.04			-0.68		
USGS	10-Dec-98	304			5.72			-0.56		
USGS	27-Jan-99	569			6.34			-0.35		
USGS	8-Feb-99	408			6.01			-0.48		
USGS	8-Mar-99	545			6.30			-0.37		
USGS	15-Apr-99	1160			7.06			0.11		
USGS	10-May-99	1930			7.57			0.72		
USGS	24-May-99	4750			8.47			2.94		
USGS	1-Jun-99	2700			7.90			1.32		
USGS	13-Jul-99	295	1	1.6	5.69	0.00	0.46	-0.57	#DIV/0!	#DIV/0!
USGS	12-Aug-99	161			5.08			-0.67		
USGS	8-Sep-99	111			4.71			-0.71		

dZn

Concentration over time analysis r2 Slope, m

dZn NF13 **Concentration over time**

LnConc.=mTime+b All data r2, m: **#DIV/0! #DIV/0!**

Time	Ln[COC]	[COC]
16-May-98	#DIV/0!	#DIV/0!
27-Mar-99	#DIV/0!	#DIV/0!
8-Sep-99	#DIV/0!	#DIV/0!

LnConc.=mTime+b >'96 r2, m: **0.000 0.00000**

0-Jan-00	0.00	1
8-Sep-99	0.00	1

Load over time analysis

dZn NF13 **Load over time**

LnLoad=mTime+b All data r2, m: **#DIV/0! #DIV/0!**

Time	LnLoad	Load
16-May-98	#DIV/0!	#DIV/0!
27-Mar-99	#DIV/0!	#DIV/0!
8-Sep-99	#DIV/0!	#DIV/0!

LnLoad=mTime+b >'96 r2, m: **0.000 0.00000**

0-Jan-00	0.00	1
8-Sep-99	0.00	1

max r2: #DIV/0! max r2: #DIV/0!

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

update for EV, CV:

dZn **NF13**

LN Analysis **dZn**

Load **Load Data, EV=1.59 #/d CV=0**

Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**2**			
SD:	**0**	u	ln dZn Load	dZn Load
CV:	**0.00**	3	0.5	2
Min:	**1.6**	0	0.46	2
Max:	**2**	-3	0.46	1.6
Median:	**2**			
		2	1.59	
		0.00	0	

u=mLn{Load}+ b:

update for r2, EV, CV: **#DIV/0!**

r2 u,lnLoad:	######	u	lnLoad	Load		
slope, m:	######	3	#DIV/0!	#DIV/0!		
intercept, b:	######	0	#DIV/0!	#DIV/0!		
N: 1		-3	#DIV/0!	#DIV/0!		
E[Load]:	######	Parameter Estimates			#DIV/0!	#DIV/0!
SD[Load]:	######	from LN regression			#DIV/0!	#DIV/0!
CV[Load]:	######	update graph label			#DIV/0!	#DIV/0!
					max r2	
					#DIV/0!	

N: 14

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
16-May-98		1	0.0439	-1.708		
20-Oct-98		2	0.1140	-1.205		
18-Nov-98		3	0.1842	-0.899		
10-Dec-98		4	0.2544	-0.661		
27-Jan-99		5	0.3246	-0.455		
8-Feb-99		6	0.3947	-0.267		
8-Mar-99		7	0.4649	-0.088		
15-Apr-99		8	0.5351	0.088		
10-May-99		9	0.6053	0.267		
24-May-99		10	0.6754	0.455		
1-Jun-99		11	0.7456	0.661		
13-Jul-99	**1.6**	12	0.8158	0.899	0.462	#DIV/0!
12-Aug-99		13	0.8860	1.205		
8-Sep-99		14	0.9561	1.708		

update for EV, CV:

dZn **NF13** 1 1

LN Analysis **dZn** 0.00 0

Concentration

Conc. Data, EV=1 ug/L CV=0

Data-based LN

		u	ln[dZn]	[dZn]
Avg:	**1**	3	0.0	1
SD:	**0**	0	0.00	1
CV:	**0.00**	-3	0.00	1
Min:	**1**			
Max:	**1**			
Median:	**1**			

#DIV/0! #DIV/0!

u=mLn{Conc.}+b: #DIV/0! #DIV/0!

update for r2, EV, CV: **#DIV/0!** #DIV/0! #DIV/0!

r2 u,lnConc:	#DIV/0!	u	lnConc.	Conc.
slope, m:	#DIV/0!	3	#DIV/0!	#DIV/0!
intercept, b:	#DIV/0!	0	#DIV/0!	#DIV/0!
N: 1		-3	#DIV/0!	#DIV/0!
E[Conc]:	#DIV/0!	Parameter Estimates		
SD[Conc]:	#DIV/0!	from LN regression		
CV[Conc]:	#DIV/0!	update graph label		

max r2 #DIV/0!

N: 14

Date	dZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
16-May-98		1	0.0439	-1.708		
20-Oct-98		2	0.1140	-1.205		
18-Nov-98		3	0.1842	-0.899		
10-Dec-98		4	0.2544	-0.661		
27-Jan-99		5	0.3246	-0.455		
8-Feb-99		6	0.3947	-0.267		
8-Mar-99		7	0.4649	-0.088		
15-Apr-99		8	0.5351	0.088		
10-May-99		9	0.6053	0.267		
24-May-99		10	0.6754	0.455		
1-Jun-99		11	0.7456	0.661		
13-Jul-99	1	12	0.8158	0.899	0.000	#DIV/0!
12-Aug-99		13	0.8860	1.205		
8-Sep-99		14	0.9561	1.708		

update for EV, CV:

dZn		**NF13**			1,018	1020
LN Analysis		**dZn**			1.25	1.25

Discharge, Q

Q Data, EV=1020 cfs CV=1.25

Q Data-based LN

		u	lnQ	Q
Avg:	**1,018**			
SD:	**1,271**	3	9.4	11655
CV:	**1.25**	0	6.46	636
Min:	**90**	-3	3.55	35
Max:	**4,750**			
Median:	**477**			

				0.000	0.000394
				#NUM!	#NUM!
u=mLn{Q}+b:				#NUM!	#NUM!
update for r2, EV, CV:	**#NUM!**				
r2 u,lnQ:	0.000	u	lnQ	Q	
slope, m:	0.015	3	200.46	########	
intercept, b:	-0.096	0	6.24	513	
N: 14		-3	-187.98	0	

E[Q]: #NUM! Parameter Estimates
SD[Q]: #NUM! from LN regression
CV[Q]: #NUM! update graph label

Date	Q Discharge cfs Ranked	N: 14 i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 #DIV/0! r2 forward
update and rank for new data						
16-May-98	1070	1	0.0439	-1.708	6.975	0.000
20-Oct-98	90	2	0.1140	-1.205	4.500	0.017
18-Nov-98	155	3	0.1842	-0.899	5.043	0.006
10-Dec-98	304	4	0.2544	-0.661	5.717	0.076
27-Jan-99	569	5	0.3246	-0.455	6.344	0.180
8-Feb-99	408	6	0.3947	-0.267	6.011	0.255
8-Mar-99	545	7	0.4649	-0.088	6.301	0.440
15-Apr-99	1160	8	0.5351	0.088	7.056	0.667
10-May-99	1930	9	0.6053	0.267	7.565	0.787
24-May-99	4750	10	0.6754	0.455	8.466	0.821
1-Jun-99	2700	11	0.7456	0.661	7.901	0.719
13-Jul-99	295	12	0.8158	0.899	5.687	0.925
12-Aug-99	161	13	0.8860	1.205	5.081	1.000
8-Sep-99	111	14	0.9561	1.708	4.710	#DIV/0!

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NF13	**Date:**	19-Jul-00
Chemical:	tCd	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	36,209	443	#DIV/0!	#DIV/0!	0.00	#DIV/0!	#DIV/0!		
SD:	135	353	#DIV/0!	#DIV/0!	1.00	#DIV/0!	#DIV/0!		
CV:	0.00	0.80	#DIV/0!	#DIV/0!					first:
Min:	35,931	90	0	0.0	-1.00	0.00	0.00		mid:
Max:	36,411	1,160	0	0	2.03	0.00	0.00		last:
Median:	36,199	304	#NUM!	#NUM!	-0.39	#NUM!	#NUM!		

tCd	**NF13**		**: Concentration v. Discharge, Q**			**Q = mTime +b**		**LnQ = mTime +b**	
#DIV/0!		update r2	#DIV/0!	#DIV/0!		r2:	0.135	0.101	
r2 Q,[COC]:	#DIV/0!	[tCd]	Q			m:	-0.9598	-0.00194	
slope, m:	#DIV/0!	#DIV/0!	90.0			b:	35196	75.94	
intercept, b:	#DIV/0!	#DIV/0!	442.5						
N: 0		#DIV/0!	1160						first:
#DIV/0!			update r2	#DIV/0!	#DIV/0!				mid:
r2 lnQ,ln[COC]:	#DIV/0!	ln[tCd]	ln Q	[tCd]	Q				last:
slope, m:	#DIV/0!	#DIV/0!	4.50	#DIV/0!	90				
intercept, b:	#DIV/0!	#DIV/0!	6.09	#DIV/0!	443				
N: 0		#DIV/0!	7.06	#DIV/0!	1,160				

for graph
tCd 0
NF13

N= 11

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
URS	16-May-98	1070			6.98			1.78		
USGS	20-Oct-98	90			4.50			-1.00		
USGS	18-Nov-98	155			5.04			-0.81		
USGS	10-Dec-98	304			5.72			-0.39		
USGS	27-Jan-99	569			6.34			0.36		
USGS	8-Feb-99	408			6.01			-0.10		
USGS	8-Mar-99	545			6.30			0.29		
USGS	15-Apr-99	1160			7.06			2.03		
USGS	13-Jul-99	295			5.69			-0.42		
USGS	12-Aug-99	161			5.08			-0.80		
USGS	8-Sep-99	111			4.71			-0.94		

tCd

Concentration over time analysis r2 Slope, m

tCd NF13 **Concentration over time**

LnConc.=mTime+b All data r2, m: **#DIV/0! #DIV/0!**

Time	Ln[COC]	[COC]
16-May-98	#DIV/0!	#DIV/0!
8-Feb-99	#DIV/0!	#DIV/0!
8-Sep-99	#DIV/0!	#DIV/0!

LnConc.=mTime+b >'96 r2, m: **0.000 0.00000**

0-Jan-00	0.00	1
8-Sep-99	0.00	1

Load over time analysis

tCd NF13 **Load over time**

LnLoad=mTime+b All data r2, m: **#DIV/0! #DIV/0!**

Time	LnLoad	Load
16-May-98	#DIV/0!	#DIV/0!
8-Feb-99	#DIV/0!	#DIV/0!
8-Sep-99	#DIV/0!	#DIV/0!

LnLoad=mTime+b >'96 r2, m: **0.000 0.00000**

0-Jan-00	0.00	1
8-Sep-99	0.00	1

max r2: #DIV/0! max r2: #DIV/0!

Forward time Regression on Ln Concentration(t) **Forward time Regression on Ln Load(t)**

r2	slope	intercept	r2	slope	intercept
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

update for EV, CV:

tCd **NF13**

LN Analysis **tCd**

Load ######

Avg:	**#DIV/0!**	**Load Data-based LN**		
SD:	**#DIV/0!**	u	ln tCd Load	tCd Load
CV:	**#DIV/0!**	3	#DIV/0!	#DIV/0!
Min:	**0.0**	0	#DIV/0!	#DIV/0!
Max:	**0**	-3	#DIV/0!	#DIV/0!
Median:	**#NUM!**			
		######	#DIV/0!	
		######	#DIV/0!	

u=mLn{Load}+ b:

update for r2, EV, CV: **#DIV/0!**

r2 u,lnLoad:	######	u	lnLoad	Load		
slope, m:	######	3	#DIV/0!	#DIV/0!		
intercept, b:	######	0	#DIV/0!	#DIV/0!		
N: 0		-3	#DIV/0!	#DIV/0!		
E[Load]:	######	Parameter Estimates			#DIV/0!	#DIV/0!
SD[Load]:	######	from LN regression			#DIV/0!	#DIV/0!
CV[Load]:	######	update graph label			#DIV/0!	#DIV/0!
					max r2	
					0.000	

	tCd	N: 11				
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
20-Oct-98		1	0.0556	-1.593		
8-Sep-99		2	0.1444	-1.061		
18-Nov-98		3	0.2333	-0.728		
12-Aug-99		4	0.3222	-0.461		
13-Jul-99		5	0.4111	-0.225		
27-Jan-99		6	0.5000	0.000		
16-May-98		7	0.5889	0.225		
15-Apr-99		8	0.6778	0.461		
10-Dec-98		9	0.7667	0.728		
8-Feb-99		10	0.8556	1.061		
8-Mar-99		11	0.9444	1.593		

update for EV, CV:

tCd **NF13** #DIV/0! #DIV/0!

LN Analysis **tCd** #DIV/0! #DIV/0!

Concentration

#DIV/0!

Avg:	**#DIV/0!**	**Data-based LN**		
SD:	**#DIV/0!**	u	ln[tCd]	[tCd]
CV:	**#DIV/0!**	3	#DIV/0!	#DIV/0!
Min:	**0**	0	#DIV/0!	#DIV/0!
Max:	**0**	-3	#DIV/0!	#DIV/0!
Median:	**#NUM!**			

#DIV/0! #DIV/0!
#DIV/0! #DIV/0!
#DIV/0! #DIV/0!

u=mLn{Conc.}+b:

update for r2, EV, CV: **#DIV/0!**

r2 u,lnConc:	#DIV/0!	u	lnConc.	Conc.
slope, m:	#DIV/0!	3	#DIV/0!	#DIV/0!
intercept, b:	#DIV/0!	0	#DIV/0!	#DIV/0!
N: 0		-3	#DIV/0!	#DIV/0!
E[Conc]:	#DIV/0!	Parameter Estimates		
SD[Conc]:	#DIV/0!	from LN regression		
CV[Conc]:	#DIV/0!	update graph label		

max r2
0.000

N: 11

Date	tCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
16-May-98		1	0.0556	-1.593		
13-Jul-99		2	0.1444	-1.061		
12-Aug-99		3	0.2333	-0.728		
8-Sep-99		4	0.3222	-0.461		
10-Dec-98		5	0.4111	-0.225		
8-Feb-99		6	0.5000	0.000		
20-Oct-98		7	0.5889	0.225		
18-Nov-98		8	0.6778	0.461		
27-Jan-99		9	0.7667	0.728		
8-Mar-99		10	0.8556	1.061		
15-Apr-99		11	0.9444	1.593		

update for EV, CV:

tCd **NF13** 443 443

LN Analysis **tCd** 0.80 0.798

Discharge, Q

Q Data, EV=443 cfs CV=0.798

Q Data-based LN

		u	lnQ	Q
Avg:	**443**			
SD:	**353**			
CV:	**0.80**	3	8.0	2843
Min:	**90**	0	5.85	346
Max:	**1,160**	-3	3.74	42
Median:	**304**			

0.968 0.968
493.8 494
1.18 1.18

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.968, EV=494 cfs CV=1.18; max r2=0.98**

		u	lnQ	Q
r2 u,lnQ:	0.968			
slope, m:	1.071	3	8.57	5260
intercept, b:	-6.174	0	5.77	319
N: 11		-3	2.96	19
E[Q]:	493.8	Parameter Estimates		
SD[Q]:	583	from LN regression		
CV[Q]:	1.18	update graph label		

N: 11

max r2
#DIV/0!

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
20-Oct-98	90	1	0.0556	-1.593	4.500	0.968
8-Sep-99	111	2	0.1444	-1.061	4.710	0.967
18-Nov-98	155	3	0.2333	-0.728	5.043	0.954
12-Aug-99	161	4	0.3222	-0.461	5.081	0.939
13-Jul-99	295	5	0.4111	-0.225	5.687	0.941
10-Dec-98	304	6	0.5000	0.000	5.717	0.925
8-Feb-99	408	7	0.5889	0.225	6.011	0.892
8-Mar-99	545	8	0.6778	0.461	6.301	0.827
27-Jan-99	569	9	0.7667	0.728	6.344	0.725
16-May-98	1070	10	0.8556	1.061	6.975	1.000
15-Apr-99	1160	11	0.9444	1.593	7.056	#DIV/0!

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NF13	**Date:**	19-Jul-00
Chemical:	tPb	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load						
Avg:	36,304	4,750	#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!	#DIV/0!	
SD:	0	0	#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!	#DIV/0!	
CV:	0.00	0.00	#DIV/0!	#DIV/0!						first:
Min:	36,304	4,750	0	0.0			#DIV/0!	0.00	0.00	mid:
Max:	36,304	4,750	0	0			#DIV/0!	0.00	0.00	last:
Median:	36,304	4,750	#NUM!	#NUM!			#DIV/0!	#NUM!	#NUM!	

tPb	**NF13**		**: Concentration v. Discharge, Q**			**Q = mTime +b**		**LnQ = mTime +b**	
#DIV/0!		update r2	#DIV/0!	#DIV/0!		r2:	#DIV/0!	#DIV/0!	
r2 Q,[COC]:	#DIV/0!	[tPb]	Q			m:	#DIV/0!	#DIV/0!	
slope, m:	#DIV/0!	#DIV/0!	4750.0			b:	#DIV/0!	#DIV/0!	
intercept, b:	#DIV/0!	#DIV/0!	4750.0						
N: 0		#DIV/0!	4750						first:
#DIV/0!			update r2	#DIV/0!	#DIV/0!				mid:
r2 lnQ,ln[COC]:	#DIV/0!	ln[tPb]	ln Q	[tPb]	Q				last:
slope, m:	#DIV/0!	#DIV/0!	8.47	#DIV/0!	4,750				
intercept, b:	#DIV/0!	#DIV/0!	8.47	#DIV/0!	4,750				
N: 0		#DIV/0!	8.47	#DIV/0!	4,750			for graph	
								tPb	0
N= 1								NF13	

	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
USGS	24-May-99	4750			8.47			#DIV/0!		

tPb

Concentration over time analysis r2 Slope, m

tPb NF13 **Concentration over time**

LnConc.=mTime+b All data r2, m: **#DIV/0! #DIV/0!**

Time	Ln[COC]	[COC]
24-May-99	#DIV/0!	#DIV/0!
24-May-99	#DIV/0!	#DIV/0!
24-May-99	#DIV/0!	#DIV/0!

LnConc.=mTime+b >'96 r2, m: **0.000 0.00000**

0-Jan-00	0.00	1
24-May-99	0.00	1

Load over time analysis

tPb NF13 **Load over time**

LnLoad=mTime+b All data r2, m: **#DIV/0! #DIV/0!**

Time	LnLoad	Load
24-May-99	#DIV/0!	#DIV/0!
24-May-99	#DIV/0!	#DIV/0!
24-May-99	#DIV/0!	#DIV/0!

LnLoad=mTime+b >'96 r2, m: **0.000 0.00000**

0-Jan-00	0.00	1
24-May-99	0.00	1

max r2: #DIV/0!

Forward time Regression on Ln Concentration(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
#DIV/0!	#DIV/0!	#DIV/0!

max r2: #DIV/0!

Forward time Regression on Ln Load(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
#DIV/0!	#DIV/0!	#DIV/0!

update for EV, CV:

tPb		**NF13**		
LN Analysis		**tPb**		
Load		**######**		
Avg:	**#DIV/0!**	**Load Data-based LN**		
SD:	**#DIV/0!**	u	ln tPb Load	tPb Load
CV:	**#DIV/0!**	3	#DIV/0!	#DIV/0!
Min:	**0.0**	0	#DIV/0!	#DIV/0!
Max:	**0**	-3	#DIV/0!	#DIV/0!
Median:	**#NUM!**			
		######	#DIV/0!	
		######	#DIV/0!	

u=mLn{Load}+ b:

update for r2, EV, CV: **#DIV/0!**

r2 u,lnLoad:	######	u	lnLoad	Load	
slope, m:	######	3	#DIV/0!	#DIV/0!	
intercept, b:	######	0	#DIV/0!	#DIV/0!	
N: 0		-3	#DIV/0!	#DIV/0!	
E[Load]:	######	Parameter Estimates			#DIV/0!
SD[Load]:	######	from LN regression			#DIV/0!
CV[Load]:	######	update graph label			#DIV/0!
					max r2
tPb	N: 1				0.000
Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked				
update and rank for new data					
24-May-99		1	0.5000	0.000	

update for EV, CV:

tPb		**NF13**		#DIV/0!	#DIV/0!
LN Analysis		**tPb**		#DIV/0!	#DIV/0!
Concentration		**#DIV/0!**			
Avg:	**#DIV/0!**	**Data-based LN**			
SD:	**#DIV/0!**	u	ln[tPb]	[tPb]	
CV:	**#DIV/0!**	3	#DIV/0!	#DIV/0!	
Min:	**0**	0	#DIV/0!	#DIV/0!	
Max:	**0**	-3	#DIV/0!	#DIV/0!	
Median:	**#NUM!**				

				#DIV/0!	#DIV/0!
	u=mLn{Conc.}+b:			#DIV/0!	#DIV/0!
update for r2, EV, CV:	**#DIV/0!**			#DIV/0!	#DIV/0!
	r2 u,lnConc:	#DIV/0!	u	lnConc.	Conc.
	slope, m:	#DIV/0!	3	#DIV/0!	#DIV/0!
	intercept, b:	#DIV/0!	0	#DIV/0!	#DIV/0!
	N: 0		-3	#DIV/0!	#DIV/0!
#DIV/0!	E[Conc]:	#DIV/0!	Parameter Estimates		
#DIV/0!	SD[Conc]:	#DIV/0!	from LN regression		
#DIV/0!	CV[Conc]:	#DIV/0!	update graph label		

						max r2
	tPb	N: 1				0.000
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
24-May-99		1	0.5000	0.000		

update for EV, CV:

tPb		**NF13**			4,750	4750
LN Analysis		**tPb**			0.00	0
Discharge, Q		**Q Data, EV=4750 cfs CV=0**				
Avg:	**4,750**	**Q Data-based LN**				
SD:	**0**	u	lnQ	Q		
CV:	**0.00**	3	8.5	4750		
Min:	**4,750**	0	8.47	4750		
Max:	**4,750**	-3	8.47	4750		
Median:	**4,750**					
					#DIV/0!	#DIV/0!
					#DIV/0!	#DIV/0!
	u=mLn{Q}+b:				#DIV/0!	#DIV/0!
update for r2, EV, CV:	**#DIV/0!**					
	r2 u,lnQ:	######	u	lnQ	Q	
	slope, m:	######	3	#DIV/0!	#DIV/0!	
	intercept, b:	######	0	#DIV/0!	#DIV/0!	
	N: 1		-3	#DIV/0!	#DIV/0!	
	E[Q]:	######	Parameter Estimates			
	SD[Q]:	######	from LN regression			
	CV[Q]:	######	update graph label			

						max r2
	Q	N: 1				#DIV/0!
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
24-May-99	4750	1	0.5000	0.000	8.466	#DIV/0!

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NF13	**Date:**	19-Jul-00
Chemical:	tZn	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	36,175	462	19	64	0.00	0.00	0.00	
SD:	58	331	14	84	1.00	1.00	1.00	
CV:	0.00	0.72	0.73	1.30				first:
Min:	36,088	90	10	4.8	-1.12	-0.63	-0.71	mid:
Max:	36,265	1,160	40	250	2.11	1.58	2.22	last:
Median:	36,187	408	10	22	-0.16	-0.63	-0.50	

tZn **NF13** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.559) update r2 0.56 0.559

r2 Q,[COC]:	0.56	[tZn]	Q	r2:	0.831	0.921
slope, m:	0.0	7	90.0	m:	5.1778	0.01309
intercept, b:	4.4	19	461.6	b:	-186842	-467.56
N: 7		40	1160			

LnConc. = mLn{Q}+b (r2=0.432) update r2 0.43 0.432 first: mid: last:

r2 lnQ,ln[COC]:	0.43	ln[tZn]	ln Q	[tZn]	Q
slope, m:	0.52	2.00	4.50	7	90
intercept, b:	-0.33	2.84	6.13	17	462
N: 7		3.32	7.06	28	1,160

for graph
tZn 0
NF13

N= 7

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
USGS	8-Feb-99	408	10	22.0	6.01	2.30	3.09	-0.16	-0.63	-0.50
USGS	8-Mar-99	545	40	117.3	6.30	3.69	4.76	0.25	1.58	0.63
USGS	10-Dec-98	304	10	16.4	5.72	2.30	2.79	-0.48	-0.63	-0.57
USGS	15-Apr-99	1160	40	249.6	7.06	3.69	5.52	2.11	1.58	2.22
USGS	18-Nov-98	155	10	8.3	5.04	2.30	2.12	-0.93	-0.63	-0.67
USGS	20-Oct-98	90	10	4.8	4.50	2.30	1.58	-1.12	-0.63	-0.71
USGS	27-Jan-99	569	10	30.6	6.34	2.30	3.42	0.32	-0.63	-0.40

tZn

Concentration over time analysis r2 Slope, m

tZn NF13 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.601** **0.00834**

Time	Ln[COC]	[COC]
20-Oct-98	1.98	7
27-Jan-99	2.80	16
15-Apr-99	3.45	32

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Apr-99	0.00	1

Load over time analysis

tZn NF13 **Load over time**

LnLoad=mTime+b All data r2, m: **0.929** **0.02142**

Time	LnLoad	Load
20-Oct-98	1.47	4
27-Jan-99	3.59	36
15-Apr-99	5.26	193

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Apr-99	0.00	1

max r2: 0.742

Forward time Regression on Ln Concentration(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.601	0.00834	-298.93
0.742	0.00908	-325.64
0.728	0.00763	-273.29

max r2: 0.988

Forward time Regression on Ln Load(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.929	0.02142	-771.71
0.988	0.02237	-805.63
0.988	0.02189	-788.51

update for EV, CV:

tZn **NF13**

LN Analysis **tZn**

Load **Load Data, EV=64.1 lbs/day CV=1.3**

Load Data-based LN

Avg:	**64**	u	ln tZn Load	tZn Load
SD:	**84**	3	6.7	777
CV:	**1.30**	0	3.66	39
Min:	**4.8**	-3	0.67	2.0
Max:	**250**			
Median:	**22**			

64 64.1
1.30 1.3

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.962, EV=91.7lbs/day CV=3.14; max r2=0.96**

r2 u,lnLoad:	0.962	u	lnLoad	Load	
slope, m:	0.648	3	7.96	2858	
intercept, b:	-2.155	0	3.33	28	
N: 7		-3	-1.30	0.3	
E[Load]:	91.7	Parameter Estimates			0.962
SD[Load]:	288	from LN regression			91.7
CV[Load]:	3.14	update graph label			3.1
					max r2
					0.964

N: 7

Date	**tZn Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
20-Oct-98	**4.8**	1	0.0862	-1.364	1.577	0.962
18-Nov-98	**8.3**	2	0.2241	-0.758	2.121	0.964
10-Dec-98	**16.4**	3	0.3621	-0.353	2.795	0.951
8-Feb-99	**22.0**	4	0.5000	0.000	3.089	
27-Jan-99	**30.6**	5	0.6379	0.353	3.421	
8-Mar-99	**117.3**	6	0.7759	0.758	4.765	
15-Apr-99	**249.6**	7	0.9138	1.364	5.520	

update for EV, CV:

tZn		**NF13**		19	18.6
LN Analysis		**tZn**		0.73	0.73
Concentration		**Conc. Data, EV=18.6 ug/L CV=0.73**			
Avg:	**19**	**Data-based LN**			
SD:	**14**	u	ln[tZn]	[tZn]	
CV:	**0.73**	3	4.7	107	
Min:	**10**	0	2.71	15	
Max:	**40**	-3	0.75	2	
Median:	**10**				

				0.616	0.616
	u=mLn{Conc.}+b:			23.0	23
update for r2, EV, CV:	**r2=0.616, EV=23 ug/L CV=1.18; max r2=0.76**			1.178	1.18
	r2 u,lnConc:	0.616	u	lnConc.	Conc.
	slope, m:	1.072	3	5.50	244
	intercept, b:	-2.893	0	2.70	15
	N: 7		-3	-0.10	1
0.962	E[Conc]:	23.0	Parameter Estimates		
91.7	SD[Conc]:	27	from LN regression		
3.14	CV[Conc]:	1.18	update graph label		

						max r2
	tZn	N: 7				0.757
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
8-Feb-99	10	1	0.0862	-1.364	2.303	0.616
10-Dec-98	10	2	0.2241	-0.758	2.303	0.707
18-Nov-98	10	3	0.3621	-0.353	2.303	0.757
20-Oct-98	10	4	0.5000	0.000	2.303	
27-Jan-99	10	5	0.6379	0.353	2.303	
8-Mar-99	40	6	0.7759	0.758	3.689	
15-Apr-99	40	7	0.9138	1.364	3.689	

update for EV, CV:

tZn		**NF13**			462	462
LN Analysis		**tZn**			0.72	0.717
Discharge, Q		**Q Data, EV=462 cfs CV=0.717**				
Avg:	**462**	**Q Data-based LN**				
SD:	**331**	u	lnQ	Q		
CV:	**0.72**	3	7.9	2589		
Min:	**90**	0	5.93	375		
Max:	**1,160**	-3	4.00	54		
Median:	**408**					

					0.968	0.968
					544.0	544
u=mLn{Q}+b:					1.20	1.2
update for r2, EV, CV:	**r2=0.968, EV=544 cfs CV=1.2; max r2=0.97**					
	r2 u,lnQ:	0.968	u	lnQ	Q	
	slope, m:	1.059	3	8.69	5918	
	intercept, b:	-6.199	0	5.85	348	
	N: 7		-3	3.02	21	
	E[Q]:	544.0	Parameter Estimates			
	SD[Q]:	653	from LN regression			
	CV[Q]:	1.20	update graph label			

						max r2
	Q	N: 7				0.968
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
20-Oct-98	90	1	0.0862	-1.364	4.500	0.968
18-Nov-98	155	2	0.2241	-0.758	5.043	0.947
10-Dec-98	304	3	0.3621	-0.353	5.717	0.953
8-Feb-99	408	4	0.5000	0.000	6.011	
8-Mar-99	545	5	0.6379	0.353	6.301	
27-Jan-99	569	6	0.7759	0.758	6.344	
15-Apr-99	1160	7	0.9138	1.364	7.056	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NF50 **Date:** 3-Aug-01
Chemical: tPb **Analyst:** D.Giaudrone
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load						
Avg:	35,208	3,105	4	160	7.33	0.63	3.12	0.00	0.00	0.00
SD:	929	3,787	5	336	1.25	1.24	2.24	1.00	1.00	1.00
CV:	0.03	1.22	1.26	2.11	0.17	1.97	0.72			
Min:	33,947	173	0	0.2	5.2	-2.3	-1.8	-0.77	-0.77	-0.47
Max:	36,411	21,400	17	1,566	10	3	7	4.83	2.85	4.18
Median:	35,502	1,570	2	24	7	1	3	-0.41	-0.36	-0.40

tPb NF50 **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.371) update r2 0.37 0.371 r2: 0.009 0.022
r2 Q,[COC]: 0.37 [dZn] Q m: 0.3891 0.00020
slope, m: 0.0 1 173.0 b: -10594 0.34
intercept, b: 0.9 3 3104.5
N: 30 14 21400

LnConc. = mLn{Q}+b (r2=0.224) update r2 0.22 0.224
r2 lnQ,ln[COC]: 0.22 ln[dZn] ln Q [dZn] Q
slope, m: 0.43 -0.47 5.15 1 173
intercept, b: -2.68 0.77 8.04 2 3,105
N: 30 1.60 9.97 5 21,400

for graph
tPb 0
NF50

N= 57

	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
USGS	09-Dec-92	320			5.77			-0.74		
USGS	23-Feb-93	441			6.09			-0.70		
USGS	24-Mar-93	8320	17	760.9	9.03	2.83	6.63	1.38	2.85	1.79
USGS	24-Mar-93	8320	17	760.9	9.03	2.83	6.63	1.38	2.85	1.79
USGS	06-Apr-93	7310	3	118.0	8.90	1.10	4.77	1.11	-0.15	-0.12
USGS	20-Apr-93	6860	1	36.9	8.83	0.00	3.61	0.99	-0.58	-0.36
USGS	04-May-93	6830	3	110.2	8.83	1.10	4.70	0.98	-0.15	-0.15
USGS	20-May-93	3450	4	74.2	8.15	1.39	4.31	0.09	0.06	-0.25
USGS	03-Jun-93	1780	2	19.2	7.48	0.69	2.95	-0.35	-0.36	-0.42
USGS	22-Jun-93	868			6.77			-0.59		
USGS	21-Jul-93	1320	1	7.1	7.19	0.00	1.96	-0.47	-0.58	-0.45
USGS	25-Aug-93	421			6.04			-0.71		
USGS	21-Sep-93	342			5.83			-0.73		
USGS	18-Oct-93	425			6.05			-0.71		
USGS	17-Nov-93	252	2	2.7	5.53	0.69	1.00	-0.75	-0.36	-0.47
USGS	16-Dec-93	442	2	4.8	6.09	0.69	1.56	-0.70	-0.36	-0.46
USGS	19-Jan-94	1040	1	5.6	6.95	0.00	1.72	-0.55	-0.58	-0.46
USGS	15-Feb-94	421	1	2.3	6.04	0.00	0.82	-0.71	-0.58	-0.47
USGS	06-Mar-94	3390	2	36.5	8.13	0.69	3.60	0.08	-0.36	-0.37
USGS	15-Mar-94	1570	3	25.3	7.36	1.10	3.23	-0.41	-0.15	-0.40
USGS	04-Apr-94	4140	2	44.5	8.33	0.69	3.80	0.27	-0.36	-0.34
USGS	21-Apr-94	6650			8.80			0.94		
USGS	10-May-94	2260	1	12.2	7.72	0.00	2.50	-0.22	-0.58	-0.44
USGS	15-Jun-94	701	1	3.8	6.55	0.00	1.33	-0.63	-0.58	-0.46
USGS	21-Jul-94	272			5.61			-0.75		
USGS	17-Aug-94	175	8	7.5	5.16	2.08	2.02	-0.77	0.92	-0.45
USGS	20-Sep-94	173	2	1.9	5.15	0.69	0.62	-0.77	-0.36	-0.47
USGS	12-Nov-96	311			5.74			-0.74		
USGS	13-Mar-97	1740			7.46			-0.36		
USGS	16-Apr-97	4030			8.30			0.24		
USGS	28-Apr-97	21400	13.6	1565.8	9.97	2.61	7.36	4.83	2.12	4.18
USGS	04-Jun-97	5360			8.59			0.60		
USGS	24-Jul-97	676			6.52			-0.64		
USGS	19-Sep-97	613			6.42			-0.66		
USGS	06-Feb-98	1560			7.35			-0.41		
USGS	20-Apr-98	2460			7.81			-0.17		
USGS	19-May-98	1690			7.43			-0.37		
USGS	07-Jul-98	675			6.51			-0.64		
USGS	20-Oct-98	254			5.54			-0.75		
USGS	17-Nov-98	592			6.38			-0.66		
USGS	15-Dec-98	1940			7.57			-0.31		
USGS	27-Jan-99	1840			7.52			-0.33		
USGS	08-Feb-99	1540			7.34			-0.41		
USGS	08-Mar-99	1940			7.57			-0.31		
USGS	23-Mar-99	6880	2	74.0	8.84	0.69	4.30	1.00	-0.36	-0.25
USGS	13-Apr-99	2740			7.92			-0.10		
USGS	20-Apr-99	9680	3.031	157.8	9.18	1.11	5.06	1.74	-0.14	-0.01

USGS	06-May-99	5180	0.782	21.8	8.55	-0.25	3.08	0.55	-0.63	-0.41
USGS	20-May-99	6400	4.012	138.1	8.76	1.39	4.93	0.87	0.07	-0.06
USGS	25-May-99	11100	11.258	672.3	9.31	2.42	6.51	2.11	1.62	1.52
USGS	27-May-99	8450	2.247	102.2	9.04	0.81	4.63	1.41	-0.31	-0.17
USGS	02-Jun-99	5810	0.666	20.8	8.67	-0.41	3.04	0.71	-0.65	-0.41
USGS	29-Jun-99	1370			7.22			-0.46		
USGS	13-Jul-99	902	0.169	0.8	6.80	-1.78	-0.20	-0.58	-0.76	-0.47
USGS	26-Jul-99	522			6.26			-0.68		
USGS	10-Aug-99	504	0.137	0.4	6.22	-1.99	-0.99	-0.69	-0.76	-0.47
USGS	08-Sep-99	306	0.103	0.2	5.72	-2.27	-1.77	-0.74	-0.77	-0.47

tPb

Concentration over time analysis r2 Slope, m

tPb NF50 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.120** **-0.00045**

	Time	Ln[COC]	[COC]
first:	9-Dec-92	1.10	3
mid:	13-Mar-97	0.41	2
last:	8-Sep-99	0.01	1

LnConc.=mTime+b >'96 r2, m: **0.356** **-0.00429**

28-Apr-97	3.21	25
8-Sep-99	-0.49	1

Load over time analysis

tPb NF50 **Load over time**

LnLoad=mTime+b All data r2, m: **0.007** **-0.00019**

	Time	LnLoad	Load
first:	9-Dec-92	3.33	28
mid:	13-Mar-97	3.03	21
last:	8-Sep-99	2.85	17

LnLoad=mTime+b >'96 r2, m: **0.352** **-0.00759**

28-Apr-97	8.57	5,280
8-Sep-99	2.02	8

max r2: 0.994 max r2: 1.000

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.120	-0.00045	16.21	0.007	-0.00019	9.88
0.120	-0.00045	16.21	0.007	-0.00019	9.88
0.120	-0.00045	16.21	0.007	-0.00019	9.88
0.095	-0.00038	13.88	0.001	-0.00007	5.51
0.068	-0.00031	11.19	0.001	0.00007	0.48
0.060	-0.00029	10.71	0.005	0.00015	-2.49
0.072	-0.00033	11.93	0.007	0.00019	-4.04
0.063	-0.00031	11.43	0.017	0.00030	-7.77
0.050	-0.00028	10.28	0.030	0.00040	-11.44
0.047	-0.00028	10.33	0.035	0.00044	-13.04
0.047	-0.00028	10.33	0.035	0.00044	-13.04
0.059	-0.00033	11.90	0.031	0.00043	-12.69
0.059	-0.00033	11.90	0.031	0.00043	-12.69
0.059	-0.00033	11.90	0.031	0.00043	-12.69
0.059	-0.00033	11.90	0.031	0.00043	-12.69
0.057	-0.00033	12.02	0.021	0.00036	-10.03
0.054	-0.00033	12.15	0.014	0.00031	-8.12
0.069	-0.00039	14.16	0.009	0.00025	-6.16
0.088	-0.00046	16.71	0.002	0.00011	-0.85
0.088	-0.00048	17.64	0.004	0.00018	-3.61
0.075	-0.00047	17.20	0.007	0.00025	-5.95
0.074	-0.00051	18.66	0.017	0.00043	-12.51
0.074	-0.00051	18.66	0.017	0.00043	-12.51
0.114	-0.00071	25.82	0.016	0.00048	-14.19
0.194	-0.00109	39.64	0.003	0.00023	-5.31
0.194	-0.00109	39.64	0.003	0.00023	-5.31
0.110	-0.00103	37.27	0.000	-0.00008	6.08
0.356	-0.00429	155.68	0.352	-0.00759	278.28
0.356	-0.00429	155.68	0.352	-0.00759	278.28
0.356	-0.00429	155.68	0.352	-0.00759	278.28
0.356	-0.00429	155.68	0.352	-0.00759	278.28
0.591	-0.02373	861.95	0.713	-0.04690	1706.26
0.591	-0.02373	861.95	0.713	-0.04690	1706.26
0.591	-0.02373	861.95	0.713	-0.04690	1706.26
0.591	-0.02373	861.95	0.713	-0.04690	1706.26
0.591	-0.02373	861.95	0.713	-0.04690	1706.26
0.591	-0.02373	861.95	0.713	-0.04690	1706.26
0.591	-0.02373	861.95	0.713	-0.04690	1706.26
0.591	-0.02373	861.95	0.713	-0.04690	1706.26
0.591	-0.02373	861.95	0.713	-0.04690	1706.26
0.591	-0.02373	861.95	0.713	-0.04690	1706.26
0.591	-0.02373	861.95	0.713	-0.04690	1706.26
0.591	-0.02373	861.95	0.713	-0.04690	1706.26
0.591	-0.02373	861.95	0.713	-0.04690	1706.26
0.657	-0.02878	1045.19	0.794	-0.05676	2064.39
0.657	-0.02878	1045.19	0.794	-0.05676	2064.39

0.639	-0.03044	1105.71	0.787	-0.06019	2189.27
0.771	-0.03678	1336.18	0.881	-0.06975	2537.03
0.733	-0.03576	1299.27	0.864	-0.07015	2551.65
0.825	-0.02651	962.59	0.910	-0.05908	2148.61
0.886	-0.01867	677.43	0.923	-0.04859	1767.11
0.994	-0.00869	314.30	1.000	-0.02765	1004.95

update for EV, CV:

tPb **NF50**

LN Analysis **tPb**

Load **Load Data, EV=160 lbs/day CV=2.11**

Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**160**			
SD:	**336**	u	ln dZn Load	dZn Load
CV:	**2.11**	3	8.1	3397
Min:	**0.2**	0	4.23	68
Max:	**1,566**	-3	0.32	1.4
Median:	**24**			
		160	160	
		2.11	2.11	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.954, EV= 98lbs/day CV=11.6; max r2=0.98**

r2 u,lnLoad:	0.954	u	lnLoad	Load			
slope, m:	0.452	3	8.78	6501			
intercept, b:	-0.965	0	2.14	8			
N: 30		-3	-4.51	0.0			
E[Load]:	98.3	Parameter Estimates				0.954	0.954
SD[Load]:	1137	from LN regression				98.3	98.3
CV[Load]:	11.56	update graph label				11.6	11.6
						max r2	
						0.976	

	tPb	N: 57				
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
08-Sep-99	0.2	1	0.0109	-2.293	-1.775	0.954
10-Aug-99	0.4	2	0.0284	-1.905	-0.990	0.954
20-Oct-98		3	0.0459	-1.686		0.962
21-Jul-94		4	0.0633	-1.527		0.962
13-Jul-99	0.8	5	0.0808	-1.400	-0.198	0.962
12-Nov-96		6	0.0983	-1.292		0.976
09-Dec-92		7	0.1157	-1.197		0.976
21-Sep-93		8	0.1332	-1.111		0.976
25-Aug-93		9	0.1507	-1.034		0.976
18-Oct-93		10	0.1681	-0.962		0.976
23-Feb-93		11	0.1856	-0.894		0.976
26-Jul-99		12	0.2031	-0.831		0.976
17-Nov-98		13	0.2205	-0.770		0.976
19-Sep-97		14	0.2380	-0.713		0.976
07-Jul-98		15	0.2555	-0.657		0.976
24-Jul-97		16	0.2729	-0.604		0.976
20-Sep-94	1.9	17	0.2904	-0.552	0.621	0.976
15-Feb-94	2.3	18	0.3079	-0.502	0.818	0.975
22-Jun-93		19	0.3253	-0.453		0.974
17-Nov-93	2.7	20	0.3428	-0.405	0.998	0.974
29-Jun-99		21	0.3603	-0.358		0.973
15-Jun-94	3.8	22	0.3777	-0.311	1.327	0.973
08-Feb-99		23	0.3952	-0.266		0.974
06-Feb-98		24	0.4127	-0.221		0.974
19-May-98		25	0.4301	-0.176		0.974
13-Mar-97		26	0.4476	-0.132		0.974
16-Dec-93	4.8	27	0.4651	-0.088	1.559	0.974
27-Jan-99		28	0.4825	-0.044		0.972
15-Dec-98		29	0.5000	0.000		0.972
08-Mar-99		30	0.5175	0.044		0.972
19-Jan-94	5.6	31	0.5349	0.088	1.722	0.972
20-Apr-98		32	0.5524	0.132		0.969
21-Jul-93	7.1	33	0.5699	0.176	1.960	0.969
13-Apr-99		34	0.5873	0.221		0.965
17-Aug-94	7.5	35	0.6048	0.266	2.019	0.965
16-Apr-97		36	0.6223	0.311		0.962
10-May-94	12.2	37	0.6397	0.358	2.498	0.962
04-Jun-97		38	0.6572	0.405		0.957
21-Apr-94		39	0.6747	0.453		0.957
03-Jun-93	19.2	40	0.6921	0.502	2.952	0.957
02-Jun-99	20.8	41	0.7096	0.552	3.036	0.952
06-May-99	21.8	42	0.7271	0.604	3.082	0.947
15-Mar-94	25.3	43	0.7445	0.657	3.232	0.942
06-Mar-94	36.5	44	0.7620	0.713	3.597	0.936
20-Apr-93	36.9	45	0.7795	0.770	3.608	0.928
04-Apr-94	44.5	46	0.7969	0.831	3.797	0.919
23-Mar-99	74.0	47	0.8144	0.894	4.304	0.907

20-May-93	74.2	48	0.8319	0.962	4.307	0.896
27-May-99	102.2	49	0.8493	1.034	4.626	0.877
04-May-93	110.2	50	0.8668	1.111	4.703	0.857
06-Apr-93	118.0	51	0.8843	1.197	4.771	0.826
20-May-99	138.1	52	0.9017	1.292	4.928	0.774
20-Apr-99	157.8	53	0.9192	1.400	5.062	0.692
25-May-99	672.3	54	0.9367	1.527	6.511	
24-Mar-93	760.9	55	0.9541	1.686	6.635	
24-Mar-93	760.9	56	0.9716	1.905	6.635	
28-Apr-97	1565.8	57	0.9891	2.293	7.356	

update for EV, CV:

tPb **NF50** 4 3.7

LN Analysis **tPb** 1.26 1.26

Concentration

Conc. Data, EV=3.7 ug/L CV=1.26

Data-based LN

		u	ln[dZn]	[dZn]
Avg:	**3.7**	3	3.8	43
SD:	**4.7**	0	0.83	2
CV:	**1.26**	-3	-2.09	0
Min:	**0**			
Max:	**17**			
Median:	**2**			

0.936 0.936

u=mLn{Conc.}+b: 2.1 2.13

update for r2, EV, CV: **r2=0.936, EV=2.13 ug/L CV=2.07; max r2=0.95** 2.067 2.07

r2 u,lnConc:	0.936	u	lnConc.	Conc.
slope, m:	0.776	3	3.79	44
intercept, b:	0.059	0	-0.08	1
N: 30		-3	-3.94	0
E[Conc]:	2.1	Parameter Estimates		
SD[Conc]:	4	from LN regression		
CV[Conc]:	2.07	update graph label		

N: 57

max r2 0.949

Date	tPb Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
08-Sep-99	0.103	1	0.0109	-2.293	-2.273	0.936
10-Aug-99	0.137	2	0.0284	-1.905	-1.988	0.932
13-Jul-99	0.169	3	0.0459	-1.686	-1.778	0.929
09-Dec-92		4	0.0633	-1.527		0.949
23-Feb-93		5	0.0808	-1.400		0.949
22-Jun-93		6	0.0983	-1.292		0.949
25-Aug-93		7	0.1157	-1.197		0.949
21-Sep-93		8	0.1332	-1.111		0.949
18-Oct-93		9	0.1507	-1.034		0.949
21-Apr-94		10	0.1681	-0.962		0.949
21-Jul-94		11	0.1856	-0.894		0.949
12-Nov-96		12	0.2031	-0.831		0.949
13-Mar-97		13	0.2205	-0.770		0.949
16-Apr-97		14	0.2380	-0.713		0.949
04-Jun-97		15	0.2555	-0.657		0.949
24-Jul-97		16	0.2729	-0.604		0.949
19-Sep-97		17	0.2904	-0.552		0.949
06-Feb-98		18	0.3079	-0.502		0.949
20-Apr-98		19	0.3253	-0.453		0.949
19-May-98		20	0.3428	-0.405		0.949
07-Jul-98		21	0.3603	-0.358		0.949
20-Oct-98		22	0.3777	-0.311		0.949
17-Nov-98		23	0.3952	-0.266		0.949
15-Dec-98		24	0.4127	-0.221		0.949
27-Jan-99		25	0.4301	-0.176		0.949
08-Feb-99		26	0.4476	-0.132		0.949
08-Mar-99		27	0.4651	-0.088		0.949
13-Apr-99		28	0.4825	-0.044		0.949
29-Jun-99		29	0.5000	0.000		0.949
26-Jul-99		30	0.5175	0.044		0.949
02-Jun-99	0.666	31	0.5349	0.088	-0.406	0.949
06-May-99	0.782	32	0.5524	0.132	-0.246	0.945
20-Apr-93	1	33	0.5699	0.176	0.000	0.941
21-Jul-93	1	34	0.5873	0.221	0.000	0.938
19-Jan-94	1	35	0.6048	0.266	0.000	0.934
15-Feb-94	1	36	0.6223	0.311	0.000	0.929
10-May-94	1	37	0.6397	0.358	0.000	0.923
15-Jun-94	1	38	0.6572	0.405	0.000	0.918
03-Jun-93	2	39	0.6747	0.453	0.693	0.915
17-Nov-93	2	40	0.6921	0.502	0.693	0.919
16-Dec-93	2	41	0.7096	0.552	0.693	0.921
06-Mar-94	2	42	0.7271	0.604	0.693	0.921
04-Apr-94	2	43	0.7445	0.657	0.693	0.918
20-Sep-94	2	44	0.7620	0.713	0.693	0.912
23-Mar-99	2	45	0.7795	0.770	0.693	0.902
27-May-99	2.247	46	0.7969	0.831	0.810	0.888
06-Apr-93	3	47	0.8144	0.894	1.099	0.871

04-May-93	3	48	0.8319	0.962	1.099	0.858
15-Mar-94	3	49	0.8493	1.034	1.099	0.835
20-Apr-99	3.031	50	0.8668	1.111	1.109	0.800
20-May-93	4	51	0.8843	1.197	1.386	0.755
20-May-99	4.012	52	0.9017	1.292	1.389	0.684
17-Aug-94	8	53	0.9192	1.400	2.079	0.754
25-May-99	11.258	54	0.9367	1.527	2.421	
28-Apr-97	13.6	55	0.9541	1.686	2.610	
24-Mar-93	17	56	0.9716	1.905	2.833	
24-Mar-93	17	57	0.9891	2.293	2.833	

update for EV, CV:

tPb		**NF50**			3,105	3100
LN Analysis		**tPb**			1.22	1.22
Discharge, Q		**Q Data, EV=3100 cfs CV=1.22**				
Avg:	**3,105**	**Q Data-based LN**				
SD:	**3,787**	u	lnQ	Q		
CV:	**1.22**	3	10.4	34512		
Min:	**173**	0	7.58	1968		
Max:	**21,400**	-3	4.72	112		
Median:	**1,570**					

					0.965	0.965
					3583.0	3580
u=mLn{Q}+b:					2.12	2.12
update for r2, EV, CV:	**r2=0.965, EV=3580 cfs CV=2.12; max r2=0.97**					
r2 u,lnQ:	0.965	u	lnQ	Q		
slope, m:	0.766	3	11.25	76715		
intercept, b:	-5.618	0	7.33	1529		
N: 57		-3	3.42	30		
E[Q]:	3583.0	Parameter Estimates				
SD[Q]:	7596	from LN regression				
CV[Q]:	2.12	update graph label				

						max r2
	Q	N: 57				0.970
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
20-Sep-94	173	1	0.0109	-2.293	5.153	0.965
17-Aug-94	175	2	0.0284	-1.905	5.165	0.969
17-Nov-93	252	3	0.0459	-1.686	5.529	0.969
20-Oct-98	254	4	0.0633	-1.527	5.537	0.970
21-Jul-94	272	5	0.0808	-1.400	5.606	0.969
08-Sep-99	306	6	0.0983	-1.292	5.724	0.968
12-Nov-96	311	7	0.1157	-1.197	5.740	0.967
09-Dec-92	320	8	0.1332	-1.111	5.768	0.965
21-Sep-93	342	9	0.1507	-1.034	5.835	0.963
25-Aug-93	421	10	0.1681	-0.962	6.043	0.961
15-Feb-94	421	11	0.1856	-0.894	6.043	0.959
18-Oct-93	425	12	0.2031	-0.831	6.052	0.957
23-Feb-93	441	13	0.2205	-0.770	6.089	0.955
16-Dec-93	442	14	0.2380	-0.713	6.091	0.952
10-Aug-99	504	15	0.2555	-0.657	6.223	0.950
26-Jul-99	522	16	0.2729	-0.604	6.258	0.948
17-Nov-98	592	17	0.2904	-0.552	6.384	0.946
19-Sep-97	613	18	0.3079	-0.502	6.418	0.944
07-Jul-98	675	19	0.3253	-0.453	6.515	0.942
24-Jul-97	676	20	0.3428	-0.405	6.516	0.940
15-Jun-94	701	21	0.3603	-0.358	6.553	0.940
22-Jun-93	868	22	0.3777	-0.311	6.766	0.941
13-Jul-99	902	23	0.3952	-0.266	6.805	0.940
19-Jan-94	1040	24	0.4127	-0.221	6.947	0.939
21-Jul-93	1320	25	0.4301	-0.176	7.185	0.938
29-Jun-99	1370	26	0.4476	-0.132	7.223	0.934
08-Feb-99	1540	27	0.4651	-0.088	7.340	0.930
06-Feb-98	1560	28	0.4825	-0.044	7.352	0.925
15-Mar-94	1570	29	0.5000	0.000	7.359	0.921
19-May-98	1690	30	0.5175	0.044	7.432	0.916
13-Mar-97	1740	31	0.5349	0.088	7.462	0.910
03-Jun-93	1780	32	0.5524	0.132	7.484	0.905
27-Jan-99	1840	33	0.5699	0.176	7.518	0.901
15-Dec-98	1940	34	0.5873	0.221	7.570	0.897
08-Mar-99	1940	35	0.6048	0.266	7.570	0.896
10-May-94	2260	36	0.6223	0.311	7.723	0.902
20-Apr-98	2460	37	0.6397	0.358	7.808	0.906
13-Apr-99	2740	38	0.6572	0.405	7.916	0.914
06-Mar-94	3390	39	0.6747	0.453	8.129	0.923
20-May-93	3450	40	0.6921	0.502	8.146	0.921
16-Apr-97	4030	41	0.7096	0.552	8.302	0.925
04-Apr-94	4140	42	0.7271	0.604	8.328	0.921
06-May-99	5180	43	0.7445	0.657	8.553	0.922
04-Jun-97	5360	44	0.7620	0.713	8.587	0.913
02-Jun-99	5810	45	0.7795	0.770	8.667	0.902
20-May-99	6400	46	0.7969	0.831	8.764	0.893
21-Apr-94	6650	47	0.8144	0.894	8.802	0.893

04-May-93	6830	48	0.8319	0.962	8.829	0.898
20-Apr-93	6860	49	0.8493	1.034	8.833	0.905
23-Mar-99	6880	50	0.8668	1.111	8.836	0.907
06-Apr-93	7310	51	0.8843	1.197	8.897	0.898
24-Mar-93	8320	52	0.9017	1.292	9.026	0.890
24-Mar-93	8320	53	0.9192	1.400	9.026	0.927
27-May-99	8450	54	0.9367	1.527	9.042	
20-Apr-99	9680	55	0.9541	1.686	9.178	
25-May-99	11100	56	0.9716	1.905	9.315	
28-Apr-97	21400	57	0.9891	2.293	9.971	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NF50 **Date:** 3-Aug-01
Chemical: dZn **Analyst:** D.Giaudrone
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load						
Avg:	35,664	3,561	11	290	7.56	1.95	4.37	0.00	0.00	0.00
SD:	942	4,189	13	509	1.16	0.79	1.75	1.00	1.00	1.00
CV:	0.03	1.18	1.27	1.76	0.15	0.40	0.40			
Min:	32,953	254	3	4.4	5.5	1.0	1.5	-0.79	-0.58	-0.56
Max:	36,411	21,400	66	2,268	10	4	8	4.26	4.14	3.89
Median:	36,102	1,890	6	127	8	2	5	-0.40	-0.37	-0.32

dZn **NF50** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.0158)	update r2	0.02	0.0158		r2:	0.000	0.001
r2 Q,[COC]:	0.02	[dZn]	Q		m:	0.0065	-0.00004
slope, m:	0.0	9	254.0		b:	3328	9.05
intercept, b:	9.0	10	3560.9				
N: 22		16	21400				
LnConc. = mLn{Q}+b (r2=0.11)		update r2	0.11	0.11			
r2 lnQ,ln[COC]:	0.11	ln[dZn]	ln Q	[dZn]	Q		
slope, m:	0.20	1.53	5.54	5	254		
intercept, b:	0.45	2.05	8.18	8	3,561		
N: 22		2.41	9.97	11	21,400		

for graph
dZn 0
NF50

N= 36

	Sampling Date	Q Discharge	dZn Concentration	dZn Load	Ln Q	Ln dZn Conc.	Ln dZn Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data		cfs	ug/L	lbs/day						
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
USGS	21-Mar-90	4270	6	137.8	8.36	1.79	4.93	0.17	-0.34	-0.30
USGS	16-May-90	2850	19	291.3	7.96	2.94	5.67	-0.17	0.63	0.00
USGS	18-Nov-92	494	12	31.9	6.20	2.48	3.46	-0.73	0.11	-0.51
USGS	24-Mar-93	8320	20	895.2	9.03	3.00	6.80	1.14	0.71	1.19
USGS	20-May-93	3450	23	426.9	8.15	3.14	6.06	-0.03	0.93	0.27
USGS	21-Sep-93	342	13	23.9	5.83	2.56	3.17	-0.77	0.19	-0.52
USGS	12-Nov-96	311	3	5.0	5.74	1.10	1.61	-0.78	-0.56	-0.56
USGS	13-Mar-97	1740			7.46			-0.43		
USGS	16-Apr-97	4030			8.30			0.11		
USGS	28-Apr-97	21400	8.985	1034.5	9.97	2.20	6.94	4.26	-0.11	1.46
USGS	04-Jun-97	5360	5.608	161.7	8.59	1.72	5.09	0.43	-0.37	-0.25
USGS	24-Jul-97	676	7.374	26.8	6.52	2.00	3.29	-0.69	-0.23	-0.52
USGS	19-Sep-97	613	3.71	12.2	6.42	1.31	2.50	-0.70	-0.51	-0.55
USGS	06-Feb-98	1560			7.35			-0.48		
USGS	20-Apr-98	2460			7.81			-0.26		
USGS	19-May-98	1690			7.43			-0.45		
USGS	07-Jul-98	675			6.51			-0.69		
USGS	20-Oct-98	254			5.54			-0.79		
USGS	17-Nov-98	592			6.38			-0.71		
USGS	15-Dec-98	1940			7.57			-0.39		
USGS	27-Jan-99	1840			7.52			-0.41		
USGS	08-Feb-99	1540			7.34			-0.48		
USGS	08-Mar-99	1940			7.57			-0.39		
USGS	23-Mar-99	6880	6.355	235.2	8.84	1.85	5.46	0.79	-0.31	-0.11
USGS	13-Apr-99	2740			7.92			-0.20		
USGS	20-Apr-99	9680			9.18			1.46		
USGS	06-May-99	5180	4.167	116.1	8.55	1.43	4.75	0.39	-0.47	-0.34
USGS	20-May-99	6400	65.865	2267.9	8.76	4.19	7.73	0.68	4.14	3.89
USGS	25-May-99	11100	4.861	290.3	9.31	1.58	5.67	1.80	-0.42	0.00
USGS	27-May-99	8450	4.319	196.3	9.04	1.46	5.28	1.17	-0.46	-0.18
USGS	02-Jun-99	5810	4.398	137.5	8.67	1.48	4.92	0.54	-0.46	-0.30
USGS	29-Jun-99	1370	5.487	40.4	7.22	1.70	3.70	-0.52	-0.38	-0.49
USGS	13-Jul-99	902	4.85	23.5	6.80	1.58	3.16	-0.63	-0.42	-0.52
USGS	26-Jul-99	522	3.595	10.1	6.26	1.28	2.31	-0.73	-0.52	-0.55
USGS	10-Aug-99	504	2.976	8.1	6.22	1.09	2.09	-0.73	-0.56	-0.55
USGS	08-Sep-99	306	2.7	4.4	5.72	0.99	1.49	-0.78	-0.58	-0.56

dZn

Concentration over time analysis r2 Slope, m

dZn NF50 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.228** **-0.00033**

	Time	Ln[COC]	[COC]
first:	21-Mar-90	2.77	16
mid:	3-Nov-98	1.73	6
last:	8-Sep-99	1.63	5

LnConc.=mTime+b >'96 r2, m: **0.018** **-0.00031**

28-Apr-97	1.90	7
8-Sep-99	1.64	5

Load over time analysis

dZn NF50 **Load over time**

LnLoad=mTime+b All data r2, m: **0.048** **-0.00034**

	Time	LnLoad	Load
first:	21-Mar-90	5.21	183
mid:	3-Nov-98	4.15	63
last:	8-Sep-99	4.04	57

LnLoad=mTime+b >'96 r2, m: **0.034** **-0.00103**

28-Apr-97	4.90	134
8-Sep-99	4.01	55

max r2: 0.899 max r2: 0.963

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.228	-0.00033	13.67	0.048	-0.00034	16.32
0.323	-0.00045	17.87	0.045	-0.00037	17.52
0.270	-0.00048	18.86	0.021	-0.00030	15.04
0.257	-0.00052	20.34	0.048	-0.00051	22.68
0.173	-0.00047	18.60	0.005	-0.00018	10.50
0.051	-0.00029	12.31	0.014	0.00038	-9.45
0.000	-0.00001	2.07	0.001	0.00016	-1.73
0.018	-0.00031	12.75	0.034	-0.00103	41.39
0.018	-0.00031	12.75	0.034	-0.00103	41.39
0.018	-0.00031	12.75	0.034	-0.00103	41.39
0.003	-0.00015	6.96	0.000	0.00009	0.73
0.004	-0.00019	8.55	0.018	0.00095	-30.57
0.001	0.00013	-3.14	0.005	0.00067	-20.27
0.168	-0.00735	268.68	0.681	-0.03192	1163.90
0.168	-0.00735	268.68	0.681	-0.03192	1163.90
0.168	-0.00735	268.68	0.681	-0.03192	1163.90
0.168	-0.00735	268.68	0.681	-0.03192	1163.90
0.168	-0.00735	268.68	0.681	-0.03192	1163.90
0.168	-0.00735	268.68	0.681	-0.03192	1163.90
0.168	-0.00735	268.68	0.681	-0.03192	1163.90
0.168	-0.00735	268.68	0.681	-0.03192	1163.90
0.168	-0.00735	268.68	0.681	-0.03192	1163.90
0.168	-0.00735	268.68	0.681	-0.03192	1163.90
0.168	-0.00735	268.68	0.681	-0.03192	1163.90
0.217	-0.01032	376.53	0.781	-0.04136	1507.10
0.217	-0.01032	376.53	0.781	-0.04136	1507.10
0.217	-0.01032	376.53	0.781	-0.04136	1507.10
0.320	-0.01383	504.31	0.865	-0.04794	1746.14
0.614	-0.00513	187.80	0.961	-0.04029	1467.94
0.581	-0.00532	194.67	0.963	-0.03803	1385.96
0.671	-0.00676	247.15	0.953	-0.03583	1305.75
0.899	-0.01061	387.09	0.928	-0.03095	1128.33

update for EV, CV:

dZn **NF50**

LN Analysis **dZn**

Load **Load Data, EV=290 lbs/day CV=1.76**

Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**290**			
SD:	**509**	u	ln dZn Load	dZn Load
CV:	**1.76**	3	8.5	5033
Min:	**4.4**	0	4.97	144
Max:	**2,268**	-3	1.41	4.1
Median:	**127**			
		290	290	
		1.76	1.76	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.993, EV= 239lbs/day CV=3.11; max r2=0.995**

r2 u,lnLoad:	0.993	u	lnLoad	Load			
slope, m:	0.650	3	8.91	7387			
intercept, b:	-2.787	0	4.29	73			
N: 22		-3	-0.33	0.7			
E[Load]:	238.6	Parameter Estimates				0.993	0.993
SD[Load]:	742	from LN regression				238.6	239
CV[Load]:	3.11	update graph label				3.1	3.11
						max r2	
						0.995	

N: 36

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
08-Sep-99	4.4	1	0.0172	-2.114	1.492	0.993
12-Nov-96	5.0	2	0.0448	-1.697	1.613	0.995
10-Aug-99	8.1	3	0.0724	-1.458	2.088	0.995
26-Jul-99	10.1	4	0.1000	-1.282	2.312	0.994
19-Sep-97	12.2	5	0.1276	-1.138	2.504	0.993
20-Oct-98		6	0.1552	-1.014		0.992
13-Mar-97		7	0.1828	-0.905		0.992
13-Jul-99	23.5	8	0.2103	-0.805	3.159	0.992
21-Sep-93	23.9	9	0.2379	-0.713	3.175	0.993
17-Nov-98		10	0.2655	-0.626		0.993
24-Jul-97	26.8	11	0.2931	-0.544	3.289	0.993
18-Nov-92	31.9	12	0.3207	-0.466	3.462	0.991
16-Apr-97		13	0.3483	-0.390		0.989
07-Jul-98		14	0.3759	-0.316		0.989
29-Jun-99	40.4	15	0.4034	-0.244	3.700	0.989
08-Feb-99		16	0.4310	-0.174		0.985
06-Feb-98		17	0.4586	-0.104		0.985
19-May-98		18	0.4862	-0.035		0.985
27-Jan-99		19	0.5138	0.035		0.985
15-Dec-98		20	0.5414	0.104		0.985
08-Mar-99		21	0.5690	0.174		0.985
06-May-99	116.1	22	0.5966	0.244	4.755	0.985
20-Apr-98		23	0.6241	0.316		0.988
02-Jun-99	137.5	24	0.6517	0.390	4.923	0.988
21-Mar-90	137.8	25	0.6793	0.466	4.926	0.990
13-Apr-99		26	0.7069	0.544		0.989
04-Jun-97	161.7	27	0.7345	0.626	5.086	0.989
27-May-99	196.3	28	0.7621	0.713	5.280	0.987
23-Mar-99	235.2	29	0.7897	0.805	5.461	0.984
25-May-99	290.3	30	0.8172	0.905	5.671	0.979
16-May-90	291.3	31	0.8448	1.014	5.674	0.974
20-May-93	426.9	32	0.8724	1.138	6.057	0.974
20-Apr-99		33	0.9000	1.282		
24-Mar-93	895.2	34	0.9276	1.458	6.797	
28-Apr-97	1034.5	35	0.9552	1.697	6.942	
20-May-99	2267.9	36	0.9828	2.114	7.727	

update for EV, CV:

dZn		**NF50**		11	10.5
LN Analysis		**dZn**		1.27	1.27
Concentration		**Conc. Data, EV=10.5 ug/L CV=1.27**			
Avg:	**10.5**	**Data-based LN**			
SD:	**13.4**	u	ln[dZn]	[dZn]	
CV:	**1.27**	3	4.8	123	
Min:	**3**	0	1.87	6	
Max:	**66**	-3	-1.07	0	
Median:	**6**				

				0.955	0.955
u=mLn{Conc.}+b:				10.1	10.1
update for r2, EV, CV:	**r2=0.955, EV=10.1 ug/L CV=0.935; max r2=0.943**			0.935	0.935
r2 u,lnConc:	0.955	u	lnConc.	Conc.	
slope, m:	1.262	3	4.38	80	
intercept, b:	-2.524	0	2.00	7	
N: 22		-3	-0.38	1	
E[Conc]:	10.1	Parameter Estimates			
SD[Conc]:	9	from LN regression			
CV[Conc]:	0.94	update graph label			

						max r2
	dZn	N: 36				0.955
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
13-Mar-97		1	0.0172	-2.114		0.955
16-Apr-97		2	0.0448	-1.697		0.955
08-Sep-99	2.7	3	0.0724	-1.458	0.993	0.955
10-Aug-99	2.976	4	0.1000	-1.282	1.091	0.953
12-Nov-96	3	5	0.1276	-1.138	1.099	0.950
26-Jul-99	3.595	6	0.1552	-1.014	1.280	0.946
19-Sep-97	3.71	7	0.1828	-0.905	1.311	0.942
06-May-99	4.167	8	0.2103	-0.805	1.427	0.938
27-May-99	4.319	9	0.2379	-0.713	1.463	0.935
02-Jun-99	4.398	10	0.2655	-0.626	1.481	0.930
13-Jul-99	4.85	11	0.2931	-0.544	1.579	0.923
25-May-99	4.861	12	0.3207	-0.466	1.581	0.917
29-Jun-99	5.487	13	0.3483	-0.390	1.702	0.907
04-Jun-97	5.608	14	0.3759	-0.316	1.724	0.897
21-Mar-90	6	15	0.4034	-0.244	1.792	0.881
23-Mar-99	6.355	16	0.4310	-0.174	1.849	0.860
24-Jul-97	7.374	17	0.4586	-0.104	1.998	0.825
17-Nov-98		18	0.4862	-0.035		0.785
28-Apr-97	8.985	19	0.5138	0.035	2.196	0.785
06-Feb-98		20	0.5414	0.104		0.928
20-Apr-98		21	0.5690	0.174		0.928
19-May-98		22	0.5966	0.244		0.928
07-Jul-98		23	0.6241	0.316		0.928
20-Oct-98		24	0.6517	0.390		0.928
15-Dec-98		25	0.6793	0.466		0.928
27-Jan-99		26	0.7069	0.544		0.928
08-Feb-99		27	0.7345	0.626		0.928
08-Mar-99		28	0.7621	0.713		0.928
13-Apr-99		29	0.7897	0.805		0.928
20-Apr-99		30	0.8172	0.905		0.928
18-Nov-92	12	31	0.8448	1.014	2.485	0.928
21-Sep-93	13	32	0.8724	1.138	2.565	0.915
16-May-90	19	33	0.9000	1.282	2.944	
24-Mar-93	20	34	0.9276	1.458	2.996	
20-May-93	23	35	0.9552	1.697	3.135	
20-May-99	65.865	36	0.9828	2.114	4.188	

update for EV, CV:

dZn		**NF50**			3,561	3560
LN Analysis		**dZn**			1.18	1.18
Discharge, Q		**Q Data, EV=3560 cfs CV=1.18**				
Avg:	**3,561**	**Q Data-based LN**				
SD:	**4,189**	u	lnQ	Q		
CV:	**1.18**	3	10.5	37784		
Min:	**254**	0	7.74	2306		
Max:	**21,400**	-3	4.95	141		
Median:	**1,890**					

					0.975	0.975
					4053.5	4050
	u=mLn{Q}+b:				1.87	1.87
update for r2, EV, CV:	**r2=0.975, EV=4050 cfs CV=1.87; max r2=0.98**					
	r2 u,lnQ:	0.975	u	lnQ	Q	
	slope, m:	0.816	3	11.23	75525	
	intercept, b:	-6.168	0	7.56	1914	
	N: 36		-3	3.88	48	
	E[Q]:	4053.5	Parameter Estimates			
	SD[Q]:	7568	from LN regression			
	CV[Q]:	1.87	update graph label			

						max r2
	Q		N: 36			0.980
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
20-Oct-98	254	1	0.0172	-2.114	5.537	0.975
08-Sep-99	306	2	0.0448	-1.697	5.724	0.980
12-Nov-96	311	3	0.0724	-1.458	5.740	0.980
21-Sep-93	342	4	0.1000	-1.282	5.835	0.978
18-Nov-92	494	5	0.1276	-1.138	6.203	0.976
10-Aug-99	504	6	0.1552	-1.014	6.223	0.974
26-Jul-99	522	7	0.1828	-0.905	6.258	0.972
17-Nov-98	592	8	0.2103	-0.805	6.384	0.970
19-Sep-97	613	9	0.2379	-0.713	6.418	0.968
07-Jul-98	675	10	0.2655	-0.626	6.515	0.967
24-Jul-97	676	11	0.2931	-0.544	6.516	0.968
13-Jul-99	902	12	0.3207	-0.466	6.805	0.976
29-Jun-99	1370	13	0.3483	-0.390	7.223	0.979
08-Feb-99	1540	14	0.3759	-0.316	7.340	0.977
06-Feb-98	1560	15	0.4034	-0.244	7.352	0.976
19-May-98	1690	16	0.4310	-0.174	7.432	0.973
13-Mar-97	1740	17	0.4586	-0.104	7.462	0.970
27-Jan-99	1840	18	0.4862	-0.035	7.518	0.968
15-Dec-98	1940	19	0.5138	0.035	7.570	0.965
08-Mar-99	1940	20	0.5414	0.104	7.570	0.964
20-Apr-98	2460	21	0.5690	0.174	7.808	0.971
13-Apr-99	2740	22	0.5966	0.244	7.916	0.970
16-May-90	2850	23	0.6241	0.316	7.955	0.969
20-May-93	3450	24	0.6517	0.390	8.146	0.975
16-Apr-97	4030	25	0.6793	0.466	8.302	0.975
21-Mar-90	4270	26	0.7069	0.544	8.359	0.971
06-May-99	5180	27	0.7345	0.626	8.553	0.967
04-Jun-97	5360	28	0.7621	0.713	8.587	0.964
02-Jun-99	5810	29	0.7897	0.805	8.667	0.957
20-May-99	6400	30	0.8172	0.905	8.764	0.949
23-Mar-99	6880	31	0.8448	1.014	8.836	0.939
24-Mar-93	8320	32	0.8724	1.138	9.026	0.922
27-May-99	8450	33	0.9000	1.282	9.042	
20-Apr-99	9680	34	0.9276	1.458	9.178	
25-May-99	11100	35	0.9552	1.697	9.315	
28-Apr-97	21400	36	0.9828	2.114	9.971	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NF50 **Date:** 3-Aug-01
Chemical: tZn **Analyst:** D.Giaudrone
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load						
Avg:	35,189	3,009	21	415	7.30	2.71	4.73	0.00	0.00	0.00
SD:	925	3,752	18	719	1.24	0.82	1.65	1.00	1.00	1.00
CV:	0.03	1.25	0.88	1.73	0.17	0.30	0.35			
Min:	33,947	173	2	3.9	5.2	0.9	1.4	-0.76	-1.01	-0.57
Max:	36,411	21,400	84	2,904	10	4	8	4.90	3.49	3.46
Median:	35,442	1,565	18	103	7	3	5	-0.38	-0.18	-0.43

tZn NF50 **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.016) update r2 0.02 0.016 r2: 0.005 0.015

r2 Q,[COC]:	0.02	[dZn]	Q		m:	0.2744	0.00016
slope, m:	0.0	19	173.0		b:	-6646	1.54
intercept, b:	19.0	21	3009.1				
N: 30		30	21400				

LnConc. = mLn{Q}+b (r2=0.011) update r2 0.01 0.011

r2 lnQ,ln[COC]:	0.01	ln[dZn]	ln Q	[dZn]	Q
slope, m:	0.06	2.57	5.15	13	173
intercept, b:	2.24	2.75	8.01	16	3,009
N: 30		2.88	9.97	18	21,400

for graph
tZn 0
NF50

N= 56

	Sampling Date	Q Discharge	tZn Concentration	tZn Load	Ln Q	Ln tZn Conc.	Ln tZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data		cfs	ug/L	lbs/day						
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
USGS	09-Dec-92	320			5.77			-0.72		
USGS	23-Feb-93	441	10	23.7	6.09	2.30	3.17	-0.68	-0.59	-0.54
USGS	24-Mar-93	8320	40	1790.5	9.03	3.69	7.49	1.42	1.06	1.91
USGS	24-Mar-93	8320	40	1790.5	9.03	3.69	7.49	1.42	1.06	1.91
USGS	06-Apr-93	7310	30	1179.8	8.90	3.40	7.07	1.15	0.51	1.06
USGS	20-Apr-93	6860	10	369.1	8.83	2.30	5.91	1.03	-0.59	-0.06
USGS	04-May-93	6830	10	367.5	8.83	2.30	5.91	1.02	-0.59	-0.07
USGS	20-May-93	3450	20	371.2	8.15	3.00	5.92	0.12	-0.04	-0.06
USGS	03-Jun-93	1780	20	191.5	7.48	3.00	5.26	-0.33	-0.04	-0.31
USGS	22-Jun-93	868	20	93.4	6.77	3.00	4.54	-0.57	-0.04	-0.45
USGS	21-Jul-93	1320	20	142.0	7.19	3.00	4.96	-0.45	-0.04	-0.38
USGS	25-Aug-93	421			6.04			-0.69		
USGS	21-Sep-93	342			5.83			-0.71		
USGS	18-Oct-93	425	10	22.9	6.05	2.30	3.13	-0.69	-0.59	-0.55
USGS	17-Nov-93	252	20	27.1	5.53	3.00	3.30	-0.73	-0.04	-0.54
USGS	16-Dec-93	442	30	71.3	6.09	3.40	4.27	-0.68	0.51	-0.48
USGS	19-Jan-94	1040	20	111.9	6.95	3.00	4.72	-0.52	-0.04	-0.42
USGS	15-Feb-94	421	30	67.9	6.04	3.40	4.22	-0.69	0.51	-0.48
USGS	06-Mar-94	3390	10	182.4	8.13	2.30	5.21	0.10	-0.59	-0.32
USGS	15-Mar-94	1570	10	84.5	7.36	2.30	4.44	-0.38	-0.59	-0.46
USGS	04-Apr-94	4140			8.33			0.30		
USGS	21-Apr-94	6650			8.80			0.97		
USGS	10-May-94	2260			7.72			-0.20		
USGS	15-Jun-94	701	10	37.7	6.55	2.30	3.63	-0.62	-0.59	-0.53
USGS	21-Jul-94	272	10	14.6	5.61	2.30	2.68	-0.73	-0.59	-0.56
USGS	17-Aug-94	175	30	28.2	5.16	3.40	3.34	-0.76	0.51	-0.54
USGS	20-Sep-94	173	70	65.2	5.15	4.25	4.18	-0.76	2.70	-0.49
USGS	12-Nov-96	311			5.74			-0.72		
USGS	13-Mar-97	1740			7.46			-0.34		
USGS	16-Apr-97	4030			8.30			0.27		
USGS	28-Apr-97	21400	17	1957.2	9.97	2.83	7.58	4.90	-0.20	2.14
USGS	04-Jun-97	5360			8.59			0.63		
USGS	24-Jul-97	676			6.52			-0.62		
USGS	19-Sep-97	613			6.42			-0.64		
USGS	06-Feb-98	1560			7.35			-0.39		
USGS	20-Apr-98	2460			7.81			-0.15		
USGS	19-May-98	1690	18	163.7	7.43	2.89	5.10	-0.35	-0.15	-0.35
USGS	07-Jul-98	675	11	39.9	6.51	2.40	3.69	-0.62	-0.53	-0.52
USGS	20-Oct-98	254			5.54			-0.73		
USGS	17-Nov-98	592			6.38			-0.64		
USGS	15-Dec-98	1940			7.57			-0.28		
USGS	27-Jan-99	1840			7.52			-0.31		
USGS	08-Feb-99	1540			7.34			-0.39		
USGS	08-Mar-99	1940			7.57			-0.28		
USGS	23-Mar-99	6880			8.84			1.03		
USGS	13-Apr-99	2740			7.92			-0.07		
USGS	20-Apr-99	9680			9.18			1.78		

USGS	06-May-99	5180	6.894	192.1	8.55	1.93	5.26	0.58	-0.76	-0.31
USGS	20-May-99	6400	84.34	2904.0	8.76	4.43	7.97	0.90	3.49	3.46
USGS	25-May-99	11100			9.31			2.16		
USGS	02-Jun-99	5810	4.36	136.3	8.67	1.47	4.91	0.75	-0.90	-0.39
USGS	29-Jun-99	1370			7.22			-0.44		
USGS	13-Jul-99	902	4.842	23.5	6.80	1.58	3.16	-0.56	-0.87	-0.54
USGS	26-Jul-99	522			6.26			-0.66		
USGS	10-Aug-99	504	3.182	8.6	6.22	1.16	2.16	-0.67	-0.96	-0.57
USGS	08-Sep-99	306	2.367	3.9	5.72	0.86	1.36	-0.72	-1.01	-0.57

tZn

Concentration over time analysis r2 Slope, m

tZn NF50 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.208** **-0.00042**

	Time	Ln[COC]	[COC]
first:	9-Dec-92	3.08	22
mid:	11-Jan-97	2.45	12
last:	8-Sep-99	2.05	8

LnConc.=mTime+b >'96 r2, m: **0.185** **-0.00165**

28-Apr-97	3.20	24
8-Sep-99	1.77	6

Load over time analysis

tZn NF50 **Load over time**

LnLoad=mTime+b All data r2, m: **0.041** **-0.00037**

	Time	LnLoad	Load
first:	9-Dec-92	5.06	158
mid:	11-Jan-97	4.51	91
last:	8-Sep-99	4.15	64

LnLoad=mTime+b >'96 r2, m: **0.293** **-0.00422**

28-Apr-97	7.19	1,326
8-Sep-99	3.55	35

max r2: 0.988 max r2: 0.994

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.208	-0.00042	17.27	0.041	-0.00037	17.58
0.208	-0.00042	17.27	0.041	-0.00037	17.58
0.230	-0.00044	18.22	0.057	-0.00044	19.96
0.212	-0.00042	17.42	0.039	-0.00035	16.87
0.192	-0.00040	16.50	0.022	-0.00025	13.34
0.175	-0.00038	15.89	0.009	-0.00016	9.95
0.196	-0.00041	16.92	0.004	-0.00010	7.91
0.221	-0.00044	18.10	0.000	-0.00003	5.56
0.216	-0.00044	18.20	0.001	0.00004	2.80
0.209	-0.00045	18.31	0.003	0.00010	0.85
0.202	-0.00045	18.41	0.005	0.00012	0.06
0.195	-0.00045	18.52	0.010	0.00017	-1.87
0.195	-0.00045	18.52	0.010	0.00017	-1.87
0.195	-0.00045	18.52	0.010	0.00017	-1.87
0.224	-0.00050	20.19	0.004	0.00011	0.34
0.216	-0.00050	20.39	0.001	0.00005	2.60
0.187	-0.00048	19.42	0.001	0.00005	2.63
0.175	-0.00048	19.45	0.002	0.00009	1.20
0.138	-0.00044	17.90	0.002	0.00009	1.18
0.168	-0.00051	20.64	0.009	0.00021	-3.33
0.214	-0.00063	24.86	0.014	0.00028	-5.86
0.214	-0.00063	24.86	0.014	0.00028	-5.86
0.214	-0.00063	24.86	0.014	0.00028	-5.86
0.214	-0.00063	24.86	0.014	0.00028	-5.86
0.283	-0.00080	31.12	0.008	0.00023	-3.93
0.413	-0.00112	42.72	0.002	-0.00014	9.43
0.413	-0.00140	52.68	0.043	-0.00078	32.49
0.185	-0.00165	61.83	0.293	-0.00422	157.10
0.185	-0.00165	61.83	0.293	-0.00422	157.10
0.185	-0.00165	61.83	0.293	-0.00422	157.10
0.185	-0.00165	61.83	0.293	-0.00422	157.10
0.188	-0.00273	101.18	0.072	-0.00305	114.80
0.188	-0.00273	101.18	0.072	-0.00305	114.80
0.188	-0.00273	101.18	0.072	-0.00305	114.80
0.188	-0.00273	101.18	0.072	-0.00305	114.80
0.188	-0.00273	101.18	0.072	-0.00305	114.80
0.188	-0.00273	101.18	0.072	-0.00305	114.80
0.119	-0.00288	106.60	0.043	-0.00321	120.40
0.396	-0.01642	598.59	0.784	-0.04323	1575.15
0.396	-0.01642	598.59	0.784	-0.04323	1575.15
0.396	-0.01642	598.59	0.784	-0.04323	1575.15
0.396	-0.01642	598.59	0.784	-0.04323	1575.15
0.396	-0.01642	598.59	0.784	-0.04323	1575.15
0.396	-0.01642	598.59	0.784	-0.04323	1575.15
0.396	-0.01642	598.59	0.784	-0.04323	1575.15
0.396	-0.01642	598.59	0.784	-0.04323	1575.15
0.396	-0.01642	598.59	0.784	-0.04323	1575.15

0.396	-0.01642	598.59	0.784	-0.04323	1575.15
0.553	-0.02315	843.46	0.869	-0.05286	1925.38
0.727	-0.00662	241.89	0.990	-0.03654	1331.58
0.727	-0.00662	241.89	0.990	-0.03654	1331.58
0.988	-0.01254	457.51	0.994	-0.03150	1148.16

update for EV, CV:

tZn **NF50**

LN Analysis **tZn**

Load **Load Data, EV=415 lbs/day CV=1.73**

Load Data-based LN

Avg:	**415**	u	ln dZn Load	dZn Load
SD:	**719**	3	8.9	7101
CV:	**1.73**	0	5.34	208
Min:	**3.9**	-3	1.80	6.1
Max:	**2,904**			
Median:	**103**			

415 415
1.73 1.73

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.98, EV= 327lbs/day CV=3.78; max r2=0.984**

r2 u,lnLoad:	0.980	u	lnLoad	Load		
slope, m:	0.606	3	9.38	11849		
intercept, b:	-2.681	0	4.43	84		
N: 30		-3	-0.53	0.6		
E[Load]:	326.9	Parameter Estimates			0.980	0.98
SD[Load]:	1235	from LN regression			326.9	327
CV[Load]:	3.78	update graph label			3.8	3.78
					max r2	

tZn N: 56 0.984

Date	**Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
08-Sep-99	3.9	1	0.0111	-2.287	1.360	0.980
20-Oct-98		2	0.0289	-1.897		0.984
12-Nov-96		3	0.0467	-1.678		0.984
09-Dec-92		4	0.0644	-1.518		0.984
10-Aug-99	8.6	5	0.0822	-1.390	2.155	0.984
21-Sep-93		6	0.1000	-1.282		0.983
25-Aug-93		7	0.1178	-1.186		0.983
21-Jul-94	14.6	8	0.1356	-1.101	2.683	0.983
17-Nov-98		9	0.1533	-1.022		0.981
19-Sep-97		10	0.1711	-0.950		0.981
24-Jul-97		11	0.1889	-0.882		0.981
18-Oct-93	22.9	12	0.2067	-0.818	3.130	0.981
13-Jul-99	23.5	13	0.2244	-0.757	3.157	0.981
23-Feb-93	23.7	14	0.2422	-0.699	3.167	0.979
17-Nov-93	27.1	15	0.2600	-0.643	3.300	0.977
17-Aug-94	28.2	16	0.2778	-0.589	3.341	0.975
15-Jun-94	37.7	17	0.2956	-0.537	3.630	0.972
07-Jul-98	39.9	18	0.3133	-0.486	3.688	0.971
08-Feb-99		19	0.3311	-0.437		0.969
06-Feb-98		20	0.3489	-0.388		0.969
13-Mar-97		21	0.3667	-0.341		0.969
27-Jan-99		22	0.3844	-0.294		0.969
15-Dec-98		23	0.4022	-0.248		0.969
26-Jul-99		24	0.4200	-0.202		0.969
10-May-94		25	0.4378	-0.157		0.969
20-Sep-94	65.2	26	0.4556	-0.112	4.177	0.969
20-Apr-98		27	0.4733	-0.067		0.967
15-Feb-94	67.9	28	0.4911	-0.022	4.219	0.967
16-Dec-93	71.3	29	0.5089	0.022	4.267	0.964
15-Mar-94	84.5	30	0.5267	0.067	4.436	0.961
22-Jun-93	93.4	31	0.5444	0.112	4.537	0.957
16-Apr-97		32	0.5622	0.157		0.952
04-Apr-94		33	0.5800	0.202		0.952
19-Jan-94	111.9	34	0.5978	0.248	4.718	0.952
02-Jun-99	136.3	35	0.6156	0.294	4.915	0.946
21-Jul-93	142.0	36	0.6333	0.341	4.956	0.941
04-Jun-97		37	0.6511	0.388		0.934
29-Jun-99		38	0.6689	0.437		0.934
19-May-98	163.7	39	0.6867	0.486	5.098	0.934
21-Apr-94		40	0.7044	0.537		0.924
06-Mar-94	182.4	41	0.7222	0.589	5.206	0.924
03-Jun-93	191.5	42	0.7400	0.643	5.255	0.912
06-May-99	192.1	43	0.7578	0.699	5.258	0.894
08-Mar-99		44	0.7756	0.757		0.873
13-Apr-99		45	0.7933	0.818		0.873
04-May-93	367.5	46	0.8111	0.882	5.907	0.873
20-Apr-93	369.1	47	0.8289	0.950	5.911	0.840

20-May-93	371.2	48	0.8467	1.022	5.917	0.784
20-Apr-99		49	0.8644	1.101		0.920
23-Mar-99		50	0.8822	1.186		0.920
06-Apr-93	1179.8	51	0.9000	1.282	7.073	0.920
25-May-99		52	0.9178	1.390		0.896
24-Mar-93	1790.5	53	0.9356	1.518	7.490	
24-Mar-93	1790.5	54	0.9533	1.678	7.490	
28-Apr-97	1957.2	55	0.9711	1.897	7.579	
20-May-99	2904.0	56	0.9889	2.287	7.974	

update for EV, CV:

tZn		**NF50**		21	20.7
LN Analysis		**tZn**		0.88	0.879
Concentration		**Conc. Data, EV=20.7 ug/L CV=0.879**			
Avg:	**20.7**	**Data-based LN**			
SD:	**18.2**	u	ln[dZn]	[dZn]	
CV:	**0.88**	3	5.0	151	
Min:	**2**	0	2.75	16	
Max:	**84**	-3	0.48	2	
Median:	**18**				

				0.946	0.946
u=mLn{Conc.}+b:				16.6	16.6
update for r2, EV, CV:	**r2=0.946, EV=16.6 ug/L CV=0.951; max r2=0.946**			0.951	0.951
r2 u,lnConc:	0.946	u	lnConc.	Conc.	
slope, m:	1.246	3	4.89	133	
intercept, b:	-3.096	0	2.48	12	
N: 30		-3	0.08	1	
E[Conc]:	16.6	Parameter Estimates			
SD[Conc]:	16	from LN regression			
CV[Conc]:	0.95	update graph label			

						max r2
	tZn	N: 56				0.946
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
08-Sep-99	2.367	1	0.0111	-2.287	0.862	0.946
10-Aug-99	3.182	2	0.0289	-1.897	1.158	0.935
02-Jun-99	4.36	3	0.0467	-1.678	1.472	0.924
13-Jul-99	4.842	4	0.0644	-1.518	1.577	0.923
09-Dec-92		5	0.0822	-1.390		0.929
25-Aug-93		6	0.1000	-1.282		0.929
21-Sep-93		7	0.1178	-1.186		0.929
04-Apr-94		8	0.1356	-1.101		0.929
21-Apr-94		9	0.1533	-1.022		0.929
10-May-94		10	0.1711	-0.950		0.929
12-Nov-96		11	0.1889	-0.882		0.929
13-Mar-97		12	0.2067	-0.818		0.929
16-Apr-97		13	0.2244	-0.757		0.929
04-Jun-97		14	0.2422	-0.699		0.929
24-Jul-97		15	0.2600	-0.643		0.929
19-Sep-97		16	0.2778	-0.589		0.929
06-Feb-98		17	0.2956	-0.537		0.929
20-Apr-98		18	0.3133	-0.486		0.929
20-Oct-98		19	0.3311	-0.437		0.929
17-Nov-98		20	0.3489	-0.388		0.929
15-Dec-98		21	0.3667	-0.341		0.929
27-Jan-99		22	0.3844	-0.294		0.929
08-Feb-99		23	0.4022	-0.248		0.929
06-May-99	6.894	24	0.4200	-0.202	1.931	0.929
23-Feb-93	10	25	0.4378	-0.157	2.303	0.931
20-Apr-93	10	26	0.4556	-0.112	2.303	0.928
04-May-93	10	27	0.4733	-0.067	2.303	0.923
18-Oct-93	10	28	0.4911	-0.022	2.303	0.918
06-Mar-94	10	29	0.5089	0.022	2.303	0.913
15-Mar-94	10	30	0.5267	0.067	2.303	0.909
15-Jun-94	10	31	0.5444	0.112	2.303	0.905
21-Jul-94	10	32	0.5622	0.157	2.303	0.906
07-Jul-98	11	33	0.5800	0.202	2.398	0.918
28-Apr-97	17	34	0.5978	0.248	2.833	0.934
19-May-98	18	35	0.6156	0.294	2.890	0.929
20-May-93	20	36	0.6333	0.341	2.996	0.924
03-Jun-93	20	37	0.6511	0.388	2.996	0.926
22-Jun-93	20	38	0.6689	0.437	2.996	0.928
21-Jul-93	20	39	0.6867	0.486	2.996	0.927
17-Nov-93	20	40	0.7044	0.537	2.996	0.925
19-Jan-94	20	41	0.7222	0.589	2.996	0.919
08-Mar-99		42	0.7400	0.643		0.912
13-Apr-99		43	0.7578	0.699		0.912
20-Apr-99		44	0.7756	0.757		0.912
25-May-99		45	0.7933	0.818		0.912
29-Jun-99		46	0.8111	0.882		0.912
26-Jul-99		47	0.8289	0.950		0.912

23-Mar-99		48	0.8467	1.022		0.912
06-Apr-93	30	49	0.8644	1.101	3.401	0.912
16-Dec-93	30	50	0.8822	1.186	3.401	0.926
15-Feb-94	30	51	0.9000	1.282	3.401	0.929
17-Aug-94	30	52	0.9178	1.390	3.401	0.913
24-Mar-93	40	53	0.9356	1.518	3.689	
24-Mar-93	40	54	0.9533	1.678	3.689	
20-Sep-94	70	55	0.9711	1.897	4.248	
20-May-99	84.34	56	0.9889	2.287	4.435	

update for EV, CV:

tZn		**NF50**			3,009	3010
LN Analysis		**tZn**			1.25	1.25
Discharge, Q		**Q Data, EV=3010 cfs CV=1.25**				
Avg:	**3,009**	**Q Data-based LN**				
SD:	**3,752**	u	lnQ	Q		
CV:	**1.25**	3	10.4	34404		
Min:	**173**	0	7.54	1883		
Max:	**21,400**	-3	4.63	103		
Median:	**1,565**					

					0.967	0.967
					3422.9	3420
u=mLn{Q}+b:					2.08	2.08
update for r2, EV, CV:	**r2=0.967, EV=3420 cfs CV=2.08; max r2=0.973**					
r2 u,lnQ:	0.967	u	lnQ	Q		
slope, m:	0.773	3	11.18	71844		
intercept, b:	-5.645	0	7.30	1483		
N: 56		-3	3.42	31		
E[Q]:	3422.9	Parameter Estimates				
SD[Q]:	7122	from LN regression				
CV[Q]:	2.08	update graph label				

						max r2
	Q	N: 56				0.973
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
20-Sep-94	173	1	0.0111	-2.287	5.153	0.967
17-Aug-94	175	2	0.0289	-1.897	5.165	0.972
17-Nov-93	252	3	0.0467	-1.678	5.529	0.972
20-Oct-98	254	4	0.0644	-1.518	5.537	0.973
21-Jul-94	272	5	0.0822	-1.390	5.606	0.973
08-Sep-99	306	6	0.1000	-1.282	5.724	0.972
12-Nov-96	311	7	0.1178	-1.186	5.740	0.971
09-Dec-92	320	8	0.1356	-1.101	5.768	0.970
21-Sep-93	342	9	0.1533	-1.022	5.835	0.968
25-Aug-93	421	10	0.1711	-0.950	6.043	0.966
15-Feb-94	421	11	0.1889	-0.882	6.043	0.965
18-Oct-93	425	12	0.2067	-0.818	6.052	0.963
23-Feb-93	441	13	0.2244	-0.757	6.089	0.961
16-Dec-93	442	14	0.2422	-0.699	6.091	0.959
10-Aug-99	504	15	0.2600	-0.643	6.223	0.957
26-Jul-99	522	16	0.2778	-0.589	6.258	0.955
17-Nov-98	592	17	0.2956	-0.537	6.384	0.953
19-Sep-97	613	18	0.3133	-0.486	6.418	0.951
07-Jul-98	675	19	0.3311	-0.437	6.515	0.950
24-Jul-97	676	20	0.3489	-0.388	6.516	0.948
15-Jun-94	701	21	0.3667	-0.341	6.553	0.948
22-Jun-93	868	22	0.3844	-0.294	6.766	0.949
13-Jul-99	902	23	0.4022	-0.248	6.805	0.948
19-Jan-94	1040	24	0.4200	-0.202	6.947	0.948
21-Jul-93	1320	25	0.4378	-0.157	7.185	0.947
29-Jun-99	1370	26	0.4556	-0.112	7.223	0.944
08-Feb-99	1540	27	0.4733	-0.067	7.340	0.940
06-Feb-98	1560	28	0.4911	-0.022	7.352	0.936
15-Mar-94	1570	29	0.5089	0.022	7.359	0.932
19-May-98	1690	30	0.5267	0.067	7.432	0.928
13-Mar-97	1740	31	0.5444	0.112	7.462	0.923
03-Jun-93	1780	32	0.5622	0.157	7.484	0.918
27-Jan-99	1840	33	0.5800	0.202	7.518	0.913
15-Dec-98	1940	34	0.5978	0.248	7.570	0.910
08-Mar-99	1940	35	0.6156	0.294	7.570	0.909
10-May-94	2260	36	0.6333	0.341	7.723	0.915
20-Apr-98	2460	37	0.6511	0.388	7.808	0.918
13-Apr-99	2740	38	0.6689	0.437	7.916	0.925
06-Mar-94	3390	39	0.6867	0.486	8.129	0.933
20-May-93	3450	40	0.7044	0.537	8.146	0.930
16-Apr-97	4030	41	0.7222	0.589	8.302	0.932
04-Apr-94	4140	42	0.7400	0.643	8.328	0.927
06-May-99	5180	43	0.7578	0.699	8.553	0.925
04-Jun-97	5360	44	0.7756	0.757	8.587	0.917
02-Jun-99	5810	45	0.7933	0.818	8.667	0.907
20-May-99	6400	46	0.8111	0.882	8.764	0.900
21-Apr-94	6650	47	0.8289	0.950	8.802	0.904

04-May-93	6830	48	0.8467	1.022	8.829	0.915
20-Apr-93	6860	49	0.8644	1.101	8.833	0.928
23-Mar-99	6880	50	0.8822	1.186	8.836	0.936
06-Apr-93	7310	51	0.9000	1.282	8.897	0.932
24-Mar-93	8320	52	0.9178	1.390	9.026	0.927
24-Mar-93	8320	53	0.9356	1.518	9.026	
20-Apr-99	9680	54	0.9533	1.678	9.178	
25-May-99	11100	55	0.9711	1.897	9.315	
28-Apr-97	21400	56	0.9889	2.287	9.971	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM291 **Date:** 29-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,655	6	1	0.04	0.00	0.00	0.00	
SD:	539	6	0.4	0.07	1.00	1.00	1.00	
CV:	0.02	1.08	0.38	1.86				first:
Min:	33,374	0	0.4	0.005	-0.92	-1.72	-0.47	mid:
Max:	36,114	25	3	0.39	2.96	3.95	5.24	last:
Median:	34,561	3	1	0.02	-0.50	0.10	-0.26	

dCd **NM291** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.01) update r2 r2: 0.0000001 0.035

r2 Q,[COC]:	0.01	[dCd]	Q	m:	0.000004	-0.00043
slope, m:	0.01	1	0.04	b:	6	16.03
intercept, b:	1.1	1	6.0			
N: 30		1	25			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.10) update r2

r2 lnQ,ln[COC]:	0.10	ln[dCd]	ln Q	[dCd]	Q
slope, m:	-0.13	0.64	-3.17	2	0.04
intercept, b:	0.24	0.02	1.80	1	6
N: 30		-0.16	3.23	1	25

for graph
dCd 0
NM291

N= 32

update for new data	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	20	0.4	0.0430	3.00	-0.92	-3.15	2.16	-1.72	0.10
MFG	4-Oct-91	0.89	1	0.0048	-0.12	0.00	-5.34	-0.79	-0.36	-0.47
IDEQ	27-Oct-93	2.13	1.6	0.0183	0.76	0.47	-4.00	-0.60	1.00	-0.27
IDEQ	2-Dec-93	2.04	1.4	0.0154	0.71	0.34	-4.18	-0.61	0.55	-0.31
IDEQ	16-Dec-93	1.81	1.2	0.0117	0.59	0.18	-4.45	-0.65	0.10	-0.36
IDEQ	16-Dec-93	0.82	1.2	0.0053	-0.20	0.18	-5.24	-0.80	0.10	-0.46
IDEQ	24-Jan-94	1.81	1.2	0.0117	0.59	0.18	-4.45	-0.65	0.10	-0.36
IDEQ	24-Jan-94	0.88	1.2	0.0057	-0.13	0.18	-5.17	-0.79	0.10	-0.45
IDEQ	8-Apr-94	4.73	1.6	0.0407	1.55	0.47	-3.20	-0.20	1.00	0.06
IDEQ	19-Apr-94	25.2	2.9	0.3932	3.23	1.06	-0.93	2.96	3.95	5.24
IDEQ	4-May-94	10.13	1	0.0545	2.32	0.00	-2.91	0.63	-0.36	0.26
IDEQ	19-May-94	12.79	0.6	0.0413	2.55	-0.51	-3.19	1.04	-1.27	0.07
IDEQ	7-Jun-94	7.36	1	0.0396	2.00	0.00	-3.23	0.21	-0.36	0.05
IDEQ	23-Jun-94	5.16	1	0.0278	1.64	0.00	-3.58	-0.13	-0.36	-0.13
IDEQ	20-Jul-94	3.81	1.2	0.0246	1.34	0.18	-3.71	-0.34	0.10	-0.18
IDEQ	15-Aug-94	2.61	1.3	0.0183	0.96	0.26	-4.00	-0.53	0.32	-0.27
IDEQ	15-Aug-94	1.53	1.3	0.0107	0.43	0.26	-4.54	-0.69	0.32	-0.38
IDEQ	8-Sep-94	1.88	1.4	0.0142	0.63	0.34	-4.26	-0.64	0.55	-0.33
IDEQ	4-Oct-94	1.88	1.4	0.0142	0.63	0.34	-4.26	-0.64	0.55	-0.33
IDEQ	13-Apr-95	6.15	1.3	0.0430	1.82	0.26	-3.15	0.02	0.32	0.10
IDEQ	25-Apr-95	5.39	1.3	0.0377	1.68	0.26	-3.28	-0.10	0.32	0.02
IDEQ	9-May-95	11.11	1	0.0598	2.41	0.00	-2.82	0.79	-0.36	0.34
IDEQ	23-May-95	14.06	0.7	0.0529	2.64	-0.36	-2.94	1.24	-1.04	0.24
IDEQ	12-Jun-95	9.24	0.5	0.0249	2.22	-0.69	-3.69	0.50	-1.49	-0.17
IDEQ	27-Jun-95	5.16	0.7	0.0194	1.64	-0.36	-3.94	-0.13	-1.04	-0.25
IDEQ	11-Jul-95	2.96	0.9	0.0143	1.09	-0.11	-4.25	-0.47	-0.59	-0.33
IDEQ	25-Jul-95	2.31	0.8	0.0099	0.84	-0.22	-4.61	-0.57	-0.81	-0.39
IDEQ	14-Aug-95	1.74	1	0.0094	0.55	0.00	-4.67	-0.66	-0.36	-0.40
IDEQ	13-Sep-95	1.48	1.3	0.0104	0.39	0.26	-4.57	-0.70	0.32	-0.38
URS	13-Nov-97	2.63	1.34	0.0190	0.97	0.29	-3.97	-0.52	0.41	-0.26
URS	*14-May-98*	*22.9*			3.13			2.60		
URS	*15-Nov-98*	*0.0422*			-3.17			-0.92		

dCd

Concentration over time analysis r2 Slope, m

dCd NM291 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.017** **0.00012**

Time	Ln[COC]	[COC]
16-May-91	-0.06	1
15-Aug-94	0.08	1
15-Nov-98	0.26	1

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

dCd NM291 **Load over time**

LnLoad=mTime+b All data r2, m: **0.005** **0.00015**

Time	LnLoad	Load
16-May-91	-4.04	0.02
15-Aug-94	-3.86	0.02
15-Nov-98	-3.62	0.03

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.430 max r2: 0.990

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.017	0.00012	-3.97	0.005	0.00015	-9.08
0.030	-0.00016	5.58	0.032	0.00044	-19.00
0.065	-0.00028	9.88	0.000	0.00001	-4.15
0.047	-0.00024	8.51	0.000	-0.00002	-3.22
0.037	-0.00022	7.70	0.001	-0.00007	-1.24
0.035	-0.00022	7.65	0.004	-0.00019	2.65
0.032	-0.00022	7.58	0.025	-0.00047	12.56
0.029	-0.00021	7.45	0.045	-0.00063	18.31
0.026	-0.00021	7.28	0.116	-0.00099	30.72
0.013	-0.00015	5.17	0.107	-0.00097	29.92
0.002	0.00004	-1.48	0.053	-0.00049	13.17
0.002	0.00004	-1.50	0.026	-0.00034	7.84
0.005	-0.00007	2.55	0.011	-0.00021	3.59
0.007	-0.00009	3.08	0.001	-0.00008	-1.22
0.009	-0.00011	3.72	0.000	0.00000	-3.90
0.005	-0.00008	2.68	0.001	0.00006	-5.96
0.000	-0.00001	0.53	0.000	0.00004	-5.36
0.004	0.00007	-2.47	0.006	-0.00017	2.23
0.032	0.00022	-7.58	0.021	-0.00035	8.45
0.120	0.00042	-14.68	0.055	-0.00060	17.07
0.192	0.00051	-17.85	0.036	-0.00046	12.34
0.320	0.00061	-21.64	0.020	-0.00033	7.71
0.379	0.00068	-23.78	0.001	-0.00005	-2.44
0.354	0.00065	-22.71	0.056	0.00029	-14.26
0.422	0.00049	-17.34	0.245	0.00048	-21.04
0.430	0.00040	-13.99	0.659	0.00066	-27.42
0.380	0.00036	-12.74	0.988	0.00080	-32.46
0.366	0.00021	-7.17	0.990	0.00081	-33.09

update for EV, CV:

dCd **NM291**
LN Analysis **dCd**

Load **Load Data, EV=0.04 lbs/day CV=1.86**

Load Data-based LN

		u	ln dCd Load	dCd Load
Avg:	**0.04**			
SD:	**0.07**			
CV:	**1.86**	3	-0.4	0.6791
Min:	**0.005**	0	-4.06	0.0173
Max:	**0.39**	-3	-7.73	0.0004
Median:	**0.02**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.924, EV=0.03 lbs/day CV=1.34; max r2=0.92**

r2 u,lnLoad:	0.924	u	lnLoad	Load
slope, m:	0.986	3	-0.90	0.4
intercept, b:	3.886	0	-3.94	0.0194
N: 30		-3	-6.98	0.0009
E[Load]:	0.03	Parameter Estimates		
SD[Load]:	0.04	from LN regression		
CV[Load]:	1.34	update graph label		

N: 32

Date	dCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.924 r2 forward
update and rank for new data						
15-Nov-98		1	0.0194	-2.067		
4-Oct-91	**0.0048**	2	0.0504	-1.641	-5.342	0.924
16-Dec-93	**0.0053**	3	0.0814	-1.396	-5.241	0.917
24-Jan-94	**0.0057**	4	0.1124	-1.214	-5.171	0.907
14-Aug-95	**0.0094**	5	0.1434	-1.065	-4.671	0.896
25-Jul-95	**0.0099**	6	0.1744	-0.937	-4.611	0.895
13-Sep-95	**0.0104**	7	0.2054	-0.822	-4.571	0.893
15-Aug-94	**0.0107**	8	0.2364	-0.718	-4.537	0.890
16-Dec-93	**0.0117**	9	0.2674	-0.621	-4.449	0.885
24-Jan-94	**0.0117**	10	0.2984	-0.529	-4.449	0.881
14-May-98		11	0.3295	-0.441		
4-Oct-94	**0.0142**	12	0.3605	-0.357	-4.257	0.873
8-Sep-94	**0.0142**	13	0.3915	-0.275	-4.257	0.868
11-Jul-95	**0.0143**	14	0.4225	-0.196	-4.245	0.859
2-Dec-93	**0.0154**	15	0.4535	-0.117	-4.176	0.847
15-Aug-94	**0.0183**	16	0.4845	-0.039	-4.003	0.833
27-Oct-93	**0.0183**	17	0.5155	0.039	-3.999	0.824
13-Nov-97	**0.0190**	18	0.5465	0.117	-3.965	0.809
27-Jun-95	**0.0194**	19	0.5775	0.196	-3.941	0.790
20-Jul-94	**0.0246**	20	0.6085	0.275	-3.705	0.764
12-Jun-95	**0.0249**	21	0.6395	0.357	-3.695	0.747
23-Jun-94	**0.0278**	22	0.6705	0.441	-3.584	0.720
25-Apr-95	**0.0377**	23	0.7016	0.529	-3.278	0.693
7-Jun-94	**0.0396**	24	0.7326	0.621	-3.229	0.706
8-Apr-94	**0.0407**	25	0.7636	0.718	-3.201	0.726
19-May-94	**0.0413**	26	0.7946	0.822	-3.187	0.751
13-Apr-95	**0.0430**	27	0.8256	0.937	-3.146	0.775
16-May-91	**0.0430**	28	0.8566	1.065	-3.146	0.804
23-May-95	**0.0529**	29	0.8876	1.214	-2.938	
4-May-94	**0.0545**	30	0.9186	1.396	-2.910	
9-May-95	**0.0598**	31	0.9496	1.641	-2.817	
19-Apr-94	**0.3932**	32	0.9806	2.067	-0.934	

update for EV, CV:

dCd **NM291**

LN Analysis **dCd**

Concentration **Conc. Data, EV=1 ug/L CV=.38**

Data-based LN

Avg:	**1**	u	ln[dCd]	[dCd]
SD:	**0.4**	3	1.2	3
CV:	**0.38**	0	0.08	1
Min:	**0.4**	-3	-1.02	0.4
Max:	**3**			
Median:	**1**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.885, EV=1.1 ug/L CV=0.48; max r2=0.89**

r2 u,lnConc:	0.885	u	lnConc.	Conc.
slope, m:	2.186	3	1.40	4
intercept, b:	-0.057	0	0.03	1
N: 30		-3	-1.35	0.3
E[Conc]:	1.1	Parameter Estimates		
SD[Conc]:	1	from LN regression		
CV[Conc]:	0.48	update graph label		

N: 32

max r2 0.885

Date	dCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
14-May-98		1	0.0194	-2.067		
16-May-91	0.4	2	0.0504	-1.641	-0.916	0.885
15-Nov-98		3	0.0814	-1.396		
12-Jun-95	0.5	4	0.1124	-1.214	-0.693	0.878
19-May-94	0.6	5	0.1434	-1.065	-0.511	0.882
23-May-95	0.7	6	0.1744	-0.937	-0.357	0.877
27-Jun-95	0.7	7	0.2054	-0.822	-0.357	0.866
25-Jul-95	0.8	8	0.2364	-0.718	-0.223	0.860
11-Jul-95	0.9	9	0.2674	-0.621	-0.105	0.847
4-Oct-91	1	10	0.2984	-0.529	0.000	0.832
4-May-94	1	11	0.3295	-0.441	0.000	0.826
7-Jun-94	1	12	0.3605	-0.357	0.000	0.817
9-May-95	1	13	0.3915	-0.275	0.000	0.804
14-Aug-95	1	14	0.4225	-0.196	0.000	0.787
23-Jun-94	1	15	0.4535	-0.117	0.000	0.764
16-Dec-93	1.2	16	0.4845	-0.039	0.182	0.737
16-Dec-93	1.2	17	0.5155	0.039	0.182	0.743
20-Jul-94	1.2	18	0.5465	0.117	0.182	0.746
24-Jan-94	1.2	19	0.5775	0.196	0.182	0.745
24-Jan-94	1.2	20	0.6085	0.275	0.182	0.740
13-Apr-95	1.3	21	0.6395	0.357	0.262	0.728
13-Sep-95	1.3	22	0.6705	0.441	0.262	0.749
15-Aug-94	1.3	23	0.7016	0.529	0.262	0.768
15-Aug-94	1.3	24	0.7326	0.621	0.262	0.785
25-Apr-95	1.3	25	0.7636	0.718	0.262	0.798
13-Nov-97	1.34	26	0.7946	0.822	0.293	0.802
2-Dec-93	1.4	27	0.8256	0.937	0.336	0.814
4-Oct-94	1.4	28	0.8566	1.065	0.336	0.852
8-Sep-94	1.4	29	0.8876	1.214	0.336	
8-Apr-94	1.6	30	0.9186	1.396	0.470	
27-Oct-93	1.6	31	0.9496	1.641	0.470	
19-Apr-94	2.9	32	0.9806	2.067	1.065	

update for EV, CV:

dCd **NM291**

LN Analysis **dCd**

Discharge, Q **Q Data, EV=6 cfs CV=1.08**

Avg:	**6**	**Q Data-based LN**		
SD:	**6**	u	lnQ	Q
CV:	**1.08**	3	4.0	57
Min:	**0.04**	0	1.41	4
Max:	**25**	-3	-1.22	0.3
Median:	**3**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.898, EV=8.4 cfs CV=2.31; max r2=0.97**

r2 u,lnQ:	0.898	u	lnQ	Q
slope, m:	0.736	3	5.28	197
intercept, b:	-0.890	0	1.21	3
N: 32		-3	-2.87	0.1
E[Q]:	8.4	Parameter Estimates		
SD[Q]:	19	from LN regression		
CV[Q]:	2.31	update graph label		

max r2
0.974

N: 32

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
15-Nov-98	*0.0422*	1	0.0194	-2.067	-3.165	0.898
16-Dec-93	0.82	2	0.0504	-1.641	-0.198	0.973
24-Jan-94	0.88	3	0.0814	-1.396	-0.128	0.973
4-Oct-91	0.89	4	0.1124	-1.214	-0.117	0.971
13-Sep-95	1.48	5	0.1434	-1.065	0.392	0.968
15-Aug-94	1.53	6	0.1744	-0.937	0.425	0.970
14-Aug-95	1.74	7	0.2054	-0.822	0.554	0.971
16-Dec-93	1.81	8	0.2364	-0.718	0.593	0.973
24-Jan-94	1.81	9	0.2674	-0.621	0.593	0.974
4-Oct-94	1.88	10	0.2984	-0.529	0.631	0.974
8-Sep-94	1.88	11	0.3295	-0.441	0.631	0.972
2-Dec-93	2.04	12	0.3605	-0.357	0.713	0.969
27-Oct-93	2.13	13	0.3915	-0.275	0.756	0.965
25-Jul-95	2.31	14	0.4225	-0.196	0.837	0.962
15-Aug-94	2.61	15	0.4535	-0.117	0.959	0.959
13-Nov-97	2.63	16	0.4845	-0.039	0.967	0.955
11-Jul-95	2.96	17	0.5155	0.039	1.085	0.956
20-Jul-94	3.81	18	0.5465	0.117	1.338	0.960
8-Apr-94	4.73	19	0.5775	0.196	1.554	0.957
23-Jun-94	5.16	20	0.6085	0.275	1.641	0.950
27-Jun-95	5.16	21	0.6395	0.357	1.641	0.943
25-Apr-95	5.39	22	0.6705	0.441	1.685	0.935
13-Apr-95	6.15	23	0.7016	0.529	1.816	0.933
7-Jun-94	7.36	24	0.7326	0.621	1.996	0.936
12-Jun-95	9.24	25	0.7636	0.718	2.224	0.934
4-May-94	10.13	26	0.7946	0.822	2.316	0.917
9-May-95	11.11	27	0.8256	0.937	2.408	0.891
19-May-94	12.79	28	0.8566	1.065	2.549	0.852
23-May-95	14.06	29	0.8876	1.214	2.643	
16-May-91	20	30	0.9186	1.396	2.996	
14-May-98	*22.9*	31	0.9496	1.641	3.131	
19-Apr-94	25.2	32	0.9806	2.067	3.227	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM291 **Date:** 30-May-00
Chemical: dPb **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,655	6	3	0.1	0.00	0.00	0.00	
SD:	539	6	1	0.1	1.00	1.00	1.00	
CV:	0.02	1.08	0.24	0.96				first:
Min:	33,374	0	1	0.02	-0.92	-2.17	-0.88	mid:
Max:	36,114	25	4	0.5	2.96	1.36	2.92	last:
Median:	34,561	3	3	0.1	-0.50	-0.01	-0.22	

dPb NM291 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.06) update r2 r2: 0.000 0.035

r2 Q,[COC]:	0.06	[dPb]	Q	m:	0.0000	-0.00043
slope, m:	0.03	3	0.04	b:	6	16.03
intercept, b:	2.8	3	6.0			
N: 14		3	25			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.03) update r2

r2 lnQ,ln[COC]:	0.03	ln[dPb]	ln Q	[dPb]	Q
slope, m:	0.06	0.80	-3.17	2	0.04
intercept, b:	0.97	1.07	1.80	3	6
N: 14		1.15	3.23	3	25

for graph
dPb 0
NM291

N= 32

	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	*16-May-91*	*20*			3.00			2.16		
MFG	*4-Oct-91*	*0.89*			-0.12			-0.79		
IDEQ	*27-Oct-93*	*2.13*			0.76			-0.60		
IDEQ	*2-Dec-93*	*2.04*			0.71			-0.61		
IDEQ	*16-Dec-93*	*0.82*			-0.20			-0.80		
IDEQ	*16-Dec-93*	*1.81*			0.59			-0.65		
IDEQ	*24-Jan-94*	*0.88*			-0.13			-0.79		
IDEQ	*24-Jan-94*	*1.81*			0.59			-0.65		
IDEQ	*8-Apr-94*	*4.73*			1.55			-0.20		
IDEQ	19-Apr-94	25.2	3.7	0.5016	3.23	1.31	-0.69	2.96	0.95	2.92
IDEQ	4-May-94	10.13	2	0.1090	2.32	0.69	-2.22	0.63	-1.38	-0.18
IDEQ	19-May-94	12.79	3	0.2064	2.55	1.10	-1.58	1.04	-0.01	0.59
IDEQ	7-Jun-94	7.36	3	0.1188	2.00	1.10	-2.13	0.21	-0.01	-0.11
IDEQ	*23-Jun-94*	*5.16*			1.64			-0.13		
IDEQ	*20-Jul-94*	*3.81*			1.34			-0.34		
IDEQ	15-Aug-94	1.53	2.5	0.0206	0.43	0.92	-3.88	-0.69	-0.70	-0.88
IDEQ	15-Aug-94	2.61	2.5	0.0351	0.96	0.92	-3.35	-0.53	-0.70	-0.77
IDEQ	*8-Sep-94*	*1.88*			0.63			-0.64		
IDEQ	*4-Oct-94*	*1.88*			0.63			-0.64		
IDEQ	13-Apr-95	6.15	3	0.0993	1.82	1.10	-2.31	0.02	-0.01	-0.26
IDEQ	*25-Apr-95*	*5.39*			1.68			-0.10		
IDEQ	9-May-95	11.11	4	0.2391	2.41	1.39	-1.43	0.79	1.36	0.84
IDEQ	23-May-95	14.06	3	0.2269	2.64	1.10	-1.48	1.24	-0.01	0.75
IDEQ	12-Jun-95	9.24	3	0.1491	2.22	1.10	-1.90	0.50	-0.01	0.13
IDEQ	*27-Jun-95*	*5.16*			1.64			-0.13		
IDEQ	11-Jul-95	2.96	4	0.0637	1.09	1.39	-2.75	-0.47	1.36	-0.54
IDEQ	*25-Jul-95*	*2.31*			0.84			-0.57		
IDEQ	14-Aug-95	1.74	3	0.0281	0.55	1.10	-3.57	-0.66	-0.01	-0.82
IDEQ	13-Sep-95	1.48	4	0.0318	0.39	1.39	-3.45	-0.70	1.36	-0.79
URS	13-Nov-97	2.63	1.42	0.0201	0.97	0.35	-3.91	-0.52	-2.17	-0.88
URS	*14-May-98*	*22.9*			3.13			2.60		
URS	*15-Nov-98*	*0.0422*			-3.17			-0.92		

dPb

Concentration over time analysis r2 Slope, m

dPb NM291 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.150** **-0.00033**

Time	Ln[COC]	[COC]
16-May-91	1.52	5
15-Aug-94	1.14	3
15-Nov-98	0.63	2

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

dPb NM291 **Load over time**

LnLoad=mTime+b All data r2, m: **0.224** **-0.00143**

Time	LnLoad	Load
16-May-91	-0.48	0.62
15-Aug-94	-2.17	0.11
15-Nov-98	-4.39	0.01

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.921 max r2: 0.913

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.150	-0.00033	12.41	0.224	-0.00143	47.12
0.150	-0.00033	12.41	0.224	-0.00143	47.12
0.150	-0.00033	12.41	0.224	-0.00143	47.12
0.150	-0.00033	12.41	0.224	-0.00143	47.12
0.150	-0.00033	12.41	0.224	-0.00143	47.12
0.150	-0.00033	12.41	0.224	-0.00143	47.12
0.150	-0.00033	12.41	0.224	-0.00143	47.12
0.150	-0.00033	12.41	0.224	-0.00143	47.12
0.150	-0.00033	12.41	0.224	-0.00143	47.12
0.150	-0.00033	12.41	0.224	-0.00143	47.12
0.117	-0.00029	11.20	0.161	-0.00109	35.24
0.262	-0.00043	15.90	0.146	-0.00108	34.99
0.286	-0.00047	17.49	0.091	-0.00084	26.68
0.319	-0.00053	19.70	0.060	-0.00072	22.25
0.319	-0.00053	19.70	0.060	-0.00072	22.25
0.319	-0.00053	19.70	0.060	-0.00072	22.25
0.469	-0.00068	24.95	0.203	-0.00130	42.82
0.763	-0.00095	34.20	0.421	-0.00201	67.61
0.763	-0.00095	34.20	0.421	-0.00201	67.61
0.763	-0.00095	34.20	0.421	-0.00201	67.61
0.814	-0.00100	36.26	0.413	-0.00203	68.39
0.814	-0.00100	36.26	0.413	-0.00203	68.39
0.806	-0.00097	35.15	0.389	-0.00174	58.12
0.853	-0.00104	37.51	0.388	-0.00132	43.14
0.921	-0.00114	41.02	0.499	-0.00083	25.76
0.921	-0.00114	41.02	0.499	-0.00083	25.76
0.910	-0.00109	39.46	0.913	-0.00049	13.54
0.910	-0.00109	39.46	0.913	-0.00049	13.54

update for EV, CV:

dPb **NM291**

LN Analysis **dPb**

Load **Load Data, EV=0.1 lbs/day CV=.96**

Load Data-based LN

		u	ln dPb Load	dPb Load
Avg:	**0.1**			
SD:	**0.1**	3	0.1	1.07
CV:	**0.96**	0	-2.35	0.10
Min:	**0.02**	-3	-4.77	0.01
Max:	**0.5**			
Median:	**0.1**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.926, EV=0.1 lbs/day CV=4.11; max r2=0.97**

r2 u,lnLoad:	0.926	u	lnLoad	Load
slope, m:	0.589	3	1.30	4
intercept, b:	2.233	0	-3.79	0.02
N: 14		-3	-8.89	0.0001380
E[Load]:	0.1	Parameter Estimates		
SD[Load]:	0.4	from LN regression		
CV[Load]:	4.11	update graph label		

N: 32

max r2 0.967

Date	dPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
15-Nov-98		1	0.0194	-2.067		
4-Oct-91		2	0.0504	-1.641		
16-Dec-93		3	0.0814	-1.396		
24-Jan-94		4	0.1124	-1.214		
16-Dec-93		5	0.1434	-1.065		
24-Jan-94		6	0.1744	-0.937		
4-Oct-94		7	0.2054	-0.822		
8-Sep-94		8	0.2364	-0.718		
2-Dec-93		9	0.2674	-0.621		
27-Oct-93		10	0.2984	-0.529		
25-Jul-95		11	0.3295	-0.441		
14-May-98		12	0.3605	-0.357		
20-Jul-94		13	0.3915	-0.275		
8-Apr-94		14	0.4225	-0.196		
13-Nov-97	**0.0201**	15	0.4535	-0.117	-3.907	0.926
15-Aug-94	**0.0206**	16	0.4845	-0.039	-3.884	0.911
23-Jun-94		17	0.5155	0.039		
27-Jun-95		18	0.5465	0.117		
25-Apr-95		19	0.5775	0.196		
14-Aug-95	**0.0281**	20	0.6085	0.275	-3.573	0.889
13-Sep-95	**0.0318**	21	0.6395	0.357	-3.447	0.881
15-Aug-94	**0.0351**	22	0.6705	0.441	-3.349	0.883
11-Jul-95	**0.0637**	23	0.7016	0.529	-2.754	0.947
13-Apr-95	**0.0993**	24	0.7326	0.621	-2.310	0.967
4-May-94	**0.1090**	25	0.7636	0.718	-2.216	0.959
7-Jun-94	**0.1188**	26	0.7946	0.822	-2.130	0.947
12-Jun-95	**0.1491**	27	0.8256	0.937	-1.903	0.924
16-May-91		28	0.8566	1.065		
19-May-94	**0.2064**	29	0.8876	1.214	-1.578	
23-May-95	**0.2269**	30	0.9186	1.396	-1.483	
9-May-95	**0.2391**	31	0.9496	1.641	-1.431	
19-Apr-94	**0.5016**	32	0.9806	2.067	-0.690	

update for EV, CV:

dPb
LN Analysis

Concentration

NM291
dPb
Conc. Data, EV=3 ug/L CV=.24
Data-based LN

		u	ln[dPb]	[dPb]
Avg:	**3**			
SD:	**1**			
CV:	**0.24**	3	1.8	6
Min:	**1**	0	1.07	3
Max:	**4**	-3	0.35	1
Median:	**3**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.723, EV=2.1 ug/L CV=0.66; max r2=0.83**

r2 u,lnConc:	0.723	u	lnConc.	Conc.
slope, m:	1.653	3	2.35	11
intercept, b:	-0.892	0	0.54	2
N: 14		-3	-1.28	0.28
E[Conc]:	2.1	Parameter Estimates		
SD[Conc]:	1	from LN regression		
CV[Conc]:	0.66	update graph label		

N: 32

max r2
0.827

Date	dPb Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
14-May-98		1	0.0194	-2.067		
15-Nov-98		2	0.0504	-1.641		
4-Oct-91		3	0.0814	-1.396		
16-Dec-93		4	0.1124	-1.214		
24-Jan-94		5	0.1434	-1.065		
16-Dec-93		6	0.1744	-0.937		
24-Jan-94		7	0.2054	-0.822		
4-Oct-94		8	0.2364	-0.718		
8-Sep-94		9	0.2674	-0.621		
2-Dec-93		10	0.2984	-0.529		
27-Oct-93		11	0.3295	-0.441		
25-Jul-95		12	0.3605	-0.357		
20-Jul-94		13	0.3915	-0.275		
8-Apr-94		14	0.4225	-0.196		
23-Jun-94		15	0.4535	-0.117		
27-Jun-95		16	0.4845	-0.039		
25-Apr-95		17	0.5155	0.039		
13-Nov-97	1.42	18	0.5465	0.117	0.351	0.723
16-May-91		19	0.5775	0.196		
4-May-94	2	20	0.6085	0.275	0.693	0.794
15-Aug-94	2.5	21	0.6395	0.357	0.916	0.827
15-Aug-94	2.5	22	0.6705	0.441	0.916	0.798
14-Aug-95	3	23	0.7016	0.529	1.099	0.776
13-Apr-95	3	24	0.7326	0.621	1.099	0.770
7-Jun-94	3	25	0.7636	0.718	1.099	0.752
12-Jun-95	3	26	0.7946	0.822	1.099	0.713
19-May-94	3	27	0.8256	0.937	1.099	0.639
23-May-95	3	28	0.8566	1.065	1.099	0.500
19-Apr-94	3.7	29	0.8876	1.214	1.308	
13-Sep-95	4	30	0.9186	1.396	1.386	
11-Jul-95	4	31	0.9496	1.641	1.386	
9-May-95	4	32	0.9806	2.067	1.386	

update for EV, CV:

dPb **NM291**

LN Analysis **dPb**

Discharge, Q **Q Data, EV=6 cfs CV=1.08**

Q Data-based LN

		u	lnQ	Q
Avg:	**6**			
SD:	**6**			
CV:	**1.08**	3	4.0	57
Min:	**0.0**	0	1.41	4
Max:	**25**	-3	-1.22	0.3
Median:	**3**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.898, EV=8.4 cfs CV=2.31; max r2=0.97**

r2 u,lnQ:	0.898	u	lnQ	Q
slope, m:	0.736	3	5.28	197
intercept, b:	-0.890	0	1.21	3
N: 32		-3	-2.87	0.1
E[Q]:	8.4	Parameter Estimates		
SD[Q]:	19	from LN regression		
CV[Q]:	2.31	update graph label		

max r2
0.974

N: 32

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
15-Nov-98	*0.0422*	1	0.0194	-2.067	-3.165	0.898
16-Dec-93	*0.82*	2	0.0504	-1.641	-0.198	0.973
24-Jan-94	*0.88*	3	0.0814	-1.396	-0.128	0.973
4-Oct-91	*0.89*	4	0.1124	-1.214	-0.117	0.971
13-Sep-95	1.48	5	0.1434	-1.065	0.392	0.968
15-Aug-94	1.53	6	0.1744	-0.937	0.425	0.970
14-Aug-95	1.74	7	0.2054	-0.822	0.554	0.971
16-Dec-93	*1.81*	8	0.2364	-0.718	0.593	0.973
24-Jan-94	*1.81*	9	0.2674	-0.621	0.593	0.974
4-Oct-94	*1.88*	10	0.2984	-0.529	0.631	0.974
8-Sep-94	*1.88*	11	0.3295	-0.441	0.631	0.972
2-Dec-93	*2.04*	12	0.3605	-0.357	0.713	0.969
27-Oct-93	*2.13*	13	0.3915	-0.275	0.756	0.965
25-Jul-95	*2.31*	14	0.4225	-0.196	0.837	0.962
15-Aug-94	2.61	15	0.4535	-0.117	0.959	0.959
13-Nov-97	2.63	16	0.4845	-0.039	0.967	0.955
11-Jul-95	2.96	17	0.5155	0.039	1.085	0.956
20-Jul-94	*3.81*	18	0.5465	0.117	1.338	0.960
8-Apr-94	*4.73*	19	0.5775	0.196	1.554	0.957
23-Jun-94	*5.16*	20	0.6085	0.275	1.641	0.950
27-Jun-95	*5.16*	21	0.6395	0.357	1.641	0.943
25-Apr-95	*5.39*	22	0.6705	0.441	1.685	0.935
13-Apr-95	6.15	23	0.7016	0.529	1.816	0.933
7-Jun-94	7.36	24	0.7326	0.621	1.996	0.936
12-Jun-95	9.24	25	0.7636	0.718	2.224	0.934
4-May-94	10.13	26	0.7946	0.822	2.316	0.917
9-May-95	11.11	27	0.8256	0.937	2.408	0.891
19-May-94	12.79	28	0.8566	1.065	2.549	0.852
23-May-95	14.06	29	0.8876	1.214	2.643	
16-May-91	*20*	30	0.9186	1.396	2.996	
14-May-98	*22.9*	31	0.9496	1.641	3.131	
19-Apr-94	25.2	32	0.9806	2.067	3.227	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM291 **Date:** 29-May-00
Chemical: dZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,655	6	219	6	0.00	0.00	0.00
SD:	539	6	91	9	1.00	1.00	1.00
CV:	0.02	1.08	0.42	1.54			
Min:	33,374	0.04	6	0.001	-0.92	-2.34	-0.65
Max:	36,114	25	397	54	2.96	1.95	5.16
Median:	34,561	3	249	4	-0.50	0.33	-0.26

dZn NM291 : Concentration v. Discharge, Q

Q = mTime +b **LnQ = mTime +b**

Conc. = mQ+b (r2=0.02) update r2

r2 Q,[COC]:	0.02	[dZn]	Q	r2:	0.0000001	0.035
slope, m:	-2.5	233	0.04	m:	0.000004	-0.00043
intercept, b:	232.6	218	6.0	b:	6	16.03
N: 31		170	25			

LnConc. = mLn{Q}+b (r2=0.10) update r2

r2 lnQ,ln[COC]:	0.10	ln[dZn]	ln Q	[dZn]	Q
slope, m:	0.21	4.33	-3.17	76	0.04
intercept, b:	4.98	5.35	1.80	211	6
N: 31		5.64	3.23	283	25

for graph
dZn 0
NM291

N= 32

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	20	137	15	3.00	4.92	2.69	2.16	-0.90	0.94
MFG	4-Oct-91	0.89	249	1	-0.12	5.52	0.18	-0.79	0.33	-0.52
IDEQ	27-Oct-93	2.13	331	4	0.76	5.80	1.33	-0.60	1.22	-0.24
IDEQ	2-Dec-93	2.04	299	3	0.71	5.70	1.19	-0.61	0.87	-0.29
IDEQ	16-Dec-93	1.81	276	3	0.59	5.62	0.99	-0.65	0.62	-0.36
IDEQ	16-Dec-93	0.82	276	1	-0.20	5.62	0.20	-0.80	0.62	-0.52
IDEQ	24-Jan-94	1.81	303	3	0.59	5.71	1.08	-0.65	0.92	-0.33
IDEQ	24-Jan-94	0.88	303	1	-0.13	5.71	0.36	-0.79	0.92	-0.49
IDEQ	8-Apr-94	4.73	331	8	1.55	5.80	2.13	-0.20	1.22	0.26
IDEQ	19-Apr-94	25.2	397	54	3.23	5.98	3.99	2.96	1.95	5.16
IDEQ	4-May-94	10.13	161	9	2.32	5.08	2.17	0.63	-0.64	0.30
IDEQ	19-May-94	12.79	106	7	2.55	4.66	1.99	1.04	-1.24	0.14
IDEQ	7-Jun-94	7.36	161	6	2.00	5.08	1.85	0.21	-0.64	0.04
IDEQ	23-Jun-94	5.16	158	4	1.64	5.06	1.48	-0.13	-0.67	-0.17
IDEQ	20-Jul-94	3.81	203	4	1.34	5.31	1.43	-0.34	-0.18	-0.20
IDEQ	15-Aug-94	2.61	256	4	0.96	5.55	1.28	-0.53	0.40	-0.26
IDEQ	15-Aug-94	1.53	256	2	0.43	5.55	0.75	-0.69	0.40	-0.42
IDEQ	8-Sep-94	1.88	259	3	0.63	5.56	0.96	-0.64	0.44	-0.37
IDEQ	4-Oct-94	1.88	305	3	0.63	5.72	1.13	-0.64	0.94	-0.32
IDEQ	13-Apr-95	6.15	282	9	1.82	5.64	2.23	0.02	0.69	0.36
IDEQ	25-Apr-95	5.39	277	8	1.68	5.62	2.08	-0.10	0.63	0.22
IDEQ	9-May-95	11.11	136	8	2.41	4.91	2.10	0.79	-0.91	0.23
IDEQ	23-May-95	14.06	71	5	2.64	4.26	1.68	1.24	-1.62	-0.07
IDEQ	12-Jun-95	9.24	74	4	2.22	4.30	1.30	0.50	-1.59	-0.25
IDEQ	27-Jun-95	5.16	108	3	1.64	4.68	1.10	-0.13	-1.22	-0.32
IDEQ	11-Jul-95	2.96	151	2	1.09	5.02	0.88	-0.47	-0.75	-0.39
IDEQ	25-Jul-95	2.31	160	2	0.84	5.08	0.69	-0.57	-0.65	-0.43
IDEQ	14-Aug-95	1.74	209	2	0.55	5.34	0.67	-0.66	-0.11	-0.44
IDEQ	13-Sep-95	1.48	241	2	0.39	5.48	0.65	-0.70	0.24	-0.44
URS	13-Nov-97	2.63	311	4	0.97	5.74	1.48	-0.52	1.01	-0.17
URS	*14-May-98*	*22.9*			3.13			2.60		
URS	15-Nov-98	0.0422	5.5	0.001	-3.17	1.70	-6.69	-0.92	-2.34	-0.65

dZn

Concentration over time analysis r2 Slope, m

dZn NM291 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.261** **-0.00080**

	Time	Ln[COC]	[COC]
first:	16-May-91	6.21	498
mid:	15-Aug-94	5.26	193
last:	15-Nov-98	4.02	56

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

dZn NM291 **Load over time**

LnLoad=mTime+b All data r2, m: **0.254** **-0.00165**

	Time	LnLoad	Load
first:	16-May-91	3.19	24
mid:	15-Aug-94	1.23	3
last:	15-Nov-98	-1.34	0.3

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.504 max r2: 0.618

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.261	-0.00080	32.90	0.254	-0.00165	58.35
0.374	-0.00107	42.44	0.234	-0.00176	62.04
0.434	-0.00131	50.63	0.370	-0.00249	87.63
0.423	-0.00131	50.54	0.380	-0.00258	90.54
0.414	-0.00131	50.63	0.392	-0.00267	93.84
0.408	-0.00132	50.94	0.412	-0.00279	98.13
0.401	-0.00133	51.32	0.467	-0.00302	106.24
0.390	-0.00132	51.16	0.490	-0.00316	111.15
0.376	-0.00132	50.98	0.549	-0.00342	120.02
0.360	-0.00129	50.09	0.544	-0.00345	121.12
0.337	-0.00124	48.28	0.528	-0.00327	114.75
0.348	-0.00129	49.95	0.518	-0.00327	114.92
0.392	-0.00140	53.68	0.510	-0.00329	115.73
0.408	-0.00146	55.92	0.504	-0.00333	117.01
0.428	-0.00153	58.54	0.507	-0.00342	120.16
0.430	-0.00158	60.06	0.511	-0.00352	123.64
0.419	-0.00158	60.32	0.520	-0.00364	128.06
0.405	-0.00159	60.66	0.557	-0.00390	137.25
0.387	-0.00159	60.73	0.589	-0.00417	146.62
0.356	-0.00155	59.21	0.618	-0.00445	156.57
0.335	-0.00149	56.97	0.605	-0.00438	154.25
0.311	-0.00141	54.21	0.591	-0.00432	151.92
0.308	-0.00143	54.91	0.573	-0.00422	148.53
0.360	-0.00158	60.16	0.555	-0.00417	146.52
0.426	-0.00176	66.69	0.538	-0.00416	146.11
0.468	-0.00192	72.49	0.520	-0.00418	146.86
0.484	-0.00206	77.58	0.502	-0.00427	150.09
0.504	-0.00230	86.11	0.485	-0.00451	158.88

update for EV, CV:

dZn **NM291**
LN Analysis **dZn**

Load **Load Data, EV=6 lbs/day CV=1.54**

Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**6**			
SD:	**9**	3	4.5	90
CV:	**1.54**	0	1.18	3
Min:	**0.001**	-3	-2.13	0.1
Max:	**54**			
Median:	**4**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.622, EV=33.1 lbs/day CV=11.86; max r2=0.94**

r2 u,lnLoad:	0.622	u	lnLoad	Load
slope, m:	0.449	3	7.70	2205
intercept, b:	-0.459	0	1.02	3
N: 31		-3	-5.65	0.004
E[Load]:	33.1	Parameter Estimates		
SD[Load]:	392	from LN regression		
CV[Load]:	11.86	update graph label		

N: 32

max r2 0.943

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
15-Nov-98	**0.001**	1	0.0194	-2.067	-6.686	0.622
14-May-98		2	0.0504	-1.641		
4-Oct-91	**1**	3	0.0814	-1.396	0.176	0.943
16-Dec-93	**1**	4	0.1124	-1.214	0.197	0.939
24-Jan-94	**1**	5	0.1434	-1.065	0.361	0.933
13-Sep-95	**2**	6	0.1744	-0.937	0.652	0.927
14-Aug-95	**2**	7	0.2054	-0.822	0.671	0.927
25-Jul-95	**2**	8	0.2364	-0.718	0.687	0.925
15-Aug-94	**2**	9	0.2674	-0.621	0.745	0.921
11-Jul-95	**2**	10	0.2984	-0.529	0.877	0.916
8-Sep-94	**3**	11	0.3295	-0.441	0.963	0.913
16-Dec-93	**3**	12	0.3605	-0.357	0.989	0.912
24-Jan-94	**3**	13	0.3915	-0.275	1.082	0.909
27-Jun-95	**3**	14	0.4225	-0.196	1.098	0.908
4-Oct-94	**3**	15	0.4535	-0.117	1.127	0.905
2-Dec-93	**3**	16	0.4845	-0.039	1.188	0.900
15-Aug-94	**4**	17	0.5155	0.039	1.279	0.895
12-Jun-95	**4**	18	0.5465	0.117	1.303	0.891
27-Oct-93	**4**	19	0.5775	0.196	1.333	0.885
20-Jul-94	**4**	20	0.6085	0.275	1.426	0.874
23-Jun-94	**4**	21	0.6395	0.357	1.478	0.864
13-Nov-97	**4**	22	0.6705	0.441	1.482	0.850
23-May-95	**5**	23	0.7016	0.529	1.681	0.827
7-Jun-94	**6**	24	0.7326	0.621	1.852	0.808
19-May-94	**7**	25	0.7636	0.718	1.987	0.803
25-Apr-95	**8**	26	0.7946	0.822	2.083	0.818
9-May-95	**8**	27	0.8256	0.937	2.095	0.856
8-Apr-94	**8**	28	0.8566	1.065	2.131	0.895
4-May-94	**9**	29	0.8876	1.214	2.172	
13-Apr-95	**9**	30	0.9186	1.396	2.233	
16-May-91	**15**	31	0.9496	1.641	2.691	
19-Apr-94	**54**	32	0.9806	2.067	3.986	

update for EV, CV:

dZn
LN Analysis

NM291
dZn

Concentration

Conc. Data, EV=219 ug/L CV=.42

Data-based LN

		u	ln[dZn]	[dZn]
Avg:	**219**	3	6.5	672
SD:	**91**	0	5.31	202
CV:	**0.42**	-3	4.11	61
Min:	**6**			
Max:	**397**			
Median:	**249**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.606, EV=317.5 ug/L CV=1.56; max r2=0.96**

		u	lnConc.	Conc.
r2 u,lnConc:	0.606			
slope, m:	0.900	3	8.48	4797
intercept, b:	-4.632	0	5.14	171
N:	31	-3	1.81	6
E[Conc]:	317.5	Parameter Estimates		
SD[Conc]:	495	from LN regression		
CV[Conc]:	1.56	update graph label		

N: 32

max r2
0.962

Date	dZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
14-May-98		1	0.0194	-2.067		
15-Nov-98	5.5	2	0.0504	-1.641	1.705	0.606
23-May-95	71	3	0.0814	-1.396	4.263	0.865
12-Jun-95	74	4	0.1124	-1.214	4.304	0.860
19-May-94	106	5	0.1434	-1.065	4.663	0.874
27-Jun-95	108	6	0.1744	-0.937	4.682	0.866
9-May-95	136	7	0.2054	-0.822	4.913	0.867
16-May-91	137	8	0.2364	-0.718	4.920	0.854
11-Jul-95	151	9	0.2674	-0.621	5.017	0.845
23-Jun-94	158	10	0.2984	-0.529	5.063	0.831
25-Jul-95	160	11	0.3295	-0.441	5.075	0.817
4-May-94	161	12	0.3605	-0.357	5.081	0.808
7-Jun-94	161	13	0.3915	-0.275	5.081	0.818
20-Jul-94	203	14	0.4225	-0.196	5.313	0.904
14-Aug-95	209	15	0.4535	-0.117	5.342	0.920
13-Sep-95	241	16	0.4845	-0.039	5.485	0.962
4-Oct-91	249	17	0.5155	0.039	5.517	0.959
15-Aug-94	256	18	0.5465	0.117	5.545	0.953
15-Aug-94	256	19	0.5775	0.196	5.545	0.947
8-Sep-94	259	20	0.6085	0.275	5.557	0.940
16-Dec-93	276	21	0.6395	0.357	5.620	0.933
16-Dec-93	276	22	0.6705	0.441	5.620	0.930
25-Apr-95	277	23	0.7016	0.529	5.624	0.920
13-Apr-95	282	24	0.7326	0.621	5.642	0.904
2-Dec-93	299	25	0.7636	0.718	5.700	0.882
24-Jan-94	303	26	0.7946	0.822	5.714	0.891
24-Jan-94	303	27	0.8256	0.937	5.714	0.913
4-Oct-94	305	28	0.8566	1.065	5.720	0.921
13-Nov-97	311	29	0.8876	1.214	5.740	
27-Oct-93	331	30	0.9186	1.396	5.802	
8-Apr-94	331	31	0.9496	1.641	5.802	
19-Apr-94	397	32	0.9806	2.067	5.984	

update for EV, CV:

dZn **NM291**

LN Analysis **dZn**

Discharge, Q **Q Data, EV=6 cfs CV=1.08**

Q Data-based LN

		u	lnQ	Q
Avg:	**6**			
SD:	**6**	3	4.0	57
CV:	**1.08**	0	1.41	4
Min:	**0.04**	-3	-1.22	0.3
Max:	**25**			
Median:	**3**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.898, EV=8.4 cfs CV=2.31; max r2=0.97**

		u	lnQ	Q
r2 u,lnQ:	0.898			
slope, m:	0.736	3	5.28	197
intercept, b:	-0.890	0	1.21	3
N: 32		-3	-2.87	0.1
E[Q]:	8.4	Parameter Estimates		
SD[Q]:	19	from LN regression		
CV[Q]:	2.31	update graph label		

N: 32 max r2 0.974

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
15-Nov-98	0.0422	1	0.0194	-2.067	-3.165	0.898
16-Dec-93	0.82	2	0.0504	-1.641	-0.198	0.973
24-Jan-94	0.88	3	0.0814	-1.396	-0.128	0.973
4-Oct-91	0.89	4	0.1124	-1.214	-0.117	0.971
13-Sep-95	1.48	5	0.1434	-1.065	0.392	0.968
15-Aug-94	1.53	6	0.1744	-0.937	0.425	0.970
14-Aug-95	1.74	7	0.2054	-0.822	0.554	0.971
16-Dec-93	1.81	8	0.2364	-0.718	0.593	0.973
24-Jan-94	1.81	9	0.2674	-0.621	0.593	0.974
8-Sep-94	1.88	10	0.2984	-0.529	0.631	0.974
4-Oct-94	1.88	11	0.3295	-0.441	0.631	0.972
2-Dec-93	2.04	12	0.3605	-0.357	0.713	0.969
27-Oct-93	2.13	13	0.3915	-0.275	0.756	0.965
25-Jul-95	2.31	14	0.4225	-0.196	0.837	0.962
15-Aug-94	2.61	15	0.4535	-0.117	0.959	0.959
13-Nov-97	2.63	16	0.4845	-0.039	0.967	0.955
11-Jul-95	2.96	17	0.5155	0.039	1.085	0.956
20-Jul-94	3.81	18	0.5465	0.117	1.338	0.960
8-Apr-94	4.73	19	0.5775	0.196	1.554	0.957
23-Jun-94	5.16	20	0.6085	0.275	1.641	0.950
27-Jun-95	5.16	21	0.6395	0.357	1.641	0.943
25-Apr-95	5.39	22	0.6705	0.441	1.685	0.935
13-Apr-95	6.15	23	0.7016	0.529	1.816	0.933
7-Jun-94	7.36	24	0.7326	0.621	1.996	0.936
12-Jun-95	9.24	25	0.7636	0.718	2.224	0.934
4-May-94	10.13	26	0.7946	0.822	2.316	0.917
9-May-95	11.11	27	0.8256	0.937	2.408	0.891
19-May-94	12.79	28	0.8566	1.065	2.549	0.852
23-May-95	14.06	29	0.8876	1.214	2.643	
16-May-91	20	30	0.9186	1.396	2.996	
14-May-98	*22.9*	31	0.9496	1.641	3.131	
19-Apr-94	25.2	32	0.9806	2.067	3.227	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM291 **Date:** 3-Jun-00
Chemical: tCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,655	6	1	0.03	0.00	0.00	0.00	
SD:	539	6	0.3	0.05	1.00	1.00	1.00	
CV:	0.02	1.08	0.30	1.47				first:
Min:	33,374	0.04	1	0.005	-0.92	-1.90	-0.58	mid:
Max:	36,114	25	2	0.28	2.96	2.85	4.98	last:
Median:	34,561	3	1	0.02	-0.50	0.18	-0.34	

tCd NM291 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.00257) update r2 0.00 0.00257 r2: 0.000 0.035
r2 Q,[COC]: 0.003 [tCd] Q m: 0.0000 -0.00043
slope, m: -0.003 1 0.042 b: 6 16.03
intercept, b: 1.2 1 6.0
N: 30 1 25 first:
LnConc. = mLn{Q}+b (r2=0.104) update r2 0.10 0.104 mid:
r2 lnQ,ln[COC]: 0.10 ln[tCd] ln Q [tCd] Q last:
slope, m: -0.11 0.59 -3.17 2 0.04
intercept, b: 0.23 0.02 1.80 1 6
N: 30 -0.14 3.23 1 25

for graph
tCd 0
NM291

N= 32

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	20	0.6	0.065	3.00	-0.51	-2.74	2.16	-1.60	0.60
MFG	4-Oct-91	0.89	1	0.005	-0.12	0.00	-5.34	-0.79	-0.42	-0.58
IDEQ	27-Oct-93	2.13	1.5	0.017	0.76	0.41	-4.06	-0.60	1.07	-0.34
IDEQ	2-Dec-93	2.04	1.5	0.016	0.71	0.41	-4.11	-0.61	1.07	-0.35
IDEQ	16-Dec-93	1.81	1.2	0.012	0.59	0.18	-4.45	-0.65	0.18	-0.45
IDEQ	16-Dec-93	0.82	1.2	0.005	-0.20	0.18	-5.24	-0.80	0.18	-0.57
IDEQ	24-Jan-94	1.81	1.3	0.013	0.59	0.26	-4.37	-0.65	0.47	-0.43
IDEQ	24-Jan-94	0.88	1.3	0.006	-0.13	0.26	-5.09	-0.79	0.47	-0.56
IDEQ	8-Apr-94	4.73	1.4	0.036	1.55	0.34	-3.33	-0.20	0.77	0.03
IDEQ	19-Apr-94	25.2	2.1	0.285	3.23	0.74	-1.26	2.96	2.85	4.98
IDEQ	4-May-94	10.13	1	0.054	2.32	0.00	-2.91	0.63	-0.42	0.40
IDEQ	19-May-94	12.79	0.6	0.041	2.55	-0.51	-3.19	1.04	-1.60	0.14
IDEQ	7-Jun-94	7.36	1.2	0.048	2.00	0.18	-3.05	0.21	0.18	0.27
IDEQ	23-Jun-94	5.16	1	0.028	1.64	0.00	-3.58	-0.13	-0.42	-0.13
IDEQ	20-Jul-94	3.81	1.1	0.023	1.34	0.10	-3.79	-0.34	-0.12	-0.23
IDEQ	15-Aug-94	2.61	1.4	0.020	0.96	0.34	-3.93	-0.53	0.77	-0.29
IDEQ	15-Aug-94	1.53	1.4	0.012	0.43	0.34	-4.46	-0.69	0.77	-0.45
IDEQ	8-Sep-94	1.88	1.2	0.012	0.63	0.18	-4.41	-0.64	0.18	-0.44
IDEQ	4-Oct-94	1.88	1.4	0.014	0.63	0.34	-4.26	-0.64	0.77	-0.40
IDEQ	13-Apr-95	6.15	1.2	0.040	1.82	0.18	-3.23	0.02	0.18	0.11
IDEQ	25-Apr-95	5.39	1.3	0.038	1.68	0.26	-3.28	-0.10	0.47	0.07
IDEQ	9-May-95	11.11	1.4	0.084	2.41	0.34	-2.48	0.79	0.77	0.98
IDEQ	23-May-95	14.06	0.7	0.053	2.64	-0.36	-2.94	1.24	-1.30	0.37
IDEQ	12-Jun-95	9.24	0.5	0.025	2.22	-0.69	-3.69	0.50	-1.90	-0.18
IDEQ	27-Jun-95	5.16	0.6	0.017	1.64	-0.51	-4.09	-0.13	-1.60	-0.35
IDEQ	11-Jul-95	2.96	0.8	0.013	1.09	-0.22	-4.36	-0.47	-1.01	-0.43
IDEQ	25-Jul-95	2.31	0.8	0.010	0.84	-0.22	-4.61	-0.57	-1.01	-0.48
IDEQ	14-Aug-95	1.74	1.1	0.010	0.55	0.10	-4.58	-0.66	-0.12	-0.47
IDEQ	13-Sep-95	1.48	1.3	0.010	0.39	0.26	-4.57	-0.70	0.47	-0.47
URS	13-Nov-97	2.63	1.1	0.016	0.97	0.10	-4.16	-0.52	-0.12	-0.37
URS	*14-May-98*	*22.9*			3.13			2.60		
URS	*15-Nov-98*	*0.0422*			-3.17			-0.92		

tCd

Concentration over time analysis r2 Slope, m

tCd NM291 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.0003** **-0.00001**

Time	Ln[COC]	[COC]
16-May-91	0.10	1
15-Aug-94	0.08	1
15-Nov-98	0.06	1

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

tCd NM291 **Load over time**

LnLoad=mTime+b All data r2, m: **0.0001** **0.00002**

Time	LnLoad	Load
16-May-91	-3.88	0
15-Aug-94	-3.85	0
15-Nov-98	-3.82	0

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.223 max r2: 1.000

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.000	-0.00001	0.52	0.000	0.00002	-4.59
0.058	-0.00021	7.30	0.026	0.00039	-17.28
0.113	-0.00035	12.26	0.000	-0.00006	-1.77
0.094	-0.00032	11.33	0.001	-0.00010	-0.40
0.076	-0.00029	10.25	0.003	-0.00015	1.31
0.072	-0.00029	10.27	0.008	-0.00026	5.28
0.068	-0.00029	10.30	0.037	-0.00055	15.28
0.058	-0.00028	9.74	0.058	-0.00070	20.60
0.047	-0.00026	9.04	0.135	-0.00104	32.48
0.034	-0.00022	7.74	0.129	-0.00104	32.49
0.008	-0.00010	3.37	0.076	-0.00063	18.03
0.009	-0.00010	3.66	0.047	-0.00048	13.00
0.045	-0.00023	8.06	0.028	-0.00037	9.10
0.036	-0.00021	7.43	0.008	-0.00020	3.13
0.042	-0.00024	8.31	0.003	-0.00013	0.69
0.040	-0.00024	8.38	0.002	-0.00011	-0.27
0.019	-0.00017	5.86	0.002	-0.00011	-0.03
0.003	-0.00007	2.35	0.015	-0.00031	7.04
0.000	0.00001	-0.24	0.046	-0.00056	15.79
0.020	0.00018	-6.42	0.092	-0.00083	25.33
0.037	0.00025	-8.73	0.072	-0.00072	21.46
0.080	0.00035	-12.21	0.052	-0.00060	17.14
0.202	0.00049	-17.18	0.016	-0.00024	4.16
0.181	0.00046	-16.29	0.009	0.00010	-7.84
0.145	0.00032	-11.18	0.206	0.00030	-14.88
0.092	0.00018	-6.19	0.704	0.00043	-19.62
0.030	0.00009	-2.93	0.998	0.00052	-22.66
0.223	-0.00010	3.59	1.000	0.00051	-22.33

update for EV, CV:

tCd **NM291**

LN Analysis **tCd**

Load **Load Data, EV=0.0342 lbs/day CV=1.47**

Load Data-based LN

		u	ln tCd Load	tCd Load
Avg:	**0.03**			
SD:	**0.05**			
CV:	**1.47**	3	-0.7	0.481
Min:	**0.005**	0	-3.95	0.019
Max:	**0.285**	-3	-7.18	0.001
Median:	**0.017**			

0 0.0342
1.47 1.47

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.954, EV=0.0319lbs/day CV=1.29; max r2=0.96**

r2 u,lnLoad:	0.954	u	lnLoad	Load	
slope, m:	1.011	3	-0.97	0.379	
intercept, b:	3.980	0	-3.94	0.020	
N: 30		-3	-6.90	0.001	
E[Load]:	0.03	Parameter Estimates			0.954
SD[Load]:	0.04	from LN regression			0.0
CV[Load]:	1.29	update graph label			1.3
					max r2
					0.959

N: 32

Date	tCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
15-Nov-98		1	0.0194	-2.067		
4-Oct-91	**0.005**	2	0.0504	-1.641	-5.342	0.954
16-Dec-93	**0.005**	3	0.0814	-1.396	-5.241	0.950
24-Jan-94	**0.006**	4	0.1124	-1.214	-5.091	0.944
25-Jul-95	**0.010**	5	0.1434	-1.065	-4.611	0.938
14-Aug-95	**0.010**	6	0.1744	-0.937	-4.576	0.943
13-Sep-95	**0.010**	7	0.2054	-0.822	-4.571	0.948
15-Aug-94	**0.012**	8	0.2364	-0.718	-4.463	0.949
16-Dec-93	**0.012**	9	0.2674	-0.621	-4.449	0.954
8-Sep-94	**0.012**	10	0.2984	-0.529	-4.411	0.956
14-May-98		11	0.3295	-0.441		
24-Jan-94	**0.013**	12	0.3605	-0.357	-4.369	0.959
11-Jul-95	**0.013**	13	0.3915	-0.275	-4.363	0.957
4-Oct-94	**0.014**	14	0.4225	-0.196	-4.257	0.953
13-Nov-97	**0.016**	15	0.4535	-0.117	-4.163	0.949
2-Dec-93	**0.016**	16	0.4845	-0.039	-4.107	0.946
27-Jun-95	**0.017**	17	0.5155	0.039	-4.095	0.941
27-Oct-93	**0.017**	18	0.5465	0.117	-4.063	0.934
15-Aug-94	**0.020**	19	0.5775	0.196	-3.929	0.925
20-Jul-94	**0.023**	20	0.6085	0.275	-3.792	0.915
12-Jun-95	**0.025**	21	0.6395	0.357	-3.695	0.903
23-Jun-94	**0.028**	22	0.6705	0.441	-3.584	0.889
8-Apr-94	**0.036**	23	0.7016	0.529	-3.335	0.873
25-Apr-95	**0.038**	24	0.7326	0.621	-3.278	0.876
13-Apr-95	**0.040**	25	0.7636	0.718	-3.226	0.880
19-May-94	**0.041**	26	0.7946	0.822	-3.187	0.884
7-Jun-94	**0.048**	27	0.8256	0.937	-3.047	0.882
23-May-95	**0.053**	28	0.8566	1.065	-2.938	0.898
4-May-94	**0.054**	29	0.8876	1.214	-2.910	
16-May-91	**0.065**	30	0.9186	1.396	-2.740	
9-May-95	**0.084**	31	0.9496	1.641	-2.481	
19-Apr-94	**0.285**	32	0.9806	2.067	-1.256	

update for EV, CV:

tCd		**NM291**		1	1.14
LN Analysis		**tCd**		0.30	0.296
Concentration		**Conc. Data, EV=1.14 ug/L CV=0.296**			
Avg:	**1**	**Data-based LN**			
SD:	**0**	u	ln[tCd]	[tCd]	
CV:	**0.30**	3	1.0	3	
Min:	**1**	0	0.09	1	
Max:	**2**	-3	-0.78	0	
Median:	**1**				

				0.880	0.88
	u=mLn{Conc.}+b:			1.1	1.12
update for r2, EV, CV:	**r2=0.88, EV=1.12 ug/L CV=0.416; max r2=0.91**			0.416	0.416
	r2 u,lnConc:	0.880	u	lnConc.	Conc.
	slope, m:	2.502	3	1.23	3
	intercept, b:	-0.089	0	0.04	1
	N: 30		-3	-1.16	0
0.954	E[Conc]:	1.1	Parameter Estimates		
0.0319	SD[Conc]:	0	from LN regression		
1.29	CV[Conc]:	0.42	update graph label		

						max r2
	tCd	N: 32				0.911
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
14-May-98		1	0.0194	-2.067		
12-Jun-95	0.5	2	0.0504	-1.641	-0.693	0.880
15-Nov-98		3	0.0814	-1.396		
16-May-91	0.6	4	0.1124	-1.214	-0.511	0.863
19-May-94	0.6	5	0.1434	-1.065	-0.511	0.850
27-Jun-95	0.6	6	0.1744	-0.937	-0.511	0.846
23-May-95	0.7	7	0.2054	-0.822	-0.357	0.868
11-Jul-95	0.8	8	0.2364	-0.718	-0.223	0.882
25-Jul-95	0.8	9	0.2674	-0.621	-0.223	0.883
4-Oct-91	1	10	0.2984	-0.529	0.000	0.911
4-May-94	1	11	0.3295	-0.441	0.000	0.902
23-Jun-94	1	12	0.3605	-0.357	0.000	0.892
20-Jul-94	1.1	13	0.3915	-0.275	0.095	0.883
14-Aug-95	1.1	14	0.4225	-0.196	0.095	0.873
13-Nov-97	1.1	15	0.4535	-0.117	0.095	0.859
16-Dec-93	1.2	16	0.4845	-0.039	0.182	0.843
16-Dec-93	1.2	17	0.5155	0.039	0.182	0.840
7-Jun-94	1.2	18	0.5465	0.117	0.182	0.833
8-Sep-94	1.2	19	0.5775	0.196	0.182	0.820
13-Apr-95	1.2	20	0.6085	0.275	0.182	0.800
24-Jan-94	1.3	21	0.6395	0.357	0.262	0.772
24-Jan-94	1.3	22	0.6705	0.441	0.262	0.774
25-Apr-95	1.3	23	0.7016	0.529	0.262	0.769
13-Sep-95	1.3	24	0.7326	0.621	0.262	0.754
8-Apr-94	1.4	25	0.7636	0.718	0.336	0.724
15-Aug-94	1.4	26	0.7946	0.822	0.336	0.763
15-Aug-94	1.4	27	0.8256	0.937	0.336	0.803
4-Oct-94	1.4	28	0.8566	1.065	0.336	0.843
9-May-95	1.4	29	0.8876	1.214	0.336	
27-Oct-93	1.5	30	0.9186	1.396	0.405	
2-Dec-93	1.5	31	0.9496	1.641	0.405	
19-Apr-94	2.1	32	0.9806	2.067	0.742	

update for EV, CV:

tCd		**NM291**			6	6.02
LN Analysis		**tCd**			1.08	1.08

Discharge, Q

Q Data, EV=6.02 cfs CV=1.08

Q Data-based LN

		u	lnQ	Q
Avg:	**6**			
SD:	**6**			
CV:	**1.08**	3	4.0	57
Min:	**0.04**	0	1.41	4
Max:	**25**	-3	-1.22	0
Median:	**3**			

					0.898	0.898
					8.4	8.43
u=mLn{Q}+b:					2.31	2.31

update for r2, EV, CV: **r2=0.898, EV=8.43 cfs CV=2.31; max r2=0.97**

		u	lnQ	Q
r2 u,lnQ:	0.898			
slope, m:	0.736	3	5.28	197
intercept, b:	-0.890	0	1.21	3
N: 32		-3	-2.87	0
E[Q]:	8.4	Parameter Estimates		
SD[Q]:	19	from LN regression		
CV[Q]:	2.31	update graph label		

N: 32

max r2 0.974

update and rank for new data

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
15-Nov-98	*0.0422*	1	0.0194	-2.067	-3.165	0.898
16-Dec-93	0.82	2	0.0504	-1.641	-0.198	0.973
24-Jan-94	0.88	3	0.0814	-1.396	-0.128	0.973
4-Oct-91	0.89	4	0.1124	-1.214	-0.117	0.971
13-Sep-95	1.48	5	0.1434	-1.065	0.392	0.968
15-Aug-94	1.53	6	0.1744	-0.937	0.425	0.970
14-Aug-95	1.74	7	0.2054	-0.822	0.554	0.971
16-Dec-93	1.81	8	0.2364	-0.718	0.593	0.973
24-Jan-94	1.81	9	0.2674	-0.621	0.593	0.974
8-Sep-94	1.88	10	0.2984	-0.529	0.631	0.974
4-Oct-94	1.88	11	0.3295	-0.441	0.631	0.972
2-Dec-93	2.04	12	0.3605	-0.357	0.713	0.969
27-Oct-93	2.13	13	0.3915	-0.275	0.756	0.965
25-Jul-95	2.31	14	0.4225	-0.196	0.837	0.962
15-Aug-94	2.61	15	0.4535	-0.117	0.959	0.959
13-Nov-97	2.63	16	0.4845	-0.039	0.967	0.955
11-Jul-95	2.96	17	0.5155	0.039	1.085	0.956
20-Jul-94	3.81	18	0.5465	0.117	1.338	0.960
8-Apr-94	4.73	19	0.5775	0.196	1.554	0.957
23-Jun-94	5.16	20	0.6085	0.275	1.641	0.950
27-Jun-95	5.16	21	0.6395	0.357	1.641	0.943
25-Apr-95	5.39	22	0.6705	0.441	1.685	0.935
13-Apr-95	6.15	23	0.7016	0.529	1.816	0.933
7-Jun-94	7.36	24	0.7326	0.621	1.996	0.936
12-Jun-95	9.24	25	0.7636	0.718	2.224	0.934
4-May-94	10.13	26	0.7946	0.822	2.316	0.917
9-May-95	11.11	27	0.8256	0.937	2.408	0.891
19-May-94	12.79	28	0.8566	1.065	2.549	0.852
23-May-95	14.06	29	0.8876	1.214	2.643	
16-May-91	20	30	0.9186	1.396	2.996	
14-May-98	*22.9*	31	0.9496	1.641	3.131	
19-Apr-94	25.2	32	0.9806	2.067	3.227	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM291 **Date:** 3-Jun-00
Chemical: tPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,655	6	7	0.2	0.00	0.00	0.00
SD:	539	6	5	0.5	1.00	1.00	1.00
CV:	0.02	1.08	0.73	1.87			
Min:	33,374	0.04	0.3	0.0	-0.92	-1.32	-0.53
Max:	36,114	25	28	2	2.96	3.78	4.76
Median:	34,561	3	7	0.1	-0.50	-0.09	-0.36

tPb NM291 **: Concentration v. Discharge, Q**

Conc. = mQ+b (r2=0.0000477) update r2 0.00005 0.0000477

r2 Q,[COC]:	0.00005	[tPb]	Q	
slope, m:	0.01	7	0.04	
intercept, b:	7.4	7	6.0	
N: 27		8	25	

LnConc. = mLn{Q}+b (r2=0.000475) update r2 0.00 0.000475

r2 lnQ,ln[COC]:	0.0005	ln[tPb]	ln Q	[tPb]	Q
slope, m:	-0.01	1.81	-3.17	6	0.04
intercept, b:	1.77	1.74	1.80	6	6
N: 27		1.72	3.23	6	25

Q = mTime +b

r2:	0.0000001	0.035
m:	0.000004	-0.00043
b:	6	16.03

LnQ = mTime +b

for graph
tPb 0
NM291

N= 32

update for new data

	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	20	3	0.32	3.00	1.10	-1.13	2.16	-0.83	0.17
MFG	4-Oct-91	0.89	4	0.02	-0.12	1.39	-3.96	-0.79	-0.64	-0.49
IDEQ	*27-Oct-93*	*2.13*			0.76			-0.60		
IDEQ	2-Dec-93	2.04	28	0.31	0.71	3.33	-1.18	-0.61	3.78	0.13
IDEQ	16-Dec-93	1.81	7	0.07	0.59	1.95	-2.69	-0.65	-0.09	-0.39
IDEQ	16-Dec-93	0.82	7	0.03	-0.20	1.95	-3.48	-0.80	-0.09	-0.47
IDEQ	24-Jan-94	1.81	8	0.08	0.59	2.08	-2.55	-0.65	0.10	-0.36
IDEQ	24-Jan-94	0.88	8	0.04	-0.13	2.08	-3.27	-0.79	0.10	-0.45
IDEQ	8-Apr-94	4.73	6	0.15	1.55	1.79	-1.88	-0.20	-0.27	-0.20
IDEQ	19-Apr-94	25.2	18	2.44	3.23	2.89	0.89	2.96	1.94	4.76
IDEQ	*4-May-94*	*10.13*			2.32			0.63		
IDEQ	19-May-94	12.79	5	0.34	2.55	1.61	-1.07	1.04	-0.46	0.21
IDEQ	*7-Jun-94*	*7.36*			2.00			0.21		
IDEQ	23-Jun-94	5.16	5	0.14	1.64	1.61	-1.97	-0.13	-0.46	-0.23
IDEQ	*20-Jul-94*	*3.81*			1.34			-0.34		
IDEQ	15-Aug-94	2.61	5	0.07	0.96	1.61	-2.66	-0.53	-0.46	-0.38
IDEQ	15-Aug-94	1.53	5	0.04	0.43	1.61	-3.19	-0.69	-0.46	-0.44
IDEQ	8-Sep-94	1.88	5	0.05	0.63	1.61	-2.98	-0.64	-0.46	-0.42
IDEQ	4-Oct-94	1.88	8	0.08	0.63	2.08	-2.51	-0.64	0.10	-0.36
IDEQ	13-Apr-95	6.15	8	0.26	1.82	2.08	-1.33	0.02	0.10	0.04
IDEQ	25-Apr-95	5.39	8	0.23	1.68	2.08	-1.46	-0.10	0.10	-0.03
IDEQ	9-May-95	11.11	12	0.72	2.41	2.48	-0.33	0.79	0.83	1.02
IDEQ	23-May-95	14.06	5	0.38	2.64	1.61	-0.97	1.24	-0.46	0.29
IDEQ	12-Jun-95	9.24	9	0.45	2.22	2.20	-0.80	0.50	0.28	0.44
IDEQ	*27-Jun-95*	*5.16*			1.64			-0.13		
IDEQ	11-Jul-95	2.96	5	0.08	1.09	1.61	-2.53	-0.47	-0.46	-0.36
IDEQ	25-Jul-95	2.31	7	0.09	0.84	1.95	-2.44	-0.57	-0.09	-0.34
IDEQ	14-Aug-95	1.74	8	0.07	0.55	2.08	-2.59	-0.66	0.10	-0.37
IDEQ	13-Sep-95	1.48	14	0.11	0.39	2.64	-2.19	-0.70	1.20	-0.29
URS	13-Nov-97	2.63	1.5	0.02	0.97	0.41	-3.85	-0.52	-1.10	-0.49
URS	14-May-98	22.9	0.3	0.04	3.13	-1.20	-3.30	2.60	-1.32	-0.45
URS	15-Nov-98	0.0422	2	0.00	-3.17	0.69	-7.70	-0.92	-1.01	-0.53

tPb

Concentration over time analysis r2 Slope, m

tPb NM291 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.211** **-0.00066**

	Time	Ln[COC]	[COC]
first:	16-May-91	2.61	14
mid:	15-Aug-94	1.83	6
last:	15-Nov-98	0.81	2

LnConc.=mTime+b >'96 r2, m: **#REF!** **#REF!**

#REF!	#REF!	#REF!
15-Nov-98	#REF!	#REF!

Load over time analysis

tPb NM291 **Load over time**

LnLoad=mTime+b All data r2, m: **0.167** **-0.00108**

	Time	LnLoad	Load
first:	16-May-91	-0.92	0.40
mid:	15-Aug-94	-2.21	0.11
last:	15-Nov-98	-3.89	0.02

LnLoad=mTime+b >'96 r2, m: **#REF!** **#REF!**

#REF!	#REF!	#REF!
15-Nov-98	#REF!	#REF!

max r2: 0.718 max r2: 0.719

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.211	-0.00066	24.57	0.167	-0.00108	35.26
0.356	-0.00094	34.46	0.147	-0.00112	36.61
0.524	-0.00128	46.34	0.301	-0.00177	59.33
0.524	-0.00128	46.34	0.301	-0.00177	59.33
0.509	-0.00120	43.37	0.287	-0.00175	58.37
0.517	-0.00123	44.57	0.311	-0.00186	62.25
0.526	-0.00127	46.00	0.376	-0.00207	69.84
0.526	-0.00130	46.92	0.406	-0.00220	74.56
0.526	-0.00133	48.05	0.483	-0.00245	83.39
0.543	-0.00138	50.01	0.493	-0.00254	86.44
0.516	-0.00131	47.49	0.470	-0.00230	77.83
0.516	-0.00131	47.49	0.470	-0.00230	77.83
0.547	-0.00139	50.28	0.448	-0.00226	76.44
0.547	-0.00139	50.28	0.448	-0.00226	76.44
0.580	-0.00148	53.33	0.450	-0.00233	78.84
0.580	-0.00148	53.33	0.450	-0.00233	78.84
0.613	-0.00157	56.43	0.483	-0.00248	84.33
0.657	-0.00168	60.45	0.565	-0.00277	94.49
0.710	-0.00182	65.35	0.652	-0.00308	105.77
0.718	-0.00189	68.12	0.719	-0.00339	116.72
0.712	-0.00191	68.66	0.710	-0.00339	116.71
0.704	-0.00192	69.20	0.700	-0.00341	117.23
0.684	-0.00186	67.04	0.686	-0.00321	110.05
0.705	-0.00197	70.73	0.659	-0.00306	104.67
0.679	-0.00195	70.17	0.625	-0.00277	94.42
0.679	-0.00195	70.17	0.625	-0.00277	94.42
0.700	-0.00211	75.79	0.611	-0.00287	98.03
0.682	-0.00224	80.38	0.579	-0.00301	102.88

update for EV, CV:

tPb **NM291**
LN Analysis **tPb**

Load **Load Data, EV=0.246 lbs/day CV=1.87**

Avg:	**0.2**	**Load Data-based LN**		
SD:	**0.5**	u	ln tPb Load	tPb Load
CV:	**1.87**	3	1.5	5
Min:	**0.0005**	0	-2.16	0.1
Max:	**2**	-3	-5.84	0.003
Median:	**0.1**			
		0	0.246	
		1.87	1.87	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.906, EV=0.318lbs/day CV=4.2; max r2=0.97**

r2 u,lnLoad:	0.906	u	lnLoad	Load	
slope, m:	0.585	3	2.52	12	
intercept, b:	1.524	0	-2.61	0.1	
N: 27		-3	-7.74	0.0004	
E[Load]:	0.3	Parameter Estimates			0.906
SD[Load]:	1	from LN regression			0.3
CV[Load]:	4.20	update graph label			4.2
					max r2
	tPb	N: 32			0.968

Date	**tPb Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2 forward**
update and rank for new data						
15-Nov-98	**0.0005**	1	0.0194	-2.067	-7.697	0.906
27-Oct-93		2	0.0504	-1.641		
4-Oct-91	**0.02**	3	0.0814	-1.396	-3.955	0.966
13-Nov-97	**0.02**	4	0.1124	-1.214	-3.853	0.967
20-Jul-94		5	0.1434	-1.065		
16-Dec-93	**0.03**	6	0.1744	-0.937	-3.478	0.966
27-Jun-95		7	0.2054	-0.822		
14-May-98	**0.04**	8	0.2364	-0.718	-3.298	0.967
24-Jan-94	**0.04**	9	0.2674	-0.621	-3.273	0.968
15-Aug-94	**0.04**	10	0.2984	-0.529	-3.190	0.966
7-Jun-94		11	0.3295	-0.441		
8-Sep-94	**0.05**	12	0.3605	-0.357	-2.984	0.964
4-May-94		13	0.3915	-0.275		
16-Dec-93	**0.07**	14	0.4225	-0.196	-2.686	0.961
15-Aug-94	**0.07**	15	0.4535	-0.117	-2.656	0.962
14-Aug-95	**0.07**	16	0.4845	-0.039	-2.592	0.962
24-Jan-94	**0.08**	17	0.5155	0.039	-2.552	0.960
11-Jul-95	**0.08**	18	0.5465	0.117	-2.530	0.957
4-Oct-94	**0.08**	19	0.5775	0.196	-2.514	0.951
25-Jul-95	**0.09**	20	0.6085	0.275	-2.442	0.944
13-Sep-95	**0.11**	21	0.6395	0.357	-2.194	0.938
23-Jun-94	**0.14**	22	0.6705	0.441	-1.975	0.928
8-Apr-94	**0.15**	23	0.7016	0.529	-1.879	0.914
25-Apr-95	**0.23**	24	0.7326	0.621	-1.461	0.897
13-Apr-95	**0.26**	25	0.7636	0.718	-1.329	0.892
2-Dec-93	**0.31**	26	0.7946	0.822	-1.180	0.895
16-May-91	**0.32**	27	0.8256	0.937	-1.131	0.918
19-May-94	**0.34**	28	0.8566	1.065	-1.067	0.942
23-May-95	**0.38**	29	0.8876	1.214	-0.972	
12-Jun-95	**0.45**	30	0.9186	1.396	-0.804	
9-May-95	**0.72**	31	0.9496	1.641	-0.332	
19-Apr-94	**2.44**	32	0.9806	2.067	0.892	

update for EV, CV:

tPb		**NM291**		7	7.47
LN Analysis		**tPb**		0.73	0.726
Concentration		**Conc. Data, EV=7.47 ug/L CV=0.726**			
Avg:	**7**	**Data-based LN**			
SD:	**5**	u	ln[tPb]	[tPb]	
CV:	**0.73**	3	3.8	43	
Min:	**0.3**	0	1.80	6	
Max:	**28**	-3	-0.15	1	
Median:	**7**				

				0.886	0.886
	u=mLn{Conc.}+b:			7.7	7.68
update for r2, EV, CV:	**r2=0.886, EV=7.68 ug/L CV=1.36; max r2=0.99**			1.362	1.36
	r2 u,lnConc:	0.886	u	lnConc.	Conc.
	slope, m:	0.976	3	4.59	98
	intercept, b:	-1.478	0	1.51	5
	N: 27		-3	-1.56	0.2
0.906	E[Conc]:	7.7	Parameter Estimates		
0.318	SD[Conc]:	10	from LN regression		
4.2	CV[Conc]:	1.36	update graph label		

						max r2
	tPb	N: 32				0.991
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
14-May-98	0.3	1	0.0194	-2.067	-1.204	0.886
27-Oct-93		2	0.0504	-1.641		
4-May-94		3	0.0814	-1.396		
7-Jun-94		4	0.1124	-1.214		
20-Jul-94		5	0.1434	-1.065		
27-Jun-95		6	0.1744	-0.937		
13-Nov-97	1.5	7	0.2054	-0.822	0.405	0.892
15-Nov-98	2	8	0.2364	-0.718	0.693	0.914
16-May-91	3	9	0.2674	-0.621	1.099	0.933
4-Oct-91	4	10	0.2984	-0.529	1.386	0.931
19-May-94	5	11	0.3295	-0.441	1.609	0.924
23-Jun-94	5	12	0.3605	-0.357	1.609	0.929
15-Aug-94	5	13	0.3915	-0.275	1.609	0.932
15-Aug-94	5	14	0.4225	-0.196	1.609	0.932
8-Sep-94	5	15	0.4535	-0.117	1.609	0.929
23-May-95	5	16	0.4845	-0.039	1.609	0.923
11-Jul-95	5	17	0.5155	0.039	1.609	0.914
8-Apr-94	6	18	0.5465	0.117	1.792	0.903
16-Dec-93	7	19	0.5775	0.196	1.946	0.895
16-Dec-93	7	20	0.6085	0.275	1.946	0.903
25-Jul-95	7	21	0.6395	0.357	1.946	0.908
24-Jan-94	8	22	0.6705	0.441	2.079	0.907
24-Jan-94	8	23	0.7016	0.529	2.079	0.932
4-Oct-94	8	24	0.7326	0.621	2.079	0.955
13-Apr-95	8	25	0.7636	0.718	2.079	0.974
25-Apr-95	8	26	0.7946	0.822	2.079	0.987
14-Aug-95	8	27	0.8256	0.937	2.079	0.991
12-Jun-95	9	28	0.8566	1.065	2.197	0.988
9-May-95	12	29	0.8876	1.214	2.485	
13-Sep-95	14	30	0.9186	1.396	2.639	
19-Apr-94	18	31	0.9496	1.641	2.890	
2-Dec-93	28	32	0.9806	2.067	3.332	

update for EV, CV:

tPb		**NM291**			6	6.02
LN Analysis		**tPb**			1.08	1.08
Discharge, Q		**Q Data, EV=6.02 cfs CV=1.08**				
Avg:	**6**	**Q Data-based LN**				
SD:	**6**	u	lnQ	Q		
CV:	**1.08**	3	4.0	57		
Min:	**0.04**	0	1.41	4		
Max:	**25**	-3	-1.22	0.3		
Median:	**3**					

					0.898	0.898
					8.4	8.43
u=mLn{Q}+b:					2.31	2.31
update for r2, EV, CV:	**r2=0.898, EV=8.43 cfs CV=2.31; max r2=0.97**					
r2 u,lnQ:	0.898	u	lnQ	Q		
slope, m:	0.736	3	5.28	197		
intercept, b:	-0.890	0	1.21	3		
N: 32		-3	-2.87	0.1		
E[Q]:	8.4	Parameter Estimates				
SD[Q]:	19	from LN regression				
CV[Q]:	2.31	update graph label				

						max r2
	Q	N: 32				0.974
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
15-Nov-98	0.0422	1	0.0194	-2.067	-3.165	0.898
16-Dec-93	0.82	2	0.0504	-1.641	-0.198	0.973
24-Jan-94	0.88	3	0.0814	-1.396	-0.128	0.973
4-Oct-91	0.89	4	0.1124	-1.214	-0.117	0.971
13-Sep-95	1.48	5	0.1434	-1.065	0.392	0.968
15-Aug-94	1.53	6	0.1744	-0.937	0.425	0.970
14-Aug-95	1.74	7	0.2054	-0.822	0.554	0.971
16-Dec-93	1.81	8	0.2364	-0.718	0.593	0.973
24-Jan-94	1.81	9	0.2674	-0.621	0.593	0.974
8-Sep-94	1.88	10	0.2984	-0.529	0.631	0.974
4-Oct-94	1.88	11	0.3295	-0.441	0.631	0.972
2-Dec-93	2.04	12	0.3605	-0.357	0.713	0.969
27-Oct-93	*2.13*	13	0.3915	-0.275	0.756	0.965
25-Jul-95	2.31	14	0.4225	-0.196	0.837	0.962
15-Aug-94	2.61	15	0.4535	-0.117	0.959	0.959
13-Nov-97	2.63	16	0.4845	-0.039	0.967	0.955
11-Jul-95	2.96	17	0.5155	0.039	1.085	0.956
20-Jul-94	*3.81*	18	0.5465	0.117	1.338	0.960
8-Apr-94	4.73	19	0.5775	0.196	1.554	0.957
23-Jun-94	5.16	20	0.6085	0.275	1.641	0.950
27-Jun-95	*5.16*	21	0.6395	0.357	1.641	0.943
25-Apr-95	5.39	22	0.6705	0.441	1.685	0.935
13-Apr-95	6.15	23	0.7016	0.529	1.816	0.933
7-Jun-94	*7.36*	24	0.7326	0.621	1.996	0.936
12-Jun-95	9.24	25	0.7636	0.718	2.224	0.934
4-May-94	*10.13*	26	0.7946	0.822	2.316	0.917
9-May-95	11.11	27	0.8256	0.937	2.408	0.891
19-May-94	12.79	28	0.8566	1.065	2.549	0.852
23-May-95	14.06	29	0.8876	1.214	2.643	
16-May-91	20	30	0.9186	1.396	2.996	
14-May-98	22.9	31	0.9496	1.641	3.131	
19-Apr-94	25.2	32	0.9806	2.067	3.227	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM291 **Date:** 3-Jun-00
Chemical: tZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,655	6	224	6	0.00	0.00	0.00	
SD:	539	6	94	10	1.00	1.00	1.00	
CV:	0.02	1.08	0.42	1.56				first:
Min:	33,374	0.04	16	0.0	-0.92	-2.21	-0.64	mid:
Max:	36,114	25	410	56	2.96	1.98	5.15	last:
Median:	34,561	3	257	4	-0.50	0.35	-0.27	

tZn	**NM291**		**: Concentration v. Discharge, Q**		**Q = mTime +b**		**LnQ = mTime +b**	
Conc. = mQ+b (r2=0.0227)		update r2	0.02	0.0227	r2:	0.000	0.035	
r2 Q,[COC]:	0.02	[tZn]	Q		m:	0.0000	-0.00043	
slope, m:	-2.4	237	0.04		b:	6	16.03	
intercept, b:	237.0	222	6.0					
N: 31		176	25					first:
LnConc. = mLn{Q}+b (r2=0.0389)		update r2	0.04	0.0389				mid:
r2 lnQ,ln[COC]:	0.04	ln[tZn]	ln Q	[tZn]	Q			last:
slope, m:	0.11	4.81	-3.17	123	0.0			
intercept, b:	5.14	5.33	1.80	207	6			
N: 31		5.48	3.23	241	25			

								tZn	for graph
N= 32								NM291	
	Sampling Date	**Q Discharge**	**tZn Concentration**	**tZn Load**	**Ln Q**	**Ln tZn Conc.**	**Ln tZn Load**	**Standardized Values = (x - Avg)/SD**	
update for new data		**cfs**	**ug/L**	**lbs/day**				**Q**	**Conc**	**Load**
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	20	145	15.6	3.00	4.98	2.75	2.16	-0.83	0.99
MFG	4-Oct-91	0.89	260	1.2	-0.12	5.56	0.22	-0.79	0.39	-0.51
IDEQ	27-Oct-93	2.13	314	3.6	0.76	5.75	1.28	-0.60	0.96	-0.27
IDEQ	2-Dec-93	2.04	328	3.6	0.71	5.79	1.28	-0.61	1.11	-0.27
IDEQ	16-Dec-93	1.81	300	2.9	0.59	5.70	1.07	-0.65	0.81	-0.34
IDEQ	16-Dec-93	0.82	300	1.3	-0.20	5.70	0.28	-0.80	0.81	-0.50
IDEQ	24-Jan-94	1.81	300	2.9	0.59	5.70	1.07	-0.65	0.81	-0.34
IDEQ	24-Jan-94	0.88	300	1.4	-0.13	5.70	0.35	-0.79	0.81	-0.49
IDEQ	8-Apr-94	4.73	315	8.0	1.55	5.75	2.08	-0.20	0.97	0.20
IDEQ	19-Apr-94	25.2	410	55.6	3.23	6.02	4.02	2.96	1.98	5.15
IDEQ	4-May-94	10.13	167	9.1	2.32	5.12	2.21	0.63	-0.60	0.31
IDEQ	19-May-94	12.79	102	7.0	2.55	4.62	1.95	1.04	-1.29	0.09
IDEQ	7-Jun-94	7.36	145	5.7	2.00	4.98	1.75	0.21	-0.83	-0.04
IDEQ	23-Jun-94	5.16	161	4.5	1.64	5.08	1.50	-0.13	-0.66	-0.17
IDEQ	20-Jul-94	3.81	198	4.1	1.34	5.29	1.40	-0.34	-0.27	-0.22
IDEQ	15-Aug-94	2.61	257	3.6	0.96	5.55	1.28	-0.53	0.35	-0.26
IDEQ	15-Aug-94	1.53	257	2.1	0.43	5.55	0.75	-0.69	0.35	-0.42
IDEQ	8-Sep-94	1.88	251	2.5	0.63	5.53	0.93	-0.64	0.29	-0.38
IDEQ	4-Oct-94	1.88	308	3.1	0.63	5.73	1.14	-0.64	0.89	-0.32
IDEQ	13-Apr-95	6.15	279	9.2	1.82	5.63	2.22	0.02	0.59	0.32
IDEQ	25-Apr-95	5.39	316	9.2	1.68	5.76	2.22	-0.10	0.98	0.31
IDEQ	9-May-95	11.11	151	9.0	2.41	5.02	2.20	0.79	-0.77	0.30
IDEQ	23-May-95	14.06	74	5.6	2.64	4.30	1.72	1.24	-1.59	-0.06
IDEQ	12-Jun-95	9.24	75	3.7	2.22	4.32	1.32	0.50	-1.58	-0.25
IDEQ	27-Jun-95	5.16	97	2.7	1.64	4.57	0.99	-0.13	-1.34	-0.36
IDEQ	11-Jul-95	2.96	142	2.3	1.09	4.96	0.82	-0.47	-0.87	-0.40
IDEQ	25-Jul-95	2.31	160	2.0	0.84	5.08	0.69	-0.57	-0.67	-0.43
IDEQ	14-Aug-95	1.74	216	2.0	0.55	5.38	0.70	-0.66	-0.08	-0.43
IDEQ	13-Sep-95	1.48	261	2.1	0.39	5.56	0.73	-0.70	0.40	-0.42
URS	13-Nov-97	2.63	328	4.6	0.97	5.79	1.53	-0.52	1.11	-0.16
URS	*14-May-98*	*22.9*			3.13			2.60		
URS	15-Nov-98	0.0422	15.5	0.0	-3.17	2.74	-5.65	-0.92	-2.21	-0.64

tZn

Concentration over time analysis r2 Slope, m

tZn NM291 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.214** **-0.00060**

Time	Ln[COC]	[COC]
16-May-91	6.01	408
15-Aug-94	5.30	200
15-Nov-98	4.36	78

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

tZn NM291 **Load over time**

LnLoad=mTime+b All data r2, m: **0.240** **-0.00145**

Time	LnLoad	Load
16-May-91	2.99	20
15-Aug-94	1.26	4
15-Nov-98	-0.99	0

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.476

Forward time Regression on Ln Concentration(t)

only on >4 data points: delete last 4 rows

r2	slope	intercept
0.214	-0.00060	26.09
0.318	-0.00082	33.74
0.358	-0.00099	39.44
0.346	-0.00098	39.21
0.331	-0.00096	38.71
0.319	-0.00096	38.40
0.305	-0.00095	38.05
0.290	-0.00093	37.52
0.273	-0.00091	36.89
0.254	-0.00088	35.83
0.227	-0.00082	33.50
0.234	-0.00085	34.59
0.284	-0.00094	38.02
0.308	-0.00101	40.25
0.326	-0.00107	42.28
0.329	-0.00110	43.40
0.313	-0.00109	43.10
0.295	-0.00108	42.71
0.274	-0.00106	42.21
0.235	-0.00099	39.73
0.213	-0.00093	37.41
0.183	-0.00083	33.80
0.175	-0.00082	33.65
0.230	-0.00095	38.26
0.311	-0.00112	44.25
0.389	-0.00129	50.49
0.430	-0.00144	55.84
0.476	-0.00167	63.95

max r2: 0.602

Forward time Regression on Ln Load(t)

only on >4 data points: delete last 4 rows

r2	slope	intercept
0.240	-0.00145	51.54
0.211	-0.00151	53.34
0.345	-0.00217	76.43
0.356	-0.00225	79.22
0.367	-0.00233	81.92
0.385	-0.00243	85.58
0.439	-0.00264	92.97
0.463	-0.00277	97.50
0.527	-0.00301	105.93
0.523	-0.00304	106.85
0.508	-0.00284	99.97
0.495	-0.00283	99.56
0.486	-0.00284	100.06
0.481	-0.00288	101.34
0.483	-0.00295	103.90
0.487	-0.00304	106.98
0.496	-0.00315	110.85
0.536	-0.00339	119.31
0.572	-0.00364	128.11
0.602	-0.00389	137.10
0.589	-0.00382	134.69
0.573	-0.00373	131.51
0.554	-0.00361	127.26
0.533	-0.00354	124.62
0.514	-0.00351	123.67
0.498	-0.00355	124.86
0.484	-0.00364	128.36
0.471	-0.00388	136.72

update for EV, CV:

tZn **NM291**
LN Analysis **tZn**

Load **Load Data, EV=6.14 lbs/day CV=1.56**
Load Data-based LN

		u	ln tZn Load	tZn Load
Avg:	**6**			
SD:	**10**			
CV:	**1.56**	3	4.5	93
Min:	**0.004**	0	1.20	3
Max:	**56**	-3	-2.14	0.1
Median:	**4**			

6	6.14
1.56	1.56

u=mLn{Load}+ b:
update for r2, EV, CV: **r2=0.675, EV=19.2lbs/day CV=6.41; max r2=0.94**

r2 u,lnLoad:	0.675	u	lnLoad	Load	
slope, m:	0.517	3	6.89	979	
intercept, b:	-0.561	0	1.08	3	
N: 31		-3	-4.72	0.01	
E[Load]:	19.2	Parameter Estimates			0.675
SD[Load]:	123	from LN regression			19.2
CV[Load]:	6.41	update graph label			6.4
					max r2
					0.940

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
		N: 32				
update and rank for new data						
15-Nov-98	0.0	1	0.0194	-2.067	-5.650	0.675
14-May-98		2	0.0504	-1.641		
4-Oct-91	1.2	3	0.0814	-1.396	0.219	0.940
16-Dec-93	1.3	4	0.1124	-1.214	0.280	0.937
24-Jan-94	1.4	5	0.1434	-1.065	0.351	0.932
25-Jul-95	2.0	6	0.1744	-0.937	0.687	0.926
14-Aug-95	2.0	7	0.2054	-0.822	0.704	0.928
13-Sep-95	2.1	8	0.2364	-0.718	0.731	0.928
15-Aug-94	2.1	9	0.2674	-0.621	0.749	0.926
11-Jul-95	2.3	10	0.2984	-0.529	0.816	0.922
8-Sep-94	2.5	11	0.3295	-0.441	0.932	0.918
27-Jun-95	2.7	12	0.3605	-0.357	0.991	0.916
16-Dec-93	2.9	13	0.3915	-0.275	1.072	0.913
24-Jan-94	2.9	14	0.4225	-0.196	1.072	0.912
4-Oct-94	3.1	15	0.4535	-0.117	1.136	0.908
27-Oct-93	3.6	16	0.4845	-0.039	1.280	0.903
2-Dec-93	3.6	17	0.5155	0.039	1.281	0.904
15-Aug-94	3.6	18	0.5465	0.117	1.283	0.902
12-Jun-95	3.7	19	0.5775	0.196	1.316	0.895
20-Jul-94	4.1	20	0.6085	0.275	1.401	0.885
23-Jun-94	4.5	21	0.6395	0.357	1.497	0.873
13-Nov-97	4.6	22	0.6705	0.441	1.535	0.861
23-May-95	5.6	23	0.7016	0.529	1.722	0.842
7-Jun-94	5.7	24	0.7326	0.621	1.748	0.832
19-May-94	7.0	25	0.7636	0.718	1.949	0.811
8-Apr-94	8.0	26	0.7946	0.822	2.081	0.808
9-May-95	9.0	27	0.8256	0.937	2.200	0.826
4-May-94	9.1	28	0.8566	1.065	2.208	0.879
25-Apr-95	9.2	29	0.8876	1.214	2.215	
13-Apr-95	9.2	30	0.9186	1.396	2.223	
16-May-91	15.6	31	0.9496	1.641	2.747	
19-Apr-94	55.6	32	0.9806	2.067	4.018	

update for EV, CV:

tZn		**NM291**		224	224
LN Analysis		**tZn**		0.42	0.422
Concentration		**Conc. Data, EV=224 ug/L CV=0.422**			
Avg:	**224**	**Data-based LN**			
SD:	**94**	u	ln[tZn]	[tZn]	
CV:	**0.42**	3	6.5	693	
Min:	**16**	0	5.33	206	
Max:	**410**	-3	4.11	61	
Median:	**257**				

				0.731	0.731
	u=mLn{Conc.}+b:			260.1	260
update for r2, EV, CV:	**r2=0.731, EV=260 ug/L CV=1.01; max r2=0.90**			1.011	1.01
	r2 u,lnConc:	0.731	u	lnConc.	Conc.
	slope, m:	1.192	3	7.73	2266
	intercept, b:	-6.209	0	5.21	183
	N: 31		-3	2.69	15
0.675	E[Conc]:	260.1	Parameter Estimates		
19.2	SD[Conc]:	263	from LN regression		
6.41	CV[Conc]:	1.01	update graph label		

						max r2
	tZn	N: 32				0.901
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
14-May-98		1	0.0194	-2.067		
15-Nov-98	15.5	2	0.0504	-1.641	2.741	0.731
23-May-95	74	3	0.0814	-1.396	4.304	0.857
12-Jun-95	75	4	0.1124	-1.214	4.317	0.845
27-Jun-95	97	5	0.1434	-1.065	4.575	0.849
19-May-94	102	6	0.1744	-0.937	4.625	0.842
11-Jul-95	142	7	0.2054	-0.822	4.956	0.847
16-May-91	145	8	0.2364	-0.718	4.977	0.831
7-Jun-94	145	9	0.2674	-0.621	4.977	0.814
9-May-95	151	10	0.2984	-0.529	5.017	0.799
25-Jul-95	160	11	0.3295	-0.441	5.075	0.787
23-Jun-94	161	12	0.3605	-0.357	5.081	0.775
4-May-94	167	13	0.3915	-0.275	5.118	0.784
20-Jul-94	198	14	0.4225	-0.196	5.288	0.841
14-Aug-95	216	15	0.4535	-0.117	5.375	0.872
8-Sep-94	251	16	0.4845	-0.039	5.525	0.901
15-Aug-94	257	17	0.5155	0.039	5.549	0.889
15-Aug-94	257	18	0.5465	0.117	5.549	0.875
4-Oct-91	260	19	0.5775	0.196	5.561	0.858
13-Sep-95	261	20	0.6085	0.275	5.565	0.839
13-Apr-95	279	21	0.6395	0.357	5.631	0.827
16-Dec-93	300	22	0.6705	0.441	5.704	0.798
16-Dec-93	300	23	0.7016	0.529	5.704	0.809
24-Jan-94	300	24	0.7326	0.621	5.704	0.815
24-Jan-94	300	25	0.7636	0.718	5.704	0.811
4-Oct-94	308	26	0.7946	0.822	5.730	0.793
27-Oct-93	314	27	0.8256	0.937	5.749	0.796
8-Apr-94	315	28	0.8566	1.065	5.753	0.830
25-Apr-95	316	29	0.8876	1.214	5.756	
2-Dec-93	328	30	0.9186	1.396	5.793	
13-Nov-97	328	31	0.9496	1.641	5.793	
19-Apr-94	410	32	0.9806	2.067	6.016	

update for EV, CV:

tZn		**NM291**			6	6.02
LN Analysis		**tZn**			1.08	1.08

Discharge, Q

Q Data, EV=6.02 cfs CV=1.08

Q Data-based LN

		u	lnQ	Q
Avg:	**6**			
SD:	**6**			
CV:	**1.08**	3	4.0	57
Min:	**0.04**	0	1.41	4
Max:	**25**	-3	-1.22	0.3
Median:	**3**			

	0.898	0.898
	8.4	8.43
u=mLn{Q}+b:	2.31	2.31

update for r2, EV, CV: **r2=0.898, EV=8.43 cfs CV=2.31; max r2=0.97**

		u	lnQ	Q
r2 u,lnQ:	0.898			
slope, m:	0.736	3	5.28	197
intercept, b:	-0.890	0	1.21	3
N: 32		-3	-2.87	0.1
E[Q]:	8.4	Parameter Estimates		
SD[Q]:	19	from LN regression		
CV[Q]:	2.31	update graph label		

N: 32

max r2
0.974

update and rank for new data

Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2 forward**
15-Nov-98	0.0422	1	0.0194	-2.067	-3.165	0.898
16-Dec-93	0.82	2	0.0504	-1.641	-0.198	0.973
24-Jan-94	0.88	3	0.0814	-1.396	-0.128	0.973
4-Oct-91	0.89	4	0.1124	-1.214	-0.117	0.971
13-Sep-95	1.48	5	0.1434	-1.065	0.392	0.968
15-Aug-94	1.53	6	0.1744	-0.937	0.425	0.970
14-Aug-95	1.74	7	0.2054	-0.822	0.554	0.971
16-Dec-93	1.81	8	0.2364	-0.718	0.593	0.973
24-Jan-94	1.81	9	0.2674	-0.621	0.593	0.974
8-Sep-94	1.88	10	0.2984	-0.529	0.631	0.974
4-Oct-94	1.88	11	0.3295	-0.441	0.631	0.972
2-Dec-93	2.04	12	0.3605	-0.357	0.713	0.969
27-Oct-93	2.13	13	0.3915	-0.275	0.756	0.965
25-Jul-95	2.31	14	0.4225	-0.196	0.837	0.962
15-Aug-94	2.61	15	0.4535	-0.117	0.959	0.959
13-Nov-97	2.63	16	0.4845	-0.039	0.967	0.955
11-Jul-95	2.96	17	0.5155	0.039	1.085	0.956
20-Jul-94	3.81	18	0.5465	0.117	1.338	0.960
8-Apr-94	4.73	19	0.5775	0.196	1.554	0.957
23-Jun-94	5.16	20	0.6085	0.275	1.641	0.950
27-Jun-95	5.16	21	0.6395	0.357	1.641	0.943
25-Apr-95	5.39	22	0.6705	0.441	1.685	0.935
13-Apr-95	6.15	23	0.7016	0.529	1.816	0.933
7-Jun-94	7.36	24	0.7326	0.621	1.996	0.936
12-Jun-95	9.24	25	0.7636	0.718	2.224	0.934
4-May-94	10.13	26	0.7946	0.822	2.316	0.917
9-May-95	11.11	27	0.8256	0.937	2.408	0.891
19-May-94	12.79	28	0.8566	1.065	2.549	0.852
23-May-95	14.06	29	0.8876	1.214	2.643	
16-May-91	20	30	0.9186	1.396	2.996	
14-May-98	*22.9*	31	0.9496	1.641	3.131	
19-Apr-94	25.2	32	0.9806	2.067	3.227	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM293 **Date:** 29-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,746	7	17	0.5	0.00	0.00	0.00	
SD:	589	7	15	0.4	1.00	1.00	1.00	
CV:	0.02	1.06	0.88	0.90				first:
Min:	33,374	1	4	0.1	-0.78	-0.88	-0.98	mid:
Max:	36,114	26	79	2	2.59	4.12	3.19	last:
Median:	34,720	3	14	0.3	-0.50	-0.20	-0.45	

dCd NM293 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.09) update r2

r2 Q,[COC]:	0.09	[dCd]	Q	r2:	0.001	0.001
slope, m:	-0.6	20	1.2	m:	-0.0004	-0.00004
intercept, b:	21.1	17	7.0	b:	22	2.79
N: 24		6	26			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.22) update r2

r2 lnQ,ln[COC]:	0.22	ln[dCd]	ln Q	[dCd]	Q
slope, m:	-0.31	3.03	0.22	21	1
intercept, b:	3.10	2.48	1.95	12	7
N: 24		2.07	3.27	8	26

for graph
dCd 0
NM293

N= 24

update for new data	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	25.5	3.8	0.5	3.24	1.34	-0.65	2.49	-0.88	0.13
MFG	4-Oct-91	1.24	8.3	0.1	0.22	2.12	-2.89	-0.78	-0.58	-0.98
IDEQ	4-May-94	9.52	20.3	1.0	2.25	3.01	0.04	0.34	0.22	1.38
IDEQ	19-May-94	10.44	11	0.6	2.35	2.40	-0.48	0.46	-0.40	0.36
IDEQ	7-Jun-94	4.78	13	0.3	1.56	2.56	-1.10	-0.30	-0.27	-0.32
IDEQ	23-Jun-94	4.25	14	0.3	1.45	2.64	-1.14	-0.37	-0.20	-0.35
IDEQ	20-Jul-94	2.68	14	0.2	0.99	2.64	-1.60	-0.58	-0.20	-0.63
IDEQ	20-Jul-94	3.52	14	0.3	1.26	2.64	-1.33	-0.47	-0.20	-0.48
IDEQ	15-Aug-94	2.61	16	0.2	0.96	2.77	-1.49	-0.59	-0.07	-0.58
IDEQ	15-Aug-94	1.86	16	0.2	0.62	2.77	-1.83	-0.69	-0.07	-0.73
IDEQ	8-Sep-94	2.4	14	0.2	0.88	2.64	-1.71	-0.62	-0.20	-0.68
IDEQ	4-Oct-94	2.4	14	0.2	0.88	2.64	-1.71	-0.62	-0.20	-0.68
IDEQ	9-May-95	17.74	13	1.2	2.88	2.56	0.22	1.45	-0.27	1.86
IDEQ	13-May-95	7.25	46	1.8	1.98	3.83	0.58	0.03	1.95	3.19
IDEQ	23-May-95	20.15	9.3	1.0	3.00	2.23	0.01	1.77	-0.51	1.30
IDEQ	12-Jun-95	7.47	9	0.4	2.01	2.20	-1.02	0.06	-0.53	-0.25
IDEQ	27-Jun-95	2.92	12	0.2	1.07	2.48	-1.67	-0.55	-0.33	-0.67
IDEQ	11-Jul-95	3.9	12	0.3	1.36	2.48	-1.38	-0.42	-0.33	-0.51
IDEQ	25-Jul-95	2.46	13	0.2	0.90	2.56	-1.76	-0.61	-0.27	-0.70
IDEQ	14-Aug-95	2.08	16	0.2	0.73	2.77	-1.72	-0.66	-0.07	-0.69
IDEQ	13-Sep-95	1.92	18	0.2	0.65	2.89	-1.68	-0.69	0.07	-0.67
URS	12-Nov-97	3.11	17.5	0.3	1.13	2.86	-1.23	-0.53	0.04	-0.42
URS	14-May-98	26.2	4.6	0.6	3.27	1.53	-0.43	2.59	-0.83	0.44
URS	15-Nov-98	1.792	78.5	0.8	0.58	4.36	-0.28	-0.70	4.12	0.70

dCd

Concentration over time analysis r2 Slope, m

dCd NM293 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.191** **0.00044**

Time	Ln[COC]	[COC]
16-May-91	2.02	8
20-Jan-95	2.61	14
15-Nov-98	3.22	25

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

dCd NM293 **Load over time**

LnLoad=mTime+b All data r2, m: **0.088** **0.00040**

Time	LnLoad	Load
16-May-91	-1.65	0.2
20-Jan-95	-1.10	0.3
15-Nov-98	-0.54	1

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.191 max r2: 0.904

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.191	0.00044	-12.63	0.088	0.00040	-15.06
0.077	0.00028	-7.23	0.165	0.00063	-22.90
0.038	0.00023	-5.24	0.046	0.00034	-12.94
0.051	0.00027	-6.59	0.088	0.00046	-17.05
0.043	0.00025	-5.94	0.120	0.00054	-19.88
0.040	0.00024	-5.81	0.127	0.00056	-20.78
0.039	0.00025	-5.93	0.131	0.00059	-21.63
0.038	0.00025	-6.04	0.116	0.00056	-20.60
0.037	0.00025	-6.18	0.110	0.00056	-20.61
0.042	0.00028	-6.98	0.097	0.00053	-19.71
0.047	0.00031	-8.04	0.067	0.00044	-16.57
0.047	0.00032	-8.48	0.041	0.00035	-13.24
0.047	0.00033	-9.01	0.016	0.00022	-8.74
0.043	0.00033	-8.71	0.055	0.00038	-14.49
0.131	0.00052	-15.54	0.253	0.00065	-24.09
0.108	0.00048	-14.09	0.706	0.00090	-33.09
0.079	0.00041	-11.76	0.860	0.00103	-37.46
0.065	0.00039	-10.94	0.849	0.00103	-37.71
0.046	0.00035	-9.50	0.904	0.00114	-41.50
0.029	0.00031	-8.01	0.884	0.00115	-41.86

update for EV, CV:

dCd **NM293**
LN Analysis **dCd**

Load **Load Data, EV=0.5 lbs/day CV=.9**

Load Data-based LN

Avg:	**0.5**	u	ln dCd Load	dCd Load
SD:	**0.4**	3	1.2	3
CV:	**0.90**	0	-1.06	0.35
Min:	**0.1**	-3	-3.36	0.03
Max:	**2**			
Median:	**0.3**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.940, EV=0.5 lbs/day CV=1.06; max r2=0.98**

r2 u,lnLoad:	0.940	u	lnLoad	Load
slope, m:	1.149	3	1.52	5
intercept, b:	1.257	0	-1.09	0.3
N: 24		-3	-3.70	0.02
E[Load]:	0.5	Parameter Estimates		
SD[Load]:	1	from LN regression		
CV[Load]:	1.06	update graph label		

Date	dCd Load lbs/day Ranked	N: 24 i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.980 r2 forward
update and rank for new data						
4-Oct-91	**0.1**	1	0.0258	-1.947	-2.894	0.940
15-Aug-94	**0.2**	2	0.0670	-1.498	-1.832	0.928
25-Jul-95	**0.2**	3	0.1082	-1.236	-1.760	0.944
14-Aug-95	**0.2**	4	0.1495	-1.039	-1.720	0.959
8-Sep-94	**0.2**	5	0.1907	-0.875	-1.711	0.970
4-Oct-94	**0.2**	6	0.2320	-0.732	-1.711	0.977
13-Sep-95	**0.2**	7	0.2732	-0.603	-1.682	0.980
27-Jun-95	**0.2**	8	0.3144	-0.483	-1.669	0.980
20-Jul-94	**0.2**	9	0.3557	-0.370	-1.600	0.978
15-Aug-94	**0.2**	10	0.3969	-0.261	-1.493	0.975
11-Jul-95	**0.3**	11	0.4381	-0.156	-1.379	0.971
20-Jul-94	**0.3**	12	0.4794	-0.052	-1.328	0.967
12-Nov-97	**0.3**	13	0.5206	0.052	-1.228	0.961
23-Jun-94	**0.3**	14	0.5619	0.156	-1.139	0.955
7-Jun-94	**0.3**	15	0.6031	0.261	-1.096	0.946
12-Jun-95	**0.4**	16	0.6443	0.370	-1.017	0.945
16-May-91	**0.5**	17	0.6856	0.483	-0.651	0.976
19-May-94	**0.6**	18	0.7268	0.603	-0.482	0.973
14-May-98	**0.6**	19	0.7680	0.732	-0.433	0.964
15-Nov-98	**0.8**	20	0.8093	0.875	-0.279	0.961
23-May-95	**1.0**	21	0.8505	1.039	0.008	
4-May-94	**1.0**	22	0.8918	1.236	0.039	
9-May-95	**1.2**	23	0.9330	1.498	0.216	
13-May-95	**1.8**	24	0.9742	1.947	0.585	

update for EV, CV:

dCd
LN Analysis

NM293
dCd

Concentration

Conc. Data, EV=17 ug/L CV=.88

Data-based LN

		u	ln[dCd]	[dCd]
Avg:	**17**	3	4.8	123
SD:	**15**	0	2.55	13
CV:	**0.88**	-3	0.27	1
Min:	**4**			
Max:	**79**			
Median:	**14**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.847, EV=17.3 ug/L CV=0.76; max r2=0.94**

		u	lnConc.	Conc.
r2 u,lnConc:	0.847			
slope, m:	1.476	3	4.66	105
intercept, b:	-3.870	0	2.62	14
N: 24		-3	0.59	2
E[Conc]:	17.3	Parameter Estimates		
SD[Conc]:	13	from LN regression		
CV[Conc]:	0.76	update graph label		

N: 24

max r2
0.935

Date	**dCd Concentration ug/L Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	r2 forward
update and rank for new data						
16-May-91	3.8	1	0.0258	-1.947	1.335	0.847
14-May-98	4.6	2	0.0670	-1.498	1.526	0.813
4-Oct-91	8.3	3	0.1082	-1.236	2.116	0.781
12-Jun-95	9	4	0.1495	-1.039	2.197	0.767
23-May-95	9.3	5	0.1907	-0.875	2.230	0.753
19-May-94	11	6	0.2320	-0.732	2.398	0.736
27-Jun-95	12	7	0.2732	-0.603	2.485	0.734
11-Jul-95	12	8	0.3144	-0.483	2.485	0.742
7-Jun-94	13	9	0.3557	-0.370	2.565	0.746
9-May-95	13	10	0.3969	-0.261	2.565	0.762
25-Jul-95	13	11	0.4381	-0.156	2.565	0.775
23-Jun-94	14	12	0.4794	-0.052	2.639	0.784
20-Jul-94	14	13	0.5206	0.052	2.639	0.807
20-Jul-94	14	14	0.5619	0.156	2.639	0.828
8-Sep-94	14	15	0.6031	0.261	2.639	0.846
4-Oct-94	14	16	0.6443	0.370	2.639	0.858
15-Aug-94	16	17	0.6856	0.483	2.773	0.863
15-Aug-94	16	18	0.7268	0.603	2.773	0.895
14-Aug-95	16	19	0.7680	0.732	2.773	0.921
12-Nov-97	17.5	20	0.8093	0.875	2.862	0.935
13-Sep-95	18	21	0.8505	1.039	2.890	
4-May-94	20.3	22	0.8918	1.236	3.011	
13-May-95	46	23	0.9330	1.498	3.829	
15-Nov-98	78.5	24	0.9742	1.947	4.363	

update for EV, CV:

dCd **NM293**

LN Analysis **dCd**

Discharge, Q **Q Data, EV=7 cfs CV=1.06**

Q Data-based LN

		u	lnQ	Q
Avg:	**7**			
SD:	**7**			
CV:	**1.06**	3	4.2	65
Min:	**1**	0	1.57	5
Max:	**26**	-3	-1.03	0.4
Median:	**3**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.913, EV=7.3 cfs CV=1.26; max r2=0.96**

r2 u,lnQ:	0.913	u	lnQ	Q
slope, m:	1.025	3	4.44	85
intercept, b:	-1.546	0	1.51	5
N: 24		-3	-1.42	0.2
E[Q]:	7.3	Parameter Estimates		
SD[Q]:	9	from LN regression		
CV[Q]:	1.26	update graph label		

N: 24

max r2 0.958

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	1.24	1	0.0258	-1.947	0.215	0.913
15-Nov-98	1.792	2	0.0670	-1.498	0.583	0.918
15-Aug-94	1.86	3	0.1082	-1.236	0.621	0.933
13-Sep-95	1.92	4	0.1495	-1.039	0.652	0.942
14-Aug-95	2.08	5	0.1907	-0.875	0.732	0.946
8-Sep-94	2.4	6	0.2320	-0.732	0.875	0.949
4-Oct-94	2.4	7	0.2732	-0.603	0.875	0.955
25-Jul-95	2.46	8	0.3144	-0.483	0.900	0.958
15-Aug-94	2.61	9	0.3557	-0.370	0.959	0.957
20-Jul-94	2.68	10	0.3969	-0.261	0.986	0.955
27-Jun-95	2.92	11	0.4381	-0.156	1.072	0.949
12-Nov-97	3.11	12	0.4794	-0.052	1.135	0.941
20-Jul-94	3.52	13	0.5206	0.052	1.258	0.931
11-Jul-95	3.9	14	0.5619	0.156	1.361	0.919
23-Jun-94	4.25	15	0.6031	0.261	1.447	0.903
7-Jun-94	4.78	16	0.6443	0.370	1.564	0.887
13-May-95	7.25	17	0.6856	0.483	1.981	0.877
12-Jun-95	7.47	18	0.7268	0.603	2.011	0.843
4-May-94	9.52	19	0.7680	0.732	2.253	0.801
19-May-94	10.44	20	0.8093	0.875	2.346	0.725
9-May-95	17.74	21	0.8505	1.039	2.876	
23-May-95	20.15	22	0.8918	1.236	3.003	
16-May-91	25.5	23	0.9330	1.498	3.239	
14-May-98	26.2	24	0.9742	1.947	3.266	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM293 **Date:** 30-May-00
Chemical: dPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,746	7	15	0.4	0.00	0.00	0.00	
SD:	589	7	17	0.3	1.00	1.00	1.00	
CV:	0.02	1.06	1.13	0.80				first:
Min:	33,374	1	3	0.05	-0.78	-0.71	-1.10	mid:
Max:	36,114	26	96	1.15	2.59	4.70	2.38	last:
Median:	34,720	3	12	0.24	-0.50	-0.17	-0.48	

dPb NM293 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.07) update r2 r2: 0.001 0.001

r2 Q,[COC]:	0.07	[dPb]	Q	m:	-0.0004	-0.00004
slope, m:	-0.6	19	1.2	b:	22	2.79
intercept, b:	19.4	15	7.0			
N: 24		4	26			first:

LnConc. = mLn{Q}+b (r2=0.26) update r2 mid:

						last:
r2 lnQ,ln[COC]:	0.26	ln[dPb]	ln Q	[dPb]	Q	
slope, m:	-0.33	2.91	0.22	18	1	
intercept, b:	2.98	2.35	1.95	10	7	
N: 24		1.92	3.27	7	26	

for graph
dPb 0
NM293

N= 24

	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	25.5	3	0.41	3.24	1.10	-0.89	2.49	-0.71	0.06
MFG	4-Oct-91	1.24	7	0.05	0.22	1.95	-3.06	-0.78	-0.48	-1.10
IDEQ	4-May-94	9.52	12.6	0.65	2.25	2.53	-0.44	0.34	-0.15	0.80
IDEQ	19-May-94	10.44	9	0.51	2.35	2.20	-0.68	0.46	-0.36	0.35
IDEQ	7-Jun-94	4.78	10	0.26	1.56	2.30	-1.36	-0.30	-0.30	-0.43
IDEQ	23-Jun-94	4.25	19	0.43	1.45	2.94	-0.83	-0.37	0.22	0.13
IDEQ	20-Jul-94	2.68	13	0.19	0.99	2.56	-1.67	-0.58	-0.13	-0.65
IDEQ	20-Jul-94	3.52	13	0.25	1.26	2.56	-1.40	-0.47	-0.13	-0.47
IDEQ	15-Aug-94	2.61	15	0.21	0.96	2.71	-1.56	-0.59	-0.01	-0.58
IDEQ	15-Aug-94	1.86	15	0.15	0.62	2.71	-1.90	-0.69	-0.01	-0.77
IDEQ	8-Sep-94	2.4	15	0.19	0.88	2.71	-1.64	-0.62	-0.01	-0.63
IDEQ	4-Oct-94	2.4	12	0.15	0.88	2.48	-1.86	-0.62	-0.19	-0.76
IDEQ	9-May-95	17.74	12	1.15	2.88	2.48	0.14	1.45	-0.19	2.38
IDEQ	13-May-95	7.25	12.6	0.49	1.98	2.53	-0.71	0.03	-0.15	0.31
IDEQ	23-May-95	20.15	9	0.98	3.00	2.20	-0.02	1.77	-0.36	1.84
IDEQ	12-Jun-95	7.47	8	0.32	2.01	2.08	-1.13	0.06	-0.42	-0.23
IDEQ	27-Jun-95	2.92	9	0.14	1.07	2.20	-1.96	-0.55	-0.36	-0.80
IDEQ	11-Jul-95	3.9	11	0.23	1.36	2.40	-1.47	-0.42	-0.24	-0.52
IDEQ	25-Jul-95	2.46	11	0.15	0.90	2.40	-1.93	-0.61	-0.24	-0.79
IDEQ	14-Aug-95	2.08	14	0.16	0.73	2.64	-1.85	-0.66	-0.07	-0.75
IDEQ	13-Sep-95	1.92	17	0.18	0.65	2.83	-1.74	-0.69	0.11	-0.69
URS	12-Nov-97	3.11	14.1	0.24	1.13	2.65	-1.44	-0.53	-0.06	-0.50
URS	14-May-98	26.2	7.5	1.06	3.27	2.01	0.06	2.59	-0.45	2.10
URS	15-Nov-98	1.792	95.9	0.92	0.58	4.56	-0.08	-0.70	4.70	1.68

dPb

Concentration over time analysis r2 Slope, m

dPb NM293 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.361** **0.00058**

Time	Ln[COC]	[COC]
16-May-91	1.69	5
20-Jan-95	2.47	12
15-Nov-98	3.28	27

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

dPb NM293 **Load over time**

LnLoad=mTime+b All data r2, m: **0.172** **0.00054**

Time	LnLoad	Load
16-May-91	-1.97	0.1
20-Jan-95	-1.24	0.3
15-Nov-98	-0.48	0.6

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.361 max r2: 0.803

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.361	0.00058	-17.67	0.172	0.00054	-20.10
0.220	0.00045	-12.98	0.279	0.00079	-28.65
0.165	0.00044	-12.69	0.132	0.00055	-20.39
0.168	0.00045	-13.15	0.181	0.00064	-23.60
0.152	0.00043	-12.44	0.225	0.00072	-26.38
0.140	0.00042	-12.00	0.226	0.00074	-26.97
0.176	0.00048	-14.03	0.268	0.00082	-29.73
0.182	0.00050	-14.72	0.253	0.00080	-29.29
0.190	0.00052	-15.59	0.253	0.00082	-30.03
0.214	0.00057	-17.29	0.241	0.00082	-30.03
0.245	0.00063	-19.52	0.207	0.00077	-28.05
0.286	0.00071	-22.28	0.183	0.00074	-27.04
0.301	0.00076	-24.18	0.140	0.00065	-23.91
0.304	0.00078	-24.89	0.274	0.00084	-30.67
0.313	0.00081	-26.08	0.342	0.00095	-34.63
0.291	0.00080	-25.39	0.691	0.00122	-44.40
0.252	0.00074	-23.43	0.788	0.00135	-49.12
0.210	0.00069	-21.49	0.766	0.00133	-48.26
0.176	0.00066	-20.63	0.803	0.00145	-52.63
0.126	0.00061	-18.75	0.763	0.00145	-52.60

update for EV, CV:

dPb **NM293**
LN Analysis **dPb**

Load **Load Data, EV=0.4 lbs/d CV=.80**

Load Data-based LN

Avg:	**0.4**			
SD:	**0.3**	u	ln dPb Load	dPb Load
CV:	**0.80**	3	0.9	3
Min:	**0.05**	0	-1.18	0.31
Max:	**1.1**	-3	-3.30	0.04
Median:	**0.2**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.943, EV=0.4lbs/d CV=1.01; max r2=0.96**

r2 u,lnLoad:	0.943	u	lnLoad	Load
slope, m:	1.193	3	1.29	4
intercept, b:	1.464	0	-1.23	0.3
N: 24		-3	-3.74	0.02
E[Load]:	0.4	Parameter Estimates		
SD[Load]:	0.4	from LN regression		
CV[Load]:	1.01	update graph label		

N: 24

max r2
0.959

Date	dPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	**0.05**	1	0.0258	-1.947	-3.064	0.943
27-Jun-95	**0.14**	2	0.0670	-1.498	-1.956	0.934
25-Jul-95	**0.15**	3	0.1082	-1.236	-1.927	0.948
15-Aug-94	**0.15**	4	0.1495	-1.039	-1.896	0.956
4-Oct-94	**0.15**	5	0.1907	-0.875	-1.865	0.959
14-Aug-95	**0.16**	6	0.2320	-0.732	-1.854	0.959
13-Sep-95	**0.18**	7	0.2732	-0.603	-1.740	0.956
20-Jul-94	**0.19**	8	0.3144	-0.483	-1.674	0.953
8-Sep-94	**0.19**	9	0.3557	-0.370	-1.642	0.949
15-Aug-94	**0.21**	10	0.3969	-0.261	-1.558	0.942
11-Jul-95	**0.23**	11	0.4381	-0.156	-1.466	0.934
12-Nov-97	**0.24**	12	0.4794	-0.052	-1.444	0.924
20-Jul-94	**0.25**	13	0.5206	0.052	-1.402	0.911
7-Jun-94	**0.26**	14	0.5619	0.156	-1.358	0.897
12-Jun-95	**0.32**	15	0.6031	0.261	-1.135	0.892
16-May-91	**0.41**	16	0.6443	0.370	-0.888	0.877
23-Jun-94	**0.43**	17	0.6856	0.483	-0.834	0.847
13-May-95	**0.49**	18	0.7268	0.603	-0.710	0.806
19-May-94	**0.51**	19	0.7680	0.732	-0.682	0.743
4-May-94	**0.65**	20	0.8093	0.875	-0.438	0.709
15-Nov-98	**0.92**	21	0.8505	1.039	-0.078	
23-May-95	**0.98**	22	0.8918	1.236	-0.025	
14-May-98	**1.06**	23	0.9330	1.498	0.056	
9-May-95	**1.15**	24	0.9742	1.947	0.136	

update for EV, CV:

dPb		NM293		
LN Analysis		dPb		
Concentration		Conc. Data, EV=15 ug/L CV=1.13		
Avg:	15	Data-based LN		
SD:	17	u	ln[dPb]	[dPb]
CV:	1.13	3	5.0	153
Min:	3	0	2.31	10
Max:	96	-3	-0.41	1
Median:	12			

update for

dPb		NM293
LN Analysis		dPb
Discharge, Q		Q Data,
Avg:	7	Q Data-
SD:	7	u
CV:	1.06	3
Min:	1	0
Max:	26	-3
Median:	3	

u=mLn{Conc.}+b:

update for r2, EV, CV: r^2=0.760, EV=15.3 ug/L CV=0.78; max r2=0.80

r2 u,lnConc:	0.760	u	lnConc.	Conc.
slope, m:	1.453	3	4.55	95
intercept, b:	-3.616	0	2.49	12
N: 24		-3	0.42	2
E[Conc]:	15.3	Parameter Estimates		
SD[Conc]:	12	from LN regression		
CV[Conc]:	0.78	update graph label		

u=mLn{Q}+b:

update for r2, EV, CV: r2=0.913, EV=7.3 cfs C

r2 u,lnQ:	0.913
slope, m:	1.025
intercept, b:	-1.546
N: 24	
E[Q]:	7.3
SD[Q]:	9
CV[Q]:	1.26

Date	dPb Concentration ug/L Ranked	N: 24 i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.799 r2 forward
update and rank for new data						
16-May-91	3	1	0.0258	-1.947	1.099	0.760
4-Oct-91	7	2	0.0670	-1.498	1.946	0.707
14-May-98	7.5	3	0.1082	-1.236	2.015	0.691
12-Jun-95	8	4	0.1495	-1.039	2.079	0.675
19-May-94	9	5	0.1907	-0.875	2.197	0.659
23-May-95	9	6	0.2320	-0.732	2.197	0.653
27-Jun-95	9	7	0.2732	-0.603	2.197	0.640
7-Jun-94	10	8	0.3144	-0.483	2.303	0.621
11-Jul-95	11	9	0.3557	-0.370	2.398	0.611
25-Jul-95	11	10	0.3969	-0.261	2.398	0.612
4-Oct-94	12	11	0.4381	-0.156	2.485	0.609
9-May-95	12	12	0.4794	-0.052	2.485	0.620
4-May-94	12.6	13	0.5206	0.052	2.534	0.627
13-May-95	12.6	14	0.5619	0.156	2.534	0.642
20-Jul-94	13	15	0.6031	0.261	2.565	0.654
20-Jul-94	13	16	0.6443	0.370	2.565	0.671
14-Aug-95	14	17	0.6856	0.483	2.639	0.684
12-Nov-97	14.1	18	0.7268	0.603	2.646	0.714
15-Aug-94	15	19	0.7680	0.732	2.708	0.745
15-Aug-94	15	20	0.8093	0.875	2.708	0.799
8-Sep-94	15	21	0.8505	1.039	2.708	
13-Sep-95	17	22	0.8918	1.236	2.833	
23-Jun-94	19	23	0.9330	1.498	2.944	
15-Nov-98	95.9	24	0.9742	1.947	4.563	

Date	Q Discharge cfs Ranked	N: i rank
update and rank for new data		
4-Oct-91	1.24	1
15-Nov-98	1.792	2
15-Aug-94	1.86	3
13-Sep-95	1.92	4
14-Aug-95	2.08	5
8-Sep-94	2.4	6
4-Oct-94	2.4	7
25-Jul-95	2.46	8
15-Aug-94	2.61	9
20-Jul-94	2.68	10
27-Jun-95	2.92	11
12-Nov-97	3.11	12
20-Jul-94	3.52	13
11-Jul-95	3.9	14
23-Jun-94	4.25	15
7-Jun-94	4.78	16
13-May-95	7.25	17
12-Jun-95	7.47	18
4-May-94	9.52	19
19-May-94	10.44	20
9-May-95	17.74	21
23-May-95	20.15	22
16-May-91	25.5	23
14-May-98	26.2	24

r EV, CV:

, EV=7 cfs CV=1.06

-based LN

lnQ	Q
4.2	65
1.57	5
-1.03	0.4

V=1.26; max r2=0.96

u	lnQ	Q
3	4.44	85
0	1.51	5
-3	-1.42	0.2

Parameter Estimates
from LN regression

update graph label

			max r2
24			0.958
i-3/8 / N+1/4	**u**	**Ln**	**r2**
plotting points	**y-axis**	**x-axis**	forward
0.0258	-1.947	0.215	0.913
0.0670	-1.498	0.583	0.918
0.1082	-1.236	0.621	0.933
0.1495	-1.039	0.652	0.942
0.1907	-0.875	0.732	0.946
0.2320	-0.732	0.875	0.949
0.2732	-0.603	0.875	0.955
0.3144	-0.483	0.900	0.958
0.3557	-0.370	0.959	0.957
0.3969	-0.261	0.986	0.955
0.4381	-0.156	1.072	0.949
0.4794	-0.052	1.135	0.941
0.5206	0.052	1.258	0.931
0.5619	0.156	1.361	0.919
0.6031	0.261	1.447	0.903
0.6443	0.370	1.564	0.887
0.6856	0.483	1.981	0.877
0.7268	0.603	2.011	0.843
0.7680	0.732	2.253	0.801
0.8093	0.875	2.346	0.725
0.8505	1.039	2.876	
0.8918	1.236	3.003	
0.9330	1.498	3.239	
0.9742	1.947	3.266	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM293 **Date:** 29-May-00
Chemical: dZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,687	7	2,377	71	0.00	0.00	0.00	
SD:	526	7	946	58	1.00	1.00	1.00	
CV:	0.02	1.04	0.40	0.81				first:
Min:	33,374	1	37	1	-0.80	-2.47	-1.21	mid:
Max:	35,929	26	4,380	219	2.53	2.12	2.54	last:
Median:	34,611	4	2,410	47	-0.50	0.03	-0.42	

dZn NM293 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.31) update r2

r2 Q,[COC]:	0.31	[dZn]	Q	r2:	0.002	0.009
slope, m:	-69.9	2,796	1.2	m:	0.0006	0.00016
intercept, b:	2883.1	2,377	7.2	b:	-13	-3.97
N: 23		1,051	26			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.14) update r2

r2 lnQ,ln[COC]:	0.14	ln[dZn]	ln Q	[dZn]	Q
slope, m:	-0.39	8.09	0.22	3,276	1
intercept, b:	8.18	7.42	1.98	1,661	7
N: 23		6.92	3.27	1,012	26

for graph
dZn 0
NM293

N= 23

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	25.5	1310	180	3.24	7.18	5.19	2.44	-1.13	1.87
MFG	4-Oct-91	1.24	2410	16	0.22	7.79	2.78	-0.80	0.03	-0.95
IDEQ	4-May-94	9.52	2710	139	2.25	7.90	4.93	0.30	0.35	1.16
IDEQ	19-May-94	10.44	1500	84	2.35	7.31	4.43	0.43	-0.93	0.22
IDEQ	7-Jun-94	4.78	1990	51	1.56	7.60	3.94	-0.33	-0.41	-0.35
IDEQ	23-Jun-94	4.25	2160	49	1.45	7.68	3.90	-0.40	-0.23	-0.38
IDEQ	20-Jul-94	2.68	2490	36	0.99	7.82	3.58	-0.61	0.12	-0.61
IDEQ	20-Jul-94	3.52	2490	47	1.26	7.82	3.85	-0.50	0.12	-0.42
IDEQ	15-Aug-94	2.61	3010	42	0.96	8.01	3.74	-0.62	0.67	-0.50
IDEQ	15-Aug-94	1.86	3010	30	0.62	8.01	3.41	-0.72	0.67	-0.71
IDEQ	8-Sep-94	2.4	2990	39	0.88	8.00	3.65	-0.64	0.65	-0.56
IDEQ	4-Oct-94	2.4	3480	45	0.88	8.15	3.81	-0.64	1.17	-0.46
IDEQ	9-May-95	17.74	2290	219	2.88	7.74	5.39	1.40	-0.09	2.54
IDEQ	13-May-95	7.25	37	1	1.98	3.61	0.37	0.00	-2.47	-1.21
IDEQ	23-May-95	20.15	1490	162	3.00	7.31	5.08	1.72	-0.94	1.55
IDEQ	12-Jun-95	7.47	1600	64	2.01	7.38	4.16	0.03	-0.82	-0.12
IDEQ	27-Jun-95	2.92	1900	30	1.07	7.55	3.40	-0.58	-0.50	-0.72
IDEQ	11-Jul-95	3.9	2330	49	1.36	7.75	3.89	-0.44	-0.05	-0.39
IDEQ	25-Jul-95	2.46	2550	34	0.90	7.84	3.52	-0.64	0.18	-0.65
IDEQ	14-Aug-95	2.08	3360	38	0.73	8.12	3.63	-0.69	1.04	-0.58
IDEQ	13-Sep-95	1.92	3960	41	0.65	8.28	3.71	-0.71	1.67	-0.53
URS	12-Nov-97	3.11	4380	73	1.13	8.38	4.29	-0.55	2.12	0.03
URS	14-May-98	26.2	1230	173	3.27	7.11	5.16	2.53	-1.21	1.76

update for EV, C

dZn

Concentration over time analysis r2 Slope, m

dZn NM293 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.00001** **0.000004**

Time	Ln[COC]	[COC]
16-May-91	7.58	1,949
4-Oct-94	7.58	1,959
14-May-98	7.59	1,970

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

dZn NM293 **Load over time**

LnLoad=mTime+b All data r2, m: **0.007** **0.00016**

Time	LnLoad	Load
16-May-91	3.69	40
4-Oct-94	3.89	49
14-May-98	4.11	61

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

dZn NM293
LN Analysis **dZn**

Load **Load Data,**

Avg:	**71**	**Load Data-l**
SD:	**58**	u
CV:	**0.81**	3
Min:	**1**	0
Max:	**219**	-3
Median:	**47**	

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.807, EV=99.6 lbs/day (**

r2 u,lnLoad:	0.807
slope, m:	0.847
intercept, b:	-3.307
N:	23
E[Load]:	99.6
SD[Load]:	173
CV[Load]:	1.74

max r2: 0.209

Forward time Regression on Ln Concentration(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.000	0.00000	7.44
0.003	-0.00012	11.60
0.001	-0.00010	10.90
0.001	-0.00006	9.63
0.001	-0.00010	10.97
0.001	-0.00010	11.10
0.001	-0.00009	10.81
0.000	-0.00006	9.67
0.000	-0.00002	8.21
0.001	0.00007	5.16
0.004	0.00018	1.05
0.011	0.00033	-4.26
0.030	0.00058	-12.99
0.038	0.00066	-15.97
0.000	-0.00002	8.49
0.014	-0.00012	12.02
0.058	-0.00024	16.13
0.133	-0.00035	20.33
0.209	-0.00046	24.32

max r2: 0.887

Forward time Regression on Ln Load(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.007	0.00016	-1.76
0.080	0.00061	-17.48
0.034	0.00048	-12.76
0.060	0.00063	-18.17
0.080	0.00074	-22.02
0.088	0.00080	-23.92
0.096	0.00085	-25.90
0.094	0.00086	-26.31
0.101	0.00093	-28.55
0.105	0.00098	-30.37
0.096	0.00097	-30.14
0.097	0.00102	-31.84
0.105	0.00112	-35.44
0.187	0.00142	-46.05
0.295	0.00084	-25.39
0.720	0.00111	-34.93
0.850	0.00123	-39.40
0.844	0.00118	-37.46
0.887	0.00128	-41.02

N:

Date	dZn Load lbs/day Ranked	i rank
update and rank for new data		
13-May-95	**1**	1
4-Oct-91	**16**	2
27-Jun-95	**30**	3
15-Aug-94	**30**	4
25-Jul-95	**34**	5
20-Jul-94	**36**	6
14-Aug-95	**38**	7
8-Sep-94	**39**	8
13-Sep-95	**41**	9
15-Aug-94	**42**	10
4-Oct-94	**45**	11
20-Jul-94	**47**	12
11-Jul-95	**49**	13
23-Jun-94	**49**	14
7-Jun-94	**51**	15
12-Jun-95	**64**	16
12-Nov-97	**73**	17
19-May-94	**84**	18
4-May-94	**139**	19
23-May-95	**162**	20
14-May-98	**173**	21
16-May-91	**180**	22
9-May-95	**219**	23

CV:

EV=71 lbs/day CV=.81
based LN

ln dZn Load	dZn Load
6.2	469
4.01	55
1.88	7

CV=1.74; max r2=0.94

u	lnLoad	Load
3	7.45	1714
0	3.90	50
-3	0.36	1

Parameter Estimates
from LN regression
update graph label

23			max r2 0.944
i-3/8 / N+1/4	**u**	**Ln**	**r2**
plotting points	**y-axis**	**x-axis**	forward
0.0269	-1.929	0.367	0.807
0.0699	-1.477	2.777	0.926
0.1129	-1.211	3.396	0.913
0.1559	-1.011	3.405	0.919
0.1989	-0.845	3.519	0.918
0.2419	-0.700	3.581	0.921
0.2849	-0.568	3.627	0.923
0.3280	-0.446	3.653	0.925
0.3710	-0.329	3.711	0.923
0.4140	-0.217	3.744	0.920
0.4570	-0.108	3.805	0.914
0.5000	0.000	3.853	0.905
0.5430	0.108	3.890	0.893
0.5860	0.217	3.900	0.873
0.6290	0.329	3.935	0.845
0.6720	0.446	4.164	0.818
0.7151	0.568	4.294	0.772
0.7581	0.700	4.434	0.722
0.8011	0.845	4.933	0.944
0.8441	1.011	5.085	
0.8871	1.211	5.155	
0.9301	1.477	5.191	
0.9731	1.929	5.387	

update for EV, CV:

dZn
LN Analysis

NM293
dZn

Concentration

Conc. Data, EV=2,377 ug/L CV=.40

Avg:	**2,377**
SD:	**946**
CV:	**0.40**
Min:	**37**
Max:	**4,380**
Median:	**2,410**

Data-based LN

u	ln[dZn]	[dZn]
3	8.9	6975
0	7.70	2209
-3	6.55	700

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.533, EV=4667.4 ug/L CV=2.16; max r2=0.99**

r2 u,lnConc:	0.533	u	lnConc.	Conc.
slope, m:	0.759	3	11.53	101992
intercept, b:	-5.755	0	7.58	1960
N: 23		-3	3.63	38
E[Conc]:	4667.4	Parameter Estimates		
SD[Conc]:	10087	from LN regression		
CV[Conc]:	2.16	update graph label		

N: 23

max r2
0.987

Date	dZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
13-May-95	37	1	0.0269	-1.929	3.611	0.533
14-May-98	1230	2	0.0699	-1.477	7.115	0.974
16-May-91	1310	3	0.1129	-1.211	7.178	0.969
23-May-95	1490	4	0.1559	-1.011	7.307	0.968
19-May-94	1500	5	0.1989	-0.845	7.313	0.964
12-Jun-95	1600	6	0.2419	-0.700	7.378	0.971
27-Jun-95	1900	7	0.2849	-0.568	7.550	0.987
7-Jun-94	1990	8	0.3280	-0.446	7.596	0.986
23-Jun-94	2160	9	0.3710	-0.329	7.678	0.986
9-May-95	2290	10	0.4140	-0.217	7.736	0.984
11-Jul-95	2330	11	0.4570	-0.108	7.754	0.983
4-Oct-91	2410	12	0.5000	0.000	7.787	0.981
20-Jul-94	2490	13	0.5430	0.108	7.820	0.979
20-Jul-94	2490	14	0.5860	0.217	7.820	0.977
25-Jul-95	2550	15	0.6290	0.329	7.844	0.973
4-May-94	2710	16	0.6720	0.446	7.905	0.971
8-Sep-94	2990	17	0.7151	0.568	8.003	0.965
15-Aug-94	3010	18	0.7581	0.700	8.010	0.972
15-Aug-94	3010	19	0.8011	0.845	8.010	0.966
14-Aug-95	3360	20	0.8441	1.011	8.120	
4-Oct-94	3480	21	0.8871	1.211	8.155	
13-Sep-95	3960	22	0.9301	1.477	8.284	
12-Nov-97	4380	23	0.9731	1.929	8.385	

update for EV, CV:

dZn **NM293**

LN Analysis **dZn**

Discharge, Q **Q Data, EV=7 cfs CV=1.04**

Q Data-based LN

		u	lnQ	Q
Avg:	**7**			
SD:	**7**			
CV:	**1.04**	3	4.2	65
Min:	**1**	0	1.61	5
Max:	**26**	-3	-0.95	0.4
Median:	**4**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.918, EV=7.5 cfs CV=1.25; max r2=0.96**

r2 u,lnQ:	0.918	u	lnQ	Q
slope, m:	1.029	3	4.47	87
intercept, b:	-1.594	0	1.55	5
N: 23		-3	-1.37	0.3
E[Q]:	7.5	Parameter Estimates		
SD[Q]:	9	from LN regression		
CV[Q]:	1.25	update graph label		

N: 23

max r2
0.957

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	1.24	1	0.0269	-1.929	0.215	0.918
15-Aug-94	1.86	2	0.0699	-1.477	0.621	0.921
13-Sep-95	1.92	3	0.1129	-1.211	0.652	0.934
14-Aug-95	2.08	4	0.1559	-1.011	0.732	0.941
8-Sep-94	2.4	5	0.1989	-0.845	0.875	0.946
4-Oct-94	2.4	6	0.2419	-0.700	0.875	0.954
25-Jul-95	2.46	7	0.2849	-0.568	0.900	0.957
15-Aug-94	2.61	8	0.3280	-0.446	0.959	0.957
20-Jul-94	2.68	9	0.3710	-0.329	0.986	0.955
27-Jun-95	2.92	10	0.4140	-0.217	1.072	0.950
12-Nov-97	3.11	11	0.4570	-0.108	1.135	0.943
20-Jul-94	3.52	12	0.5000	0.000	1.258	0.933
11-Jul-95	3.9	13	0.5430	0.108	1.361	0.920
23-Jun-94	4.25	14	0.5860	0.217	1.447	0.905
7-Jun-94	4.78	15	0.6290	0.329	1.564	0.888
13-May-95	7.25	16	0.6720	0.446	1.981	0.878
12-Jun-95	7.47	17	0.7151	0.568	2.011	0.845
4-May-94	9.52	18	0.7581	0.700	2.253	0.802
19-May-94	10.44	19	0.8011	0.845	2.346	0.726
9-May-95	17.74	20	0.8441	1.011	2.876	
23-May-95	20.15	21	0.8871	1.211	3.003	
16-May-91	25.5	22	0.9301	1.477	3.239	
14-May-98	26.2	23	0.9731	1.929	3.266	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM293 **Date:** 3-Jun-00
Chemical: tCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,746	7	17	0.5	0.00	0.00	0.00	
SD:	589	7	15	0.4	1.00	1.00	1.00	
CV:	0.02	1.06	0.90	0.91				first:
Min:	33,374	1	4	0.1	-0.78	-0.86	-0.96	mid:
Max:	36,114	26	79	2	2.59	4.14	3.16	last:
Median:	34,720	3	13	0.3	-0.50	-0.25	-0.49	

tCd **NM293** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.0767)		update r2	0.08	0.0767	r2:	0.001	0.001	
r2 Q,[COC]:	0.08	[tCd]	Q		m:	-0.0004	-0.00004	
slope, m:	-0.6	20	1.2		b:	22	2.79	
intercept, b:	20.7	17	7.0					
N: 24		6	26					first:
LnConc. = mLn{Q}+b (r2=0.206)		update r2		0.21	0.206			mid:
r2 lnQ,ln[COC]:	0.21	ln[tCd]	ln Q	[tCd]	Q			last:
slope, m:	-0.30	2.99	0.22	20	1			
intercept, b:	3.06	2.48	1.95	12	7			
N: 24		2.08	3.27	8	26			

	for graph
tCd	0
NM293	

N= 24

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	25.5	3.7	0.5	3.24	1.31	-0.68	2.49	-0.86	0.10
MFG	4-Oct-91	1.24	9	0.1	0.22	2.20	-2.81	-0.78	-0.51	-0.96
IDEQ	4-May-94	9.52	21	1.1	2.25	3.04	0.07	0.34	0.28	1.45
IDEQ	19-May-94	10.44	11	0.6	2.35	2.40	-0.48	0.46	-0.38	0.36
IDEQ	7-Jun-94	4.78	13	0.3	1.56	2.56	-1.10	-0.30	-0.25	-0.31
IDEQ	23-Jun-94	4.25	12	0.3	1.45	2.48	-1.29	-0.37	-0.31	-0.45
IDEQ	20-Jul-94	2.68	13	0.2	0.99	2.56	-1.67	-0.58	-0.25	-0.66
IDEQ	20-Jul-94	3.52	13	0.2	1.26	2.56	-1.40	-0.47	-0.25	-0.52
IDEQ	15-Aug-94	2.61	16	0.2	0.96	2.77	-1.49	-0.59	-0.05	-0.57
IDEQ	15-Aug-94	1.86	16	0.2	0.62	2.77	-1.83	-0.69	-0.05	-0.72
IDEQ	8-Sep-94	2.4	13	0.2	0.88	2.56	-1.78	-0.62	-0.25	-0.70
IDEQ	4-Oct-94	2.4	14	0.2	0.88	2.64	-1.71	-0.62	-0.18	-0.67
IDEQ	9-May-95	17.74	12	1.1	2.88	2.48	0.14	1.45	-0.31	1.62
IDEQ	13-May-95	7.25	46	1.8	1.98	3.83	0.58	0.03	1.94	3.16
IDEQ	23-May-95	20.15	9.8	1.1	3.00	2.28	0.06	1.77	-0.46	1.42
IDEQ	12-Jun-95	7.47	8.9	0.4	2.01	2.19	-1.03	0.06	-0.52	-0.25
IDEQ	27-Jun-95	2.92	11	0.2	1.07	2.40	-1.76	-0.55	-0.38	-0.69
IDEQ	11-Jul-95	3.9	12	0.3	1.36	2.48	-1.38	-0.42	-0.31	-0.51
IDEQ	25-Jul-95	2.46	13	0.2	0.90	2.56	-1.76	-0.61	-0.25	-0.69
IDEQ	14-Aug-95	2.08	16	0.2	0.73	2.77	-1.72	-0.66	-0.05	-0.68
IDEQ	13-Sep-95	1.92	18	0.2	0.65	2.89	-1.68	-0.69	0.08	-0.66
URS	12-Nov-97	3.11	15.8	0.3	1.13	2.76	-1.33	-0.53	-0.06	-0.48
URS	14-May-98	26.2	5.4	0.8	3.27	1.69	-0.27	2.59	-0.75	0.70
URS	15-Nov-98	1.792	79.3	0.8	0.58	4.37	-0.27	-0.70	4.14	0.71

tCd

Concentration over time analysis r2 Slope, m

tCd NM293 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.208** **0.00045**

Time	Ln[COC]	[COC]
16-May-91	1.99	7
20-Jan-95	2.60	13
15-Nov-98	3.22	25

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

tCd NM293 **Load over time**

LnLoad=mTime+b All data r2, m: **0.091** **0.00041**

Time	LnLoad	Load
16-May-91	-1.68	0.2
20-Jan-95	-1.12	0.3
15-Nov-98	-0.54	0.6

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.208 max r2: 0.846

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.208	0.00045	-13.04	0.091	0.00041	-15.47
0.088	0.00030	-7.66	0.167	0.00064	-23.33
0.056	0.00027	-6.80	0.055	0.00039	-14.51
0.075	0.00032	-8.40	0.103	0.00051	-18.85
0.066	0.00030	-7.89	0.139	0.00059	-21.83
0.064	0.00030	-7.92	0.147	0.00062	-22.90
0.058	0.00030	-7.62	0.146	0.00063	-23.32
0.055	0.00029	-7.57	0.129	0.00060	-22.14
0.052	0.00029	-7.50	0.121	0.00060	-21.94
0.058	0.00032	-8.44	0.108	0.00057	-21.17
0.066	0.00035	-9.66	0.078	0.00049	-18.19
0.062	0.00036	-9.82	0.048	0.00039	-14.58
0.063	0.00038	-10.52	0.022	0.00027	-10.25
0.056	0.00036	-9.91	0.061	0.00042	-15.69
0.160	0.00055	-16.80	0.248	0.00069	-25.35
0.139	0.00052	-15.76	0.678	0.00095	-34.77
0.107	0.00046	-13.52	0.815	0.00108	-39.21
0.083	0.00042	-12.09	0.797	0.00107	-38.86
0.061	0.00038	-10.73	0.846	0.00117	-42.72
0.040	0.00034	-9.35	0.817	0.00119	-43.20

update for EV, CV:

tCd **NM293**

LN Analysis **tCd**

Load **Load Data, EV=0.465 lbs/day CV=0.906**

Load Data-based LN

		u	ln tCd Load	tCd Load
Avg:	**0.5**			
SD:	**0.4**	3	1.3	4
CV:	**0.91**	0	-1.07	0.34
Min:	**0.1**	-3	-3.39	0.03
Max:	**2**			
Median:	**0.3**			

0 0.465
0.91 0.906

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.928, EV=0.488lbs/day CV=1.09; max r2=0.96**

r2 u,lnLoad:	0.928	u	lnLoad	Load	
slope, m:	1.130	3	1.55	5	
intercept, b:	1.252	0	-1.11	0.33	
N: 24		-3	-3.76	0.02	
E[Load]:	0.5	Parameter Estimates			0.928
SD[Load]:	1	from LN regression			0.5
CV[Load]:	1.09	update graph label			1.1
					max r2
	tCd	N: 24			0.964

Date	**Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
4-Oct-91	**0.1**	1	0.0258	-1.947	-2.813	0.928
15-Aug-94	**0.2**	2	0.0670	-1.498	-1.832	0.912
8-Sep-94	**0.2**	3	0.1082	-1.236	-1.785	0.931
25-Jul-95	**0.2**	4	0.1495	-1.039	-1.760	0.945
27-Jun-95	**0.2**	5	0.1907	-0.875	-1.756	0.955
14-Aug-95	**0.2**	6	0.2320	-0.732	-1.720	0.961
4-Oct-94	**0.2**	7	0.2732	-0.603	-1.711	0.964
13-Sep-95	**0.2**	8	0.3144	-0.483	-1.682	0.963
20-Jul-94	**0.2**	9	0.3557	-0.370	-1.674	0.960
15-Aug-94	**0.2**	10	0.3969	-0.261	-1.493	0.954
20-Jul-94	**0.2**	11	0.4381	-0.156	-1.402	0.949
11-Jul-95	**0.3**	12	0.4794	-0.052	-1.379	0.942
12-Nov-97	**0.3**	13	0.5206	0.052	-1.330	0.932
23-Jun-94	**0.3**	14	0.5619	0.156	-1.293	0.920
7-Jun-94	**0.3**	15	0.6031	0.261	-1.096	0.915
12-Jun-95	**0.4**	16	0.6443	0.370	-1.028	0.907
16-May-91	**0.5**	17	0.6856	0.483	-0.678	0.939
19-May-94	**0.6**	18	0.7268	0.603	-0.482	0.938
14-May-98	**0.8**	19	0.7680	0.732	-0.273	0.925
15-Nov-98	**0.8**	20	0.8093	0.875	-0.268	0.900
23-May-95	**1.1**	21	0.8505	1.039	0.061	
4-May-94	**1.1**	22	0.8918	1.236	0.073	
9-May-95	**1.1**	23	0.9330	1.498	0.136	
13-May-95	**1.8**	24	0.9742	1.947	0.585	

update for EV, CV:

tCd		**NM293**		17	16.7
LN Analysis		**tCd**		0.90	0.902
Concentration		**Conc. Data, EV=16.7 ug/L CV=0.902**			
Avg:	**17**	**Data-based LN**			
SD:	**15**	u	ln[tCd]	[tCd]	
CV:	**0.90**	3	4.8	126	
Min:	**4**	0	2.52	12	
Max:	**79**	-3	0.21	1	
Median:	**13**				

				0.837	0.837
	u=mLn{Conc.}+b:			17.0	17
update for r2, EV, CV:	**r2=0.837, EV=17 ug/L CV=0.754; max r2=0.96**			0.754	0.754
	r2 u,lnConc:	0.837	u	lnConc.	Conc.
	slope, m:	1.491	3	4.62	102
	intercept, b:	-3.888	0	2.61	14
	N: 24		-3	0.60	2
0.928	E[Conc]:	17.0	Parameter Estimates		
0.488	SD[Conc]:	13	from LN regression		
1.09	CV[Conc]:	0.75	update graph label		

						max r2
	tCd	N: 24				0.958
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
16-May-91	3.7	1	0.0258	-1.947	1.308	0.837
14-May-98	5.4	2	0.0670	-1.498	1.686	0.800
12-Jun-95	8.9	3	0.1082	-1.236	2.186	0.767
4-Oct-91	9	4	0.1495	-1.039	2.197	0.764
23-May-95	9.8	5	0.1907	-0.875	2.282	0.755
19-May-94	11	6	0.2320	-0.732	2.398	0.750
27-Jun-95	11	7	0.2732	-0.603	2.398	0.758
23-Jun-94	12	8	0.3144	-0.483	2.485	0.761
9-May-95	12	9	0.3557	-0.370	2.485	0.775
11-Jul-95	12	10	0.3969	-0.261	2.485	0.787
7-Jun-94	13	11	0.4381	-0.156	2.565	0.795
20-Jul-94	13	12	0.4794	-0.052	2.565	0.815
20-Jul-94	13	13	0.5206	0.052	2.565	0.833
8-Sep-94	13	14	0.5619	0.156	2.565	0.848
25-Jul-95	13	15	0.6031	0.261	2.565	0.857
4-Oct-94	14	16	0.6443	0.370	2.639	0.860
12-Nov-97	15.8	17	0.6856	0.483	2.760	0.868
15-Aug-94	16	18	0.7268	0.603	2.773	0.901
15-Aug-94	16	19	0.7680	0.732	2.773	0.935
14-Aug-95	16	20	0.8093	0.875	2.773	0.958
13-Sep-95	18	21	0.8505	1.039	2.890	
4-May-94	21	22	0.8918	1.236	3.045	
13-May-95	46	23	0.9330	1.498	3.829	
15-Nov-98	79.3	24	0.9742	1.947	4.373	

update for EV, CV:

tCd		**NM293**			7	7.01
LN Analysis		**tCd**			1.06	1.06
Discharge, Q		**Q Data, EV=7.01 cfs CV=1.06**				
Avg:	**7**	**Q Data-based LN**				
SD:	**7**	u	lnQ	Q		
CV:	**1.06**	3	4.2	65		
Min:	**1**	0	1.57	5		
Max:	**26**	-3	-1.03	0.4		
Median:	**3**					

					0.913	0.913
					7.3	7.28
u=mLn{Q}+b:					1.26	1.26
update for r2, EV, CV:	**r2=0.913, EV=7.28 cfs CV=1.26; max r2=0.96**					
r2 u,lnQ:	0.913	u	lnQ	Q		
slope, m:	1.025	3	4.44	85		
intercept, b:	-1.546	0	1.51	5		
N: 24		-3	-1.42	0.2		
E[Q]:	7.3	Parameter Estimates				
SD[Q]:	9	from LN regression				
CV[Q]:	1.26	update graph label				

						max r2
	Q	N: 24				0.958
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	1.24	1	0.0258	-1.947	0.215	0.913
15-Nov-98	1.792	2	0.0670	-1.498	0.583	0.918
15-Aug-94	1.86	3	0.1082	-1.236	0.621	0.933
13-Sep-95	1.92	4	0.1495	-1.039	0.652	0.942
14-Aug-95	2.08	5	0.1907	-0.875	0.732	0.946
8-Sep-94	2.4	6	0.2320	-0.732	0.875	0.949
4-Oct-94	2.4	7	0.2732	-0.603	0.875	0.955
25-Jul-95	2.46	8	0.3144	-0.483	0.900	0.958
15-Aug-94	2.61	9	0.3557	-0.370	0.959	0.957
20-Jul-94	2.68	10	0.3969	-0.261	0.986	0.955
27-Jun-95	2.92	11	0.4381	-0.156	1.072	0.949
12-Nov-97	3.11	12	0.4794	-0.052	1.135	0.941
20-Jul-94	3.52	13	0.5206	0.052	1.258	0.931
11-Jul-95	3.9	14	0.5619	0.156	1.361	0.919
23-Jun-94	4.25	15	0.6031	0.261	1.447	0.903
7-Jun-94	4.78	16	0.6443	0.370	1.564	0.887
13-May-95	7.25	17	0.6856	0.483	1.981	0.877
12-Jun-95	7.47	18	0.7268	0.603	2.011	0.843
4-May-94	9.52	19	0.7680	0.732	2.253	0.801
19-May-94	10.44	20	0.8093	0.875	2.346	0.725
9-May-95	17.74	21	0.8505	1.039	2.876	
23-May-95	20.15	22	0.8918	1.236	3.003	
16-May-91	25.5	23	0.9330	1.498	3.239	
14-May-98	26.2	24	0.9742	1.947	3.266	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NM293	**Date:**	13-Jun-00
Chemical:	tPb	**Analyst:**	J.MacLachlan

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,746	7	25	1	0.00	0.00	0.00
SD:	589	7	23	1	1.00	1.00	1.00
CV:	0.02	1.06	0.94	1.37			
Min:	33,374	1	11	0.1	-0.78	-0.59	-0.62
Max:	36,114	26	126	5	2.59	4.38	3.99
Median:	34,720	3	18	0.3	-0.50	-0.29	-0.43

tPb NM293 : Concentration v. Discharge, Q

Q = mTime +b **LnQ = mTime +b**

Conc. = mQ+b (r2=0.00863)	update r2	0.01	0.00863		r2:	0.001	0.001
r2 Q,[COC]:	0.01	[tPb]	Q		m:	-0.0004	-0.00004
slope, m:	-0.3	26	1.2		b:	22	2.79
intercept, b:	26.6	25	7.0				
N: 24		19	26				
LnConc. = mLn{Q}+b (r2=0.0403)	update r2		0.04	0.0403			
r2 lnQ,ln[COC]:	0.04	ln[tPb]	ln Q	[tPb]	Q		
slope, m:	-0.12	3.16	0.22	24	1		
intercept, b:	3.19	2.96	1.95	19	7		
N: 24		2.80	3.27	17	26		

N= 24

	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	tPb NM293 **Standardized Values = (x - Avg)/SD** Q	for graph 0 Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	25.5	15	2.1	3.24	2.71	0.72	2.49	-0.42	1.05
MFG	4-Oct-91	1.24	19	0.1	0.22	2.94	-2.07	-0.78	-0.24	-0.62
IDEQ	4-May-94	9.52	16.6	0.9	2.25	2.81	-0.16	0.34	-0.35	0.01
IDEQ	19-May-94	10.44	13	0.7	2.35	2.56	-0.31	0.46	-0.50	-0.10
IDEQ	7-Jun-94	4.78	12	0.3	1.56	2.48	-1.18	-0.30	-0.55	-0.46
IDEQ	23-Jun-94	4.25	18	0.4	1.45	2.89	-0.89	-0.37	-0.29	-0.37
IDEQ	20-Jul-94	2.68	18	0.3	0.99	2.89	-1.35	-0.58	-0.29	-0.51
IDEQ	20-Jul-94	3.52	18	0.3	1.26	2.89	-1.08	-0.47	-0.29	-0.44
IDEQ	15-Aug-94	2.61	23	0.3	0.96	3.14	-1.13	-0.59	-0.07	-0.45
IDEQ	15-Aug-94	1.86	23	0.2	0.62	3.14	-1.47	-0.69	-0.07	-0.53
IDEQ	8-Sep-94	2.4	20	0.3	0.88	3.00	-1.35	-0.62	-0.20	-0.51
IDEQ	4-Oct-94	2.4	27	0.3	0.88	3.30	-1.05	-0.62	0.10	-0.43
IDEQ	9-May-95	17.74	57	5.4	2.88	4.04	1.69	1.45	1.40	3.99
IDEQ	13-May-95	7.25	23	0.9	1.98	3.14	-0.11	0.03	-0.07	0.05
IDEQ	23-May-95	20.15	14	1.5	3.00	2.64	0.42	1.77	-0.46	0.59
IDEQ	12-Jun-95	7.47	14	0.6	2.01	2.64	-0.58	0.06	-0.46	-0.24
IDEQ	27-Jun-95	2.92	11	0.2	1.07	2.40	-1.76	-0.55	-0.59	-0.58
IDEQ	11-Jul-95	3.9	15	0.3	1.36	2.71	-1.16	-0.42	-0.42	-0.46
IDEQ	25-Jul-95	2.46	16	0.2	0.90	2.77	-1.55	-0.61	-0.37	-0.55
IDEQ	14-Aug-95	2.08	20	0.2	0.73	3.00	-1.50	-0.66	-0.20	-0.54
IDEQ	13-Sep-95	1.92	37	0.4	0.65	3.61	-0.96	-0.69	0.54	-0.40
URS	12-Nov-97	3.11	15.6	0.3	1.13	2.75	-1.34	-0.53	-0.39	-0.50
URS	14-May-98	26.2	19.7	2.8	3.27	2.98	1.02	2.59	-0.21	1.68
URS	15-Nov-98	1.792	126	1.2	0.58	4.84	0.19	-0.70	4.38	0.32

tPb

Concentration over time analysis r2 Slope, m

tPb NM293 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.167** **0.00036**

	Time	Ln[COC]	[COC]
first:	16-May-91	2.52	12
mid:	20-Jan-95	3.00	20
last:	15-Nov-98	3.50	33

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

tPb NM293 **Load over time**

LnLoad=mTime+b All data r2, m: **0.041** **0.00032**

	Time	LnLoad	Load
first:	16-May-91	-1.15	0.3
mid:	20-Jan-95	-0.71	0.5
last:	15-Nov-98	-0.27	0.8

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.369 max r2: 0.613

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.167	0.00036	-9.44	0.041	0.00032	-11.87
0.162	0.00040	-10.93	0.188	0.00074	-26.60
0.205	0.00053	-15.42	0.113	0.00064	-23.12
0.199	0.00053	-15.41	0.139	0.00072	-25.87
0.179	0.00050	-14.50	0.164	0.00079	-28.43
0.155	0.00046	-13.11	0.155	0.00078	-28.08
0.149	0.00046	-13.08	0.156	0.00080	-28.78
0.141	0.00046	-13.00	0.140	0.00077	-27.56
0.133	0.00046	-12.89	0.131	0.00076	-27.33
0.142	0.00049	-13.94	0.119	0.00074	-26.67
0.153	0.00053	-15.31	0.093	0.00066	-23.84
0.154	0.00055	-16.08	0.068	0.00058	-20.84
0.189	0.00064	-19.22	0.052	0.00053	-18.95
0.337	0.00079	-24.80	0.208	0.00085	-30.59
0.369	0.00085	-26.88	0.277	0.00099	-35.43
0.346	0.00083	-26.31	0.515	0.00126	-45.32
0.316	0.00081	-25.41	0.613	0.00142	-51.10
0.254	0.00070	-21.69	0.572	0.00135	-48.45
0.197	0.00064	-19.19	0.570	0.00143	-51.19
0.120	0.00053	-15.23	0.493	0.00137	-49.08

update for EV, CV:

tPb		**NM293**		
LN Analysis		**tPb**		
Load		**Load Data, EV=0.843 lbs/day CV=1.37**		
Avg:	**1**	**Load Data-based LN**		
SD:	**1**	u	ln tPb Load	tPb Load
CV:	**1.37**	3	2.4	11
Min:	**0.1**	0	-0.70	0.5
Max:	**5**	-3	-3.78	0.02
Median:	**0.3**			
		1	0.843	
		1.37	1.37	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.911, EV=0.838lbs/day CV=1.37; max r2=0.99**

r2 u,lnLoad:	0.911	u	lnLoad	Load	
slope, m:	0.973	3	2.38	11	
intercept, b:	0.686	0	-0.71	0.5	
N: 24		-3	-3.79	0.02	
E[Load]:	0.8	Parameter Estimates			0.911
SD[Load]:	1	from LN regression			0.8
CV[Load]:	1.37	update graph label			1.4
					max r2
	tPb	N: 24			0.998
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	0.1	1	0.0258	-1.947	-2.066	0.911
27-Jun-95	0.2	2	0.0670	-1.498	-1.756	0.916
25-Jul-95	0.2	3	0.1082	-1.236	-1.552	0.925
14-Aug-95	0.2	4	0.1495	-1.039	-1.497	0.938
15-Aug-94	0.2	5	0.1907	-0.875	-1.469	0.949
8-Sep-94	0.3	6	0.2320	-0.732	-1.354	0.957
20-Jul-94	0.3	7	0.2732	-0.603	-1.349	0.967
12-Nov-97	0.3	8	0.3144	-0.483	-1.343	0.974
7-Jun-94	0.3	9	0.3557	-0.370	-1.176	0.977
11-Jul-95	0.3	10	0.3969	-0.261	-1.156	0.985
15-Aug-94	0.3	11	0.4381	-0.156	-1.130	0.990
20-Jul-94	0.3	12	0.4794	-0.052	-1.076	0.993
4-Oct-94	0.3	13	0.5206	0.052	-1.054	0.994
13-Sep-95	0.4	14	0.5619	0.156	-0.962	0.992
23-Jun-94	0.4	15	0.6031	0.261	-0.888	0.991
12-Jun-95	0.6	16	0.6443	0.370	-0.575	0.996
19-May-94	0.7	17	0.6856	0.483	-0.314	0.996
4-May-94	0.9	18	0.7268	0.603	-0.162	0.995
13-May-95	0.9	19	0.7680	0.732	-0.109	0.996
15-Nov-98	1.2	20	0.8093	0.875	0.195	0.998
23-May-95	1.5	21	0.8505	1.039	0.417	
16-May-91	2.1	22	0.8918	1.236	0.722	
14-May-98	2.8	23	0.9330	1.498	1.021	
9-May-95	5.4	24	0.9742	1.947	1.694	

update for EV, CV:

tPb		**NM293**		25	24.6
LN Analysis		**tPb**		0.94	0.939
Concentration		**Conc. Data, EV=24.6 ug/L CV=0.939**			
Avg:	**25**	**Data-based LN**			
SD:	**23**	u	ln[tPb]	[tPb]	
CV:	**0.94**	3	5.3	195	
Min:	**11**	0	2.89	18	
Max:	**126**	-3	0.50	2	
Median:	**18**				

				0.770	0.77
	u=mLn{Conc.}+b:			24.6	24.6
update for r2, EV, CV:	**r2=0.77, EV=24.6 ug/L CV=0.687; max r2=0.99**			0.687	0.687
	r2 u,lnConc:	0.770	u	lnConc.	Conc.
	slope, m:	1.609	3	4.87	131
	intercept, b:	-4.844	0	3.01	20
	N: 24		-3	1.15	3
0.911	E[Conc]:	24.6	Parameter Estimates		
0.838	SD[Conc]:	17	from LN regression		
1.37	CV[Conc]:	0.69	update graph label		

						max r2
	tPb	N: 24				0.995
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
27-Jun-95	11	1	0.0258	-1.947	2.398	0.770
7-Jun-94	12	2	0.0670	-1.498	2.485	0.777
19-May-94	13	3	0.1082	-1.236	2.565	0.780
23-May-95	14	4	0.1495	-1.039	2.639	0.785
12-Jun-95	14	5	0.1907	-0.875	2.639	0.794
16-May-91	15	6	0.2320	-0.732	2.708	0.798
11-Jul-95	15	7	0.2732	-0.603	2.708	0.807
12-Nov-97	15.6	8	0.3144	-0.483	2.747	0.812
25-Jul-95	16	9	0.3557	-0.370	2.773	0.818
4-May-94	16.6	10	0.3969	-0.261	2.809	0.824
23-Jun-94	18	11	0.4381	-0.156	2.890	0.831
20-Jul-94	18	12	0.4794	-0.052	2.890	0.849
20-Jul-94	18	13	0.5206	0.052	2.890	0.865
4-Oct-91	19	14	0.5619	0.156	2.944	0.876
14-May-98	19.7	15	0.6031	0.261	2.981	0.892
8-Sep-94	20	16	0.6443	0.370	2.996	0.912
14-Aug-95	20	17	0.6856	0.483	2.996	0.930
15-Aug-94	23	18	0.7268	0.603	3.135	0.939
15-Aug-94	23	19	0.7680	0.732	3.135	0.971
13-May-95	23	20	0.8093	0.875	3.135	0.995
4-Oct-94	27	21	0.8505	1.039	3.296	
13-Sep-95	37	22	0.8918	1.236	3.611	
9-May-95	57	23	0.9330	1.498	4.043	
15-Nov-98	126	24	0.9742	1.947	4.836	

update for EV, CV:

tPb		**NM293**			7	7.01
LN Analysis		**tPb**			1.06	1.06
Discharge, Q		**Q Data, EV=7.01 cfs CV=1.06**				
Avg:	**7**	**Q Data-based LN**				
SD:	**7**	u	lnQ	Q		
CV:	**1.06**	3	4.2	65		
Min:	**1**	0	1.57	5		
Max:	**26**	-3	-1.03	0		
Median:	**3**					

					0.913	0.913
					7.3	7.28
u=mLn{Q}+b:					1.26	1.26
update for r2, EV, CV:	**r2=0.913, EV=7.28 cfs CV=1.26; max r2=0.96**					
r2 u,lnQ:	0.913	u	lnQ	Q		
slope, m:	1.025	3	4.44	85		
intercept, b:	-1.546	0	1.51	5		
N: 24		-3	-1.42	0.2		
E[Q]:	7.3	Parameter Estimates				
SD[Q]:	9	from LN regression				
CV[Q]:	1.26	update graph label				

						max r2
	Q	N: 24				0.958
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	1.24	1	0.0258	-1.947	0.215	0.913
15-Nov-98	1.792	2	0.0670	-1.498	0.583	0.918
15-Aug-94	1.86	3	0.1082	-1.236	0.621	0.933
13-Sep-95	1.92	4	0.1495	-1.039	0.652	0.942
14-Aug-95	2.08	5	0.1907	-0.875	0.732	0.946
8-Sep-94	2.4	6	0.2320	-0.732	0.875	0.949
4-Oct-94	2.4	7	0.2732	-0.603	0.875	0.955
25-Jul-95	2.46	8	0.3144	-0.483	0.900	0.958
15-Aug-94	2.61	9	0.3557	-0.370	0.959	0.957
20-Jul-94	2.68	10	0.3969	-0.261	0.986	0.955
27-Jun-95	2.92	11	0.4381	-0.156	1.072	0.949
12-Nov-97	3.11	12	0.4794	-0.052	1.135	0.941
20-Jul-94	3.52	13	0.5206	0.052	1.258	0.931
11-Jul-95	3.9	14	0.5619	0.156	1.361	0.919
23-Jun-94	4.25	15	0.6031	0.261	1.447	0.903
7-Jun-94	4.78	16	0.6443	0.370	1.564	0.887
13-May-95	7.25	17	0.6856	0.483	1.981	0.877
12-Jun-95	7.47	18	0.7268	0.603	2.011	0.843
4-May-94	9.52	19	0.7680	0.732	2.253	0.801
19-May-94	10.44	20	0.8093	0.875	2.346	0.725
9-May-95	17.74	21	0.8505	1.039	2.876	
23-May-95	20.15	22	0.8918	1.236	3.003	
16-May-91	25.5	23	0.9330	1.498	3.239	
14-May-98	26.2	24	0.9742	1.947	3.266	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM293 **Date:** 2-Jun-00
Chemical: tZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,746	7	3,255	89	0.00	0.00	0.00	
SD:	589	7	2,911	81	1.00	1.00	1.00	
CV:	0.02	1.06	0.89	0.91				first:
Min:	33,374	1	1,250	15.5	-0.78	-0.69	-0.91	mid:
Max:	36,114	26	15,100	355	2.59	4.07	3.29	last:
Median:	34,720	3	2,440	48	-0.50	-0.28	-0.51	

tZn NM293 **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.083) update r2 0.08 0.083 r2: 0.001 0.001
r2 Q,[COC]: 0.08 [tZn] Q m: -0.0004 -0.00004
slope, m: -113.0 3,907 1.2 b: 22 2.79
intercept, b: 4047.2 3,255 7.0
N: 24 1,085 26 first:

LnConc. = mLn{Q}+b (r2=0.251) update r2 0.25 0.251 mid:
r2 lnQ,ln[COC]: 0.25 ln[tZn] ln Q [tZn] Q last:
slope, m: -0.32 8.29 0.22 3,994 1
intercept, b: 8.36 7.74 1.95 2,309 7
N: 24 7.33 3.27 1,521 26

for graph
tZn 0
NM293

N= 24

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	25.5	1250	171	3.24	7.13	5.14	2.49	-0.69	1.02
MFG	4-Oct-91	1.24	2330	16	0.22	7.75	2.74	-0.78	-0.32	-0.91
IDEQ	4-May-94	9.52	2630	135	2.25	7.87	4.90	0.34	-0.21	0.56
IDEQ	19-May-94	10.44	1430	80	2.35	7.27	4.39	0.46	-0.63	-0.11
IDEQ	7-Jun-94	4.78	1960	50	1.56	7.58	3.92	-0.30	-0.44	-0.48
IDEQ	23-Jun-94	4.25	2100	48	1.45	7.65	3.87	-0.37	-0.40	-0.51
IDEQ	20-Jul-94	2.68	2420	35	0.99	7.79	3.55	-0.58	-0.29	-0.67
IDEQ	20-Jul-94	3.52	2420	46	1.26	7.79	3.82	-0.47	-0.29	-0.54
IDEQ	15-Aug-94	2.61	2990	42	0.96	8.00	3.74	-0.59	-0.09	-0.58
IDEQ	15-Aug-94	1.86	2990	30	0.62	8.00	3.40	-0.69	-0.09	-0.73
IDEQ	8-Sep-94	2.4	2890	37	0.88	7.97	3.62	-0.62	-0.13	-0.64
IDEQ	4-Oct-94	2.4	3330	43	0.88	8.11	3.76	-0.62	0.03	-0.57
IDEQ	9-May-95	17.74	2460	235	2.88	7.81	5.46	1.45	-0.27	1.80
IDEQ	13-May-95	7.25	9110	355	1.98	9.12	5.87	0.03	2.01	3.29
IDEQ	23-May-95	20.15	1450	157	3.00	7.28	5.06	1.77	-0.62	0.84
IDEQ	12-Jun-95	7.47	1610	65	2.01	7.38	4.17	0.06	-0.57	-0.30
IDEQ	27-Jun-95	2.92	1870	29	1.07	7.53	3.38	-0.55	-0.48	-0.74
IDEQ	11-Jul-95	3.9	2260	47	1.36	7.72	3.86	-0.42	-0.34	-0.52
IDEQ	25-Jul-95	2.46	2530	33	0.90	7.84	3.51	-0.61	-0.25	-0.69
IDEQ	14-Aug-95	2.08	3280	37	0.73	8.10	3.60	-0.66	0.01	-0.65
IDEQ	13-Sep-95	1.92	3920	40	0.65	8.27	3.70	-0.69	0.23	-0.60
URS	12-Nov-97	3.11	4450	74	1.13	8.40	4.31	-0.53	0.41	-0.18
URS	14-May-98	26.2	1340	189	3.27	7.20	5.24	2.59	-0.66	1.23
URS	15-Nov-98	1.792	15100	146	0.58	9.62	4.98	-0.70	4.07	0.70

tZn

Concentration over time analysis r2 Slope, m

tZn NM293 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.204** **0.00043**

Time	Ln[COC]	[COC]
16-May-91	7.30	1,475
20-Jan-95	7.87	2,622
15-Nov-98	8.47	4,761

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

tZn NM293 **Load over time**

LnLoad=mTime+b All data r2, m: **0.089** **0.00039**

Time	LnLoad	Load
16-May-91	3.63	38
20-Jan-95	4.16	64
15-Nov-98	4.70	110

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.289 max r2: 0.904

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.204	0.00043	-6.98	0.089	0.00039	-9.41
0.141	0.00039	-5.68	0.255	0.00073	-21.35
0.162	0.00049	-9.18	0.149	0.00060	-16.88
0.166	0.00051	-9.69	0.199	0.00070	-20.14
0.141	0.00046	-8.07	0.223	0.00075	-22.00
0.126	0.00044	-7.36	0.220	0.00076	-22.33
0.114	0.00042	-6.78	0.214	0.00076	-22.48
0.108	0.00042	-6.65	0.192	0.00073	-21.22
0.100	0.00041	-6.50	0.180	0.00072	-20.93
0.105	0.00044	-7.32	0.162	0.00069	-20.05
0.112	0.00047	-8.40	0.125	0.00061	-16.93
0.117	0.00050	-9.49	0.094	0.00053	-14.24
0.137	0.00057	-11.89	0.066	0.00046	-11.62
0.130	0.00056	-11.70	0.137	0.00062	-17.48
0.289	0.00076	-18.95	0.438	0.00090	-27.50
0.249	0.00069	-16.45	0.796	0.00112	-35.46
0.204	0.00062	-13.71	0.889	0.00123	-39.40
0.155	0.00054	-10.94	0.882	0.00118	-37.71
0.111	0.00047	-8.58	0.904	0.00126	-40.57
0.065	0.00040	-5.79	0.879	0.00124	-39.64

update for EV, CV:

tZn **NM293**

LN Analysis **tZn**

Load **Load Data, EV=89.2 lbs/day CV=0.907**

Load Data-based LN

Avg:	**89**	u	ln tZn Load	tZn Load
SD:	**81**	3	6.5	675
CV:	**0.91**	0	4.19	66
Min:	**15.5**	-3	1.87	6.5
Max:	**355**			
Median:	**48**			
		89	89.2	
		0.91	0.907	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.929, EV=92.3lbs/day CV=1.02; max r2=0.98**

r2 u,lnLoad:	0.929	u	lnLoad	Load	
slope, m:	1.182	3	6.71	817	
intercept, b:	-4.924	0	4.17	65	
N: 24		-3	1.63	5.1	
E[Load]:	92.3	Parameter Estimates			0.929
SD[Load]:	94	from LN regression			92.3
CV[Load]:	1.02	update graph label			1.0
					max r2
					0.984

N: 24

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	**16**	1	0.0258	-1.947	2.744	0.929
27-Jun-95	**29**	2	0.0670	-1.498	3.380	0.918
15-Aug-94	**30**	3	0.1082	-1.236	3.399	0.932
25-Jul-95	**33**	4	0.1495	-1.039	3.511	0.937
20-Jul-94	**35**	5	0.1907	-0.875	3.552	0.945
14-Aug-95	**37**	6	0.2320	-0.732	3.603	0.950
8-Sep-94	**37**	7	0.2732	-0.603	3.619	0.954
13-Sep-95	**40**	8	0.3144	-0.483	3.701	0.955
15-Aug-94	**42**	9	0.3557	-0.370	3.737	0.956
4-Oct-94	**43**	10	0.3969	-0.261	3.761	0.954
20-Jul-94	**46**	11	0.4381	-0.156	3.825	0.950
11-Jul-95	**47**	12	0.4794	-0.052	3.859	0.943
23-Jun-94	**48**	13	0.5206	0.052	3.872	0.934
7-Jun-94	**50**	14	0.5619	0.156	3.920	0.924
12-Jun-95	**65**	15	0.6031	0.261	4.170	0.923
12-Nov-97	**74**	16	0.6443	0.370	4.310	0.915
19-May-94	**80**	17	0.6856	0.483	4.386	0.909
4-May-94	**135**	18	0.7268	0.603	4.903	0.981
15-Nov-98	**146**	19	0.7680	0.732	4.981	0.981
23-May-95	**157**	20	0.8093	0.875	5.057	0.984
16-May-91	**171**	21	0.8505	1.039	5.145	
14-May-98	**189**	22	0.8918	1.236	5.241	
9-May-95	**235**	23	0.9330	1.498	5.459	
13-May-95	**355**	24	0.9742	1.947	5.873	

update for EV, CV:

tZn		**NM293**		3,255	3260
LN Analysis		**tZn**		0.89	0.894
Concentration		**Conc. Data, EV=3260 ug/L CV=0.894**			
Avg:	**3,255**	**Data-based LN**			
SD:	**2,911**	u	ln[tZn]	[tZn]	
CV:	**0.89**	3	10.1	24200	
Min:	**1,250**	0	7.79	2426	
Max:	**15,100**	-3	5.49	243	
Median:	**2,440**				

				0.860	0.86
	u=mLn{Conc.}+b:			3244.1	3240
update for r2, EV, CV:	**r2=0.86, EV=3240 ug/L CV=0.704; max r2=0.96**			0.704	0.704
	r2 u,lnConc:	0.860	u	lnConc.	Conc.
	slope, m:	1.576	3	9.79	17800
	intercept, b:	-12.423	0	7.88	2652
	N: 24		-3	5.98	395
0.929	E[Conc]:	3244.1	Parameter Estimates		
92.3	SD[Conc]:	2284	from LN regression		
1.02	CV[Conc]:	0.70	update graph label		

						max r2
	tZn	N: 24				0.964
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
16-May-91	1250	1	0.0258	-1.947	7.131	0.860
14-May-98	1340	2	0.0670	-1.498	7.200	0.866
19-May-94	1430	3	0.1082	-1.236	7.265	0.863
23-May-95	1450	4	0.1495	-1.039	7.279	0.857
12-Jun-95	1610	5	0.1907	-0.875	7.384	0.844
27-Jun-95	1870	6	0.2320	-0.732	7.534	0.834
7-Jun-94	1960	7	0.2732	-0.603	7.581	0.832
23-Jun-94	2100	8	0.3144	-0.483	7.650	0.831
11-Jul-95	2260	9	0.3557	-0.370	7.723	0.834
4-Oct-91	2330	10	0.3969	-0.261	7.754	0.843
20-Jul-94	2420	11	0.4381	-0.156	7.792	0.854
20-Jul-94	2420	12	0.4794	-0.052	7.792	0.868
9-May-95	2460	13	0.5206	0.052	7.808	0.878
25-Jul-95	2530	14	0.5619	0.156	7.836	0.886
4-May-94	2630	15	0.6031	0.261	7.875	0.893
8-Sep-94	2890	16	0.6443	0.370	7.969	0.899
15-Aug-94	2990	17	0.6856	0.483	8.003	0.918
15-Aug-94	2990	18	0.7268	0.603	8.003	0.939
14-Aug-95	3280	19	0.7680	0.732	8.096	0.948
4-Oct-94	3330	20	0.8093	0.875	8.111	0.964
13-Sep-95	3920	21	0.8505	1.039	8.274	
12-Nov-97	4450	22	0.8918	1.236	8.401	
13-May-95	9110	23	0.9330	1.498	9.117	
15-Nov-98	15100	24	0.9742	1.947	9.622	

update for EV, CV:

tZn		**NM293**			7	7.01
LN Analysis		**tZn**			1.06	1.06
Discharge, Q		**Q Data, EV=7.01 cfs CV=1.06**				
Avg:	**7**	**Q Data-based LN**				
SD:	**7**	u	lnQ	Q		
CV:	**1.06**	3	4.2	65		
Min:	**1**	0	1.57	5		
Max:	**26**	-3	-1.03	0		
Median:	**3**					

					0.913	0.913
					7.3	7.28
u=mLn{Q}+b:					1.26	1.26
update for r2, EV, CV:	**r2=0.913, EV=7.28 cfs CV=1.26; max r2=0.96**					
r2 u,lnQ:	0.913	u	lnQ	Q		
slope, m:	1.025	3	4.44	85		
intercept, b:	-1.546	0	1.51	5		
N: 24		-3	-1.42	0		
E[Q]:	7.3	Parameter Estimates				
SD[Q]:	9	from LN regression				
CV[Q]:	1.26	update graph label				

						max r2
	Q	N: 24				0.958
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	1.24	1	0.0258	-1.947	0.215	0.913
15-Nov-98	1.792	2	0.0670	-1.498	0.583	0.918
15-Aug-94	1.86	3	0.1082	-1.236	0.621	0.933
13-Sep-95	1.92	4	0.1495	-1.039	0.652	0.942
14-Aug-95	2.08	5	0.1907	-0.875	0.732	0.946
8-Sep-94	2.4	6	0.2320	-0.732	0.875	0.949
4-Oct-94	2.4	7	0.2732	-0.603	0.875	0.955
25-Jul-95	2.46	8	0.3144	-0.483	0.900	0.958
15-Aug-94	2.61	9	0.3557	-0.370	0.959	0.957
20-Jul-94	2.68	10	0.3969	-0.261	0.986	0.955
27-Jun-95	2.92	11	0.4381	-0.156	1.072	0.949
12-Nov-97	3.11	12	0.4794	-0.052	1.135	0.941
20-Jul-94	3.52	13	0.5206	0.052	1.258	0.931
11-Jul-95	3.9	14	0.5619	0.156	1.361	0.919
23-Jun-94	4.25	15	0.6031	0.261	1.447	0.903
7-Jun-94	4.78	16	0.6443	0.370	1.564	0.887
13-May-95	7.25	17	0.6856	0.483	1.981	0.877
12-Jun-95	7.47	18	0.7268	0.603	2.011	0.843
4-May-94	9.52	19	0.7680	0.732	2.253	0.801
19-May-94	10.44	20	0.8093	0.875	2.346	0.725
9-May-95	17.74	21	0.8505	1.039	2.876	
23-May-95	20.15	22	0.8918	1.236	3.003	
16-May-91	25.5	23	0.9330	1.498	3.239	
14-May-98	26.2	24	0.9742	1.947	3.266	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM295 **Date:** 29-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,750	10	15	0.6	0.00	0.00	0.00
SD:	673	9	11	0.4	1.00	1.00	1.00
CV:	0.02	0.91	0.74	0.62			
Min:	33,374	2	4	0.1	-0.90	-1.01	-1.33
Max:	36,114	32	60	1.4	2.28	3.85	2.21
Median:	34,695	6	14	0.6	-0.50	-0.17	-0.01

dCd NM295 : Concentration v. Discharge, Q

Q = mTime +b **LnQ = mTime +b**

Conc. = mQ+b (r2=0.19)	update r2			r2:	0.002	0.000002
r2 Q,[COC]:	0.19	[dCd]	Q	m:	-0.0006	-0.000002
slope, m:	-0.5	20	1.9	b:	31	1.99
intercept, b:	20.9	15	10.3			
N: 18		4	32			

LnConc. = mLn{Q}+b (r2=0.40)		update r2			
r2 lnQ,ln[COC]:	0.40	ln[dCd]	ln Q	[dCd]	Q
slope, m:	-0.37	3.04	0.66	21	2
intercept, b:	3.29	2.42	2.33	11	10
N: 18		2.00	3.45	7	32

for graph
dCd 0
NM295

N= 18

	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	31.2	3.8	0.6	3.44	1.34	-0.45	2.25	-1.01	0.10
MFG	4-Oct-91	1.93	10.5	0.1	0.66	2.35	-2.22	-0.90	-0.43	-1.33
IDEQ	3-May-94	12.78	20.6	1.4	2.55	3.03	0.35	0.27	0.45	2.21
IDEQ	19-May-94	14.91	10	0.8	2.70	2.30	-0.22	0.50	-0.47	0.55
IDEQ	7-Jun-94	8.14	15	0.7	2.10	2.71	-0.42	-0.23	-0.04	0.16
IDEQ	20-Jul-94	3.57	15	0.3	1.27	2.71	-1.24	-0.72	-0.04	-0.84
IDEQ	20-Jul-94	3.65	15	0.3	1.29	2.71	-1.22	-0.71	-0.04	-0.82
IDEQ	15-Aug-94	2.53	17	0.2	0.93	2.83	-1.46	-0.83	0.14	-1.00
IDEQ	15-Aug-94	2.41	17	0.2	0.88	2.83	-1.51	-0.84	0.14	-1.02
IDEQ	9-May-95	15.49	13	1.1	2.74	2.56	0.08	0.56	-0.21	1.31
IDEQ	23-May-95	19.6	9.3	1.0	2.98	2.23	-0.02	1.00	-0.53	1.03
IDEQ	12-Jun-95	16.75	8.7	0.8	2.82	2.16	-0.24	0.70	-0.59	0.50
IDEQ	27-Jun-95	5.26	13	0.4	1.66	2.56	-1.00	-0.54	-0.21	-0.63
IDEQ	11-Jul-95	3.82	12	0.2	1.34	2.48	-1.40	-0.69	-0.30	-0.95
IDEQ	25-Jul-95	2.8	14	0.2	1.03	2.64	-1.56	-0.80	-0.12	-1.05
URS	12-Nov-97	5.89	17.5	0.6	1.77	2.86	-0.59	-0.47	0.18	-0.12
URS	15-May-98	31.5	6.5	1.1	3.45	1.87	0.10	2.28	-0.78	1.36
URS	15-Nov-98	2.51	59.5	0.8	0.92	4.09	-0.22	-0.83	3.85	0.55

dCd

Concentration over time analysis r2 Slope, m

dCd NM295 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.237** **0.00039**

	Time	Ln[COC]	[COC]
first:	16-May-91	2.03	8
mid:	26-Dec-94	2.55	13
last:	15-Nov-98	3.10	22

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

dCd NM295 **Load over time**

LnLoad=mTime+b All data r2, m: **0.135** **0.00039**

	Time	LnLoad	Load
first:	16-May-91	-1.27	0.3
mid:	26-Dec-94	-0.76	0.5
last:	15-Nov-98	-0.21	1

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.241 max r2: 0.912

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.237	0.00039	-10.96	0.135	0.00039	-14.20
0.085	0.00022	-5.14	0.232	0.00058	-21.02
0.062	0.00022	-5.16	0.081	0.00036	-13.06
0.095	0.00028	-7.13	0.179	0.00049	-18.02
0.076	0.00025	-6.18	0.254	0.00059	-21.47
0.085	0.00028	-7.06	0.324	0.00068	-24.75
0.097	0.00031	-8.08	0.298	0.00066	-24.06
0.113	0.00035	-9.49	0.266	0.00064	-23.24
0.155	0.00043	-12.38	0.204	0.00055	-20.09
0.229	0.00056	-17.00	0.114	0.00040	-14.57
0.241	0.00059	-18.30	0.239	0.00056	-20.29
0.205	0.00056	-17.14	0.478	0.00077	-27.85
0.146	0.00048	-14.33	0.838	0.00103	-37.42
0.136	0.00052	-15.54	0.912	0.00119	-43.06

update for EV, CV:

dCd		**NM295**		
LN Analysis		**dCd**		
Load		**Load Data, EV=1 lbs/day CV=.62**		
Avg:	**1**	**Load Data-based LN**		
SD:	**0.4**	u	ln dCd Load	dCd Load
CV:	**0.62**	3	1.0	3
Min:	**0.1**	0	-0.67	1
Max:	**1**	-3	-2.38	0.1
Median:	**1**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.948, EV=0.6 lbs/day CV=0.91; max r2=0.96**

r2 u,lnLoad:	0.948	u	lnLoad	Load
slope, m:	1.283	3	1.60	5
intercept, b:	0.945	0	-0.74	0.5
N: 18		-3	-3.07	0.05
E[Load]:	0.6	Parameter Estimates		
SD[Load]:	1	from LN regression		
CV[Load]:	0.91	update graph label		

						max r2 0.964
	dCd	N: 18				
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	**0.1**	1	0.0342	-1.822	-2.216	0.948
25-Jul-95	**0.2**	2	0.0890	-1.347	-1.556	0.933
15-Aug-94	**0.2**	3	0.1438	-1.063	-1.512	0.927
15-Aug-94	**0.2**	4	0.1986	-0.847	-1.464	0.914
11-Jul-95	**0.2**	5	0.2534	-0.664	-1.400	0.897
20-Jul-94	**0.3**	6	0.3082	-0.501	-1.244	0.881
20-Jul-94	**0.3**	7	0.3630	-0.350	-1.222	0.864
27-Jun-95	**0.4**	8	0.4178	-0.208	-1.000	0.888
12-Nov-97	**0.6**	9	0.4726	-0.069	-0.590	0.964
16-May-91	**0.6**	10	0.5274	0.069	-0.450	0.963
7-Jun-94	**0.7**	11	0.5822	0.208	-0.420	0.954
12-Jun-95	**0.8**	12	0.6370	0.350	-0.243	0.951
19-May-94	**0.8**	13	0.6918	0.501	-0.220	0.944
15-Nov-98	**0.8**	14	0.7466	0.664	-0.219	0.923
23-May-95	**1.0**	15	0.8014	0.847	-0.020	
9-May-95	**1.1**	16	0.8562	1.063	0.080	
15-May-98	**1.1**	17	0.9110	1.347	0.097	
3-May-94	**1.4**	18	0.9658	1.822	0.348	

update for EV, CV:

dCd
LN Analysis

NM295
dCd

Concentration

Conc. Data, EV=15 ug/L CV=.74

Avg:	**15**	**Data-based LN**		
SD:	**11**	u	ln[dCd]	[dCd]
CV:	**0.74**	3	4.5	90
Min:	**4**	0	2.52	12
Max:	**60**	-3	0.53	2
Median:	**14**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.876, EV=15.8 ug/L CV=0.68; max r2=0.88**

r2 u,lnConc:	0.876	u	lnConc.	Conc.
slope, m:	1.624	3	4.42	83
intercept, b:	-4.174	0	2.57	13
N: 18		-3	0.72	2
E[Conc]:	15.8	Parameter Estimates		
SD[Conc]:	11	from LN regression		
CV[Conc]:	0.68	update graph label		

Date	**dCd Concentration ug/L Ranked**	**i rank** (N: 18)	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	max r2 0.876 r2 forward
update and rank for new data						
16-May-91	3.8	1	0.0342	-1.822	1.335	0.876
15-May-98	6.5	2	0.0890	-1.347	1.872	0.845
12-Jun-95	8.7	3	0.1438	-1.063	2.163	0.812
23-May-95	9.3	4	0.1986	-0.847	2.230	0.796
19-May-94	10	5	0.2534	-0.664	2.303	0.776
4-Oct-91	10.5	6	0.3082	-0.501	2.351	0.756
11-Jul-95	12	7	0.3630	-0.350	2.485	0.732
9-May-95	13	8	0.4178	-0.208	2.565	0.724
27-Jun-95	13	9	0.4726	-0.069	2.565	0.729
25-Jul-95	14	10	0.5274	0.069	2.639	0.724
7-Jun-94	15	11	0.5822	0.208	2.708	0.733
20-Jul-94	15	12	0.6370	0.350	2.708	0.764
20-Jul-94	15	13	0.6918	0.501	2.708	0.788
15-Aug-94	17	14	0.7466	0.664	2.833	0.798
15-Aug-94	17	15	0.8014	0.847	2.833	
12-Nov-97	17.5	16	0.8562	1.063	2.862	
3-May-94	20.6	17	0.9110	1.347	3.025	
15-Nov-98	59.5	18	0.9658	1.822	4.086	

update for EV, CV:

dCd **NM295**

LN Analysis **dCd**

Discharge, Q **Q Data, EV=10 cfs CV=0.91**

Q Data-based LN

		u	lnQ	Q
Avg:	**10**			
SD:	**9**	3	4.4	78
CV:	**0.91**	0	2.03	8
Min:	**2**	-3	-0.30	1
Max:	**32**			
Median:	**6**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.930, EV=11.4 cfs CV=1.34; max r2=0.95**

r2 u,lnQ:	0.930	u	lnQ	Q
slope, m:	0.987	3	4.96	142
intercept, b:	-1.893	0	1.92	7
N: 18		-3	-1.12	0.3
E[Q]:	11.4	Parameter Estimates		
SD[Q]:	15	from LN regression		
CV[Q]:	1.34	update graph label		

N: 18

max r2 0.950

Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2 forward**
update and rank for new data						
4-Oct-91	1.93	1	0.0342	-1.822	0.658	0.930
15-Aug-94	2.41	2	0.0890	-1.347	0.880	0.942
15-Nov-98	2.51	3	0.1438	-1.063	0.920	0.950
15-Aug-94	2.53	4	0.1986	-0.847	0.928	0.949
25-Jul-95	2.8	5	0.2534	-0.664	1.030	0.940
20-Jul-94	3.57	6	0.3082	-0.501	1.273	0.929
20-Jul-94	3.65	7	0.3630	-0.350	1.295	0.915
11-Jul-95	3.82	8	0.4178	-0.208	1.340	0.899
27-Jun-95	5.26	9	0.4726	-0.069	1.660	0.891
12-Nov-97	5.89	10	0.5274	0.069	1.773	0.875
7-Jun-94	8.14	11	0.5822	0.208	2.097	0.890
3-May-94	12.78	12	0.6370	0.350	2.548	0.914
19-May-94	14.91	13	0.6918	0.501	2.702	0.886
9-May-95	15.49	14	0.7466	0.664	2.740	0.862
12-Jun-95	16.75	15	0.8014	0.847	2.818	
23-May-95	19.6	16	0.8562	1.063	2.976	
16-May-91	31.2	17	0.9110	1.347	3.440	
15-May-98	31.5	18	0.9658	1.822	3.450	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM295 **Date:** 30-May-00
Chemical: dPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,750	10	14	0.6	0.00	0.00	0.00
SD:	673	9	7	0.4	1.00	1.00	1.00
CV:	0.02	0.91	0.54	0.70			
Min:	33,374	2	7	0.1	-0.90	-0.90	-1.24
Max:	36,114	32	42	1.3	2.28	3.79	1.84
Median:	34,695	6	13	0.4	-0.50	-0.09	-0.31

dPb **NM295** **: Concentration v. Discharge, Q**

Q = mTime +b **LnQ = mTime +b**

Conc. = mQ+b (r2=0.10) update r2

r2 Q,[COC]:	0.10	[dPb]	Q	r2:	0.002	0.000002
slope, m:	-0.3	16	1.9	m:	-0.0006	-0.000002
intercept, b:	16.3	13	10.3	b:	31	1.99
N: 17		7	32			

LnConc. = mLn{Q}+b (r2=0.12) update r2

r2 lnQ,ln[COC]:	0.12	ln[dPb]	ln Q	[dPb]	Q
slope, m:	-0.15	2.70	0.66	15	2
intercept, b:	2.80	2.46	2.33	12	10
N: 17		2.29	3.45	10	32

for graph
dPb 0
NM295

N= 18

update for new data	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	*16-May-91*	*31.2*			3.44			2.25		
MFG	4-Oct-91	1.93	7	0.1	0.66	1.95	-2.62	-0.90	-0.90	-1.24
IDEQ	3-May-94	12.78	13	0.9	2.55	2.56	-0.11	0.27	-0.09	0.84
IDEQ	19-May-94	14.91	13	1.0	2.70	2.56	0.04	0.50	-0.09	1.21
IDEQ	7-Jun-94	8.14	12	0.5	2.10	2.48	-0.64	-0.23	-0.22	-0.09
IDEQ	20-Jul-94	3.57	11	0.2	1.27	2.40	-1.55	-0.72	-0.36	-0.89
IDEQ	20-Jul-94	3.65	11	0.2	1.29	2.40	-1.53	-0.71	-0.36	-0.88
IDEQ	15-Aug-94	2.53	16	0.2	0.93	2.77	-1.52	-0.83	0.32	-0.87
IDEQ	15-Aug-94	2.41	16	0.2	0.88	2.77	-1.57	-0.84	0.32	-0.90
IDEQ	9-May-95	15.49	13	1.1	2.74	2.56	0.08	0.56	-0.09	1.32
IDEQ	23-May-95	19.6	11	1.2	2.98	2.40	0.15	1.00	-0.36	1.51
IDEQ	12-Jun-95	16.75	10	0.9	2.82	2.30	-0.10	0.70	-0.49	0.86
IDEQ	27-Jun-95	5.26	10	0.3	1.66	2.30	-1.26	-0.54	-0.49	-0.71
IDEQ	11-Jul-95	3.82	13	0.3	1.34	2.56	-1.32	-0.69	-0.09	-0.75
IDEQ	25-Jul-95	2.8	13	0.2	1.03	2.56	-1.63	-0.80	-0.09	-0.93
URS	12-Nov-97	5.89	13.9	0.4	1.77	2.63	-0.82	-0.47	0.03	-0.31
URS	15-May-98	31.5	7.6	1.3	3.45	2.03	0.25	2.28	-0.82	1.84
URS	15-Nov-98	2.51	41.7	0.6	0.92	3.73	-0.57	-0.83	3.79	0.00

dPb

Concentration over time analysis r2 Slope, m

dPb NM295 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.220** **0.00029**

	Time	Ln[COC]	[COC]
first:	16-May-91	2.11	8
mid:	26-Dec-94	2.49	12
last:	15-Nov-98	2.90	18

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

dPb NM295 **Load over time**

LnLoad=mTime+b All data r2, m: **0.230** **0.00065**

	Time	LnLoad	Load
first:	16-May-91	-1.81	0.2
mid:	26-Dec-94	-0.96	0.4
last:	15-Nov-98	-0.04	1.0

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.227 max r2: 0.695

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.220	0.00029	-7.53	0.230	0.00065	-23.41
0.220	0.00029	-7.53	0.230	0.00065	-23.41
0.109	0.00022	-5.21	0.068	0.00035	-13.11
0.115	0.00023	-5.64	0.111	0.00045	-16.53
0.122	0.00025	-6.16	0.199	0.00059	-21.45
0.119	0.00026	-6.37	0.237	0.00066	-24.05
0.106	0.00025	-6.08	0.200	0.00061	-22.06
0.090	0.00024	-5.69	0.154	0.00053	-19.44
0.133	0.00030	-8.00	0.101	0.00043	-15.71
0.210	0.00040	-11.69	0.035	0.00025	-9.26
0.227	0.00044	-12.86	0.098	0.00040	-14.85
0.213	0.00044	-13.05	0.292	0.00065	-23.76
0.174	0.00042	-12.13	0.695	0.00097	-35.22
0.114	0.00036	-10.21	0.686	0.00104	-37.73

update for EV, CV:

dPb		**NM295**		
LN Analysis		**dPb**		
Load		**Load Data, EV=0.6 lbs/day CV=.70**		
Avg:	**0.6**	**Load Data-based LN**		
SD:	**0.4**	u	ln dPb Load	dPb Load
CV:	**0.70**	3	1.1	3
Min:	**0.1**	0	-0.77	0.5
Max:	**1.3**	-3	-2.67	0.1
Median:	**0.4**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.924, EV=0.6lbs/day CV=1.08; max r2=0.95**

r2 u,lnLoad:	0.924	u	lnLoad	Load
slope, m:	1.135	3	1.76	6
intercept, b:	1.005	0	-0.89	0.4
N: 17		-3	-3.53	0.03
E[Load]:	0.6	Parameter Estimates		
SD[Load]:	1	from LN regression		
CV[Load]:	1.08	update graph label		

N: 18

Date	dPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.946 r2 forward
update and rank for new data						
4-Oct-91	**0.1**	1	0.0342	-1.822	-2.622	0.924
25-Jul-95	**0.2**	2	0.0890	-1.347	-1.630	0.904
15-Aug-94	**0.2**	3	0.1438	-1.063	-1.573	0.907
20-Jul-94	**0.2**	4	0.1986	-0.847	-1.555	0.903
20-Jul-94	**0.2**	5	0.2534	-0.664	-1.532	0.888
15-Aug-94	**0.2**	6	0.3082	-0.501	-1.524	0.862
16-May-91		7	0.3630	-0.350		
11-Jul-95	**0.3**	8	0.4178	-0.208	-1.320	0.824
27-Jun-95	**0.3**	9	0.4726	-0.069	-1.262	0.793
12-Nov-97	**0.4**	10	0.5274	0.069	-0.820	0.806
7-Jun-94	**0.5**	11	0.5822	0.208	-0.643	0.770
15-Nov-98	**0.6**	12	0.6370	0.350	-0.574	0.721
3-May-94	**0.9**	13	0.6918	0.501	-0.112	0.946
12-Jun-95	**0.9**	14	0.7466	0.664	-0.104	0.923
19-May-94	**1.0**	15	0.8014	0.847	0.042	
9-May-95	**1.1**	16	0.8562	1.063	0.080	
23-May-95	**1.2**	17	0.9110	1.347	0.148	
15-May-98	**1.3**	18	0.9658	1.822	0.253	

update for EV, CV:

dPb
LN Analysis

Concentration

Avg:	**14**
SD:	**7**
CV:	**0.54**
Min:	**7**
Max:	**42**
Median:	**13**

NM295
dPb
Conc. Data, EV=14 ug/L CV=.54
Data-based LN

u	ln[dPb]	[dPb]
3	4.0	55
0	2.49	12
-3	0.96	3

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.790, EV=13.4 ug/L CV=0.52; max r2=0.83**

r2 u,lnConc:	0.790	u	lnConc.	Conc.
slope, m:	2.033	3	3.95	52
intercept, b:	-5.034	0	2.48	12
N: 17		-3	1.00	3
E[Conc]:	13.4	Parameter Estimates		
SD[Conc]:	7	from LN regression		
CV[Conc]:	0.52	update graph label		

N: 18

max r2
0.830

Date	dPb Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
16-May-91		1	0.0342	-1.822		
4-Oct-91	7	2	0.0890	-1.347	1.946	0.790
15-May-98	7.6	3	0.1438	-1.063	2.028	0.752
12-Jun-95	10	4	0.1986	-0.847	2.303	0.708
27-Jun-95	10	5	0.2534	-0.664	2.303	0.703
20-Jul-94	11	6	0.3082	-0.501	2.398	0.688
20-Jul-94	11	7	0.3630	-0.350	2.398	0.692
23-May-95	11	8	0.4178	-0.208	2.398	0.689
7-Jun-94	12	9	0.4726	-0.069	2.485	0.673
3-May-94	13	10	0.5274	0.069	2.565	0.679
19-May-94	13	11	0.5822	0.208	2.565	0.718
9-May-95	13	12	0.6370	0.350	2.565	0.758
11-Jul-95	13	13	0.6918	0.501	2.565	0.796
25-Jul-95	13	14	0.7466	0.664	2.565	0.830
12-Nov-97	13.9	15	0.8014	0.847	2.632	
15-Aug-94	16	16	0.8562	1.063	2.773	
15-Aug-94	16	17	0.9110	1.347	2.773	
15-Nov-98	41.7	18	0.9658	1.822	3.731	

update for EV, CV:

dPb **NM295**

LN Analysis **dPb**

Discharge, Q **Q Data, EV=10 cfs CV=0.91**

Q Data-based LN

Avg:	**10**			
SD:	**9**	u	lnQ	Q
CV:	**0.91**	3	4.4	78
Min:	**2**	0	2.03	8
Max:	**32**	-3	-0.30	1
Median:	**6**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.930, EV=11.4 cfs CV=1.34; max r2=0.95**

r2 u,lnQ:	0.930	u	lnQ	Q
slope, m:	0.987	3	4.96	142
intercept, b:	-1.893	0	1.92	7
N: 18		-3	-1.12	0.3
E[Q]:	11.4	Parameter Estimates		
SD[Q]:	15	from LN regression		
CV[Q]:	1.34	update graph label		

N: 18

max r2
0.950

Date	**Q Discharge cfs Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
4-Oct-91	1.93	1	0.0342	-1.822	0.658	0.930
15-Aug-94	2.41	2	0.0890	-1.347	0.880	0.942
15-Nov-98	2.51	3	0.1438	-1.063	0.920	0.950
15-Aug-94	2.53	4	0.1986	-0.847	0.928	0.949
25-Jul-95	2.8	5	0.2534	-0.664	1.030	0.940
20-Jul-94	3.57	6	0.3082	-0.501	1.273	0.929
20-Jul-94	3.65	7	0.3630	-0.350	1.295	0.915
11-Jul-95	3.82	8	0.4178	-0.208	1.340	0.899
27-Jun-95	5.26	9	0.4726	-0.069	1.660	0.891
12-Nov-97	5.89	10	0.5274	0.069	1.773	0.875
7-Jun-94	8.14	11	0.5822	0.208	2.097	0.890
3-May-94	12.78	12	0.6370	0.350	2.548	0.914
19-May-94	14.91	13	0.6918	0.501	2.702	0.886
9-May-95	15.49	14	0.7466	0.664	2.740	0.862
12-Jun-95	16.75	15	0.8014	0.847	2.818	
23-May-95	19.6	16	0.8562	1.063	2.976	
16-May-91	*31.2*	17	0.9110	1.347	3.440	
15-May-98	31.5	18	0.9658	1.822	3.450	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM295 **Date:** 29-May-00
Chemical: dZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,750	10	2,972	116	0.00	0.00	0.00
SD:	673	9	2,265	69	1.00	1.00	1.00
CV:	0.02	0.91	0.76	0.60			
Min:	33,374	2	1,390	31	-0.90	-0.70	-1.22
Max:	36,114	32	11,800	236	2.28	3.90	1.73
Median:	34,695	6	2,595	114	-0.50	-0.17	-0.03

dZn NM295 : Concentration v. Discharge, Q

Q = mTime +b **LnQ = mTime +b**

Conc. = mQ+b (r2=0.18) update r2

r2 Q,[COC]:	0.18	[dZn]	Q	r2:	0.002	0.000002
slope, m:	-103.9	3,838	1.9	m:	-0.0006	-0.000002
intercept, b:	4038.1	2,972	10.3	b:	31	1.99
N: 18		765	32			

LnConc. = mLn{Q}+b (r2=0.48) update r2

r2 lnQ,ln[COC]:	0.48	ln[dZn]	ln Q	[dZn]	Q
slope, m:	-0.36	8.31	0.66	4,046	2
intercept, b:	8.55	7.70	2.33	2,201	10
N: 18		7.29	3.45	1,463	32

for graph
dZn 0
NM295

N= 18

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	31.2	1390	233	3.44	7.24	5.45	2.25	-0.70	1.70
MFG	4-Oct-91	1.93	2960	31	0.66	7.99	3.43	-0.90	-0.01	-1.22
IDEQ	3-May-94	12.78	2710	186	2.55	7.90	5.23	0.27	-0.12	1.02
IDEQ	19-May-94	14.91	1660	133	2.70	7.41	4.89	0.50	-0.58	0.25
IDEQ	7-Jun-94	8.14	2160	95	2.10	7.68	4.55	-0.23	-0.36	-0.30
IDEQ	20-Jul-94	3.57	2720	52	1.27	7.91	3.96	-0.72	-0.11	-0.91
IDEQ	20-Jul-94	3.65	2720	53	1.29	7.91	3.98	-0.71	-0.11	-0.90
IDEQ	15-Aug-94	2.53	3320	45	0.93	8.11	3.81	-0.83	0.15	-1.02
IDEQ	15-Aug-94	2.41	3320	43	0.88	8.11	3.76	-0.84	0.15	-1.05
IDEQ	9-May-95	15.49	2420	202	2.74	7.79	5.31	0.56	-0.24	1.24
IDEQ	23-May-95	19.6	1610	170	2.98	7.38	5.13	1.00	-0.60	0.78
IDEQ	12-Jun-95	16.75	1740	157	2.82	7.46	5.05	0.70	-0.54	0.59
IDEQ	27-Jun-95	5.26	2060	58	1.66	7.63	4.07	-0.54	-0.40	-0.83
IDEQ	11-Jul-95	3.82	2480	51	1.34	7.82	3.93	-0.69	-0.22	-0.93
IDEQ	25-Jul-95	2.8	2730	41	1.03	7.91	3.72	-0.80	-0.11	-1.07
URS	12-Nov-97	5.89	4300	136	1.77	8.37	4.91	-0.47	0.59	0.30
URS	15-May-98	31.5	1390	236	3.45	7.24	5.46	2.28	-0.70	1.73
URS	15-Nov-98	2.51	11800	159	0.92	9.38	5.07	-0.83	3.90	0.63

dZn

Concentration over time analysis r2 Slope, m

dZn NM295 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.178** **0.00030**

	Time	Ln[COC]	[COC]
first:	16-May-91	7.43	1,689
mid:	26-Dec-94	7.83	2,514
last:	15-Nov-98	8.26	3,855

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

dZn NM295 **Load over time**

LnLoad=mTime+b All data r2, m: **0.089** **0.00030**

	Time	LnLoad	Load
first:	16-May-91	4.13	62
mid:	26-Dec-94	4.52	92
last:	15-Nov-98	4.95	141

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.336 max r2: 0.903

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.178	0.00030	-2.62	0.089	0.00030	-5.85
0.106	0.00025	-0.99	0.315	0.00061	-16.87
0.183	0.00040	-6.08	0.197	0.00053	-13.98
0.197	0.00043	-6.98	0.296	0.00064	-17.87
0.167	0.00039	-5.77	0.373	0.00073	-21.06
0.154	0.00039	-5.57	0.410	0.00079	-23.26
0.163	0.00041	-6.51	0.381	0.00077	-22.49
0.177	0.00045	-7.82	0.346	0.00074	-21.57
0.233	0.00054	-11.11	0.285	0.00067	-18.82
0.327	0.00069	-16.38	0.193	0.00053	-13.95
0.336	0.00073	-17.68	0.338	0.00069	-19.67
0.288	0.00067	-15.85	0.543	0.00088	-26.56
0.228	0.00061	-13.59	0.898	0.00116	-36.69
0.168	0.00056	-11.89	0.903	0.00124	-39.41

update for EV, CV:

dZn **NM295**
LN Analysis **dZn**

Load **Load Data, EV=116 lbs/day CV=.60**

Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**116**			
SD:	**69**	3	6.3	523
CV:	**0.60**	0	4.60	99
Min:	**31**	-3	2.93	19
Max:	**236**			
Median:	**114**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.909, EV=124.9 lbs/day CV=0.88; max r2=0.94**

r2 u,lnLoad:	0.909	u	lnLoad	Load
slope, m:	1.317	3	6.82	913
intercept, b:	-5.979	0	4.54	94
N: 18		-3	2.26	10
E[Load]:	124.9	Parameter Estimates		
SD[Load]:	110	from LN regression		
CV[Load]:	0.88	update graph label		

N: 18

max r2
0.944

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	**31**	1	0.0342	-1.822	3.425	0.909
25-Jul-95	**41**	2	0.0890	-1.347	3.717	0.896
15-Aug-94	**43**	3	0.1438	-1.063	3.762	0.886
15-Aug-94	**45**	4	0.1986	-0.847	3.811	0.867
11-Jul-95	**51**	5	0.2534	-0.664	3.931	0.842
20-Jul-94	**52**	6	0.3082	-0.501	3.956	0.811
20-Jul-94	**53**	7	0.3630	-0.350	3.978	0.775
27-Jun-95	**58**	8	0.4178	-0.208	4.066	0.754
7-Jun-94	**95**	9	0.4726	-0.069	4.550	0.865
19-May-94	**133**	10	0.5274	0.069	4.892	0.944
12-Nov-97	**136**	11	0.5822	0.208	4.915	0.930
12-Jun-95	**157**	12	0.6370	0.350	5.055	0.928
15-Nov-98	**159**	13	0.6918	0.501	5.071	0.905
23-May-95	**170**	14	0.7466	0.664	5.134	0.869
3-May-94	**186**	15	0.8014	0.847	5.228	
9-May-95	**202**	16	0.8562	1.063	5.307	
16-May-91	**233**	17	0.9110	1.347	5.452	
15-May-98	**236**	18	0.9658	1.822	5.462	

update for EV, CV:

dZn
LN Analysis

NM295
dZn

Concentration

Conc. Data, EV=2,972 ug/L CV=.76

Avg:	**2,972**
SD:	**2,265**
CV:	**0.76**
Min:	**1,390**
Max:	**11,800**
Median:	**2,595**

Data-based LN

u	ln[dZn]	[dZn]
3	9.8	18000
0	7.77	2363
-3	5.74	310

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.836, EV=2995.2 ug/L CV=0.61; max r2=0.87**

r2 u,lnConc:	0.836	u	lnConc.	Conc.
slope, m:	1.777	3	9.53	13835
intercept, b:	-13.940	0	7.85	2556
N: 18		-3	6.16	472
E[Conc]:	2995.2	Parameter Estimates		
SD[Conc]:	1829	from LN regression		
CV[Conc]:	0.61	update graph label		

N: 18

max r2
0.867

update and rank for new data

Date	dZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
16-May-91	1390	1	0.0342	-1.822	7.237	0.836
15-May-98	1390	2	0.0890	-1.347	7.237	0.841
23-May-95	1610	3	0.1438	-1.063	7.384	0.823
19-May-94	1660	4	0.1986	-0.847	7.415	0.812
12-Jun-95	1740	5	0.2534	-0.664	7.462	0.792
27-Jun-95	2060	6	0.3082	-0.501	7.630	0.766
7-Jun-94	2160	7	0.3630	-0.350	7.678	0.756
9-May-95	2420	8	0.4178	-0.208	7.792	0.745
11-Jul-95	2480	9	0.4726	-0.069	7.816	0.753
3-May-94	2710	10	0.5274	0.069	7.905	0.762
20-Jul-94	2720	11	0.5822	0.208	7.908	0.795
20-Jul-94	2720	12	0.6370	0.350	7.908	0.828
25-Jul-95	2730	13	0.6918	0.501	7.912	0.854
4-Oct-91	2960	14	0.7466	0.664	7.993	0.867
15-Aug-94	3320	15	0.8014	0.847	8.108	
15-Aug-94	3320	16	0.8562	1.063	8.108	
12-Nov-97	4300	17	0.9110	1.347	8.366	
15-Nov-98	11800	18	0.9658	1.822	9.376	

update for EV, CV:

dZn **NM295**
LN Analysis **dZn**

Discharge, Q **Q Data, EV=10 cfs CV=0.91**

Q Data-based LN

		u	lnQ	Q
Avg:	**10**			
SD:	**9**			
CV:	**0.91**	3	4.4	78
Min:	**2**	0	2.03	8
Max:	**32**	-3	-0.30	1
Median:	**6**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.930, EV=11.4 cfs CV=1.34; max r2=0.95**

r2 u,lnQ:	0.930	u	lnQ	Q
slope, m:	0.987	3	4.96	142
intercept, b:	-1.893	0	1.92	7
N: 18		-3	-1.12	0.3
E[Q]:	11.4	Parameter Estimates		
SD[Q]:	15	from LN regression		
CV[Q]:	1.34	update graph label		

max r2
0.950

N: 18

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	1.93	1	0.0342	-1.822	0.658	0.930
15-Aug-94	2.41	2	0.0890	-1.347	0.880	0.942
15-Nov-98	2.51	3	0.1438	-1.063	0.920	0.950
15-Aug-94	2.53	4	0.1986	-0.847	0.928	0.949
25-Jul-95	2.8	5	0.2534	-0.664	1.030	0.940
20-Jul-94	3.57	6	0.3082	-0.501	1.273	0.929
20-Jul-94	3.65	7	0.3630	-0.350	1.295	0.915
11-Jul-95	3.82	8	0.4178	-0.208	1.340	0.899
27-Jun-95	5.26	9	0.4726	-0.069	1.660	0.891
12-Nov-97	5.89	10	0.5274	0.069	1.773	0.875
7-Jun-94	8.14	11	0.5822	0.208	2.097	0.890
3-May-94	12.78	12	0.6370	0.350	2.548	0.914
19-May-94	14.91	13	0.6918	0.501	2.702	0.886
9-May-95	15.49	14	0.7466	0.664	2.740	0.862
12-Jun-95	16.75	15	0.8014	0.847	2.818	
23-May-95	19.6	16	0.8562	1.063	2.976	
16-May-91	31.2	17	0.9110	1.347	3.440	
15-May-98	31.5	18	0.9658	1.822	3.450	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM295 **Date:** 3-Jun-00
Chemical: tCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,750	10	15	1	0.00	0.00	0.00	
SD:	673	9	11	0.4	1.00	1.00	1.00	
CV:	0.02	0.91	0.74	0.61				first:
Min:	33,374	2	4	0.1	-0.90	-1.00	-1.35	mid:
Max:	36,114	32	59	1	2.28	3.88	1.79	last:
Median:	34,695	6	14	1	-0.50	-0.16	-0.09	

tCd **NM295** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.186)		update r2	0.19	0.186	r2:	0.002	0.000002	
r2 Q,[COC]:	0.19	[tCd]	Q		m:	-0.0006	-0.000002	
slope, m:	-0.5	20	1.9		b:	31	1.99	
intercept, b:	20.7	15	10.3					
N: 18		4	32					first:
LnConc. = mLn{Q}+b (r2=0.389)		update r2		0.39	0.389			mid:
r2 lnQ,ln[COC]:	0.39	ln[tCd]	ln Q	[tCd]	Q			last:
slope, m:	-0.36	3.02	0.66	21	2			
intercept, b:	3.26	2.42	2.33	11	10			
N: 18		2.02	3.45	8	32			

for graph
tCd 0
NM295

N= 18

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	31.2	4	0.7	3.44	1.39	-0.40	2.25	-1.00	0.19
MFG	4-Oct-91	1.93	10.1	0.1	0.66	2.31	-2.26	-0.90	-0.46	-1.35
IDEQ	3-May-94	12.78	18.3	1.3	2.55	2.91	0.23	0.27	0.26	1.79
IDEQ	19-May-94	14.91	12	1.0	2.70	2.48	-0.04	0.50	-0.29	0.99
IDEQ	7-Jun-94	8.14	14	0.6	2.10	2.64	-0.49	-0.23	-0.11	0.04
IDEQ	20-Jul-94	3.57	15	0.3	1.27	2.71	-1.24	-0.72	-0.03	-0.85
IDEQ	20-Jul-94	3.65	15	0.3	1.29	2.71	-1.22	-0.71	-0.03	-0.83
IDEQ	15-Aug-94	2.53	18	0.2	0.93	2.89	-1.41	-0.83	0.24	-0.97
IDEQ	15-Aug-94	2.41	18	0.2	0.88	2.89	-1.46	-0.84	0.24	-1.00
IDEQ	9-May-95	15.49	13	1.1	2.74	2.56	0.08	0.56	-0.20	1.32
IDEQ	23-May-95	19.6	10.3	1.1	2.98	2.33	0.08	1.00	-0.44	1.33
IDEQ	12-Jun-95	16.75	8.5	0.8	2.82	2.14	-0.27	0.70	-0.60	0.45
IDEQ	27-Jun-95	5.26	11	0.3	1.66	2.40	-1.17	-0.54	-0.38	-0.79
IDEQ	11-Jul-95	3.82	12	0.2	1.34	2.48	-1.40	-0.69	-0.29	-0.96
IDEQ	25-Jul-95	2.8	14	0.2	1.03	2.64	-1.56	-0.80	-0.11	-1.06
URS	12-Nov-97	5.89	16.4	0.5	1.77	2.80	-0.65	-0.47	0.10	-0.22
URS	15-May-98	31.5	6.5	1.1	3.45	1.87	0.10	2.28	-0.78	1.37
URS	15-Nov-98	2.51	59.4	0.8	0.92	4.08	-0.22	-0.83	3.88	0.55

tCd

Concentration over time analysis r2 Slope, m

tCd NM295 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.230** **0.00037**

Time	Ln[COC]	[COC]
16-May-91	2.05	8
26-Dec-94	2.55	13
15-Nov-98	3.08	22

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

tCd NM295 **Load over time**

LnLoad=mTime+b All data r2, m: **0.123** **0.00037**

Time	LnLoad	Load
16-May-91	-1.25	0
26-Dec-94	-0.76	0
15-Nov-98	-0.23	1

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.243 max r2: 0.901

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.230	0.00037	-10.44	0.123	0.00037	-13.67
0.082	0.00022	-4.88	0.223	0.00057	-20.76
0.052	0.00020	-4.40	0.071	0.00033	-12.30
0.073	0.00024	-5.84	0.147	0.00046	-16.73
0.066	0.00024	-5.64	0.240	0.00058	-20.93
0.070	0.00025	-6.16	0.297	0.00066	-23.85
0.080	0.00028	-7.13	0.270	0.00064	-23.11
0.094	0.00032	-8.47	0.239	0.00061	-22.22
0.142	0.00041	-11.71	0.182	0.00053	-19.42
0.229	0.00055	-16.89	0.103	0.00039	-14.46
0.243	0.00059	-18.31	0.218	0.00056	-20.29
0.224	0.00059	-18.24	0.499	0.00080	-28.95
0.167	0.00052	-15.75	0.874	0.00107	-38.85
0.130	0.00050	-15.13	0.901	0.00118	-42.66

update for EV, CV:

tCd		**NM295**		
LN Analysis		**tCd**		
Load		**Load Data, EV=0.6 lbs/day CV=0.611**		
Avg:	**1**	**Load Data-based LN**		
SD:	**0**	u	ln tCd Load	tCd Load
CV:	**0.61**	3	1.0	3
Min:	**0.1**	0	-0.67	1
Max:	**1**	-3	-2.36	0.1
Median:	**1**			
		1	0.6	
		0.61	0.611	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.929, EV=0.655lbs/day CV=0.937; max r2=0.93**

r2 u,lnLoad:	0.929	u	lnLoad	Load	
slope, m:	1.259	3	1.64	5	
intercept, b:	0.930	0	-0.74	0	
N: 18		-3	-3.12	0.0	
E[Load]:	0.7	Parameter Estimates			0.929
SD[Load]:	1	from LN regression			0.7
CV[Load]:	0.94	update graph label			0.9
					max r2
	tCd	N: 18			0.929
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					

update and rank for new data

4-Oct-91	**0.1**	1	0.0342	-1.822	-2.255	0.929
25-Jul-95	**0.2**	2	0.0890	-1.347	-1.556	0.910
15-Aug-94	**0.2**	3	0.1438	-1.063	-1.455	0.899
15-Aug-94	**0.2**	4	0.1986	-0.847	-1.406	0.885
11-Jul-95	**0.2**	5	0.2534	-0.664	-1.400	0.863
20-Jul-94	**0.3**	6	0.3082	-0.501	-1.244	0.837
20-Jul-94	**0.3**	7	0.3630	-0.350	-1.222	0.805
27-Jun-95	**0.3**	8	0.4178	-0.208	-1.167	0.785
12-Nov-97	**0.5**	9	0.4726	-0.069	-0.655	0.875
7-Jun-94	**0.6**	10	0.5274	0.069	-0.489	0.872
16-May-91	**0.7**	11	0.5822	0.208	-0.398	0.852
12-Jun-95	**0.8**	12	0.6370	0.350	-0.267	0.834
15-Nov-98	**0.8**	13	0.6918	0.501	-0.220	0.789
19-May-94	**1.0**	14	0.7466	0.664	-0.038	0.870
9-May-95	**1.1**	15	0.8014	0.847	0.080	
23-May-95	**1.1**	16	0.8562	1.063	0.083	
15-May-98	**1.1**	17	0.9110	1.347	0.097	
3-May-94	**1.3**	18	0.9658	1.822	0.230	

update for EV, CV:

tCd		**NM295**		15	15.3
LN Analysis		**tCd**		0.74	0.742
Concentration		**Conc. Data, EV=15.3 ug/L CV=0.742**			
Avg:	**15**	**Data-based LN**			
SD:	**11**	u	ln[tCd]	[tCd]	
CV:	**0.74**	3	4.5	90	
Min:	**4**	0	2.51	12	
Max:	**59**	-3	0.52	2	
Median:	**14**				

				0.861	0.861
	u=mLn{Conc.}+b:			15.7	15.7
update for r2, EV, CV:	**r2=0.861, EV=15.7 ug/L CV=0.666; max r2=0.86**			0.666	0.666
	r2 u,lnConc:	0.861	u	lnConc.	Conc.
	slope, m:	1.651	3	4.39	80
	intercept, b:	-4.241	0	2.57	13
	N: 18		-3	0.75	2
0.929	E[Conc]:	15.7	Parameter Estimates		
0.655	SD[Conc]:	10	from LN regression		
0.937	CV[Conc]:	0.67	update graph label		

						max r2
	tCd	N: 18				0.861
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
16-May-91	4	1	0.0342	-1.822	1.386	0.861
15-May-98	6.5	2	0.0890	-1.347	1.872	0.823
12-Jun-95	8.5	3	0.1438	-1.063	2.140	0.785
4-Oct-91	10.1	4	0.1986	-0.847	2.313	0.760
23-May-95	10.3	5	0.2534	-0.664	2.332	0.751
27-Jun-95	11	6	0.3082	-0.501	2.398	0.736
19-May-94	12	7	0.3630	-0.350	2.485	0.722
11-Jul-95	12	8	0.4178	-0.208	2.485	0.719
9-May-95	13	9	0.4726	-0.069	2.565	0.706
7-Jun-94	14	10	0.5274	0.069	2.639	0.703
25-Jul-95	14	11	0.5822	0.208	2.639	0.716
20-Jul-94	15	12	0.6370	0.350	2.708	0.719
20-Jul-94	15	13	0.6918	0.501	2.708	0.739
12-Nov-97	16.4	14	0.7466	0.664	2.797	0.742
15-Aug-94	18	15	0.8014	0.847	2.890	
15-Aug-94	18	16	0.8562	1.063	2.890	
3-May-94	18.3	17	0.9110	1.347	2.907	
15-Nov-98	59.4	18	0.9658	1.822	4.084	

update for EV, CV:

tCd		**NM295**			10	10.3
LN Analysis		**tCd**			0.91	0.907
Discharge, Q		**Q Data, EV=10.3 cfs CV=0.907**				
Avg:	**10**	**Q Data-based LN**				
SD:	**9**	u	lnQ	Q		
CV:	**0.91**	3	4.4	78		
Min:	**2**	0	2.03	8		
Max:	**32**	-3	-0.30	1		
Median:	**6**					

					0.930	0.93
					11.4	11.4
u=mLn{Q}+b:					1.34	1.34
update for r2, EV, CV:	**r2=0.93, EV=11.4 cfs CV=1.34; max r2=0.95**					
r2 u,lnQ:	0.930	u	lnQ	Q		
slope, m:	0.987	3	4.96	142		
intercept, b:	-1.893	0	1.92	7		
N: 18		-3	-1.12	0		
E[Q]:	11.4	Parameter Estimates				
SD[Q]:	15	from LN regression				
CV[Q]:	1.34	update graph label				

						max r2
	Q	N: 18				0.950
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	1.93	1	0.0342	-1.822	0.658	0.930
15-Aug-94	2.41	2	0.0890	-1.347	0.880	0.942
15-Nov-98	2.51	3	0.1438	-1.063	0.920	0.950
15-Aug-94	2.53	4	0.1986	-0.847	0.928	0.949
25-Jul-95	2.8	5	0.2534	-0.664	1.030	0.940
20-Jul-94	3.57	6	0.3082	-0.501	1.273	0.929
20-Jul-94	3.65	7	0.3630	-0.350	1.295	0.915
11-Jul-95	3.82	8	0.4178	-0.208	1.340	0.899
27-Jun-95	5.26	9	0.4726	-0.069	1.660	0.891
12-Nov-97	5.89	10	0.5274	0.069	1.773	0.875
7-Jun-94	8.14	11	0.5822	0.208	2.097	0.890
3-May-94	12.78	12	0.6370	0.350	2.548	0.914
19-May-94	14.91	13	0.6918	0.501	2.702	0.886
9-May-95	15.49	14	0.7466	0.664	2.740	0.862
12-Jun-95	16.75	15	0.8014	0.847	2.818	
23-May-95	19.6	16	0.8562	1.063	2.976	
16-May-91	31.2	17	0.9110	1.347	3.440	
15-May-98	31.5	18	0.9658	1.822	3.450	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NM295	**Date:**	13-Jun-00
Chemical:	tPb	**Analyst:**	J.MacLachlan

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,750	10	23	1	0.00	0.00	0.00
SD:	673	9	14	1	1.00	1.00	1.00
CV:	0.02	0.91	0.59	0.84			
Min:	33,374	2	13	0.2	-0.90	-0.73	-0.98
Max:	36,114	32	74	3	2.28	3.78	2.09
Median:	34,695	6	20	1	-0.50	-0.22	-0.57

tPb **NM295** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.0495) update r2 0.05 0.0495

r2 Q,[COC]:	0.05	[tPb]	Q	r2:	0.002	0.000002
slope, m:	-0.3	26	1.9	m:	-0.0006	-0.000002
intercept, b:	26.3	23	10.3	b:	31	1.99
N: 18		16	32			

LnConc. = mLn{Q}+b (r2=0.0742) update r2 0.07 0.0742

r2 lnQ,ln[COC]:	0.07	ln[tPb]	ln Q	[tPb]	Q
slope, m:	-0.12	3.18	0.66	24	2
intercept, b:	3.26	2.98	2.33	20	10
N: 18		2.85	3.45	17	32

for graph
tPb 0
NM295

N= 18

	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
URS	16-May-91	31.2	16	2.7	3.44	2.77	0.99	2.25	-0.51	1.67
URS	4-Oct-91	1.93	19	0.2	0.66	2.94	-1.62	-0.90	-0.29	-0.98
URS	3-May-94	12.78	22.3	1.5	2.55	3.10	0.43	0.27	-0.05	0.44
MFG	19-May-94	14.91	24	1.9	2.70	3.18	0.66	0.50	0.08	0.86
MFG	7-Jun-94	8.14	15	0.7	2.10	2.71	-0.42	-0.23	-0.59	-0.49
IDEQ	20-Jul-94	3.57	20	0.4	1.27	3.00	-0.96	-0.72	-0.22	-0.78
IDEQ	20-Jul-94	3.65	20	0.4	1.29	3.00	-0.93	-0.71	-0.22	-0.77
IDEQ	15-Aug-94	2.53	24	0.3	0.93	3.18	-1.12	-0.83	0.08	-0.84
IDEQ	15-Aug-94	2.41	24	0.3	0.88	3.18	-1.17	-0.84	0.08	-0.85
IDEQ	9-May-95	15.49	37	3.1	2.74	3.61	1.13	0.56	1.03	2.09
IDEQ	23-May-95	19.6	23	2.4	2.98	3.14	0.89	1.00	0.00	1.39
IDEQ	12-Jun-95	16.75	14	1.3	2.82	2.64	0.23	0.70	-0.66	0.15
IDEQ	27-Jun-95	5.26	13	0.4	1.66	2.56	-1.00	-0.54	-0.73	-0.79
IDEQ	11-Jul-95	3.82	20	0.4	1.34	3.00	-0.89	-0.69	-0.22	-0.75
IDEQ	25-Jul-95	2.8	18	0.3	1.03	2.89	-1.31	-0.80	-0.36	-0.90
IDEQ	12-Nov-97	5.89	15.8	0.5	1.77	2.76	-0.69	-0.47	-0.53	-0.65
IDEQ	15-May-98	31.5	13.9	2.4	3.45	2.63	0.86	2.28	-0.67	1.32
IDEQ	15-Nov-98	2.51	74.4	1.0	0.92	4.31	0.00	-0.83	3.78	-0.12

tPb

Concentration over time analysis r2 Slope, m

	tPb	**NM295**		**Concentration over time**	
	LnConc.=mTime+b All data r2, m:			**0.081**	**0.00017**
	Time	**Ln[COC]**	**[COC]**		
first:	16-May-91	2.80	16		
mid:	26-Dec-94	3.02	21		
last:	15-Nov-98	3.26	26		
	LnConc.=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	15-Nov-98	0.00	1		

Load over time analysis

	tPb	**NM295**		**Load over time**	
	LnLoad=mTime+b All data r2, m:			**0.016**	**0.00017**
	Time	**LnLoad**	**Load**		
first:	16-May-91	-0.50	1		
mid:	26-Dec-94	-0.28	1		
last:	15-Nov-98	-0.05	1		
	LnLoad=mTime+b >'96 r2, m:			**0.000**	**0.00000**
	0-Jan-00	0.00	1		
	15-Nov-98	0.00	1		

max r2:	0.289		max r2:	0.652	
Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.081	0.00017	-2.82	0.016	0.00017	-6.05
0.058	0.00016	-2.58	0.132	0.00052	-18.46
0.060	0.00020	-3.82	0.043	0.00033	-11.72
0.067	0.00021	-4.41	0.073	0.00043	-15.30
0.083	0.00024	-5.47	0.140	0.00058	-20.76
0.061	0.00021	-4.35	0.147	0.00062	-22.04
0.059	0.00022	-4.51	0.123	0.00058	-20.49
0.058	0.00022	-4.74	0.096	0.00052	-18.49
0.076	0.00027	-6.43	0.055	0.00040	-14.14
0.107	0.00035	-9.12	0.012	0.00019	-6.69
0.227	0.00049	-14.19	0.086	0.00045	-16.18
0.289	0.00058	-17.39	0.328	0.00078	-28.10
0.248	0.00056	-16.68	0.652	0.00111	-39.78
0.167	0.00048	-13.89	0.622	0.00115	-41.41

update for EV, CV:

tPb		**NM295**		
LN Analysis		**tPb**		
Load		**Load Data, EV=1.12 lbs/day CV=0.844**		
Avg:	**1**	**Load Data-based LN**		
SD:	**1**	u	ln tPb Load	tPb Load
CV:	**0.84**	3	2.0	8
Min:	**0.2**	0	-0.16	1
Max:	**3**	-3	-2.36	0.1
Median:	**1**			
		1	1.12	
		0.84	0.844	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.921, EV=1.25lbs/day CV=1.3; max r2=0.92**

r2 u,lnLoad:	0.921	u	lnLoad	Load	
slope, m:	1.006	3	2.71	15	
intercept, b:	0.276	0	-0.27	1	
N: 18		-3	-3.25	0.04	
E[Load]:	1.2	Parameter Estimates			0.921
SD[Load]:	2	from LN regression			1.2
CV[Load]:	1.30	update graph label			1.3
					max r2
	tPb	N: 18			0.921
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	0.2	1	0.0342	-1.822	-1.623	0.921
25-Jul-95	0.3	2	0.0890	-1.347	-1.305	0.920
15-Aug-94	0.3	3	0.1438	-1.063	-1.167	0.921
15-Aug-94	0.3	4	0.1986	-0.847	-1.119	0.919
27-Jun-95	0.4	5	0.2534	-0.664	-1.000	0.910
20-Jul-94	0.4	6	0.3082	-0.501	-0.957	0.897
20-Jul-94	0.4	7	0.3630	-0.350	-0.935	0.878
11-Jul-95	0.4	8	0.4178	-0.208	-0.889	0.853
12-Nov-97	0.5	9	0.4726	-0.069	-0.692	0.833
7-Jun-94	0.7	10	0.5274	0.069	-0.420	0.828
15-Nov-98	1.0	11	0.5822	0.208	0.005	0.858
12-Jun-95	1.3	12	0.6370	0.350	0.232	0.857
3-May-94	1.5	13	0.6918	0.501	0.427	0.860
19-May-94	1.9	14	0.7466	0.664	0.655	
15-May-98	2.4	15	0.8014	0.847	0.857	
23-May-95	2.4	16	0.8562	1.063	0.886	
16-May-91	2.7	17	0.9110	1.347	0.988	
9-May-95	3.1	18	0.9658	1.822	1.126	

update for EV, CV:

tPb		**NM295**		23	23
LN Analysis		**tPb**		0.59	0.593
Concentration		**Conc. Data, EV=23 ug/L CV=0.593**			
Avg:	**23**	**Data-based LN**			
SD:	**14**	u	ln[tPb]	[tPb]	
CV:	**0.59**	3	4.6	103	
Min:	**13**	0	2.98	20	
Max:	**74**	-3	1.34	4	
Median:	**20**				

				0.807	0.807
	u=mLn{Conc.}+b:			23.2	23.2
update for r2, EV, CV:	**r2=0.807, EV=23.2 ug/L CV=0.503; max r2=0.89**			0.503	0.503
	r2 u,lnConc:	0.807	u	lnConc.	Conc.
	slope, m:	2.104	3	4.46	86
	intercept, b:	-6.382	0	3.03	21
	N: 18		-3	1.61	5
0.921	E[Conc]:	23.2	Parameter Estimates		
1.25	SD[Conc]:	12	from LN regression		
1.3	CV[Conc]:	0.50	update graph label		

						max r2
	tPb	N: 18				0.889
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
27-Jun-95	13	1	0.0342	-1.822	2.565	0.807
15-May-98	13.9	2	0.0890	-1.347	2.632	0.817
12-Jun-95	14	3	0.1438	-1.063	2.639	0.820
7-Jun-94	15	4	0.1986	-0.847	2.708	0.811
12-Nov-97	15.8	5	0.2534	-0.664	2.760	0.803
16-May-91	16	6	0.3082	-0.501	2.773	0.795
25-Jul-95	18	7	0.3630	-0.350	2.890	0.778
4-Oct-91	19	8	0.4178	-0.208	2.944	0.779
20-Jul-94	20	9	0.4726	-0.069	2.996	0.788
20-Jul-94	20	10	0.5274	0.069	2.996	0.807
11-Jul-95	20	11	0.5822	0.208	2.996	0.818
3-May-94	22.3	12	0.6370	0.350	3.105	0.817
23-May-95	23	13	0.6918	0.501	3.135	0.849
19-May-94	24	14	0.7466	0.664	3.178	0.889
15-Aug-94	24	15	0.8014	0.847	3.178	
15-Aug-94	24	16	0.8562	1.063	3.178	
9-May-95	37	17	0.9110	1.347	3.611	
15-Nov-98	74.4	18	0.9658	1.822	4.309	

update for EV, CV:

tPb		**NM295**			10	10.3
LN Analysis		**tPb**			0.91	0.907
Discharge, Q		**Q Data, EV=10.3 cfs CV=0.907**				
Avg:	**10**	**Q Data-based LN**				
SD:	**9**	u	lnQ	Q		
CV:	**0.91**	3	4.4	78		
Min:	**2**	0	2.03	8		
Max:	**32**	-3	-0.30	1		
Median:	**6**					

					0.930	0.93
					11.4	11.4
u=mLn{Q}+b:					1.34	1.34
update for r2, EV, CV:	**r2=0.93, EV=11.4 cfs CV=1.34; max r2=0.95**					
r2 u,lnQ:	0.930	u	lnQ	Q		
slope, m:	0.987	3	4.96	142		
intercept, b:	-1.893	0	1.92	7		
N: 18		-3	-1.12	0.3		
E[Q]:	11.4	Parameter Estimates				
SD[Q]:	15	from LN regression				
CV[Q]:	1.34	update graph label				

						max r2
	Q	N: 18				0.950
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	1.93	1	0.0342	-1.822	0.658	0.930
15-Aug-94	2.41	2	0.0890	-1.347	0.880	0.942
15-Nov-98	2.51	3	0.1438	-1.063	0.920	0.950
15-Aug-94	2.53	4	0.1986	-0.847	0.928	0.949
25-Jul-95	2.8	5	0.2534	-0.664	1.030	0.940
20-Jul-94	3.57	6	0.3082	-0.501	1.273	0.929
20-Jul-94	3.65	7	0.3630	-0.350	1.295	0.915
11-Jul-95	3.82	8	0.4178	-0.208	1.340	0.899
27-Jun-95	5.26	9	0.4726	-0.069	1.660	0.891
12-Nov-97	5.89	10	0.5274	0.069	1.773	0.875
7-Jun-94	8.14	11	0.5822	0.208	2.097	0.890
3-May-94	12.78	12	0.6370	0.350	2.548	0.914
19-May-94	14.91	13	0.6918	0.501	2.702	0.886
9-May-95	15.49	14	0.7466	0.664	2.740	0.862
12-Jun-95	16.75	15	0.8014	0.847	2.818	
23-May-95	19.6	16	0.8562	1.063	2.976	
16-May-91	31.2	17	0.9110	1.347	3.440	
15-May-98	31.5	18	0.9658	1.822	3.450	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM295 **Date:** 3-Jun-00
Chemical: tZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,750	10	2,947	116	0.00	0.00	0.00
SD:	673	9	2,333	74	1.00	1.00	1.00
CV:	0.02	0.91	0.79	0.64			
Min:	33,374	2	1,330	28.7	-0.90	-0.69	-1.19
Max:	36,114	32	12,100	266	2.28	3.92	2.02
Median:	34,695	6	2,610	107	-0.50	-0.14	-0.13

tZn NM295 **: Concentration v. Discharge, Q**

Conc. = mQ+b (r2=0.157)		update r2	0.16	0.157	**Q = mTime +b**		**LnQ = mTime +b**
r2 Q,[COC]:	0.16	[tZn]	Q		r2:	0.002	0.000002
slope, m:	-99.4	3,776	1.9		m:	-0.0006	-0.000002
intercept, b:	3967.8	2,947	10.3		b:	31	1.99
N: 18		836	32				
LnConc. = mLn{Q}+b (r2=0.416)		update r2	0.42	0.416			
r2 lnQ,ln[COC]:	0.42	ln[tZn]	ln Q	[tZn]	Q		
slope, m:	-0.34	8.26	0.66	3,879	2		
intercept, b:	8.49	7.69	2.33	2,191	10		
N: 18		7.31	3.45	1,494	32		

N= 18

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	tZn NM295 **Standardized Values = (x - Avg)/SD** Q	for graph 0 Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	31.2	1330	223	3.44	7.19	5.41	2.25	-0.69	1.44
MFG	4-Oct-91	1.93	2760	29	0.66	7.92	3.36	-0.90	-0.08	-1.19
IDEQ	3-May-94	12.78	2610	179	2.55	7.87	5.19	0.27	-0.14	0.85
IDEQ	19-May-94	14.91	1550	124	2.70	7.35	4.82	0.50	-0.60	0.11
IDEQ	7-Jun-94	8.14	2050	90	2.10	7.63	4.50	-0.23	-0.38	-0.36
IDEQ	20-Jul-94	3.57	2650	51	1.27	7.88	3.93	-0.72	-0.13	-0.89
IDEQ	20-Jul-94	3.65	2650	52	1.29	7.88	3.95	-0.71	-0.13	-0.87
IDEQ	15-Aug-94	2.53	3230	44	0.93	8.08	3.78	-0.83	0.12	-0.98
IDEQ	15-Aug-94	2.41	3230	42	0.88	8.08	3.73	-0.84	0.12	-1.01
IDEQ	9-May-95	15.49	2720	227	2.74	7.91	5.42	0.56	-0.10	1.49
IDEQ	23-May-95	19.6	1580	167	2.98	7.37	5.12	1.00	-0.59	0.68
IDEQ	12-Jun-95	16.75	1750	158	2.82	7.47	5.06	0.70	-0.51	0.56
IDEQ	27-Jun-95	5.26	1990	56	1.66	7.60	4.03	-0.54	-0.41	-0.81
IDEQ	11-Jul-95	3.82	2390	49	1.34	7.78	3.89	-0.69	-0.24	-0.91
IDEQ	25-Jul-95	2.8	2610	39	1.03	7.87	3.67	-0.80	-0.14	-1.04
URS	12-Nov-97	5.89	4280	136	1.77	8.36	4.91	-0.47	0.57	0.26
URS	15-May-98	31.5	1570	266	3.45	7.36	5.58	2.28	-0.59	2.02
URS	15-Nov-98	2.51	12100	163	0.92	9.40	5.10	-0.83	3.92	0.64

tZn

Concentration over time analysis r2 Slope, m

tZn NM295 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.233** **0.00035**

	Time	Ln[COC]	[COC]
first:	16-May-91	7.35	1,563
mid:	26-Dec-94	7.81	2,473
last:	15-Nov-98	8.31	4,049

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

Load over time analysis

tZn NM295 **Load over time**

LnLoad=mTime+b All data r2, m: **0.109** **0.00035**

	Time	LnLoad	Load
first:	16-May-91	4.05	57
mid:	26-Dec-94	4.51	91
last:	15-Nov-98	5.00	148

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
15-Nov-98	0.00	1

max r2: 0.407 max r2: 0.887

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.233	0.00035	-4.24	0.109	0.00035	-7.47
0.155	0.00031	-2.89	0.337	0.00067	-18.77
0.240	0.00046	-8.14	0.220	0.00059	-16.04
0.253	0.00048	-9.02	0.314	0.00070	-19.91
0.218	0.00044	-7.66	0.379	0.00078	-22.95
0.200	0.00044	-7.33	0.408	0.00084	-25.02
0.209	0.00046	-8.25	0.380	0.00082	-24.23
0.222	0.00050	-9.53	0.345	0.00079	-23.28
0.280	0.00059	-12.76	0.286	0.00071	-20.47
0.375	0.00073	-17.93	0.196	0.00058	-15.50
0.407	0.00079	-20.12	0.362	0.00076	-22.11
0.359	0.00075	-18.37	0.552	0.00095	-29.08
0.300	0.00069	-16.52	0.884	0.00125	-39.61
0.231	0.00065	-14.91	0.887	0.00133	-42.43

update for EV, CV:

tZn **NM295**

LN Analysis **tZn**

Load **Load Data, EV=116 lbs/day CV=0.636**

Load Data-based LN

		u	ln tZn Load	tZn Load
Avg:	**116**			
SD:	**74**	3	6.3	564
CV:	**0.64**	0	4.59	98
Min:	**28.7**	-3	2.84	17.1
Max:	**266**			
Median:	**107**			
		116	116	
		0.64	0.636	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.923, EV=126lbs/day CV=0.925; max r2=0.96**

r2 u,lnLoad:	0.923	u	lnLoad	Load	
slope, m:	1.272	3	6.88	977	
intercept, b:	-5.756	0	4.53	92	
N: 18		-3	2.17	8.7	
E[Load]:	125.8	Parameter Estimates			0.923
SD[Load]:	116	from LN regression			125.8
CV[Load]:	0.93	update graph label			0.9
					max r2
					0.955

N: 18

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	**29**	1	0.0342	-1.822	3.355	0.923
25-Jul-95	**39**	2	0.0890	-1.347	3.672	0.912
15-Aug-94	**42**	3	0.1438	-1.063	3.735	0.905
15-Aug-94	**44**	4	0.1986	-0.847	3.783	0.891
11-Jul-95	**49**	5	0.2534	-0.664	3.894	0.870
20-Jul-94	**51**	6	0.3082	-0.501	3.930	0.845
20-Jul-94	**52**	7	0.3630	-0.350	3.952	0.816
27-Jun-95	**56**	8	0.4178	-0.208	4.031	0.800
7-Jun-94	**90**	9	0.4726	-0.069	4.497	0.892
19-May-94	**124**	10	0.5274	0.069	4.823	0.955
12-Nov-97	**136**	11	0.5822	0.208	4.910	0.951
12-Jun-95	**158**	12	0.6370	0.350	5.061	0.945
15-Nov-98	**163**	13	0.6918	0.501	5.096	0.934
23-May-95	**167**	14	0.7466	0.664	5.116	0.911
3-May-94	**179**	15	0.8014	0.847	5.190	
16-May-91	**223**	16	0.8562	1.063	5.408	
9-May-95	**227**	17	0.9110	1.347	5.424	
15-May-98	**266**	18	0.9658	1.822	5.584	

update for EV, CV:

tZn		**NM295**		2,947	2950
LN Analysis		**tZn**		0.79	0.792
Concentration		**Conc. Data, EV=2950 ug/L CV=0.792**			
Avg:	**2,947**	**Data-based LN**			
SD:	**2,333**	u	ln[tZn]	[tZn]	
CV:	**0.79**	3	9.8	18733	
Min:	**1,330**	0	7.75	2311	
Max:	**12,100**	-3	5.65	285	
Median:	**2,610**				

				0.815	0.815
	u=mLn{Conc.}+b:			2972.3	2970
update for r2, EV, CV:	**r2=0.815, EV=2970 ug/L CV=0.624; max r2=0.88**			0.624	0.624
	r2 u,lnConc:	0.815	u	lnConc.	Conc.
	slope, m:	1.743	3	9.55	14099
	intercept, b:	-13.650	0	7.83	2521
	N: 18		-3	6.11	451
0.923	E[Conc]:	2972.3	Parameter Estimates		
126	SD[Conc]:	1856	from LN regression		
0.925	CV[Conc]:	0.62	update graph label		

						max r2
	tZn	N: 18				0.883
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
16-May-91	1330	1	0.0342	-1.822	7.193	0.815
19-May-94	1550	2	0.0890	-1.347	7.346	0.810
15-May-98	1570	3	0.1438	-1.063	7.359	0.810
23-May-95	1580	4	0.1986	-0.847	7.365	0.797
12-Jun-95	1750	5	0.2534	-0.664	7.467	0.773
27-Jun-95	1990	6	0.3082	-0.501	7.596	0.750
7-Jun-94	2050	7	0.3630	-0.350	7.626	0.737
11-Jul-95	2390	8	0.4178	-0.208	7.779	0.718
3-May-94	2610	9	0.4726	-0.069	7.867	0.726
25-Jul-95	2610	10	0.5274	0.069	7.867	0.759
20-Jul-94	2650	11	0.5822	0.208	7.882	0.791
20-Jul-94	2650	12	0.6370	0.350	7.882	0.825
9-May-95	2720	13	0.6918	0.501	7.908	0.854
4-Oct-91	2760	14	0.7466	0.664	7.923	0.883
15-Aug-94	3230	15	0.8014	0.847	8.080	
15-Aug-94	3230	16	0.8562	1.063	8.080	
12-Nov-97	4280	17	0.9110	1.347	8.362	
15-Nov-98	12100	18	0.9658	1.822	9.401	

update for EV, CV:

tZn		**NM295**			10	10.3
LN Analysis		**tZn**			0.91	0.907
Discharge, Q		**Q Data, EV=10.3 cfs CV=0.907**				
Avg:	**10**	**Q Data-based LN**				
SD:	**9**	u	lnQ	Q		
CV:	**0.91**	3	4.4	78		
Min:	**2**	0	2.03	8		
Max:	**32**	-3	-0.30	1		
Median:	**6**					

					0.930	0.93
					11.4	11.4
u=mLn{Q}+b:					1.34	1.34
update for r2, EV, CV:	**r2=0.93, EV=11.4 cfs CV=1.34; max r2=0.95**					
r2 u,lnQ:	0.930	u	lnQ	Q		
slope, m:	0.987	3	4.96	142		
intercept, b:	-1.893	0	1.92	7		
N: 18		-3	-1.12	0		
E[Q]:	11.4	Parameter Estimates				
SD[Q]:	15	from LN regression				
CV[Q]:	1.34	update graph label				

						max r2
	Q	N: 18				0.950
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	1.93	1	0.0342	-1.822	0.658	0.930
15-Aug-94	2.41	2	0.0890	-1.347	0.880	0.942
15-Nov-98	2.51	3	0.1438	-1.063	0.920	0.950
15-Aug-94	2.53	4	0.1986	-0.847	0.928	0.949
25-Jul-95	2.8	5	0.2534	-0.664	1.030	0.940
20-Jul-94	3.57	6	0.3082	-0.501	1.273	0.929
20-Jul-94	3.65	7	0.3630	-0.350	1.295	0.915
11-Jul-95	3.82	8	0.4178	-0.208	1.340	0.899
27-Jun-95	5.26	9	0.4726	-0.069	1.660	0.891
12-Nov-97	5.89	10	0.5274	0.069	1.773	0.875
7-Jun-94	8.14	11	0.5822	0.208	2.097	0.890
3-May-94	12.78	12	0.6370	0.350	2.548	0.914
19-May-94	14.91	13	0.6918	0.501	2.702	0.886
9-May-95	15.49	14	0.7466	0.664	2.740	0.862
12-Jun-95	16.75	15	0.8014	0.847	2.818	
23-May-95	19.6	16	0.8562	1.063	2.976	
16-May-91	31.2	17	0.9110	1.347	3.440	
15-May-98	31.5	18	0.9658	1.822	3.450	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM296 **Date:** 29-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,108	9	32	1	0.00	0.00	0.00	
SD:	612	7	14	1	1.00	1.00	1.00	
CV:	0.02	0.76	0.45	0.64				first:
Min:	33,374	1	7	0.3	-1.09	-1.74	-1.26	mid:
Max:	36,135	31	92	4	3.14	4.14	3.15	last:
Median:	35,042	7	32	1	-0.35	-0.02	-0.21	

dCd NM296 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.22) update r2

r2 Q,[COC]:	0.22	[dCd]	Q	r2:	0.037	0.009
slope, m:	-1.0	40	1.5	m:	-0.0022	-0.00011
intercept, b:	41.1	32	9.1	b:	86	5.85
N: 54		11	31			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.28) update r2

r2 lnQ,ln[COC]:	0.28	ln[dCd]	ln Q	[dCd]	Q
slope, m:	-0.37	3.94	0.39	52	1
intercept, b:	4.09	3.28	2.21	27	9
N: 54		2.83	3.43	17	31

for graph
dCd 0
NM296

N= 54

update for new data	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	30.9	7.2	1.2	3.43	1.97	0.18	3.14	-1.74	-0.15
MFG	4-Oct-91	1.48	31.6	0.3	0.39	3.45	-1.38	-1.09	-0.05	-1.26
IDEQ	6-Apr-94	19.24	35	3.6	2.96	3.56	1.29	1.46	0.19	2.68
IDEQ	3-May-94	16.55	28.3	2.5	2.81	3.34	0.92	1.07	-0.28	1.39
IDEQ	19-May-94	15.13	20	1.6	2.72	3.00	0.49	0.87	-0.86	0.35
IDEQ	7-Jun-94	10	26	1.4	2.30	3.26	0.34	0.13	-0.44	0.08
IDEQ	23-Jun-94	5.45	28	0.8	1.70	3.33	-0.20	-0.52	-0.30	-0.59
IDEQ	20-Jul-94	4.11	32	0.7	1.41	3.47	-0.35	-0.72	-0.02	-0.73
IDEQ	20-Jul-94	3.15	32	0.5	1.15	3.47	-0.61	-0.85	-0.02	-0.92
IDEQ	15-Aug-94	3.89	36	0.8	1.36	3.58	-0.28	-0.75	0.26	-0.67
IDEQ	15-Aug-94	12.31	36	2.4	2.51	3.58	0.87	0.46	0.26	1.23
IDEQ	8-Sep-94	3.29	36	0.6	1.19	3.58	-0.45	-0.83	0.26	-0.81
IDEQ	4-Oct-94	3.29	37	0.7	1.19	3.61	-0.42	-0.83	0.32	-0.79
IDEQ	15-Nov-94	3.57	54	1.0	1.27	3.99	0.04	-0.79	1.51	-0.34
IDEQ	13-Dec-94	3.57	57	1.1	1.27	4.04	0.09	-0.79	1.71	-0.27
IDEQ	9-Feb-95	5.61	58	1.8	1.72	4.06	0.56	-0.50	1.78	0.49
IDEQ	22-Mar-95	14.68	51	4.0	2.69	3.93	1.39	0.80	1.30	3.15
IDEQ	13-Apr-95	10	46	2.5	2.30	3.83	0.91	0.13	0.95	1.34
IDEQ	25-Apr-95	7.26	44	1.7	1.98	3.78	0.54	-0.26	0.81	0.46
IDEQ	9-May-95	20.44	18	2.0	3.02	2.89	0.68	1.63	-0.99	0.76
IDEQ	23-May-95	29.49	14	2.2	3.38	2.64	0.80	2.94	-1.27	1.04
IDEQ	12-Jun-95	7.69	13	0.5	2.04	2.56	-0.62	-0.20	-1.34	-0.93
IDEQ	27-Jun-95	6.47	18	0.6	1.87	2.89	-0.47	-0.38	-0.99	-0.82
IDEQ	11-Jul-95	4.23	23	0.5	1.44	3.14	-0.65	-0.70	-0.65	-0.94
IDEQ	25-Jul-95	3.68	28	0.6	1.30	3.33	-0.59	-0.78	-0.30	-0.91
IDEQ	18-Oct-95	5.01	46	1.2	1.61	3.83	0.22	-0.59	0.95	-0.10
IDEQ	21-Nov-95	13.4	26	1.9	2.60	3.26	0.63	0.62	-0.44	0.64
IDEQ	27-Dec-95	10.9	34	2.0	2.39	3.53	0.69	0.26	0.12	0.78
IDEQ	17-Jan-96	6.86	42	1.6	1.93	3.74	0.44	-0.32	0.67	0.26
IDEQ	28-Mar-96	8.39	27	1.2	2.13	3.30	0.20	-0.10	-0.37	-0.13
IDEQ	8-May-96	15.1	25	2.0	2.71	3.22	0.71	0.87	-0.51	0.82
IDEQ	19-Jun-96	19.2	12	1.2	2.95	2.48	0.21	1.46	-1.41	-0.10
IDEQ	24-Jul-96	5.01	24	0.6	1.61	3.18	-0.44	-0.59	-0.58	-0.80
IDEQ	21-Aug-96	4.6	29	0.7	1.53	3.37	-0.33	-0.65	-0.23	-0.71
IDEQ	27-Nov-96	3.11	43	0.7	1.13	3.76	-0.33	-0.86	0.74	-0.71
IDEQ	13-Dec-96	16.1	44	3.8	2.78	3.78	1.34	1.01	0.81	2.90
IDEQ	30-Jan-97	3.68	41	0.8	1.30	3.71	-0.21	-0.78	0.60	-0.60
IDEQ	19-Feb-97	5.01	38	1.0	1.61	3.64	0.02	-0.59	0.39	-0.36
IDEQ	26-Mar-97	11.9	39	2.5	2.48	3.66	0.92	0.40	0.46	1.36
IDEQ	16-Apr-97	7.48	33	1.3	2.01	3.50	0.28	-0.23	0.05	0.00
IDEQ	24-Jun-97	12.3	8	0.5	2.51	2.08	-0.64	0.46	-1.69	-0.93
IDEQ	23-Jul-97	7.06	15	0.6	1.95	2.71	-0.56	-0.29	-1.20	-0.89
URS	12-Nov-97	4.15	41.4	0.9	1.42	3.72	-0.08	-0.71	0.63	-0.47
IDEQ	26-Nov-97	3.2	34	0.6	1.16	3.53	-0.54	-0.85	0.12	-0.87
IDEQ	17-Dec-97	3.38	36	0.7	1.22	3.58	-0.42	-0.82	0.26	-0.79
IDEQ	25-Feb-98	7.48	32	1.3	2.01	3.47	0.25	-0.23	-0.02	-0.05
IDEQ	20-Mar-98	4.73	32	0.8	1.55	3.47	-0.21	-0.63	-0.02	-0.60

URS	16-May-98	28	11.9	1.8	3.33	2.48	0.58	2.72	-1.42	0.54
IDEQ	26-Jun-98	12.3	19	1.3	2.51	2.94	0.23	0.46	-0.92	-0.08
IDEQ	26-Jun-98	12.3	20	1.3	2.51	3.00	0.28	0.46	-0.86	-0.01
IDEQ	28-Jul-98	4.11	27	0.6	1.41	3.30	-0.52	-0.72	-0.37	-0.86
IDEQ	24-Sep-98	3.38	29	0.5	1.22	3.37	-0.64	-0.82	-0.23	-0.94
IDEQ	8-Oct-98	3.29	36	0.6	1.19	3.58	-0.45	-0.83	0.26	-0.81
URS	6-Dec-98	3.86	91.9	1.9	1.35	4.52	0.65	-0.75	4.14	0.68

dCd

Concentration over time analysis r2 Slope, m

dCd NM296 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.006** **0.00006**

Time	Ln[COC]	[COC]
16-May-91	3.26	26
9-Dec-95	3.37	29
6-Dec-98	3.44	31

LnConc.=mTime+b >'96 r2, m: **0.846** **0.00838**

26-Jun-98	2.90	18
6-Dec-98	4.27	71

Load over time analysis

dCd NM296 **Load over time**

LnLoad=mTime+b All data r2, m: **0.002** **-0.00005**

Time	LnLoad	Load
16-May-91	0.18	1.2
9-Dec-95	0.10	1.1
6-Dec-98	0.05	1.1

LnLoad=mTime+b >'96 r2, m: **0.067** **0.00229**

26-Jun-98	-0.31	0.7
6-Dec-98	0.06	1.1

max r2: 0.913 max r2: 0.173

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.006	0.00006	1.13	0.002	-0.00005	1.76
0.007	-0.00007	5.80	0.002	-0.00005	1.77
0.008	-0.00007	6.02	0.042	-0.00023	8.06
0.006	-0.00007	5.82	0.025	-0.00017	6.14
0.007	-0.00007	6.02	0.015	-0.00013	4.76
0.012	-0.00010	6.95	0.011	-0.00012	4.14
0.015	-0.00011	7.41	0.009	-0.00010	3.77
0.017	-0.00012	7.75	0.012	-0.00013	4.54
0.017	-0.00013	7.82	0.019	-0.00016	5.72
0.016	-0.00013	7.89	0.035	-0.00022	7.74
0.014	-0.00012	7.66	0.046	-0.00026	9.13
0.012	-0.00011	7.40	0.031	-0.00021	7.55
0.010	-0.00010	7.09	0.049	-0.00027	9.59
0.007	-0.00009	6.64	0.071	-0.00033	11.80
0.002	-0.00004	4.95	0.079	-0.00036	12.79
0.000	0.00001	2.84	0.085	-0.00038	13.70
0.005	0.00008	0.49	0.074	-0.00037	13.08
0.016	0.00014	-1.68	0.043	-0.00027	9.56
0.030	0.00020	-3.77	0.025	-0.00020	7.23
0.051	0.00026	-6.05	0.016	-0.00016	5.86
0.039	0.00024	-5.09	0.006	-0.00010	3.67
0.021	0.00017	-2.82	0.000	-0.00001	0.52
0.005	0.00009	0.28	0.005	-0.00010	3.53
0.000	0.00003	2.40	0.016	-0.00018	6.42
0.000	-0.00001	3.62	0.047	-0.00031	11.11
0.000	-0.00001	3.88	0.101	-0.00047	16.76
0.002	0.00007	0.86	0.101	-0.00049	17.67
0.002	0.00006	1.26	0.075	-0.00044	15.67
0.004	0.00010	-0.37	0.045	-0.00035	12.51
0.017	0.00022	-4.45	0.029	-0.00029	10.53
0.018	0.00024	-5.13	0.024	-0.00029	10.18
0.016	0.00024	-5.11	0.004	-0.00012	4.31
0.000	0.00000	3.39	0.001	-0.00006	2.22
0.001	-0.00007	5.98	0.010	-0.00022	7.70
0.002	-0.00009	6.77	0.028	-0.00039	13.85
0.000	0.00004	1.96	0.055	-0.00057	20.53
0.009	0.00024	-5.29	0.001	-0.00005	1.71
0.031	0.00047	-13.57	0.003	-0.00014	4.80
0.070	0.00077	-24.17	0.002	-0.00012	4.20
0.147	0.00122	-40.51	0.053	0.00058	-20.83
0.253	0.00183	-62.54	0.173	0.00117	-42.04
0.096	0.00107	-34.95	0.102	0.00098	-35.43
0.016	0.00049	-14.20	0.038	0.00069	-24.76
0.061	0.00104	-33.96	0.047	0.00085	-30.64
0.119	0.00168	-56.95	0.004	0.00027	-9.76
0.288	0.00320	-111.82	0.021	-0.00075	26.84
0.478	0.00488	-172.50	0.003	-0.00034	12.35

0.913	0.00855	-304.51	0.039	-0.00149	53.84
0.874	0.00825	-293.71	0.006	0.00064	-23.11
0.846	0.00838	-298.51	0.067	0.00229	-82.84

update for EV, CV:

dCd **NM296**
LN Analysis **dCd**

Load **Load Data, EV=1.3 lbs/day CV=.64**

Load Data-based LN

Avg:	**1.3**	u	ln dCd Load	dCd Load
SD:	**0.9**	3	1.9	7
CV:	**0.64**	0	0.11	1.1
Min:	**0.3**	-3	-1.65	0.2
Max:	**4.0**			
Median:	**1.1**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.965, EV=1.3 lbs/day CV=0.70; max r2=0.98**

r2 u,lnLoad:	0.965	u	lnLoad	Load
slope, m:	1.580	3	2.00	7
intercept, b:	-0.157	0	0.10	1
N: 54		-3	-1.80	0.2
E[Load]:	1.3	Parameter Estimates		
SD[Load]:	1	from LN regression		
CV[Load]:	0.70	update graph label		

Date	dCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 0.981 r2 forward
		N: 54				
update and rank for new data						
4-Oct-91	0.3	1	0.0115	-2.273	-1.380	0.965
11-Jul-95	0.5	2	0.0300	-1.881	-0.647	0.962
24-Sep-98	0.5	3	0.0484	-1.661	-0.640	0.970
24-Jun-97	0.5	4	0.0668	-1.500	-0.636	0.975
12-Jun-95	0.5	5	0.0853	-1.371	-0.620	0.978
20-Jul-94	0.5	6	0.1037	-1.261	-0.612	0.980
25-Jul-95	0.6	7	0.1221	-1.164	-0.590	0.981
23-Jul-97	0.6	8	0.1406	-1.078	-0.563	0.981
26-Nov-97	0.6	9	0.1590	-0.999	-0.536	0.981
28-Jul-98	0.6	10	0.1774	-0.925	-0.516	0.980
27-Jun-95	0.6	11	0.1959	-0.857	-0.468	0.980
8-Sep-94	0.6	12	0.2143	-0.792	-0.451	0.979
8-Oct-98	0.6	13	0.2327	-0.730	-0.451	0.978
24-Jul-96	0.6	14	0.2512	-0.671	-0.436	0.977
17-Dec-97	0.7	15	0.2696	-0.614	-0.424	0.975
4-Oct-94	0.7	16	0.2880	-0.559	-0.423	0.974
20-Jul-94	0.7	17	0.3065	-0.506	-0.346	0.973
21-Aug-96	0.7	18	0.3249	-0.454	-0.332	0.972
27-Nov-96	0.7	19	0.3433	-0.403	-0.329	0.971
15-Aug-94	0.8	20	0.3618	-0.354	-0.283	0.972
30-Jan-97	0.8	21	0.3802	-0.305	-0.209	0.972
20-Mar-98	0.8	22	0.3986	-0.257	-0.205	0.972
23-Jun-94	0.8	23	0.4171	-0.209	-0.197	0.973
12-Nov-97	0.9	24	0.4355	-0.162	-0.079	0.977
19-Feb-97	1.0	25	0.4539	-0.116	0.024	0.978
15-Nov-94	1.0	26	0.4724	-0.069	0.036	0.976
13-Dec-94	1.1	27	0.4908	-0.023	0.091	0.975
16-May-91	1.2	28	0.5092	0.023	0.180	0.974
28-Mar-96	1.2	29	0.5276	0.069	0.198	0.972
19-Jun-96	1.2	30	0.5461	0.116	0.215	0.971
18-Oct-95	1.2	31	0.5645	0.162	0.215	0.968
26-Jun-98	1.3	32	0.5829	0.209	0.229	0.966
25-Feb-98	1.3	33	0.6014	0.257	0.253	0.964
26-Jun-98	1.3	34	0.6198	0.305	0.280	0.961
16-Apr-97	1.3	35	0.6382	0.354	0.284	0.959
7-Jun-94	1.4	36	0.6567	0.403	0.336	0.958
17-Jan-96	1.6	37	0.6751	0.454	0.438	0.958
19-May-94	1.6	38	0.6935	0.506	0.487	0.953
25-Apr-95	1.7	39	0.7120	0.559	0.542	0.949
9-Feb-95	1.8	40	0.7304	0.614	0.560	0.945
16-May-98	1.8	41	0.7488	0.671	0.584	0.939
21-Nov-95	1.9	42	0.7673	0.730	0.628	0.933
6-Dec-98	1.9	43	0.7857	0.792	0.646	0.926
9-May-95	2.0	44	0.8041	0.857	0.683	0.917
27-Dec-95	2.0	45	0.8226	0.925	0.690	0.907
8-May-96	2.0	46	0.8410	0.999	0.709	0.890
23-May-95	2.2	47	0.8594	1.078	0.798	0.866

15-Aug-94	**2.4**	48	0.8779	1.164	0.869	0.836
13-Apr-95	**2.5**	49	0.8963	1.261	0.906	0.803
26-Mar-97	**2.5**	50	0.9147	1.371	0.915	0.750
3-May-94	**2.5**	51	0.9332	1.500	0.924	
6-Apr-94	**3.6**	52	0.9516	1.661	1.287	
13-Dec-96	**3.8**	53	0.9700	1.881	1.338	
22-Mar-95	**4.0**	54	0.9885	2.273	1.393	

update for EV, CV:

dCd
LN Analysis

NM296
dCd

Concentration

Conc. Data, EV=32 ug/L CV=.45

Data-based LN

		u	ln[dCd]	[dCd]
Avg:	**32**			
SD:	**14**			
CV:	**0.45**	3	4.7	106
Min:	**7**	0	3.39	30
Max:	**92**	-3	2.11	8
Median:	**32**			

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.942, EV=33.2 ug/L CV=.55; max r2=0.97**

r2 u,lnConc:	0.942	u	lnConc.	Conc.
slope, m:	1.947	3	4.91	136
intercept, b:	-6.560	0	3.37	29
N: 54		-3	1.83	6
E[Conc]:	33.2	Parameter Estimates		
SD[Conc]:	18	from LN regression		
CV[Conc]:	0.55	update graph label		

max r2
0.970

Date	dCd Concentration ug/L Ranked	i rank (N: 54)	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
16-May-91	7.2	1	0.0115	-2.273	1.974	0.942
24-Jun-97	8	2	0.0300	-1.881	2.079	0.941
16-May-98	11.9	3	0.0484	-1.661	2.477	0.951
19-Jun-96	12	4	0.0668	-1.500	2.485	0.949
12-Jun-95	13	5	0.0853	-1.371	2.565	0.951
23-May-95	14	6	0.1037	-1.261	2.639	0.954
23-Jul-97	15	7	0.1221	-1.164	2.708	0.959
9-May-95	18	8	0.1406	-1.078	2.890	0.965
27-Jun-95	18	9	0.1590	-0.999	2.890	0.964
26-Jun-98	19	10	0.1774	-0.925	2.944	0.965
19-May-94	20	11	0.1959	-0.857	2.996	0.966
26-Jun-98	20	12	0.2143	-0.792	2.996	0.967
11-Jul-95	23	13	0.2327	-0.730	3.135	0.970
24-Jul-96	24	14	0.2512	-0.671	3.178	0.968
8-May-96	25	15	0.2696	-0.614	3.219	0.967
7-Jun-94	26	16	0.2880	-0.559	3.258	0.965
21-Nov-95	26	17	0.3065	-0.506	3.258	0.963
28-Mar-96	27	18	0.3249	-0.454	3.296	0.961
28-Jul-98	27	19	0.3433	-0.403	3.296	0.959
23-Jun-94	28	20	0.3618	-0.354	3.332	0.957
25-Jul-95	28	21	0.3802	-0.305	3.332	0.955
3-May-94	28.3	22	0.3986	-0.257	3.343	0.952
21-Aug-96	29	23	0.4171	-0.209	3.367	0.949
24-Sep-98	29	24	0.4355	-0.162	3.367	0.946
4-Oct-91	31.6	25	0.4539	-0.116	3.453	0.943
20-Jul-94	32	26	0.4724	-0.069	3.466	0.943
20-Jul-94	32	27	0.4908	-0.023	3.466	0.943
25-Feb-98	32	28	0.5092	0.023	3.466	0.942
20-Mar-98	32	29	0.5276	0.069	3.466	0.940
16-Apr-97	33	30	0.5461	0.116	3.497	0.937
27-Dec-95	34	31	0.5645	0.162	3.526	0.935
26-Nov-97	34	32	0.5829	0.209	3.526	0.934
6-Apr-94	35	33	0.6014	0.257	3.555	0.932
15-Aug-94	36	34	0.6198	0.305	3.584	0.932
15-Aug-94	36	35	0.6382	0.354	3.584	0.934
8-Sep-94	36	36	0.6567	0.403	3.584	0.935
17-Dec-97	36	37	0.6751	0.454	3.584	0.934
8-Oct-98	36	38	0.6935	0.506	3.584	0.931
4-Oct-94	37	39	0.7120	0.559	3.611	0.925
19-Feb-97	38	40	0.7304	0.614	3.638	0.919
26-Mar-97	39	41	0.7488	0.671	3.664	0.913
30-Jan-97	41	42	0.7673	0.730	3.714	0.907
12-Nov-97	41.4	43	0.7857	0.792	3.723	0.909
17-Jan-96	42	44	0.8041	0.857	3.738	0.910
27-Nov-96	43	45	0.8226	0.925	3.761	0.909
25-Apr-95	44	46	0.8410	0.999	3.784	0.910
13-Dec-96	44	47	0.8594	1.078	3.784	0.912

13-Apr-95	46	48	0.8779	1.164	3.829	0.904
18-Oct-95	46	49	0.8963	1.261	3.829	0.899
22-Mar-95	51	50	0.9147	1.371	3.932	0.869
15-Nov-94	54	51	0.9332	1.500	3.989	
13-Dec-94	57	52	0.9516	1.661	4.043	
9-Feb-95	58	53	0.9700	1.881	4.060	
6-Dec-98	91.9	54	0.9885	2.273	4.521	

update for EV, CV:

dCd **NM296**

LN Analysis **dCd**

Discharge, Q **Q Data, EV=9 cfs CV=0.76**

Q Data-based LN

Avg:	**9**			
SD:	**7**	u	lnQ	Q
CV:	**0.76**	3	4.0	55
Min:	**1**	0	1.98	7
Max:	**31**	-3	-0.06	1
Median:	**7**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.952, EV=9.3 cfs CV=0.85; max r2=0.98**

r2 u,lnQ:	0.952	u	lnQ	Q
slope, m:	1.358	3	4.16	64
intercept, b:	-2.654	0	1.95	7
N:	54	-3	-0.26	0.8
E[Q]:	9.3	Parameter Estimates		
SD[Q]:	8	from LN regression		
CV[Q]:	0.85	update graph label		

N: 54 max r2 0.978

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	1.48	1	0.0115	-2.273	0.392	0.952
27-Nov-96	3.11	2	0.0300	-1.881	1.135	0.947
20-Jul-94	3.15	3	0.0484	-1.661	1.147	0.958
26-Nov-97	3.2	4	0.0668	-1.500	1.163	0.965
8-Sep-94	3.29	5	0.0853	-1.371	1.191	0.969
4-Oct-94	3.29	6	0.1037	-1.261	1.191	0.973
8-Oct-98	3.29	7	0.1221	-1.164	1.191	0.976
17-Dec-97	3.38	8	0.1406	-1.078	1.218	0.977
24-Sep-98	3.38	9	0.1590	-0.999	1.218	0.978
15-Nov-94	3.57	10	0.1774	-0.925	1.273	0.978
13-Dec-94	3.57	11	0.1959	-0.857	1.273	0.978
25-Jul-95	3.68	12	0.2143	-0.792	1.303	0.978
30-Jan-97	3.68	13	0.2327	-0.730	1.303	0.977
6-Dec-98	3.86	14	0.2512	-0.671	1.351	0.976
15-Aug-94	3.89	15	0.2696	-0.614	1.358	0.975
20-Jul-94	4.11	16	0.2880	-0.559	1.413	0.973
28-Jul-98	4.11	17	0.3065	-0.506	1.413	0.972
12-Nov-97	4.15	18	0.3249	-0.454	1.423	0.970
11-Jul-95	4.23	19	0.3433	-0.403	1.442	0.968
21-Aug-96	4.6	20	0.3618	-0.354	1.526	0.967
20-Mar-98	4.73	21	0.3802	-0.305	1.554	0.965
18-Oct-95	5.01	22	0.3986	-0.257	1.611	0.964
24-Jul-96	5.01	23	0.4171	-0.209	1.611	0.962
19-Feb-97	5.01	24	0.4355	-0.162	1.611	0.961
23-Jun-94	5.45	25	0.4539	-0.116	1.696	0.962
9-Feb-95	5.61	26	0.4724	-0.069	1.725	0.962
27-Jun-95	6.47	27	0.4908	-0.023	1.867	0.964
17-Jan-96	6.86	28	0.5092	0.023	1.926	0.962
23-Jul-97	7.06	29	0.5276	0.069	1.954	0.959
25-Apr-95	7.26	30	0.5461	0.116	1.982	0.957
16-Apr-97	7.48	31	0.5645	0.162	2.012	0.955
25-Feb-98	7.48	32	0.5829	0.209	2.012	0.954
12-Jun-95	7.69	33	0.6014	0.257	2.040	0.956
28-Mar-96	8.39	34	0.6198	0.305	2.127	0.963
7-Jun-94	10	35	0.6382	0.354	2.303	0.968
13-Apr-95	10	36	0.6567	0.403	2.303	0.965
27-Dec-95	10.9	37	0.6751	0.454	2.389	0.963
26-Mar-97	11.9	38	0.6935	0.506	2.477	0.959
24-Jun-97	12.3	39	0.7120	0.559	2.510	0.957
26-Jun-98	12.3	40	0.7304	0.614	2.510	0.955
26-Jun-98	12.3	41	0.7488	0.671	2.510	0.950
15-Aug-94	12.31	42	0.7673	0.730	2.510	0.943
21-Nov-95	13.4	43	0.7857	0.792	2.595	0.937
22-Mar-95	14.68	44	0.8041	0.857	2.686	0.928
8-May-96	15.1	45	0.8226	0.925	2.715	0.918
19-May-94	15.13	46	0.8410	0.999	2.717	0.905
13-Dec-96	16.1	47	0.8594	1.078	2.779	0.885

3-May-94	16.55	48	0.8779	1.164	2.806	0.856
19-Jun-96	19.2	49	0.8963	1.261	2.955	0.816
6-Apr-94	19.24	50	0.9147	1.371	2.957	0.759
9-May-95	20.44	51	0.9332	1.500	3.017	
16-May-98	28	52	0.9516	1.661	3.332	
23-May-95	29.49	53	0.9700	1.881	3.384	
16-May-91	30.9	54	0.9885	2.273	3.431	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM296 **Date:** 30-May-00
Chemical: dPb **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,108	9	65	3	0.00	0.00	0.00	
SD:	612	7	32	2	1.00	1.00	1.00	
CV:	0.02	0.76	0.49	0.72				first:
Min:	33,374	1	4	0.4	-1.09	-1.90	-1.21	mid:
Max:	36,135	31	156	11	3.14	2.83	4.20	last:
Median:	35,042	7	60	2	-0.35	-0.17	-0.20	

dPb NM296 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.21) update r2

r2 Q,[COC]:	0.21	[dPb]	Q	r2:	0.037	0.009
slope, m:	-2.1	81	1.5	m:	-0.0022	-0.00011
intercept, b:	84.1	65	9.1	b:	86	5.85
N: 54		19	31			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.27) update r2

r2 lnQ,ln[COC]:	0.27	ln[dPb]	ln Q	[dPb]	Q
slope, m:	-0.44	4.72	0.39	113	1
intercept, b:	4.90	3.92	2.21	50	9
N: 54		3.38	3.43	29	31

for graph
dPb 0
NM296

N= 54

update for new data	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	30.9	4	0.7	3.43	1.39	-0.41	3.14	-1.90	-1.04
MFG	4-Oct-91	1.48	44	0.4	0.39	3.78	-1.05	-1.09	-0.65	-1.21
IDEQ	6-Apr-94	19.24	102	10.6	2.96	4.62	2.36	1.46	1.15	4.20
IDEQ	3-May-94	16.55	64.3	5.7	2.81	4.16	1.74	1.07	-0.02	1.64
IDEQ	19-May-94	15.13	53	4.3	2.72	3.97	1.46	0.87	-0.37	0.89
IDEQ	7-Jun-94	10	70	3.8	2.30	4.25	1.33	0.13	0.15	0.60
IDEQ	23-Jun-94	5.45	85	2.5	1.70	4.44	0.91	-0.52	0.62	-0.08
IDEQ	20-Jul-94	4.11	108	2.4	1.41	4.68	0.87	-0.72	1.34	-0.13
IDEQ	20-Jul-94	3.15	108	1.8	1.15	4.68	0.60	-0.85	1.34	-0.43
IDEQ	15-Aug-94	3.89	117	2.4	1.36	4.76	0.90	-0.75	1.62	-0.10
IDEQ	15-Aug-94	12.31	117	7.7	2.51	4.76	2.05	0.46	1.62	2.71
IDEQ	8-Sep-94	3.29	127	2.2	1.19	4.84	0.81	-0.83	1.93	-0.21
IDEQ	4-Oct-94	3.29	99	1.8	1.19	4.60	0.56	-0.83	1.06	-0.47
IDEQ	15-Nov-94	3.57	154	3.0	1.27	5.04	1.08	-0.79	2.77	0.17
IDEQ	13-Dec-94	3.57	156	3.0	1.27	5.05	1.10	-0.79	2.83	0.19
IDEQ	9-Feb-95	5.61	102	3.1	1.72	4.62	1.12	-0.50	1.15	0.23
IDEQ	22-Mar-95	14.68	72	5.7	2.69	4.28	1.74	0.80	0.22	1.62
IDEQ	13-Apr-95	10	64	3.4	2.30	4.16	1.24	0.13	-0.03	0.43
IDEQ	25-Apr-95	7.26	64	2.5	1.98	4.16	0.92	-0.26	-0.03	-0.07
IDEQ	9-May-95	20.44	37	4.1	3.02	3.61	1.40	1.63	-0.87	0.76
IDEQ	23-May-95	29.49	30	4.8	3.38	3.40	1.56	2.94	-1.09	1.12
IDEQ	12-Jun-95	7.69	34	1.4	2.04	3.53	0.34	-0.20	-0.97	-0.65
IDEQ	27-Jun-95	6.47	48	1.7	1.87	3.87	0.51	-0.38	-0.53	-0.51
IDEQ	11-Jul-95	4.23	44	1.0	1.44	3.78	0.00	-0.70	-0.65	-0.87
IDEQ	25-Jul-95	3.68	59	1.2	1.30	4.08	0.16	-0.78	-0.19	-0.78
IDEQ	18-Oct-95	5.01	84	2.3	1.61	4.43	0.82	-0.59	0.59	-0.20
IDEQ	21-Nov-95	13.4	50	3.6	2.60	3.91	1.28	0.62	-0.47	0.51
IDEQ	27-Dec-95	10.9	55	3.2	2.39	4.01	1.17	0.26	-0.31	0.31
IDEQ	17-Jan-96	6.86	72	2.7	1.93	4.28	0.98	-0.32	0.22	0.01
IDEQ	28-Mar-96	8.39	50	2.3	2.13	3.91	0.81	-0.10	-0.47	-0.20
IDEQ	8-May-96	15.1	37	3.0	2.71	3.61	1.10	0.87	-0.87	0.20
IDEQ	19-Jun-96	19.2	26	2.7	2.95	3.26	0.99	1.46	-1.21	0.03
IDEQ	24-Jul-96	5.01	41	1.1	1.61	3.71	0.10	-0.59	-0.75	-0.81
IDEQ	21-Aug-96	4.6	60	1.5	1.53	4.09	0.40	-0.65	-0.16	-0.61
IDEQ	27-Nov-96	3.11	84	1.4	1.13	4.43	0.34	-0.86	0.59	-0.65
IDEQ	13-Dec-96	16.1	85	7.4	2.78	4.44	2.00	1.01	0.62	2.50
IDEQ	30-Jan-97	3.68	66	1.3	1.30	4.19	0.27	-0.78	0.03	-0.70
IDEQ	19-Feb-97	5.01	58	1.6	1.61	4.06	0.45	-0.59	-0.22	-0.57
IDEQ	26-Mar-97	11.9	55	3.5	2.48	4.01	1.26	0.40	-0.31	0.47
IDEQ	16-Apr-97	7.48	46	1.9	2.01	3.83	0.62	-0.23	-0.59	-0.42
IDEQ	24-Jun-97	12.3	20	1.3	2.51	3.00	0.28	0.46	-1.40	-0.69
IDEQ	23-Jul-97	7.06	32	1.2	1.95	3.47	0.20	-0.29	-1.03	-0.75
URS	12-Nov-97	4.15	68.3	1.5	1.42	4.22	0.42	-0.71	0.10	-0.59
IDEQ	26-Nov-97	3.2	62	1.1	1.16	4.13	0.07	-0.85	-0.09	-0.83
IDEQ	17-Dec-97	3.38	60	1.1	1.22	4.09	0.09	-0.82	-0.16	-0.82
IDEQ	25-Feb-98	7.48	56	2.3	2.01	4.03	0.81	-0.23	-0.28	-0.20
IDEQ	20-Mar-98	4.73	58	1.5	1.55	4.06	0.39	-0.63	-0.22	-0.61

URS	16-May-98	28	21.3	3.2	3.33	3.06	1.17	2.72	-1.36	0.30
IDEQ	26-Jun-98	12.3	30	2.0	2.51	3.40	0.69	0.46	-1.09	-0.34
IDEQ	26-Jun-98	12.3	32	2.1	2.51	3.47	0.75	0.46	-1.03	-0.27
IDEQ	28-Jul-98	4.11	35	0.8	1.41	3.56	-0.26	-0.72	-0.93	-0.99
IDEQ	24-Sep-98	3.38	53	1.0	1.22	3.97	-0.04	-0.82	-0.37	-0.89
IDEQ	8-Oct-98	3.29	64	1.1	1.19	4.16	0.12	-0.83	-0.03	-0.80
URS	6-Dec-98	3.86	89.8	1.9	1.35	4.50	0.62	-0.75	0.77	-0.41

dPb

Concentration over time analysis r2 Slope, m

dPb NM296 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.004** **-0.00006**

Time	Ln[COC]	[COC]
16-May-91	4.13	62
9-Dec-95	4.04	57
6-Dec-98	3.97	53

LnConc.=mTime+b >'96 r2, m: **0.983** **0.00666**

26-Jun-98	3.41	30
6-Dec-98	4.50	90

Load over time analysis

dPb NM296 **Load over time**

LnLoad=mTime+b All data r2, m: **0.026** **-0.00017**

Time	LnLoad	Load
16-May-91	1.06	3
9-Dec-95	0.77	2
6-Dec-98	0.59	2

LnLoad=mTime+b >'96 r2, m: **0.007** **0.00057**

26-Jun-98	0.20	1
6-Dec-98	0.29	1

max r2: 0.989 max r2: 0.291

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.004	-0.00006	6.07	0.026	-0.00017	6.70
0.167	-0.00034	16.05	0.085	-0.00032	12.02
0.235	-0.00044	19.50	0.291	-0.00059	21.53
0.220	-0.00043	19.09	0.262	-0.00053	19.41
0.224	-0.00044	19.54	0.238	-0.00050	18.28
0.240	-0.00046	20.42	0.219	-0.00048	17.61
0.241	-0.00047	20.77	0.203	-0.00047	17.13
0.232	-0.00047	20.72	0.204	-0.00048	17.50
0.212	-0.00045	20.08	0.206	-0.00049	17.98
0.191	-0.00043	19.34	0.225	-0.00052	19.19
0.166	-0.00040	18.29	0.227	-0.00054	19.76
0.139	-0.00037	17.07	0.187	-0.00047	17.22
0.109	-0.00032	15.41	0.192	-0.00049	17.91
0.087	-0.00029	14.26	0.214	-0.00053	19.42
0.052	-0.00022	11.55	0.204	-0.00053	19.39
0.021	-0.00013	8.41	0.192	-0.00053	19.27
0.006	-0.00007	6.36	0.178	-0.00052	18.95
0.002	-0.00004	5.24	0.141	-0.00045	16.47
0.000	-0.00001	4.37	0.120	-0.00042	15.37
0.000	0.00001	3.35	0.112	-0.00041	15.27
0.000	-0.00001	4.38	0.082	-0.00035	13.14
0.006	-0.00007	6.54	0.047	-0.00026	9.88
0.017	-0.00013	8.52	0.064	-0.00032	11.77
0.020	-0.00015	9.14	0.073	-0.00035	13.16
0.029	-0.00018	10.42	0.132	-0.00049	17.91
0.023	-0.00017	10.10	0.202	-0.00063	22.97
0.007	-0.00009	7.26	0.202	-0.00066	24.07
0.007	-0.00010	7.47	0.160	-0.00060	21.88
0.004	-0.00009	6.95	0.123	-0.00054	19.82
0.000	0.00000	3.77	0.099	-0.00051	18.74
0.000	0.00002	3.32	0.087	-0.00051	18.62
0.001	-0.00006	5.87	0.054	-0.00041	15.28
0.028	-0.00026	13.19	0.030	-0.00032	12.01
0.049	-0.00037	17.11	0.068	-0.00051	18.84
0.040	-0.00036	16.81	0.093	-0.00065	23.89
0.012	-0.00020	11.16	0.127	-0.00082	29.73
0.000	0.00003	2.82	0.021	-0.00026	9.82
0.011	0.00021	-3.75	0.040	-0.00040	14.62
0.034	0.00040	-10.68	0.049	-0.00048	17.68
0.071	0.00065	-19.57	0.000	0.00001	0.11
0.102	0.00090	-28.42	0.010	0.00023	-7.92
0.010	0.00028	-6.05	0.005	0.00019	-6.53
0.005	-0.00023	12.08	0.000	-0.00003	1.52
0.003	0.00018	-2.47	0.000	-0.00001	0.85
0.036	0.00075	-23.24	0.026	-0.00065	23.94
0.160	0.00193	-65.65	0.173	-0.00202	73.01
0.367	0.00341	-119.15	0.107	-0.00181	65.70

0.989	0.00691	-245.12	0.198	-0.00313	113.24
0.987	0.00669	-237.18	0.020	-0.00092	33.42
0.983	0.00666	-236.02	0.007	0.00057	-20.35

update for EV, CV:

dPb **NM296**

LN Analysis **dPb**

Load **Load Data, EV=3 lbs/day CV=.72**

Load Data-based LN

		u	ln dPb Load	dPb Load
Avg:	**3**			
SD:	**2**	3	2.7	15
CV:	**0.72**	0	0.76	2
Min:	**0.4**	-3	-1.17	0.3
Max:	**11**			
Median:	**2**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.987, EV=2.7 lbs/day CV=0.74; max r2=0.99**

r2 u,lnLoad:	0.987	u	lnLoad	Load
slope, m:	1.512	3	2.75	16
intercept, b:	-1.153	0	0.76	2
N: 54		-3	-1.22	0.3
E[Load]:	2.7	Parameter Estimates		
SD[Load]:	2	from LN regression		
CV[Load]:	0.74	update graph label		

N: 54

max r2 0.992

Date	dPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	**0.4**	1	0.0115	-2.273	-1.049	0.987
16-May-91	**0.7**	2	0.0300	-1.881	-0.408	0.991
28-Jul-98	**0.8**	3	0.0484	-1.661	-0.256	0.990
24-Sep-98	**1.0**	4	0.0668	-1.500	-0.037	0.990
11-Jul-95	**1.0**	5	0.0853	-1.371	0.001	0.991
26-Nov-97	**1.1**	6	0.1037	-1.261	0.065	0.991
17-Dec-97	**1.1**	7	0.1221	-1.164	0.087	0.992
24-Jul-96	**1.1**	8	0.1406	-1.078	0.100	0.992
8-Oct-98	**1.1**	9	0.1590	-0.999	0.125	0.992
25-Jul-95	**1.2**	10	0.1774	-0.925	0.155	0.992
23-Jul-97	**1.2**	11	0.1959	-0.857	0.195	0.992
30-Jan-97	**1.3**	12	0.2143	-0.792	0.268	0.991
24-Jun-97	**1.3**	13	0.2327	-0.730	0.280	0.991
27-Nov-96	**1.4**	14	0.2512	-0.671	0.340	0.990
12-Jun-95	**1.4**	15	0.2696	-0.614	0.341	0.990
20-Mar-98	**1.5**	16	0.2880	-0.559	0.389	0.990
21-Aug-96	**1.5**	17	0.3065	-0.506	0.395	0.989
12-Nov-97	**1.5**	18	0.3249	-0.454	0.422	0.989
19-Feb-97	**1.6**	19	0.3433	-0.403	0.447	0.988
27-Jun-95	**1.7**	20	0.3618	-0.354	0.513	0.987
4-Oct-94	**1.8**	21	0.3802	-0.305	0.561	0.986
20-Jul-94	**1.8**	22	0.3986	-0.257	0.604	0.986
16-Apr-97	**1.9**	23	0.4171	-0.209	0.616	0.985
6-Dec-98	**1.9**	24	0.4355	-0.162	0.623	0.984
26-Jun-98	**2.0**	25	0.4539	-0.116	0.686	0.983
26-Jun-98	**2.1**	26	0.4724	-0.069	0.750	0.982
8-Sep-94	**2.2**	27	0.4908	-0.023	0.810	0.982
25-Feb-98	**2.3**	28	0.5092	0.023	0.813	0.984
28-Mar-96	**2.3**	29	0.5276	0.069	0.814	0.985
18-Oct-95	**2.3**	30	0.5461	0.116	0.817	0.985
20-Jul-94	**2.4**	31	0.5645	0.162	0.870	0.984
15-Aug-94	**2.4**	32	0.5829	0.209	0.896	0.984
23-Jun-94	**2.5**	33	0.6014	0.257	0.913	0.984
25-Apr-95	**2.5**	34	0.6198	0.305	0.916	0.983
17-Jan-96	**2.7**	35	0.6382	0.354	0.977	0.982
19-Jun-96	**2.7**	36	0.6567	0.403	0.988	0.981
15-Nov-94	**3.0**	37	0.6751	0.454	1.084	0.980
13-Dec-94	**3.0**	38	0.6935	0.506	1.097	0.983
8-May-96	**3.0**	39	0.7120	0.559	1.101	0.985
9-Feb-95	**3.1**	40	0.7304	0.614	1.124	0.985
16-May-98	**3.2**	41	0.7488	0.671	1.166	0.985
27-Dec-95	**3.2**	42	0.7673	0.730	1.171	0.985
13-Apr-95	**3.4**	43	0.7857	0.792	1.236	0.984
26-Mar-97	**3.5**	44	0.8041	0.857	1.259	0.983
21-Nov-95	**3.6**	45	0.8226	0.925	1.282	0.981
7-Jun-94	**3.8**	46	0.8410	0.999	1.326	0.977
9-May-95	**4.1**	47	0.8594	1.078	1.403	0.973

19-May-94	**4.3**	48	0.8779	1.164	1.462	0.967
23-May-95	**4.8**	49	0.8963	1.261	1.560	0.963
22-Mar-95	**5.7**	50	0.9147	1.371	1.738	0.958
3-May-94	**5.7**	51	0.9332	1.500	1.745	
13-Dec-96	**7.4**	52	0.9516	1.661	1.996	
15-Aug-94	**7.7**	53	0.9700	1.881	2.048	
6-Apr-94	**10.6**	54	0.9885	2.273	2.357	

update for EV, CV:

dPb
LN Analysis

Concentration

Avg:	**65**
SD:	**32**
CV:	**0.49**
Min:	**4**
Max:	**156**
Median:	**60**

NM296
dPb
Conc. Data, EV=65 ug/L CV=.49
Data-based LN

u	ln[dPb]	[dPb]
3	5.5	237
0	4.07	58
-3	2.66	14

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.884, EV=69.7 ug/L CV=0.72; max r2=0.99**

r2 u,lnConc:	0.884	u	lnConc.	Conc.
slope, m:	1.541	3	5.98	396
intercept, b:	-6.214	0	4.03	56
N: 54		-3	2.09	8
E[Conc]:	69.7	Parameter Estimates		
SD[Conc]:	50	from LN regression		
CV[Conc]:	0.72	update graph label		

N: 54

max r2
0.988

Date	dPb Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
16-May-91	4	1	0.0115	-2.273	1.386	0.884
24-Jun-97	20	2	0.0300	-1.881	2.996	0.986
16-May-98	21.3	3	0.0484	-1.661	3.059	0.986
19-Jun-96	26	4	0.0668	-1.500	3.258	0.988
23-May-95	30	5	0.0853	-1.371	3.401	0.987
26-Jun-98	30	6	0.1037	-1.261	3.401	0.987
23-Jul-97	32	7	0.1221	-1.164	3.466	0.986
26-Jun-98	32	8	0.1406	-1.078	3.466	0.985
12-Jun-95	34	9	0.1590	-0.999	3.526	0.985
28-Jul-98	35	10	0.1774	-0.925	3.555	0.985
9-May-95	37	11	0.1959	-0.857	3.611	0.985
8-May-96	37	12	0.2143	-0.792	3.611	0.985
24-Jul-96	41	13	0.2327	-0.730	3.714	0.986
4-Oct-91	44	14	0.2512	-0.671	3.784	0.985
11-Jul-95	44	15	0.2696	-0.614	3.784	0.984
16-Apr-97	46	16	0.2880	-0.559	3.829	0.983
27-Jun-95	48	17	0.3065	-0.506	3.871	0.982
21-Nov-95	50	18	0.3249	-0.454	3.912	0.981
28-Mar-96	50	19	0.3433	-0.403	3.912	0.981
19-May-94	53	20	0.3618	-0.354	3.970	0.980
24-Sep-98	53	21	0.3802	-0.305	3.970	0.979
27-Dec-95	55	22	0.3986	-0.257	4.007	0.979
26-Mar-97	55	23	0.4171	-0.209	4.007	0.978
25-Feb-98	56	24	0.4355	-0.162	4.025	0.977
19-Feb-97	58	25	0.4539	-0.116	4.060	0.976
20-Mar-98	58	26	0.4724	-0.069	4.060	0.976
25-Jul-95	59	27	0.4908	-0.023	4.078	0.975
21-Aug-96	60	28	0.5092	0.023	4.094	0.974
17-Dec-97	60	29	0.5276	0.069	4.094	0.972
26-Nov-97	62	30	0.5461	0.116	4.127	0.970
13-Apr-95	64	31	0.5645	0.162	4.159	0.968
25-Apr-95	64	32	0.5829	0.209	4.159	0.966
8-Oct-98	64	33	0.6014	0.257	4.159	0.963
3-May-94	64.3	34	0.6198	0.305	4.164	0.960
30-Jan-97	66	35	0.6382	0.354	4.190	0.958
12-Nov-97	68.3	36	0.6567	0.403	4.224	0.956
7-Jun-94	70	37	0.6751	0.454	4.248	0.953
22-Mar-95	72	38	0.6935	0.506	4.277	0.952
17-Jan-96	72	39	0.7120	0.559	4.277	0.951
18-Oct-95	84	40	0.7304	0.614	4.431	0.961
27-Nov-96	84	41	0.7488	0.671	4.431	0.957
23-Jun-94	85	42	0.7673	0.730	4.443	0.952
13-Dec-96	85	43	0.7857	0.792	4.443	0.946
6-Dec-98	89.8	44	0.8041	0.857	4.498	0.946
4-Oct-94	99	45	0.8226	0.925	4.595	0.944
6-Apr-94	102	46	0.8410	0.999	4.625	0.936
9-Feb-95	102	47	0.8594	1.078	4.625	0.928

20-Jul-94	108	48	0.8779	1.164	4.682	0.910
20-Jul-94	108	49	0.8963	1.261	4.682	0.892
15-Aug-94	117	50	0.9147	1.371	4.762	0.851
15-Aug-94	117	51	0.9332	1.500	4.762	
8-Sep-94	127	52	0.9516	1.661	4.844	
15-Nov-94	154	53	0.9700	1.881	5.037	
13-Dec-94	156	54	0.9885	2.273	5.050	

update for EV, CV:

dPb
LN Analysis

NM296
dPb

Discharge, Q

Q Data, EV=9 cfs CV=0.76
Q Data-based LN

		u	lnQ	Q
Avg:	**9**			
SD:	**7**			
CV:	**0.76**	3	4.0	55
Min:	**1**	0	1.98	7
Max:	**31**	-3	-0.06	1
Median:	**7**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.952, EV=9.3 cfs CV=0.85; max r2=0.98**

r2 u,lnQ:	0.952	u	lnQ	Q
slope, m:	1.358	3	4.16	64
intercept, b:	-2.654	0	1.95	7
N: 54		-3	-0.26	0.8
E[Q]:	9.3	Parameter Estimates		
SD[Q]:	8	from LN regression		
CV[Q]:	0.85	update graph label		

N: 54

max r2
0.978

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	1.48	1	0.0115	-2.273	0.392	0.952
27-Nov-96	3.11	2	0.0300	-1.881	1.135	0.947
20-Jul-94	3.15	3	0.0484	-1.661	1.147	0.958
26-Nov-97	3.2	4	0.0668	-1.500	1.163	0.965
8-Sep-94	3.29	5	0.0853	-1.371	1.191	0.969
4-Oct-94	3.29	6	0.1037	-1.261	1.191	0.973
8-Oct-98	3.29	7	0.1221	-1.164	1.191	0.976
17-Dec-97	3.38	8	0.1406	-1.078	1.218	0.977
24-Sep-98	3.38	9	0.1590	-0.999	1.218	0.978
15-Nov-94	3.57	10	0.1774	-0.925	1.273	0.978
13-Dec-94	3.57	11	0.1959	-0.857	1.273	0.978
25-Jul-95	3.68	12	0.2143	-0.792	1.303	0.978
30-Jan-97	3.68	13	0.2327	-0.730	1.303	0.977
6-Dec-98	3.86	14	0.2512	-0.671	1.351	0.976
15-Aug-94	3.89	15	0.2696	-0.614	1.358	0.975
20-Jul-94	4.11	16	0.2880	-0.559	1.413	0.973
28-Jul-98	4.11	17	0.3065	-0.506	1.413	0.972
12-Nov-97	4.15	18	0.3249	-0.454	1.423	0.970
11-Jul-95	4.23	19	0.3433	-0.403	1.442	0.968
21-Aug-96	4.6	20	0.3618	-0.354	1.526	0.967
20-Mar-98	4.73	21	0.3802	-0.305	1.554	0.965
18-Oct-95	5.01	22	0.3986	-0.257	1.611	0.964
24-Jul-96	5.01	23	0.4171	-0.209	1.611	0.962
19-Feb-97	5.01	24	0.4355	-0.162	1.611	0.961
23-Jun-94	5.45	25	0.4539	-0.116	1.696	0.962
9-Feb-95	5.61	26	0.4724	-0.069	1.725	0.962
27-Jun-95	6.47	27	0.4908	-0.023	1.867	0.964
17-Jan-96	6.86	28	0.5092	0.023	1.926	0.962
23-Jul-97	7.06	29	0.5276	0.069	1.954	0.959
25-Apr-95	7.26	30	0.5461	0.116	1.982	0.957
16-Apr-97	7.48	31	0.5645	0.162	2.012	0.955
25-Feb-98	7.48	32	0.5829	0.209	2.012	0.954
12-Jun-95	7.69	33	0.6014	0.257	2.040	0.956
28-Mar-96	8.39	34	0.6198	0.305	2.127	0.963
7-Jun-94	10	35	0.6382	0.354	2.303	0.968
13-Apr-95	10	36	0.6567	0.403	2.303	0.965
27-Dec-95	10.9	37	0.6751	0.454	2.389	0.963
26-Mar-97	11.9	38	0.6935	0.506	2.477	0.959
24-Jun-97	12.3	39	0.7120	0.559	2.510	0.957
26-Jun-98	12.3	40	0.7304	0.614	2.510	0.955
26-Jun-98	12.3	41	0.7488	0.671	2.510	0.950
15-Aug-94	12.31	42	0.7673	0.730	2.510	0.943
21-Nov-95	13.4	43	0.7857	0.792	2.595	0.937
22-Mar-95	14.68	44	0.8041	0.857	2.686	0.928
8-May-96	15.1	45	0.8226	0.925	2.715	0.918
19-May-94	15.13	46	0.8410	0.999	2.717	0.905
13-Dec-96	16.1	47	0.8594	1.078	2.779	0.885

3-May-94	16.55	48	0.8779	1.164	2.806	0.856
19-Jun-96	19.2	49	0.8963	1.261	2.955	0.816
6-Apr-94	19.24	50	0.9147	1.371	2.957	0.759
9-May-95	20.44	51	0.9332	1.500	3.017	
16-May-98	28	52	0.9516	1.661	3.332	
23-May-95	29.49	53	0.9700	1.881	3.384	
16-May-91	30.9	54	0.9885	2.273	3.431	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM296 **Date:** 29-May-00
Chemical: dZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	35,108	9	5,979	247	0.00	0.00	0.00		
SD:	612	7	2,800	165	1.00	1.00	1.00		
CV:	0.02	0.76	0.47	0.67					first:
Min:	33,374	1	1,500	51	-1.09	-1.60	-1.19		mid:
Max:	36,135	31	17,100	761	3.14	3.97	3.12		last:
Median:	35,042	7	5,900	199	-0.35	-0.03	-0.29		

dZn NM296 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.18) update r2

r2 Q,[COC]:	0.18	[dZn]	Q	r2:	0.037	0.009
slope, m:	-173.3	7,298	1.5	m:	-0.0022	-0.00011
intercept, b:	7554.4	5,979	9.1	b:	86	5.85
N: 54		2,200	31			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.26) update r2

r2 lnQ,ln[COC]:	0.26	ln[dZn]	ln Q	[dZn]	Q
slope, m:	-0.35	9.13	0.39	9,233	1
intercept, b:	9.27	8.50	2.21	4,913	9
N: 54		8.07	3.43	3,210	31

for graph
dZn 0
NM296

N= 54

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	30.9	2190	364	3.43	7.69	5.90	3.14	-1.35	0.71
MFG	4-Oct-91	1.48	6450	51	0.39	8.77	3.94	-1.09	0.17	-1.19
IDEQ	6-Apr-94	19.24	6680	691	2.96	8.81	6.54	1.46	0.25	2.70
IDEQ	3-May-94	16.55	3970	353	2.81	8.29	5.87	1.07	-0.72	0.65
IDEQ	19-May-94	15.13	2630	214	2.72	7.87	5.37	0.87	-1.20	-0.20
IDEQ	7-Jun-94	10	3640	196	2.30	8.20	5.28	0.13	-0.84	-0.31
IDEQ	23-Jun-94	5.45	4270	125	1.70	8.36	4.83	-0.52	-0.61	-0.74
IDEQ	20-Jul-94	4.11	5060	112	1.41	8.53	4.72	-0.72	-0.33	-0.82
IDEQ	20-Jul-94	3.15	5060	86	1.15	8.53	4.45	-0.85	-0.33	-0.98
IDEQ	15-Aug-94	3.89	5960	125	1.36	8.69	4.83	-0.75	-0.01	-0.75
IDEQ	15-Aug-94	12.31	5960	395	2.51	8.69	5.98	0.46	-0.01	0.90
IDEQ	8-Sep-94	3.29	6010	106	1.19	8.70	4.67	-0.83	0.01	-0.86
IDEQ	4-Oct-94	3.29	6930	123	1.19	8.84	4.81	-0.83	0.34	-0.76
IDEQ	15-Nov-94	3.57	9620	185	1.27	9.17	5.22	-0.79	1.30	-0.38
IDEQ	13-Dec-94	3.57	11800	227	1.27	9.38	5.42	-0.79	2.08	-0.13
IDEQ	9-Feb-95	5.61	11100	335	1.72	9.31	5.81	-0.50	1.83	0.53
IDEQ	22-Mar-95	14.68	9630	761	2.69	9.17	6.63	0.80	1.30	3.12
IDEQ	13-Apr-95	10	9140	492	2.30	9.12	6.20	0.13	1.13	1.49
IDEQ	25-Apr-95	7.26	9180	359	1.98	9.12	5.88	-0.26	1.14	0.68
IDEQ	9-May-95	20.44	3250	357	3.02	8.09	5.88	1.63	-0.97	0.67
IDEQ	23-May-95	29.49	2270	360	3.38	7.73	5.89	2.94	-1.32	0.69
IDEQ	12-Jun-95	7.69	2800	116	2.04	7.94	4.75	-0.20	-1.14	-0.80
IDEQ	27-Jun-95	6.47	3650	127	1.87	8.20	4.84	-0.38	-0.83	-0.73
IDEQ	11-Jul-95	4.23	4360	99	1.44	8.38	4.60	-0.70	-0.58	-0.90
IDEQ	25-Jul-95	3.68	5120	101	1.30	8.54	4.62	-0.78	-0.31	-0.89
IDEQ	18-Oct-95	5.01	8350	225	1.61	9.03	5.42	-0.59	0.85	-0.14
IDEQ	21-Nov-95	13.4	5180	373	2.60	8.55	5.92	0.62	-0.29	0.77
IDEQ	27-Dec-95	10.9	6180	362	2.39	8.73	5.89	0.26	0.07	0.70
IDEQ	17-Jan-96	6.86	6730	248	1.93	8.81	5.51	-0.32	0.27	0.01
IDEQ	28-Mar-96	8.39	5250	237	2.13	8.57	5.47	-0.10	-0.26	-0.06
IDEQ	8-May-96	15.1	4760	387	2.71	8.47	5.96	0.87	-0.44	0.85
IDEQ	19-Jun-96	19.2	1960	202	2.95	7.58	5.31	1.46	-1.44	-0.27
IDEQ	24-Jul-96	5.01	3570	96	1.61	8.18	4.57	-0.59	-0.86	-0.92
IDEQ	21-Aug-96	4.6	4710	117	1.53	8.46	4.76	-0.65	-0.45	-0.79
IDEQ	27-Nov-96	3.11	8910	149	1.13	9.09	5.00	-0.86	1.05	-0.60
IDEQ	13-Dec-96	16.1	8470	734	2.78	9.04	6.60	1.01	0.89	2.96
IDEQ	30-Jan-97	3.68	7600	150	1.30	8.94	5.01	-0.78	0.58	-0.59
IDEQ	19-Feb-97	5.01	7270	196	1.61	8.89	5.28	-0.59	0.46	-0.31
IDEQ	26-Mar-97	11.9	7200	461	2.48	8.88	6.13	0.40	0.44	1.30
IDEQ	16-Apr-97	7.48	6090	245	2.01	8.71	5.50	-0.23	0.04	-0.01
IDEQ	24-Jun-97	12.3	1500	99	2.51	7.31	4.60	0.46	-1.60	-0.90
IDEQ	23-Jul-97	7.06	3070	117	1.95	8.03	4.76	-0.29	-1.04	-0.79
URS	12-Nov-97	4.15	8180	183	1.42	9.01	5.21	-0.71	0.79	-0.39
IDEQ	26-Nov-97	3.2	7110	122	1.16	8.87	4.81	-0.85	0.40	-0.76
IDEQ	17-Dec-97	3.38	7220	131	1.22	8.88	4.88	-0.82	0.44	-0.71
IDEQ	25-Feb-98	7.48	6480	261	2.01	8.78	5.56	-0.23	0.18	0.08
IDEQ	20-Mar-98	4.73	5540	141	1.55	8.62	4.95	-0.63	-0.16	-0.65

URS	16-May-98	28	3410	514	3.33	8.13	6.24	2.72	-0.92	1.62
IDEQ	26-Jun-98	12.3	3460	229	2.51	8.15	5.43	0.46	-0.90	-0.11
IDEQ	26-Jun-98	12.3	3490	231	2.51	8.16	5.44	0.46	-0.89	-0.10
IDEQ	28-Jul-98	4.11	4660	103	1.41	8.45	4.64	-0.72	-0.47	-0.88
IDEQ	24-Sep-98	3.38	5840	106	1.22	8.67	4.67	-0.82	-0.05	-0.86
IDEQ	8-Oct-98	3.29	6870	122	1.19	8.83	4.80	-0.83	0.32	-0.76
URS	6-Dec-98	3.86	17100	355	1.35	9.75	5.87	-0.75	3.97	0.66

dZn

Concentration over time analysis r2 Slope, m

dZn NM296 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.012** **0.00009**

Time	Ln[COC]	[COC]
16-May-91	8.44	4,619
9-Dec-95	8.58	5,333
6-Dec-98	8.68	5,861

LnConc.=mTime+b >'96 r2, m: **0.909** **0.00900**

26-Jun-98	8.07	3,202
6-Dec-98	9.54	13,883

Load over time analysis

dZn NM296 **Load over time**

LnLoad=mTime+b All data r2, m: **0.001** **-0.00002**

Time	LnLoad	Load
16-May-91	5.36	213
9-Dec-95	5.32	204
6-Dec-98	5.29	199

LnLoad=mTime+b >'96 r2, m: **0.114** **0.00291**

26-Jun-98	4.86	129
6-Dec-98	5.33	207

max r2: 0.923 max r2: 0.117

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.012	0.00009	5.56	0.001	-0.00002	6.19
0.000	0.00001	8.27	0.001	0.00003	4.24
0.001	0.00003	7.53	0.012	-0.00012	9.56
0.002	0.00004	7.09	0.003	-0.00006	7.40
0.001	0.00003	7.64	0.001	-0.00003	6.38
0.000	-0.00001	9.10	0.001	-0.00003	6.29
0.002	-0.00004	10.02	0.001	-0.00003	6.37
0.004	-0.00006	10.68	0.003	-0.00006	7.46
0.005	-0.00007	11.01	0.007	-0.00010	8.92
0.006	-0.00008	11.39	0.020	-0.00017	11.24
0.006	-0.00008	11.39	0.031	-0.00021	12.86
0.006	-0.00008	11.39	0.021	-0.00018	11.55
0.005	-0.00008	11.36	0.038	-0.00024	13.87
0.003	-0.00006	10.89	0.058	-0.00030	16.05
0.000	-0.00002	9.32	0.066	-0.00033	17.17
0.002	0.00005	6.87	0.068	-0.00035	17.73
0.011	0.00012	4.41	0.058	-0.00033	17.00
0.025	0.00018	2.17	0.030	-0.00023	13.41
0.046	0.00025	-0.19	0.014	-0.00016	10.81
0.078	0.00032	-2.95	0.006	-0.00010	8.96
0.063	0.00030	-1.98	0.001	-0.00004	6.78
0.035	0.00022	0.80	0.001	0.00003	4.14
0.017	0.00015	3.15	0.001	-0.00003	6.39
0.008	0.00011	4.66	0.004	-0.00010	8.68
0.005	0.00009	5.52	0.021	-0.00022	13.01
0.004	0.00009	5.57	0.057	-0.00037	18.45
0.015	0.00017	2.40	0.058	-0.00039	19.21
0.016	0.00019	1.97	0.035	-0.00031	16.38
0.023	0.00024	0.06	0.015	-0.00022	12.93
0.039	0.00033	-3.22	0.010	-0.00018	11.75
0.043	0.00037	-4.68	0.006	-0.00015	10.63
0.042	0.00039	-5.39	0.000	0.00003	4.03
0.005	0.00013	3.99	0.001	0.00007	2.81
0.000	-0.00001	9.00	0.005	-0.00015	10.73
0.002	-0.00009	11.97	0.026	-0.00039	19.05
0.001	0.00007	6.25	0.046	-0.00055	24.82
0.013	0.00027	-1.05	0.000	-0.00002	5.95
0.036	0.00048	-8.67	0.002	-0.00013	9.70
0.077	0.00077	-18.97	0.002	-0.00012	9.39
0.150	0.00118	-33.90	0.039	0.00054	-14.22
0.243	0.00173	-53.44	0.117	0.00106	-32.94
0.076	0.00087	-22.76	0.054	0.00079	-23.24
0.006	0.00028	-1.20	0.014	0.00047	-11.76
0.041	0.00078	-19.35	0.018	0.00059	-16.03
0.108	0.00145	-43.40	0.000	0.00004	3.79
0.296	0.00293	-96.82	0.029	-0.00102	41.84
0.531	0.00463	-158.04	0.007	-0.00060	26.81

0.887	0.00761	-265.39	0.078	-0.00243	92.96
0.923	0.00876	-307.12	0.022	0.00116	-36.53
0.909	0.00900	-315.63	0.114	0.00291	-99.96

update for EV, CV:

dZn **NM296**
LN Analysis **dZn**

Load **Load Data, EV=247 lbs/day CV=.67**

Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**247**			
SD:	**165**			
CV:	**0.67**	3	7.1	1266
Min:	**51**	0	5.33	206
Max:	**761**	-3	3.51	34
Median:	**199**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.961, EV=250.8 lbs/day CV=0.72; max r2=0.97**

r2 u,lnLoad:	0.961	u	lnLoad	Load
slope, m:	1.551	3	7.25	1410
intercept, b:	-8.245	0	5.32	204
N: 54		-3	3.38	29
E[Load]:	250.8	Parameter Estimates		
SD[Load]:	180	from LN regression		
CV[Load]:	0.72	update graph label		

						max r2
	dZn	N: 54				0.973
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	**51**	1	0.0115	-2.273	3.939	0.961
20-Jul-94	**86**	2	0.0300	-1.881	4.451	0.957
24-Jul-96	**96**	3	0.0484	-1.661	4.567	0.961
11-Jul-95	**99**	4	0.0668	-1.500	4.597	0.966
24-Jun-97	**99**	5	0.0853	-1.371	4.598	0.970
25-Jul-95	**101**	6	0.1037	-1.261	4.619	0.971
28-Jul-98	**103**	7	0.1221	-1.164	4.635	0.973
24-Sep-98	**106**	8	0.1406	-1.078	4.665	0.973
8-Sep-94	**106**	9	0.1590	-0.999	4.667	0.973
20-Jul-94	**112**	10	0.1774	-0.925	4.717	0.972
12-Jun-95	**116**	11	0.1959	-0.857	4.752	0.972
21-Aug-96	**117**	12	0.2143	-0.792	4.758	0.971
23-Jul-97	**117**	13	0.2327	-0.730	4.759	0.970
8-Oct-98	**122**	14	0.2512	-0.671	4.801	0.968
26-Nov-97	**122**	15	0.2696	-0.614	4.807	0.967
4-Oct-94	**123**	16	0.2880	-0.559	4.809	0.965
15-Aug-94	**125**	17	0.3065	-0.506	4.826	0.962
23-Jun-94	**125**	18	0.3249	-0.454	4.830	0.961
27-Jun-95	**127**	19	0.3433	-0.403	4.845	0.959
17-Dec-97	**131**	20	0.3618	-0.354	4.877	0.959
20-Mar-98	**141**	21	0.3802	-0.305	4.949	0.960
27-Nov-96	**149**	22	0.3986	-0.257	5.004	0.959
30-Jan-97	**150**	23	0.4171	-0.209	5.014	0.959
12-Nov-97	**183**	24	0.4355	-0.162	5.207	0.961
15-Nov-94	**185**	25	0.4539	-0.116	5.219	0.958
7-Jun-94	**196**	26	0.4724	-0.069	5.277	0.956
19-Feb-97	**196**	27	0.4908	-0.023	5.278	0.953
19-Jun-96	**202**	28	0.5092	0.023	5.311	0.949
19-May-94	**214**	29	0.5276	0.069	5.366	0.946
18-Oct-95	**225**	30	0.5461	0.116	5.416	0.942
13-Dec-94	**227**	31	0.5645	0.162	5.423	0.938
26-Jun-98	**229**	32	0.5829	0.209	5.434	0.933
26-Jun-98	**231**	33	0.6014	0.257	5.442	0.927
28-Mar-96	**237**	34	0.6198	0.305	5.468	0.922
16-Apr-97	**245**	35	0.6382	0.354	5.502	0.917
17-Jan-96	**248**	36	0.6567	0.403	5.515	0.913
25-Feb-98	**261**	37	0.6751	0.454	5.564	0.912
9-Feb-95	**335**	38	0.6935	0.506	5.814	0.912
3-May-94	**353**	39	0.7120	0.559	5.868	0.911
6-Dec-98	**355**	40	0.7304	0.614	5.872	0.918
9-May-95	**357**	41	0.7488	0.671	5.879	0.923
25-Apr-95	**359**	42	0.7673	0.730	5.882	0.927
23-May-95	**360**	43	0.7857	0.792	5.887	0.928
27-Dec-95	**362**	44	0.8041	0.857	5.893	0.925
16-May-91	**364**	45	0.8226	0.925	5.897	0.918
21-Nov-95	**373**	46	0.8410	0.999	5.923	0.904
8-May-96	**387**	47	0.8594	1.078	5.958	0.883

15-Aug-94	**395**	48	0.8779	1.164	5.978	0.854
26-Mar-97	**461**	49	0.8963	1.261	6.133	0.823
13-Apr-95	**492**	50	0.9147	1.371	6.198	0.757
16-May-98	**514**	51	0.9332	1.500	6.242	
6-Apr-94	**691**	52	0.9516	1.661	6.539	
13-Dec-96	**734**	53	0.9700	1.881	6.598	
22-Mar-95	**761**	54	0.9885	2.273	6.634	

update for EV, CV:

dZn
LN Analysis

NM296
dZn

Concentration

Conc. Data, EV=5,979 ug/L CV=.47

Avg:	**5,979**
SD:	**2,800**
CV:	**0.47**
Min:	**1,500**
Max:	**17,100**
Median:	**5,900**

Data-based LN

u	ln[dZn]	[dZn]
3	9.9	20594
0	8.60	5415
-3	7.26	1424

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.982, EV=6067.8 ug/L CV=.53; max r2=0.98**

		u	lnConc.	Conc.
r2 u,lnConc:	0.982			
slope, m:	2.013	3	10.08	23801
intercept, b:	-17.289	0	8.59	5364
N: 54		-3	7.10	1209
E[Conc]:	6067.8	Parameter Estimates		
SD[Conc]:	3210	from LN regression		
CV[Conc]:	0.53	update graph label		

N: 54

max r2
0.984

Date	dZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
24-Jun-97	1500	1	0.0115	-2.273	7.313	0.982
19-Jun-96	1960	2	0.0300	-1.881	7.581	0.983
16-May-91	2190	3	0.0484	-1.661	7.692	0.982
23-May-95	2270	4	0.0668	-1.500	7.728	0.982
19-May-94	2630	5	0.0853	-1.371	7.875	0.984
12-Jun-95	2800	6	0.1037	-1.261	7.937	0.983
23-Jul-97	3070	7	0.1221	-1.164	8.029	0.983
9-May-95	3250	8	0.1406	-1.078	8.086	0.982
16-May-98	3410	9	0.1590	-0.999	8.134	0.981
26-Jun-98	3460	10	0.1774	-0.925	8.149	0.980
26-Jun-98	3490	11	0.1959	-0.857	8.158	0.979
24-Jul-96	3570	12	0.2143	-0.792	8.180	0.979
7-Jun-94	3640	13	0.2327	-0.730	8.200	0.979
27-Jun-95	3650	14	0.2512	-0.671	8.202	0.980
3-May-94	3970	15	0.2696	-0.614	8.287	0.983
23-Jun-94	4270	16	0.2880	-0.559	8.359	0.983
11-Jul-95	4360	17	0.3065	-0.506	8.380	0.983
28-Jul-98	4660	18	0.3249	-0.454	8.447	0.982
21-Aug-96	4710	19	0.3433	-0.403	8.457	0.981
8-May-96	4760	20	0.3618	-0.354	8.468	0.980
20-Jul-94	5060	21	0.3802	-0.305	8.529	0.979
20-Jul-94	5060	22	0.3986	-0.257	8.529	0.977
25-Jul-95	5120	23	0.4171	-0.209	8.541	0.976
21-Nov-95	5180	24	0.4355	-0.162	8.553	0.975
28-Mar-96	5250	25	0.4539	-0.116	8.566	0.973
20-Mar-98	5540	26	0.4724	-0.069	8.620	0.971
24-Sep-98	5840	27	0.4908	-0.023	8.672	0.969
15-Aug-94	5960	28	0.5092	0.023	8.693	0.969
15-Aug-94	5960	29	0.5276	0.069	8.693	0.969
8-Sep-94	6010	30	0.5461	0.116	8.701	0.968
16-Apr-97	6090	31	0.5645	0.162	8.714	0.966
27-Dec-95	6180	32	0.5829	0.209	8.729	0.964
4-Oct-91	6450	33	0.6014	0.257	8.772	0.962
25-Feb-98	6480	34	0.6198	0.305	8.776	0.961
6-Apr-94	6680	35	0.6382	0.354	8.807	0.959
17-Jan-96	6730	36	0.6567	0.403	8.814	0.958
8-Oct-98	6870	37	0.6751	0.454	8.835	0.957
4-Oct-94	6930	38	0.6935	0.506	8.844	0.956
26-Nov-97	7110	39	0.7120	0.559	8.869	0.953
26-Mar-97	7200	40	0.7304	0.614	8.882	0.951
17-Dec-97	7220	41	0.7488	0.671	8.885	0.948
19-Feb-97	7270	42	0.7673	0.730	8.892	0.942
30-Jan-97	7600	43	0.7857	0.792	8.936	0.934
12-Nov-97	8180	44	0.8041	0.857	9.009	0.925
18-Oct-95	8350	45	0.8226	0.925	9.030	0.924
13-Dec-96	8470	46	0.8410	0.999	9.044	0.923
27-Nov-96	8910	47	0.8594	1.078	9.095	0.920

13-Apr-95	9140	48	0.8779	1.164	9.120	0.929
25-Apr-95	9180	49	0.8963	1.261	9.125	0.945
15-Nov-94	9620	50	0.9147	1.371	9.172	0.950
22-Mar-95	9630	51	0.9332	1.500	9.173	
9-Feb-95	11100	52	0.9516	1.661	9.315	
13-Dec-94	11800	53	0.9700	1.881	9.376	
6-Dec-98	17100	54	0.9885	2.273	9.747	

update for EV, CV:

dZn
LN Analysis

NM296
dZn

Discharge, Q

Q Data, EV=9 cfs CV=0.76

Q Data-based LN

		u	lnQ	Q
Avg:	**9**			
SD:	**7**	3	4.0	55
CV:	**0.76**	0	1.98	7
Min:	**1**	-3	-0.06	1
Max:	**31**			
Median:	**7**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.952, EV=9.3 cfs CV=0.85; max r2=0.98**

r2 u,lnQ:	0.952	u	lnQ	Q
slope, m:	1.358	3	4.16	64
intercept, b:	-2.654	0	1.95	7
N: 54		-3	-0.26	1
E[Q]:	9.3	Parameter Estimates		
SD[Q]:	8	from LN regression		
CV[Q]:	0.85	update graph label		

N: 54

max r2
0.978

update and rank for new data

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
4-Oct-91	1.48	1	0.0115	-2.273	0.392	0.952
27-Nov-96	3.11	2	0.0300	-1.881	1.135	0.947
20-Jul-94	3.15	3	0.0484	-1.661	1.147	0.958
26-Nov-97	3.2	4	0.0668	-1.500	1.163	0.965
8-Sep-94	3.29	5	0.0853	-1.371	1.191	0.969
4-Oct-94	3.29	6	0.1037	-1.261	1.191	0.973
8-Oct-98	3.29	7	0.1221	-1.164	1.191	0.976
17-Dec-97	3.38	8	0.1406	-1.078	1.218	0.977
24-Sep-98	3.38	9	0.1590	-0.999	1.218	0.978
15-Nov-94	3.57	10	0.1774	-0.925	1.273	0.978
13-Dec-94	3.57	11	0.1959	-0.857	1.273	0.978
25-Jul-95	3.68	12	0.2143	-0.792	1.303	0.978
30-Jan-97	3.68	13	0.2327	-0.730	1.303	0.977
6-Dec-98	3.86	14	0.2512	-0.671	1.351	0.976
15-Aug-94	3.89	15	0.2696	-0.614	1.358	0.975
20-Jul-94	4.11	16	0.2880	-0.559	1.413	0.973
28-Jul-98	4.11	17	0.3065	-0.506	1.413	0.972
12-Nov-97	4.15	18	0.3249	-0.454	1.423	0.970
11-Jul-95	4.23	19	0.3433	-0.403	1.442	0.968
21-Aug-96	4.6	20	0.3618	-0.354	1.526	0.967
20-Mar-98	4.73	21	0.3802	-0.305	1.554	0.965
18-Oct-95	5.01	22	0.3986	-0.257	1.611	0.964
24-Jul-96	5.01	23	0.4171	-0.209	1.611	0.962
19-Feb-97	5.01	24	0.4355	-0.162	1.611	0.961
23-Jun-94	5.45	25	0.4539	-0.116	1.696	0.962
9-Feb-95	5.61	26	0.4724	-0.069	1.725	0.962
27-Jun-95	6.47	27	0.4908	-0.023	1.867	0.964
17-Jan-96	6.86	28	0.5092	0.023	1.926	0.962
23-Jul-97	7.06	29	0.5276	0.069	1.954	0.959
25-Apr-95	7.26	30	0.5461	0.116	1.982	0.957
16-Apr-97	7.48	31	0.5645	0.162	2.012	0.955
25-Feb-98	7.48	32	0.5829	0.209	2.012	0.954
12-Jun-95	7.69	33	0.6014	0.257	2.040	0.956
28-Mar-96	8.39	34	0.6198	0.305	2.127	0.963
7-Jun-94	10	35	0.6382	0.354	2.303	0.968
13-Apr-95	10	36	0.6567	0.403	2.303	0.965
27-Dec-95	10.9	37	0.6751	0.454	2.389	0.963
26-Mar-97	11.9	38	0.6935	0.506	2.477	0.959
24-Jun-97	12.3	39	0.7120	0.559	2.510	0.957
26-Jun-98	12.3	40	0.7304	0.614	2.510	0.955
26-Jun-98	12.3	41	0.7488	0.671	2.510	0.950
15-Aug-94	12.31	42	0.7673	0.730	2.510	0.943
21-Nov-95	13.4	43	0.7857	0.792	2.595	0.937
22-Mar-95	14.68	44	0.8041	0.857	2.686	0.928
8-May-96	15.1	45	0.8226	0.925	2.715	0.918
19-May-94	15.13	46	0.8410	0.999	2.717	0.905
13-Dec-96	16.1	47	0.8594	1.078	2.779	0.885

3-May-94	16.55	48	0.8779	1.164	2.806	0.856
19-Jun-96	19.2	49	0.8963	1.261	2.955	0.816
6-Apr-94	19.24	50	0.9147	1.371	2.957	0.759
9-May-95	20.44	51	0.9332	1.500	3.017	
16-May-98	28	52	0.9516	1.661	3.332	
23-May-95	29.49	53	0.9700	1.881	3.384	
16-May-91	30.9	54	0.9885	2.273	3.431	

Cumulative Frequecny secondary y-axis	**Candidate x-axis positions** x-axis position	
0.50000	10000	1000
0.50000	10000	1000
0.50000	10000	1000
0.50000	10000	1000
0.50000	10000	1000
0.50000	10000	1000
0.50000	10000	1000
0.50000	10000	1000
0.50000	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM296 **Date:** 3-Jun-00
Chemical: tCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,091	9	32	1	0.00	0.00	0.00	
SD:	606	7	14	1	1.00	1.00	1.00	
CV:	0.02	0.78	0.43	0.64				first:
Min:	33,374	1	8	0.2	-1.08	-1.78	-1.27	mid:
Max:	36,135	31	91	4	3.12	4.20	2.90	last:
Median:	35,024	6	33	1	-0.37	0.04	-0.32	

tCd NM296 **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.224) update r2 0.22 0.224 r2: 0.044 0.015
r2 Q,[COC]: 0.22 [tCd] Q m: -0.0024 -0.00014
slope, m: -0.9 40 1.5 b: 94 6.88
intercept, b: 40.9 32 9.0
N: 53 12 31 first:
LnConc. = mLn{Q}+b (r2=0.28) update r2 0.28 0.28 mid:
r2 lnQ,ln[COC]: 0.28 ln[tCd] ln Q [tCd] Q last:
slope, m: -0.36 3.94 0.39 51 1
intercept, b: 4.08 3.28 2.20 27 9
N: 53 2.84 3.43 17 31

for graph
tCd 0
NM296

N= 53

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	30.9	7.5	1.2	3.43	2.01	0.22	3.12	-1.78	-0.09
MFG	4-Oct-91	1.48	31.2	0.2	0.39	3.44	-1.39	-1.08	-0.09	-1.27
IDEQ	6-Apr-94	19.24	36	3.7	2.96	3.58	1.32	1.46	0.26	2.83
IDEQ	3-May-94	16.55	27.3	2.4	2.81	3.31	0.89	1.07	-0.37	1.30
IDEQ	19-May-94	15.13	19	1.5	2.72	2.94	0.44	0.87	-0.96	0.26
IDEQ	7-Jun-94	10	24	1.3	2.30	3.18	0.26	0.14	-0.60	-0.04
IDEQ	23-Jun-94	5.45	27	0.8	1.70	3.30	-0.23	-0.51	-0.39	-0.63
IDEQ	20-Jul-94	4.11	33	0.7	1.41	3.50	-0.32	-0.70	0.04	-0.70
IDEQ	20-Jul-94	3.15	33	0.6	1.15	3.50	-0.58	-0.84	0.04	-0.90
IDEQ	15-Aug-94	3.89	38	0.8	1.36	3.64	-0.23	-0.73	0.40	-0.62
IDEQ	15-Aug-94	12.31	38	2.5	2.51	3.64	0.92	0.47	0.40	1.40
IDEQ	8-Sep-94	3.29	38	0.7	1.19	3.64	-0.40	-0.82	0.40	-0.77
IDEQ	4-Oct-94	3.29	38	0.7	1.19	3.64	-0.40	-0.82	0.40	-0.77
IDEQ	15-Nov-94	3.57	50	1.0	1.27	3.91	-0.04	-0.78	1.26	-0.43
IDEQ	13-Dec-94	3.57	55	1.1	1.27	4.01	0.05	-0.78	1.62	-0.32
IDEQ	9-Feb-95	5.61	55	1.7	1.72	4.01	0.51	-0.49	1.62	0.39
IDEQ	22-Mar-95	14.68	48	3.8	2.69	3.87	1.33	0.81	1.12	2.90
IDEQ	13-Apr-95	10	47	2.5	2.30	3.85	0.93	0.14	1.04	1.42
IDEQ	25-Apr-95	7.26	44	1.7	1.98	3.78	0.54	-0.25	0.83	0.46
IDEQ	9-May-95	20.44	19	2.1	3.02	2.94	0.74	1.63	-0.96	0.90
IDEQ	23-May-95	29.49	14	2.2	3.38	2.64	0.80	2.92	-1.32	1.06
IDEQ	12-Jun-95	7.69	14	0.6	2.04	2.64	-0.55	-0.19	-1.32	-0.88
IDEQ	27-Jun-95	6.47	22	0.8	1.87	3.09	-0.27	-0.37	-0.74	-0.66
IDEQ	11-Jul-95	4.23	22	0.5	1.44	3.09	-0.69	-0.69	-0.74	-0.97
IDEQ	25-Jul-95	3.68	28	0.6	1.30	3.33	-0.59	-0.76	-0.32	-0.91
IDEQ	18-Oct-95	5.01	45	1.2	1.61	3.81	0.19	-0.57	0.90	-0.13
IDEQ	21-Nov-95	13.4	28	2.0	2.60	3.33	0.70	0.62	-0.32	0.82
IDEQ	27-Dec-95	10.9	38	2.2	2.39	3.64	0.80	0.27	0.40	1.06
IDEQ	17-Jan-96	6.86	40	1.5	1.93	3.69	0.39	-0.31	0.54	0.18
IDEQ	28-Mar-96	8.39	27	1.2	2.13	3.30	0.20	-0.09	-0.39	-0.12
IDEQ	8-May-96	15.1	26	2.1	2.71	3.26	0.75	0.87	-0.46	0.93
IDEQ	19-Jun-96	19.2	12	1.2	2.95	2.48	0.21	1.45	-1.46	-0.10
IDEQ	24-Jul-96	5.01	23	0.6	1.61	3.14	-0.48	-0.57	-0.67	-0.83
IDEQ	21-Aug-96	4.6	29	0.7	1.53	3.37	-0.33	-0.63	-0.24	-0.71
IDEQ	27-Nov-96	3.11	42	0.7	1.13	3.74	-0.35	-0.85	0.69	-0.73
IDEQ	13-Dec-96	16.1	41	3.6	2.78	3.71	1.27	1.01	0.61	2.62
IDEQ	30-Jan-97	3.68	42	0.8	1.30	3.74	-0.18	-0.76	0.69	-0.58
IDEQ	19-Feb-97	5.01	37	1.0	1.61	3.61	0.00	-0.57	0.33	-0.39
IDEQ	26-Mar-97	11.9	40	2.6	2.48	3.69	0.94	0.41	0.54	1.45
IDEQ	16-Apr-97	7.48	33	1.3	2.01	3.50	0.28	-0.22	0.04	0.00
IDEQ	24-Jun-97	12.3	8.5	0.6	2.51	2.14	-0.58	0.47	-1.71	-0.90
IDEQ	23-Jul-97	7.06	15	0.6	1.95	2.71	-0.56	-0.28	-1.24	-0.89
URS	12-Nov-97	4.15	38	0.8	1.42	3.64	-0.16	-0.70	0.40	-0.56
IDEQ	26-Nov-97	3.2	34	0.6	1.16	3.53	-0.54	-0.83	0.11	-0.87
IDEQ	17-Dec-97	3.38	36	0.7	1.22	3.58	-0.42	-0.81	0.26	-0.79
IDEQ	25-Feb-98	7.48	33	1.3	2.01	3.50	0.28	-0.22	0.04	0.00
IDEQ	20-Mar-98	4.73	32	0.8	1.55	3.47	-0.21	-0.61	-0.03	-0.60

URS	16-May-98	28	10	1.5	3.33	2.30	0.41	2.71	-1.60	0.21
IDEQ	26-Jun-98	12.3	19	1.3	2.51	2.94	0.23	0.47	-0.96	-0.08
IDEQ	28-Jul-98	4.11	27	0.6	1.41	3.30	-0.52	-0.70	-0.39	-0.86
IDEQ	24-Sep-98	3.38	29	0.5	1.22	3.37	-0.64	-0.81	-0.24	-0.94
IDEQ	8-Oct-98	3.29	34	0.6	1.19	3.53	-0.51	-0.82	0.11	-0.85
URS	6-Dec-98	3.86	91.1	1.9	1.35	4.51	0.64	-0.74	4.20	0.67

tCd

Concentration over time analysis r2 Slope, m

tCd NM296 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.007** **0.00007**

Time	Ln[COC]	[COC]
16-May-91	3.26	26
21-Nov-95	3.37	29
6-Dec-98	3.45	31

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

28-Jul-98	0.00	1
6-Dec-98	0.00	1

Load over time analysis

tCd NM296 **Load over time**

LnLoad=mTime+b All data r2, m: **0.005** **-0.00007**

Time	LnLoad	Load
16-May-91	0.22	1
21-Nov-95	0.10	1
6-Dec-98	0.02	1

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

28-Jul-98	0.00	1
6-Dec-98	0.00	1

max r2: 0.909 max r2: 0.146

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.007	0.00007	1.01	0.005	-0.00007	2.66
0.007	-0.00006	5.69	0.005	-0.00007	2.66
0.007	-0.00007	5.97	0.056	-0.00026	9.39
0.006	-0.00007	5.71	0.036	-0.00021	7.40
0.007	-0.00007	5.99	0.025	-0.00017	6.10
0.013	-0.00010	7.07	0.020	-0.00016	5.61
0.018	-0.00012	7.74	0.018	-0.00015	5.46
0.021	-0.00014	8.21	0.024	-0.00018	6.41
0.020	-0.00014	8.25	0.034	-0.00021	7.63
0.020	-0.00014	8.29	0.053	-0.00027	9.70
0.016	-0.00013	7.96	0.067	-0.00031	11.08
0.013	-0.00012	7.57	0.048	-0.00026	9.40
0.010	-0.00011	7.12	0.068	-0.00032	11.41
0.007	-0.00009	6.60	0.093	-0.00038	13.68
0.002	-0.00005	5.12	0.106	-0.00042	15.01
0.000	0.00001	3.11	0.116	-0.00045	16.17
0.004	0.00007	0.93	0.106	-0.00044	15.83
0.012	0.00012	-1.01	0.072	-0.00035	12.57
0.025	0.00018	-3.14	0.049	-0.00029	10.26
0.044	0.00024	-5.38	0.036	-0.00025	9.04
0.034	0.00022	-4.51	0.020	-0.00019	6.76
0.016	0.00015	-2.08	0.006	-0.00011	3.75
0.003	0.00007	0.87	0.019	-0.00019	6.70
0.001	0.00004	2.07	0.030	-0.00025	8.81
0.000	-0.00001	3.58	0.072	-0.00039	14.03
0.000	-0.00001	3.89	0.138	-0.00056	20.06
0.002	0.00007	0.98	0.142	-0.00060	21.36
0.002	0.00007	0.91	0.107	-0.00053	19.02
0.008	0.00014	-1.67	0.065	-0.00042	15.09
0.022	0.00025	-5.56	0.048	-0.00038	13.62
0.023	0.00027	-6.37	0.041	-0.00038	13.41
0.022	0.00029	-6.89	0.012	-0.00020	7.14
0.001	0.00005	1.55	0.005	-0.00014	5.06
0.000	-0.00003	4.47	0.022	-0.00032	11.24
0.000	-0.00005	5.06	0.047	-0.00050	17.66
0.001	0.00008	0.34	0.082	-0.00069	24.82
0.011	0.00026	-5.98	0.009	-0.00020	7.08
0.035	0.00050	-14.70	0.015	-0.00028	10.07
0.071	0.00078	-24.79	0.013	-0.00029	10.34
0.152	0.00125	-41.68	0.031	0.00041	-15.03
0.257	0.00187	-63.71	0.146	0.00100	-35.92
0.108	0.00116	-38.38	0.093	0.00088	-31.63
0.024	0.00061	-18.50	0.035	0.00062	-22.31
0.059	0.00105	-34.35	0.038	0.00072	-26.09
0.109	0.00165	-56.02	0.002	0.00020	-7.34
0.256	0.00312	-108.99	0.020	-0.00070	25.03
0.445	0.00492	-173.83	0.000	0.00003	-1.20

0.909	0.00926	-330.26	0.007	-0.00062	22.22
0.843	0.00849	-302.41	0.074	0.00240	-86.75

update for EV, CV:

tCd		**NM296**		
LN Analysis		**tCd**		
Load		**Load Data, EV=1.32 lbs/day CV=0.641**		
Avg:	**1**	**Load Data-based LN**		
SD:	**1**	u	ln tCd Load	tCd Load
CV:	**0.64**	3	1.9	6
Min:	**0.2**	0	0.11	1
Max:	**4**	-3	-1.65	0.2
Median:	**1**			
		1	1.32	
		0.64	0.641	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.964, EV=1.35lbs/day CV=0.703; max r2=0.98**

r2 u,lnLoad:	0.964	u	lnLoad	Load	
slope, m:	1.578	3	2.00	7	
intercept, b:	-0.151	0	0.10	1	
N: 53		-3	-1.81	0.2	
E[Load]:	1.3	Parameter Estimates			0.964
SD[Load]:	1	from LN regression			1.3
CV[Load]:	0.70	update graph label			0.7
					max r2
tCd		N: 53			0.981

Date	**Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
4-Oct-91	**0.2**	1	0.0117	-2.266	-1.393	0.964
11-Jul-95	**0.5**	2	0.0305	-1.873	-0.692	0.960
24-Sep-98	**0.5**	3	0.0493	-1.652	-0.640	0.966
25-Jul-95	**0.6**	4	0.0681	-1.490	-0.590	0.971
20-Jul-94	**0.6**	5	0.0869	-1.360	-0.581	0.975
24-Jun-97	**0.6**	6	0.1056	-1.250	-0.575	0.978
23-Jul-97	**0.6**	7	0.1244	-1.153	-0.563	0.980
12-Jun-95	**0.6**	8	0.1432	-1.066	-0.546	0.980
26-Nov-97	**0.6**	9	0.1620	-0.986	-0.536	0.981
28-Jul-98	**0.6**	10	0.1808	-0.913	-0.516	0.980
8-Oct-98	**0.6**	11	0.1995	-0.843	-0.508	0.980
24-Jul-96	**0.6**	12	0.2183	-0.778	-0.478	0.978
17-Dec-97	**0.7**	13	0.2371	-0.716	-0.424	0.977
8-Sep-94	**0.7**	14	0.2559	-0.656	-0.397	0.976
4-Oct-94	**0.7**	15	0.2746	-0.599	-0.397	0.975
27-Nov-96	**0.7**	16	0.2934	-0.543	-0.353	0.973
21-Aug-96	**0.7**	17	0.3122	-0.490	-0.332	0.972
20-Jul-94	**0.7**	18	0.3310	-0.437	-0.315	0.970
27-Jun-95	**0.8**	19	0.3498	-0.386	-0.267	0.968
23-Jun-94	**0.8**	20	0.3685	-0.336	-0.234	0.967
15-Aug-94	**0.8**	21	0.3873	-0.286	-0.229	0.965
20-Mar-98	**0.8**	22	0.4061	-0.238	-0.205	0.964
30-Jan-97	**0.8**	23	0.4249	-0.189	-0.184	0.963
12-Nov-97	**0.8**	24	0.4437	-0.142	-0.164	0.964
15-Nov-94	**1.0**	25	0.4624	-0.094	-0.040	0.967
19-Feb-97	**1.0**	26	0.4812	-0.047	-0.003	0.967
13-Dec-94	**1.1**	27	0.5000	0.000	0.055	0.966
18-Oct-95	**1.2**	28	0.5188	0.047	0.193	0.965
28-Mar-96	**1.2**	29	0.5376	0.094	0.198	0.963
19-Jun-96	**1.2**	30	0.5563	0.142	0.215	0.960
16-May-91	**1.2**	31	0.5751	0.189	0.221	0.957
26-Jun-98	**1.3**	32	0.5939	0.238	0.229	0.953
7-Jun-94	**1.3**	33	0.6127	0.286	0.256	0.950
16-Apr-97	**1.3**	34	0.6315	0.336	0.284	0.947
25-Feb-98	**1.3**	35	0.6502	0.386	0.284	0.943
17-Jan-96	**1.5**	36	0.6690	0.437	0.390	0.944
16-May-98	**1.5**	37	0.6878	0.490	0.410	0.939
19-May-94	**1.5**	38	0.7066	0.543	0.436	0.936
9-Feb-95	**1.7**	39	0.7254	0.599	0.507	0.934
25-Apr-95	**1.7**	40	0.7441	0.656	0.542	0.928
6-Dec-98	**1.9**	41	0.7629	0.716	0.638	0.923
21-Nov-95	**2.0**	42	0.7817	0.778	0.702	0.912
9-May-95	**2.1**	43	0.8005	0.843	0.737	0.900
8-May-96	**2.1**	44	0.8192	0.913	0.748	0.888
23-May-95	**2.2**	45	0.8380	0.986	0.798	0.868
27-Dec-95	**2.2**	46	0.8568	1.066	0.801	0.846
3-May-94	**2.4**	47	0.8756	1.153	0.888	0.808

15-Aug-94	**2.5**	48	0.8944	1.250	0.923	0.767
13-Apr-95	**2.5**	49	0.9131	1.360	0.928	0.704
26-Mar-97	**2.6**	50	0.9319	1.490	0.940	
13-Dec-96	**3.6**	51	0.9507	1.652	1.267	
6-Apr-94	**3.7**	52	0.9695	1.873	1.315	
22-Mar-95	**3.8**	53	0.9883	2.266	1.333	

update for EV, CV:

tCd		**NM296**		32	32.4
LN Analysis		**tCd**		0.43	0.431
Concentration		**Conc. Data, EV=32.4 ug/L CV=0.431**			
Avg:	**32**	**Data-based LN**			
SD:	**14**	u	ln[tCd]	[tCd]	
CV:	**0.43**	3	4.6	103	
Min:	**8**	0	3.39	30	
Max:	**91**	-3	2.15	9	
Median:	**33**				

				0.926	0.926
	u=mLn{Conc.}+b:			33.4	33.4
update for r2, EV, CV:	**r2=0.926, EV=33.4 ug/L CV=0.547; max r2=0.96**			0.547	0.547
	r2 u,lnConc:	0.926	u	lnConc.	Conc.
	slope, m:	1.955	3	4.91	136
	intercept, b:	-6.602	0	3.38	29
	N: 53		-3	1.84	6
0.964	E[Conc]:	33.4	Parameter Estimates		
1.35	SD[Conc]:	18	from LN regression		
0.703	CV[Conc]:	0.55	update graph label		

						max r2
	tCd	N: 53				0.956
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
16-May-91	7.5	1	0.0117	-2.266	2.015	0.926
24-Jun-97	8.5	2	0.0305	-1.873	2.140	0.922
16-May-98	10	3	0.0493	-1.652	2.303	0.926
19-Jun-96	12	4	0.0681	-1.490	2.485	0.932
23-May-95	14	5	0.0869	-1.360	2.639	0.936
12-Jun-95	14	6	0.1056	-1.250	2.639	0.937
23-Jul-97	15	7	0.1244	-1.153	2.708	0.944
19-May-94	19	8	0.1432	-1.066	2.944	0.954
9-May-95	19	9	0.1620	-0.986	2.944	0.952
26-Jun-98	19	10	0.1808	-0.913	2.944	0.952
27-Jun-95	22	11	0.1995	-0.843	3.091	0.956
11-Jul-95	22	12	0.2183	-0.778	3.091	0.953
24-Jul-96	23	13	0.2371	-0.716	3.135	0.952
7-Jun-94	24	14	0.2559	-0.656	3.178	0.950
8-May-96	26	15	0.2746	-0.599	3.258	0.947
23-Jun-94	27	16	0.2934	-0.543	3.296	0.945
28-Mar-96	27	17	0.3122	-0.490	3.296	0.942
28-Jul-98	27	18	0.3310	-0.437	3.296	0.939
3-May-94	27.3	19	0.3498	-0.386	3.307	0.935
25-Jul-95	28	20	0.3685	-0.336	3.332	0.931
21-Nov-95	28	21	0.3873	-0.286	3.332	0.927
21-Aug-96	29	22	0.4061	-0.238	3.367	0.922
24-Sep-98	29	23	0.4249	-0.189	3.367	0.917
4-Oct-91	31.2	24	0.4437	-0.142	3.440	0.912
20-Mar-98	32	25	0.4624	-0.094	3.466	0.908
20-Jul-94	33	26	0.4812	-0.047	3.497	0.904
20-Jul-94	33	27	0.5000	0.000	3.497	0.903
16-Apr-97	33	28	0.5188	0.047	3.497	0.900
25-Feb-98	33	29	0.5376	0.094	3.497	0.896
26-Nov-97	34	30	0.5563	0.142	3.526	0.890
8-Oct-98	34	31	0.5751	0.189	3.526	0.885
6-Apr-94	36	32	0.5939	0.238	3.584	0.878
17-Dec-97	36	33	0.6127	0.286	3.584	0.878
19-Feb-97	37	34	0.6315	0.336	3.611	0.876
15-Aug-94	38	35	0.6502	0.386	3.638	0.878
15-Aug-94	38	36	0.6690	0.437	3.638	0.884
8-Sep-94	38	37	0.6878	0.490	3.638	0.889
4-Oct-94	38	38	0.7066	0.543	3.638	0.892
27-Dec-95	38	39	0.7254	0.599	3.638	0.892
12-Nov-97	38	40	0.7441	0.656	3.638	0.889
17-Jan-96	40	41	0.7629	0.716	3.689	0.881
26-Mar-97	40	42	0.7817	0.778	3.689	0.883
13-Dec-96	41	43	0.8005	0.843	3.714	0.879
27-Nov-96	42	44	0.8192	0.913	3.738	0.876
30-Jan-97	42	45	0.8380	0.986	3.738	0.876
25-Apr-95	44	46	0.8568	1.066	3.784	0.867
18-Oct-95	45	47	0.8756	1.153	3.807	0.865

13-Apr-95	47	48	0.8944	1.250	3.850	0.862
22-Mar-95	48	49	0.9131	1.360	3.871	0.872
15-Nov-94	50	50	0.9319	1.490	3.912	
13-Dec-94	55	51	0.9507	1.652	4.007	
9-Feb-95	55	52	0.9695	1.873	4.007	
6-Dec-98	91.1	53	0.9883	2.266	4.512	

update for EV, CV:

tCd		**NM296**			9	9.03
LN Analysis		**tCd**			0.78	0.775
Discharge, Q		**Q Data, EV=9.03 cfs CV=0.775**				
Avg:	**9**	**Q Data-based LN**				
SD:	**7**	u	lnQ	Q		
CV:	**0.78**	3	4.0	56		
Min:	**1**	0	1.96	7		
Max:	**31**	-3	-0.09	1		
Median:	**6**					

					0.950	0.95
					9.2	9.19
u=mLn{Q}+b:					0.85	0.854

update for r2, EV, CV: **r2=0.95, EV=9.19 cfs CV=0.854; max r2=0.98**

r2 u,lnQ:	0.950	u	lnQ	Q
slope, m:	1.351	3	4.16	64
intercept, b:	-2.626	0	1.94	7
N: 53		-3	-0.28	1
E[Q]:	9.2	Parameter Estimates		
SD[Q]:	8	from LN regression		
CV[Q]:	0.85	update graph label		

						max r2
	Q	N: 53				0.979
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	1.48	1	0.0117	-2.266	0.392	0.950
27-Nov-96	3.11	2	0.0305	-1.873	1.135	0.945
20-Jul-94	3.15	3	0.0493	-1.652	1.147	0.956
26-Nov-97	3.2	4	0.0681	-1.490	1.163	0.963
8-Sep-94	3.29	5	0.0869	-1.360	1.191	0.969
4-Oct-94	3.29	6	0.1056	-1.250	1.191	0.973
8-Oct-98	3.29	7	0.1244	-1.153	1.191	0.976
17-Dec-97	3.38	8	0.1432	-1.066	1.218	0.977
24-Sep-98	3.38	9	0.1620	-0.986	1.218	0.979
15-Nov-94	3.57	10	0.1808	-0.913	1.273	0.979
13-Dec-94	3.57	11	0.1995	-0.843	1.273	0.979
25-Jul-95	3.68	12	0.2183	-0.778	1.303	0.979
30-Jan-97	3.68	13	0.2371	-0.716	1.303	0.979
6-Dec-98	3.86	14	0.2559	-0.656	1.351	0.978
15-Aug-94	3.89	15	0.2746	-0.599	1.358	0.976
20-Jul-94	4.11	16	0.2934	-0.543	1.413	0.975
28-Jul-98	4.11	17	0.3122	-0.490	1.413	0.974
12-Nov-97	4.15	18	0.3310	-0.437	1.423	0.972
11-Jul-95	4.23	19	0.3498	-0.386	1.442	0.971
21-Aug-96	4.6	20	0.3685	-0.336	1.526	0.969
20-Mar-98	4.73	21	0.3873	-0.286	1.554	0.967
18-Oct-95	5.01	22	0.4061	-0.238	1.611	0.966
24-Jul-96	5.01	23	0.4249	-0.189	1.611	0.964
19-Feb-97	5.01	24	0.4437	-0.142	1.611	0.963
23-Jun-94	5.45	25	0.4624	-0.094	1.696	0.963
9-Feb-95	5.61	26	0.4812	-0.047	1.725	0.963
27-Jun-95	6.47	27	0.5000	0.000	1.867	0.964
17-Jan-96	6.86	28	0.5188	0.047	1.926	0.962
23-Jul-97	7.06	29	0.5376	0.094	1.954	0.959
25-Apr-95	7.26	30	0.5563	0.142	1.982	0.957
16-Apr-97	7.48	31	0.5751	0.189	2.012	0.954
25-Feb-98	7.48	32	0.5939	0.238	2.012	0.953
12-Jun-95	7.69	33	0.6127	0.286	2.040	0.955
28-Mar-96	8.39	34	0.6315	0.336	2.127	0.961
7-Jun-94	10	35	0.6502	0.386	2.303	0.967
13-Apr-95	10	36	0.6690	0.437	2.303	0.964
27-Dec-95	10.9	37	0.6878	0.490	2.389	0.962
26-Mar-97	11.9	38	0.7066	0.543	2.477	0.959
24-Jun-97	12.3	39	0.7254	0.599	2.510	0.955
26-Jun-98	12.3	40	0.7441	0.656	2.510	0.950
15-Aug-94	12.31	41	0.7629	0.716	2.510	0.944
21-Nov-95	13.4	42	0.7817	0.778	2.595	0.937
22-Mar-95	14.68	43	0.8005	0.843	2.686	0.928
8-May-96	15.1	44	0.8192	0.913	2.715	0.918
19-May-94	15.13	45	0.8380	0.986	2.717	0.905
13-Dec-96	16.1	46	0.8568	1.066	2.779	0.885
3-May-94	16.55	47	0.8756	1.153	2.806	0.856

19-Jun-96	19.2	48	0.8944	1.250	2.955	0.816
6-Apr-94	19.24	49	0.9131	1.360	2.957	0.759
9-May-95	20.44	50	0.9319	1.490	3.017	
16-May-98	28	51	0.9507	1.652	3.332	
23-May-95	29.49	52	0.9695	1.873	3.384	
16-May-91	30.9	53	0.9883	2.266	3.431	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NM296	**Date:**	13-Jun-00
Chemical:	tPb	**Analyst:**	J.MacLachlan

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,108	9	90	4	0.00	0.00	0.00	
SD:	612	7	42	3	1.00	1.00	1.00	
CV:	0.02	0.76	0.46	0.70				first:
Min:	33,374	1	24	0.8	-1.09	-1.60	-1.11	mid:
Max:	36,135	31	193	12	3.14	2.46	3.37	last:
Median:	35,042	7	80	3	-0.35	-0.24	-0.31	

tPb NM296 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.208)		update r2	0.21	0.208		**Q = mTime +b**		**LnQ = mTime +b**
r2 Q,[COC]:	0.21	[tPb]	Q			r2:	0.037	0.009
slope, m:	-2.7	111	1.5			m:	-0.0022	-0.00011
intercept, b:	115.3	90	9.1			b:	86	5.85
N: 54		31	31					
LnConc. = mLn{Q}+b (r2=0.294)		update r2		0.29	0.294			
r2 lnQ,ln[COC]:	0.29	ln[tPb]	ln Q	[tPb]	Q			
slope, m:	-0.38	4.99	0.39	146	1			
intercept, b:	5.14	4.30	2.21	73	9			
N: 54		3.83	3.43	46	31			

first:
mid:
last:

for graph
tPb 0
NM296

N= 54

update for new data	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	30.9	24	4.0	3.43	3.18	1.38	3.14	-1.60	0.11
MFG	4-Oct-91	1.48	106	0.8	0.39	4.66	-0.17	-1.09	0.37	-1.11
IDEQ	6-Apr-94	19.24	120	12.4	2.96	4.79	2.52	1.46	0.71	3.37
IDEQ	3-May-94	16.55	78.3	7.0	2.81	4.36	1.94	1.07	-0.29	1.26
IDEQ	19-May-94	15.13	63	5.1	2.72	4.14	1.63	0.87	-0.66	0.55
IDEQ	7-Jun-94	10	88	4.7	2.30	4.48	1.55	0.13	-0.06	0.40
IDEQ	23-Jun-94	5.45	94	2.8	1.70	4.54	1.01	-0.52	0.09	-0.37
IDEQ	20-Jul-94	4.11	143	3.2	1.41	4.96	1.15	-0.72	1.26	-0.21
IDEQ	20-Jul-94	3.15	143	2.4	1.15	4.96	0.89	-0.85	1.26	-0.50
IDEQ	15-Aug-94	3.89	153	3.2	1.36	5.03	1.16	-0.75	1.50	-0.20
IDEQ	15-Aug-94	12.31	153	10.1	2.51	5.03	2.32	0.46	1.50	2.49
IDEQ	8-Sep-94	3.29	158	2.8	1.19	5.06	1.03	-0.83	1.62	-0.35
IDEQ	4-Oct-94	3.29	158	2.8	1.19	5.06	1.03	-0.83	1.62	-0.35
IDEQ	15-Nov-94	3.57	193	3.7	1.27	5.26	1.31	-0.79	2.46	0.00
IDEQ	13-Dec-94	3.57	187	3.6	1.27	5.23	1.28	-0.79	2.32	-0.05
IDEQ	9-Feb-95	5.61	137	4.1	1.72	4.92	1.42	-0.50	1.12	0.16
IDEQ	22-Mar-95	14.68	118	9.3	2.69	4.77	2.23	0.80	0.66	2.17
IDEQ	13-Apr-95	10	100	5.4	2.30	4.61	1.68	0.13	0.23	0.65
IDEQ	25-Apr-95	7.26	77	3.0	1.98	4.34	1.10	-0.26	-0.32	-0.27
IDEQ	9-May-95	20.44	82	9.0	3.02	4.41	2.20	1.63	-0.20	2.06
IDEQ	23-May-95	29.49	46	7.3	3.38	3.83	1.99	2.94	-1.07	1.39
IDEQ	12-Jun-95	7.69	46	1.9	2.04	3.83	0.64	-0.20	-1.07	-0.70
IDEQ	27-Jun-95	6.47	70	2.4	1.87	4.25	0.89	-0.38	-0.49	-0.49
IDEQ	11-Jul-95	4.23	74	1.7	1.44	4.30	0.52	-0.70	-0.39	-0.78
IDEQ	25-Jul-95	3.68	85	1.7	1.30	4.44	0.52	-0.78	-0.13	-0.79
IDEQ	18-Oct-95	5.01	108	2.9	1.61	4.68	1.07	-0.59	0.42	-0.31
IDEQ	21-Nov-95	13.4	66	4.8	2.60	4.19	1.56	0.62	-0.59	0.41
IDEQ	27-Dec-95	10.9	69	4.0	2.39	4.23	1.40	0.26	-0.51	0.13
IDEQ	17-Jan-96	6.86	93	3.4	1.93	4.53	1.23	-0.32	0.06	-0.11
IDEQ	28-Mar-96	8.39	59	2.7	2.13	4.08	0.98	-0.10	-0.75	-0.41
IDEQ	8-May-96	15.1	50	4.1	2.71	3.91	1.40	0.87	-0.97	0.14
IDEQ	19-Jun-96	19.2	33	3.4	2.95	3.50	1.23	1.46	-1.38	-0.12
IDEQ	24-Jul-96	5.01	70	1.9	1.61	4.25	0.63	-0.59	-0.49	-0.71
IDEQ	21-Aug-96	4.6	92	2.3	1.53	4.52	0.82	-0.65	0.04	-0.56
IDEQ	27-Nov-96	3.11	152	2.5	1.13	5.02	0.93	-0.86	1.48	-0.45
IDEQ	13-Dec-96	16.1	134	11.6	2.78	4.90	2.45	1.01	1.05	3.06
IDEQ	30-Jan-97	3.68	94	1.9	1.30	4.54	0.62	-0.78	0.09	-0.72
IDEQ	19-Feb-97	5.01	75	2.0	1.61	4.32	0.70	-0.59	-0.37	-0.65
IDEQ	26-Mar-97	11.9	84	5.4	2.48	4.43	1.68	0.40	-0.15	0.65
IDEQ	16-Apr-97	7.48	74	3.0	2.01	4.30	1.09	-0.23	-0.39	-0.28
IDEQ	24-Jun-97	12.3	30	2.0	2.51	3.40	0.69	0.46	-1.45	-0.67
IDEQ	23-Jul-97	7.06	42	1.6	1.95	3.74	0.47	-0.29	-1.16	-0.82
URS	12-Nov-97	4.15	80.5	1.8	1.42	4.39	0.59	-0.71	-0.24	-0.74
IDEQ	26-Nov-97	3.2	63	1.1	1.16	4.14	0.08	-0.85	-0.66	-1.02
IDEQ	17-Dec-97	3.38	70	1.3	1.22	4.25	0.24	-0.82	-0.49	-0.94
IDEQ	25-Feb-98	7.48	66	2.7	2.01	4.19	0.98	-0.23	-0.59	-0.41
IDEQ	20-Mar-98	4.73	101	2.6	1.55	4.62	0.94	-0.63	0.25	-0.44

URS	16-May-98	28	26.8	4.0	3.33	3.29	1.40	2.72	-1.53	0.13
IDEQ	26-Jun-98	12.3	41	2.7	2.51	3.71	1.00	0.46	-1.19	-0.39
IDEQ	26-Jun-98	12.3	44	2.9	2.51	3.78	1.07	0.46	-1.11	-0.31
IDEQ	28-Jul-98	4.11	80	1.8	1.41	4.38	0.57	-0.72	-0.25	-0.75
IDEQ	24-Sep-98	3.38	62	1.1	1.22	4.13	0.12	-0.82	-0.68	-1.00
IDEQ	8-Oct-98	3.29	67	1.2	1.19	4.20	0.17	-0.83	-0.56	-0.98
URS	6-Dec-98	3.86	160	3.3	1.35	5.08	1.20	-0.75	1.67	-0.15

tPb

Concentration over time analysis r2 Slope, m

tPb NM296 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.063** **-0.00020**

Time	Ln[COC]	[COC]
16-May-91	4.74	115
9-Dec-95	4.41	82
6-Dec-98	4.19	66

LnConc.=mTime+b >'96 r2, m: **0.646** **0.00602**

26-Jun-98	3.85	47
6-Dec-98	4.83	125

Load over time analysis

tPb NM296 **Load over time**

LnLoad=mTime+b All data r2, m: **0.102** **-0.00031**

Time	LnLoad	Load
16-May-91	1.66	5
9-Dec-95	1.14	3
6-Dec-98	0.80	2

LnLoad=mTime+b >'96 r2, m: **0.000** **-0.00006**

26-Jun-98	0.63	2
6-Dec-98	0.62	2

max r2: 0.810 max r2: 0.251

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.063	-0.00020	11.46	0.102	-0.00031	12.09
0.196	-0.00036	17.14	0.104	-0.00034	13.11
0.204	-0.00040	18.52	0.251	-0.00055	20.55
0.194	-0.00040	18.36	0.222	-0.00050	18.68
0.204	-0.00042	19.02	0.201	-0.00047	17.76
0.229	-0.00045	20.18	0.187	-0.00046	17.37
0.235	-0.00046	20.73	0.176	-0.00045	17.08
0.238	-0.00048	21.17	0.187	-0.00048	17.95
0.220	-0.00046	20.66	0.192	-0.00050	18.57
0.201	-0.00045	20.08	0.213	-0.00053	19.93
0.179	-0.00042	19.23	0.219	-0.00056	20.70
0.154	-0.00039	18.24	0.182	-0.00049	18.40
0.128	-0.00036	17.00	0.194	-0.00052	19.50
0.101	-0.00032	15.55	0.207	-0.00056	20.72
0.068	-0.00025	13.27	0.204	-0.00057	21.11
0.038	-0.00018	10.75	0.203	-0.00058	21.62
0.020	-0.00013	9.00	0.193	-0.00058	21.59
0.010	-0.00009	7.54	0.155	-0.00050	18.77
0.004	-0.00006	6.44	0.131	-0.00046	17.44
0.003	-0.00005	6.14	0.132	-0.00048	18.06
0.001	-0.00004	5.52	0.088	-0.00038	14.28
0.007	-0.00009	7.34	0.050	-0.00028	10.68
0.019	-0.00015	9.52	0.069	-0.00033	12.76
0.021	-0.00016	9.97	0.077	-0.00037	13.99
0.020	-0.00017	10.20	0.116	-0.00047	17.69
0.014	-0.00015	9.55	0.174	-0.00060	22.43
0.004	-0.00008	7.11	0.180	-0.00065	23.92
0.005	-0.00010	7.64	0.144	-0.00059	22.05
0.005	-0.00010	7.92	0.118	-0.00056	20.79
0.001	-0.00004	5.54	0.102	-0.00055	20.52
0.002	-0.00008	6.91	0.106	-0.00060	22.21
0.010	-0.00017	10.36	0.077	-0.00053	19.78
0.061	-0.00043	19.51	0.058	-0.00049	18.33
0.072	-0.00050	22.03	0.087	-0.00064	23.76
0.057	-0.00048	21.30	0.106	-0.00077	28.37
0.014	-0.00023	12.61	0.112	-0.00085	31.17
0.001	0.00005	2.25	0.013	-0.00024	9.25
0.015	0.00026	-5.15	0.025	-0.00035	13.22
0.034	0.00043	-11.15	0.035	-0.00046	17.22
0.089	0.00076	-23.06	0.002	0.00011	-3.37
0.171	0.00120	-39.03	0.042	0.00054	-18.53
0.069	0.00080	-24.51	0.057	0.00071	-24.98
0.020	0.00049	-13.50	0.037	0.00069	-24.06
0.054	0.00090	-28.23	0.032	0.00071	-24.90
0.069	0.00119	-38.52	0.003	-0.00022	8.67
0.138	0.00207	-70.47	0.156	-0.00187	68.19
0.210	0.00304	-105.27	0.154	-0.00219	79.57

0.810	0.00715	-253.39	0.168	-0.00289	104.96
0.725	0.00643	-227.32	0.027	-0.00118	43.27
0.646	0.00602	-212.75	0.000	-0.00006	2.92

update for EV, CV:

tPb **NM296**

LN Analysis **tPb**

Load **Load Data, EV=3.71 lbs/day CV=0.696**

Load Data-based LN

Avg:	**4**	u	ln tPb Load	tPb Load
SD:	**3**	3	3.0	20
CV:	**0.70**	3	1.11	3
Min:	**0.8**	0	-1.11	3
Max:	**12**	-3	-0.77	0.5
Median:	**3**			
		4	3.71	
		0.70	0.696	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.979, EV=3.72lbs/day CV=0.686; max r2=0.98**

r2 u,lnLoad:	0.979	u	lnLoad	Load	
slope, m:	1.610	3	2.99	20	
intercept, b:	-1.805	0	1.12	3	
N: 54		-3	-0.74	0.5	
E[Load]:	3.7	Parameter Estimates			0.979
SD[Load]:	3	from LN regression			3.7
CV[Load]:	0.69	update graph label			0.7
					max r2
	tPb	N: 54			0.979

Date	**Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2 forward**
update and rank for new data						
4-Oct-91	**0.8**	1	0.0115	-2.273	-0.170	0.979
26-Nov-97	**1.1**	2	0.0300	-1.881	0.081	0.977
24-Sep-98	**1.1**	3	0.0484	-1.661	0.120	0.976
8-Oct-98	**1.2**	4	0.0668	-1.500	0.171	0.975
17-Dec-97	**1.3**	5	0.0853	-1.371	0.241	0.973
23-Jul-97	**1.6**	6	0.1037	-1.261	0.467	0.971
25-Jul-95	**1.7**	7	0.1221	-1.164	0.520	0.971
11-Jul-95	**1.7**	8	0.1406	-1.078	0.521	0.971
28-Jul-98	**1.8**	9	0.1590	-0.999	0.570	0.971
12-Nov-97	**1.8**	10	0.1774	-0.925	0.586	0.970
30-Jan-97	**1.9**	11	0.1959	-0.857	0.621	0.970
24-Jul-96	**1.9**	12	0.2143	-0.792	0.635	0.969
12-Jun-95	**1.9**	13	0.2327	-0.730	0.643	0.967
24-Jun-97	**2.0**	14	0.2512	-0.671	0.686	0.966
19-Feb-97	**2.0**	15	0.2696	-0.614	0.704	0.964
21-Aug-96	**2.3**	16	0.2880	-0.559	0.823	0.962
20-Jul-94	**2.4**	17	0.3065	-0.506	0.885	0.962
27-Jun-95	**2.4**	18	0.3249	-0.454	0.891	0.963
27-Nov-96	**2.5**	19	0.3433	-0.403	0.933	0.963
20-Mar-98	**2.6**	20	0.3618	-0.354	0.944	0.965
25-Feb-98	**2.7**	21	0.3802	-0.305	0.977	0.966
28-Mar-96	**2.7**	22	0.3986	-0.257	0.980	0.967
26-Jun-98	**2.7**	23	0.4171	-0.209	0.998	0.968
23-Jun-94	**2.8**	24	0.4355	-0.162	1.014	0.969
8-Sep-94	**2.8**	25	0.4539	-0.116	1.028	0.970
4-Oct-94	**2.8**	26	0.4724	-0.069	1.028	0.970
18-Oct-95	**2.9**	27	0.4908	-0.023	1.069	0.970
26-Jun-98	**2.9**	28	0.5092	0.023	1.069	0.970
16-Apr-97	**3.0**	29	0.5276	0.069	1.091	0.969
25-Apr-95	**3.0**	30	0.5461	0.116	1.101	0.968
20-Jul-94	**3.2**	31	0.5645	0.162	1.151	0.966
15-Aug-94	**3.2**	32	0.5829	0.209	1.164	0.965
6-Dec-98	**3.3**	33	0.6014	0.257	1.201	0.963
19-Jun-96	**3.4**	34	0.6198	0.305	1.226	0.961
17-Jan-96	**3.4**	35	0.6382	0.354	1.233	0.958
13-Dec-94	**3.6**	36	0.6567	0.403	1.279	0.955
15-Nov-94	**3.7**	37	0.6751	0.454	1.310	0.951
16-May-91	**4.0**	38	0.6935	0.506	1.384	0.946
16-May-98	**4.0**	39	0.7120	0.559	1.396	0.943
27-Dec-95	**4.0**	40	0.7304	0.614	1.398	0.938
8-May-96	**4.1**	41	0.7488	0.671	1.402	0.931
9-Feb-95	**4.1**	42	0.7673	0.730	1.419	0.922
7-Jun-94	**4.7**	43	0.7857	0.792	1.555	0.914
21-Nov-95	**4.8**	44	0.8041	0.857	1.560	0.901
19-May-94	**5.1**	45	0.8226	0.925	1.635	0.886
26-Mar-97	**5.4**	46	0.8410	0.999	1.682	0.866
13-Apr-95	**5.4**	47	0.8594	1.078	1.683	0.844

3-May-94	**7.0**	48	0.8779	1.164	1.942	0.894
23-May-95	**7.3**	49	0.8963	1.261	1.988	0.875
9-May-95	**9.0**	50	0.9147	1.371	2.199	0.947
22-Mar-95	**9.3**	51	0.9332	1.500	2.232	
15-Aug-94	**10.1**	52	0.9516	1.661	2.316	
13-Dec-96	**11.6**	53	0.9700	1.881	2.452	
6-Apr-94	**12.4**	54	0.9885	2.273	2.519	

update for EV, CV:

tPb		**NM296**		90	90.4
LN Analysis		**tPb**		0.46	0.46
Concentration		**Conc. Data, EV=90.4 ug/L CV=0.46**			
Avg:	**90**	**Data-based LN**			
SD:	**42**	u	ln[tPb]	[tPb]	
CV:	**0.46**	3	5.7	306	
Min:	**24**	0	4.41	82	
Max:	**193**	-3	3.09	22	
Median:	**80**				

				0.064	0.064
	u=mLn{Conc.}+b:			587.5	587
update for r2, EV, CV:	**r2=0.064, EV=587 ug/L CV=7.2; max r2=0.84**			7.201	7.2
	r2 u,lnConc:	0.064	u	lnConc.	Conc.
	slope, m:	-0.502	3	-1.58	0
	intercept, b:	2.205	0	4.39	81
	N: 54		-3	10.37	31815
0.979	E[Conc]:	587.5	Parameter Estimates		
3.72	SD[Conc]:	4231	from LN regression		
0.686	CV[Conc]:	7.20	update graph label		

						max r2
	tPb	N: 54				0.840
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
16-May-91	24	1	0.0115	-2.273	3.178	0.064
4-Oct-91	106	2	0.0300	-1.881	4.663	0.165
6-Apr-94	120	3	0.0484	-1.661	4.787	0.163
3-May-94	78.3	4	0.0668	-1.500	4.361	0.152
19-May-94	63	5	0.0853	-1.371	4.143	0.166
7-Jun-94	88	6	0.1037	-1.261	4.477	0.196
23-Jun-94	94	7	0.1221	-1.164	4.543	0.204
20-Jul-94	143	8	0.1406	-1.078	4.963	0.208
20-Jul-94	143	9	0.1590	-0.999	4.963	0.189
15-Aug-94	153	10	0.1774	-0.925	5.030	0.168
15-Aug-94	153	11	0.1959	-0.857	5.030	0.145
8-Sep-94	158	12	0.2143	-0.792	5.063	0.121
4-Oct-94	158	13	0.2327	-0.730	5.063	0.096
15-Nov-94	193	14	0.2512	-0.671	5.263	0.072
13-Dec-94	187	15	0.2696	-0.614	5.231	0.043
9-Feb-95	137	16	0.2880	-0.559	4.920	0.019
22-Mar-95	118	17	0.3065	-0.506	4.771	0.007
13-Apr-95	100	18	0.3249	-0.454	4.605	0.001
25-Apr-95	77	19	0.3433	-0.403	4.344	0.000
9-May-95	82	20	0.3618	-0.354	4.407	0.000
23-May-95	46	21	0.3802	-0.305	3.829	0.001
12-Jun-95	46	22	0.3986	-0.257	3.829	0.000
27-Jun-95	70	23	0.4171	-0.209	4.248	0.002
11-Jul-95	74	24	0.4355	-0.162	4.304	0.003
25-Jul-95	85	25	0.4539	-0.116	4.443	0.002
18-Oct-95	108	26	0.4724	-0.069	4.682	0.001
21-Nov-95	66	27	0.4908	-0.023	4.190	0.001
27-Dec-95	69	28	0.5092	0.023	4.234	0.001
17-Jan-96	93	29	0.5276	0.069	4.533	0.001
28-Mar-96	59	30	0.5461	0.116	4.078	0.005
8-May-96	50	31	0.5645	0.162	3.912	0.003
19-Jun-96	33	32	0.5829	0.209	3.497	0.000
24-Jul-96	70	33	0.6014	0.257	4.248	0.006
21-Aug-96	92	34	0.6198	0.305	4.522	0.007
27-Nov-96	152	35	0.6382	0.354	5.024	0.002
13-Dec-96	134	36	0.6567	0.403	4.898	0.005
30-Jan-97	94	37	0.6751	0.454	4.543	0.042
19-Feb-97	75	38	0.6935	0.506	4.317	0.086
26-Mar-97	84	39	0.7120	0.559	4.431	0.118
16-Apr-97	74	40	0.7304	0.614	4.304	0.185
24-Jun-97	30	41	0.7488	0.671	3.401	0.251
23-Jul-97	42	42	0.7673	0.730	3.738	0.176
12-Nov-97	80.5	43	0.7857	0.792	4.388	0.129
26-Nov-97	63	44	0.8041	0.857	4.143	0.201
17-Dec-97	70	45	0.8226	0.925	4.248	0.230
25-Feb-98	66	46	0.8410	0.999	4.190	0.304
20-Mar-98	101	47	0.8594	1.078	4.615	0.385

16-May-98	26.8	48	0.8779	1.164	3.288	0.840
26-Jun-98	41	49	0.8963	1.261	3.714	0.805
26-Jun-98	44	50	0.9147	1.371	3.784	0.743
28-Jul-98	80	51	0.9332	1.500	4.382	
24-Sep-98	62	52	0.9516	1.661	4.127	
8-Oct-98	67	53	0.9700	1.881	4.205	
6-Dec-98	160	54	0.9885	2.273	5.075	

update for EV, CV:

tPb		**NM296**			9	9.09
LN Analysis		**tPb**			0.76	0.765
Discharge, Q		**Q Data, EV=9.09 cfs CV=0.765**				
Avg:	**9**	**Q Data-based LN**				
SD:	**7**	u	lnQ	Q		
CV:	**0.76**	3	4.0	55		
Min:	**1**	0	1.98	7		
Max:	**31**	-3	-0.06	1		
Median:	**7**					

					0.952	0.952
					9.3	9.26
u=mLn{Q}+b:					0.85	0.849
update for r2, EV, CV:	**r2=0.952, EV=9.26 cfs CV=0.849; max r2=0.98**					
r2 u,lnQ:	0.952	u	lnQ	Q		
slope, m:	1.358	3	4.16	64		
intercept, b:	-2.654	0	1.95	7		
N:	54	-3	-0.26	1		
E[Q]:	9.3	Parameter Estimates				
SD[Q]:	8	from LN regression				
CV[Q]:	0.85	update graph label				

						max r2
	Q	N: 54				0.978
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	1.48	1	0.0115	-2.273	0.392	0.952
27-Nov-96	3.11	2	0.0300	-1.881	1.135	0.947
20-Jul-94	3.15	3	0.0484	-1.661	1.147	0.958
26-Nov-97	3.2	4	0.0668	-1.500	1.163	0.965
8-Sep-94	3.29	5	0.0853	-1.371	1.191	0.969
4-Oct-94	3.29	6	0.1037	-1.261	1.191	0.973
8-Oct-98	3.29	7	0.1221	-1.164	1.191	0.976
17-Dec-97	3.38	8	0.1406	-1.078	1.218	0.977
24-Sep-98	3.38	9	0.1590	-0.999	1.218	0.978
15-Nov-94	3.57	10	0.1774	-0.925	1.273	0.978
13-Dec-94	3.57	11	0.1959	-0.857	1.273	0.978
25-Jul-95	3.68	12	0.2143	-0.792	1.303	0.978
30-Jan-97	3.68	13	0.2327	-0.730	1.303	0.977
6-Dec-98	3.86	14	0.2512	-0.671	1.351	0.976
15-Aug-94	3.89	15	0.2696	-0.614	1.358	0.975
20-Jul-94	4.11	16	0.2880	-0.559	1.413	0.973
28-Jul-98	4.11	17	0.3065	-0.506	1.413	0.972
12-Nov-97	4.15	18	0.3249	-0.454	1.423	0.970
11-Jul-95	4.23	19	0.3433	-0.403	1.442	0.968
21-Aug-96	4.6	20	0.3618	-0.354	1.526	0.967
20-Mar-98	4.73	21	0.3802	-0.305	1.554	0.965
18-Oct-95	5.01	22	0.3986	-0.257	1.611	0.964
24-Jul-96	5.01	23	0.4171	-0.209	1.611	0.962
19-Feb-97	5.01	24	0.4355	-0.162	1.611	0.961
23-Jun-94	5.45	25	0.4539	-0.116	1.696	0.962
9-Feb-95	5.61	26	0.4724	-0.069	1.725	0.962
27-Jun-95	6.47	27	0.4908	-0.023	1.867	0.964
17-Jan-96	6.86	28	0.5092	0.023	1.926	0.962
23-Jul-97	7.06	29	0.5276	0.069	1.954	0.959
25-Apr-95	7.26	30	0.5461	0.116	1.982	0.957
16-Apr-97	7.48	31	0.5645	0.162	2.012	0.955
25-Feb-98	7.48	32	0.5829	0.209	2.012	0.954
12-Jun-95	7.69	33	0.6014	0.257	2.040	0.956
28-Mar-96	8.39	34	0.6198	0.305	2.127	0.963
7-Jun-94	10	35	0.6382	0.354	2.303	0.968
13-Apr-95	10	36	0.6567	0.403	2.303	0.965
27-Dec-95	10.9	37	0.6751	0.454	2.389	0.963
26-Mar-97	11.9	38	0.6935	0.506	2.477	0.959
24-Jun-97	12.3	39	0.7120	0.559	2.510	0.957
26-Jun-98	12.3	40	0.7304	0.614	2.510	0.955
26-Jun-98	12.3	41	0.7488	0.671	2.510	0.950
15-Aug-94	12.31	42	0.7673	0.730	2.510	0.943
21-Nov-95	13.4	43	0.7857	0.792	2.595	0.937
22-Mar-95	14.68	44	0.8041	0.857	2.686	0.928
8-May-96	15.1	45	0.8226	0.925	2.715	0.918
19-May-94	15.13	46	0.8410	0.999	2.717	0.905
13-Dec-96	16.1	47	0.8594	1.078	2.779	0.885

3-May-94	16.55	48	0.8779	1.164	2.806	0.856
19-Jun-96	19.2	49	0.8963	1.261	2.955	0.816
6-Apr-94	19.24	50	0.9147	1.371	2.957	0.759
9-May-95	20.44	51	0.9332	1.500	3.017	
16-May-98	28	52	0.9516	1.661	3.332	
23-May-95	29.49	53	0.9700	1.881	3.384	
16-May-91	30.9	54	0.9885	2.273	3.431	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM296 **Date:** 3-Jun-00
Chemical: tZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,108	9	5,873	243	0.00	0.00	0.00	
SD:	612	7	2,779	162	1.00	1.00	1.00	
CV:	0.02	0.76	0.47	0.67				first:
Min:	33,374	1	1,540	48.6	-1.09	-1.56	-1.20	mid:
Max:	36,135	31	17,200	776	3.14	4.08	3.29	last:
Median:	35,042	7	5,815	196	-0.35	-0.02	-0.29	

tZn NM296 **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.18) update r2 **0.18** 0.18 r2: 0.037 0.009
r2 Q,[COC]: 0.18 [tZn] Q m: -0.0022 -0.00011
slope, m: -169.7 7,164 1.5 b: 86 5.85
intercept, b: 7414.9 5,873 9.1
N: 54 2,172 31 first:

LnConc. = mLn{Q}+b (r2=0.253) update r2 0.25 0.253 mid:
r2 lnQ,ln[COC]: 0.25 ln[tZn] ln Q [tZn] Q last:
slope, m: -0.34 9.11 0.39 9,010 1
intercept, b: 9.24 8.48 2.21 4,827 9
N: 54 8.06 3.43 3,170 31

for graph
tZn 0
NM296

N= 54

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	30.9	2090	347	3.43	7.64	5.85	3.14	-1.36	0.64
MFG	4-Oct-91	1.48	6100	49	0.39	8.72	3.88	-1.09	0.08	-1.20
IDEQ	6-Apr-94	19.24	6450	668	2.96	8.77	6.50	1.46	0.21	2.62
IDEQ	3-May-94	16.55	3830	341	2.81	8.25	5.83	1.07	-0.74	0.60
IDEQ	19-May-94	15.13	2600	212	2.72	7.86	5.35	0.87	-1.18	-0.19
IDEQ	7-Jun-94	10	3420	184	2.30	8.14	5.21	0.13	-0.88	-0.36
IDEQ	23-Jun-94	5.45	4210	123	1.70	8.35	4.82	-0.52	-0.60	-0.74
IDEQ	20-Jul-94	4.11	5000	111	1.41	8.52	4.71	-0.72	-0.31	-0.82
IDEQ	20-Jul-94	3.15	5000	85	1.15	8.52	4.44	-0.85	-0.31	-0.98
IDEQ	15-Aug-94	3.89	5880	123	1.36	8.68	4.81	-0.75	0.00	-0.74
IDEQ	15-Aug-94	12.31	5880	389	2.51	8.68	5.96	0.46	0.00	0.90
IDEQ	8-Sep-94	3.29	5830	103	1.19	8.67	4.64	-0.83	-0.02	-0.86
IDEQ	4-Oct-94	3.29	6730	119	1.19	8.81	4.78	-0.83	0.31	-0.77
IDEQ	15-Nov-94	3.57	9660	186	1.27	9.18	5.22	-0.79	1.36	-0.36
IDEQ	13-Dec-94	3.57	11100	213	1.27	9.31	5.36	-0.79	1.88	-0.18
IDEQ	9-Feb-95	5.61	10800	326	1.72	9.29	5.79	-0.50	1.77	0.51
IDEQ	22-Mar-95	14.68	9820	776	2.69	9.19	6.65	0.80	1.42	3.29
IDEQ	13-Apr-95	10	8870	477	2.30	9.09	6.17	0.13	1.08	1.45
IDEQ	25-Apr-95	7.26	9750	381	1.98	9.19	5.94	-0.26	1.40	0.85
IDEQ	9-May-95	20.44	3510	386	3.02	8.16	5.96	1.63	-0.85	0.88
IDEQ	23-May-95	29.49	2280	362	3.38	7.73	5.89	2.94	-1.29	0.73
IDEQ	12-Jun-95	7.69	2810	116	2.04	7.94	4.76	-0.20	-1.10	-0.78
IDEQ	27-Jun-95	6.47	3670	128	1.87	8.21	4.85	-0.38	-0.79	-0.71
IDEQ	11-Jul-95	4.23	4230	96	1.44	8.35	4.57	-0.70	-0.59	-0.91
IDEQ	25-Jul-95	3.68	5050	100	1.30	8.53	4.60	-0.78	-0.30	-0.88
IDEQ	18-Oct-95	5.01	7970	215	1.61	8.98	5.37	-0.59	0.75	-0.17
IDEQ	21-Nov-95	13.4	5200	375	2.60	8.56	5.93	0.62	-0.24	0.81
IDEQ	27-Dec-95	10.9	6070	356	2.39	8.71	5.87	0.26	0.07	0.70
IDEQ	17-Jan-96	6.86	6860	253	1.93	8.83	5.53	-0.32	0.36	0.06
IDEQ	28-Mar-96	8.39	5070	229	2.13	8.53	5.43	-0.10	-0.29	-0.09
IDEQ	8-May-96	15.1	4560	370	2.71	8.43	5.91	0.87	-0.47	0.79
IDEQ	19-Jun-96	19.2	1930	199	2.95	7.57	5.30	1.46	-1.42	-0.27
IDEQ	24-Jul-96	5.01	3530	95	1.61	8.17	4.56	-0.59	-0.84	-0.91
IDEQ	21-Aug-96	4.6	4640	115	1.53	8.44	4.74	-0.65	-0.44	-0.79
IDEQ	27-Nov-96	3.11	8610	144	1.13	9.06	4.97	-0.86	0.98	-0.61
IDEQ	13-Dec-96	16.1	8260	715	2.78	9.02	6.57	1.01	0.86	2.92
IDEQ	30-Jan-97	3.68	7500	148	1.30	8.92	5.00	-0.78	0.59	-0.58
IDEQ	19-Feb-97	5.01	7130	192	1.61	8.87	5.26	-0.59	0.45	-0.31
IDEQ	26-Mar-97	11.9	7130	456	2.48	8.87	6.12	0.40	0.45	1.32
IDEQ	16-Apr-97	7.48	6090	245	2.01	8.71	5.50	-0.23	0.08	0.01
IDEQ	24-Jun-97	12.3	1540	102	2.51	7.34	4.62	0.46	-1.56	-0.87
IDEQ	23-Jul-97	7.06	2950	112	1.95	7.99	4.72	-0.29	-1.05	-0.81
URS	12-Nov-97	4.15	8080	180	1.42	9.00	5.20	-0.71	0.79	-0.39
IDEQ	26-Nov-97	3.2	6820	117	1.16	8.83	4.77	-0.85	0.34	-0.78
IDEQ	17-Dec-97	3.38	6930	126	1.22	8.84	4.84	-0.82	0.38	-0.72
IDEQ	25-Feb-98	7.48	6470	260	2.01	8.77	5.56	-0.23	0.21	0.11
IDEQ	20-Mar-98	4.73	5410	138	1.55	8.60	4.92	-0.63	-0.17	-0.65

URS	16-May-98	28	2970	447	3.33	8.00	6.10	2.72	-1.04	1.26
IDEQ	26-Jun-98	12.3	3400	225	2.51	8.13	5.42	0.46	-0.89	-0.11
IDEQ	26-Jun-98	12.3	3510	232	2.51	8.16	5.45	0.46	-0.85	-0.07
IDEQ	28-Jul-98	4.11	4650	103	1.41	8.44	4.63	-0.72	-0.44	-0.87
IDEQ	24-Sep-98	3.38	5800	105	1.22	8.67	4.66	-0.82	-0.03	-0.85
IDEQ	8-Oct-98	3.29	6290	111	1.19	8.75	4.71	-0.83	0.15	-0.81
URS	6-Dec-98	3.86	17200	357	1.35	9.75	5.88	-0.75	4.08	0.70

tZn

Concentration over time analysis r2 Slope, m

tZn NM296 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.012** **0.00009**

Time	Ln[COC]	[COC]
16-May-91	8.42	4,537
9-Dec-95	8.56	5,236
6-Dec-98	8.66	5,751

LnConc.=mTime+b >'96 r2, m: **0.880** **0.00886**

26-Jun-98	8.07	3,182
6-Dec-98	9.51	13,487

Load over time analysis

tZn NM296 **Load over time**

LnLoad=mTime+b All data r2, m: **0.001** **-0.00003**

Time	LnLoad	Load
16-May-91	5.34	209
9-Dec-95	5.30	200
6-Dec-98	5.27	195

LnLoad=mTime+b >'96 r2, m: **0.097** **0.00278**

26-Jun-98	4.85	128
6-Dec-98	5.30	201

max r2: 0.900 max r2: 0.117

Forward time Regression on Ln Concentration(t) **Forward time Regression on Ln Load(t)**

r2	slope	intercept	r2	slope	intercept
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.012	0.00009	5.55	0.001	-0.00003	6.18
0.000	0.00001	8.37	0.001	0.00003	4.33
0.001	0.00002	7.81	0.013	-0.00013	9.84
0.001	0.00003	7.41	0.004	-0.00007	7.73
0.000	0.00002	8.01	0.001	-0.00004	6.76
0.001	-0.00002	9.48	0.001	-0.00004	6.67
0.003	-0.00005	10.51	0.002	-0.00004	6.87
0.006	-0.00007	11.19	0.004	-0.00008	7.98
0.007	-0.00008	11.54	0.010	-0.00012	9.45
0.009	-0.00009	11.94	0.024	-0.00018	11.79
0.009	-0.00009	11.96	0.036	-0.00023	13.43
0.008	-0.00010	11.99	0.025	-0.00019	12.15
0.008	-0.00010	12.04	0.044	-0.00026	14.55
0.006	-0.00009	11.65	0.066	-0.00032	16.81
0.001	-0.00004	10.07	0.074	-0.00036	17.91
0.000	0.00002	7.81	0.078	-0.00038	18.68
0.006	0.00009	5.45	0.068	-0.00036	18.04
0.018	0.00015	3.17	0.038	-0.00026	14.40
0.035	0.00021	0.92	0.020	-0.00019	11.92
0.067	0.00030	-2.05	0.010	-0.00013	9.86
0.056	0.00028	-1.39	0.002	-0.00006	7.37
0.030	0.00020	1.32	0.000	0.00002	4.66
0.014	0.00014	3.60	0.001	-0.00005	6.85
0.007	0.00010	5.01	0.005	-0.00011	9.04
0.003	0.00007	5.96	0.024	-0.00023	13.45
0.003	0.00007	6.02	0.063	-0.00038	18.90
0.012	0.00015	3.07	0.065	-0.00041	19.88
0.013	0.00017	2.53	0.039	-0.00033	16.94
0.020	0.00022	0.66	0.018	-0.00023	13.53
0.037	0.00032	-2.91	0.011	-0.00019	12.06
0.040	0.00036	-4.22	0.007	-0.00016	11.09
0.038	0.00037	-4.65	0.000	0.00001	4.77
0.003	0.00011	4.75	0.000	0.00005	3.57
0.000	-0.00003	9.74	0.006	-0.00017	11.47
0.003	-0.00011	12.72	0.029	-0.00041	19.80
0.000	0.00004	7.26	0.052	-0.00058	25.83
0.010	0.00024	0.17	0.001	-0.00006	7.18
0.031	0.00045	-7.41	0.004	-0.00016	10.96
0.069	0.00073	-17.54	0.003	-0.00016	10.82
0.139	0.00114	-32.50	0.035	0.00050	-12.81
0.234	0.00170	-52.47	0.117	0.00103	-31.97
0.076	0.00090	-23.65	0.060	0.00082	-24.12
0.007	0.00030	-1.95	0.016	0.00049	-12.50
0.044	0.00083	-21.15	0.022	0.00064	-17.83
0.108	0.00149	-45.15	0.000	0.00009	2.04
0.286	0.00297	-98.42	0.028	-0.00097	40.24
0.532	0.00478	-163.38	0.004	-0.00045	21.47

0.898	0.00789	-275.63	0.065	-0.00215	82.72
0.900	0.00866	-303.38	0.017	0.00105	-32.79
0.880	0.00886	-310.67	0.097	0.00278	-95.00

update for EV, CV:

tZn **NM296**
LN Analysis **tZn**

Load **Load Data, EV=243 lbs/day CV=0.666**

Avg:	**243**	**Load Data-based LN**		
SD:	**162**	u	ln tZn Load	tZn Load
CV:	**0.67**	3	7.1	1246
Min:	**48.6**	0	5.31	202
Max:	**776**	-3	3.49	32.8
Median:	**196**			
		243	243	
		0.67	0.666	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.96, EV=247lbs/day CV=0.722; max r2=0.97**

r2 u,lnLoad:	0.960	u	lnLoad	Load	
slope, m:	1.543	3	7.24	1397	
intercept, b:	-8.177	0	5.30	200	
N: 54		-3	3.35	28.6	
E[Load]:	246.7	Parameter Estimates			0.960
SD[Load]:	178	from LN regression			246.7
CV[Load]:	0.72	update graph label			0.7
					max r2
	tZn	N: 54			0.974

Date	**Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2 forward**
update and rank for new data						
4-Oct-91	**49**	1	0.0115	-2.273	3.883	0.960
20-Jul-94	**85**	2	0.0300	-1.881	4.440	0.956
24-Jul-96	**95**	3	0.0484	-1.661	4.555	0.960
11-Jul-95	**96**	4	0.0668	-1.500	4.567	0.965
25-Jul-95	**100**	5	0.0853	-1.371	4.605	0.968
24-Jun-97	**102**	6	0.1037	-1.261	4.624	0.971
28-Jul-98	**103**	7	0.1221	-1.164	4.633	0.973
8-Sep-94	**103**	8	0.1406	-1.078	4.637	0.974
24-Sep-98	**105**	9	0.1590	-0.999	4.658	0.974
20-Jul-94	**111**	10	0.1774	-0.925	4.706	0.973
8-Oct-98	**111**	11	0.1959	-0.857	4.713	0.973
23-Jul-97	**112**	12	0.2143	-0.792	4.719	0.972
21-Aug-96	**115**	13	0.2327	-0.730	4.743	0.971
12-Jun-95	**116**	14	0.2512	-0.671	4.756	0.969
26-Nov-97	**117**	15	0.2696	-0.614	4.766	0.967
4-Oct-94	**119**	16	0.2880	-0.559	4.780	0.965
15-Aug-94	**123**	17	0.3065	-0.506	4.813	0.964
23-Jun-94	**123**	18	0.3249	-0.454	4.816	0.962
17-Dec-97	**126**	19	0.3433	-0.403	4.836	0.960
27-Jun-95	**128**	20	0.3618	-0.354	4.850	0.960
20-Mar-98	**138**	21	0.3802	-0.305	4.925	0.961
27-Nov-96	**144**	22	0.3986	-0.257	4.970	0.961
30-Jan-97	**148**	23	0.4171	-0.209	5.001	0.961
12-Nov-97	**180**	24	0.4355	-0.162	5.195	0.963
7-Jun-94	**184**	25	0.4539	-0.116	5.215	0.961
15-Nov-94	**186**	26	0.4724	-0.069	5.223	0.958
19-Feb-97	**192**	27	0.4908	-0.023	5.258	0.955
19-Jun-96	**199**	28	0.5092	0.023	5.295	0.952
19-May-94	**212**	29	0.5276	0.069	5.355	0.949
13-Dec-94	**213**	30	0.5461	0.116	5.362	0.945
18-Oct-95	**215**	31	0.5645	0.162	5.370	0.941
26-Jun-98	**225**	32	0.5829	0.209	5.416	0.938
28-Mar-96	**229**	33	0.6014	0.257	5.433	0.933
26-Jun-98	**232**	34	0.6198	0.305	5.448	0.929
16-Apr-97	**245**	35	0.6382	0.354	5.502	0.927
17-Jan-96	**253**	36	0.6567	0.403	5.534	0.923
25-Feb-98	**260**	37	0.6751	0.454	5.562	0.921
9-Feb-95	**326**	38	0.6935	0.506	5.787	0.923
3-May-94	**341**	39	0.7120	0.559	5.832	0.920
16-May-91	**347**	40	0.7304	0.614	5.851	0.921
27-Dec-95	**356**	41	0.7488	0.671	5.875	0.922
6-Dec-98	**357**	42	0.7673	0.730	5.878	0.926
23-May-95	**362**	43	0.7857	0.792	5.891	0.927
8-May-96	**370**	44	0.8041	0.857	5.915	0.926
21-Nov-95	**375**	45	0.8226	0.925	5.927	0.924
25-Apr-95	**381**	46	0.8410	0.999	5.942	0.919
9-May-95	**386**	47	0.8594	1.078	5.956	0.907

15-Aug-94	**389**	48	0.8779	1.164	5.965	0.886
16-May-98	**447**	49	0.8963	1.261	6.103	0.853
26-Mar-97	**456**	50	0.9147	1.371	6.124	0.807
13-Apr-95	**477**	51	0.9332	1.500	6.168	
6-Apr-94	**668**	52	0.9516	1.661	6.504	
13-Dec-96	**715**	53	0.9700	1.881	6.573	
22-Mar-95	**776**	54	0.9885	2.273	6.654	

update for EV, CV:

tZn		**NM296**		5,873	5870
LN Analysis		**tZn**		0.47	0.473
Concentration		**Conc. Data, EV=5870 ug/L CV=0.473**			
Avg:	**5,873**	**Data-based LN**			
SD:	**2,779**	u	ln[tZn]	[tZn]	
CV:	**0.47**	3	9.9	20445	
Min:	**1,540**	0	8.58	5309	
Max:	**17,200**	-3	7.23	1378	
Median:	**5,815**				

				0.983	0.983
	u=mLn{Conc.}+b:			5954.2	5950
update for r2, EV, CV:	**r2=0.983, EV=5950 ug/L CV=0.528; max r2=0.98**			0.528	0.528
	r2 u,lnConc:	0.983	u	lnConc.	Conc.
	slope, m:	2.017	3	10.06	23306
	intercept, b:	-17.281	0	8.57	5265
	N: 54		-3	7.08	1190
0.96	E[Conc]:	5954.2	Parameter Estimates		
247	SD[Conc]:	3144	from LN regression		
0.722	CV[Conc]:	0.53	update graph label		

						max r2
	tZn	N: 54				0.983
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
24-Jun-97	1540	1	0.0115	-2.273	7.340	0.983
19-Jun-96	1930	2	0.0300	-1.881	7.565	0.983
16-May-91	2090	3	0.0484	-1.661	7.645	0.982
23-May-95	2280	4	0.0668	-1.500	7.732	0.982
19-May-94	2600	5	0.0853	-1.371	7.863	0.983
12-Jun-95	2810	6	0.1037	-1.261	7.941	0.983
23-Jul-97	2950	7	0.1221	-1.164	7.990	0.982
16-May-98	2970	8	0.1406	-1.078	7.996	0.981
26-Jun-98	3400	9	0.1590	-0.999	8.132	0.981
7-Jun-94	3420	10	0.1774	-0.925	8.137	0.980
9-May-95	3510	11	0.1959	-0.857	8.163	0.979
26-Jun-98	3510	12	0.2143	-0.792	8.163	0.978
24-Jul-96	3530	13	0.2327	-0.730	8.169	0.978
27-Jun-95	3670	14	0.2512	-0.671	8.208	0.979
3-May-94	3830	15	0.2696	-0.614	8.251	0.980
23-Jun-94	4210	16	0.2880	-0.559	8.345	0.981
11-Jul-95	4230	17	0.3065	-0.506	8.350	0.980
8-May-96	4560	18	0.3249	-0.454	8.425	0.979
21-Aug-96	4640	19	0.3433	-0.403	8.442	0.978
28-Jul-98	4650	20	0.3618	-0.354	8.445	0.977
20-Jul-94	5000	21	0.3802	-0.305	8.517	0.976
20-Jul-94	5000	22	0.3986	-0.257	8.517	0.975
25-Jul-95	5050	23	0.4171	-0.209	8.527	0.973
28-Mar-96	5070	24	0.4355	-0.162	8.531	0.971
21-Nov-95	5200	25	0.4539	-0.116	8.556	0.970
20-Mar-98	5410	26	0.4724	-0.069	8.596	0.968
24-Sep-98	5800	27	0.4908	-0.023	8.666	0.966
8-Sep-94	5830	28	0.5092	0.023	8.671	0.966
15-Aug-94	5880	29	0.5276	0.069	8.679	0.966
15-Aug-94	5880	30	0.5461	0.116	8.679	0.966
27-Dec-95	6070	31	0.5645	0.162	8.711	0.964
16-Apr-97	6090	32	0.5829	0.209	8.714	0.964
4-Oct-91	6100	33	0.6014	0.257	8.716	0.962
8-Oct-98	6290	34	0.6198	0.305	8.747	0.960
6-Apr-94	6450	35	0.6382	0.354	8.772	0.958
25-Feb-98	6470	36	0.6567	0.403	8.775	0.956
4-Oct-94	6730	37	0.6751	0.454	8.814	0.953
26-Nov-97	6820	38	0.6935	0.506	8.828	0.952
17-Jan-96	6860	39	0.7120	0.559	8.833	0.950
17-Dec-97	6930	40	0.7304	0.614	8.844	0.946
19-Feb-97	7130	41	0.7488	0.671	8.872	0.941
26-Mar-97	7130	42	0.7673	0.730	8.872	0.935
30-Jan-97	7500	43	0.7857	0.792	8.923	0.925
18-Oct-95	7970	44	0.8041	0.857	8.983	0.915
12-Nov-97	8080	45	0.8226	0.925	8.997	0.911
13-Dec-96	8260	46	0.8410	0.999	9.019	0.902
27-Nov-96	8610	47	0.8594	1.078	9.061	0.889

13-Apr-95	8870	48	0.8779	1.164	9.090	0.877
15-Nov-94	9660	49	0.8963	1.261	9.176	0.859
25-Apr-95	9750	50	0.9147	1.371	9.185	0.887
22-Mar-95	9820	51	0.9332	1.500	9.192	
9-Feb-95	10800	52	0.9516	1.661	9.287	
13-Dec-94	11100	53	0.9700	1.881	9.315	
6-Dec-98	17200	54	0.9885	2.273	9.753	

update for EV, CV:

tZn		**NM296**			9	9.09
LN Analysis		**tZn**			0.76	0.765
Discharge, Q		**Q Data, EV=9.09 cfs CV=0.765**				
Avg:	**9**	**Q Data-based LN**				
SD:	**7**	u	lnQ	Q		
CV:	**0.76**	3	4.0	55		
Min:	**1**	0	1.98	7		
Max:	**31**	-3	-0.06	1		
Median:	**7**					

					0.952	0.952
					9.3	9.26
u=mLn{Q}+b:					0.85	0.849
update for r2, EV, CV:	**r2=0.952, EV=9.26 cfs CV=0.849; max r2=0.98**					
r2 u,lnQ:	0.952	u	lnQ	Q		
slope, m:	1.358	3	4.16	64		
intercept, b:	-2.654	0	1.95	7		
N: 54		-3	-0.26	1		
E[Q]:	9.3	Parameter Estimates				
SD[Q]:	8	from LN regression				
CV[Q]:	0.85	update graph label				

						max r2
	Q	N: 54				0.978
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	1.48	1	0.0115	-2.273	0.392	0.952
27-Nov-96	3.11	2	0.0300	-1.881	1.135	0.947
20-Jul-94	3.15	3	0.0484	-1.661	1.147	0.958
26-Nov-97	3.2	4	0.0668	-1.500	1.163	0.965
8-Sep-94	3.29	5	0.0853	-1.371	1.191	0.969
4-Oct-94	3.29	6	0.1037	-1.261	1.191	0.973
8-Oct-98	3.29	7	0.1221	-1.164	1.191	0.976
17-Dec-97	3.38	8	0.1406	-1.078	1.218	0.977
24-Sep-98	3.38	9	0.1590	-0.999	1.218	0.978
15-Nov-94	3.57	10	0.1774	-0.925	1.273	0.978
13-Dec-94	3.57	11	0.1959	-0.857	1.273	0.978
25-Jul-95	3.68	12	0.2143	-0.792	1.303	0.978
30-Jan-97	3.68	13	0.2327	-0.730	1.303	0.977
6-Dec-98	3.86	14	0.2512	-0.671	1.351	0.976
15-Aug-94	3.89	15	0.2696	-0.614	1.358	0.975
20-Jul-94	4.11	16	0.2880	-0.559	1.413	0.973
28-Jul-98	4.11	17	0.3065	-0.506	1.413	0.972
12-Nov-97	4.15	18	0.3249	-0.454	1.423	0.970
11-Jul-95	4.23	19	0.3433	-0.403	1.442	0.968
21-Aug-96	4.6	20	0.3618	-0.354	1.526	0.967
20-Mar-98	4.73	21	0.3802	-0.305	1.554	0.965
18-Oct-95	5.01	22	0.3986	-0.257	1.611	0.964
24-Jul-96	5.01	23	0.4171	-0.209	1.611	0.962
19-Feb-97	5.01	24	0.4355	-0.162	1.611	0.961
23-Jun-94	5.45	25	0.4539	-0.116	1.696	0.962
9-Feb-95	5.61	26	0.4724	-0.069	1.725	0.962
27-Jun-95	6.47	27	0.4908	-0.023	1.867	0.964
17-Jan-96	6.86	28	0.5092	0.023	1.926	0.962
23-Jul-97	7.06	29	0.5276	0.069	1.954	0.959
25-Apr-95	7.26	30	0.5461	0.116	1.982	0.957
16-Apr-97	7.48	31	0.5645	0.162	2.012	0.955
25-Feb-98	7.48	32	0.5829	0.209	2.012	0.954
12-Jun-95	7.69	33	0.6014	0.257	2.040	0.956
28-Mar-96	8.39	34	0.6198	0.305	2.127	0.963
7-Jun-94	10	35	0.6382	0.354	2.303	0.968
13-Apr-95	10	36	0.6567	0.403	2.303	0.965
27-Dec-95	10.9	37	0.6751	0.454	2.389	0.963
26-Mar-97	11.9	38	0.6935	0.506	2.477	0.959
24-Jun-97	12.3	39	0.7120	0.559	2.510	0.957
26-Jun-98	12.3	40	0.7304	0.614	2.510	0.955
26-Jun-98	12.3	41	0.7488	0.671	2.510	0.950
15-Aug-94	12.31	42	0.7673	0.730	2.510	0.943
21-Nov-95	13.4	43	0.7857	0.792	2.595	0.937
22-Mar-95	14.68	44	0.8041	0.857	2.686	0.928
8-May-96	15.1	45	0.8226	0.925	2.715	0.918
19-May-94	15.13	46	0.8410	0.999	2.717	0.905
13-Dec-96	16.1	47	0.8594	1.078	2.779	0.885

3-May-94	16.55	48	0.8779	1.164	2.806	0.856
19-Jun-96	19.2	49	0.8963	1.261	2.955	0.816
6-Apr-94	19.24	50	0.9147	1.371	2.957	0.759
9-May-95	20.44	51	0.9332	1.500	3.017	
16-May-98	28	52	0.9516	1.661	3.332	
23-May-95	29.49	53	0.9700	1.881	3.384	
16-May-91	30.9	54	0.9885	2.273	3.431	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NM298	**Date:**	22-Jun-00
Chemical:	dCd	**Analyst:**	J.MacLachlan

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,124	9	40	1	0.00	0.00	0.00	
SD:	793	12	18	1	1.00	1.00	1.00	
CV:	0.02	1.33	0.45	0.83				first:
Min:	34,269	2	6	0.3	-0.59	-1.92	-0.91	mid:
Max:	36,404	56	90	6	3.96	2.75	4.61	last:
Median:	34,752	4	42	1	-0.40	0.06	-0.32	

dCd NM298 : Concentration v. Discharge, Q — **Q = mTime +b** — **LnQ = mTime +b**

Conc. = mQ+b (r2=0.328)		update r2	0.33	0.328	r2:	0.168	0.103	
r2 Q,[COC]:	0.33	[dCd]	Q		m:	0.0061	0.00037	
slope, m:	-0.9	46	1.9		b:	-205	-11.48	
intercept, b:	48.1	40	8.9					
N: 50		-1	56					first:
LnConc. = mLn{Q}+b (r2=0.513)		update r2		0.51	0.513			mid:
r2 lnQ,ln[COC]:	0.51	ln[dCd]	ln Q	[dCd]	Q			last:
slope, m:	-0.43	4.01	0.64	55	2			
intercept, b:	4.28	3.34	2.18	28	9			
N: 50		2.56	4.02	13	56			

for graph
dCd 0
NM298

N= 50

	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	27-Oct-93	2.48	33	0.4	0.91	3.50	-0.82	-0.54	-0.41	-0.79
IDEQ	2-Dec-93	2.48	32	0.4	0.91	3.47	-0.85	-0.54	-0.46	-0.80
IDEQ	16-Dec-93	2.02	47	0.5	0.70	3.85	-0.67	-0.58	0.37	-0.72
IDEQ	16-Dec-93	2.47	47	0.6	0.90	3.85	-0.47	-0.54	0.37	-0.61
IDEQ	24-Jan-94	2.69	38	0.5	0.99	3.64	-0.60	-0.52	-0.13	-0.68
IDEQ	24-Jan-94	2.14	38	0.4	0.76	3.64	-0.83	-0.57	-0.13	-0.79
IDEQ	18-Feb-94	2.28	50	0.6	0.82	3.91	-0.49	-0.56	0.54	-0.62
IDEQ	8-Mar-94	4.28	44	1.0	1.45	3.78	0.01	-0.39	0.20	-0.24
IDEQ	24-Mar-94	4.66	50	1.3	1.54	3.91	0.23	-0.36	0.54	-0.02
IDEQ	24-Mar-94	4.67	50	1.3	1.54	3.91	0.23	-0.36	0.54	-0.01
IDEQ	7-Apr-94	8.51	39	1.8	2.14	3.66	0.58	-0.03	-0.07	0.49
IDEQ	4-May-94	10.58	30	1.7	2.36	3.40	0.54	0.14	-0.57	0.41
IDEQ	19-May-94	12.08	23	1.5	2.49	3.14	0.40	0.27	-0.96	0.21
IDEQ	7-Jun-94	7.8	28	1.2	2.05	3.33	0.16	-0.09	-0.68	-0.09
IDEQ	23-Jun-94	5.29	30	0.9	1.67	3.40	-0.16	-0.30	-0.57	-0.40
IDEQ	20-Jul-94	3.32	35	0.6	1.20	3.56	-0.47	-0.47	-0.30	-0.61
IDEQ	20-Jul-94	4.72	35	0.9	1.55	3.56	-0.12	-0.35	-0.30	-0.36
IDEQ	15-Aug-94	2.93	42	0.7	1.08	3.74	-0.41	-0.50	0.09	-0.58
IDEQ	15-Aug-94	2.06	42	0.5	0.72	3.74	-0.76	-0.58	0.09	-0.76
IDEQ	8-Sep-94	2.58	41	0.6	0.95	3.71	-0.56	-0.53	0.04	-0.66
IDEQ	4-Oct-94	2.58	46	0.6	0.95	3.83	-0.45	-0.53	0.31	-0.60
IDEQ	15-Nov-94	2.1	90	1.0	0.74	4.50	0.02	-0.57	2.75	-0.24
IDEQ	13-Dec-94	2.48	85	1.1	0.91	4.44	0.13	-0.54	2.48	-0.13
IDEQ	10-Jan-95	4.1	67	1.5	1.41	4.20	0.39	-0.40	1.48	0.20
IDEQ	9-Feb-95	6.85	54	2.0	1.92	3.99	0.69	-0.17	0.76	0.68
IDEQ	7-Mar-95	6.85	50	1.8	1.92	3.91	0.61	-0.17	0.54	0.54
IDEQ	13-Apr-95	10.13	48	2.6	2.32	3.87	0.96	0.11	0.43	1.27
IDEQ	25-Apr-95	7.15	46	1.8	1.97	3.83	0.57	-0.15	0.31	0.47
IDEQ	9-May-95	12.08	20	1.3	2.49	3.00	0.26	0.27	-1.13	0.03
IDEQ	23-May-95	25.86	15	2.1	3.25	2.71	0.74	1.44	-1.40	0.77
IDEQ	12-Jun-95	6.85	17	0.6	1.92	2.83	-0.47	-0.17	-1.29	-0.61
IDEQ	27-Jun-95	2.19	26	0.3	0.78	3.26	-1.18	-0.57	-0.79	-0.91
IDEQ	13-Sep-95	4.28	47	1.1	1.45	3.85	0.08	-0.39	0.37	-0.18
URS	12-Nov-97	3.92	48.4	1.0	1.37	3.88	0.02	-0.42	0.45	-0.24
URS	14-May-98	55.6	10.5	3.1	4.02	2.35	1.14	3.96	-1.65	1.77
USGS	27-Oct-98	2.1	40	0.5	0.74	3.69	-0.79	-0.57	-0.02	-0.78
USGS	19-Nov-98	1.9	67	0.7	0.64	4.20	-0.38	-0.59	1.48	-0.56
USGS	10-Dec-98	2	83	0.9	0.69	4.42	-0.11	-0.58	2.36	-0.36
IDEQ	15-Jan-99	3.32005516	51	0.9	1.20	3.93	-0.09	-0.47	0.59	-0.34
USGS	21-Jan-99	3.3	52	0.9	1.19	3.95	-0.08	-0.47	0.65	-0.33
IDEQ	23-Feb-99	1.934382724	50	0.5	0.66	3.91	-0.65	-0.59	0.54	-0.71
IDEQ	8-Mar-99	2.281431698	46	0.6	0.82	3.83	-0.57	-0.56	0.31	-0.67
USGS	22-Mar-99	17	44	4.0	2.83	3.78	1.39	0.69	0.20	2.61
USGS	20-Apr-99	30	38	6.1	3.40	3.64	1.81	1.79	-0.13	4.61
USGS	5-May-99	22	27	3.2	3.09	3.30	1.16	1.11	-0.74	1.82
USGS	23-May-99	45	9.9	2.4	3.81	2.29	0.87	3.06	-1.69	1.07
USGS	15-Jun-99	45	5.7	1.4	3.81	1.74	0.32	3.06	-1.92	0.10

USGS	7-Jul-99	16	11	0.9	2.77	2.40	-0.05	0.60	-1.63	-0.31
USGS	4-Aug-99	6.2	20	0.7	1.82	3.00	-0.40	-0.23	-1.13	-0.57
USGS	1-Sep-99	3	28	0.5	1.10	3.33	-0.79	-0.50	-0.68	-0.78

dCd

Concentration over time analysis r2 Slope, m

dCd NM298 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.073 -0.00019**

Time	Ln[COC]	[COC]
27-Oct-93	3.73	42
22-Feb-95	3.64	38
1-Sep-99	3.33	28

LnConc.=mTime+b >'96 r2, m: **#DIV/0! #DIV/0!**

1-Sep-99	#DIV/0!	#DIV/0!
1-Sep-99	#DIV/0!	#DIV/0!

Load over time analysis

dCd NM298 **Load over time**

LnLoad=mTime+b All data r2, m: **0.051 0.00019**

Time	LnLoad	Load
27-Oct-93	-0.16	1
22-Feb-95	-0.07	1
1-Sep-99	0.24	1

LnLoad=mTime+b >'96 r2, m: **#DIV/0! #DIV/0!**

1-Sep-99	#DIV/0!	#DIV/0!
1-Sep-99	#DIV/0!	#DIV/0!

max r2: #DIV/0!

Forward time Regression on Ln Concentration(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.073	-0.00019	10.18
0.076	-0.00019	10.42
0.080	-0.00020	10.70
0.076	-0.00020	10.59
0.072	-0.00020	10.47
0.072	-0.00020	10.57
0.073	-0.00020	10.68
0.067	-0.00020	10.46
0.064	-0.00019	10.38
0.058	-0.00019	10.12
0.052	-0.00018	9.84
0.051	-0.00018	9.87
0.056	-0.00019	10.28
0.069	-0.00021	11.13
0.077	-0.00023	11.77
0.085	-0.00025	12.36
0.089	-0.00026	12.74
0.093	-0.00027	13.18
0.091	-0.00027	13.31
0.089	-0.00028	13.45
0.087	-0.00028	13.67
0.081	-0.00028	13.61
0.054	-0.00023	11.71
0.030	-0.00017	9.56
0.014	-0.00012	7.67
0.005	-0.00007	6.07
0.001	-0.00003	4.30
0.001	0.00003	2.16
0.008	0.00011	-0.60
0.003	0.00007	0.87
0.002	-0.00007	5.85
0.029	-0.00029	13.87
0.074	-0.00062	25.68
0.096	-0.00144	55.51
0.077	-0.00180	68.42
0.501	-0.00571	210.45
0.557	-0.00669	245.99
0.520	-0.00695	255.48
0.430	-0.00656	241.26
0.380	-0.00658	242.08
0.303	-0.00644	236.77
0.211	-0.00564	207.97
0.103	-0.00420	155.59
0.005	-0.00095	37.16
0.098	0.00443	-158.23
0.740	0.01344	-486.13
0.966	0.02032	-736.34

max r2: #DIV/0!

Forward time Regression on Ln Load(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.051	0.00019	-6.52
0.041	0.00017	-5.85
0.032	0.00015	-5.10
0.025	0.00013	-4.49
0.020	0.00012	-4.03
0.015	0.00010	-3.41
0.008	0.00007	-2.45
0.005	0.00006	-1.83
0.004	0.00005	-1.76
0.005	0.00006	-1.97
0.006	0.00007	-2.19
0.010	0.00009	-2.94
0.015	0.00011	-3.69
0.020	0.00012	-4.32
0.022	0.00013	-4.63
0.019	0.00013	-4.44
0.013	0.00011	-3.68
0.011	0.00010	-3.46
0.006	0.00008	-2.62
0.001	0.00003	-0.84
0.000	-0.00002	0.76
0.004	-0.00006	2.36
0.006	-0.00008	2.99
0.007	-0.00009	3.43
0.005	-0.00008	3.11
0.001	-0.00004	1.64
0.000	0.00000	0.05
0.007	0.00010	-3.61
0.019	0.00019	-6.63
0.030	0.00025	-9.06
0.087	0.00048	-17.24
0.065	0.00049	-17.49
0.000	0.00003	-0.93
0.000	-0.00010	3.72
0.005	-0.00051	18.64
0.032	0.00157	-56.74
0.003	0.00049	-17.75
0.002	-0.00042	15.34
0.012	-0.00129	46.99
0.034	-0.00236	86.08
0.085	-0.00431	156.90
0.310	-0.00870	316.15
0.926	-0.01606	583.76
0.968	-0.01856	674.88
0.987	-0.01662	604.19
0.982	-0.01602	582.17
0.996	-0.01407	511.56

0.975	0.01668	-603.99	0.999	-0.01321	480.05
1.000	0.01202	-434.13	1.000	-0.01391	505.57
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

update for EV, CV:

dCd **NM298**
LN Analysis **dCd**

Load **Load Data, EV=1.27 lbs/day CV=0.831**

Avg:	**1**	**Load Data-based LN**		
SD:	**1**	u	ln dCd Load	dCd Load
CV:	**0.83**	3	2.2	9
Min:	**0.3**	0	-0.02	1
Max:	**6**	-3	-2.20	0.1
Median:	**1**			
		1	1.27	
		0.83	0.831	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.966, EV=1.27lbs/day CV=0.774; max r2=0.99**

r2 u,lnLoad:	0.966	u	lnLoad	Load	
slope, m:	1.459	3	2.06	8	
intercept, b:	-0.002	0	0.00	1	
N:	50	-3	-2.05	0.1	
E[Load]:	1.3	Parameter Estimates			0.966
SD[Load]:	1	from LN regression			1.3
CV[Load]:	0.77	update graph label			0.8

Date	dCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 #DIV/0! r2 forward
		N: 50				
update and rank for new data						
27-Jun-95	0.3	1	0.0124	-2.243	-1.183	0.966
2-Dec-93	0.4	2	0.0323	-1.847	-0.851	0.968
24-Jan-94	0.4	3	0.0522	-1.624	-0.827	0.977
27-Oct-93	0.4	4	0.0721	-1.460	-0.820	0.982
27-Oct-98	0.5	5	0.0920	-1.328	-0.794	0.985
1-Sep-99	0.5	6	0.1119	-1.216	-0.794	0.987
15-Aug-94	0.5	7	0.1318	-1.118	-0.765	0.988
16-Dec-93	0.5	8	0.1517	-1.029	-0.672	0.988
23-Feb-99	0.5	9	0.1716	-0.948	-0.653	0.989
24-Jan-94	0.5	10	0.1915	-0.872	-0.598	0.990
8-Mar-99	0.6	11	0.2114	-0.801	-0.572	0.991
8-Sep-94	0.6	12	0.2313	-0.734	-0.564	0.991
18-Feb-94	0.6	13	0.2512	-0.671	-0.489	0.991
16-Dec-93	0.6	14	0.2711	-0.609	-0.471	0.992
20-Jul-94	0.6	15	0.2910	-0.550	-0.470	0.992
12-Jun-95	0.6	16	0.3109	-0.493	-0.468	0.992
4-Oct-94	0.6	17	0.3308	-0.438	-0.449	0.991
15-Aug-94	0.7	18	0.3507	-0.383	-0.412	0.991
4-Aug-99	0.7	19	0.3706	-0.330	-0.405	0.990
19-Nov-98	0.7	20	0.3905	-0.278	-0.379	0.990
23-Jun-94	0.9	21	0.4104	-0.226	-0.158	0.990
20-Jul-94	0.9	22	0.4303	-0.175	-0.118	0.991
10-Dec-98	0.9	23	0.4502	-0.125	-0.113	0.992
15-Jan-99	0.9	24	0.4701	-0.075	-0.093	0.993
21-Jan-99	0.9	25	0.4900	-0.025	-0.080	0.993
7-Jul-99	0.9	26	0.5100	0.025	-0.055	0.993
8-Mar-94	1.0	27	0.5299	0.075	0.013	0.993
15-Nov-94	1.0	28	0.5498	0.125	0.017	0.994
12-Nov-97	1.0	29	0.5697	0.175	0.021	0.993
13-Sep-95	1.1	30	0.5896	0.226	0.079	0.993
13-Dec-94	1.1	31	0.6095	0.278	0.126	0.992
7-Jun-94	1.2	32	0.6294	0.330	0.161	0.992
24-Mar-94	1.3	33	0.6493	0.383	0.226	0.991
24-Mar-94	1.3	34	0.6692	0.438	0.228	0.992
9-May-95	1.3	35	0.6891	0.493	0.262	0.991
15-Jun-99	1.4	36	0.7090	0.550	0.322	0.990
10-Jan-95	1.5	37	0.7289	0.609	0.391	0.988
19-May-94	1.5	38	0.7488	0.671	0.402	0.988
4-May-94	1.7	39	0.7687	0.734	0.535	0.986
25-Apr-95	1.8	40	0.7886	0.801	0.571	0.988
7-Apr-94	1.8	41	0.8085	0.872	0.580	0.991
7-Mar-95	1.8	42	0.8284	0.948	0.611	0.990
9-Feb-95	2.0	43	0.8483	1.029	0.688	0.988
23-May-95	2.1	44	0.8682	1.118	0.736	0.985
23-May-99	2.4	45	0.8881	1.216	0.874	0.981
13-Apr-95	2.6	46	0.9080	1.328	0.962	0.975
14-May-98	3.1	47	0.9279	1.460	1.144	0.964

5-May-99	**3.2**	48	0.9478	1.624	1.162	1.000
22-Mar-99	**4.0**	49	0.9677	1.847	1.392	1.000
20-Apr-99	**6.1**	50	0.9876	2.243	1.814	#DIV/0!

update for EV, CV:

dCd		**NM298**		40	40.3
LN Analysis		**dCd**		0.45	0.447
Concentration		**Conc. Data, EV=40.3 ug/L CV=0.447**			
Avg:	**40**	**Data-based LN**			
SD:	**18**	u	ln[dCd]	[dCd]	
CV:	**0.45**	3	4.9	133	
Min:	**6**	0	3.61	37	
Max:	**90**	-3	2.32	10	
Median:	**42**				

				0.893	0.893
	u=mLn{Conc.}+b:			42.7	42.7
update for r2, EV, CV:	**r2=0.893, EV=42.7 ug/L CV=0.663; max r2=0.99**			0.663	0.663
	r2 u,lnConc:	0.893	u	lnConc.	Conc.
	slope, m:	1.657	3	5.38	217
	intercept, b:	-5.918	0	3.57	36
	N: 50		-3	1.76	6
0.966	E[Conc]:	42.7	Parameter Estimates		
1.27	SD[Conc]:	28	from LN regression		
0.774	CV[Conc]:	0.66	update graph label		

Date	dCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 #DIV/0! r2 forward
		N: 50				
update and rank for new data						
15-Jun-99	5.7	1	0.0124	-2.243	1.740	0.893
23-May-99	9.9	2	0.0323	-1.847	2.293	0.899
14-May-98	10.5	3	0.0522	-1.624	2.351	0.896
7-Jul-99	11	4	0.0721	-1.460	2.398	0.902
23-May-95	15	5	0.0920	-1.328	2.708	0.924
12-Jun-95	17	6	0.1119	-1.216	2.833	0.932
9-May-95	20	7	0.1318	-1.118	2.996	0.939
4-Aug-99	20	8	0.1517	-1.029	2.996	0.941
19-May-94	23	9	0.1716	-0.948	3.135	0.948
27-Jun-95	26	10	0.1915	-0.872	3.258	0.950
5-May-99	27	11	0.2114	-0.801	3.296	0.948
7-Jun-94	28	12	0.2313	-0.734	3.332	0.946
1-Sep-99	28	13	0.2512	-0.671	3.332	0.943
4-May-94	30	14	0.2711	-0.609	3.401	0.942
23-Jun-94	30	15	0.2910	-0.550	3.401	0.938
2-Dec-93	32	16	0.3109	-0.493	3.466	0.937
27-Oct-93	33	17	0.3308	-0.438	3.497	0.933
20-Jul-94	35	18	0.3507	-0.383	3.555	0.929
20-Jul-94	35	19	0.3706	-0.330	3.555	0.924
24-Jan-94	38	20	0.3905	-0.278	3.638	0.919
24-Jan-94	38	21	0.4104	-0.226	3.638	0.916
20-Apr-99	38	22	0.4303	-0.175	3.638	0.911
7-Apr-94	39	23	0.4502	-0.125	3.664	0.906
27-Oct-98	40	24	0.4701	-0.075	3.689	0.900
8-Sep-94	41	25	0.4900	-0.025	3.714	0.895
15-Aug-94	42	26	0.5100	0.025	3.738	0.891
15-Aug-94	42	27	0.5299	0.075	3.738	0.887
8-Mar-94	44	28	0.5498	0.125	3.784	0.882
22-Mar-99	44	29	0.5697	0.175	3.784	0.882
4-Oct-94	46	30	0.5896	0.226	3.829	0.879
25-Apr-95	46	31	0.6095	0.278	3.829	0.884
8-Mar-99	46	32	0.6294	0.330	3.829	0.887
16-Dec-93	47	33	0.6493	0.383	3.850	0.889
16-Dec-93	47	34	0.6692	0.438	3.850	0.893
13-Sep-95	47	35	0.6891	0.493	3.850	0.895
13-Apr-95	48	36	0.7090	0.550	3.871	0.895
12-Nov-97	48.4	37	0.7289	0.609	3.879	0.896
18-Feb-94	50	38	0.7488	0.671	3.912	0.896
24-Mar-94	50	39	0.7687	0.734	3.912	0.902
24-Mar-94	50	40	0.7886	0.801	3.912	0.904
7-Mar-95	50	41	0.8085	0.872	3.912	0.900
23-Feb-99	50	42	0.8284	0.948	3.912	0.889
15-Jan-99	51	43	0.8483	1.029	3.932	0.866
21-Jan-99	52	44	0.8682	1.118	3.951	0.832
9-Feb-95	54	45	0.8881	1.216	3.989	0.788
10-Jan-95	67	46	0.9080	1.328	4.205	0.790
19-Nov-98	67	47	0.9279	1.460	4.205	0.690

10-Dec-98	83	48	0.9478	1.624	4.419	0.994
13-Dec-94	85	49	0.9677	1.847	4.443	1.000
15-Nov-94	90	50	0.9876	2.243	4.500	#DIV/0!

update for EV, CV:

dCd **NM298** 9 8.88

LN Analysis **dCd** 1.33 1.33

Discharge, Q

Q Data, EV=8.88 cfs CV=1.33

Q Data-based LN

		u	lnQ	Q
Avg:	**9**			
SD:	**12**			
CV:	**1.33**	3	4.7	110
Min:	**2**	0	1.68	5
Max:	**56**	-3	-1.35	0
Median:	**4**			

0.887 0.887
8.7 8.72
1.33 1.33

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.887, EV=8.72 cfs CV=1.33; max r2=0.98**

		u	lnQ	Q
r2 u,lnQ:	0.887			
slope, m:	0.990	3	4.69	108
intercept, b:	-1.638	0	1.66	5
N:	50	-3	-1.38	0
E[Q]:	8.7	Parameter Estimates		
SD[Q]:	12	from LN regression		
CV[Q]:	1.33	update graph label		

N: 50

max r2
#DIV/0!

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
19-Nov-98	1.9	1	0.0124	-2.243	0.642	0.887
23-Feb-99	1.934382724	2	0.0323	-1.847	0.660	0.912
10-Dec-98	2	3	0.0522	-1.624	0.693	0.927
16-Dec-93	2.02	4	0.0721	-1.460	0.703	0.938
15-Aug-94	2.06	5	0.0920	-1.328	0.723	0.947
15-Nov-94	2.1	6	0.1119	-1.216	0.742	0.954
27-Oct-98	2.1	7	0.1318	-1.118	0.742	0.960
24-Jan-94	2.14	8	0.1517	-1.029	0.761	0.964
27-Jun-95	2.19	9	0.1716	-0.948	0.784	0.968
18-Feb-94	2.28	10	0.1915	-0.872	0.824	0.972
8-Mar-99	2.281431698	11	0.2114	-0.801	0.825	0.975
16-Dec-93	2.47	12	0.2313	-0.734	0.904	0.977
27-Oct-93	2.48	13	0.2512	-0.671	0.908	0.980
2-Dec-93	2.48	14	0.2711	-0.609	0.908	0.982
13-Dec-94	2.48	15	0.2910	-0.550	0.908	0.983
8-Sep-94	2.58	16	0.3109	-0.493	0.948	0.984
4-Oct-94	2.58	17	0.3308	-0.438	0.948	0.984
24-Jan-94	2.69	18	0.3507	-0.383	0.990	0.984
15-Aug-94	2.93	19	0.3706	-0.330	1.075	0.983
1-Sep-99	3	20	0.3905	-0.278	1.099	0.983
21-Jan-99	3.3	21	0.4104	-0.226	1.194	0.982
20-Jul-94	3.32	22	0.4303	-0.175	1.200	0.982
15-Jan-99	3.32005516	23	0.4502	-0.125	1.200	0.981
12-Nov-97	3.92	24	0.4701	-0.075	1.366	0.980
10-Jan-95	4.1	25	0.4900	-0.025	1.411	0.979
8-Mar-94	4.28	26	0.5100	0.025	1.454	0.979
13-Sep-95	4.28	27	0.5299	0.075	1.454	0.978
24-Mar-94	4.66	28	0.5498	0.125	1.539	0.976
24-Mar-94	4.67	29	0.5697	0.175	1.541	0.975
20-Jul-94	4.72	30	0.5896	0.226	1.552	0.973
23-Jun-94	5.29	31	0.6095	0.278	1.666	0.971
4-Aug-99	6.2	32	0.6294	0.330	1.825	0.968
9-Feb-95	6.85	33	0.6493	0.383	1.924	0.965
7-Mar-95	6.85	34	0.6692	0.438	1.924	0.964
12-Jun-95	6.85	35	0.6891	0.493	1.924	0.960
25-Apr-95	7.15	36	0.7090	0.550	1.967	0.955
7-Jun-94	7.8	37	0.7289	0.609	2.054	0.951
7-Apr-94	8.51	38	0.7488	0.671	2.141	0.945
13-Apr-95	10.13	39	0.7687	0.734	2.316	0.939
4-May-94	10.58	40	0.7886	0.801	2.359	0.929
19-May-94	12.08	41	0.8085	0.872	2.492	0.919
9-May-95	12.08	42	0.8284	0.948	2.492	0.904
7-Jul-99	16	43	0.8483	1.029	2.773	0.902
22-Mar-99	17	44	0.8682	1.118	2.833	0.881
5-May-99	22	45	0.8881	1.216	3.091	0.873
23-May-95	25.86	46	0.9080	1.328	3.253	0.836
20-Apr-99	30	47	0.9279	1.460	3.401	0.769

23-May-99	45	48	0.9478	1.624	3.807	0.873
15-Jun-99	45	49	0.9677	1.847	3.807	1.000
14-May-98	55.6	50	0.9876	2.243	4.018	#DIV/0!

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NM298	**Date:**	22-Jun-00
Chemical:	dPb	**Analyst:**	J.MacLachlan

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,124	9	127	4	0.00	0.00	0.00	
SD:	793	12	65	3	1.00	1.00	1.00	
CV:	0.02	1.33	0.51	0.67				first:
Min:	34,269	2	31	1.1	-0.59	-1.47	-1.09	mid:
Max:	36,404	56	378	11	3.96	3.85	2.72	last:
Median:	34,752	4	113	3	-0.40	-0.22	-0.32	

dPb **NM298** **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.268)		update r2	0.27	0.268	r2:	0.168	0.103	
r2 Q,[COC]:	0.27	[dPb]	Q		m:	0.0061	0.00037	
slope, m:	-2.9	147	1.9		b:	-205	-11.48	
intercept, b:	152.2	127	8.9					
N: 50		-7	56					first:
LnConc. = mLn{Q}+b (r2=0.497)		update r2		0.50	0.497			mid:
r2 lnQ,ln[COC]:	0.50	ln[dPb]	ln Q	[dPb]	Q			last:
slope, m:	-0.40	5.12	0.64	167	2			
intercept, b:	5.38	4.50	2.18	90	9			
N: 50		3.77	4.02	43	56			

									for graph	
								dPb	0	
N= 50								NM298		
	Sampling Date	**Q Discharge**	**dPb Concentration**	**dPb Load**	**Ln Q**	**Ln dPb Conc.**	**Ln dPb Load**	**Standardized Values = (x - Avg)/SD**		
update for new data		**cfs**	**ug/L**	**lbs/day**				**Q**	**Conc**	**Load**
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	27-Oct-93	2.48	103	1.4	0.91	4.63	0.32	-0.54	-0.36	-0.97
IDEQ	2-Dec-93	2.48	92	1.2	0.91	4.52	0.20	-0.54	-0.53	-1.02
IDEQ	16-Dec-93	2.02	156	1.7	0.70	5.05	0.53	-0.58	0.45	-0.85
IDEQ	16-Dec-93	2.47	156	2.1	0.90	5.05	0.73	-0.54	0.45	-0.70
IDEQ	24-Jan-94	2.69	198	2.9	0.99	5.29	1.05	-0.52	1.09	-0.40
IDEQ	24-Jan-94	2.14	198	2.3	0.76	5.29	0.82	-0.57	1.09	-0.62
IDEQ	18-Feb-94	2.28	171	2.1	0.82	5.14	0.74	-0.56	0.68	-0.69
IDEQ	8-Mar-94	4.28	153	3.5	1.45	5.03	1.26	-0.39	0.40	-0.15
IDEQ	24-Mar-94	4.66	172	4.3	1.54	5.15	1.46	-0.36	0.69	0.15
IDEQ	24-Mar-94	4.67	172	4.3	1.54	5.15	1.46	-0.36	0.69	0.16
IDEQ	7-Apr-94	8.51	132	6.0	2.14	4.88	1.80	-0.03	0.08	0.81
IDEQ	4-May-94	10.58	89	5.1	2.36	4.49	1.62	0.14	-0.58	0.44
IDEQ	19-May-94	12.08	78	5.1	2.49	4.36	1.62	0.27	-0.75	0.44
IDEQ	7-Jun-94	7.8	100	4.2	2.05	4.61	1.43	-0.09	-0.41	0.11
IDEQ	23-Jun-94	5.29	105	3.0	1.67	4.65	1.09	-0.30	-0.33	-0.35
IDEQ	20-Jul-94	3.32	116	2.1	1.20	4.75	0.73	-0.47	-0.17	-0.70
IDEQ	20-Jul-94	4.72	116	2.9	1.55	4.75	1.08	-0.35	-0.17	-0.37
IDEQ	15-Aug-94	2.93	134	2.1	1.08	4.90	0.75	-0.50	0.11	-0.69
IDEQ	15-Aug-94	2.06	134	1.5	0.72	4.90	0.40	-0.58	0.11	-0.93
IDEQ	8-Sep-94	2.58	138	1.9	0.95	4.93	0.65	-0.53	0.17	-0.76
IDEQ	4-Oct-94	2.58	184	2.6	0.95	5.21	0.94	-0.53	0.88	-0.52
IDEQ	15-Nov-94	2.1	378	4.3	0.74	5.93	1.45	-0.57	3.85	0.14
IDEQ	13-Dec-94	2.48	329	4.4	0.91	5.80	1.48	-0.54	3.10	0.18
IDEQ	10-Jan-95	4.1	169	3.7	1.41	5.13	1.32	-0.40	0.65	-0.07
IDEQ	9-Feb-95	6.85	197	7.3	1.92	5.28	1.98	-0.17	1.08	1.28
IDEQ	7-Mar-95	6.85	153	5.6	1.92	5.03	1.73	-0.17	0.40	0.66
IDEQ	13-Apr-95	10.13	155	8.4	2.32	5.04	2.13	0.11	0.43	1.73
IDEQ	25-Apr-95	7.15	121	4.7	1.97	4.80	1.54	-0.15	-0.09	0.28
IDEQ	9-May-95	12.08	100	6.5	2.49	4.61	1.87	0.27	-0.41	0.99
IDEQ	23-May-95	25.86	78	10.9	3.25	4.36	2.38	1.44	-0.75	2.65
IDEQ	12-Jun-95	6.85	90	3.3	1.92	4.50	1.20	-0.17	-0.56	-0.23
IDEQ	27-Jun-95	2.19	106	1.2	0.78	4.66	0.22	-0.57	-0.32	-1.02
IDEQ	13-Sep-95	4.28	221	5.1	1.45	5.40	1.63	-0.39	1.44	0.45
URS	12-Nov-97	3.92	124	2.6	1.37	4.82	0.96	-0.42	-0.04	-0.49
URS	14-May-98	55.6	36.9	11.0	4.02	3.61	2.40	3.96	-1.38	2.72
USGS	27-Oct-98	2.1	93	1.1	0.74	4.53	0.05	-0.57	-0.52	-1.09
USGS	19-Nov-98	1.9	109	1.1	0.64	4.69	0.11	-0.59	-0.27	-1.07
USGS	10-Dec-98	2	138	1.5	0.69	4.93	0.40	-0.58	0.17	-0.93
IDEQ	15-Jan-99	3.32005516	105	1.9	1.20	4.65	0.63	-0.47	-0.33	-0.78
USGS	21-Jan-99	3.3	105	1.9	1.19	4.65	0.62	-0.47	-0.33	-0.78
IDEQ	23-Feb-99	1.934382724	106	1.1	0.66	4.66	0.10	-0.59	-0.32	-1.07
IDEQ	8-Mar-99	2.281431698	105	1.3	0.82	4.65	0.25	-0.56	-0.33	-1.00
USGS	22-Mar-99	17	85	7.8	2.83	4.44	2.05	0.69	-0.64	1.47
USGS	20-Apr-99	30	59	9.5	3.40	4.08	2.25	1.79	-1.04	2.14
USGS	5-May-99	22	46	5.4	3.09	3.83	1.69	1.11	-1.24	0.58
USGS	23-May-99	45	33	8.0	3.81	3.50	2.08	3.06	-1.44	1.55
USGS	15-Jun-99	45	31	7.5	3.81	3.43	2.02	3.06	-1.47	1.37

USGS	7-Jul-99	16	37	3.2	2.77	3.61	1.16	0.60	-1.38	-0.28
USGS	4-Aug-99	6.2	59	2.0	1.82	4.08	0.68	-0.23	-1.04	-0.74
USGS	1-Sep-99	3	74	1.2	1.10	4.30	0.18	-0.50	-0.81	-1.04

dPb

Concentration over time analysis r2 Slope, m

dPb NM298 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.391 -0.00041**

Time	Ln[COC]	[COC]
27-Oct-93	5.07	159
22-Feb-95	4.87	130
1-Sep-99	4.19	66

LnConc.=mTime+b >'96 r2, m: **#DIV/0! #DIV/0!**

1-Sep-99	#DIV/0!	#DIV/0!
1-Sep-99	#DIV/0!	#DIV/0!

Load over time analysis

dPb NM298 **Load over time**

LnLoad=mTime+b All data r2, m: **0.002 -0.00004**

Time	LnLoad	Load
27-Oct-93	1.18	3
22-Feb-95	1.16	3
1-Sep-99	1.10	3

LnLoad=mTime+b >'96 r2, m: **#DIV/0! #DIV/0!**

1-Sep-99	#DIV/0!	#DIV/0!
1-Sep-99	#DIV/0!	#DIV/0!

max r2: #DIV/0! max r2: #DIV/0!

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.391	-0.00041	19.22	0.002	-0.00004	2.51
0.405	-0.00043	19.66	0.006	-0.00006	3.39
0.426	-0.00044	20.23	0.012	-0.00009	4.43
0.422	-0.00044	20.27	0.019	-0.00011	5.20
0.417	-0.00044	20.32	0.024	-0.00013	5.82
0.405	-0.00044	20.08	0.027	-0.00014	6.11
0.392	-0.00043	19.83	0.033	-0.00016	6.70
0.382	-0.00043	19.71	0.041	-0.00018	7.42
0.376	-0.00043	19.71	0.042	-0.00018	7.57
0.365	-0.00042	19.56	0.040	-0.00018	7.47
0.352	-0.00042	19.39	0.037	-0.00017	7.36
0.350	-0.00042	19.56	0.030	-0.00016	6.75
0.373	-0.00044	20.31	0.025	-0.00015	6.34
0.410	-0.00047	21.33	0.020	-0.00013	5.88
0.429	-0.00049	22.06	0.018	-0.00013	5.66
0.446	-0.00051	22.79	0.020	-0.00014	5.99
0.456	-0.00053	23.40	0.028	-0.00016	6.98
0.469	-0.00055	24.12	0.031	-0.00018	7.47
0.471	-0.00056	24.61	0.042	-0.00021	8.69
0.475	-0.00058	25.20	0.069	-0.00027	10.90
0.476	-0.00060	25.79	0.095	-0.00033	12.88
0.458	-0.00059	25.71	0.115	-0.00037	14.47
0.420	-0.00054	23.63	0.115	-0.00038	14.91
0.375	-0.00048	21.48	0.114	-0.00040	15.34
0.342	-0.00046	20.92	0.120	-0.00042	16.36
0.294	-0.00043	19.64	0.097	-0.00039	15.21
0.257	-0.00041	18.96	0.083	-0.00038	14.71
0.212	-0.00038	17.94	0.051	-0.00031	12.16
0.186	-0.00037	17.82	0.042	-0.00030	11.79
0.183	-0.00040	18.89	0.020	-0.00022	8.96
0.232	-0.00051	22.80	0.000	0.00004	-0.28
0.281	-0.00067	28.43	0.003	0.00011	-2.94
0.346	-0.00098	39.73	0.017	-0.00033	13.12
0.157	-0.00120	47.87	0.001	0.00014	-3.91
0.082	-0.00118	46.94	0.000	0.00011	-2.84
0.503	-0.00364	136.32	0.169	0.00364	-130.87
0.526	-0.00411	153.36	0.106	0.00307	-110.38
0.502	-0.00437	162.55	0.046	0.00217	-77.59
0.404	-0.00403	150.54	0.012	0.00124	-43.74
0.335	-0.00386	144.25	0.001	0.00036	-11.75
0.234	-0.00346	129.65	0.010	-0.00134	49.78
0.116	-0.00244	92.65	0.159	-0.00549	200.84
0.004	-0.00044	19.85	0.793	-0.01229	448.02
0.155	0.00268	-93.61	0.857	-0.01494	544.11
0.517	0.00553	-197.11	0.823	-0.01552	565.31
0.891	0.00910	-326.97	0.959	-0.02036	741.34
0.978	0.01177	-424.31	0.959	-0.02262	823.59

0.962	0.01238	-446.25	1.000	-0.01751	637.79
1.000	0.00809	-290.21	1.000	-0.01784	649.48
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

update for EV, CV:

dPb **NM298**

LN Analysis **dPb**

Load **Load Data, EV=3.91 lbs/day CV=0.67**

Load Data-based LN

		u	ln dPb Load	dPb Load
Avg:	**4**			
SD:	**3**	3	3.0	20
CV:	**0.67**	0	1.18	3
Min:	**1.1**	-3	-0.65	0.5
Max:	**11**			
Median:	**3**			

4	3.91
0.67	0.67

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.972, EV=4.01lbs/day CV=0.792; max r2=0.99**

r2 u,lnLoad:	0.972	u	lnLoad	Load	
slope, m:	1.433	3	3.24	25	
intercept, b:	-1.641	0	1.15	3	
N: 50		-3	-0.95	0.4	
E[Load]:	4.0	Parameter Estimates			0.972
SD[Load]:	3	from LN regression			4.0
CV[Load]:	0.79	update graph label			0.8

						max r2
	dPb	N: 50				#DIV/0!
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
27-Oct-98	**1.1**	1	0.0124	-2.243	0.049	0.972
23-Feb-99	**1.1**	2	0.0323	-1.847	0.098	0.980
19-Nov-98	**1.1**	3	0.0522	-1.624	0.108	0.983
1-Sep-99	**1.2**	4	0.0721	-1.460	0.178	0.983
2-Dec-93	**1.2**	5	0.0920	-1.328	0.205	0.982
27-Jun-95	**1.2**	6	0.1119	-1.216	0.222	0.981
8-Mar-99	**1.3**	7	0.1318	-1.118	0.254	0.980
27-Oct-93	**1.4**	8	0.1517	-1.029	0.318	0.979
10-Dec-98	**1.5**	9	0.1716	-0.948	0.395	0.977
15-Aug-94	**1.5**	10	0.1915	-0.872	0.395	0.976
16-Dec-93	**1.7**	11	0.2114	-0.801	0.528	0.975
21-Jan-99	**1.9**	12	0.2313	-0.734	0.623	0.973
15-Jan-99	**1.9**	13	0.2512	-0.671	0.629	0.972
8-Sep-94	**1.9**	14	0.2711	-0.609	0.650	0.970
4-Aug-99	**2.0**	15	0.2910	-0.550	0.677	0.968
20-Jul-94	**2.1**	16	0.3109	-0.493	0.728	0.966
16-Dec-93	**2.1**	17	0.3308	-0.438	0.729	0.964
18-Feb-94	**2.1**	18	0.3507	-0.383	0.741	0.963
15-Aug-94	**2.1**	19	0.3706	-0.330	0.748	0.963
24-Jan-94	**2.3**	20	0.3905	-0.278	0.824	0.966
4-Oct-94	**2.6**	21	0.4104	-0.226	0.938	0.968
12-Nov-97	**2.6**	22	0.4303	-0.175	0.961	0.967
24-Jan-94	**2.9**	23	0.4502	-0.125	1.053	0.968
20-Jul-94	**2.9**	24	0.4701	-0.075	1.080	0.967
23-Jun-94	**3.0**	25	0.4900	-0.025	1.095	0.966
7-Jul-99	**3.2**	26	0.5100	0.025	1.158	0.967
12-Jun-95	**3.3**	27	0.5299	0.075	1.199	0.967
8-Mar-94	**3.5**	28	0.5498	0.125	1.259	0.968
10-Jan-95	**3.7**	29	0.5697	0.175	1.316	0.967
7-Jun-94	**4.2**	30	0.5896	0.226	1.434	0.966
15-Nov-94	**4.3**	31	0.6095	0.278	1.452	0.963
24-Mar-94	**4.3**	32	0.6294	0.330	1.461	0.960
24-Mar-94	**4.3**	33	0.6493	0.383	1.464	0.956
13-Dec-94	**4.4**	34	0.6692	0.438	1.479	0.953
25-Apr-95	**4.7**	35	0.6891	0.493	1.538	0.950
4-May-94	**5.1**	36	0.7090	0.550	1.623	0.947
19-May-94	**5.1**	37	0.7289	0.609	1.623	0.940
13-Sep-95	**5.1**	38	0.7488	0.671	1.627	0.933
5-May-99	**5.4**	39	0.7687	0.734	1.695	0.932
7-Mar-95	**5.6**	40	0.7886	0.801	1.730	0.928
7-Apr-94	**6.0**	41	0.8085	0.872	1.799	0.932
9-May-95	**6.5**	42	0.8284	0.948	1.872	0.936
9-Feb-95	**7.3**	43	0.8483	1.029	1.982	0.936
15-Jun-99	**7.5**	44	0.8682	1.118	2.016	0.921
22-Mar-99	**7.8**	45	0.8881	1.216	2.051	0.898
23-May-99	**8.0**	46	0.9080	1.328	2.078	0.860
13-Apr-95	**8.4**	47	0.9279	1.460	2.134	0.793

20-Apr-99	**9.5**	48	0.9478	1.624	2.254	0.702
23-May-95	**10.9**	49	0.9677	1.847	2.384	1.000
14-May-98	**11.0**	50	0.9876	2.243	2.401	#DIV/0!

update for EV, CV:

dPb		**NM298**		127	127
LN Analysis		**dPb**		0.51	0.515
Concentration		**Conc. Data, EV=127 ug/L CV=0.515**			
Avg:	**127**	**Data-based LN**			
SD:	**65**	u	ln[dPb]	[dPb]	
CV:	**0.51**	3	6.2	483	
Min:	**31**	0	4.73	113	
Max:	**378**	-3	3.27	26	
Median:	**113**				

				0.953	0.953
	u=mLn{Conc.}+b:			130.0	130
update for r2, EV, CV:	**r2=0.953, EV=130 ug/L CV=0.597; max r2=0.99**			0.597	0.597
	r2 u,lnConc:	0.953	u	lnConc.	Conc.
	slope, m:	1.812	3	6.37	584
	intercept, b:	-8.543	0	4.71	112
	N: 50		-3	3.06	21
0.972	E[Conc]:	130.0	Parameter Estimates		
4.01	SD[Conc]:	78	from LN regression		
0.792	CV[Conc]:	0.60	update graph label		

Date	dPb Concentration ug/L Ranked	i rank	N: 50 i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 #DIV/0! r2 forward
update and rank for new data						
15-Jun-99	31	1	0.0124	-2.243	3.434	0.953
23-May-99	33	2	0.0323	-1.847	3.497	0.948
14-May-98	36.9	3	0.0522	-1.624	3.608	0.947
7-Jul-99	37	4	0.0721	-1.460	3.611	0.949
5-May-99	46	5	0.0920	-1.328	3.829	0.963
20-Apr-99	59	6	0.1119	-1.216	4.078	0.971
4-Aug-99	59	7	0.1318	-1.118	4.078	0.970
1-Sep-99	74	8	0.1517	-1.029	4.304	0.973
19-May-94	78	9	0.1716	-0.948	4.357	0.971
23-May-95	78	10	0.1915	-0.872	4.357	0.969
22-Mar-99	85	11	0.2114	-0.801	4.443	0.967
4-May-94	89	12	0.2313	-0.734	4.489	0.966
12-Jun-95	90	13	0.2512	-0.671	4.500	0.965
2-Dec-93	92	14	0.2711	-0.609	4.522	0.964
27-Oct-98	93	15	0.2910	-0.550	4.533	0.963
7-Jun-94	100	16	0.3109	-0.493	4.605	0.961
9-May-95	100	17	0.3308	-0.438	4.605	0.961
27-Oct-93	103	18	0.3507	-0.383	4.635	0.961
23-Jun-94	105	19	0.3706	-0.330	4.654	0.961
15-Jan-99	105	20	0.3905	-0.278	4.654	0.961
21-Jan-99	105	21	0.4104	-0.226	4.654	0.960
8-Mar-99	105	22	0.4303	-0.175	4.654	0.959
27-Jun-95	106	23	0.4502	-0.125	4.663	0.956
23-Feb-99	106	24	0.4701	-0.075	4.663	0.953
19-Nov-98	109	25	0.4900	-0.025	4.691	0.949
20-Jul-94	116	26	0.5100	0.025	4.754	0.946
20-Jul-94	116	27	0.5299	0.075	4.754	0.942
25-Apr-95	121	28	0.5498	0.125	4.796	0.937
12-Nov-97	124	29	0.5697	0.175	4.820	0.933
7-Apr-94	132	30	0.5896	0.226	4.883	0.928
15-Aug-94	134	31	0.6095	0.278	4.898	0.925
15-Aug-94	134	32	0.6294	0.330	4.898	0.922
8-Sep-94	138	33	0.6493	0.383	4.927	0.917
10-Dec-98	138	34	0.6692	0.438	4.927	0.912
8-Mar-94	153	35	0.6891	0.493	5.030	0.904
7-Mar-95	153	36	0.7090	0.550	5.030	0.908
13-Apr-95	155	37	0.7289	0.609	5.043	0.910
16-Dec-93	156	38	0.7488	0.671	5.050	0.911
16-Dec-93	156	39	0.7687	0.734	5.050	0.909
10-Jan-95	169	40	0.7886	0.801	5.130	0.901
18-Feb-94	171	41	0.8085	0.872	5.142	0.908
24-Mar-94	172	42	0.8284	0.948	5.147	0.914
24-Mar-94	172	43	0.8483	1.029	5.147	0.914
4-Oct-94	184	44	0.8682	1.118	5.215	0.903
9-Feb-95	197	45	0.8881	1.216	5.283	0.898
24-Jan-94	198	46	0.9080	1.328	5.288	0.911
24-Jan-94	198	47	0.9279	1.460	5.288	0.900

13-Sep-95	221	48	0.9478	1.624	5.398	0.826
13-Dec-94	329	49	0.9677	1.847	5.796	1.000
15-Nov-94	378	50	0.9876	2.243	5.935	#DIV/0!

update for EV, CV:

dPb		**NM298**			9	8.88
LN Analysis		**dPb**			1.33	1.33
Discharge, Q		**Q Data, EV=8.88 cfs CV=1.33**				
Avg:	**9**	**Q Data-based LN**				
SD:	**12**	u	lnQ	Q		
CV:	**1.33**	3	4.7	110		
Min:	**2**	0	1.68	5		
Max:	**56**	-3	-1.35	0		
Median:	**4**					

					0.887	0.887
					8.7	8.72
	u=mLn{Q}+b:				1.33	1.33
update for r2, EV, CV:	**r2=0.887, EV=8.72 cfs CV=1.33; max r2=0.98**					
	r2 u,lnQ:	0.887	u	lnQ	Q	
	slope, m:	0.990	3	4.69	108	
	intercept, b:	-1.638	0	1.66	5	
	N: 50		-3	-1.38	0	
	E[Q]:	8.7	Parameter Estimates			
	SD[Q]:	12	from LN regression			
	CV[Q]:	1.33	update graph label			

Date	Q Discharge cfs Ranked	i rank (N: 50)	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 #DIV/0! r2 forward
update and rank for new data						
19-Nov-98	1.9	1	0.0124	-2.243	0.642	0.887
23-Feb-99	1.934382724	2	0.0323	-1.847	0.660	0.912
10-Dec-98	2	3	0.0522	-1.624	0.693	0.927
16-Dec-93	2.02	4	0.0721	-1.460	0.703	0.938
15-Aug-94	2.06	5	0.0920	-1.328	0.723	0.947
15-Nov-94	2.1	6	0.1119	-1.216	0.742	0.954
27-Oct-98	2.1	7	0.1318	-1.118	0.742	0.960
24-Jan-94	2.14	8	0.1517	-1.029	0.761	0.964
27-Jun-95	2.19	9	0.1716	-0.948	0.784	0.968
18-Feb-94	2.28	10	0.1915	-0.872	0.824	0.972
8-Mar-99	2.281431698	11	0.2114	-0.801	0.825	0.975
16-Dec-93	2.47	12	0.2313	-0.734	0.904	0.977
27-Oct-93	2.48	13	0.2512	-0.671	0.908	0.980
2-Dec-93	2.48	14	0.2711	-0.609	0.908	0.982
13-Dec-94	2.48	15	0.2910	-0.550	0.908	0.983
8-Sep-94	2.58	16	0.3109	-0.493	0.948	0.984
4-Oct-94	2.58	17	0.3308	-0.438	0.948	0.984
24-Jan-94	2.69	18	0.3507	-0.383	0.990	0.984
15-Aug-94	2.93	19	0.3706	-0.330	1.075	0.983
1-Sep-99	3	20	0.3905	-0.278	1.099	0.983
21-Jan-99	3.3	21	0.4104	-0.226	1.194	0.982
20-Jul-94	3.32	22	0.4303	-0.175	1.200	0.982
15-Jan-99	3.32005516	23	0.4502	-0.125	1.200	0.981
12-Nov-97	3.92	24	0.4701	-0.075	1.366	0.980
10-Jan-95	4.1	25	0.4900	-0.025	1.411	0.979
8-Mar-94	4.28	26	0.5100	0.025	1.454	0.979
13-Sep-95	4.28	27	0.5299	0.075	1.454	0.978
24-Mar-94	4.66	28	0.5498	0.125	1.539	0.976
24-Mar-94	4.67	29	0.5697	0.175	1.541	0.975
20-Jul-94	4.72	30	0.5896	0.226	1.552	0.973
23-Jun-94	5.29	31	0.6095	0.278	1.666	0.971
4-Aug-99	6.2	32	0.6294	0.330	1.825	0.968
9-Feb-95	6.85	33	0.6493	0.383	1.924	0.965
7-Mar-95	6.85	34	0.6692	0.438	1.924	0.964
12-Jun-95	6.85	35	0.6891	0.493	1.924	0.960
25-Apr-95	7.15	36	0.7090	0.550	1.967	0.955
7-Jun-94	7.8	37	0.7289	0.609	2.054	0.951
7-Apr-94	8.51	38	0.7488	0.671	2.141	0.945
13-Apr-95	10.13	39	0.7687	0.734	2.316	0.939
4-May-94	10.58	40	0.7886	0.801	2.359	0.929
19-May-94	12.08	41	0.8085	0.872	2.492	0.919
9-May-95	12.08	42	0.8284	0.948	2.492	0.904
7-Jul-99	16	43	0.8483	1.029	2.773	0.902
22-Mar-99	17	44	0.8682	1.118	2.833	0.881
5-May-99	22	45	0.8881	1.216	3.091	0.873
23-May-95	25.86	46	0.9080	1.328	3.253	0.836
20-Apr-99	30	47	0.9279	1.460	3.401	0.769

23-May-99	45	48	0.9478	1.624	3.807	0.873
15-Jun-99	45	49	0.9677	1.847	3.807	1.000
14-May-98	55.6	50	0.9876	2.243	4.018	#DIV/0!

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NM298	**Date:**	22-Jun-00
Chemical:	dZn	**Analyst:**	J.MacLachlan

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,124	9	6,710	211	0.00	0.00	0.00	
SD:	793	12	2,997	180	1.00	1.00	1.00	
CV:	0.02	1.33	0.45	0.85				first:
Min:	34,269	2	867	44.8	-0.59	-1.95	-0.93	mid:
Max:	36,404	56	14,000	1,006	3.96	2.43	4.42	last:
Median:	34,752	4	7,075	157	-0.40	0.12	-0.30	

dZn	**NM298**		**: Concentration v. Discharge, Q**		**Q = mTime +b**		**LnQ = mTime +b**	
Conc. = mQ+b (r2=0.33)		update r2	0.33	0.33	r2:	0.168	0.103	
r2 Q,[COC]:	0.33	[dZn]	Q		m:	0.0061	0.00037	
slope, m:	-145.9	7,729	1.9		b:	-205	-11.48	
intercept, b:	8006.3	6,710	8.9					
N: 50		-106	56					first:
LnConc. = mLn{Q}+b (r2=0.499)		update r2	0.50	0.499				mid:
r2 lnQ,ln[COC]:	0.50	ln[dZn]	ln Q	[dZn]	Q			last:
slope, m:	-0.44	9.12	0.64	9,176	2			
intercept, b:	9.41	8.44	2.18	4,639	9			
N: 50		7.63	4.02	2,061	56			

	for graph
dZn	0
NM298	

N= 50

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	27-Oct-93	2.48	5650	75.4	0.91	8.64	4.32	-0.54	-0.35	-0.76
IDEQ	2-Dec-93	2.48	6270	83.7	0.91	8.74	4.43	-0.54	-0.15	-0.71
IDEQ	16-Dec-93	2.02	7540	81.9	0.70	8.93	4.41	-0.58	0.28	-0.72
IDEQ	16-Dec-93	2.47	7540	100.2	0.90	8.93	4.61	-0.54	0.28	-0.62
IDEQ	24-Jan-94	2.69	8770	126.9	0.99	9.08	4.84	-0.52	0.69	-0.47
IDEQ	24-Jan-94	2.14	8770	101.0	0.76	9.08	4.61	-0.57	0.69	-0.61
IDEQ	18-Feb-94	2.28	8070	99.0	0.82	9.00	4.60	-0.56	0.45	-0.62
IDEQ	8-Mar-94	4.28	7240	166.7	1.45	8.89	5.12	-0.39	0.18	-0.25
IDEQ	24-Mar-94	4.66	8030	201.3	1.54	8.99	5.30	-0.36	0.44	-0.06
IDEQ	24-Mar-94	4.67	8030	201.8	1.54	8.99	5.31	-0.36	0.44	-0.05
IDEQ	7-Apr-94	8.51	6990	320.0	2.14	8.85	5.77	-0.03	0.09	0.61
IDEQ	4-May-94	10.58	4110	233.9	2.36	8.32	5.46	0.14	-0.87	0.13
IDEQ	19-May-94	12.08	2820	183.3	2.49	7.94	5.21	0.27	-1.30	-0.16
IDEQ	7-Jun-94	7.8	3890	163.2	2.05	8.27	5.10	-0.09	-0.94	-0.27
IDEQ	23-Jun-94	5.29	4470	127.2	1.67	8.41	4.85	-0.30	-0.75	-0.47
IDEQ	20-Jul-94	3.32	5250	93.8	1.20	8.57	4.54	-0.47	-0.49	-0.65
IDEQ	20-Jul-94	4.72	5250	133.3	1.55	8.57	4.89	-0.35	-0.49	-0.43
IDEQ	15-Aug-94	2.93	6040	95.2	1.08	8.71	4.56	-0.50	-0.22	-0.65
IDEQ	15-Aug-94	2.06	6040	66.9	0.72	8.71	4.20	-0.58	-0.22	-0.80
IDEQ	8-Sep-94	2.58	6150	85.4	0.95	8.72	4.45	-0.53	-0.19	-0.70
IDEQ	4-Oct-94	2.58	7850	109.0	0.95	8.97	4.69	-0.53	0.38	-0.57
IDEQ	15-Nov-94	2.1	11400	128.8	0.74	9.34	4.86	-0.57	1.56	-0.46
IDEQ	13-Dec-94	2.48	12400	165.4	0.91	9.43	5.11	-0.54	1.90	-0.25
IDEQ	10-Jan-95	4.1	9680	213.5	1.41	9.18	5.36	-0.40	0.99	0.01
IDEQ	9-Feb-95	6.85	10600	390.6	1.92	9.27	5.97	-0.17	1.30	1.00
IDEQ	7-Mar-95	6.85	8590	316.6	1.92	9.06	5.76	-0.17	0.63	0.59
IDEQ	13-Apr-95	10.13	9160	499.2	2.32	9.12	6.21	0.11	0.82	1.60
IDEQ	25-Apr-95	7.15	8960	344.7	1.97	9.10	5.84	-0.15	0.75	0.74
IDEQ	9-May-95	12.08	3390	220.3	2.49	8.13	5.40	0.27	-1.11	0.05
IDEQ	23-May-95	25.86	2350	326.9	3.25	7.76	5.79	1.44	-1.45	0.64
IDEQ	12-Jun-95	6.85	2890	106.5	1.92	7.97	4.67	-0.17	-1.27	-0.58
IDEQ	27-Jun-95	2.19	3800	44.8	0.78	8.24	3.80	-0.57	-0.97	-0.93
IDEQ	13-Sep-95	4.28	7160	164.9	1.45	8.88	5.11	-0.39	0.15	-0.26
URS	12-Nov-97	3.92	8700	183.5	1.37	9.07	5.21	-0.42	0.66	-0.15
URS	14-May-98	55.6	2060	616.2	4.02	7.63	6.42	3.96	-1.55	2.25
USGS	27-Oct-98	2.1	7160	80.9	0.74	8.88	4.39	-0.57	0.15	-0.73
USGS	19-Nov-98	1.9	12600	128.8	0.64	9.44	4.86	-0.59	1.96	-0.46
USGS	10-Dec-98	2	14000	150.6	0.69	9.55	5.01	-0.58	2.43	-0.34
IDEQ	15-Jan-99	3.32005516	9600	171.5	1.20	9.17	5.14	-0.47	0.96	-0.22
USGS	21-Jan-99	3.3	9330	165.6	1.19	9.14	5.11	-0.47	0.87	-0.25
IDEQ	23-Feb-99	1.934382724	8690	90.4	0.66	9.07	4.50	-0.59	0.66	-0.67
IDEQ	8-Mar-99	2.281431698	8580	105.3	0.82	9.06	4.66	-0.56	0.62	-0.59
USGS	22-Mar-99	17	6950	635.6	2.83	8.85	6.45	0.69	0.08	2.36
USGS	20-Apr-99	30	6230	1005.5	3.40	8.74	6.91	1.79	-0.16	4.42
USGS	5-May-99	22	4540	537.4	3.09	8.42	6.29	1.11	-0.72	1.82
USGS	23-May-99	45	1600	387.4	3.81	7.38	5.96	3.06	-1.70	0.98
USGS	15-Jun-99	45	867	209.9	3.81	6.77	5.35	3.06	-1.95	-0.01

USGS	7-Jul-99	16	1660	142.9	2.77	7.41	4.96	0.60	-1.68	-0.38
USGS	4-Aug-99	6.2	2980	99.4	1.82	8.00	4.60	-0.23	-1.24	-0.62
USGS	1-Sep-99	3	4820	77.8	1.10	8.48	4.35	-0.50	-0.63	-0.74

dZn

Concentration over time analysis r2 Slope, m

dZn NM298 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.051 -0.00016**

Time	Ln[COC]	[COC]
27-Oct-93	8.82	6,746
22-Feb-95	8.74	6,231
1-Sep-99	8.47	4,749

LnConc.=mTime+b >'96 r2, m: **#DIV/0! #DIV/0!**

1-Sep-99	#DIV/0!	#DIV/0!
1-Sep-99	#DIV/0!	#DIV/0!

Load over time analysis

dZn NM298 **Load over time**

LnLoad=mTime+b All data r2, m: **0.064 0.00021**

Time	LnLoad	Load
27-Oct-93	4.93	138
22-Feb-95	5.03	153
1-Sep-99	5.37	216

LnLoad=mTime+b >'96 r2, m: **#DIV/0! #DIV/0!**

1-Sep-99	#DIV/0!	#DIV/0!
1-Sep-99	#DIV/0!	#DIV/0!

max r2: #DIV/0! max r2: #DIV/0!

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.051	-0.00016	14.45	0.064	0.00021	-2.26
0.053	-0.00017	14.63	0.054	0.00019	-1.64
0.053	-0.00017	14.71	0.046	0.00018	-1.09
0.050	-0.00017	14.59	0.037	0.00016	-0.48
0.047	-0.00016	14.47	0.031	0.00015	-0.03
0.041	-0.00016	14.16	0.028	0.00014	0.19
0.036	-0.00015	13.82	0.023	0.00013	0.70
0.032	-0.00014	13.56	0.017	0.00011	1.27
0.029	-0.00014	13.40	0.017	0.00011	1.25
0.025	-0.00013	13.08	0.019	0.00012	1.00
0.021	-0.00012	12.74	0.020	0.00013	0.71
0.018	-0.00011	12.55	0.030	0.00015	-0.26
0.023	-0.00013	13.11	0.035	0.00017	-0.86
0.036	-0.00016	14.30	0.037	0.00018	-1.15
0.046	-0.00018	15.12	0.037	0.00018	-1.28
0.054	-0.00020	15.79	0.033	0.00017	-1.01
0.059	-0.00021	16.26	0.024	0.00015	-0.16
0.064	-0.00023	16.80	0.021	0.00014	0.16
0.066	-0.00024	17.13	0.013	0.00011	1.21
0.068	-0.00025	17.51	0.003	0.00006	3.22
0.070	-0.00026	17.91	0.000	0.00001	5.00
0.063	-0.00026	17.74	0.001	-0.00003	6.50
0.046	-0.00022	16.52	0.004	-0.00007	7.80
0.027	-0.00017	14.78	0.007	-0.00009	8.64
0.016	-0.00014	13.42	0.007	-0.00010	8.85
0.005	-0.00008	11.38	0.002	-0.00005	6.95
0.001	-0.00003	9.59	0.000	0.00000	5.35
0.001	0.00004	6.95	0.008	0.00011	1.17
0.012	0.00014	3.37	0.027	0.00022	-2.67
0.006	0.00011	4.55	0.040	0.00029	-5.38
0.001	-0.00003	9.75	0.099	0.00051	-13.33
0.018	-0.00024	17.17	0.079	0.00054	-14.19
0.068	-0.00062	30.94	0.000	0.00003	4.34
0.129	-0.00176	72.39	0.008	-0.00042	20.61
0.117	-0.00233	92.96	0.023	-0.00105	43.18
0.525	-0.00629	236.70	0.014	0.00099	-30.49
0.577	-0.00732	273.99	0.000	-0.00014	10.25
0.535	-0.00754	281.83	0.010	-0.00100	41.69
0.455	-0.00729	272.89	0.032	-0.00202	78.61
0.397	-0.00721	269.83	0.056	-0.00299	113.83
0.317	-0.00700	262.33	0.113	-0.00488	182.46
0.223	-0.00616	231.78	0.355	-0.00921	339.96
0.100	-0.00429	163.96	0.912	-0.01615	592.13
0.006	-0.00113	49.04	0.954	-0.01875	686.76
0.084	0.00436	-150.52	0.967	-0.01669	611.89
0.720	0.01393	-498.72	0.954	-0.01553	569.58
0.986	0.02174	-782.79	0.979	-0.01266	465.11

0.997	0.01903	-684.45	0.988	-0.01086	399.59
1.000	0.01717	-616.69	1.000	-0.00875	323.00
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

update for EV, CV:

dZn
LN Analysis

NM298
dZn

Load

Load Data, EV=211 lbs/day CV=0.85
Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**211**			
SD:	**180**	3	7.3	1471
CV:	**0.85**	0	5.08	161
Min:	**44.8**	-3	2.87	17.6
Max:	**1,006**			
Median:	**157**			

211 211
0.85 0.85

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.954, EV=210lbs/day CV=0.787; max r2=0.99**

r2 u,lnLoad:	0.954	u	lnLoad	Load		
slope, m:	1.441	3	7.19	1324		
intercept, b:	-7.358	0	5.11	165		
N: 50		-3	3.02	20.6		
E[Load]:	210.0	Parameter Estimates			0.954	0.954
SD[Load]:	165	from LN regression			210.0	210
CV[Load]:	0.79	update graph label			0.8	0.787

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 #DIV/0! r2 forward
		N: 50				
update and rank for new data						
13-Feb-00	**44.8**	1	0.0124	-2.243	3.802	0.954
6-Mar-00	**66.9**	2	0.0323	-1.847	4.204	0.952
15-Mar-00	**75.4**	3	0.0522	-1.624	4.323	0.957
17-Mar-00	**77.8**	4	0.0721	-1.460	4.354	0.963
20-Mar-00	**80.9**	5	0.0920	-1.328	4.393	0.967
21-Mar-00	**81.9**	6	0.1119	-1.216	4.406	0.970
23-Mar-00	**83.7**	7	0.1318	-1.118	4.427	0.973
25-Mar-00	**85.4**	8	0.1517	-1.029	4.447	0.975
30-Mar-00	**90.4**	9	0.1716	-0.948	4.505	0.976
2-Apr-00	**93.8**	10	0.1915	-0.872	4.541	0.977
4-Apr-00	**95.2**	11	0.2114	-0.801	4.556	0.979
7-Apr-00	**99.0**	12	0.2313	-0.734	4.595	0.980
8-Apr-00	**99.4**	13	0.2512	-0.671	4.599	0.982
9-Apr-00	**100.2**	14	0.2711	-0.609	4.607	0.982
9-Apr-00	**101.0**	15	0.2910	-0.550	4.615	0.982
14-Apr-00	**105.3**	16	0.3109	-0.493	4.657	0.982
15-Apr-00	**106.5**	17	0.3308	-0.438	4.668	0.981
17-Apr-00	**109.0**	18	0.3507	-0.383	4.691	0.980
5-May-00	**126.9**	19	0.3706	-0.330	4.844	0.979
6-May-00	**127.2**	20	0.3905	-0.278	4.846	0.980
7-May-00	**128.8**	21	0.4104	-0.226	4.858	0.980
7-May-00	**128.8**	22	0.4303	-0.175	4.858	0.980
12-May-00	**133.3**	23	0.4502	-0.125	4.893	0.979
21-May-00	**142.9**	24	0.4701	-0.075	4.962	0.978
29-May-00	**150.6**	25	0.4900	-0.025	5.015	0.977
11-Jun-00	**163.2**	26	0.5100	0.025	5.095	0.977
12-Jun-00	**164.9**	27	0.5299	0.075	5.105	0.980
13-Jun-00	**165.4**	28	0.5498	0.125	5.109	0.981
13-Jun-00	**165.6**	29	0.5697	0.175	5.110	0.982
14-Jun-00	**166.7**	30	0.5896	0.226	5.116	0.981
19-Jun-00	**171.5**	31	0.6095	0.278	5.144	0.979
1-Jul-00	**183.3**	32	0.6294	0.330	5.211	0.978
1-Jul-00	**183.5**	33	0.6493	0.383	5.212	0.976
19-Jul-00	**201.3**	34	0.6692	0.438	5.305	0.973
19-Jul-00	**201.8**	35	0.6891	0.493	5.307	0.971
27-Jul-00	**209.9**	36	0.7090	0.550	5.347	0.968
31-Jul-00	**213.5**	37	0.7289	0.609	5.364	0.964
7-Aug-00	**220.3**	38	0.7488	0.671	5.395	0.961
20-Aug-00	**233.9**	39	0.7687	0.734	5.455	0.964
11-Nov-00	**316.6**	40	0.7886	0.801	5.758	0.975
15-Nov-00	**320.0**	41	0.8085	0.872	5.768	0.975
21-Nov-00	**326.9**	42	0.8284	0.948	5.790	0.971
9-Dec-00	**344.7**	43	0.8483	1.029	5.843	0.965
21-Jan-01	**387.4**	44	0.8682	1.118	5.959	0.957
24-Jan-01	**390.6**	45	0.8881	1.216	5.968	0.944
13-May-01	**499.2**	46	0.9080	1.328	6.213	0.943
20-Jun-01	**537.4**	47	0.9279	1.460	6.287	0.931

7-Sep-01	**616.2**	48	0.9478	1.624	6.424	0.908
26-Sep-01	**635.6**	49	0.9677	1.847	6.455	1.000
1-Oct-02	**1005.5**	50	0.9876	2.243	6.913	#DIV/0!

update for EV, CV:

dZn		**NM298**		6,710	6710
LN Analysis		**dZn**		0.45	0.447

Concentration

Conc. Data, EV=6710 ug/L CV=0.447

Avg:	**6,710**	**Data-based LN**		
SD:	**2,997**	u	ln[dZn]	[dZn]
CV:	**0.45**	3	10.0	22027
Min:	**867**	0	8.72	6127
Max:	**14,000**	-3	7.44	1704
Median:	**7,075**			

				0.903	0.903
u=mLn{Conc.}+b:				7135.6	7140
update for r2, EV, CV:	**r2=0.903, EV=7140 ug/L CV=0.694; max r2=0.99**			0.694	0.694
r2 u,lnConc:	0.903	u	lnConc.	Conc.	
slope, m:	1.594	3	10.56	38477	
intercept, b:	-13.833	0	8.68	5861	
N: 50		-3	6.79	893	
E[Conc]:	7135.6	Parameter Estimates			
SD[Conc]:	4954	from LN regression			
CV[Conc]:	0.69	update graph label			

Date	dZn Concentration ug/L Ranked	i rank (N: 50)	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 #DIV/0! r2 forward
update and rank for new data						
27-Jul-00	867	1	0.0124	-2.243	6.765	0.903
21-Jan-01	1600	2	0.0323	-1.847	7.378	0.911
21-May-00	1660	3	0.0522	-1.624	7.415	0.907
7-Sep-01	2060	4	0.0721	-1.460	7.630	0.913
21-Nov-00	2350	5	0.0920	-1.328	7.762	0.917
1-Jul-00	2820	6	0.1119	-1.216	7.944	0.921
15-Apr-00	2890	7	0.1318	-1.118	7.969	0.920
8-Apr-00	2980	8	0.1517	-1.029	8.000	0.924
7-Aug-00	3390	9	0.1716	-0.948	8.129	0.933
13-Feb-00	3800	10	0.1915	-0.872	8.243	0.939
11-Jun-00	3890	11	0.2114	-0.801	8.266	0.941
20-Aug-00	4110	12	0.2313	-0.734	8.321	0.946
6-May-00	4470	13	0.2512	-0.671	8.405	0.952
20-Jun-01	4540	14	0.2711	-0.609	8.421	0.955
17-Mar-00	4820	15	0.2910	-0.550	8.481	0.962
2-Apr-00	5250	16	0.3109	-0.493	8.566	0.968
12-May-00	5250	17	0.3308	-0.438	8.566	0.970
15-Mar-00	5650	18	0.3507	-0.383	8.639	0.975
4-Apr-00	6040	19	0.3706	-0.330	8.706	0.976
6-Mar-00	6040	20	0.3905	-0.278	8.706	0.975
25-Mar-00	6150	21	0.4104	-0.226	8.724	0.974
1-Oct-02	6230	22	0.4303	-0.175	8.737	0.974
23-Mar-00	6270	23	0.4502	-0.125	8.744	0.975
26-Sep-01	6950	24	0.4701	-0.075	8.846	0.979
15-Nov-00	6990	25	0.4900	-0.025	8.852	0.978
12-Jun-00	7160	26	0.5100	0.025	8.876	0.976
20-Mar-00	7160	27	0.5299	0.075	8.876	0.974
14-Jun-00	7240	28	0.5498	0.125	8.887	0.972
21-Mar-00	7540	29	0.5697	0.175	8.928	0.970
9-Apr-00	7540	30	0.5896	0.226	8.928	0.968
17-Apr-00	7850	31	0.6095	0.278	8.968	0.965
19-Jul-00	8030	32	0.6294	0.330	8.991	0.963
19-Jul-00	8030	33	0.6493	0.383	8.991	0.962
7-Apr-00	8070	34	0.6692	0.438	8.996	0.959
14-Apr-00	8580	35	0.6891	0.493	9.057	0.955
11-Nov-00	8590	36	0.7090	0.550	9.058	0.960
30-Mar-00	8690	37	0.7289	0.609	9.070	0.963
1-Jul-00	8700	38	0.7488	0.671	9.071	0.967
5-May-00	8770	39	0.7687	0.734	9.079	0.967
9-Apr-00	8770	40	0.7886	0.801	9.079	0.966
9-Dec-00	8960	41	0.8085	0.872	9.101	0.961
13-May-01	9160	42	0.8284	0.948	9.123	0.954
13-Jun-00	9330	43	0.8483	1.029	9.141	0.945
19-Jun-00	9600	44	0.8682	1.118	9.170	0.931
31-Jul-00	9680	45	0.8881	1.216	9.178	0.911
24-Jan-01	10600	46	0.9080	1.328	9.269	0.934
7-May-00	11400	47	0.9279	1.460	9.341	0.946

13-Jun-00	12400	48	0.9478	1.624	9.425	0.942
7-May-00	12600	49	0.9677	1.847	9.441	1.000
29-May-00	14000	50	0.9876	2.243	9.547	#DIV/0!

update for EV, CV:

dZn		**NM298**			9	8.88
LN Analysis		**dZn**			1.33	1.33
Discharge, Q		**Q Data, EV=8.88 cfs CV=1.33**				
Avg:	**9**	**Q Data-based LN**				
SD:	**12**	u	lnQ	Q		
CV:	**1.33**	3	4.7	110		
Min:	**2**	0	1.68	5		
Max:	**56**	-3	-1.35	0		
Median:	**4**					

					0.887	0.887
					8.7	8.72
u=mLn{Q}+b:					1.33	1.33
update for r2, EV, CV:	**r2=0.887, EV=8.72 cfs CV=1.33; max r2=0.98**					
r2 u,lnQ:	0.887	u	lnQ	Q		
slope, m:	0.990	3	4.69	108		
intercept, b:	-1.638	0	1.66	5		
N:	50	-3	-1.38	0		
E[Q]:	8.7	Parameter Estimates				
SD[Q]:	12	from LN regression				
CV[Q]:	1.33	update graph label				

						max r2
	Q	N: 50				#DIV/0!
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
7-May-00	1.9	1	0.0124	-2.243	0.642	0.887
30-Mar-00	1.934382724	2	0.0323	-1.847	0.660	0.912
29-May-00	2	3	0.0522	-1.624	0.693	0.927
21-Mar-00	2.02	4	0.0721	-1.460	0.703	0.938
6-Mar-00	2.06	5	0.0920	-1.328	0.723	0.947
7-May-00	2.1	6	0.1119	-1.216	0.742	0.954
20-Mar-00	2.1	7	0.1318	-1.118	0.742	0.960
9-Apr-00	2.14	8	0.1517	-1.029	0.761	0.964
13-Feb-00	2.19	9	0.1716	-0.948	0.784	0.968
7-Apr-00	2.28	10	0.1915	-0.872	0.824	0.972
14-Apr-00	2.281431698	11	0.2114	-0.801	0.825	0.975
9-Apr-00	2.47	12	0.2313	-0.734	0.904	0.977
15-Mar-00	2.48	13	0.2512	-0.671	0.908	0.980
23-Mar-00	2.48	14	0.2711	-0.609	0.908	0.982
13-Jun-00	2.48	15	0.2910	-0.550	0.908	0.983
25-Mar-00	2.58	16	0.3109	-0.493	0.948	0.984
17-Apr-00	2.58	17	0.3308	-0.438	0.948	0.984
5-May-00	2.69	18	0.3507	-0.383	0.990	0.984
4-Apr-00	2.93	19	0.3706	-0.330	1.075	0.983
17-Mar-00	3	20	0.3905	-0.278	1.099	0.983
13-Jun-00	3.3	21	0.4104	-0.226	1.194	0.982
2-Apr-00	3.32	22	0.4303	-0.175	1.200	0.982
19-Jun-00	3.32005516	23	0.4502	-0.125	1.200	0.981
1-Jul-00	3.92	24	0.4701	-0.075	1.366	0.980
31-Jul-00	4.1	25	0.4900	-0.025	1.411	0.979
14-Jun-00	4.28	26	0.5100	0.025	1.454	0.979
12-Jun-00	4.28	27	0.5299	0.075	1.454	0.978
19-Jul-00	4.66	28	0.5498	0.125	1.539	0.976
19-Jul-00	4.67	29	0.5697	0.175	1.541	0.975
12-May-00	4.72	30	0.5896	0.226	1.552	0.973
6-May-00	5.29	31	0.6095	0.278	1.666	0.971
8-Apr-00	6.2	32	0.6294	0.330	1.825	0.968
24-Jan-01	6.85	33	0.6493	0.383	1.924	0.965
11-Nov-00	6.85	34	0.6692	0.438	1.924	0.964
15-Apr-00	6.85	35	0.6891	0.493	1.924	0.960
9-Dec-00	7.15	36	0.7090	0.550	1.967	0.955
11-Jun-00	7.8	37	0.7289	0.609	2.054	0.951
15-Nov-00	8.51	38	0.7488	0.671	2.141	0.945
13-May-01	10.13	39	0.7687	0.734	2.316	0.939
20-Aug-00	10.58	40	0.7886	0.801	2.359	0.929
1-Jul-00	12.08	41	0.8085	0.872	2.492	0.919
7-Aug-00	12.08	42	0.8284	0.948	2.492	0.904
21-May-00	16	43	0.8483	1.029	2.773	0.902
26-Sep-01	17	44	0.8682	1.118	2.833	0.881
20-Jun-01	22	45	0.8881	1.216	3.091	0.873
21-Nov-00	25.86	46	0.9080	1.328	3.253	0.836
1-Oct-02	30	47	0.9279	1.460	3.401	0.769

21-Jan-01	45	48	0.9478	1.624	3.807	0.873
27-Jul-00	45	49	0.9677	1.847	3.807	1.000
7-Sep-01	55.6	50	0.9876	2.243	4.018	#DIV/0!

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM298 **Date:** 22-Jun-00
Chemical: tCd **Analyst:** J.MacLachlan
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,104	9	39	1	0.00	0.00	0.00	
SD:	788	12	17	1	1.00	1.00	1.00	
CV:	0.02	1.32	0.44	0.85				first:
Min:	34,269	2	6	0.3	-0.60	-1.92	-0.89	mid:
Max:	36,404	56	92	6	3.92	3.06	4.60	last:
Median:	34,739	4	42	1	-0.40	0.17	-0.33	

tCd NM298 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.316)		update r2	0.32	0.316	r2:	0.188	0.129	
r2 Q,[COC]:	0.32	[tCd]	Q		m:	0.0065	0.00042	
slope, m:	-0.8	45	1.9		b:	-220	-13.07	
intercept, b:	46.5	39	9.0					
N: 49		1	56					first:
LnConc. = mLn{Q}+b (r2=0.491)		update r2		0.49	0.491			mid:
r2 lnQ,ln[COC]:	0.49	ln[tCd]	ln Q	[tCd]	Q			last:
slope, m:	-0.41	3.96	0.66	53	2			
intercept, b:	4.23	3.33	2.20	28	9			
N: 49		2.59	4.02	13	56			

for graph
tCd 0
NM298

N= 49

update for new data	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	27-Oct-93	2.48	31	0.4	0.91	3.43	-0.88	-0.55	-0.47	-0.79
IDEQ	2-Dec-93	2.48	30	0.4	0.91	3.40	-0.92	-0.55	-0.53	-0.81
IDEQ	16-Dec-93	2.02	43	0.5	0.70	3.76	-0.76	-0.59	0.23	-0.74
IDEQ	16-Dec-93	2.47	43	0.6	0.90	3.76	-0.56	-0.55	0.23	-0.65
IDEQ	24-Jan-94	2.69	38	0.5	0.99	3.64	-0.60	-0.53	-0.06	-0.67
IDEQ	24-Jan-94	2.14	38	0.4	0.76	3.64	-0.83	-0.58	-0.06	-0.77
IDEQ	18-Feb-94	2.28	51	0.6	0.82	3.93	-0.47	-0.57	0.69	-0.60
IDEQ	8-Mar-94	4.28	48	1.1	1.45	3.87	0.10	-0.40	0.52	-0.16
IDEQ	24-Mar-94	4.66	48	1.2	1.54	3.87	0.19	-0.37	0.52	-0.07
IDEQ	24-Mar-94	4.67	48	1.2	1.54	3.87	0.19	-0.37	0.52	-0.07
IDEQ	7-Apr-94	8.51	39	1.8	2.14	3.66	0.58	-0.04	-0.01	0.47
IDEQ	4-May-94	10.58	28	1.6	2.36	3.33	0.47	0.13	-0.64	0.29
IDEQ	19-May-94	12.08	19	1.2	2.49	2.94	0.21	0.26	-1.16	-0.04
IDEQ	7-Jun-94	7.8	27	1.1	2.05	3.30	0.12	-0.10	-0.70	-0.13
IDEQ	23-Jun-94	5.29	29	0.8	1.67	3.37	-0.19	-0.31	-0.58	-0.42
IDEQ	20-Jul-94	3.32	36	0.6	1.20	3.58	-0.44	-0.48	-0.18	-0.58
IDEQ	20-Jul-94	4.72	36	0.9	1.55	3.58	-0.09	-0.36	-0.18	-0.33
IDEQ	15-Aug-94	2.93	42	0.7	1.08	3.74	-0.41	-0.51	0.17	-0.56
IDEQ	15-Aug-94	2.06	42	0.5	0.72	3.74	-0.76	-0.59	0.17	-0.75
IDEQ	8-Sep-94	2.58	40	0.6	0.95	3.69	-0.59	-0.54	0.05	-0.66
IDEQ	4-Oct-94	2.58	46	0.6	0.95	3.83	-0.45	-0.54	0.40	-0.59
IDEQ	15-Nov-94	2.1	92	1.0	0.74	4.52	0.04	-0.58	3.06	-0.22
IDEQ	13-Dec-94	2.48	78	1.0	0.91	4.36	0.04	-0.55	2.25	-0.22
IDEQ	10-Jan-95	4.1	60	1.3	1.41	4.09	0.28	-0.41	1.21	0.04
IDEQ	9-Feb-95	6.85	58	2.1	1.92	4.06	0.76	-0.18	1.09	0.79
IDEQ	7-Mar-95	6.85	48	1.8	1.92	3.87	0.57	-0.18	0.52	0.45
IDEQ	13-Apr-95	10.13	48	2.6	2.32	3.87	0.96	0.09	0.52	1.23
IDEQ	25-Apr-95	7.15	46	1.8	1.97	3.83	0.57	-0.16	0.40	0.45
IDEQ	9-May-95	12.08	20	1.3	2.49	3.00	0.26	0.26	-1.11	0.02
IDEQ	23-May-95	25.86	15	2.1	3.25	2.71	0.74	1.42	-1.40	0.74
IDEQ	12-Jun-95	6.85	16	0.6	1.92	2.77	-0.53	-0.18	-1.34	-0.63
IDEQ	27-Jun-95	2.19	26	0.3	0.78	3.26	-1.18	-0.58	-0.76	-0.89
IDEQ	13-Sep-95	4.28	46	1.1	1.45	3.83	0.06	-0.40	0.40	-0.20
URS	12-Nov-97	3.92	42.7	0.9	1.37	3.75	-0.10	-0.43	0.21	-0.35
URS	14-May-98	55.6	10.5	3.1	4.02	2.35	1.14	3.92	-1.66	1.71
USGS	27-Oct-98	2.1	42	0.5	0.74	3.74	-0.75	-0.58	0.17	-0.74
USGS	10-Dec-98	2	80	0.9	0.69	4.38	-0.15	-0.59	2.37	-0.38
IDEQ	15-Jan-99	3.32005516	52	0.9	1.20	3.95	-0.07	-0.48	0.75	-0.32
USGS	21-Jan-99	3.3	49	0.9	1.19	3.89	-0.14	-0.48	0.57	-0.37
IDEQ	23-Feb-99	1.934382724	50	0.5	0.66	3.91	-0.65	-0.60	0.63	-0.69
IDEQ	8-Mar-99	2.281431698	47	0.6	0.82	3.85	-0.55	-0.57	0.46	-0.64
USGS	22-Mar-99	17	43	3.9	2.83	3.76	1.37	0.67	0.23	2.44
USGS	20-Apr-99	30	39	6.3	3.40	3.66	1.84	1.76	-0.01	4.60
USGS	5-May-99	22	27	3.2	3.09	3.30	1.16	1.09	-0.70	1.76
USGS	23-May-99	45	12	2.9	3.81	2.48	1.07	3.03	-1.57	1.49
USGS	15-Jun-99	45	6	1.5	3.81	1.79	0.37	3.03	-1.92	0.16
USGS	7-Jul-99	16	10.7	0.9	2.77	2.37	-0.08	0.59	-1.64	-0.33

USGS	4-Aug-99	6.2	20.8	0.7	1.82	3.03	-0.37	-0.24	-1.06	-0.54
USGS	1-Sep-99	3	29.2	0.5	1.10	3.37	-0.75	-0.51	-0.57	-0.74

tCd

Concentration over time analysis r2 Slope, m

tCd NM298 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.077** **-0.00019**

Time	Ln[COC]	[COC]
27-Oct-93	3.70	41
9-Feb-95	3.61	37
1-Sep-99	3.30	27

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
1-Sep-99	0.00	1

Load over time analysis

tCd NM298 **Load over time**

LnLoad=mTime+b All data r2, m: **0.074** **0.00023**

Time	LnLoad	Load
27-Oct-93	-0.20	1
9-Feb-95	-0.09	1
1-Sep-99	0.29	1

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
1-Sep-99	0.00	1

max r2: #DIV/0! max r2: #DIV/0!

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.077	-0.00019	10.23	0.074	0.00023	-8.07
0.082	-0.00020	10.51	0.062	0.00021	-7.36
0.087	-0.00021	10.82	0.051	0.00019	-6.58
0.085	-0.00021	10.78	0.042	0.00017	-5.90
0.082	-0.00020	10.73	0.035	0.00015	-5.38
0.081	-0.00021	10.81	0.028	0.00014	-4.78
0.081	-0.00021	10.90	0.019	0.00011	-3.86
0.074	-0.00020	10.63	0.014	0.00010	-3.28
0.069	-0.00020	10.42	0.014	0.00010	-3.37
0.063	-0.00019	10.17	0.015	0.00010	-3.56
0.057	-0.00018	9.91	0.016	0.00011	-3.78
0.055	-0.00018	9.90	0.023	0.00013	-4.58
0.061	-0.00019	10.36	0.029	0.00015	-5.28
0.081	-0.00023	11.47	0.033	0.00016	-5.67
0.091	-0.00024	12.14	0.035	0.00017	-5.96
0.101	-0.00026	12.77	0.031	0.00016	-5.75
0.103	-0.00027	13.07	0.024	0.00015	-5.06
0.106	-0.00028	13.43	0.022	0.00014	-4.94
0.103	-0.00028	13.51	0.015	0.00012	-4.14
0.099	-0.00028	13.61	0.005	0.00007	-2.42
0.098	-0.00029	13.82	0.001	0.00003	-0.83
0.090	-0.00029	13.70	0.000	-0.00001	0.71
0.060	-0.00023	11.66	0.001	-0.00003	1.21
0.034	-0.00018	9.67	0.002	-0.00004	1.81
0.018	-0.00013	8.05	0.001	-0.00004	1.76
0.006	-0.00008	6.13	0.000	0.00001	0.00
0.001	-0.00003	4.40	0.001	0.00005	-1.50
0.001	0.00003	2.14	0.014	0.00015	-5.23
0.010	0.00011	-0.80	0.030	0.00024	-8.35
0.004	0.00008	0.39	0.043	0.00031	-10.92
0.001	-0.00004	4.91	0.108	0.00054	-19.32
0.028	-0.00026	12.83	0.079	0.00054	-19.26
0.067	-0.00054	22.97	0.002	0.00010	-3.25
0.063	-0.00108	42.62	0.000	0.00001	-0.09
0.044	-0.00130	50.54	0.010	-0.00072	26.34
0.465	-0.00547	201.65	0.022	0.00139	-50.33
0.516	-0.00663	244.00	0.000	-0.00010	3.85
0.427	-0.00628	230.99	0.007	-0.00100	36.72
0.373	-0.00624	229.69	0.024	-0.00202	73.69
0.307	-0.00624	229.80	0.077	-0.00412	149.92
0.215	-0.00550	202.87	0.298	-0.00855	311.05
0.105	-0.00407	150.91	0.909	-0.01593	579.08
0.007	-0.00113	43.92	0.963	-0.01875	681.63
0.086	0.00402	-143.50	0.969	-0.01702	618.92
0.638	0.01229	-444.15	0.953	-0.01717	624.16
0.975	0.02052	-743.65	0.982	-0.01387	504.25
0.966	0.01793	-649.19	0.992	-0.01197	434.85

1.000	0.01211	-437.65	1.000	-0.01381	502.04
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

update for EV, CV:

tCd **NM298**
LN Analysis **tCd**

Load **Load Data, EV=1.28 lbs/day CV=0.853**

Avg:	**1**	**Load Data-based LN**		
SD:	**1**	u	ln tCd Load	tCd Load
CV:	**0.85**	3	2.2	9
Min:	**0.3**	0	-0.03	1
Max:	**6**	-3	-2.25	0.1
Median:	**1**			
		1	1.28	
		0.85	0.853	

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.965, EV=1.27lbs/day CV=0.794; max r2=0.99**

r2 u,lnLoad:	0.965	u	lnLoad	Load	
slope, m:	1.431	3	2.09	8	
intercept, b:	0.006	0	0.00	1	
N: 49		-3	-2.10	0.1	
E[Load]:	1.3	Parameter Estimates			0.965
SD[Load]:	1	from LN regression			1.3
CV[Load]:	0.79	update graph label			0.8
					max r2
	tCd	N: 49			#DIV/0!
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
27-Jun-95	**0.3**	1	0.0127	-2.236	-1.183	0.965
2-Dec-93	**0.4**	2	0.0330	-1.838	-0.916	0.969
27-Oct-93	**0.4**	3	0.0533	-1.614	-0.883	0.975
24-Jan-94	**0.4**	4	0.0736	-1.449	-0.827	0.979
15-Aug-94	**0.5**	5	0.0939	-1.317	-0.765	0.982
16-Dec-93	**0.5**	6	0.1142	-1.204	-0.761	0.985
1-Sep-99	**0.5**	7	0.1345	-1.105	-0.752	0.987
27-Oct-98	**0.5**	8	0.1548	-1.016	-0.745	0.987
23-Feb-99	**0.5**	9	0.1751	-0.934	-0.653	0.987
24-Jan-94	**0.5**	10	0.1954	-0.858	-0.598	0.988
8-Sep-94	**0.6**	11	0.2157	-0.787	-0.588	0.989
16-Dec-93	**0.6**	12	0.2360	-0.719	-0.560	0.989
8-Mar-99	**0.6**	13	0.2563	-0.655	-0.550	0.989
12-Jun-95	**0.6**	14	0.2766	-0.593	-0.528	0.989
18-Feb-94	**0.6**	15	0.2970	-0.533	-0.469	0.988
4-Oct-94	**0.6**	16	0.3173	-0.475	-0.449	0.988
20-Jul-94	**0.6**	17	0.3376	-0.419	-0.442	0.987
15-Aug-94	**0.7**	18	0.3579	-0.364	-0.412	0.986
4-Aug-99	**0.7**	19	0.3782	-0.310	-0.366	0.986
23-Jun-94	**0.8**	20	0.3985	-0.257	-0.192	0.985
10-Dec-98	**0.9**	21	0.4188	-0.205	-0.150	0.985
21-Jan-99	**0.9**	22	0.4391	-0.153	-0.139	0.987
12-Nov-97	**0.9**	23	0.4594	-0.102	-0.105	0.987
20-Jul-94	**0.9**	24	0.4797	-0.051	-0.090	0.988
7-Jul-99	**0.9**	25	0.5000	0.000	-0.082	0.988
15-Jan-99	**0.9**	26	0.5203	0.051	-0.074	0.988
15-Nov-94	**1.0**	27	0.5406	0.102	0.039	0.987
13-Dec-94	**1.0**	28	0.5609	0.153	0.040	0.989
13-Sep-95	**1.1**	29	0.5812	0.205	0.058	0.989
8-Mar-94	**1.1**	30	0.6015	0.257	0.100	0.988
7-Jun-94	**1.1**	31	0.6218	0.310	0.125	0.988
24-Mar-94	**1.2**	32	0.6421	0.364	0.185	0.987
24-Mar-94	**1.2**	33	0.6624	0.419	0.187	0.987
19-May-94	**1.2**	34	0.6827	0.475	0.211	0.986
9-May-95	**1.3**	35	0.7030	0.533	0.262	0.984
10-Jan-95	**1.3**	36	0.7234	0.593	0.280	0.982
15-Jun-99	**1.5**	37	0.7437	0.655	0.373	0.981
4-May-94	**1.6**	38	0.7640	0.719	0.466	0.979
7-Mar-95	**1.8**	39	0.7843	0.787	0.570	0.976
25-Apr-95	**1.8**	40	0.8046	0.858	0.571	0.974
7-Apr-94	**1.8**	41	0.8249	0.934	0.580	0.969
23-May-95	**2.1**	42	0.8452	1.016	0.736	0.967
9-Feb-95	**2.1**	43	0.8655	1.105	0.760	0.958
13-Apr-95	**2.6**	44	0.8858	1.204	0.962	0.951
23-May-99	**2.9**	45	0.9061	1.317	1.067	0.943
14-May-98	**3.1**	46	0.9264	1.449	1.144	0.954
5-May-99	**3.2**	47	0.9467	1.614	1.162	0.996

22-Mar-99	**3.9**	48	0.9670	1.838	1.369	1.000
20-Apr-99	**6.3**	49	0.9873	2.236	1.840	#DIV/0!

update for EV, CV:

tCd		**NM298**		39	39.1
LN Analysis		**tCd**		0.44	0.442
Concentration		**Conc. Data, EV=39.1 ug/L CV=0.442**			
Avg:	**39**	**Data-based LN**			
SD:	**17**	u	ln[tCd]	[tCd]	
CV:	**0.44**	3	4.8	127	
Min:	**6**	0	3.58	36	
Max:	**92**	-3	2.31	10	
Median:	**42**				

				0.896	0.896
	u=mLn{Conc.}+b:			41.2	41.2
update for r2, EV, CV:	**r2=0.896, EV=41.2 ug/L CV=0.641; max r2=0.99**			0.641	0.641
	r2 u,lnConc:	0.896	u	lnConc.	Conc.
	slope, m:	1.705	3	5.31	201
	intercept, b:	-6.043	0	3.55	35
	N: 49		-3	1.79	6
0.965	E[Conc]:	41.2	Parameter Estimates		
1.27	SD[Conc]:	26	from LN regression		
0.794	CV[Conc]:	0.64	update graph label		

	tCd	N: 49				max r2 #DIV/0!
Date	**Concentration ug/L Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	r2 forward
update and rank for new data						
15-Jun-99	6	1	0.0127	-2.236	1.792	0.896
14-May-98	10.5	2	0.0330	-1.838	2.351	0.901
7-Jul-99	10.7	3	0.0533	-1.614	2.370	0.896
23-May-99	12	4	0.0736	-1.449	2.485	0.900
23-May-95	15	5	0.0939	-1.317	2.708	0.911
12-Jun-95	16	6	0.1142	-1.204	2.773	0.915
19-May-94	19	7	0.1345	-1.105	2.944	0.924
9-May-95	20	8	0.1548	-1.016	2.996	0.926
4-Aug-99	20.8	9	0.1751	-0.934	3.035	0.931
27-Jun-95	26	10	0.1954	-0.858	3.258	0.940
7-Jun-94	27	11	0.2157	-0.787	3.296	0.936
5-May-99	27	12	0.2360	-0.719	3.296	0.933
4-May-94	28	13	0.2563	-0.655	3.332	0.930
23-Jun-94	29	14	0.2766	-0.593	3.367	0.927
1-Sep-99	29.2	15	0.2970	-0.533	3.374	0.923
2-Dec-93	30	16	0.3173	-0.475	3.401	0.922
27-Oct-93	31	17	0.3376	-0.419	3.434	0.920
20-Jul-94	36	18	0.3579	-0.364	3.584	0.919
20-Jul-94	36	19	0.3782	-0.310	3.584	0.914
24-Jan-94	38	20	0.3985	-0.257	3.638	0.909
24-Jan-94	38	21	0.4188	-0.205	3.638	0.906
7-Apr-94	39	22	0.4391	-0.153	3.664	0.902
20-Apr-99	39	23	0.4594	-0.102	3.664	0.899
8-Sep-94	40	24	0.4797	-0.051	3.689	0.894
15-Aug-94	42	25	0.5000	0.000	3.738	0.891
15-Aug-94	42	26	0.5203	0.051	3.738	0.893
27-Oct-98	42	27	0.5406	0.102	3.738	0.894
12-Nov-97	42.7	28	0.5609	0.153	3.754	0.893
16-Dec-93	43	29	0.5812	0.205	3.761	0.893
16-Dec-93	43	30	0.6015	0.257	3.761	0.893
22-Mar-99	43	31	0.6218	0.310	3.761	0.890
4-Oct-94	46	32	0.6421	0.364	3.829	0.885
25-Apr-95	46	33	0.6624	0.419	3.829	0.893
13-Sep-95	46	34	0.6827	0.475	3.829	0.899
8-Mar-99	47	35	0.7030	0.533	3.850	0.902
8-Mar-94	48	36	0.7234	0.593	3.871	0.910
24-Mar-94	48	37	0.7437	0.655	3.871	0.923
24-Mar-94	48	38	0.7640	0.719	3.871	0.934
7-Mar-95	48	39	0.7843	0.787	3.871	0.942
13-Apr-95	48	40	0.8046	0.858	3.871	0.945
21-Jan-99	49	41	0.8249	0.934	3.892	0.942
23-Feb-99	50	42	0.8452	1.016	3.912	0.936
18-Feb-94	51	43	0.8655	1.105	3.932	0.925
15-Jan-99	52	44	0.8858	1.204	3.951	0.902
9-Feb-95	58	45	0.9061	1.317	4.060	0.872
10-Jan-95	60	46	0.9264	1.449	4.094	0.808
13-Dec-94	78	47	0.9467	1.614	4.357	0.951

10-Dec-98	80	48	0.9670	1.838	4.382	1.000
15-Nov-94	92	49	0.9873	2.236	4.522	#DIV/0!

update for EV, CV:

tCd		**NM298**			9	9.02
LN Analysis		**tCd**			1.32	1.32
Discharge, Q		**Q Data, EV=9.02 cfs CV=1.32**				
Avg:	**9**	**Q Data-based LN**				
SD:	**12**	u	lnQ	Q		
CV:	**1.32**	3	4.7	111		
Min:	**2**	0	1.70	5		
Max:	**56**	-3	-1.31	0		
Median:	**4**					

					0.889	0.889
					8.9	8.88
u=mLn{Q}+b:					1.33	1.33
update for r2, EV, CV:	**r2=0.889, EV=8.88 cfs CV=1.33; max r2=0.98**					
r2 u,lnQ:	0.889	u	lnQ	Q		
slope, m:	0.993	3	4.70	110		
intercept, b:	-1.664	0	1.68	5		
N: 49		-3	-1.35	0		
E[Q]:	8.9	Parameter Estimates				
SD[Q]:	12	from LN regression				
CV[Q]:	1.33	update graph label				

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 #DIV/0! r2 forward
		N: 49				
update and rank for new data						
23-Feb-99	1.934382724	1	0.0127	-2.236	0.660	0.889
10-Dec-98	2	2	0.0330	-1.838	0.693	0.914
16-Dec-93	2.02	3	0.0533	-1.614	0.703	0.929
15-Aug-94	2.06	4	0.0736	-1.449	0.723	0.940
15-Nov-94	2.1	5	0.0939	-1.317	0.742	0.949
27-Oct-98	2.1	6	0.1142	-1.204	0.742	0.956
24-Jan-94	2.14	7	0.1345	-1.105	0.761	0.961
27-Jun-95	2.19	8	0.1548	-1.016	0.784	0.966
18-Feb-94	2.28	9	0.1751	-0.934	0.824	0.970
8-Mar-99	2.281431698	10	0.1954	-0.858	0.825	0.973
16-Dec-93	2.47	11	0.2157	-0.787	0.904	0.975
27-Oct-93	2.48	12	0.2360	-0.719	0.908	0.979
2-Dec-93	2.48	13	0.2563	-0.655	0.908	0.981
13-Dec-94	2.48	14	0.2766	-0.593	0.908	0.983
8-Sep-94	2.58	15	0.2970	-0.533	0.948	0.983
4-Oct-94	2.58	16	0.3173	-0.475	0.948	0.984
24-Jan-94	2.69	17	0.3376	-0.419	0.990	0.983
15-Aug-94	2.93	18	0.3579	-0.364	1.075	0.983
1-Sep-99	3	19	0.3782	-0.310	1.099	0.983
21-Jan-99	3.3	20	0.3985	-0.257	1.194	0.982
20-Jul-94	3.32	21	0.4188	-0.205	1.200	0.982
15-Jan-99	3.32005516	22	0.4391	-0.153	1.200	0.981
12-Nov-97	3.92	23	0.4594	-0.102	1.366	0.980
10-Jan-95	4.1	24	0.4797	-0.051	1.411	0.979
8-Mar-94	4.28	25	0.5000	0.000	1.454	0.979
13-Sep-95	4.28	26	0.5203	0.051	1.454	0.978
24-Mar-94	4.66	27	0.5406	0.102	1.539	0.977
24-Mar-94	4.67	28	0.5609	0.153	1.541	0.975
20-Jul-94	4.72	29	0.5812	0.205	1.552	0.973
23-Jun-94	5.29	30	0.6015	0.257	1.666	0.971
4-Aug-99	6.2	31	0.6218	0.310	1.825	0.968
9-Feb-95	6.85	32	0.6421	0.364	1.924	0.966
7-Mar-95	6.85	33	0.6624	0.419	1.924	0.964
12-Jun-95	6.85	34	0.6827	0.475	1.924	0.960
25-Apr-95	7.15	35	0.7030	0.533	1.967	0.956
7-Jun-94	7.8	36	0.7234	0.593	2.054	0.951
7-Apr-94	8.51	37	0.7437	0.655	2.141	0.945
13-Apr-95	10.13	38	0.7640	0.719	2.316	0.939
4-May-94	10.58	39	0.7843	0.787	2.359	0.930
19-May-94	12.08	40	0.8046	0.858	2.492	0.919
9-May-95	12.08	41	0.8249	0.934	2.492	0.904
7-Jul-99	16	42	0.8452	1.016	2.773	0.903
22-Mar-99	17	43	0.8655	1.105	2.833	0.881
5-May-99	22	44	0.8858	1.204	3.091	0.874
23-May-95	25.86	45	0.9061	1.317	3.253	0.836
20-Apr-99	30	46	0.9264	1.449	3.401	0.770
23-May-99	45	47	0.9467	1.614	3.807	0.873

15-Jun-99	45	48	0.9670	1.838	3.807	1.000
14-May-98	55.6	49	0.9873	2.236	4.018	#DIV/0!

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NM298	**Date:**	26-Jun-00
Chemical:	tPb	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,124	9	264	10	0.00	0.00	0.00	
SD:	793	12	542	18	1.00	1.00	1.00	
CV:	0.02	1.33	2.05	1.86				first:
Min:	34,269	2	48	1.2	-0.59	-0.40	-0.47	mid:
Max:	36,404	56	4,000	109	3.96	6.90	5.56	last:
Median:	34,752	4	162	4	-0.40	-0.19	-0.30	

tPb NM298 : Concentration v. Discharge, Q — **Q = mTime +b** — **LnQ = mTime +b**

Conc. = mQ+b (r2=0.0076) update r2 0.01 0.0076

r2 Q,[COC]:	0.01	[tPb]	Q		r2:	0.168	0.103
slope, m:	-4.0	292	1.9		m:	0.0061	0.00037
intercept, b:	299.2	264	8.9		b:	-205	-11.48
N: 50		77	56				

LnConc. = mLn{Q}+b (r2=0.0833) update r2 0.08 0.0833

r2 lnQ,ln[COC]:	0.08	ln[tPb]	ln Q	[tPb]	Q	first:
slope, m:	-0.21	5.38	0.64	218	2	mid:
intercept, b:	5.52	5.06	2.18	157	9	last:
N: 50		4.67	4.02	107	56	

N= 50

	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	tPb NM298 Standardized Values = (x - Avg)/SD Q	for graph 0 Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	27-Oct-93	2.48	268	3.6	0.91	5.59	1.27	-0.54	0.01	-0.34
IDEQ	2-Dec-93	2.48	114	1.5	0.91	4.74	0.42	-0.54	-0.28	-0.45
IDEQ	16-Dec-93	2.02	280	3.0	0.70	5.63	1.11	-0.58	0.03	-0.37
IDEQ	16-Dec-93	2.47	280	3.7	0.90	5.63	1.31	-0.54	0.03	-0.33
IDEQ	24-Jan-94	2.69	290	4.2	0.99	5.67	1.43	-0.52	0.05	-0.30
IDEQ	24-Jan-94	2.14	290	3.3	0.76	5.67	1.21	-0.57	0.05	-0.35
IDEQ	18-Feb-94	2.28	224	2.7	0.82	5.41	1.01	-0.56	-0.07	-0.38
IDEQ	8-Mar-94	4.28	362	8.3	1.45	5.89	2.12	-0.39	0.18	-0.07
IDEQ	24-Mar-94	4.66	252	6.3	1.54	5.53	1.84	-0.36	-0.02	-0.18
IDEQ	24-Mar-94	4.67	252	6.3	1.54	5.53	1.85	-0.36	-0.02	-0.18
IDEQ	7-Apr-94	8.51	159	7.3	2.14	5.07	1.99	-0.03	-0.19	-0.13
IDEQ	4-May-94	10.58	103	5.9	2.36	4.63	1.77	0.14	-0.30	-0.21
IDEQ	19-May-94	12.08	70	4.5	2.49	4.25	1.51	0.27	-0.36	-0.28
IDEQ	7-Jun-94	7.8	106	4.4	2.05	4.66	1.49	-0.09	-0.29	-0.29
IDEQ	23-Jun-94	5.29	128	3.6	1.67	4.85	1.29	-0.30	-0.25	-0.33
IDEQ	20-Jul-94	3.32	166	3.0	1.20	5.11	1.09	-0.47	-0.18	-0.37
IDEQ	20-Jul-94	4.72	166	4.2	1.55	5.11	1.44	-0.35	-0.18	-0.30
IDEQ	15-Aug-94	2.93	158	2.5	1.08	5.06	0.91	-0.50	-0.20	-0.40
IDEQ	15-Aug-94	2.06	158	1.8	0.72	5.06	0.56	-0.58	-0.20	-0.44
IDEQ	8-Sep-94	2.58	153	2.1	0.95	5.03	0.75	-0.53	-0.20	-0.42
IDEQ	4-Oct-94	2.58	239	3.3	0.95	5.48	1.20	-0.53	-0.05	-0.35
IDEQ	15-Nov-94	2.1	4000	45.2	0.74	8.29	3.81	-0.57	6.90	1.99
IDEQ	13-Dec-94	2.48	352	4.7	0.91	5.86	1.55	-0.54	0.16	-0.27
IDEQ	10-Jan-95	4.1	375	8.3	1.41	5.93	2.11	-0.40	0.21	-0.07
IDEQ	9-Feb-95	6.85	234	8.6	1.92	5.46	2.15	-0.17	-0.05	-0.05
IDEQ	7-Mar-95	6.85	206	7.6	1.92	5.33	2.03	-0.17	-0.11	-0.11
IDEQ	13-Apr-95	10.13	190	10.4	2.32	5.25	2.34	0.11	-0.14	0.04
IDEQ	25-Apr-95	7.15	164	6.3	1.97	5.10	1.84	-0.15	-0.18	-0.18
IDEQ	9-May-95	12.08	178	11.6	2.49	5.18	2.45	0.27	-0.16	0.11
IDEQ	23-May-95	25.86	108	15.0	3.25	4.68	2.71	1.44	-0.29	0.30
IDEQ	12-Jun-95	6.85	102	3.8	1.92	4.62	1.32	-0.17	-0.30	-0.33
IDEQ	27-Jun-95	2.19	134	1.6	0.78	4.90	0.46	-0.57	-0.24	-0.45
IDEQ	13-Sep-95	4.28	274	6.3	1.45	5.61	1.84	-0.39	0.02	-0.18
URS	12-Nov-97	3.92	138	2.9	1.37	4.93	1.07	-0.42	-0.23	-0.37
URS	14-May-98	55.6	48.2	14.4	4.02	3.88	2.67	3.96	-0.40	0.27
USGS	27-Oct-98	2.1	110	1.2	0.74	4.70	0.22	-0.57	-0.28	-0.47
USGS	19-Nov-98	1.9	150	1.5	0.64	5.01	0.43	-0.59	-0.21	-0.45
USGS	10-Dec-98	2	200	2.2	0.69	5.30	0.77	-0.58	-0.12	-0.42
IDEQ	15-Jan-99	3.32005516	140	2.5	1.20	4.94	0.92	-0.47	-0.23	-0.40
USGS	21-Jan-99	3.3	140	2.5	1.19	4.94	0.91	-0.47	-0.23	-0.40
IDEQ	23-Feb-99	1.934382724	132	1.4	0.66	4.88	0.32	-0.59	-0.24	-0.46
IDEQ	8-Mar-99	2.281431698	114	1.4	0.82	4.74	0.34	-0.56	-0.28	-0.46
USGS	22-Mar-99	17	220	20.1	2.83	5.39	3.00	0.69	-0.08	0.59
USGS	20-Apr-99	30	400	64.6	3.40	5.99	4.17	1.79	0.25	3.08
USGS	5-May-99	22	85	10.1	3.09	4.44	2.31	1.11	-0.33	0.03
USGS	23-May-99	45	450	108.9	3.81	6.11	4.69	3.06	0.34	5.56
USGS	15-Jun-99	45	93	22.5	3.81	4.53	3.11	3.06	-0.32	0.72

USGS	7-Jul-99	16	50.4	4.3	2.77	3.92	1.47	0.60	-0.39	-0.29
USGS	4-Aug-99	6.2	82.5	2.8	1.82	4.41	1.01	-0.23	-0.33	-0.38
USGS	1-Sep-99	3	95.5	1.5	1.10	4.56	0.43	-0.50	-0.31	-0.45

tPb

Concentration over time analysis r2 Slope, m

tPb NM298 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.102** **-0.00027**

Time	Ln[COC]	[COC]
27-Oct-93	5.40	222
22-Feb-95	5.27	195
1-Sep-99	4.82	124

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

1-Sep-99	0.00	1
1-Sep-99	0.00	1

Load over time analysis

tPb NM298 **Load over time**

LnLoad=mTime+b All data r2, m: **0.007** **0.00010**

Time	LnLoad	Load
27-Oct-93	1.51	5
22-Feb-95	1.56	5
1-Sep-99	1.73	6

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

1-Sep-99	0.00	1
1-Sep-99	0.00	1

max r2: 0.348 max r2: 0.901

Forward time Regression on Ln Concentration(t) **Forward time Regression on Ln Load(t)**

r2	slope	intercept	r2	slope	intercept
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.102	-0.00027	14.78	0.007	0.00010	-1.93
0.097	-0.00027	14.59	0.006	0.00009	-1.68
0.109	-0.00029	15.25	0.002	0.00006	-0.55
0.103	-0.00028	15.02	0.001	0.00005	-0.06
0.096	-0.00027	14.76	0.001	0.00004	0.26
0.089	-0.00026	14.44	0.001	0.00003	0.46
0.081	-0.00025	14.08	0.000	0.00002	0.95
0.078	-0.00025	14.00	0.000	0.00000	1.71
0.066	-0.00023	13.32	0.000	0.00001	1.17
0.061	-0.00022	13.02	0.000	0.00002	0.94
0.055	-0.00022	12.70	0.000	0.00003	0.67
0.057	-0.00022	12.98	0.001	0.00004	0.18
0.069	-0.00025	13.92	0.001	0.00005	-0.05
0.096	-0.00029	15.55	0.001	0.00004	0.09
0.114	-0.00033	16.69	0.001	0.00004	0.29
0.129	-0.00035	17.65	0.000	0.00002	0.84
0.135	-0.00037	18.25	0.000	0.00000	1.83
0.143	-0.00039	18.94	0.000	-0.00002	2.30
0.153	-0.00041	19.82	0.001	-0.00006	3.90
0.166	-0.00044	20.85	0.007	-0.00013	6.55
0.182	-0.00048	22.11	0.016	-0.00021	9.21
0.178	-0.00049	22.45	0.025	-0.00026	11.20
0.125	-0.00029	15.22	0.007	-0.00013	6.51
0.090	-0.00024	13.58	0.009	-0.00016	7.44
0.051	-0.00018	11.33	0.006	-0.00014	6.76
0.033	-0.00015	10.17	0.004	-0.00011	5.74
0.020	-0.00012	9.18	0.002	-0.00009	4.94
0.011	-0.00009	8.23	0.000	-0.00002	2.45
0.007	-0.00008	7.69	0.000	0.00000	1.65
0.001	-0.00004	6.32	0.004	0.00015	-3.62
0.007	-0.00010	8.46	0.029	0.00045	-14.62
0.029	-0.00023	13.33	0.030	0.00054	-18.03
0.053	-0.00042	20.12	0.003	0.00023	-6.48
0.003	0.00019	-1.86	0.032	0.00153	-53.64
0.010	0.00051	-13.59	0.022	0.00180	-63.37
0.067	-0.00160	62.97	0.131	0.00568	-204.22
0.118	-0.00236	90.40	0.082	0.00483	-173.33
0.137	-0.00285	108.19	0.040	0.00369	-131.95
0.110	-0.00286	108.66	0.014	0.00241	-85.62
0.130	-0.00346	130.40	0.001	0.00076	-25.60
0.165	-0.00453	169.17	0.009	-0.00240	89.29
0.215	-0.00585	217.26	0.114	-0.00890	325.44
0.348	-0.00863	318.45	0.565	-0.02049	746.62
0.325	-0.00989	364.12	0.696	-0.02751	1001.84
0.134	-0.00609	225.94	0.610	-0.02714	988.35
0.331	-0.01189	437.07	0.901	-0.04135	1505.37

update for EV, CV:

tPb **NM298**

LN Analysis **tPb**

Load **Load Data, EV=9.6 lbs/day CV=1.86**

Load Data-based LN

Avg:	**10**	u	ln tPb Load	tPb Load
SD:	**18**	3	5.2	178
CV:	**1.86**	0	1.51	5
Min:	**1.2**	-3	-2.16	0.1
Max:	**109**			
Median:	**4**			

10 9.6
1.86 1.86

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.922, EV=8.56lbs/day CV=1.41; max r2=0.98**

r2 u,lnLoad:	0.922	u	lnLoad	Load		
slope, m:	0.956	3	4.74	114		
intercept, b:	-1.530	0	1.60	5		
N:	50	-3	-1.54	0.2		
E[Load]:	8.6	Parameter Estimates			0.922	0.922
SD[Load]:	12	from LN regression			8.6	8.56
CV[Load]:	1.41	update graph label			1.4	1.41
					max r2	
					0.979	

N: 50

Date	tPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
27-Oct-98	**1.2**	1	0.0124	-2.243	0.217	0.922
23-Feb-99	**1.4**	2	0.0323	-1.847	0.318	0.934
8-Mar-99	**1.4**	3	0.0522	-1.624	0.336	0.940
2-Dec-93	**1.5**	4	0.0721	-1.460	0.419	0.943
19-Nov-98	**1.5**	5	0.0920	-1.328	0.427	0.945
1-Sep-99	**1.5**	6	0.1119	-1.216	0.433	0.945
27-Jun-95	**1.6**	7	0.1318	-1.118	0.457	0.944
15-Aug-94	**1.8**	8	0.1517	-1.029	0.560	0.943
8-Sep-94	**2.1**	9	0.1716	-0.948	0.753	0.941
10-Dec-98	**2.2**	10	0.1915	-0.872	0.766	0.942
21-Jan-99	**2.5**	11	0.2114	-0.801	0.910	0.942
15-Aug-94	**2.5**	12	0.2313	-0.734	0.913	0.945
15-Jan-99	**2.5**	13	0.2512	-0.671	0.917	0.946
18-Feb-94	**2.7**	14	0.2711	-0.609	1.011	0.947
4-Aug-99	**2.8**	15	0.2910	-0.550	1.012	0.949
12-Nov-97	**2.9**	16	0.3109	-0.493	1.068	0.950
20-Jul-94	**3.0**	17	0.3308	-0.438	1.087	0.951
16-Dec-93	**3.0**	18	0.3507	-0.383	1.113	0.952
4-Oct-94	**3.3**	19	0.3706	-0.330	1.199	0.952
24-Jan-94	**3.3**	20	0.3905	-0.278	1.206	0.954
27-Oct-93	**3.6**	21	0.4104	-0.226	1.274	0.955
23-Jun-94	**3.6**	22	0.4303	-0.175	1.293	0.957
16-Dec-93	**3.7**	23	0.4502	-0.125	1.314	0.958
12-Jun-95	**3.8**	24	0.4701	-0.075	1.324	0.958
24-Jan-94	**4.2**	25	0.4900	-0.025	1.434	0.958
20-Jul-94	**4.2**	26	0.5100	0.025	1.439	0.960
7-Jul-99	**4.3**	27	0.5299	0.075	1.468	0.960
7-Jun-94	**4.4**	28	0.5498	0.125	1.492	0.961
19-May-94	**4.5**	29	0.5697	0.175	1.515	0.960
13-Dec-94	**4.7**	30	0.5896	0.226	1.547	0.958
4-May-94	**5.9**	31	0.6095	0.278	1.769	0.956
25-Apr-95	**6.3**	32	0.6294	0.330	1.842	0.959
13-Sep-95	**6.3**	33	0.6493	0.383	1.842	0.965
24-Mar-94	**6.3**	34	0.6692	0.438	1.843	0.968
24-Mar-94	**6.3**	35	0.6891	0.493	1.846	0.970
7-Apr-94	**7.3**	36	0.7090	0.550	1.985	0.970
7-Mar-95	**7.6**	37	0.7289	0.609	2.027	0.973
10-Jan-95	**8.3**	38	0.7488	0.671	2.113	0.975
8-Mar-94	**8.3**	39	0.7687	0.734	2.121	0.979
9-Feb-95	**8.6**	40	0.7886	0.801	2.155	0.979
5-May-99	**10.1**	41	0.8085	0.872	2.309	0.978
13-Apr-95	**10.4**	42	0.8284	0.948	2.337	0.978
9-May-95	**11.6**	43	0.8483	1.029	2.448	0.974
14-May-98	**14.4**	44	0.8682	1.118	2.668	0.968
23-May-95	**15.0**	45	0.8881	1.216	2.710	0.962
22-Mar-99	**20.1**	46	0.9080	1.328	3.002	0.949
15-Jun-99	**22.5**	47	0.9279	1.460	3.114	

15-Nov-94	**45.2**	48	0.9478	1.624	3.811
20-Apr-99	**64.6**	49	0.9677	1.847	4.168
23-May-99	**108.9**	50	0.9876	2.243	4.691

update for EV, CV:

tPb		**NM298**		264	264
LN Analysis		**tPb**		2.05	2.05
Concentration		**Conc. Data, EV=264 ug/L CV=2.05**			
Avg:	**264**	**Data-based LN**			
SD:	**542**	u	ln[tPb]	[tPb]	
CV:	**2.05**	3	8.6	5460	
Min:	**48**	0	4.75	115	
Max:	**4,000**	-3	0.89	2	
Median:	**162**				

				0.854	0.854
u=mLn{Conc.}+b:				233.9	234
update for r2, EV, CV: **r2=0.854, EV=234 ug/L CV=0.875; max r2=0.85**				0.875	0.875
r2 u,lnConc:	0.854	u	lnConc.	Conc.	
slope, m:	1.326	3	7.43	1691	
intercept, b:	-6.855	0	5.17	176	
N: 50		-3	2.91	18	
E[Conc]:	233.9	Parameter Estimates			
SD[Conc]:	205	from LN regression			
CV[Conc]:	0.88	update graph label			

						max r2
	tPb	N: 50				0.854
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
14-May-98	48.2	1	0.0124	-2.243	3.875	0.854
7-Jul-99	50.4	2	0.0323	-1.847	3.920	0.844
19-May-94	70	3	0.0522	-1.624	4.248	0.831
4-Aug-99	82.5	4	0.0721	-1.460	4.413	0.823
5-May-99	85	5	0.0920	-1.328	4.443	0.818
15-Jun-99	93	6	0.1119	-1.216	4.533	0.813
1-Sep-99	95.5	7	0.1318	-1.118	4.559	0.809
12-Jun-95	102	8	0.1517	-1.029	4.625	0.805
4-May-94	103	9	0.1716	-0.948	4.635	0.802
7-Jun-94	106	10	0.1915	-0.872	4.663	0.797
23-May-95	108	11	0.2114	-0.801	4.682	0.793
27-Oct-98	110	12	0.2313	-0.734	4.700	0.787
2-Dec-93	114	13	0.2512	-0.671	4.736	0.781
8-Mar-99	114	14	0.2711	-0.609	4.736	0.775
23-Jun-94	128	15	0.2910	-0.550	4.852	0.767
23-Feb-99	132	16	0.3109	-0.493	4.883	0.763
27-Jun-95	134	17	0.3308	-0.438	4.898	0.760
12-Nov-97	138	18	0.3507	-0.383	4.927	0.755
15-Jan-99	140	19	0.3706	-0.330	4.942	0.751
21-Jan-99	140	20	0.3905	-0.278	4.942	0.746
19-Nov-98	150	21	0.4104	-0.226	5.011	0.740
8-Sep-94	153	22	0.4303	-0.175	5.030	0.736
15-Aug-94	158	23	0.4502	-0.125	5.063	0.731
15-Aug-94	158	24	0.4701	-0.075	5.063	0.727
7-Apr-94	159	25	0.4900	-0.025	5.069	0.721
25-Apr-95	164	26	0.5100	0.025	5.100	0.714
20-Jul-94	166	27	0.5299	0.075	5.112	0.706
20-Jul-94	166	28	0.5498	0.125	5.112	0.697
9-May-95	178	29	0.5697	0.175	5.182	0.686
13-Apr-95	190	30	0.5896	0.226	5.247	0.676
10-Dec-98	200	31	0.6095	0.278	5.298	0.669
7-Mar-95	206	32	0.6294	0.330	5.328	0.664
22-Mar-99	220	33	0.6493	0.383	5.394	0.659
18-Feb-94	224	34	0.6692	0.438	5.412	0.658
9-Feb-95	234	35	0.6891	0.493	5.455	0.657
4-Oct-94	239	36	0.7090	0.550	5.476	0.659
24-Mar-94	252	37	0.7289	0.609	5.529	0.661
24-Mar-94	252	38	0.7488	0.671	5.529	0.668
27-Oct-93	268	39	0.7687	0.734	5.591	0.672
13-Sep-95	274	40	0.7886	0.801	5.613	0.684
16-Dec-93	280	41	0.8085	0.872	5.635	0.697
16-Dec-93	280	42	0.8284	0.948	5.635	0.711
24-Jan-94	290	43	0.8483	1.029	5.670	0.722
24-Jan-94	290	44	0.8682	1.118	5.670	0.734
13-Dec-94	352	45	0.8881	1.216	5.864	0.736
8-Mar-94	362	46	0.9080	1.328	5.892	0.779
10-Jan-95	375	47	0.9279	1.460	5.927	

20-Apr-99	400	48	0.9478	1.624	5.991
23-May-99	450	49	0.9677	1.847	6.109
15-Nov-94	4000	50	0.9876	2.243	8.294

update for EV, CV:

tPb		**NM298**			9	8.88
LN Analysis		**tPb**			1.33	1.33
Discharge, Q		**Q Data, EV=8.88 cfs CV=1.33**				
Avg:	**9**	**Q Data-based LN**				
SD:	**12**	u	lnQ	Q		
CV:	**1.33**	3	4.7	110		
Min:	**2**	0	1.68	5		
Max:	**56**	-3	-1.35	0.3		
Median:	**4**					

					0.887	0.887
					8.7	8.72
u=mLn{Q}+b:					1.33	1.33
update for r2, EV, CV:	**r2=0.887, EV=8.72 cfs CV=1.33; max r2=0.98**					
r2 u,lnQ:	0.887	u	lnQ	Q		
slope, m:	0.990	3	4.69	108		
intercept, b:	-1.638	0	1.66	5		
N: 50		-3	-1.38	0.3		
E[Q]:	8.7	Parameter Estimates				
SD[Q]:	12	from LN regression				
CV[Q]:	1.33	update graph label				

						max r2
	Q	N: 50				0.984
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
19-Nov-98	1.9	1	0.0124	-2.243	0.642	0.887
23-Feb-99	1.934382724	2	0.0323	-1.847	0.660	0.912
10-Dec-98	2	3	0.0522	-1.624	0.693	0.927
16-Dec-93	2.02	4	0.0721	-1.460	0.703	0.938
15-Aug-94	2.06	5	0.0920	-1.328	0.723	0.947
15-Nov-94	2.1	6	0.1119	-1.216	0.742	0.954
27-Oct-98	2.1	7	0.1318	-1.118	0.742	0.960
24-Jan-94	2.14	8	0.1517	-1.029	0.761	0.964
27-Jun-95	2.19	9	0.1716	-0.948	0.784	0.968
18-Feb-94	2.28	10	0.1915	-0.872	0.824	0.972
8-Mar-99	2.281431698	11	0.2114	-0.801	0.825	0.975
16-Dec-93	2.47	12	0.2313	-0.734	0.904	0.977
27-Oct-93	2.48	13	0.2512	-0.671	0.908	0.980
2-Dec-93	2.48	14	0.2711	-0.609	0.908	0.982
13-Dec-94	2.48	15	0.2910	-0.550	0.908	0.983
8-Sep-94	2.58	16	0.3109	-0.493	0.948	0.984
4-Oct-94	2.58	17	0.3308	-0.438	0.948	0.984
24-Jan-94	2.69	18	0.3507	-0.383	0.990	0.984
15-Aug-94	2.93	19	0.3706	-0.330	1.075	0.983
1-Sep-99	3	20	0.3905	-0.278	1.099	0.983
21-Jan-99	3.3	21	0.4104	-0.226	1.194	0.982
20-Jul-94	3.32	22	0.4303	-0.175	1.200	0.982
15-Jan-99	3.32005516	23	0.4502	-0.125	1.200	0.981
12-Nov-97	3.92	24	0.4701	-0.075	1.366	0.980
10-Jan-95	4.1	25	0.4900	-0.025	1.411	0.979
8-Mar-94	4.28	26	0.5100	0.025	1.454	0.979
13-Sep-95	4.28	27	0.5299	0.075	1.454	0.978
24-Mar-94	4.66	28	0.5498	0.125	1.539	0.976
24-Mar-94	4.67	29	0.5697	0.175	1.541	0.975
20-Jul-94	4.72	30	0.5896	0.226	1.552	0.973
23-Jun-94	5.29	31	0.6095	0.278	1.666	0.971
4-Aug-99	6.2	32	0.6294	0.330	1.825	0.968
9-Feb-95	6.85	33	0.6493	0.383	1.924	0.965
7-Mar-95	6.85	34	0.6692	0.438	1.924	0.964
12-Jun-95	6.85	35	0.6891	0.493	1.924	0.960
25-Apr-95	7.15	36	0.7090	0.550	1.967	0.955
7-Jun-94	7.8	37	0.7289	0.609	2.054	0.951
7-Apr-94	8.51	38	0.7488	0.671	2.141	0.945
13-Apr-95	10.13	39	0.7687	0.734	2.316	0.939
4-May-94	10.58	40	0.7886	0.801	2.359	0.929
19-May-94	12.08	41	0.8085	0.872	2.492	0.919
9-May-95	12.08	42	0.8284	0.948	2.492	0.904
7-Jul-99	16	43	0.8483	1.029	2.773	0.902
22-Mar-99	17	44	0.8682	1.118	2.833	0.881
5-May-99	22	45	0.8881	1.216	3.091	0.873
23-May-95	25.86	46	0.9080	1.328	3.253	0.836
20-Apr-99	30	47	0.9279	1.460	3.401	

23-May-99	45	48	0.9478	1.624	3.807
15-Jun-99	45	49	0.9677	1.847	3.807
14-May-98	55.6	50	0.9876	2.243	4.018

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NM298	**Date:**	22-Jun-00
Chemical:	tZn	**Analyst:**	J.MacLachlan

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,124	9	6,655	211	0.00	0.00	0.00	
SD:	793	12	2,988	181	1.00	1.00	1.00	
CV:	0.02	1.33	0.45	0.86				first:
Min:	34,269	2	850	43.8	-0.59	-1.94	-0.93	mid:
Max:	36,404	56	15,000	1,001	3.96	2.79	4.36	last:
Median:	34,752	4	6,865	157	-0.40	0.07	-0.30	

tZn NM298 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.315) update r2 0.32 0.315

r2 Q,[COC]:	0.32	[tZn]	Q	r2:	0.168	0.103
slope, m:	-142.1	7,647	1.9	m:	0.0061	0.00037
intercept, b:	7916.9	6,655	8.9	b:	-205	-11.48
N: 50		17	56			

LnConc. = mLn{Q}+b (r2=0.484) update r2 0.48 0.484

r2 lnQ,ln[COC]:	0.48	ln[tZn]	ln Q	[tZn]	Q	first:
slope, m:	-0.43	9.10	0.64	8,999	2	mid:
intercept, b:	9.38	8.44	2.18	4,648	9	last:
N: 50		7.66	4.02	2,118	56	

N= 50

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	tZn NM298 Standardized Values = (x - Avg)/SD Q	for graph 0 Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
IDEQ	27-Oct-93	2.48	5550	74.1	0.91	8.62	4.30	-0.54	-0.37	-0.76
IDEQ	2-Dec-93	2.48	6361	84.9	0.91	8.76	4.44	-0.54	-0.10	-0.70
IDEQ	16-Dec-93	2.02	7350	79.9	0.70	8.90	4.38	-0.58	0.23	-0.73
IDEQ	16-Dec-93	2.47	7350	97.7	0.90	8.90	4.58	-0.54	0.23	-0.63
IDEQ	24-Jan-94	2.69	8640	125.0	0.99	9.06	4.83	-0.52	0.66	-0.48
IDEQ	24-Jan-94	2.14	8640	99.5	0.76	9.06	4.60	-0.57	0.66	-0.62
IDEQ	18-Feb-94	2.28	7670	94.1	0.82	8.95	4.54	-0.56	0.34	-0.65
IDEQ	8-Mar-94	4.28	7360	169.5	1.45	8.90	5.13	-0.39	0.24	-0.23
IDEQ	24-Mar-94	4.66	7920	198.6	1.54	8.98	5.29	-0.36	0.42	-0.07
IDEQ	24-Mar-94	4.67	7920	199.0	1.54	8.98	5.29	-0.36	0.42	-0.07
IDEQ	7-Apr-94	8.51	6930	317.3	2.14	8.84	5.76	-0.03	0.09	0.58
IDEQ	4-May-94	10.58	3900	222.0	2.36	8.27	5.40	0.14	-0.92	0.06
IDEQ	19-May-94	12.08	2680	174.2	2.49	7.89	5.16	0.27	-1.33	-0.21
IDEQ	7-Jun-94	7.8	3750	157.4	2.05	8.23	5.06	-0.09	-0.97	-0.30
IDEQ	23-Jun-94	5.29	4400	125.2	1.67	8.39	4.83	-0.30	-0.75	-0.48
IDEQ	20-Jul-94	3.32	5160	92.2	1.20	8.55	4.52	-0.47	-0.50	-0.66
IDEQ	20-Jul-94	4.72	5160	131.0	1.55	8.55	4.88	-0.35	-0.50	-0.44
IDEQ	15-Aug-94	2.93	5890	92.8	1.08	8.68	4.53	-0.50	-0.26	-0.66
IDEQ	15-Aug-94	2.06	5890	65.3	0.72	8.68	4.18	-0.58	-0.26	-0.81
IDEQ	8-Sep-94	2.58	6140	85.2	0.95	8.72	4.45	-0.53	-0.17	-0.70
IDEQ	4-Oct-94	2.58	7720	107.2	0.95	8.95	4.67	-0.53	0.36	-0.58
IDEQ	15-Nov-94	2.1	11100	125.4	0.74	9.31	4.83	-0.57	1.49	-0.48
IDEQ	13-Dec-94	2.48	12200	162.8	0.91	9.41	5.09	-0.54	1.86	-0.27
IDEQ	10-Jan-95	4.1	9150	201.8	1.41	9.12	5.31	-0.40	0.84	-0.05
IDEQ	9-Feb-95	6.85	10300	379.6	1.92	9.24	5.94	-0.17	1.22	0.93
IDEQ	7-Mar-95	6.85	8450	311.4	1.92	9.04	5.74	-0.17	0.60	0.55
IDEQ	13-Apr-95	10.13	9390	511.7	2.32	9.15	6.24	0.11	0.92	1.66
IDEQ	25-Apr-95	7.15	9730	374.3	1.97	9.18	5.93	-0.15	1.03	0.90
IDEQ	9-May-95	12.08	3800	247.0	2.49	8.24	5.51	0.27	-0.96	0.20
IDEQ	23-May-95	25.86	2310	321.4	3.25	7.75	5.77	1.44	-1.45	0.61
IDEQ	12-Jun-95	6.85	2810	103.6	1.92	7.94	4.64	-0.17	-1.29	-0.60
IDEQ	27-Jun-95	2.19	3720	43.8	0.78	8.22	3.78	-0.57	-0.98	-0.93
IDEQ	13-Sep-95	4.28	6630	152.7	1.45	8.80	5.03	-0.39	-0.01	-0.32
URS	12-Nov-97	3.92	8450	178.2	1.37	9.04	5.18	-0.42	0.60	-0.18
URS	14-May-98	55.6	2050	613.2	4.02	7.63	6.42	3.96	-1.54	2.22
USGS	27-Oct-98	2.1	7300	82.5	0.74	8.90	4.41	-0.57	0.22	-0.71
USGS	19-Nov-98	1.9	12000	122.7	0.64	9.39	4.81	-0.59	1.79	-0.49
USGS	10-Dec-98	2	15000	161.4	0.69	9.62	5.08	-0.58	2.79	-0.28
IDEQ	15-Jan-99	3.32005516	9460	169.0	1.20	9.15	5.13	-0.47	0.94	-0.23
USGS	21-Jan-99	3.3	9500	168.7	1.19	9.16	5.13	-0.47	0.95	-0.24
IDEQ	23-Feb-99	1.934382724	8490	88.4	0.66	9.05	4.48	-0.59	0.61	-0.68
IDEQ	8-Mar-99	2.281431698	8490	104.2	0.82	9.05	4.65	-0.56	0.61	-0.59
USGS	22-Mar-99	17	6800	621.9	2.83	8.82	6.43	0.69	0.05	2.27
USGS	20-Apr-99	30	6200	1000.7	3.40	8.73	6.91	1.79	-0.15	4.36
USGS	5-May-99	22	4500	532.6	3.09	8.41	6.28	1.11	-0.72	1.77
USGS	23-May-99	45	1900	460.0	3.81	7.55	6.13	3.06	-1.59	1.37
USGS	15-Jun-99	45	850	205.8	3.81	6.75	5.33	3.06	-1.94	-0.03

USGS	7-Jul-99	16	1820	156.7	2.77	7.51	5.05	0.60	-1.62	-0.30
USGS	4-Aug-99	6.2	2910	97.1	1.82	7.98	4.58	-0.23	-1.25	-0.63
USGS	1-Sep-99	3	5060	81.7	1.10	8.53	4.40	-0.50	-0.53	-0.72

tZn

Concentration over time analysis r2 Slope, m

tZn NM298 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.041 -0.00015**

Time	Ln[COC]	[COC]
27-Oct-93	8.80	6,606
22-Feb-95	8.73	6,156
1-Sep-99	8.48	4,834

LnConc.=mTime+b >'96 r2, m: **#DIV/0! #DIV/0!**

1-Sep-99	#DIV/0!	#DIV/0!
1-Sep-99	#DIV/0!	#DIV/0!

Load over time analysis

tZn NM298 **Load over time**

LnLoad=mTime+b All data r2, m: **0.073 0.00023**

Time	LnLoad	Load
27-Oct-93	4.91	135
22-Feb-95	5.02	151
1-Sep-99	5.39	220

LnLoad=mTime+b >'96 r2, m: **#DIV/0! #DIV/0!**

1-Sep-99	#DIV/0!	#DIV/0!
1-Sep-99	#DIV/0!	#DIV/0!

max r2: #DIV/0!

Forward time Regression on Ln Concentration(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.041	-0.00015	13.81
0.043	-0.00015	13.99
0.043	-0.00015	14.03
0.040	-0.00015	13.92
0.038	-0.00015	13.80
0.033	-0.00014	13.48
0.028	-0.00013	13.14
0.025	-0.00012	12.91
0.022	-0.00012	12.70
0.018	-0.00011	12.38
0.015	-0.00010	12.03
0.013	-0.00009	11.82
0.017	-0.00011	12.42
0.030	-0.00014	13.67
0.040	-0.00017	14.51
0.047	-0.00018	15.19
0.052	-0.00020	15.67
0.057	-0.00021	16.21
0.060	-0.00022	16.56
0.062	-0.00023	16.98
0.064	-0.00024	17.35
0.058	-0.00024	17.20
0.042	-0.00021	16.02
0.024	-0.00016	14.30
0.014	-0.00013	13.10
0.005	-0.00007	11.17
0.001	-0.00003	9.47
0.002	0.00005	6.75
0.016	0.00016	2.75
0.012	0.00015	3.09
0.000	0.00001	8.07
0.011	-0.00019	15.22
0.055	-0.00054	28.11
0.120	-0.00166	68.72
0.110	-0.00222	88.92
0.527	-0.00615	231.40
0.577	-0.00713	267.19
0.541	-0.00742	277.67
0.452	-0.00703	263.51
0.395	-0.00696	260.84
0.309	-0.00667	250.43
0.217	-0.00588	221.70
0.096	-0.00407	155.85
0.006	-0.00112	48.53
0.076	0.00409	-140.74
0.620	0.01296	-463.54
0.975	0.02202	-793.19

max r2: #DIV/0!

Forward time Regression on Ln Load(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.073	0.00023	-2.90
0.063	0.00021	-2.29
0.054	0.00020	-1.77
0.046	0.00018	-1.16
0.039	0.00017	-0.70
0.035	0.00016	-0.49
0.029	0.00015	0.01
0.023	0.00013	0.62
0.023	0.00013	0.56
0.025	0.00014	0.29
0.027	0.00015	0.00
0.037	0.00017	-0.99
0.042	0.00019	-1.54
0.044	0.00020	-1.78
0.043	0.00020	-1.88
0.039	0.00019	-1.61
0.029	0.00017	-0.75
0.025	0.00016	-0.43
0.016	0.00013	0.64
0.005	0.00007	2.68
0.001	0.00002	4.44
0.000	-0.00002	5.95
0.003	-0.00006	7.31
0.005	-0.00008	8.17
0.006	-0.00009	8.54
0.001	-0.00004	6.74
0.000	0.00000	5.22
0.009	0.00012	0.97
0.030	0.00024	-3.29
0.051	0.00034	-6.84
0.115	0.00056	-15.01
0.094	0.00059	-16.14
0.002	0.00011	1.50
0.004	-0.00032	16.93
0.018	-0.00093	39.13
0.018	0.00113	-35.80
0.000	0.00005	3.46
0.008	-0.00089	37.53
0.024	-0.00176	69.24
0.047	-0.00274	104.84
0.097	-0.00455	170.56
0.335	-0.00893	329.88
0.900	-0.01592	584.01
0.952	-0.01874	686.25
0.951	-0.01696	621.67
0.923	-0.01650	604.76
0.968	-0.01237	454.71

0.998	0.01826	-656.20	0.931	-0.01163	427.84
1.000	0.01976	-710.73	1.000	-0.00617	228.97
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

update for EV, CV:

tZn **NM298**

LN Analysis **tZn**

Load **Load Data, EV=211 lbs/day CV=0.856**

Load Data-based LN

		u	ln tZn Load	tZn Load
Avg:	**211**			
SD:	**181**	3	7.3	1485
CV:	**0.86**	0	5.08	161
Min:	**43.8**	-3	2.86	17.4
Max:	**1,001**			
Median:	**157**			

211 211
0.86 0.856

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.95, EV=211lbs/day CV=0.803; max r2=0.99**

r2 u,lnLoad:	0.950	u	lnLoad	Load		
slope, m:	1.417	3	7.22	1363		
intercept, b:	-7.230	0	5.10	164		
N:	50	-3	2.98	19.8		
E[Load]:	210.6	Parameter Estimates			0.950	0.95
SD[Load]:	169	from LN regression			210.6	211
CV[Load]:	0.80	update graph label			0.8	0.803

max r2
#DIV/0!

N: 50

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
27-Jun-95	**43.8**	1	0.0124	-2.243	3.780	0.950
15-Aug-94	**65.3**	2	0.0323	-1.847	4.179	0.948
27-Oct-93	**74.1**	3	0.0522	-1.624	4.305	0.952
16-Dec-93	**79.9**	4	0.0721	-1.460	4.380	0.957
1-Sep-99	**81.7**	5	0.0920	-1.328	4.403	0.963
27-Oct-98	**82.5**	6	0.1119	-1.216	4.413	0.967
2-Dec-93	**84.9**	7	0.1318	-1.118	4.441	0.970
8-Sep-94	**85.2**	8	0.1517	-1.029	4.445	0.973
23-Feb-99	**88.4**	9	0.1716	-0.948	4.481	0.975
20-Jul-94	**92.2**	10	0.1915	-0.872	4.524	0.976
15-Aug-94	**92.8**	11	0.2114	-0.801	4.531	0.978
18-Feb-94	**94.1**	12	0.2313	-0.734	4.544	0.979
4-Aug-99	**97.1**	13	0.2512	-0.671	4.575	0.979
16-Dec-93	**97.7**	14	0.2711	-0.609	4.582	0.980
24-Jan-94	**99.5**	15	0.2910	-0.550	4.600	0.979
12-Jun-95	**103.6**	16	0.3109	-0.493	4.640	0.979
8-Mar-99	**104.2**	17	0.3308	-0.438	4.646	0.978
4-Oct-94	**107.2**	18	0.3507	-0.383	4.674	0.977
19-Nov-98	**122.7**	19	0.3706	-0.330	4.809	0.975
24-Jan-94	**125.0**	20	0.3905	-0.278	4.829	0.976
23-Jun-94	**125.2**	21	0.4104	-0.226	4.830	0.975
15-Nov-94	**125.4**	22	0.4303	-0.175	4.832	0.974
20-Jul-94	**131.0**	23	0.4502	-0.125	4.875	0.973
13-Sep-95	**152.7**	24	0.4701	-0.075	5.028	0.971
7-Jul-99	**156.7**	25	0.4900	-0.025	5.054	0.973
7-Jun-94	**157.4**	26	0.5100	0.025	5.059	0.975
10-Dec-98	**161.4**	27	0.5299	0.075	5.084	0.975
13-Dec-94	**162.8**	28	0.5498	0.125	5.092	0.976
21-Jan-99	**168.7**	29	0.5697	0.175	5.128	0.976
15-Jan-99	**169.0**	30	0.5896	0.226	5.130	0.976
8-Mar-94	**169.5**	31	0.6095	0.278	5.133	0.974
19-May-94	**174.2**	32	0.6294	0.330	5.160	0.972
12-Nov-97	**178.2**	33	0.6493	0.383	5.183	0.969
24-Mar-94	**198.6**	34	0.6692	0.438	5.291	0.966
24-Mar-94	**199.0**	35	0.6891	0.493	5.293	0.963
10-Jan-95	**201.8**	36	0.7090	0.550	5.307	0.959
15-Jun-99	**205.8**	37	0.7289	0.609	5.327	0.956
4-May-94	**222.0**	38	0.7488	0.671	5.403	0.957
9-May-95	**247.0**	39	0.7687	0.734	5.509	0.963
7-Mar-95	**311.4**	40	0.7886	0.801	5.741	0.969
7-Apr-94	**317.3**	41	0.8085	0.872	5.760	0.964
23-May-95	**321.4**	42	0.8284	0.948	5.773	0.957
25-Apr-95	**374.3**	43	0.8483	1.029	5.925	0.955
9-Feb-95	**379.6**	44	0.8682	1.118	5.939	0.943
23-May-99	**460.0**	45	0.8881	1.216	6.131	0.937
13-Apr-95	**511.7**	46	0.9080	1.328	6.238	0.919
5-May-99	**532.6**	47	0.9279	1.460	6.278	0.916

14-May-98	**613.2**	48	0.9478	1.624	6.419	0.889
22-Mar-99	**621.9**	49	0.9677	1.847	6.433	1.000
20-Apr-99	**1000.7**	50	0.9876	2.243	6.908	#DIV/0!

update for EV, CV:

tZn		**NM298**		6,655	6660
LN Analysis		**tZn**		0.45	0.449
Concentration		**Conc. Data, EV=6660 ug/L CV=0.449**			
Avg:	**6,655**	**Data-based LN**			
SD:	**2,988**	u	ln[tZn]	[tZn]	
CV:	**0.45**	3	10.0	21958	
Min:	**850**	0	8.71	6071	
Max:	**15,000**	-3	7.43	1679	
Median:	**6,865**				

				0.910	0.91
u=mLn{Conc.}+b:				7039.5	7040
update for r2, EV, CV: **r2=0.91, EV=7040 ug/L CV=0.677; max r2=0.99**				0.677	0.677
r2 u,lnConc:	0.910	u	lnConc.	Conc.	
slope, m:	1.628	3	10.51	36795	
intercept, b:	-14.119	0	8.67	5830	
N: 50		-3	6.83	924	
E[Conc]:	7039.5	Parameter Estimates			
SD[Conc]:	4765	from LN regression			
CV[Conc]:	0.68	update graph label			

Date	tZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 #DIV/0! r2 forward
		N: 50				
update and rank for new data						
15-Jun-99	850	1	0.0124	-2.243	6.745	0.910
7-Jul-99	1820	2	0.0323	-1.847	7.507	0.924
23-May-99	1900	3	0.0522	-1.624	7.550	0.918
14-May-98	2050	4	0.0721	-1.460	7.626	0.917
23-May-95	2310	5	0.0920	-1.328	7.745	0.921
19-May-94	2680	6	0.1119	-1.216	7.894	0.925
12-Jun-95	2810	7	0.1318	-1.118	7.941	0.927
4-Aug-99	2910	8	0.1517	-1.029	7.976	0.933
27-Jun-95	3720	9	0.1716	-0.948	8.221	0.945
7-Jun-94	3750	10	0.1915	-0.872	8.230	0.944
9-May-95	3800	11	0.2114	-0.801	8.243	0.946
4-May-94	3900	12	0.2313	-0.734	8.269	0.952
23-Jun-94	4400	13	0.2512	-0.671	8.389	0.963
5-May-99	4500	14	0.2711	-0.609	8.412	0.967
1-Sep-99	5060	15	0.2910	-0.550	8.529	0.975
20-Jul-94	5160	16	0.3109	-0.493	8.549	0.976
20-Jul-94	5160	17	0.3308	-0.438	8.549	0.977
27-Oct-93	5550	18	0.3507	-0.383	8.622	0.982
15-Aug-94	5890	19	0.3706	-0.330	8.681	0.984
15-Aug-94	5890	20	0.3905	-0.278	8.681	0.983
8-Sep-94	6140	21	0.4104	-0.226	8.723	0.984
20-Apr-99	6200	22	0.4303	-0.175	8.732	0.983
2-Dec-93	6361	23	0.4502	-0.125	8.758	0.984
13-Sep-95	6630	24	0.4701	-0.075	8.799	0.984
22-Mar-99	6800	25	0.4900	-0.025	8.825	0.983
7-Apr-94	6930	26	0.5100	0.025	8.844	0.982
27-Oct-98	7300	27	0.5299	0.075	8.896	0.980
16-Dec-93	7350	28	0.5498	0.125	8.902	0.980
16-Dec-93	7350	29	0.5697	0.175	8.902	0.980
8-Mar-94	7360	30	0.5896	0.226	8.904	0.978
18-Feb-94	7670	31	0.6095	0.278	8.945	0.976
4-Oct-94	7720	32	0.6294	0.330	8.952	0.975
24-Mar-94	7920	33	0.6493	0.383	8.977	0.973
24-Mar-94	7920	34	0.6692	0.438	8.977	0.971
7-Mar-95	8450	35	0.6891	0.493	9.042	0.968
12-Nov-97	8450	36	0.7090	0.550	9.042	0.974
23-Feb-99	8490	37	0.7289	0.609	9.047	0.977
8-Mar-99	8490	38	0.7488	0.671	9.047	0.978
24-Jan-94	8640	39	0.7687	0.734	9.064	0.977
24-Jan-94	8640	40	0.7886	0.801	9.064	0.976
10-Jan-95	9150	41	0.8085	0.872	9.122	0.971
13-Apr-95	9390	42	0.8284	0.948	9.147	0.972
15-Jan-99	9460	43	0.8483	1.029	9.155	0.977
21-Jan-99	9500	44	0.8682	1.118	9.159	0.978
25-Apr-95	9730	45	0.8881	1.216	9.183	0.971
9-Feb-95	10300	46	0.9080	1.328	9.240	0.963
15-Nov-94	11100	47	0.9279	1.460	9.315	0.945

19-Nov-98	12000	48	0.9478	1.624	9.393	0.914
13-Dec-94	12200	49	0.9677	1.847	9.409	1.000
10-Dec-98	15000	50	0.9876	2.243	9.616	#DIV/0!

update for EV, CV:

tZn		**NM298**			9	8.88
LN Analysis		**tZn**			1.33	1.33
Discharge, Q		**Q Data, EV=8.88 cfs CV=1.33**				
Avg:	**9**	**Q Data-based LN**				
SD:	**12**	u	lnQ	Q		
CV:	**1.33**	3	4.7	110		
Min:	**2**	0	1.68	5		
Max:	**56**	-3	-1.35	0		
Median:	**4**					

					0.887	0.887
					8.7	8.72
u=mLn{Q}+b:					1.33	1.33
update for r2, EV, CV:	**r2=0.887, EV=8.72 cfs CV=1.33; max r2=0.98**					
r2 u,lnQ:	0.887	u	lnQ	Q		
slope, m:	0.990	3	4.69	108		
intercept, b:	-1.638	0	1.66	5		
N:	50	-3	-1.38	0		
E[Q]:	8.7	Parameter Estimates				
SD[Q]:	12	from LN regression				
CV[Q]:	1.33	update graph label				

N: 50

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 #DIV/0! r2 forward
update and rank for new data						
19-Nov-98	1.9	1	0.0124	-2.243	0.642	0.887
23-Feb-99	1.934382724	2	0.0323	-1.847	0.660	0.912
10-Dec-98	2	3	0.0522	-1.624	0.693	0.927
16-Dec-93	2.02	4	0.0721	-1.460	0.703	0.938
15-Aug-94	2.06	5	0.0920	-1.328	0.723	0.947
15-Nov-94	2.1	6	0.1119	-1.216	0.742	0.954
27-Oct-98	2.1	7	0.1318	-1.118	0.742	0.960
24-Jan-94	2.14	8	0.1517	-1.029	0.761	0.964
27-Jun-95	2.19	9	0.1716	-0.948	0.784	0.968
18-Feb-94	2.28	10	0.1915	-0.872	0.824	0.972
8-Mar-99	2.281431698	11	0.2114	-0.801	0.825	0.975
16-Dec-93	2.47	12	0.2313	-0.734	0.904	0.977
27-Oct-93	2.48	13	0.2512	-0.671	0.908	0.980
2-Dec-93	2.48	14	0.2711	-0.609	0.908	0.982
13-Dec-94	2.48	15	0.2910	-0.550	0.908	0.983
8-Sep-94	2.58	16	0.3109	-0.493	0.948	0.984
4-Oct-94	2.58	17	0.3308	-0.438	0.948	0.984
24-Jan-94	2.69	18	0.3507	-0.383	0.990	0.984
15-Aug-94	2.93	19	0.3706	-0.330	1.075	0.983
1-Sep-99	3	20	0.3905	-0.278	1.099	0.983
21-Jan-99	3.3	21	0.4104	-0.226	1.194	0.982
20-Jul-94	3.32	22	0.4303	-0.175	1.200	0.982
15-Jan-99	3.32005516	23	0.4502	-0.125	1.200	0.981
12-Nov-97	3.92	24	0.4701	-0.075	1.366	0.980
10-Jan-95	4.1	25	0.4900	-0.025	1.411	0.979
8-Mar-94	4.28	26	0.5100	0.025	1.454	0.979
13-Sep-95	4.28	27	0.5299	0.075	1.454	0.978
24-Mar-94	4.66	28	0.5498	0.125	1.539	0.976
24-Mar-94	4.67	29	0.5697	0.175	1.541	0.975
20-Jul-94	4.72	30	0.5896	0.226	1.552	0.973
23-Jun-94	5.29	31	0.6095	0.278	1.666	0.971
4-Aug-99	6.2	32	0.6294	0.330	1.825	0.968
9-Feb-95	6.85	33	0.6493	0.383	1.924	0.965
7-Mar-95	6.85	34	0.6692	0.438	1.924	0.964
12-Jun-95	6.85	35	0.6891	0.493	1.924	0.960
25-Apr-95	7.15	36	0.7090	0.550	1.967	0.955
7-Jun-94	7.8	37	0.7289	0.609	2.054	0.951
7-Apr-94	8.51	38	0.7488	0.671	2.141	0.945
13-Apr-95	10.13	39	0.7687	0.734	2.316	0.939
4-May-94	10.58	40	0.7886	0.801	2.359	0.929
19-May-94	12.08	41	0.8085	0.872	2.492	0.919
9-May-95	12.08	42	0.8284	0.948	2.492	0.904
7-Jul-99	16	43	0.8483	1.029	2.773	0.902
22-Mar-99	17	44	0.8682	1.118	2.833	0.881
5-May-99	22	45	0.8881	1.216	3.091	0.873
23-May-95	25.86	46	0.9080	1.328	3.253	0.836
20-Apr-99	30	47	0.9279	1.460	3.401	0.769

23-May-99	45	48	0.9478	1.624	3.807	0.873
15-Jun-99	45	49	0.9677	1.847	3.807	1.000
14-May-98	55.6	50	0.9876	2.243	4.018	#DIV/0!

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM303 **Date:** 29-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,602	10	27	1.3	0.00	0.00	0.00	
SD:	419	10	10	1.0	1.00	1.00	1.00	
CV:	0.01	0.96	0.35	0.81				first:
Min:	33,374	2	7	0.3	-0.82	-2.06	-0.97	mid:
Max:	35,929	45	62	6.5	3.47	3.61	5.13	last:
Median:	34,561	6	28	1.0	-0.47	0.03	-0.26	

dCd NM303 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.24) update r2

r2 Q,[COC]:	0.24	[dCd]	Q	r2:	0.009	0.023
slope, m:	-0.5	31	2.2	m:	0.0022	0.00028
intercept, b:	32.1	27	10.4	b:	-67	-7.56
N: 42		11	45			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.36) update r2

r2 lnQ,ln[COC]:	0.36	ln[dCd]	ln Q	[dCd]	Q
slope, m:	-0.29	3.59	0.81	36	2
intercept, b:	3.82	3.14	2.34	23	10
N: 42		2.72	3.80	15	45

for graph
dCd 0
NM303

N= 42

	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	39.6	7.3	1.6	3.68	1.99	0.44	2.94	-2.06	0.29
MFG	4-Oct-91	2.24	22.6	0.3	0.81	3.12	-1.30	-0.82	-0.48	-0.97
IDEQ	28-Oct-93	3.76	29	0.6	1.32	3.37	-0.53	-0.66	0.19	-0.66
IDEQ	2-Dec-93	3.88	23	0.5	1.36	3.14	-0.73	-0.65	-0.43	-0.77
IDEQ	16-Dec-93	3.64	33	0.6	1.29	3.50	-0.44	-0.68	0.60	-0.60
IDEQ	16-Dec-93	3.63	33	0.6	1.29	3.50	-0.44	-0.68	0.60	-0.60
IDEQ	24-Jan-94	4.85	24	0.6	1.58	3.18	-0.47	-0.55	-0.33	-0.62
IDEQ	24-Jan-94	5.03	24	0.6	1.62	3.18	-0.43	-0.54	-0.33	-0.60
IDEQ	18-Feb-94	3.76	29	0.6	1.32	3.37	-0.53	-0.66	0.19	-0.66
IDEQ	8-Mar-94	7.65	26	1.1	2.03	3.26	0.07	-0.27	-0.12	-0.19
IDEQ	8-Mar-94	11.87	26	1.7	2.47	3.26	0.51	0.15	-0.12	0.39
IDEQ	24-Mar-94	9.34	23	1.2	2.23	3.14	0.14	-0.10	-0.43	-0.10
IDEQ	24-Mar-94	12.9	23	1.6	2.56	3.14	0.47	0.26	-0.43	0.33
IDEQ	7-Apr-94	10.32	23	1.3	2.33	3.14	0.24	0.00	-0.43	0.01
IDEQ	4-May-94	17.19	22	2.0	2.84	3.09	0.71	0.69	-0.54	0.75
IDEQ	19-May-94	16.61	18	1.6	2.81	2.89	0.48	0.63	-0.95	0.34
IDEQ	7-Jun-94	11.81	24	1.5	2.47	3.18	0.42	0.15	-0.33	0.26
IDEQ	23-Jun-94	7.65	24	1.0	2.03	3.18	-0.01	-0.27	-0.33	-0.27
IDEQ	20-Jul-94	4.85	28	0.7	1.58	3.33	-0.31	-0.55	0.08	-0.52
IDEQ	20-Jul-94	4.33	28	0.7	1.47	3.33	-0.43	-0.61	0.08	-0.60
IDEQ	15-Aug-94	4.27	28	0.6	1.45	3.33	-0.44	-0.61	0.08	-0.61
IDEQ	15-Aug-94	2.68	28	0.4	0.99	3.33	-0.91	-0.77	0.08	-0.84
IDEQ	8-Sep-94	4.27	34	0.8	1.45	3.53	-0.25	-0.61	0.70	-0.47
IDEQ	4-Oct-94	4.27	32	0.7	1.45	3.47	-0.31	-0.61	0.50	-0.52
IDEQ	15-Nov-94	4.7	62	1.6	1.55	4.13	0.45	-0.57	3.61	0.30
IDEQ	13-Dec-94	4.41	54	1.3	1.48	3.99	0.25	-0.60	2.78	0.02
IDEQ	10-Jan-95	5.52	44	1.3	1.71	3.78	0.27	-0.49	1.74	0.04
IDEQ	9-Feb-95	13.52	30	2.2	2.60	3.40	0.78	0.32	0.29	0.90
IDEQ	7-Mar-95	10.67	31	1.8	2.37	3.43	0.58	0.03	0.39	0.51
IDEQ	22-Mar-95	44.83	27	6.5	3.80	3.30	1.87	3.47	-0.02	5.13
IDEQ	13-Apr-95	17.8	29	2.8	2.88	3.37	1.02	0.75	0.19	1.48
IDEQ	25-Apr-95	13.52	28	2.0	2.60	3.33	0.71	0.32	0.08	0.76
IDEQ	9-May-95	26.15	17	2.4	3.26	2.83	0.87	1.59	-1.06	1.10
IDEQ	23-May-95	22.71	14	1.7	3.12	2.64	0.54	1.24	-1.37	0.44
IDEQ	12-Jun-95	9.03	17	0.8	2.20	2.83	-0.19	-0.13	-1.06	-0.43
IDEQ	27-Jun-95	5.89	18	0.6	1.77	2.89	-0.56	-0.45	-0.95	-0.68
IDEQ	11-Jul-95	5.01	22	0.6	1.61	3.09	-0.52	-0.54	-0.54	-0.66
IDEQ	25-Jul-95	4.01	28	0.6	1.39	3.33	-0.50	-0.64	0.08	-0.64
IDEQ	14-Aug-95	3.11	33	0.6	1.13	3.50	-0.59	-0.73	0.60	-0.70
IDEQ	13-Sep-95	2.66	34	0.5	0.98	3.53	-0.72	-0.77	0.70	-0.76
URS	11-Nov-97	5.88	32.1	1.0	1.77	3.47	0.02	-0.45	0.51	-0.24
URS	14-May-98	35.3	10.2	1.9	3.56	2.32	0.66	2.51	-1.76	0.66

dCd

Concentration over time analysis r2 Slope, m

dCd NM303 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.011** **0.00009**

Time	Ln[COC]	[COC]
16-May-91	3.13	23
15-Aug-94	3.24	25
14-May-98	3.36	29

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

dCd NM303 **Load over time**

LnLoad=mTime+b All data r2, m: **0.061** **0.00037**

Time	LnLoad	Load
16-May-91	-0.43	1
15-Aug-94	0.01	1
14-May-98	0.51	2

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.472 max r2: 0.894

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.011	0.00009	0.10	0.061	0.00037	-12.68
0.034	-0.00016	8.66	0.112	0.00056	-19.22
0.063	-0.00024	11.52	0.046	0.00038	-13.17
0.061	-0.00024	11.52	0.037	0.00034	-11.81
0.069	-0.00026	12.21	0.026	0.00028	-9.75
0.062	-0.00025	11.80	0.019	0.00025	-8.46
0.054	-0.00023	11.35	0.013	0.00020	-6.98
0.060	-0.00025	11.87	0.008	0.00016	-5.37
0.066	-0.00026	12.46	0.004	0.00011	-3.67
0.064	-0.00026	12.43	0.001	0.00005	-1.53
0.066	-0.00027	12.75	0.001	0.00004	-1.27
0.069	-0.00028	13.11	0.002	0.00008	-2.56
0.078	-0.00031	13.94	0.002	0.00008	-2.63
0.090	-0.00033	14.90	0.004	0.00012	-4.00
0.103	-0.00036	15.94	0.005	0.00014	-4.59
0.121	-0.00040	17.21	0.011	0.00021	-7.12
0.163	-0.00046	19.44	0.017	0.00026	-8.93
0.181	-0.00050	20.61	0.024	0.00031	-10.67
0.201	-0.00053	21.89	0.023	0.00031	-10.64
0.207	-0.00055	22.51	0.017	0.00027	-9.24
0.214	-0.00057	23.25	0.010	0.00021	-7.03
0.220	-0.00059	23.99	0.004	0.00013	-4.52
0.228	-0.00062	24.88	0.000	-0.00002	1.01
0.218	-0.00061	24.73	0.002	-0.00010	3.61
0.211	-0.00062	24.82	0.009	-0.00019	6.86
0.179	-0.00051	21.21	0.007	-0.00017	6.19
0.146	-0.00042	17.90	0.007	-0.00018	6.51
0.115	-0.00035	15.29	0.007	-0.00018	6.73
0.099	-0.00032	14.40	0.003	-0.00011	4.23
0.081	-0.00029	13.20	0.001	-0.00007	2.52
0.070	-0.00027	12.53	0.013	0.00019	-6.76
0.054	-0.00024	11.31	0.053	0.00036	-12.58
0.039	-0.00020	10.00	0.120	0.00050	-17.78
0.060	-0.00025	11.81	0.349	0.00072	-25.43
0.137	-0.00036	15.70	0.781	0.00092	-32.79
0.224	-0.00045	19.15	0.891	0.00102	-36.06
0.359	-0.00058	23.58	0.889	0.00103	-36.71
0.472	-0.00070	27.96	0.894	0.00107	-38.13

update for EV, CV:

dCd **NM303**
LN Analysis **dCd**

Load **Load Data, EV=1.3 lbs/day CV=.8**

Load Data-based LN

		u	ln dCd Load	dCd Load
Avg:	**1.3**			
SD:	**1.0**	3	2.1	8
CV:	**0.8**	0	-0.02	1.0
Min:	**0.3**	-3	-2.15	0.1
Max:	**6.5**			
Median:	**1.0**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.953, EV=1.3 lbs/day CV=0.74; max r2=0.95**

r2 u,lnLoad:	0.953	u	lnLoad	Load
slope, m:	1.517	3	2.00	7
intercept, b:	-0.031	0	0.02	1
N: 42		-3	-1.96	0.1
E[Load]:	1.3	Parameter Estimates		
SD[Load]:	1	from LN regression		
CV[Load]:	0.74	update graph label		

N: 42

max r2 0.954

Date	dCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	**0.3**	1	0.0148	-2.176	-1.301	0.953
15-Aug-94	**0.4**	2	0.0385	-1.769	-0.907	0.947
2-Dec-93	**0.5**	3	0.0621	-1.537	-0.734	0.946
13-Sep-95	**0.5**	4	0.0858	-1.367	-0.720	0.949
14-Aug-95	**0.6**	5	0.1095	-1.229	-0.594	0.948
27-Jun-95	**0.6**	6	0.1331	-1.112	-0.561	0.951
28-Oct-93	**0.6**	7	0.1568	-1.008	-0.533	0.953
18-Feb-94	**0.6**	8	0.1805	-0.914	-0.533	0.954
11-Jul-95	**0.6**	9	0.2041	-0.827	-0.523	0.954
25-Jul-95	**0.6**	10	0.2278	-0.746	-0.504	0.953
24-Jan-94	**0.6**	11	0.2515	-0.670	-0.468	0.951
15-Aug-94	**0.6**	12	0.2751	-0.597	-0.441	0.948
16-Dec-93	**0.6**	13	0.2988	-0.528	-0.439	0.945
16-Dec-93	**0.6**	14	0.3225	-0.461	-0.437	0.941
24-Jan-94	**0.6**	15	0.3462	-0.396	-0.432	0.936
20-Jul-94	**0.7**	16	0.3698	-0.332	-0.427	0.932
20-Jul-94	**0.7**	17	0.3935	-0.270	-0.314	0.928
4-Oct-94	**0.7**	18	0.4172	-0.209	-0.308	0.922
8-Sep-94	**0.8**	19	0.4408	-0.149	-0.247	0.918
12-Jun-95	**0.8**	20	0.4645	-0.089	-0.191	0.913
23-Jun-94	**1.0**	21	0.4882	-0.030	-0.012	0.908
11-Nov-97	**1.0**	22	0.5118	0.030	0.015	0.900
8-Mar-94	**1.1**	23	0.5355	0.089	0.068	0.890
24-Mar-94	**1.2**	24	0.5592	0.149	0.145	0.879
7-Apr-94	**1.3**	25	0.5828	0.209	0.245	0.869
13-Dec-94	**1.3**	26	0.6065	0.270	0.248	0.861
10-Jan-95	**1.3**	27	0.6302	0.332	0.268	0.851
7-Jun-94	**1.5**	28	0.6538	0.396	0.422	0.837
16-May-91	**1.6**	29	0.6775	0.461	0.442	0.841
15-Nov-94	**1.6**	30	0.7012	0.528	0.450	0.847
24-Mar-94	**1.6**	31	0.7249	0.597	0.468	0.850
19-May-94	**1.6**	32	0.7485	0.670	0.475	0.853
8-Mar-94	**1.7**	33	0.7722	0.746	0.507	0.852
23-May-95	**1.7**	34	0.7959	0.827	0.537	0.851
7-Mar-95	**1.8**	35	0.8195	0.914	0.576	0.849
14-May-98	**1.9**	36	0.8432	1.008	0.661	0.847
4-May-94	**2.0**	37	0.8669	1.112	0.710	0.865
25-Apr-95	**2.0**	38	0.8905	1.229	0.711	0.898
9-Feb-95	**2.2**	39	0.9142	1.367	0.780	
9-May-95	**2.4**	40	0.9379	1.537	0.872	
13-Apr-95	**2.8**	41	0.9615	1.769	1.021	
22-Mar-95	**6.5**	42	0.9852	2.176	1.874	

update for EV, CV:

dCd
LN Analysis

Concentration

Avg:	**27**
SD:	**10**
CV:	**0.35**
Min:	**7**
Max:	**62**
Median:	**28**

NM303
dCd
Conc. Data, EV=27 ug/L CV=.35
Data-based LN

u	ln[dCd]	[dCd]
3	4.3	72
0	3.24	26
-3	2.21	9

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.894, EV=27.7 ug/L CV=0.42; max r2=0.93**

r2 u,lnConc:	0.894	u	lnConc.	Conc.
slope, m:	2.473	3	4.45	86
intercept, b:	-8.011	0	3.24	26
N: 42		-3	2.03	8
E[Conc]:	27.7	Parameter Estimates		
SD[Conc]:	12	from LN regression		
CV[Conc]:	0.42	update graph label		

N: 42

max r2
0.934

Date	dCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
16-May-91	7.3	1	0.0148	-2.176	1.988	0.894
14-May-98	10.2	2	0.0385	-1.769	2.322	0.914
23-May-95	14	3	0.0621	-1.537	2.639	0.931
9-May-95	17	4	0.0858	-1.367	2.833	0.929
12-Jun-95	17	5	0.1095	-1.229	2.833	0.922
19-May-94	18	6	0.1331	-1.112	2.890	0.916
27-Jun-95	18	7	0.1568	-1.008	2.890	0.909
4-May-94	22	8	0.1805	-0.914	3.091	0.903
11-Jul-95	22	9	0.2041	-0.827	3.091	0.903
4-Oct-91	22.6	10	0.2278	-0.746	3.118	0.900
2-Dec-93	23	11	0.2515	-0.670	3.135	0.899
24-Mar-94	23	12	0.2751	-0.597	3.135	0.899
24-Mar-94	23	13	0.2988	-0.528	3.135	0.896
7-Apr-94	23	14	0.3225	-0.461	3.135	0.892
24-Jan-94	24	15	0.3462	-0.396	3.178	0.886
24-Jan-94	24	16	0.3698	-0.332	3.178	0.883
7-Jun-94	24	17	0.3935	-0.270	3.178	0.878
23-Jun-94	24	18	0.4172	-0.209	3.178	0.870
8-Mar-94	26	19	0.4408	-0.149	3.258	0.861
8-Mar-94	26	20	0.4645	-0.089	3.258	0.859
22-Mar-95	27	21	0.4882	-0.030	3.296	0.855
20-Jul-94	28	22	0.5118	0.030	3.332	0.856
20-Jul-94	28	23	0.5355	0.089	3.332	0.865
15-Aug-94	28	24	0.5592	0.149	3.332	0.872
15-Aug-94	28	25	0.5828	0.209	3.332	0.878
25-Apr-95	28	26	0.6065	0.270	3.332	0.882
25-Jul-95	28	27	0.6302	0.332	3.332	0.883
28-Oct-93	29	28	0.6538	0.396	3.367	0.880
18-Feb-94	29	29	0.6775	0.461	3.367	0.884
13-Apr-95	29	30	0.7012	0.528	3.367	0.884
9-Feb-95	30	31	0.7249	0.597	3.401	0.879
7-Mar-95	31	32	0.7485	0.670	3.434	0.878
4-Oct-94	32	33	0.7722	0.746	3.466	0.883
11-Nov-97	32.1	34	0.7959	0.827	3.469	0.897
16-Dec-93	33	35	0.8195	0.914	3.497	0.907
16-Dec-93	33	36	0.8432	1.008	3.497	0.925
14-Aug-95	33	37	0.8669	1.112	3.497	0.934
8-Sep-94	34	38	0.8905	1.229	3.526	0.925
13-Sep-95	34	39	0.9142	1.367	3.526	
10-Jan-95	44	40	0.9379	1.537	3.784	
13-Dec-94	54	41	0.9615	1.769	3.989	
15-Nov-94	62	42	0.9852	2.176	4.127	

update for EV, CV:

dCd **NM303**

LN Analysis **dCd**

Discharge, Q **Q Data, EV=10 cfs CV=0.96**

Q Data-based LN

		u	lnQ	Q
Avg:	**10**	3	4.4	84
SD:	**10**	0	2.01	7
CV:	**0.96**	-3	-0.41	1
Min:	**2**			
Max:	**45**			
Median:	**6**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.938, EV=10.4 cfs CV=0.98; max r2=0.98**

r2 u,lnQ:	0.938	u	lnQ	Q
slope, m:	1.219	3	4.47	87
intercept, b:	-2.445	0	2.01	7
N: 42		-3	-0.46	0.6
E[Q]:	10.4	Parameter Estimates		
SD[Q]:	10	from LN regression		
CV[Q]:	0.98	update graph label		

max r2 0.983

N: 42

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	2.24	1	0.0148	-2.176	0.806	0.938
13-Sep-95	2.66	2	0.0385	-1.769	0.978	0.945
15-Aug-94	2.68	3	0.0621	-1.537	0.986	0.951
14-Aug-95	3.11	4	0.0858	-1.367	1.135	0.952
16-Dec-93	3.63	5	0.1095	-1.229	1.289	0.955
16-Dec-93	3.64	6	0.1331	-1.112	1.292	0.962
28-Oct-93	3.76	7	0.1568	-1.008	1.324	0.967
18-Feb-94	3.76	8	0.1805	-0.914	1.324	0.971
2-Dec-93	3.88	9	0.2041	-0.827	1.356	0.974
25-Jul-95	4.01	10	0.2278	-0.746	1.389	0.977
15-Aug-94	4.27	11	0.2515	-0.670	1.452	0.979
8-Sep-94	4.27	12	0.2751	-0.597	1.452	0.981
4-Oct-94	4.27	13	0.2988	-0.528	1.452	0.983
20-Jul-94	4.33	14	0.3225	-0.461	1.466	0.983
13-Dec-94	4.41	15	0.3462	-0.396	1.484	0.983
15-Nov-94	4.7	16	0.3698	-0.332	1.548	0.982
24-Jan-94	4.85	17	0.3935	-0.270	1.579	0.981
20-Jul-94	4.85	18	0.4172	-0.209	1.579	0.980
11-Jul-95	5.01	19	0.4408	-0.149	1.611	0.978
24-Jan-94	5.03	20	0.4645	-0.089	1.615	0.976
10-Jan-95	5.52	21	0.4882	-0.030	1.708	0.976
11-Nov-97	5.88	22	0.5118	0.030	1.772	0.975
27-Jun-95	5.89	23	0.5355	0.089	1.773	0.974
8-Mar-94	7.65	24	0.5592	0.149	2.035	0.979
23-Jun-94	7.65	25	0.5828	0.209	2.035	0.977
12-Jun-95	9.03	26	0.6065	0.270	2.201	0.975
24-Mar-94	9.34	27	0.6302	0.332	2.234	0.973
7-Apr-94	10.32	28	0.6538	0.396	2.334	0.969
7-Mar-95	10.67	29	0.6775	0.461	2.367	0.966
7-Jun-94	11.81	30	0.7012	0.528	2.469	0.962
8-Mar-94	11.87	31	0.7249	0.597	2.474	0.958
24-Mar-94	12.9	32	0.7485	0.670	2.557	0.952
9-Feb-95	13.52	33	0.7722	0.746	2.604	0.944
25-Apr-95	13.52	34	0.7959	0.827	2.604	0.933
19-May-94	16.61	35	0.8195	0.914	2.810	0.923
4-May-94	17.19	36	0.8432	1.008	2.844	0.905
13-Apr-95	17.8	37	0.8669	1.112	2.879	0.876
23-May-95	22.71	38	0.8905	1.229	3.123	0.873
9-May-95	26.15	39	0.9142	1.367	3.264	
14-May-98	35.3	40	0.9379	1.537	3.564	
16-May-91	39.6	41	0.9615	1.769	3.679	
22-Mar-95	44.83	42	0.9852	2.176	3.803	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM303 **Date:** 30-May-00
Chemical: dPb **Analyst:** J.Johnston
Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,602	10	62	3	0.00	0.00	0.00	
SD:	419	10	27	3	1.00	1.00	1.00	
CV:	0.01	0.96	0.43	0.92				first:
Min:	33,374	2	12	0.2	-0.82	-1.87	-1.02	mid:
Max:	35,929	45	148	16	3.47	3.25	4.20	last:
Median:	34,561	6	60	2	-0.47	-0.08	-0.29	

dPb NM303 **: Concentration v. Discharge, Q** **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.01) update r2

r2 Q,[COC]:	0.01	[dPb]	Q	r2:	0.009	0.023
slope, m:	-0.3	64	2.2	m:	0.0022	0.00028
intercept, b:	65.1	62	10.4	b:	-67	-7.56
N: 42		50	45			

LnConc. = mLn{Q}+b (r2=0.0005) update r2

r2 lnQ,ln[COC]:	0.0005	ln[dPb]	ln Q	[dPb]	Q	
slope, m:	0.01	4.00	0.81	55	2	
intercept, b:	3.99	4.02	2.34	56	10	
N: 42		4.04	3.80	57	45	

first:
mid:
last:

for graph
dPb 0
NM303

N= 42

update for new data	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	39.6	12	2.6	3.68	2.48	0.94	2.94	-1.87	-0.23
MFG	4-Oct-91	2.24	16	0.2	0.81	2.77	-1.65	-0.82	-1.72	-1.02
IDEQ	28-Oct-93	3.76	26	0.5	1.32	3.26	-0.64	-0.66	-1.34	-0.91
IDEQ	2-Dec-93	3.88	41	0.9	1.36	3.71	-0.16	-0.65	-0.78	-0.80
IDEQ	16-Dec-93	3.64	55	1.1	1.29	4.01	0.07	-0.68	-0.25	-0.73
IDEQ	16-Dec-93	3.63	55	1.1	1.29	4.01	0.07	-0.68	-0.25	-0.73
IDEQ	24-Jan-94	4.85	54	1.4	1.58	3.99	0.34	-0.55	-0.29	-0.62
IDEQ	24-Jan-94	5.03	54	1.5	1.62	3.99	0.38	-0.54	-0.29	-0.60
IDEQ	18-Feb-94	3.76	26	0.5	1.32	3.26	-0.64	-0.66	-1.34	-0.91
IDEQ	8-Mar-94	7.65	53	2.2	2.03	3.97	0.78	-0.27	-0.33	-0.36
IDEQ	8-Mar-94	11.87	53	3.4	2.47	3.97	1.22	0.15	-0.33	0.04
IDEQ	24-Mar-94	9.34	65	3.3	2.23	4.17	1.18	-0.10	0.13	0.00
IDEQ	24-Mar-94	12.9	65	4.5	2.56	4.17	1.51	0.26	0.13	0.41
IDEQ	7-Apr-94	10.32	66	3.7	2.33	4.19	1.30	0.00	0.16	0.13
IDEQ	4-May-94	17.19	57	5.3	2.84	4.04	1.66	0.69	-0.18	0.67
IDEQ	19-May-94	16.61	55	4.9	2.81	4.01	1.59	0.63	-0.25	0.55
IDEQ	7-Jun-94	11.81	62	3.9	2.47	4.13	1.37	0.15	0.01	0.22
IDEQ	23-Jun-94	7.65	74	3.0	2.03	4.30	1.11	-0.27	0.46	-0.07
IDEQ	20-Jul-94	4.85	52	1.4	1.58	3.95	0.31	-0.55	-0.36	-0.63
IDEQ	20-Jul-94	4.33	52	1.2	1.47	3.95	0.19	-0.61	-0.36	-0.68
IDEQ	15-Aug-94	4.27	33	0.8	1.45	3.50	-0.28	-0.61	-1.08	-0.83
IDEQ	15-Aug-94	2.68	33	0.5	0.99	3.50	-0.74	-0.77	-1.08	-0.93
IDEQ	8-Sep-94	4.27	34	0.8	1.45	3.53	-0.25	-0.61	-1.04	-0.82
IDEQ	4-Oct-94	4.27	46	1.1	1.45	3.83	0.06	-0.61	-0.59	-0.73
IDEQ	15-Nov-94	4.7	110	2.8	1.55	4.70	1.02	-0.57	1.82	-0.16
IDEQ	13-Dec-94	4.41	82	1.9	1.48	4.41	0.67	-0.60	0.77	-0.44
IDEQ	10-Jan-95	5.52	67	2.0	1.71	4.20	0.69	-0.49	0.20	-0.42
IDEQ	9-Feb-95	13.52	74	5.4	2.60	4.30	1.68	0.32	0.46	0.70
IDEQ	7-Mar-95	10.67	148	8.5	2.37	5.00	2.14	0.03	3.25	1.74
IDEQ	22-Mar-95	44.83	66	15.9	3.80	4.19	2.77	3.47	0.16	4.20
IDEQ	13-Apr-95	17.8	71	6.8	2.88	4.26	1.92	0.75	0.35	1.17
IDEQ	25-Apr-95	13.52	64	4.7	2.60	4.16	1.54	0.32	0.09	0.46
IDEQ	9-May-95	26.15	70	9.8	3.26	4.25	2.29	1.59	0.31	2.19
IDEQ	23-May-95	22.71	63	7.7	3.12	4.14	2.04	1.24	0.05	1.47
IDEQ	12-Jun-95	9.03	87	4.2	2.20	4.47	1.44	-0.13	0.95	0.32
IDEQ	27-Jun-95	5.89	88	2.8	1.77	4.48	1.03	-0.45	0.99	-0.16
IDEQ	11-Jul-95	5.01	93	2.5	1.61	4.53	0.92	-0.54	1.18	-0.25
IDEQ	25-Jul-95	4.01	106	2.3	1.39	4.66	0.83	-0.64	1.67	-0.32
IDEQ	14-Aug-95	3.11	114	1.9	1.13	4.74	0.65	-0.73	1.97	-0.45
IDEQ	13-Sep-95	2.66	62	0.9	0.98	4.13	-0.12	-0.77	0.01	-0.79
URS	11-Nov-97	5.88	56	1.8	1.77	4.03	0.57	-0.45	-0.21	-0.50
URS	14-May-98	35.3	29.8	5.7	3.56	3.39	1.73	2.51	-1.20	0.80

dPb

Concentration over time analysis r2 Slope, m

dPb NM303 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.242** **0.00057**

Time	Ln[COC]	[COC]
16-May-91	3.31	27
15-Aug-94	3.99	54
14-May-98	4.78	119

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

dPb NM303 **Load over time**

LnLoad=mTime+b All data r2, m: **0.150** **0.00085**

Time	LnLoad	Load
16-May-91	-0.25	1
15-Aug-94	0.76	2
14-May-98	1.93	7

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.766 max r2: 0.402

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.242	0.00057	-15.84	0.150	0.00085	-28.62
0.119	0.00040	-9.63	0.201	0.00111	-37.51
0.026	0.00018	-2.27	0.100	0.00080	-26.96
0.011	0.00011	0.15	0.078	0.00069	-23.18
0.006	0.00008	1.23	0.064	0.00062	-20.73
0.005	0.00008	1.49	0.053	0.00057	-18.77
0.004	0.00007	1.77	0.041	0.00050	-16.55
0.003	0.00006	2.13	0.034	0.00046	-15.10
0.002	0.00005	2.54	0.028	0.00042	-13.59
0.001	-0.00004	5.43	0.013	0.00028	-8.53
0.003	-0.00006	6.11	0.011	0.00026	-7.91
0.005	-0.00008	6.88	0.013	0.00028	-8.79
0.005	-0.00008	6.97	0.015	0.00031	-9.60
0.005	-0.00008	7.07	0.021	0.00037	-11.83
0.005	-0.00008	7.11	0.026	0.00042	-13.42
0.007	-0.00010	7.75	0.037	0.00051	-16.59
0.011	-0.00013	8.60	0.051	0.00060	-19.77
0.013	-0.00014	9.01	0.061	0.00067	-22.27
0.011	-0.00013	8.67	0.067	0.00071	-23.86
0.016	-0.00016	9.85	0.057	0.00066	-21.90
0.025	-0.00020	11.25	0.043	0.00058	-19.04
0.063	-0.00031	14.98	0.024	0.00042	-13.53
0.144	-0.00044	19.46	0.004	0.00016	-4.41
0.296	-0.00057	24.29	0.001	-0.00005	3.17
0.441	-0.00068	27.94	0.013	-0.00025	9.99
0.418	-0.00065	26.98	0.019	-0.00030	11.96
0.419	-0.00066	27.40	0.036	-0.00042	16.01
0.458	-0.00070	28.85	0.062	-0.00054	20.29
0.476	-0.00073	29.79	0.056	-0.00052	19.62
0.500	-0.00065	27.06	0.040	-0.00043	16.38
0.538	-0.00069	28.32	0.014	-0.00022	9.03
0.560	-0.00071	29.27	0.004	-0.00012	5.38
0.621	-0.00076	31.05	0.001	-0.00006	3.26
0.663	-0.00081	32.59	0.011	0.00016	-4.65
0.766	-0.00088	35.37	0.095	0.00040	-13.11
0.766	-0.00090	36.09	0.215	0.00057	-19.13
0.763	-0.00093	36.87	0.299	0.00069	-23.42
0.744	-0.00094	37.20	0.402	0.00084	-28.90

update for EV, CV:

dPb **NM303**

LN Analysis **dPb**

Load **Load Data, EV=3 lbs/day CV=.92**

Load Data-based LN

Avg:	**3**			
SD:	**3**	u	ln dPb Load	dPb Load
CV:	**0.92**	3	3.2	25
Min:	**0**	0	0.87	2
Max:	**16**	-3	-1.48	0.2
Median:	**2**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.989, EV=3.5 lbs/day CV=1.22; max r2=0.995**

r2 u,lnLoad:	0.989	u	lnLoad	Load
slope, m:	1.046	3	3.67	39
intercept, b:	-0.835	0	0.80	2
N: 42		-3	-2.07	0.1
E[Load]:	3.5	Parameter Estimates		
SD[Load]:	4	from LN regression		
CV[Load]:	1.22	update graph label		

N: 42

max r2 0.995

Date	dPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	**0.2**	1	0.0148	-2.176	-1.646	0.989
15-Aug-94	**0.5**	2	0.0385	-1.769	-0.743	0.993
28-Oct-93	**0.5**	3	0.0621	-1.537	-0.643	0.993
18-Feb-94	**0.5**	4	0.0858	-1.367	-0.643	0.992
15-Aug-94	**0.8**	5	0.1095	-1.229	-0.277	0.993
8-Sep-94	**0.8**	6	0.1331	-1.112	-0.247	0.992
2-Dec-93	**0.9**	7	0.1568	-1.008	-0.156	0.992
13-Sep-95	**0.9**	8	0.1805	-0.914	-0.120	0.991
4-Oct-94	**1.1**	9	0.2041	-0.827	0.055	0.991
16-Dec-93	**1.1**	10	0.2278	-0.746	0.071	0.991
16-Dec-93	**1.1**	11	0.2515	-0.670	0.074	0.990
20-Jul-94	**1.2**	12	0.2751	-0.597	0.192	0.992
20-Jul-94	**1.4**	13	0.2988	-0.528	0.305	0.992
24-Jan-94	**1.4**	14	0.3225	-0.461	0.343	0.992
24-Jan-94	**1.5**	15	0.3462	-0.396	0.379	0.993
11-Nov-97	**1.8**	16	0.3698	-0.332	0.572	0.995
14-Aug-95	**1.9**	17	0.3935	-0.270	0.646	0.994
13-Dec-94	**1.9**	18	0.4172	-0.209	0.666	0.994
10-Jan-95	**2.0**	19	0.4408	-0.149	0.688	0.994
8-Mar-94	**2.2**	20	0.4645	-0.089	0.780	0.994
25-Jul-95	**2.3**	21	0.4882	-0.030	0.827	0.993
11-Jul-95	**2.5**	22	0.5118	0.030	0.919	0.993
16-May-91	**2.6**	23	0.5355	0.089	0.939	0.993
15-Nov-94	**2.8**	24	0.5592	0.149	1.023	0.992
27-Jun-95	**2.8**	25	0.5828	0.209	1.026	0.991
23-Jun-94	**3.0**	26	0.6065	0.270	1.114	0.991
24-Mar-94	**3.3**	27	0.6302	0.332	1.184	0.990
8-Mar-94	**3.4**	28	0.6538	0.396	1.219	0.989
7-Apr-94	**3.7**	29	0.6775	0.461	1.299	0.988
7-Jun-94	**3.9**	30	0.7012	0.528	1.371	0.986
12-Jun-95	**4.2**	31	0.7249	0.597	1.441	0.984
24-Mar-94	**4.5**	32	0.7485	0.670	1.507	0.984
25-Apr-95	**4.7**	33	0.7722	0.746	1.538	0.985
19-May-94	**4.9**	34	0.7959	0.827	1.592	0.985
4-May-94	**5.3**	35	0.8195	0.914	1.662	0.984
9-Feb-95	**5.4**	36	0.8432	1.008	1.683	0.985
14-May-98	**5.7**	37	0.8669	1.112	1.733	0.981
13-Apr-95	**6.8**	38	0.8905	1.229	1.917	0.977
23-May-95	**7.7**	39	0.9142	1.367	2.041	
7-Mar-95	**8.5**	40	0.9379	1.537	2.140	
9-May-95	**9.8**	41	0.9615	1.769	2.287	
22-Mar-95	**15.9**	42	0.9852	2.176	2.767	

update for EV, CV:

dPb
LN Analysis

Concentration

Avg:	**62**
SD:	**27**
CV:	**0.43**
Min:	**12**
Max:	**148**
Median:	**60**

NM303
dPb
Conc. Data, EV=62 ug/L CV=.43
Data-based LN

u	ln[dPb]	[dPb]
3	5.3	195
0	4.04	57
-3	2.80	16

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.920, EV=63.8 ug/L CV=0.57; max r2=0.99**

r2 u,lnConc:	0.920	u	lnConc.	Conc.
slope, m:	1.898	3	5.60	270
intercept, b:	-7.624	0	4.02	56
N: 42		-3	2.44	11
E[Conc]:	63.8	Parameter Estimates		
SD[Conc]:	36	from LN regression		
CV[Conc]:	0.57	update graph label		

N: 42

max r2
0.985

Date	dPb Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
16-May-91	12	1	0.0148	-2.176	2.485	0.920
4-Oct-91	16	2	0.0385	-1.769	2.773	0.930
28-Oct-93	26	3	0.0621	-1.537	3.258	0.950
18-Feb-94	26	4	0.0858	-1.367	3.258	0.947
14-May-98	29.8	5	0.1095	-1.229	3.395	0.950
15-Aug-94	33	6	0.1331	-1.112	3.497	0.951
15-Aug-94	33	7	0.1568	-1.008	3.497	0.949
8-Sep-94	34	8	0.1805	-0.914	3.526	0.954
2-Dec-93	41	9	0.2041	-0.827	3.714	0.964
4-Oct-94	46	10	0.2278	-0.746	3.829	0.963
20-Jul-94	52	11	0.2515	-0.670	3.951	0.960
20-Jul-94	52	12	0.2751	-0.597	3.951	0.964
8-Mar-94	53	13	0.2988	-0.528	3.970	0.966
8-Mar-94	53	14	0.3225	-0.461	3.970	0.969
24-Jan-94	54	15	0.3462	-0.396	3.989	0.971
24-Jan-94	54	16	0.3698	-0.332	3.989	0.973
16-Dec-93	55	17	0.3935	-0.270	4.007	0.973
16-Dec-93	55	18	0.4172	-0.209	4.007	0.974
19-May-94	55	19	0.4408	-0.149	4.007	0.974
11-Nov-97	56	20	0.4645	-0.089	4.025	0.972
4-May-94	57	21	0.4882	-0.030	4.043	0.970
7-Jun-94	62	22	0.5118	0.030	4.127	0.968
13-Sep-95	62	23	0.5355	0.089	4.127	0.972
23-May-95	63	24	0.5592	0.149	4.143	0.974
25-Apr-95	64	25	0.5828	0.209	4.159	0.977
24-Mar-94	65	26	0.6065	0.270	4.174	0.980
24-Mar-94	65	27	0.6302	0.332	4.174	0.983
7-Apr-94	66	28	0.6538	0.396	4.190	0.985
22-Mar-95	66	29	0.6775	0.461	4.190	0.985
10-Jan-95	67	30	0.7012	0.528	4.205	0.984
9-May-95	70	31	0.7249	0.597	4.248	0.981
13-Apr-95	71	32	0.7485	0.670	4.263	0.979
23-Jun-94	74	33	0.7722	0.746	4.304	0.975
9-Feb-95	74	34	0.7959	0.827	4.304	0.970
13-Dec-94	82	35	0.8195	0.914	4.407	0.972
12-Jun-95	87	36	0.8432	1.008	4.466	0.965
27-Jun-95	88	37	0.8669	1.112	4.477	0.958
11-Jul-95	93	38	0.8905	1.229	4.533	0.942
25-Jul-95	106	39	0.9142	1.367	4.663	
15-Nov-94	110	40	0.9379	1.537	4.700	
14-Aug-95	114	41	0.9615	1.769	4.736	
7-Mar-95	148	42	0.9852	2.176	4.997	

update for EV, CV:

dPb **NM303**

LN Analysis **dPb**

Discharge, Q **Q Data, EV=10 cfs CV=0.96**

Q Data-based LN

		u	lnQ	Q
Avg:	**10**	3	4.4	84
SD:	**10**	0	2.01	7
CV:	**0.96**	-3	-0.41	1
Min:	**2**			
Max:	**45**			
Median:	**6**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.938, EV=10.4 cfs CV=0.98; max r2=0.98**

r2 u,lnQ:	0.938	u	lnQ	Q
slope, m:	1.219	3	4.47	87
intercept, b:	-2.445	0	2.01	7
N: 42		-3	-0.46	0.6
E[Q]:	10.4	Parameter Estimates		
SD[Q]:	10	from LN regression		
CV[Q]:	0.98	update graph label		

N: 42 max r2 0.983

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	2.24	1	0.0148	-2.176	0.806	0.938
13-Sep-95	2.66	2	0.0385	-1.769	0.978	0.945
15-Aug-94	2.68	3	0.0621	-1.537	0.986	0.951
14-Aug-95	3.11	4	0.0858	-1.367	1.135	0.952
16-Dec-93	3.63	5	0.1095	-1.229	1.289	0.955
16-Dec-93	3.64	6	0.1331	-1.112	1.292	0.962
28-Oct-93	3.76	7	0.1568	-1.008	1.324	0.967
18-Feb-94	3.76	8	0.1805	-0.914	1.324	0.971
2-Dec-93	3.88	9	0.2041	-0.827	1.356	0.974
25-Jul-95	4.01	10	0.2278	-0.746	1.389	0.977
15-Aug-94	4.27	11	0.2515	-0.670	1.452	0.979
8-Sep-94	4.27	12	0.2751	-0.597	1.452	0.981
4-Oct-94	4.27	13	0.2988	-0.528	1.452	0.983
20-Jul-94	4.33	14	0.3225	-0.461	1.466	0.983
13-Dec-94	4.41	15	0.3462	-0.396	1.484	0.983
15-Nov-94	4.7	16	0.3698	-0.332	1.548	0.982
24-Jan-94	4.85	17	0.3935	-0.270	1.579	0.981
20-Jul-94	4.85	18	0.4172	-0.209	1.579	0.980
11-Jul-95	5.01	19	0.4408	-0.149	1.611	0.978
24-Jan-94	5.03	20	0.4645	-0.089	1.615	0.976
10-Jan-95	5.52	21	0.4882	-0.030	1.708	0.976
11-Nov-97	5.88	22	0.5118	0.030	1.772	0.975
27-Jun-95	5.89	23	0.5355	0.089	1.773	0.974
8-Mar-94	7.65	24	0.5592	0.149	2.035	0.979
23-Jun-94	7.65	25	0.5828	0.209	2.035	0.977
12-Jun-95	9.03	26	0.6065	0.270	2.201	0.975
24-Mar-94	9.34	27	0.6302	0.332	2.234	0.973
7-Apr-94	10.32	28	0.6538	0.396	2.334	0.969
7-Mar-95	10.67	29	0.6775	0.461	2.367	0.966
7-Jun-94	11.81	30	0.7012	0.528	2.469	0.962
8-Mar-94	11.87	31	0.7249	0.597	2.474	0.958
24-Mar-94	12.9	32	0.7485	0.670	2.557	0.952
9-Feb-95	13.52	33	0.7722	0.746	2.604	0.944
25-Apr-95	13.52	34	0.7959	0.827	2.604	0.933
19-May-94	16.61	35	0.8195	0.914	2.810	0.923
4-May-94	17.19	36	0.8432	1.008	2.844	0.905
13-Apr-95	17.8	37	0.8669	1.112	2.879	0.876
23-May-95	22.71	38	0.8905	1.229	3.123	0.873
9-May-95	26.15	39	0.9142	1.367	3.264	
14-May-98	35.3	40	0.9379	1.537	3.564	
16-May-91	39.6	41	0.9615	1.769	3.679	
22-Mar-95	44.83	42	0.9852	2.176	3.803	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM303 **Date:** 29-May-00
Chemical: dZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,602	10	4,040	195	0.00	0.00	0.00	
SD:	419	10	1,617	179	1.00	1.00	1.00	
CV:	0.01	0.96	0.40	0.91				first:
Min:	33,374	2	400	20	-0.82	-2.25	-0.98	mid:
Max:	35,929	45	8,680	1,068	3.47	2.87	4.88	last:
Median:	34,561	6	4,025	125	-0.47	-0.01	-0.39	

dZn NM303 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.12) update r2

r2 Q,[COC]:	0.12	[dZn]	Q	r2:	0.009	0.023
slope, m:	-55.9	4,494	2.2	m:	0.0022	0.00028
intercept, b:	4618.9	4,040	10.4	b:	-67	-7.56
N: 42		2,114	45			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.11) update r2

r2 lnQ,ln[COC]:	0.11	ln[dZn]	ln Q	[dZn]	Q
slope, m:	-0.26	8.49	0.81	4,864	2
intercept, b:	8.70	8.10	2.34	3,286	10
N: 42		7.72	3.80	2,258	45

for graph
dZn 0
NM303

N= 42

	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	39.6	1880	401	3.68	7.54	5.99	2.94	-1.34	1.15
MFG	4-Oct-91	2.24	3340	40	0.81	8.11	3.70	-0.82	-0.43	-0.87
IDEQ	28-Oct-93	3.76	4910	99	1.32	8.50	4.60	-0.66	0.54	-0.54
IDEQ	2-Dec-93	3.88	4490	94	1.36	8.41	4.54	-0.65	0.28	-0.57
IDEQ	16-Dec-93	3.64	5280	103	1.29	8.57	4.64	-0.68	0.77	-0.52
IDEQ	16-Dec-93	3.63	5280	103	1.29	8.57	4.64	-0.68	0.77	-0.52
IDEQ	24-Jan-94	4.85	4460	116	1.58	8.40	4.76	-0.55	0.26	-0.44
IDEQ	24-Jan-94	5.03	4460	121	1.62	8.40	4.79	-0.54	0.26	-0.42
IDEQ	18-Feb-94	3.76	4610	93	1.32	8.44	4.54	-0.66	0.35	-0.57
IDEQ	8-Mar-94	7.65	4000	165	2.03	8.29	5.10	-0.27	-0.02	-0.17
IDEQ	8-Mar-94	11.87	4000	255	2.47	8.29	5.54	0.15	-0.02	0.34
IDEQ	24-Mar-94	9.34	400	20	2.23	5.99	3.00	-0.10	-2.25	-0.98
IDEQ	24-Mar-94	12.9	400	28	2.56	5.99	3.32	0.26	-2.25	-0.94
IDEQ	7-Apr-94	10.32	4120	229	2.33	8.32	5.43	0.00	0.05	0.19
IDEQ	4-May-94	17.19	3390	314	2.84	8.13	5.75	0.69	-0.40	0.66
IDEQ	19-May-94	16.61	2610	233	2.81	7.87	5.45	0.63	-0.88	0.21
IDEQ	7-Jun-94	11.81	3380	215	2.47	8.13	5.37	0.15	-0.41	0.11
IDEQ	23-Jun-94	7.65	3690	152	2.03	8.21	5.02	-0.27	-0.22	-0.24
IDEQ	20-Jul-94	4.85	3620	94	1.58	8.19	4.55	-0.55	-0.26	-0.57
IDEQ	20-Jul-94	4.33	3620	84	1.47	8.19	4.43	-0.61	-0.26	-0.62
IDEQ	15-Aug-94	4.27	2750	63	1.45	7.92	4.15	-0.61	-0.80	-0.74
IDEQ	15-Aug-94	2.68	2750	40	0.99	7.92	3.68	-0.77	-0.80	-0.87
IDEQ	8-Sep-94	4.27	5600	129	1.45	8.63	4.86	-0.61	0.96	-0.37
IDEQ	4-Oct-94	4.27	4330	99	1.45	8.37	4.60	-0.61	0.18	-0.54
IDEQ	15-Nov-94	4.7	8120	205	1.55	9.00	5.32	-0.57	2.52	0.06
IDEQ	13-Dec-94	4.41	8680	206	1.48	9.07	5.33	-0.60	2.87	0.06
IDEQ	10-Jan-95	5.52	6430	191	1.71	8.77	5.25	-0.49	1.48	-0.03
IDEQ	9-Feb-95	13.52	4990	363	2.60	8.52	5.89	0.32	0.59	0.94
IDEQ	7-Mar-95	10.67	5060	290	2.37	8.53	5.67	0.03	0.63	0.53
IDEQ	22-Mar-95	44.83	4430	1068	3.80	8.40	6.97	3.47	0.24	4.88
IDEQ	13-Apr-95	17.8	5110	489	2.88	8.54	6.19	0.75	0.66	1.64
IDEQ	25-Apr-95	13.52	5150	375	2.60	8.55	5.93	0.32	0.69	1.00
IDEQ	9-May-95	26.15	2780	391	3.26	7.93	5.97	1.59	-0.78	1.09
IDEQ	23-May-95	22.71	2150	263	3.12	7.67	5.57	1.24	-1.17	0.38
IDEQ	12-Jun-95	9.03	2510	122	2.20	7.83	4.80	-0.13	-0.95	-0.41
IDEQ	27-Jun-95	5.89	3270	104	1.77	8.09	4.64	-0.45	-0.48	-0.51
IDEQ	11-Jul-95	5.01	3500	94	1.61	8.16	4.55	-0.54	-0.33	-0.57
IDEQ	25-Jul-95	4.01	4050	87	1.39	8.31	4.47	-0.64	0.01	-0.60
IDEQ	14-Aug-95	3.11	4660	78	1.13	8.45	4.36	-0.73	0.38	-0.66
IDEQ	13-Sep-95	2.66	3920	56	0.98	8.27	4.03	-0.77	-0.07	-0.78
URS	11-Nov-97	5.88	5610	177	1.77	8.63	5.18	-0.45	0.97	-0.10
URS	14-May-98	35.3	1890	359	3.56	7.54	5.88	2.51	-1.33	0.91

dZn

Concentration over time analysis r2 Slope, m

dZn NM303 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.011** **0.00015**

Time	Ln[COC]	[COC]
16-May-91	8.00	2,978
15-Aug-94	8.18	3,556
14-May-98	8.38	4,361

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

dZn NM303 **Load over time**

LnLoad=mTime+b All data r2, m: **0.050** **0.00043**

Time	LnLoad	Load
16-May-91	4.44	85
15-Aug-94	4.95	141
14-May-98	5.53	252

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.207 max r2: 0.891

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.011	0.00015	3.02	0.050	0.00043	-9.76
0.001	0.00005	6.47	0.131	0.00076	-21.41
0.001	0.00004	6.72	0.083	0.00066	-17.97
0.002	0.00007	5.72	0.078	0.00065	-17.61
0.003	0.00009	4.97	0.072	0.00063	-16.99
0.005	0.00013	3.65	0.068	0.00062	-16.60
0.009	0.00017	2.17	0.063	0.00061	-16.16
0.011	0.00020	1.22	0.060	0.00061	-16.01
0.014	0.00023	0.16	0.058	0.00060	-15.98
0.019	0.00027	-1.06	0.052	0.00058	-15.02
0.021	0.00029	-1.87	0.055	0.00060	-15.89
0.025	0.00031	-2.79	0.068	0.00068	-18.46
0.004	0.00010	4.75	0.041	0.00049	-11.82
0.019	-0.00015	13.43	0.019	0.00031	-5.46
0.018	-0.00015	13.47	0.024	0.00035	-7.07
0.023	-0.00017	14.29	0.037	0.00044	-10.05
0.042	-0.00023	16.29	0.046	0.00049	-12.07
0.052	-0.00026	17.37	0.054	0.00055	-13.91
0.060	-0.00028	18.16	0.055	0.00056	-14.37
0.069	-0.00031	19.06	0.045	0.00051	-12.69
0.080	-0.00034	20.13	0.033	0.00044	-10.16
0.117	-0.00041	22.60	0.018	0.00032	-5.91
0.173	-0.00049	25.56	0.002	0.00010	1.69
0.157	-0.00047	24.93	0.000	0.00004	3.81
0.162	-0.00049	25.59	0.001	-0.00007	7.63
0.129	-0.00041	22.80	0.001	-0.00007	7.78
0.095	-0.00032	19.31	0.001	-0.00007	7.91
0.067	-0.00025	17.01	0.001	-0.00009	8.46
0.051	-0.00022	15.81	0.000	-0.00001	5.64
0.035	-0.00018	14.37	0.000	0.00005	3.69
0.025	-0.00015	13.40	0.026	0.00031	-5.89
0.011	-0.00009	11.43	0.078	0.00050	-12.45
0.001	-0.00002	8.95	0.167	0.00068	-18.84
0.004	-0.00006	10.09	0.404	0.00091	-27.15
0.039	-0.00016	13.62	0.743	0.00113	-34.86
0.110	-0.00025	17.00	0.817	0.00122	-38.22
0.156	-0.00031	19.07	0.859	0.00130	-41.22
0.207	-0.00038	21.48	0.891	0.00140	-44.62

update for EV, CV:

dZn **NM303**
LN Analysis **dZn**

Load **Load Data, EV=195 lbs/day CV=.91**

Load Data-based LN

		u	ln dZn Load	dZn Load
Avg:	**195**			
SD:	**179**	3	7.3	1495
CV:	**0.91**	0	4.97	144
Min:	**20**	-3	2.63	14
Max:	**1,068**			
Median:	**125**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.978, EV=202.6 lbs/day CV=1.00; max r2=0.98**

r2 u,lnLoad:	0.978	u	lnLoad	Load
slope, m:	1.198	3	7.47	1748
intercept, b:	-5.948	0	4.96	143
N: 42		-3	2.46	12
E[Load]:	202.6	Parameter Estimates		
SD[Load]:	203	from LN regression		
CV[Load]:	1.00	update graph label		

N: 42

max r2
0.978

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
24-Mar-94	**20**	1	0.0148	-2.176	3.001	0.978
24-Mar-94	**28**	2	0.0385	-1.769	3.324	0.976
15-Aug-94	**40**	3	0.0621	-1.537	3.680	0.976
4-Oct-91	**40**	4	0.0858	-1.367	3.695	0.974
13-Sep-95	**56**	5	0.1095	-1.229	4.027	0.973
15-Aug-94	**63**	6	0.1331	-1.112	4.146	0.971
14-Aug-95	**78**	7	0.1568	-1.008	4.356	0.969
20-Jul-94	**84**	8	0.1805	-0.914	4.435	0.969
25-Jul-95	**87**	9	0.2041	-0.827	4.470	0.970
18-Feb-94	**93**	10	0.2278	-0.746	4.535	0.971
2-Dec-93	**94**	11	0.2515	-0.670	4.540	0.973
11-Jul-95	**94**	12	0.2751	-0.597	4.547	0.973
20-Jul-94	**94**	13	0.2988	-0.528	4.548	0.973
28-Oct-93	**99**	14	0.3225	-0.461	4.598	0.972
4-Oct-94	**99**	15	0.3462	-0.396	4.600	0.970
16-Dec-93	**103**	16	0.3698	-0.332	4.636	0.968
16-Dec-93	**103**	17	0.3935	-0.270	4.639	0.965
27-Jun-95	**104**	18	0.4172	-0.209	4.641	0.963
24-Jan-94	**116**	19	0.4408	-0.149	4.757	0.961
24-Jan-94	**121**	20	0.4645	-0.089	4.793	0.958
12-Jun-95	**122**	21	0.4882	-0.030	4.804	0.954
8-Sep-94	**129**	22	0.5118	0.030	4.857	0.953
23-Jun-94	**152**	23	0.5355	0.089	5.023	0.952
8-Mar-94	**165**	24	0.5592	0.149	5.104	0.948
11-Nov-97	**177**	25	0.5828	0.209	5.179	0.943
10-Jan-95	**191**	26	0.6065	0.270	5.252	0.937
15-Nov-94	**205**	27	0.6302	0.332	5.325	0.931
13-Dec-94	**206**	28	0.6538	0.396	5.328	0.927
7-Jun-94	**215**	29	0.6775	0.461	5.370	0.919
7-Apr-94	**229**	30	0.7012	0.528	5.433	0.910
19-May-94	**233**	31	0.7249	0.597	5.452	0.900
8-Mar-94	**255**	32	0.7485	0.670	5.543	0.886
23-May-95	**263**	33	0.7722	0.746	5.571	0.872
7-Mar-95	**290**	34	0.7959	0.827	5.671	0.852
4-May-94	**314**	35	0.8195	0.914	5.748	0.834
14-May-98	**359**	36	0.8432	1.008	5.883	0.820
9-Feb-95	**363**	37	0.8669	1.112	5.894	0.849
25-Apr-95	**375**	38	0.8905	1.229	5.926	0.878
9-May-95	**391**	39	0.9142	1.367	5.969	
16-May-91	**401**	40	0.9379	1.537	5.993	
13-Apr-95	**489**	41	0.9615	1.769	6.193	
22-Mar-95	**1068**	42	0.9852	2.176	6.974	

update for EV, CV:

dZn
LN Analysis

NM303
dZn

Concentration

Conc. Data, EV=4,040 ug/L CV=.40

Avg:	**4,040**
SD:	**1,617**
CV:	**0.40**
Min:	**400**
Max:	**8,680**
Median:	**4,025**

Data-based LN

u	ln[dZn]	[dZn]
3	9.4	11923
0	8.23	3751
-3	7.07	1180

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.747, EV=4591.9 ug/L CV=0.80; max r2=0.97**

		u	lnConc.	Conc.
r2 u,lnConc:	0.747			
slope, m:	1.415	3	10.30	29798
intercept, b:	-11.580	0	8.18	3577
N: 42		-3	6.06	429
E[Conc]:	4591.9	Parameter Estimates		
SD[Conc]:	3695	from LN regression		
CV[Conc]:	0.80	update graph label		

max r2
0.970

Date	dZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
		N: 42				
update and rank for new data						
24-Mar-94	400	1	0.0148	-2.176	5.991	0.747
24-Mar-94	400	2	0.0385	-1.769	5.991	0.750
16-May-91	1880	3	0.0621	-1.537	7.539	0.959
14-May-98	1890	4	0.0858	-1.367	7.544	0.958
23-May-95	2150	5	0.1095	-1.229	7.673	0.965
12-Jun-95	2510	6	0.1331	-1.112	7.828	0.970
19-May-94	2610	7	0.1568	-1.008	7.867	0.968
15-Aug-94	2750	8	0.1805	-0.914	7.919	0.967
15-Aug-94	2750	9	0.2041	-0.827	7.919	0.965
9-May-95	2780	10	0.2278	-0.746	7.930	0.965
27-Jun-95	3270	11	0.2515	-0.670	8.093	0.968
4-Oct-91	3340	12	0.2751	-0.597	8.114	0.966
7-Jun-94	3380	13	0.2988	-0.528	8.126	0.964
4-May-94	3390	14	0.3225	-0.461	8.129	0.961
11-Jul-95	3500	15	0.3462	-0.396	8.161	0.958
20-Jul-94	3620	16	0.3698	-0.332	8.194	0.955
20-Jul-94	3620	17	0.3935	-0.270	8.194	0.951
23-Jun-94	3690	18	0.4172	-0.209	8.213	0.947
13-Sep-95	3920	19	0.4408	-0.149	8.274	0.943
8-Mar-94	4000	20	0.4645	-0.089	8.294	0.940
8-Mar-94	4000	21	0.4882	-0.030	8.294	0.938
25-Jul-95	4050	22	0.5118	0.030	8.306	0.934
7-Apr-94	4120	23	0.5355	0.089	8.324	0.929
4-Oct-94	4330	24	0.5592	0.149	8.373	0.923
22-Mar-95	4430	25	0.5828	0.209	8.396	0.922
24-Jan-94	4460	26	0.6065	0.270	8.403	0.923
24-Jan-94	4460	27	0.6302	0.332	8.403	0.923
2-Dec-93	4490	28	0.6538	0.396	8.410	0.919
18-Feb-94	4610	29	0.6775	0.461	8.436	0.914
14-Aug-95	4660	30	0.7012	0.528	8.447	0.909
28-Oct-93	4910	31	0.7249	0.597	8.499	0.902
9-Feb-95	4990	32	0.7485	0.670	8.515	0.906
7-Mar-95	5060	33	0.7722	0.746	8.529	0.913
13-Apr-95	5110	34	0.7959	0.827	8.539	0.921
25-Apr-95	5150	35	0.8195	0.914	8.547	0.927
16-Dec-93	5280	36	0.8432	1.008	8.572	0.927
16-Dec-93	5280	37	0.8669	1.112	8.572	0.927
8-Sep-94	5600	38	0.8905	1.229	8.631	0.906
11-Nov-97	5610	39	0.9142	1.367	8.632	
10-Jan-95	6430	40	0.9379	1.537	8.769	
15-Nov-94	8120	41	0.9615	1.769	9.002	
13-Dec-94	8680	42	0.9852	2.176	9.069	

update for EV, CV:

dZn **NM303**

LN Analysis **dZn**

Discharge, Q **Q Data, EV=10 cfs CV=0.96**

Q Data-based LN

		u	lnQ	Q
Avg:	**10**	3	4.4	84
SD:	**10**	0	2.01	7
CV:	**0.96**	-3	-0.41	1
Min:	**2**			
Max:	**45**			
Median:	**6**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.938, EV=10.4 cfs CV=0.98; max r2=0.98**

r2 u,lnQ:	0.938	u	lnQ	Q
slope, m:	1.219	3	4.47	87
intercept, b:	-2.445	0	2.01	7
N: 42		-3	-0.46	1
E[Q]:	10.4	Parameter Estimates		
SD[Q]:	10	from LN regression		
CV[Q]:	0.98	update graph label		

N: 42

max r2 0.983

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	2.24	1	0.0148	-2.176	0.806	0.938
13-Sep-95	2.66	2	0.0385	-1.769	0.978	0.945
15-Aug-94	2.68	3	0.0621	-1.537	0.986	0.951
14-Aug-95	3.11	4	0.0858	-1.367	1.135	0.952
16-Dec-93	3.63	5	0.1095	-1.229	1.289	0.955
16-Dec-93	3.64	6	0.1331	-1.112	1.292	0.962
28-Oct-93	3.76	7	0.1568	-1.008	1.324	0.967
18-Feb-94	3.76	8	0.1805	-0.914	1.324	0.971
2-Dec-93	3.88	9	0.2041	-0.827	1.356	0.974
25-Jul-95	4.01	10	0.2278	-0.746	1.389	0.977
15-Aug-94	4.27	11	0.2515	-0.670	1.452	0.979
8-Sep-94	4.27	12	0.2751	-0.597	1.452	0.981
4-Oct-94	4.27	13	0.2988	-0.528	1.452	0.983
20-Jul-94	4.33	14	0.3225	-0.461	1.466	0.983
13-Dec-94	4.41	15	0.3462	-0.396	1.484	0.983
15-Nov-94	4.7	16	0.3698	-0.332	1.548	0.982
24-Jan-94	4.85	17	0.3935	-0.270	1.579	0.981
20-Jul-94	4.85	18	0.4172	-0.209	1.579	0.980
11-Jul-95	5.01	19	0.4408	-0.149	1.611	0.978
24-Jan-94	5.03	20	0.4645	-0.089	1.615	0.976
10-Jan-95	5.52	21	0.4882	-0.030	1.708	0.976
11-Nov-97	5.88	22	0.5118	0.030	1.772	0.975
27-Jun-95	5.89	23	0.5355	0.089	1.773	0.974
8-Mar-94	7.65	24	0.5592	0.149	2.035	0.979
23-Jun-94	7.65	25	0.5828	0.209	2.035	0.977
12-Jun-95	9.03	26	0.6065	0.270	2.201	0.975
24-Mar-94	9.34	27	0.6302	0.332	2.234	0.973
7-Apr-94	10.32	28	0.6538	0.396	2.334	0.969
7-Mar-95	10.67	29	0.6775	0.461	2.367	0.966
7-Jun-94	11.81	30	0.7012	0.528	2.469	0.962
8-Mar-94	11.87	31	0.7249	0.597	2.474	0.958
24-Mar-94	12.9	32	0.7485	0.670	2.557	0.952
9-Feb-95	13.52	33	0.7722	0.746	2.604	0.944
25-Apr-95	13.52	34	0.7959	0.827	2.604	0.933
19-May-94	16.61	35	0.8195	0.914	2.810	0.923
4-May-94	17.19	36	0.8432	1.008	2.844	0.905
13-Apr-95	17.8	37	0.8669	1.112	2.879	0.876
23-May-95	22.71	38	0.8905	1.229	3.123	0.873
9-May-95	26.15	39	0.9142	1.367	3.264	
14-May-98	35.3	40	0.9379	1.537	3.564	
16-May-91	39.6	41	0.9615	1.769	3.679	
22-Mar-95	44.83	42	0.9852	2.176	3.803	

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM303 **Date:** 3-Jun-00
Chemical: tCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,602	10	28	1	0.00	0.00	0.00	
SD:	419	10	9	1	1.00	1.00	1.00	
CV:	0.01	0.96	0.34	0.84				first:
Min:	33,374	2	8	0.3	-0.82	-2.15	-0.93	mid:
Max:	35,929	45	62	7	3.47	3.73	5.23	last:
Median:	34,561	6	28	1	-0.47	0.05	-0.31	

tCd NM303 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.225) update r2 0.23 0.225 r2: 0.009 0.023

r2 Q,[COC]:	0.23	[tCd]	Q	m:	0.0022	0.00028
slope, m:	-0.4	31	2.2	b:	-67	-7.56
intercept, b:	32.1	28	10.4			
N: 42		12	45			

first:

LnConc. = mLn{Q}+b (r2=0.313) update r2 0.31 0.313 mid:

						last:
r2 lnQ,ln[COC]:	0.31	ln[tCd]	ln Q	[tCd]	Q	
slope, m:	-0.26	3.57	0.81	36	2	
intercept, b:	3.78	3.17	2.34	24	10	
N: 42		2.78	3.80	16	45	

for graph
tCd 0
NM303

N= 42

update for new data	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	39.6	7.6	1.6	3.68	2.03	0.48	2.94	-2.15	0.29
MFG	4-Oct-91	2.24	23.2	0.3	0.81	3.14	-1.27	-0.82	-0.47	-0.93
IDEQ	28-Oct-93	3.76	30	0.6	1.32	3.40	-0.50	-0.66	0.27	-0.63
IDEQ	2-Dec-93	3.88	22	0.5	1.36	3.09	-0.78	-0.65	-0.60	-0.77
IDEQ	16-Dec-93	3.64	28	0.5	1.29	3.33	-0.60	-0.68	0.05	-0.69
IDEQ	16-Dec-93	3.63	28	0.5	1.29	3.33	-0.60	-0.68	0.05	-0.69
IDEQ	24-Jan-94	4.85	28	0.7	1.58	3.33	-0.31	-0.55	0.05	-0.52
IDEQ	24-Jan-94	5.03	28	0.8	1.62	3.33	-0.28	-0.54	0.05	-0.50
IDEQ	18-Feb-94	3.76	28	0.6	1.32	3.33	-0.57	-0.66	0.05	-0.67
IDEQ	8-Mar-94	7.65	33	1.4	2.03	3.50	0.31	-0.27	0.59	0.05
IDEQ	8-Mar-94	11.87	33	2.1	2.47	3.50	0.75	0.15	0.59	0.74
IDEQ	24-Mar-94	9.34	23	1.2	2.23	3.14	0.14	-0.10	-0.49	-0.13
IDEQ	24-Mar-94	12.9	23	1.6	2.56	3.14	0.47	0.26	-0.49	0.27
IDEQ	7-Apr-94	10.32	29	1.6	2.33	3.37	0.48	0.00	0.16	0.29
IDEQ	4-May-94	17.19	26	2.4	2.84	3.26	0.88	0.69	-0.16	1.01
IDEQ	19-May-94	16.61	18	1.6	2.81	2.89	0.48	0.63	-1.03	0.28
IDEQ	7-Jun-94	11.81	25	1.6	2.47	3.22	0.46	0.15	-0.27	0.27
IDEQ	23-Jun-94	7.65	24	1.0	2.03	3.18	-0.01	-0.27	-0.38	-0.29
IDEQ	20-Jul-94	4.85	28	0.7	1.58	3.33	-0.31	-0.55	0.05	-0.52
IDEQ	20-Jul-94	4.33	28	0.7	1.47	3.33	-0.43	-0.61	0.05	-0.59
IDEQ	15-Aug-94	4.27	27	0.6	1.45	3.30	-0.48	-0.61	-0.06	-0.62
IDEQ	15-Aug-94	2.68	27	0.4	0.99	3.30	-0.94	-0.77	-0.06	-0.83
IDEQ	8-Sep-94	4.27	34	0.8	1.45	3.53	-0.25	-0.61	0.70	-0.47
IDEQ	4-Oct-94	4.27	32	0.7	1.45	3.47	-0.31	-0.61	0.49	-0.52
IDEQ	15-Nov-94	4.7	62	1.6	1.55	4.13	0.45	-0.57	3.73	0.25
IDEQ	13-Dec-94	4.41	51	1.2	1.48	3.93	0.19	-0.60	2.54	-0.08
IDEQ	10-Jan-95	5.52	43	1.3	1.71	3.76	0.24	-0.49	1.67	-0.02
IDEQ	9-Feb-95	13.52	29	2.1	2.60	3.37	0.75	0.32	0.16	0.74
IDEQ	7-Mar-95	10.67	30	1.7	2.37	3.40	0.54	0.03	0.27	0.39
IDEQ	22-Mar-95	44.83	29	7.0	3.80	3.37	1.95	3.47	0.16	5.23
IDEQ	13-Apr-95	17.8	28	2.7	2.88	3.33	0.99	0.75	0.05	1.27
IDEQ	25-Apr-95	13.52	28	2.0	2.60	3.33	0.71	0.32	0.05	0.68
IDEQ	9-May-95	26.15	16	2.3	3.26	2.77	0.81	1.59	-1.24	0.87
IDEQ	23-May-95	22.71	14	1.7	3.12	2.64	0.54	1.24	-1.46	0.38
IDEQ	12-Jun-95	9.03	16	0.8	2.20	2.77	-0.25	-0.13	-1.24	-0.48
IDEQ	27-Jun-95	5.89	22	0.7	1.77	3.09	-0.36	-0.45	-0.60	-0.55
IDEQ	11-Jul-95	5.01	22	0.6	1.61	3.09	-0.52	-0.54	-0.60	-0.65
IDEQ	25-Jul-95	4.01	27	0.6	1.39	3.30	-0.54	-0.64	-0.06	-0.66
IDEQ	14-Aug-95	3.11	33	0.6	1.13	3.50	-0.59	-0.73	0.59	-0.68
IDEQ	13-Sep-95	2.66	33	0.5	0.98	3.50	-0.75	-0.77	0.59	-0.76
URS	11-Nov-97	5.88	29.5	0.9	1.77	3.38	-0.07	-0.45	0.21	-0.34
URS	14-May-98	35.3	10.2	1.9	3.56	2.32	0.66	2.51	-1.87	0.59

tCd

Concentration over time analysis r2 Slope, m

tCd NM303 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.003** **0.00005**

Time	Ln[COC]	[COC]
16-May-91	3.20	24
15-Aug-94	3.25	26
14-May-98	3.32	28

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

tCd NM303 **Load over time**

LnLoad=mTime+b All data r2, m: **0.045** **0.00032**

Time	LnLoad	Load
16-May-91	-0.36	1
15-Aug-94	0.02	1
14-May-98	0.47	2

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.521

Forward time Regression on Ln Concentration(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.003	0.00005	1.60
0.062	-0.00020	10.37
0.103	-0.00030	13.61
0.100	-0.00030	13.62
0.117	-0.00032	14.56
0.118	-0.00033	14.79
0.119	-0.00034	15.07
0.120	-0.00035	15.30
0.121	-0.00035	15.56
0.122	-0.00036	15.81
0.114	-0.00035	15.49
0.105	-0.00034	15.13
0.119	-0.00037	16.06
0.135	-0.00040	17.12
0.134	-0.00040	17.33
0.140	-0.00042	17.96
0.186	-0.00049	20.18
0.201	-0.00051	21.18
0.222	-0.00055	22.43
0.227	-0.00057	23.03
0.234	-0.00059	23.74
0.244	-0.00061	24.62
0.256	-0.00064	25.67
0.245	-0.00064	25.51
0.237	-0.00064	25.58
0.207	-0.00054	21.96
0.175	-0.00045	18.93
0.144	-0.00038	16.44
0.129	-0.00036	15.73
0.111	-0.00033	14.73
0.093	-0.00030	13.70
0.077	-0.00027	12.68
0.059	-0.00024	11.39
0.095	-0.00030	13.64
0.199	-0.00041	17.62
0.346	-0.00053	21.74
0.411	-0.00060	24.30
0.521	-0.00071	28.43

max r2: 0.862

Forward time Regression on Ln Load(t)

r2	slope	intercept
only on >4 data points: delete last 4 rows		
0.045	0.00032	-11.18
0.088	0.00051	-17.51
0.031	0.00032	-11.08
0.023	0.00028	-9.71
0.014	0.00022	-7.40
0.008	0.00016	-5.46
0.003	0.00010	-3.26
0.001	0.00006	-1.94
0.000	0.00002	-0.57
0.001	-0.00005	1.85
0.000	-0.00004	1.48
0.000	0.00002	-0.54
0.000	0.00002	-0.52
0.001	0.00006	-1.77
0.002	0.00010	-3.20
0.009	0.00019	-6.38
0.014	0.00024	-8.18
0.021	0.00029	-10.10
0.020	0.00029	-10.10
0.015	0.00025	-8.73
0.008	0.00019	-6.55
0.003	0.00012	-3.89
0.001	-0.00005	1.80
0.003	-0.00012	4.39
0.011	-0.00021	7.62
0.009	-0.00019	6.93
0.010	-0.00021	7.54
0.010	-0.00022	7.88
0.005	-0.00015	5.56
0.003	-0.00011	4.04
0.009	0.00016	-5.59
0.044	0.00032	-11.21
0.108	0.00046	-16.39
0.312	0.00067	-23.60
0.731	0.00087	-30.86
0.805	0.00094	-33.47
0.854	0.00101	-35.99
0.862	0.00106	-37.67

update for EV, CV:

tCd **NM303**

LN Analysis **tCd**

Load **Load Data, EV=1.3 lbs/day CV=0.839**

Load Data-based LN

Avg:	**1**	u	ln tCd Load	tCd Load
SD:	**1**	3	2.2	9
CV:	**0.84**	0	-0.01	1
Min:	**0.3**	-3	-2.20	0.1
Max:	**7**			
Median:	**1**			

1	1.3
0.84	0.839

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.953, EV=1.31lbs/day CV=0.765; max r2=0.95**

r2 u,lnLoad:	0.953	u	lnLoad	Load		
slope, m:	1.474	3	2.07	8		
intercept, b:	-0.054	0	0.04	1		
N: 42		-3	-2.00	0.1		
E[Load]:	1.3	Parameter Estimates			0.953	0.953
SD[Load]:	1	from LN regression			1.3	1.31
CV[Load]:	0.76	update graph label			0.8	0.765

						max r2
	tCd	N: 42				0.953
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	**0.3**	1	0.0148	-2.176	-1.274	0.953
15-Aug-94	**0.4**	2	0.0385	-1.769	-0.943	0.948
2-Dec-93	**0.5**	3	0.0621	-1.537	-0.778	0.947
13-Sep-95	**0.5**	4	0.0858	-1.367	-0.750	0.948
16-Dec-93	**0.5**	5	0.1095	-1.229	-0.604	0.947
16-Dec-93	**0.5**	6	0.1331	-1.112	-0.601	0.949
14-Aug-95	**0.6**	7	0.1568	-1.008	-0.594	0.949
18-Feb-94	**0.6**	8	0.1805	-0.914	-0.568	0.948
25-Jul-95	**0.6**	9	0.2041	-0.827	-0.540	0.945
11-Jul-95	**0.6**	10	0.2278	-0.746	-0.523	0.943
28-Oct-93	**0.6**	11	0.2515	-0.670	-0.499	0.939
15-Aug-94	**0.6**	12	0.2751	-0.597	-0.478	0.935
20-Jul-94	**0.7**	13	0.2988	-0.528	-0.427	0.930
27-Jun-95	**0.7**	14	0.3225	-0.461	-0.361	0.924
24-Jan-94	**0.7**	15	0.3462	-0.396	-0.314	0.919
20-Jul-94	**0.7**	16	0.3698	-0.332	-0.314	0.913
4-Oct-94	**0.7**	17	0.3935	-0.270	-0.308	0.905
24-Jan-94	**0.8**	18	0.4172	-0.209	-0.277	0.898
12-Jun-95	**0.8**	19	0.4408	-0.149	-0.252	0.890
8-Sep-94	**0.8**	20	0.4645	-0.089	-0.247	0.883
11-Nov-97	**0.9**	21	0.4882	-0.030	-0.069	0.879
23-Jun-94	**1.0**	22	0.5118	0.030	-0.012	0.868
24-Mar-94	**1.2**	23	0.5355	0.089	0.145	0.857
13-Dec-94	**1.2**	24	0.5592	0.149	0.191	0.844
10-Jan-95	**1.3**	25	0.5828	0.209	0.245	0.830
8-Mar-94	**1.4**	26	0.6065	0.270	0.306	0.816
15-Nov-94	**1.6**	27	0.6302	0.332	0.450	0.803
7-Jun-94	**1.6**	28	0.6538	0.396	0.463	0.808
24-Mar-94	**1.6**	29	0.6775	0.461	0.468	0.814
19-May-94	**1.6**	30	0.7012	0.528	0.475	0.818
7-Apr-94	**1.6**	31	0.7249	0.597	0.476	0.820
16-May-91	**1.6**	32	0.7485	0.670	0.482	0.817
23-May-95	**1.7**	33	0.7722	0.746	0.537	0.807
7-Mar-95	**1.7**	34	0.7959	0.827	0.544	0.801
14-May-98	**1.9**	35	0.8195	0.914	0.661	0.785
25-Apr-95	**2.0**	36	0.8432	1.008	0.711	0.795
8-Mar-94	**2.1**	37	0.8669	1.112	0.745	0.818
9-Feb-95	**2.1**	38	0.8905	1.229	0.746	0.854
9-May-95	**2.3**	39	0.9142	1.367	0.811	
4-May-94	**2.4**	40	0.9379	1.537	0.877	
13-Apr-95	**2.7**	41	0.9615	1.769	0.986	
22-Mar-95	**7.0**	42	0.9852	2.176	1.945	

update for EV, CV:

tCd		**NM303**	28	27.5
LN Analysis		**tCd**	0.34	0.336
Concentration		**Conc. Data, EV=27.5 ug/L CV=0.336**		
Avg:	**28**	**Data-based LN**		
SD:	**9**	u	ln[tCd]	[tCd]
CV:	**0.34**	3	4.2	70
Min:	**8**	0	3.26	26
Max:	**62**	-3	2.28	10
Median:	**28**			

			0.859	0.859
u=mLn{Conc.}+b:			28.1	28.1
update for r2, EV, CV: **r2=0.859, EV=28.1 ug/L CV=0.419; max r2=0.96**			0.419	0.419
r2 u,lnConc:	0.859	u	lnConc.	Conc.
slope, m:	2.486	3	4.46	87
intercept, b:	-8.093	0	3.26	26
N: 42		-3	2.05	8
E[Conc]:	28.1	Parameter Estimates		
SD[Conc]:	12	from LN regression		
CV[Conc]:	0.42	update graph label		

						max r2
	tCd	N: 42				0.961
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
16-May-91	7.6	1	0.0148	-2.176	2.028	0.859
14-May-98	10.2	2	0.0385	-1.769	2.322	0.871
23-May-95	14	3	0.0621	-1.537	2.639	0.888
9-May-95	16	4	0.0858	-1.367	2.773	0.885
12-Jun-95	16	5	0.1095	-1.229	2.773	0.877
19-May-94	18	6	0.1331	-1.112	2.890	0.875
2-Dec-93	22	7	0.1568	-1.008	3.091	0.868
27-Jun-95	22	8	0.1805	-0.914	3.091	0.863
11-Jul-95	22	9	0.2041	-0.827	3.091	0.855
24-Mar-94	23	10	0.2278	-0.746	3.135	0.846
24-Mar-94	23	11	0.2515	-0.670	3.135	0.838
4-Oct-91	23.2	12	0.2751	-0.597	3.144	0.828
23-Jun-94	24	13	0.2988	-0.528	3.178	0.818
7-Jun-94	25	14	0.3225	-0.461	3.219	0.808
4-May-94	26	15	0.3462	-0.396	3.258	0.801
15-Aug-94	27	16	0.3698	-0.332	3.296	0.800
15-Aug-94	27	17	0.3935	-0.270	3.296	0.806
25-Jul-95	27	18	0.4172	-0.209	3.296	0.811
16-Dec-93	28	19	0.4408	-0.149	3.332	0.814
16-Dec-93	28	20	0.4645	-0.089	3.332	0.826
24-Jan-94	28	21	0.4882	-0.030	3.332	0.838
24-Jan-94	28	22	0.5118	0.030	3.332	0.849
18-Feb-94	28	23	0.5355	0.089	3.332	0.859
20-Jul-94	28	24	0.5592	0.149	3.332	0.868
20-Jul-94	28	25	0.5828	0.209	3.332	0.876
13-Apr-95	28	26	0.6065	0.270	3.332	0.882
25-Apr-95	28	27	0.6302	0.332	3.332	0.885
7-Apr-94	29	28	0.6538	0.396	3.367	0.886
9-Feb-95	29	29	0.6775	0.461	3.367	0.894
22-Mar-95	29	30	0.7012	0.528	3.367	0.899
11-Nov-97	29.5	31	0.7249	0.597	3.384	0.901
28-Oct-93	30	32	0.7485	0.670	3.401	0.903
7-Mar-95	30	33	0.7722	0.746	3.401	0.905
4-Oct-94	32	34	0.7959	0.827	3.466	0.899
8-Mar-94	33	35	0.8195	0.914	3.497	0.912
8-Mar-94	33	36	0.8432	1.008	3.497	0.937
14-Aug-95	33	37	0.8669	1.112	3.497	0.956
13-Sep-95	33	38	0.8905	1.229	3.497	0.961
8-Sep-94	34	39	0.9142	1.367	3.526	
10-Jan-95	43	40	0.9379	1.537	3.761	
13-Dec-94	51	41	0.9615	1.769	3.932	
15-Nov-94	62	42	0.9852	2.176	4.127	

update for EV, CV:

tCd		**NM303**			10	10.4
LN Analysis		**tCd**			0.96	0.959
Discharge, Q		**Q Data, EV=10.4 cfs CV=0.959**				
Avg:	**10**	**Q Data-based LN**				
SD:	**10**	u	lnQ	Q		
CV:	**0.96**	3	4.4	84		
Min:	**2**	0	2.01	7		
Max:	**45**	-3	-0.41	1		
Median:	**6**					

					0.938	0.938
					10.4	10.4
u=mLn{Q}+b:					0.98	0.98
update for r2, EV, CV:	**r2=0.938, EV=10.4 cfs CV=0.98; max r2=0.98**					
r2 u,lnQ:	0.938	u	lnQ	Q		
slope, m:	1.219	3	4.47	87		
intercept, b:	-2.445	0	2.01	7		
N:	42	-3	-0.46	1		
E[Q]:	10.4	Parameter Estimates				
SD[Q]:	10	from LN regression				
CV[Q]:	0.98	update graph label				

						max r2
	Q	N: 42				0.983
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	2.24	1	0.0148	-2.176	0.806	0.938
13-Sep-95	2.66	2	0.0385	-1.769	0.978	0.945
15-Aug-94	2.68	3	0.0621	-1.537	0.986	0.951
14-Aug-95	3.11	4	0.0858	-1.367	1.135	0.952
16-Dec-93	3.63	5	0.1095	-1.229	1.289	0.955
16-Dec-93	3.64	6	0.1331	-1.112	1.292	0.962
28-Oct-93	3.76	7	0.1568	-1.008	1.324	0.967
18-Feb-94	3.76	8	0.1805	-0.914	1.324	0.971
2-Dec-93	3.88	9	0.2041	-0.827	1.356	0.974
25-Jul-95	4.01	10	0.2278	-0.746	1.389	0.977
15-Aug-94	4.27	11	0.2515	-0.670	1.452	0.979
8-Sep-94	4.27	12	0.2751	-0.597	1.452	0.981
4-Oct-94	4.27	13	0.2988	-0.528	1.452	0.983
20-Jul-94	4.33	14	0.3225	-0.461	1.466	0.983
13-Dec-94	4.41	15	0.3462	-0.396	1.484	0.983
15-Nov-94	4.7	16	0.3698	-0.332	1.548	0.982
24-Jan-94	4.85	17	0.3935	-0.270	1.579	0.981
20-Jul-94	4.85	18	0.4172	-0.209	1.579	0.980
11-Jul-95	5.01	19	0.4408	-0.149	1.611	0.978
24-Jan-94	5.03	20	0.4645	-0.089	1.615	0.976
10-Jan-95	5.52	21	0.4882	-0.030	1.708	0.976
11-Nov-97	5.88	22	0.5118	0.030	1.772	0.975
27-Jun-95	5.89	23	0.5355	0.089	1.773	0.974
8-Mar-94	7.65	24	0.5592	0.149	2.035	0.979
23-Jun-94	7.65	25	0.5828	0.209	2.035	0.977
12-Jun-95	9.03	26	0.6065	0.270	2.201	0.975
24-Mar-94	9.34	27	0.6302	0.332	2.234	0.973
7-Apr-94	10.32	28	0.6538	0.396	2.334	0.969
7-Mar-95	10.67	29	0.6775	0.461	2.367	0.966
7-Jun-94	11.81	30	0.7012	0.528	2.469	0.962
8-Mar-94	11.87	31	0.7249	0.597	2.474	0.958
24-Mar-94	12.9	32	0.7485	0.670	2.557	0.952
9-Feb-95	13.52	33	0.7722	0.746	2.604	0.944
25-Apr-95	13.52	34	0.7959	0.827	2.604	0.933
19-May-94	16.61	35	0.8195	0.914	2.810	0.923
4-May-94	17.19	36	0.8432	1.008	2.844	0.905
13-Apr-95	17.8	37	0.8669	1.112	2.879	0.876
23-May-95	22.71	38	0.8905	1.229	3.123	0.873
9-May-95	26.15	39	0.9142	1.367	3.264	
14-May-98	35.3	40	0.9379	1.537	3.564	
16-May-91	39.6	41	0.9615	1.769	3.679	
22-Mar-95	44.83	42	0.9852	2.176	3.803	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NM303	**Date:**	13-Jun-00
Chemical:	tPb	**Analyst:**	J.MacLachlan

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	34,602	10	99	5	0.00	0.00	0.00
SD:	419	10	44	5	1.00	1.00	1.00
CV:	0.01	0.96	0.45	1.00			
Min:	33,374	2	41	0.7	-0.82	-1.31	-0.85
Max:	35,929	45	275	30	3.47	3.96	4.74
Median:	34,561	6	88	4	-0.47	-0.25	-0.31

tPb **NM303** **: Concentration v. Discharge, Q**

Conc. = mQ+b (r2=0.0145) update r2 0.01 0.0145

r2 Q,[COC]:	0.01	[tPb]	Q	
slope, m:	-0.5	103	2.2	
intercept, b:	104.7	99	10.4	
N: 42		81	45	

LnConc. = mLn{Q}+b (r2=0.00563) update r2 0.01 0.00563

r2 lnQ,ln[COC]:	0.01	ln[tPb]	ln Q	[tPb]	Q
slope, m:	-0.04	4.56	0.81	96	2
intercept, b:	4.59	4.50	2.34	90	10
N: 42		4.45	3.80	85	45

Q = mTime +b		**LnQ = mTime +b**
r2:	0.009	0.023
m:	0.0022	0.00028
b:	-67	-7.56

for graph
tPb 0
NM303

N= 42

update for new data	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	**Standardized Values = (x - Avg)/SD** Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	39.6	41	8.7	3.68	3.71	2.17	2.94	-1.31	0.66
MFG	4-Oct-91	2.24	62	0.7	0.81	4.13	-0.29	-0.82	-0.84	-0.85
IDEQ	28-Oct-93	3.76	44	0.9	1.32	3.78	-0.12	-0.66	-1.24	-0.83
IDEQ	2-Dec-93	3.88	55	1.1	1.36	4.01	0.14	-0.65	-0.99	-0.78
IDEQ	16-Dec-93	3.64	81	1.6	1.29	4.39	0.46	-0.68	-0.41	-0.69
IDEQ	16-Dec-93	3.63	81	1.6	1.29	4.39	0.46	-0.68	-0.41	-0.70
IDEQ	24-Jan-94	4.85	88	2.3	1.58	4.48	0.83	-0.55	-0.25	-0.56
IDEQ	24-Jan-94	5.03	88	2.4	1.62	4.48	0.87	-0.54	-0.25	-0.54
IDEQ	18-Feb-94	3.76	120	2.4	1.32	4.79	0.89	-0.66	0.47	-0.53
IDEQ	8-Mar-94	7.65	81	3.3	2.03	4.39	1.20	-0.27	-0.41	-0.36
IDEQ	8-Mar-94	11.87	81	5.2	2.47	4.39	1.64	0.15	-0.41	-0.01
IDEQ	24-Mar-94	9.34	97	4.9	2.23	4.57	1.58	-0.10	-0.05	-0.07
IDEQ	24-Mar-94	12.9	97	6.7	2.56	4.57	1.91	0.26	-0.05	0.28
IDEQ	7-Apr-94	10.32	96	5.3	2.33	4.56	1.67	0.00	-0.07	0.02
IDEQ	4-May-94	17.19	75	6.9	2.84	4.32	1.94	0.69	-0.54	0.32
IDEQ	19-May-94	16.61	67	6.0	2.81	4.20	1.79	0.63	-0.72	0.14
IDEQ	7-Jun-94	11.81	78	5.0	2.47	4.36	1.60	0.15	-0.48	-0.05
IDEQ	23-Jun-94	7.65	92	3.8	2.03	4.52	1.33	-0.27	-0.16	-0.28
IDEQ	20-Jul-94	4.85	72	1.9	1.58	4.28	0.63	-0.55	-0.61	-0.64
IDEQ	20-Jul-94	4.33	72	1.7	1.47	4.28	0.52	-0.61	-0.61	-0.68
IDEQ	15-Aug-94	4.27	67	1.5	1.45	4.20	0.43	-0.61	-0.72	-0.70
IDEQ	15-Aug-94	2.68	67	1.0	0.99	4.20	-0.03	-0.77	-0.72	-0.81
IDEQ	8-Sep-94	4.27	62	1.4	1.45	4.13	0.35	-0.61	-0.84	-0.73
IDEQ	4-Oct-94	4.27	79	1.8	1.45	4.37	0.60	-0.61	-0.45	-0.65
IDEQ	15-Nov-94	4.7	186	4.7	1.55	5.23	1.55	-0.57	1.96	-0.10
IDEQ	13-Dec-94	4.41	139	3.3	1.48	4.93	1.19	-0.60	0.90	-0.37
IDEQ	10-Jan-95	5.52	275	8.2	1.71	5.62	2.10	-0.49	3.96	0.56
IDEQ	9-Feb-95	13.52	113	8.2	2.60	4.73	2.11	0.32	0.31	0.57
IDEQ	7-Mar-95	10.67	204	11.7	2.37	5.32	2.46	0.03	2.36	1.23
IDEQ	22-Mar-95	44.83	125	30.1	3.80	4.83	3.41	3.47	0.58	4.74
IDEQ	13-Apr-95	17.8	107	10.2	2.88	4.67	2.33	0.75	0.18	0.95
IDEQ	25-Apr-95	13.52	87	6.3	2.60	4.47	1.85	0.32	-0.27	0.21
IDEQ	9-May-95	26.15	122	17.2	3.26	4.80	2.84	1.59	0.52	2.27
IDEQ	23-May-95	22.71	96	11.7	3.12	4.56	2.46	1.24	-0.07	1.23
IDEQ	12-Jun-95	9.03	102	5.0	2.20	4.62	1.60	-0.13	0.06	-0.05
IDEQ	27-Jun-95	5.89	121	3.8	1.77	4.80	1.34	-0.45	0.49	-0.27
IDEQ	11-Jul-95	5.01	127	3.4	1.61	4.84	1.23	-0.54	0.63	-0.35
IDEQ	25-Jul-95	4.01	142	3.1	1.39	4.96	1.12	-0.64	0.97	-0.41

tPb

Concentration over time analysis r2 Slope, m

tPb NM303 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.059** **0.00023**

	Time	Ln[COC]	[COC]
first:	16-May-91	4.23	69
mid:	15-Aug-94	4.50	90
last:	14-May-98	4.82	124

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

tPb NM303 **Load over time**

LnLoad=mTime+b All data r2, m: **0.064** **0.00051**

	Time	LnLoad	Load
first:	16-May-91	0.67	2
mid:	15-Aug-94	1.27	4
last:	14-May-98	1.97	7

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.958 max r2: 0.300

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.059	0.00023	-3.41	0.064	0.00051	-16.19
0.014	0.00012	0.49	0.139	0.00083	-27.39
0.002	0.00005	2.91	0.077	0.00067	-21.78
0.000	-0.00002	5.27	0.057	0.00056	-18.06
0.004	-0.00007	7.01	0.042	0.00047	-14.95
0.007	-0.00009	7.66	0.031	0.00040	-12.59
0.010	-0.00011	8.41	0.021	0.00033	-9.92
0.013	-0.00012	8.88	0.015	0.00028	-8.36
0.015	-0.00014	9.41	0.010	0.00024	-6.72
0.012	-0.00012	8.92	0.006	0.00019	-5.03
0.017	-0.00015	9.72	0.005	0.00017	-4.29
0.022	-0.00017	10.63	0.006	0.00019	-5.04
0.024	-0.00018	10.95	0.007	0.00020	-5.63
0.026	-0.00019	11.31	0.011	0.00026	-7.59
0.028	-0.00021	11.74	0.014	0.00029	-8.79
0.040	-0.00025	13.20	0.020	0.00036	-11.13
0.061	-0.00031	15.28	0.026	0.00042	-13.09
0.079	-0.00035	16.89	0.029	0.00045	-14.39
0.089	-0.00038	17.93	0.029	0.00046	-14.60
0.120	-0.00044	20.09	0.019	0.00038	-11.67
0.162	-0.00051	22.64	0.010	0.00026	-7.65
0.227	-0.00060	25.72	0.002	0.00012	-2.79
0.321	-0.00071	29.43	0.002	-0.00011	5.56
0.481	-0.00084	33.95	0.018	-0.00032	12.82
0.610	-0.00094	37.54	0.050	-0.00051	19.59
0.594	-0.00091	36.55	0.059	-0.00056	21.52
0.590	-0.00092	36.87	0.084	-0.00068	25.48
0.657	-0.00082	33.44	0.078	-0.00066	24.88
0.671	-0.00085	34.26	0.071	-0.00064	24.09
0.725	-0.00078	31.92	0.055	-0.00056	21.24
0.716	-0.00078	31.85	0.025	-0.00031	12.56
0.729	-0.00080	32.57	0.011	-0.00020	8.68
0.823	-0.00086	34.70	0.006	-0.00015	6.92
0.819	-0.00086	34.96	0.004	0.00010	-2.28
0.887	-0.00092	37.10	0.084	0.00036	-11.39
0.943	-0.00099	39.28	0.160	0.00049	-15.93
0.954	-0.00102	40.49	0.225	0.00059	-19.80
0.958	-0.00105	41.62	0.300	0.00072	-24.48

update for EV, CV:

tPb **NM303**

LN Analysis **tPb**

Load **Load Data, EV=5.24 lbs/day CV=1**

Load Data-based LN

Avg:	**5**	u	ln tPb Load	tPb Load
SD:	**5**	3	3.8	45
CV:	**1.00**	0	1.31	4
Min:	**0.7**	-3	-1.20	0.3
Max:	**30**			
Median:	**4**			

5 5.24
1.00 1

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.986, EV=5.34lbs/day CV=1.07; max r2=0.99**

r2 u,lnLoad:	0.986	u	lnLoad	Load		
slope, m:	1.148	3	3.91	50		
intercept, b:	-1.486	0	1.30	4		
N: 42		-3	-1.32	0.3		
E[Load]:	5.3	Parameter Estimates			0.986	0.986
SD[Load]:	6	from LN regression			5.3	5.34
CV[Load]:	1.07	update graph label			1.1	1.07
					max r2	
					0.989	

	tPb	N: 42				
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	**0.7**	1	0.0148	-2.176	-0.291	0.986
28-Oct-93	**0.9**	2	0.0385	-1.769	-0.116	0.988
15-Aug-94	**1.0**	3	0.0621	-1.537	-0.035	0.988
2-Dec-93	**1.1**	4	0.0858	-1.367	0.138	0.987
8-Sep-94	**1.4**	5	0.1095	-1.229	0.354	0.987
15-Aug-94	**1.5**	6	0.1331	-1.112	0.431	0.988
16-Dec-93	**1.6**	7	0.1568	-1.008	0.459	0.989
16-Dec-93	**1.6**	8	0.1805	-0.914	0.461	0.989
13-Sep-95	**1.6**	9	0.2041	-0.827	0.472	0.988
20-Jul-94	**1.7**	10	0.2278	-0.746	0.517	0.987
4-Oct-94	**1.8**	11	0.2515	-0.670	0.596	0.986
20-Jul-94	**1.9**	12	0.2751	-0.597	0.631	0.985
11-Nov-97	**1.9**	13	0.2988	-0.528	0.644	0.985
24-Jan-94	**2.3**	14	0.3225	-0.461	0.831	0.985
24-Jan-94	**2.4**	15	0.3462	-0.396	0.868	0.984
18-Feb-94	**2.4**	16	0.3698	-0.332	0.887	0.983
14-Aug-95	**2.6**	17	0.3935	-0.270	0.959	0.983
25-Jul-95	**3.1**	18	0.4172	-0.209	1.120	0.983
13-Dec-94	**3.3**	19	0.4408	-0.149	1.193	0.981
8-Mar-94	**3.3**	20	0.4645	-0.089	1.204	0.980
11-Jul-95	**3.4**	21	0.4882	-0.030	1.231	0.978
23-Jun-94	**3.8**	22	0.5118	0.030	1.331	0.976
27-Jun-95	**3.8**	23	0.5355	0.089	1.344	0.974
15-Nov-94	**4.7**	24	0.5592	0.149	1.548	0.971
24-Mar-94	**4.9**	25	0.5828	0.209	1.584	0.972
12-Jun-95	**5.0**	26	0.6065	0.270	1.600	0.972
7-Jun-94	**5.0**	27	0.6302	0.332	1.601	0.972
8-Mar-94	**5.2**	28	0.6538	0.396	1.643	0.969
7-Apr-94	**5.3**	29	0.6775	0.461	1.673	0.965
19-May-94	**6.0**	30	0.7012	0.528	1.790	0.961
25-Apr-95	**6.3**	31	0.7249	0.597	1.845	0.957
24-Mar-94	**6.7**	32	0.7485	0.670	1.907	0.954
4-May-94	**6.9**	33	0.7722	0.746	1.937	0.950
10-Jan-95	**8.2**	34	0.7959	0.827	2.100	0.943
9-Feb-95	**8.2**	35	0.8195	0.914	2.106	0.954
16-May-91	**8.7**	36	0.8432	1.008	2.167	0.958
14-May-98	**8.8**	37	0.8669	1.112	2.170	0.965
13-Apr-95	**10.2**	38	0.8905	1.229	2.327	0.956

update for EV, CV:

tPb		**NM303**		99	99.1
LN Analysis		**tPb**		0.45	0.448
Concentration		**Conc. Data, EV=99.1 ug/L CV=0.448**			
Avg:	**99**	**Data-based LN**			
SD:	**44**	u	ln[tPb]	[tPb]	
CV:	**0.45**	3	5.8	326	
Min:	**41**	0	4.51	90	
Max:	**275**	-3	3.22	25	
Median:	**88**				

				0.980	0.98
u=mLn{Conc.}+b:				99.4	99.4
update for r2, EV, CV: **r2=0.98, EV=99.4 ug/L CV=0.43; max r2=0.99**				0.430	0.43
r2 u,lnConc:	0.980	u	lnConc.	Conc.	
slope, m:	2.428	3	5.75	314	
intercept, b:	-10.961	0	4.51	91	
N: 42		-3	3.28	27	
E[Conc]:	99.4	Parameter Estimates			
SD[Conc]:	43	from LN regression			
CV[Conc]:	0.43	update graph label			

						max r2
	tPb	N: 42				0.990
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
16-May-91	41	1	0.0148	-2.176	3.714	0.980
28-Oct-93	44	2	0.0385	-1.769	3.784	0.978
14-May-98	46.1	3	0.0621	-1.537	3.831	0.976
2-Dec-93	55	4	0.0858	-1.367	4.007	0.974
11-Nov-97	60.2	5	0.1095	-1.229	4.098	0.973
4-Oct-91	62	6	0.1331	-1.112	4.127	0.973
8-Sep-94	62	7	0.1568	-1.008	4.127	0.973
19-May-94	67	8	0.1805	-0.914	4.205	0.972
15-Aug-94	67	9	0.2041	-0.827	4.205	0.973
15-Aug-94	67	10	0.2278	-0.746	4.205	0.972
20-Jul-94	72	11	0.2515	-0.670	4.277	0.971
20-Jul-94	72	12	0.2751	-0.597	4.277	0.971
4-May-94	75	13	0.2988	-0.528	4.317	0.970
7-Jun-94	78	14	0.3225	-0.461	4.357	0.971
4-Oct-94	79	15	0.3462	-0.396	4.369	0.972
16-Dec-93	81	16	0.3698	-0.332	4.394	0.973
16-Dec-93	81	17	0.3935	-0.270	4.394	0.975
8-Mar-94	81	18	0.4172	-0.209	4.394	0.975
8-Mar-94	81	19	0.4408	-0.149	4.394	0.974
25-Apr-95	87	20	0.4645	-0.089	4.466	0.972
24-Jan-94	88	21	0.4882	-0.030	4.477	0.972
24-Jan-94	88	22	0.5118	0.030	4.477	0.972
23-Jun-94	92	23	0.5355	0.089	4.522	0.970
7-Apr-94	96	24	0.5592	0.149	4.564	0.970
23-May-95	96	25	0.5828	0.209	4.564	0.972
24-Mar-94	97	26	0.6065	0.270	4.575	0.971
24-Mar-94	97	27	0.6302	0.332	4.575	0.970
12-Jun-95	102	28	0.6538	0.396	4.625	0.967
13-Apr-95	107	29	0.6775	0.461	4.673	0.964
13-Sep-95	112	30	0.7012	0.528	4.718	0.963
9-Feb-95	113	31	0.7249	0.597	4.727	0.966
18-Feb-94	120	32	0.7485	0.670	4.787	0.967
27-Jun-95	121	33	0.7722	0.746	4.796	0.977
9-May-95	122	34	0.7959	0.827	4.804	0.984
22-Mar-95	125	35	0.8195	0.914	4.828	0.988
11-Jul-95	127	36	0.8432	1.008	4.844	0.990
13-Dec-94	139	37	0.8669	1.112	4.934	0.987
25-Jul-95	142	38	0.8905	1.229	4.956	0.989

update for EV, CV:

tPb		**NM303**			10	10.4
LN Analysis		**tPb**			0.96	0.959
Discharge, Q		**Q Data, EV=10.4 cfs CV=0.959**				
Avg:	**10**	**Q Data-based LN**				
SD:	**10**	u	lnQ	Q		
CV:	**0.96**	3	4.4	84		
Min:	**2**	0	2.01	7		
Max:	**45**	-3	-0.41	1		
Median:	**6**					

					0.938	0.938
					10.4	10.4
u=mLn{Q}+b:					0.98	0.98
update for r2, EV, CV:	**r2=0.938, EV=10.4 cfs CV=0.98; max r2=0.98**					
r2 u,lnQ:	0.938	u	lnQ	Q		
slope, m:	1.219	3	4.47	87		
intercept, b:	-2.445	0	2.01	7		
N:	42	-3	-0.46	1		
E[Q]:	10.4	Parameter Estimates				
SD[Q]:	10	from LN regression				
CV[Q]:	0.98	update graph label				

						max r2
	Q	N: 42				0.983
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	2.24	1	0.0148	-2.176	0.806	0.938
13-Sep-95	2.66	2	0.0385	-1.769	0.978	0.945
15-Aug-94	2.68	3	0.0621	-1.537	0.986	0.951
14-Aug-95	3.11	4	0.0858	-1.367	1.135	0.952
16-Dec-93	3.63	5	0.1095	-1.229	1.289	0.955
16-Dec-93	3.64	6	0.1331	-1.112	1.292	0.962
28-Oct-93	3.76	7	0.1568	-1.008	1.324	0.967
18-Feb-94	3.76	8	0.1805	-0.914	1.324	0.971
2-Dec-93	3.88	9	0.2041	-0.827	1.356	0.974
25-Jul-95	4.01	10	0.2278	-0.746	1.389	0.977
15-Aug-94	4.27	11	0.2515	-0.670	1.452	0.979
8-Sep-94	4.27	12	0.2751	-0.597	1.452	0.981
4-Oct-94	4.27	13	0.2988	-0.528	1.452	0.983
20-Jul-94	4.33	14	0.3225	-0.461	1.466	0.983
13-Dec-94	4.41	15	0.3462	-0.396	1.484	0.983
15-Nov-94	4.7	16	0.3698	-0.332	1.548	0.982
24-Jan-94	4.85	17	0.3935	-0.270	1.579	0.981
20-Jul-94	4.85	18	0.4172	-0.209	1.579	0.980
11-Jul-95	5.01	19	0.4408	-0.149	1.611	0.978
24-Jan-94	5.03	20	0.4645	-0.089	1.615	0.976
10-Jan-95	5.52	21	0.4882	-0.030	1.708	0.976
11-Nov-97	5.88	22	0.5118	0.030	1.772	0.975
27-Jun-95	5.89	23	0.5355	0.089	1.773	0.974
8-Mar-94	7.65	24	0.5592	0.149	2.035	0.979
23-Jun-94	7.65	25	0.5828	0.209	2.035	0.977
12-Jun-95	9.03	26	0.6065	0.270	2.201	0.975
24-Mar-94	9.34	27	0.6302	0.332	2.234	0.973
7-Apr-94	10.32	28	0.6538	0.396	2.334	0.969
7-Mar-95	10.67	29	0.6775	0.461	2.367	0.966
7-Jun-94	11.81	30	0.7012	0.528	2.469	0.962
8-Mar-94	11.87	31	0.7249	0.597	2.474	0.958
24-Mar-94	12.9	32	0.7485	0.670	2.557	0.952
9-Feb-95	13.52	33	0.7722	0.746	2.604	0.944
25-Apr-95	13.52	34	0.7959	0.827	2.604	0.933
19-May-94	16.61	35	0.8195	0.914	2.810	0.923
4-May-94	17.19	36	0.8432	1.008	2.844	0.905
13-Apr-95	17.8	37	0.8669	1.112	2.879	0.876
23-May-95	22.71	38	0.8905	1.229	3.123	0.873

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM303 **Date:** 3-Jun-00
Chemical: tZn **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,602	10	4,209	206	0.00	0.00	0.00	
SD:	419	10	1,344	180	1.00	1.00	1.00	
CV:	0.01	0.96	0.32	0.87				first:
Min:	33,374	2	1,850	43.4	-0.82	-1.76	-0.90	mid:
Max:	35,929	45	8,470	1,107	3.47	3.17	5.01	last:
Median:	34,561	6	4,030	157	-0.47	-0.13	-0.27	

tZn NM303 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.158)		update r2	0.16	0.158				
r2 Q,[COC]:	0.16	[tZn]	Q					
slope, m:	-53.7	4,645	2.2					
intercept, b:	4765.0	4,209	10.4					
N: 42		2,358	45					first:
LnConc. = mLn{Q}+b (r2=0.213)		update r2		0.21	0.213			mid:
r2 lnQ,ln[COC]:	0.21	ln[tZn]	ln Q	[tZn]	Q			last:
slope, m:	-0.19	8.53	0.81	5,049	2			
intercept, b:	8.68	8.23	2.34	3,753	10			
N: 42		7.95	3.80	2,826	45			

Q = mTime +b

r2:	0.009	0.023
m:	0.0022	0.00028
b:	-67	-7.56

LnQ = mTime +b

	for graph
tZn	0
NM303	

N= 42

	Sampling Date	Q Discharge cfs	tZn Concentration ug/L	tZn Load lbs/day	Ln Q	Ln tZn Conc.	Ln tZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	39.6	1850	394	3.68	7.52	5.98	2.94	-1.76	1.05
MFG	4-Oct-91	2.24	3600	43	0.81	8.19	3.77	-0.82	-0.45	-0.90
IDEQ	28-Oct-93	3.76	4780	97	1.32	8.47	4.57	-0.66	0.43	-0.61
IDEQ	2-Dec-93	3.88	4560	95	1.36	8.43	4.56	-0.65	0.26	-0.62
IDEQ	16-Dec-93	3.64	5290	104	1.29	8.57	4.64	-0.68	0.80	-0.57
IDEQ	16-Dec-93	3.63	5290	103	1.29	8.57	4.64	-0.68	0.80	-0.57
IDEQ	24-Jan-94	4.85	4370	114	1.58	8.38	4.74	-0.55	0.12	-0.51
IDEQ	24-Jan-94	5.03	4370	118	1.62	8.38	4.77	-0.54	0.12	-0.49
IDEQ	18-Feb-94	3.76	4450	90	1.32	8.40	4.50	-0.66	0.18	-0.65
IDEQ	8-Mar-94	7.65	4030	166	2.03	8.30	5.11	-0.27	-0.13	-0.22
IDEQ	8-Mar-94	11.87	4030	257	2.47	8.30	5.55	0.15	-0.13	0.29
IDEQ	24-Mar-94	9.34	3890	195	2.23	8.27	5.28	-0.10	-0.24	-0.06
IDEQ	24-Mar-94	12.9	3890	270	2.56	8.27	5.60	0.26	-0.24	0.36
IDEQ	7-Apr-94	10.32	4030	224	2.33	8.30	5.41	0.00	-0.13	0.10
IDEQ	4-May-94	17.19	3360	311	2.84	8.12	5.74	0.69	-0.63	0.58
IDEQ	19-May-94	16.61	2490	223	2.81	7.82	5.40	0.63	-1.28	0.09
IDEQ	7-Jun-94	11.81	3260	207	2.47	8.09	5.33	0.15	-0.71	0.01
IDEQ	23-Jun-94	7.65	3590	148	2.03	8.19	5.00	-0.27	-0.46	-0.32
IDEQ	20-Jul-94	4.85	3560	93	1.58	8.18	4.53	-0.55	-0.48	-0.63
IDEQ	20-Jul-94	4.33	3560	83	1.47	8.18	4.42	-0.61	-0.48	-0.68
IDEQ	15-Aug-94	4.27	3240	74	1.45	8.08	4.31	-0.61	-0.72	-0.73
IDEQ	15-Aug-94	2.68	3240	47	0.99	8.08	3.84	-0.77	-0.72	-0.89
IDEQ	8-Sep-94	4.27	5490	126	1.45	8.61	4.84	-0.61	0.95	-0.44
IDEQ	4-Oct-94	4.27	4330	99	1.45	8.37	4.60	-0.61	0.09	-0.59
IDEQ	15-Nov-94	4.7	7910	200	1.55	8.98	5.30	-0.57	2.75	-0.03
IDEQ	13-Dec-94	4.41	8470	201	1.48	9.04	5.30	-0.60	3.17	-0.03
IDEQ	10-Jan-95	5.52	6220	185	1.71	8.74	5.22	-0.49	1.50	-0.12
IDEQ	9-Feb-95	13.52	4910	357	2.60	8.50	5.88	0.32	0.52	0.84
IDEQ	7-Mar-95	10.67	5180	297	2.37	8.55	5.69	0.03	0.72	0.51
IDEQ	22-Mar-95	44.83	4590	1107	3.80	8.43	7.01	3.47	0.28	5.01
IDEQ	13-Apr-95	17.8	5130	491	2.88	8.54	6.20	0.75	0.69	1.59
IDEQ	25-Apr-95	13.52	5370	391	2.60	8.59	5.97	0.32	0.86	1.03
IDEQ	9-May-95	26.15	2960	416	3.26	7.99	6.03	1.59	-0.93	1.17
IDEQ	23-May-95	22.71	2100	257	3.12	7.65	5.55	1.24	-1.57	0.28
IDEQ	12-Jun-95	9.03	2520	122	2.20	7.83	4.81	-0.13	-1.26	-0.46
IDEQ	27-Jun-95	5.89	3320	105	1.77	8.11	4.66	-0.45	-0.66	-0.56
IDEQ	11-Jul-95	5.01	3510	95	1.61	8.16	4.55	-0.54	-0.52	-0.62
IDEQ	25-Jul-95	4.01	4110	89	1.39	8.32	4.48	-0.64	-0.07	-0.65
IDEQ	14-Aug-95	3.11	4660	78	1.13	8.45	4.36	-0.73	0.34	-0.71
IDEQ	13-Sep-95	2.66	3900	56	0.98	8.27	4.02	-0.77	-0.23	-0.84
URS	11-Nov-97	5.88	5510	174	1.77	8.61	5.16	-0.45	0.97	-0.18
URS	14-May-98	35.3	1850	351	3.56	7.52	5.86	2.51	-1.76	0.81

tZn

Concentration over time analysis r2 Slope, m

tZn NM303 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.001** **0.00003**

Time	Ln[COC]	[COC]
16-May-91	8.26	3,871
15-Aug-94	8.29	3,997
14-May-98	8.33	4,148

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

tZn NM303 **Load over time**

LnLoad=mTime+b All data r2, m: **0.035** **0.00030**

Time	LnLoad	Load
16-May-91	4.70	110
15-Aug-94	5.06	158
14-May-98	5.48	239

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.230 max r2: 0.884

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.001	0.00003	7.36	0.035	0.00030	-5.42
0.027	-0.00013	12.90	0.104	0.00058	-14.98
0.049	-0.00020	15.28	0.047	0.00042	-9.41
0.044	-0.00019	15.04	0.039	0.00039	-8.29
0.042	-0.00019	14.91	0.032	0.00035	-7.05
0.034	-0.00017	14.29	0.026	0.00032	-5.96
0.026	-0.00015	13.60	0.020	0.00028	-4.73
0.024	-0.00015	13.49	0.016	0.00026	-3.75
0.022	-0.00015	13.36	0.012	0.00023	-2.78
0.020	-0.00014	13.15	0.007	0.00017	-0.81
0.020	-0.00014	13.25	0.007	0.00017	-0.76
0.021	-0.00015	13.37	0.010	0.00022	-2.30
0.022	-0.00015	13.63	0.012	0.00023	-2.95
0.023	-0.00016	13.92	0.018	0.00029	-4.98
0.024	-0.00017	14.08	0.023	0.00033	-6.45
0.031	-0.00019	14.99	0.035	0.00042	-9.34
0.057	-0.00026	17.26	0.042	0.00047	-11.11
0.073	-0.00029	18.57	0.049	0.00051	-12.71
0.085	-0.00032	19.58	0.049	0.00052	-12.95
0.099	-0.00035	20.67	0.039	0.00047	-11.08
0.116	-0.00039	21.96	0.027	0.00039	-8.33
0.146	-0.00044	23.78	0.015	0.00028	-4.73
0.186	-0.00050	25.97	0.002	0.00009	2.09
0.171	-0.00049	25.47	0.000	0.00003	4.34
0.177	-0.00051	26.17	0.001	-0.00008	8.21
0.144	-0.00044	23.55	0.002	-0.00009	8.53
0.111	-0.00034	20.24	0.002	-0.00010	8.85
0.084	-0.00028	18.19	0.003	-0.00012	9.63
0.068	-0.00026	17.16	0.000	-0.00005	6.98
0.050	-0.00021	15.69	0.000	0.00001	5.01
0.037	-0.00018	14.62	0.020	0.00028	-4.67
0.020	-0.00013	12.71	0.065	0.00046	-11.17
0.004	-0.00006	10.06	0.151	0.00065	-17.73
0.008	-0.00008	10.84	0.399	0.00089	-26.40
0.053	-0.00018	14.58	0.729	0.00110	-33.91
0.133	-0.00028	17.97	0.805	0.00119	-37.24
0.179	-0.00033	19.95	0.851	0.00128	-40.34
0.230	-0.00040	22.37	0.884	0.00137	-43.73

update for EV, CV:

tZn **NM303**
LN Analysis **tZn**

Load **Load Data, EV=206 lbs/day CV=0.873**
Load Data-based LN

		u	ln tZn Load	tZn Load
Avg:	**206**			
SD:	**180**	3	7.3	1484
CV:	**0.87**	0	5.04	155
Min:	**43.4**	-3	2.79	16.2
Max:	**1,107**			
Median:	**157**			

206 206
0.87 0.873

u=mLn{Load}+ b:
update for r2, EV, CV: **r2=0.971, EV=207lbs/day CV=0.818; max r2=0.98**

r2 u,lnLoad:	0.971	u	lnLoad	Load		
slope, m:	1.397	3	7.22	1370		
intercept, b:	-7.090	0	5.08	160		
N: 42		-3	2.93	18.7		
E[Load]:	206.8	Parameter Estimates			0.971	0.971
SD[Load]:	169	from LN regression			206.8	207
CV[Load]:	0.82	update graph label			0.8	0.818
					max r2	
					0.975	

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
		N: 42				
update and rank for new data						
4-Oct-91	**43**	1	0.0148	-2.176	3.770	0.971
15-Aug-94	**47**	2	0.0385	-1.769	3.844	0.971
13-Sep-95	**56**	3	0.0621	-1.537	4.022	0.969
15-Aug-94	**74**	4	0.0858	-1.367	4.310	0.966
14-Aug-95	**78**	5	0.1095	-1.229	4.356	0.968
20-Jul-94	**83**	6	0.1331	-1.112	4.418	0.969
25-Jul-95	**89**	7	0.1568	-1.008	4.485	0.971
18-Feb-94	**90**	8	0.1805	-0.914	4.500	0.973
20-Jul-94	**93**	9	0.2041	-0.827	4.531	0.974
11-Jul-95	**95**	10	0.2278	-0.746	4.550	0.975
2-Dec-93	**95**	11	0.2515	-0.670	4.556	0.975
28-Oct-93	**97**	12	0.2751	-0.597	4.572	0.974
4-Oct-94	**99**	13	0.2988	-0.528	4.600	0.972
16-Dec-93	**103**	14	0.3225	-0.461	4.638	0.970
16-Dec-93	**104**	15	0.3462	-0.396	4.640	0.968
27-Jun-95	**105**	16	0.3698	-0.332	4.656	0.965
24-Jan-94	**114**	17	0.3935	-0.270	4.736	0.963
24-Jan-94	**118**	18	0.4172	-0.209	4.773	0.960
12-Jun-95	**122**	19	0.4408	-0.149	4.807	0.957
8-Sep-94	**126**	20	0.4645	-0.089	4.837	0.955
23-Jun-94	**148**	21	0.4882	-0.030	4.996	0.954
8-Mar-94	**166**	22	0.5118	0.030	5.111	0.950
11-Nov-97	**174**	23	0.5355	0.089	5.161	0.946
10-Jan-95	**185**	24	0.5592	0.149	5.219	0.942
24-Mar-94	**195**	25	0.5828	0.209	5.275	0.938
15-Nov-94	**200**	26	0.6065	0.270	5.298	0.936
13-Dec-94	**201**	27	0.6302	0.332	5.303	0.932
7-Jun-94	**207**	28	0.6538	0.396	5.333	0.925
19-May-94	**223**	29	0.6775	0.461	5.405	0.917
7-Apr-94	**224**	30	0.7012	0.528	5.411	0.909
23-May-95	**257**	31	0.7249	0.597	5.547	0.896
8-Mar-94	**257**	32	0.7485	0.670	5.550	0.891
24-Mar-94	**270**	33	0.7722	0.746	5.598	0.878
7-Mar-95	**297**	34	0.7959	0.827	5.695	0.862
4-May-94	**311**	35	0.8195	0.914	5.739	0.852
14-May-98	**351**	36	0.8432	1.008	5.862	0.838
9-Feb-95	**357**	37	0.8669	1.112	5.878	0.854
25-Apr-95	**391**	38	0.8905	1.229	5.968	0.864
16-May-91	**394**	39	0.9142	1.367	5.977	
9-May-95	**416**	40	0.9379	1.537	6.032	
13-Apr-95	**491**	41	0.9615	1.769	6.197	
22-Mar-95	**1107**	42	0.9852	2.176	7.009	

update for EV, CV:

tZn		**NM303**		4,209	4210
LN Analysis		**tZn**		0.32	0.319
Concentration		**Conc. Data, EV=4210 ug/L CV=0.319**			
Avg:	**4,209**	**Data-based LN**			
SD:	**1,344**	u	ln[tZn]	[tZn]	
CV:	**0.32**	3	9.2	10210	
Min:	**1,850**	0	8.30	4009	
Max:	**8,470**	-3	7.36	1574	
Median:	**4,030**				

				0.962	0.962
u=mLn{Conc.}+b:				4239.7	4240
update for r2, EV, CV: **r2=0.962, EV=4240 ug/L CV=0.35; max r2=0.97**				0.350	0.35
r2 u,lnConc:	0.962	u	lnConc.	Conc.	
slope, m:	2.943	3	9.31	11091	
intercept, b:	-24.410	0	8.29	4002	
N: 42		-3	7.28	1444	
E[Conc]:	4239.7	Parameter Estimates			
SD[Conc]:	1483	from LN regression			
CV[Conc]:	0.35	update graph label			

						max r2
	tZn	N: 42				0.971
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
16-May-91	1850	1	0.0148	-2.176	7.523	0.962
14-May-98	1850	2	0.0385	-1.769	7.523	0.957
23-May-95	2100	3	0.0621	-1.537	7.650	0.963
19-May-94	2490	4	0.0858	-1.367	7.820	0.969
12-Jun-95	2520	5	0.1095	-1.229	7.832	0.968
9-May-95	2960	6	0.1331	-1.112	7.993	0.971
15-Aug-94	3240	7	0.1568	-1.008	8.083	0.969
15-Aug-94	3240	8	0.1805	-0.914	8.083	0.969
7-Jun-94	3260	9	0.2041	-0.827	8.089	0.968
27-Jun-95	3320	10	0.2278	-0.746	8.108	0.966
4-May-94	3360	11	0.2515	-0.670	8.120	0.964
11-Jul-95	3510	12	0.2751	-0.597	8.163	0.962
20-Jul-94	3560	13	0.2988	-0.528	8.178	0.961
20-Jul-94	3560	14	0.3225	-0.461	8.178	0.959
23-Jun-94	3590	15	0.3462	-0.396	8.186	0.957
4-Oct-91	3600	16	0.3698	-0.332	8.189	0.953
24-Mar-94	3890	17	0.3935	-0.270	8.266	0.949
24-Mar-94	3890	18	0.4172	-0.209	8.266	0.949
13-Sep-95	3900	19	0.4408	-0.149	8.269	0.947
8-Mar-94	4030	20	0.4645	-0.089	8.302	0.944
8-Mar-94	4030	21	0.4882	-0.030	8.302	0.942
7-Apr-94	4030	22	0.5118	0.030	8.302	0.939
25-Jul-95	4110	23	0.5355	0.089	8.321	0.934
4-Oct-94	4330	24	0.5592	0.149	8.373	0.929
24-Jan-94	4370	25	0.5828	0.209	8.383	0.928
24-Jan-94	4370	26	0.6065	0.270	8.383	0.926
18-Feb-94	4450	27	0.6302	0.332	8.401	0.921
2-Dec-93	4560	28	0.6538	0.396	8.425	0.916
22-Mar-95	4590	29	0.6775	0.461	8.432	0.912
14-Aug-95	4660	30	0.7012	0.528	8.447	0.906
28-Oct-93	4780	31	0.7249	0.597	8.472	0.898
9-Feb-95	4910	32	0.7485	0.670	8.499	0.890
13-Apr-95	5130	33	0.7722	0.746	8.543	0.884
7-Mar-95	5180	34	0.7959	0.827	8.553	0.892
16-Dec-93	5290	35	0.8195	0.914	8.574	0.899
16-Dec-93	5290	36	0.8432	1.008	8.574	0.913
25-Apr-95	5370	37	0.8669	1.112	8.589	0.915
8-Sep-94	5490	38	0.8905	1.229	8.611	0.908
11-Nov-97	5510	39	0.9142	1.367	8.614	
10-Jan-95	6220	40	0.9379	1.537	8.736	
15-Nov-94	7910	41	0.9615	1.769	8.976	
13-Dec-94	8470	42	0.9852	2.176	9.044	

update for EV, CV:

tZn		**NM303**			10	10.4
LN Analysis		**tZn**			0.96	0.959
Discharge, Q		**Q Data, EV=10.4 cfs CV=0.959**				
Avg:	**10**	**Q Data-based LN**				
SD:	**10**	u	lnQ	Q		
CV:	**0.96**	3	4.4	84		
Min:	**2**	0	2.01	7		
Max:	**45**	-3	-0.41	1		
Median:	**6**					

					0.938	0.938
					10.4	10.4
u=mLn{Q}+b:					0.98	0.98
update for r2, EV, CV:	**r2=0.938, EV=10.4 cfs CV=0.98; max r2=0.98**					
r2 u,lnQ:	0.938	u	lnQ	Q		
slope, m:	1.219	3	4.47	87		
intercept, b:	-2.445	0	2.01	7		
N:	42	-3	-0.46	1		
E[Q]:	10.4	Parameter Estimates				
SD[Q]:	10	from LN regression				
CV[Q]:	0.98	update graph label				

						max r2
	Q	N: 42				0.983
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
4-Oct-91	2.24	1	0.0148	-2.176	0.806	0.938
13-Sep-95	2.66	2	0.0385	-1.769	0.978	0.945
15-Aug-94	2.68	3	0.0621	-1.537	0.986	0.951
14-Aug-95	3.11	4	0.0858	-1.367	1.135	0.952
16-Dec-93	3.63	5	0.1095	-1.229	1.289	0.955
16-Dec-93	3.64	6	0.1331	-1.112	1.292	0.962
28-Oct-93	3.76	7	0.1568	-1.008	1.324	0.967
18-Feb-94	3.76	8	0.1805	-0.914	1.324	0.971
2-Dec-93	3.88	9	0.2041	-0.827	1.356	0.974
25-Jul-95	4.01	10	0.2278	-0.746	1.389	0.977
15-Aug-94	4.27	11	0.2515	-0.670	1.452	0.979
8-Sep-94	4.27	12	0.2751	-0.597	1.452	0.981
4-Oct-94	4.27	13	0.2988	-0.528	1.452	0.983
20-Jul-94	4.33	14	0.3225	-0.461	1.466	0.983
13-Dec-94	4.41	15	0.3462	-0.396	1.484	0.983
15-Nov-94	4.7	16	0.3698	-0.332	1.548	0.982
24-Jan-94	4.85	17	0.3935	-0.270	1.579	0.981
20-Jul-94	4.85	18	0.4172	-0.209	1.579	0.980
11-Jul-95	5.01	19	0.4408	-0.149	1.611	0.978
24-Jan-94	5.03	20	0.4645	-0.089	1.615	0.976
10-Jan-95	5.52	21	0.4882	-0.030	1.708	0.976
11-Nov-97	5.88	22	0.5118	0.030	1.772	0.975
27-Jun-95	5.89	23	0.5355	0.089	1.773	0.974
8-Mar-94	7.65	24	0.5592	0.149	2.035	0.979
23-Jun-94	7.65	25	0.5828	0.209	2.035	0.977
12-Jun-95	9.03	26	0.6065	0.270	2.201	0.975
24-Mar-94	9.34	27	0.6302	0.332	2.234	0.973
7-Apr-94	10.32	28	0.6538	0.396	2.334	0.969
7-Mar-95	10.67	29	0.6775	0.461	2.367	0.966
7-Jun-94	11.81	30	0.7012	0.528	2.469	0.962
8-Mar-94	11.87	31	0.7249	0.597	2.474	0.958
24-Mar-94	12.9	32	0.7485	0.670	2.557	0.952
9-Feb-95	13.52	33	0.7722	0.746	2.604	0.944
25-Apr-95	13.52	34	0.7959	0.827	2.604	0.933
19-May-94	16.61	35	0.8195	0.914	2.810	0.923
4-May-94	17.19	36	0.8432	1.008	2.844	0.905
13-Apr-95	17.8	37	0.8669	1.112	2.879	0.876
23-May-95	22.71	38	0.8905	1.229	3.123	0.873
9-May-95	26.15	39	0.9142	1.367	3.264	
14-May-98	35.3	40	0.9379	1.537	3.564	
16-May-91	39.6	41	0.9615	1.769	3.679	
22-Mar-95	44.83	42	0.9852	2.176	3.803	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM303 **Date:** 29-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	34,602	10	27	1.3	0.00	0.00	0.00	
SD:	419	10	10	1.0	1.00	1.00	1.00	
CV:	0.01	0.96	0.35	0.81				first:
Min:	33,374	2	7	0.3	-0.82	-2.06	-0.97	mid:
Max:	35,929	45	62	6.5	3.47	3.61	5.13	last:
Median:	34,561	6	28	1.0	-0.47	0.03	-0.26	

dCd NM303 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.24) update r2

r2 Q,[COC]:	0.24	[dCd]	Q	r2:	0.009	0.023
slope, m:	-0.5	31	2.2	m:	0.0022	0.00028
intercept, b:	32.1	27	10.4	b:	-67	-7.56
N: 42		11	45			

first:
mid:
last:

LnConc. = mLn{Q}+b (r2=0.36) update r2

r2 lnQ,ln[COC]:	0.36	ln[dCd]	ln Q	[dCd]	Q
slope, m:	-0.29	3.59	0.81	36	2
intercept, b:	3.82	3.14	2.34	23	10
N: 42		2.72	3.80	15	45

for graph
dCd 0
NM303

N= 42

	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	16-May-91	39.6	7.3	1.6	3.68	1.99	0.44	2.94	-2.06	0.29
MFG	4-Oct-91	2.24	22.6	0.3	0.81	3.12	-1.30	-0.82	-0.48	-0.97
IDEQ	28-Oct-93	3.76	29	0.6	1.32	3.37	-0.53	-0.66	0.19	-0.66
IDEQ	2-Dec-93	3.88	23	0.5	1.36	3.14	-0.73	-0.65	-0.43	-0.77
IDEQ	16-Dec-93	3.64	33	0.6	1.29	3.50	-0.44	-0.68	0.60	-0.60
IDEQ	16-Dec-93	3.63	33	0.6	1.29	3.50	-0.44	-0.68	0.60	-0.60
IDEQ	24-Jan-94	4.85	24	0.6	1.58	3.18	-0.47	-0.55	-0.33	-0.62
IDEQ	24-Jan-94	5.03	24	0.6	1.62	3.18	-0.43	-0.54	-0.33	-0.60
IDEQ	18-Feb-94	3.76	29	0.6	1.32	3.37	-0.53	-0.66	0.19	-0.66
IDEQ	8-Mar-94	7.65	26	1.1	2.03	3.26	0.07	-0.27	-0.12	-0.19
IDEQ	8-Mar-94	11.87	26	1.7	2.47	3.26	0.51	0.15	-0.12	0.39
IDEQ	24-Mar-94	9.34	23	1.2	2.23	3.14	0.14	-0.10	-0.43	-0.10
IDEQ	24-Mar-94	12.9	23	1.6	2.56	3.14	0.47	0.26	-0.43	0.33
IDEQ	7-Apr-94	10.32	23	1.3	2.33	3.14	0.24	0.00	-0.43	0.01
IDEQ	4-May-94	17.19	22	2.0	2.84	3.09	0.71	0.69	-0.54	0.75
IDEQ	19-May-94	16.61	18	1.6	2.81	2.89	0.48	0.63	-0.95	0.34
IDEQ	7-Jun-94	11.81	24	1.5	2.47	3.18	0.42	0.15	-0.33	0.26
IDEQ	23-Jun-94	7.65	24	1.0	2.03	3.18	-0.01	-0.27	-0.33	-0.27
IDEQ	20-Jul-94	4.85	28	0.7	1.58	3.33	-0.31	-0.55	0.08	-0.52
IDEQ	20-Jul-94	4.33	28	0.7	1.47	3.33	-0.43	-0.61	0.08	-0.60
IDEQ	15-Aug-94	4.27	28	0.6	1.45	3.33	-0.44	-0.61	0.08	-0.61
IDEQ	15-Aug-94	2.68	28	0.4	0.99	3.33	-0.91	-0.77	0.08	-0.84
IDEQ	8-Sep-94	4.27	34	0.8	1.45	3.53	-0.25	-0.61	0.70	-0.47
IDEQ	4-Oct-94	4.27	32	0.7	1.45	3.47	-0.31	-0.61	0.50	-0.52
IDEQ	15-Nov-94	4.7	62	1.6	1.55	4.13	0.45	-0.57	3.61	0.30
IDEQ	13-Dec-94	4.41	54	1.3	1.48	3.99	0.25	-0.60	2.78	0.02
IDEQ	10-Jan-95	5.52	44	1.3	1.71	3.78	0.27	-0.49	1.74	0.04
IDEQ	9-Feb-95	13.52	30	2.2	2.60	3.40	0.78	0.32	0.29	0.90
IDEQ	7-Mar-95	10.67	31	1.8	2.37	3.43	0.58	0.03	0.39	0.51
IDEQ	22-Mar-95	44.83	27	6.5	3.80	3.30	1.87	3.47	-0.02	5.13
IDEQ	13-Apr-95	17.8	29	2.8	2.88	3.37	1.02	0.75	0.19	1.48
IDEQ	25-Apr-95	13.52	28	2.0	2.60	3.33	0.71	0.32	0.08	0.76
IDEQ	9-May-95	26.15	17	2.4	3.26	2.83	0.87	1.59	-1.06	1.10
IDEQ	23-May-95	22.71	14	1.7	3.12	2.64	0.54	1.24	-1.37	0.44
IDEQ	12-Jun-95	9.03	17	0.8	2.20	2.83	-0.19	-0.13	-1.06	-0.43
IDEQ	27-Jun-95	5.89	18	0.6	1.77	2.89	-0.56	-0.45	-0.95	-0.68
IDEQ	11-Jul-95	5.01	22	0.6	1.61	3.09	-0.52	-0.54	-0.54	-0.66
IDEQ	25-Jul-95	4.01	28	0.6	1.39	3.33	-0.50	-0.64	0.08	-0.64
IDEQ	14-Aug-95	3.11	33	0.6	1.13	3.50	-0.59	-0.73	0.60	-0.70
IDEQ	13-Sep-95	2.66	34	0.5	0.98	3.53	-0.72	-0.77	0.70	-0.76
URS	11-Nov-97	5.88	32.1	1.0	1.77	3.47	0.02	-0.45	0.51	-0.24
URS	14-May-98	35.3	10.2	1.9	3.56	2.32	0.66	2.51	-1.76	0.66

dCd

Concentration over time analysis r2 Slope, m

dCd NM303 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.011** **0.00009**

Time	Ln[COC]	[COC]
16-May-91	3.13	23
15-Aug-94	3.24	25
14-May-98	3.36	29

LnConc.=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

Load over time analysis

dCd NM303 **Load over time**

LnLoad=mTime+b All data r2, m: **0.061** **0.00037**

Time	LnLoad	Load
16-May-91	-0.43	1
15-Aug-94	0.01	1
14-May-98	0.51	2

LnLoad=mTime+b >'96 r2, m: **0.000** **0.00000**

0-Jan-00	0.00	1
14-May-98	0.00	1

max r2: 0.472 max r2: 0.894

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.011	0.00009	0.10	0.061	0.00037	-12.68
0.034	-0.00016	8.66	0.112	0.00056	-19.22
0.063	-0.00024	11.52	0.046	0.00038	-13.17
0.061	-0.00024	11.52	0.037	0.00034	-11.81
0.069	-0.00026	12.21	0.026	0.00028	-9.75
0.062	-0.00025	11.80	0.019	0.00025	-8.46
0.054	-0.00023	11.35	0.013	0.00020	-6.98
0.060	-0.00025	11.87	0.008	0.00016	-5.37
0.066	-0.00026	12.46	0.004	0.00011	-3.67
0.064	-0.00026	12.43	0.001	0.00005	-1.53
0.066	-0.00027	12.75	0.001	0.00004	-1.27
0.069	-0.00028	13.11	0.002	0.00008	-2.56
0.078	-0.00031	13.94	0.002	0.00008	-2.63
0.090	-0.00033	14.90	0.004	0.00012	-4.00
0.103	-0.00036	15.94	0.005	0.00014	-4.59
0.121	-0.00040	17.21	0.011	0.00021	-7.12
0.163	-0.00046	19.44	0.017	0.00026	-8.93
0.181	-0.00050	20.61	0.024	0.00031	-10.67
0.201	-0.00053	21.89	0.023	0.00031	-10.64
0.207	-0.00055	22.51	0.017	0.00027	-9.24
0.214	-0.00057	23.25	0.010	0.00021	-7.03
0.220	-0.00059	23.99	0.004	0.00013	-4.52
0.228	-0.00062	24.88	0.000	-0.00002	1.01
0.218	-0.00061	24.73	0.002	-0.00010	3.61
0.211	-0.00062	24.82	0.009	-0.00019	6.86
0.179	-0.00051	21.21	0.007	-0.00017	6.19
0.146	-0.00042	17.90	0.007	-0.00018	6.51
0.115	-0.00035	15.29	0.007	-0.00018	6.73
0.099	-0.00032	14.40	0.003	-0.00011	4.23
0.081	-0.00029	13.20	0.001	-0.00007	2.52
0.070	-0.00027	12.53	0.013	0.00019	-6.76
0.054	-0.00024	11.31	0.053	0.00036	-12.58
0.039	-0.00020	10.00	0.120	0.00050	-17.78
0.060	-0.00025	11.81	0.349	0.00072	-25.43
0.137	-0.00036	15.70	0.781	0.00092	-32.79
0.224	-0.00045	19.15	0.891	0.00102	-36.06
0.359	-0.00058	23.58	0.889	0.00103	-36.71
0.472	-0.00070	27.96	0.894	0.00107	-38.13

update for EV, CV:

dCd **NM303**
LN Analysis **dCd**

Load **Load Data, EV=1.3 lbs/day CV=.8**

Load Data-based LN

		u	ln dCd Load	dCd Load
Avg:	**1.3**			
SD:	**1.0**	3	2.1	8
CV:	**0.8**	0	-0.02	1.0
Min:	**0.3**	-3	-2.15	0.1
Max:	**6.5**			
Median:	**1.0**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.953, EV=1.3 lbs/day CV=0.74; max r2=0.95**

r2 u,lnLoad:	0.953	u	lnLoad	Load
slope, m:	1.517	3	2.00	7
intercept, b:	-0.031	0	0.02	1
N: 42		-3	-1.96	0.1
E[Load]:	1.3	Parameter Estimates		
SD[Load]:	1	from LN regression		
CV[Load]:	0.74	update graph label		

N: 42

max r2 0.954

Date	dCd Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	**0.3**	1	0.0148	-2.176	-1.301	0.953
15-Aug-94	**0.4**	2	0.0385	-1.769	-0.907	0.947
2-Dec-93	**0.5**	3	0.0621	-1.537	-0.734	0.946
13-Sep-95	**0.5**	4	0.0858	-1.367	-0.720	0.949
14-Aug-95	**0.6**	5	0.1095	-1.229	-0.594	0.948
27-Jun-95	**0.6**	6	0.1331	-1.112	-0.561	0.951
28-Oct-93	**0.6**	7	0.1568	-1.008	-0.533	0.953
18-Feb-94	**0.6**	8	0.1805	-0.914	-0.533	0.954
11-Jul-95	**0.6**	9	0.2041	-0.827	-0.523	0.954
25-Jul-95	**0.6**	10	0.2278	-0.746	-0.504	0.953
24-Jan-94	**0.6**	11	0.2515	-0.670	-0.468	0.951
15-Aug-94	**0.6**	12	0.2751	-0.597	-0.441	0.948
16-Dec-93	**0.6**	13	0.2988	-0.528	-0.439	0.945
16-Dec-93	**0.6**	14	0.3225	-0.461	-0.437	0.941
24-Jan-94	**0.6**	15	0.3462	-0.396	-0.432	0.936
20-Jul-94	**0.7**	16	0.3698	-0.332	-0.427	0.932
20-Jul-94	**0.7**	17	0.3935	-0.270	-0.314	0.928
4-Oct-94	**0.7**	18	0.4172	-0.209	-0.308	0.922
8-Sep-94	**0.8**	19	0.4408	-0.149	-0.247	0.918
12-Jun-95	**0.8**	20	0.4645	-0.089	-0.191	0.913
23-Jun-94	**1.0**	21	0.4882	-0.030	-0.012	0.908
11-Nov-97	**1.0**	22	0.5118	0.030	0.015	0.900
8-Mar-94	**1.1**	23	0.5355	0.089	0.068	0.890
24-Mar-94	**1.2**	24	0.5592	0.149	0.145	0.879
7-Apr-94	**1.3**	25	0.5828	0.209	0.245	0.869
13-Dec-94	**1.3**	26	0.6065	0.270	0.248	0.861
10-Jan-95	**1.3**	27	0.6302	0.332	0.268	0.851
7-Jun-94	**1.5**	28	0.6538	0.396	0.422	0.837
16-May-91	**1.6**	29	0.6775	0.461	0.442	0.841
15-Nov-94	**1.6**	30	0.7012	0.528	0.450	0.847
24-Mar-94	**1.6**	31	0.7249	0.597	0.468	0.850
19-May-94	**1.6**	32	0.7485	0.670	0.475	0.853
8-Mar-94	**1.7**	33	0.7722	0.746	0.507	0.852
23-May-95	**1.7**	34	0.7959	0.827	0.537	0.851
7-Mar-95	**1.8**	35	0.8195	0.914	0.576	0.849
14-May-98	**1.9**	36	0.8432	1.008	0.661	0.847
4-May-94	**2.0**	37	0.8669	1.112	0.710	0.865
25-Apr-95	**2.0**	38	0.8905	1.229	0.711	0.898
9-Feb-95	**2.2**	39	0.9142	1.367	0.780	
9-May-95	**2.4**	40	0.9379	1.537	0.872	
13-Apr-95	**2.8**	41	0.9615	1.769	1.021	
22-Mar-95	**6.5**	42	0.9852	2.176	1.874	

update for EV, CV:

dCd
LN Analysis

Concentration

Avg:	**27**
SD:	**10**
CV:	**0.35**
Min:	**7**
Max:	**62**
Median:	**28**

NM303
dCd
Conc. Data, EV=27 ug/L CV=.35
Data-based LN

u	ln[dCd]	[dCd]
3	4.3	72
0	3.24	26
-3	2.21	9

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.894, EV=27.7 ug/L CV=0.42; max r2=0.93**

r2 u,lnConc:	0.894	u	lnConc.	Conc.
slope, m:	2.473	3	4.45	86
intercept, b:	-8.011	0	3.24	26
N: 42		-3	2.03	8
E[Conc]:	27.7	Parameter Estimates		
SD[Conc]:	12	from LN regression		
CV[Conc]:	0.42	update graph label		

N: 42

max r2
0.934

Date	dCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
16-May-91	7.3	1	0.0148	-2.176	1.988	0.894
14-May-98	10.2	2	0.0385	-1.769	2.322	0.914
23-May-95	14	3	0.0621	-1.537	2.639	0.931
9-May-95	17	4	0.0858	-1.367	2.833	0.929
12-Jun-95	17	5	0.1095	-1.229	2.833	0.922
19-May-94	18	6	0.1331	-1.112	2.890	0.916
27-Jun-95	18	7	0.1568	-1.008	2.890	0.909
4-May-94	22	8	0.1805	-0.914	3.091	0.903
11-Jul-95	22	9	0.2041	-0.827	3.091	0.903
4-Oct-91	22.6	10	0.2278	-0.746	3.118	0.900
2-Dec-93	23	11	0.2515	-0.670	3.135	0.899
24-Mar-94	23	12	0.2751	-0.597	3.135	0.899
24-Mar-94	23	13	0.2988	-0.528	3.135	0.896
7-Apr-94	23	14	0.3225	-0.461	3.135	0.892
24-Jan-94	24	15	0.3462	-0.396	3.178	0.886
24-Jan-94	24	16	0.3698	-0.332	3.178	0.883
7-Jun-94	24	17	0.3935	-0.270	3.178	0.878
23-Jun-94	24	18	0.4172	-0.209	3.178	0.870
8-Mar-94	26	19	0.4408	-0.149	3.258	0.861
8-Mar-94	26	20	0.4645	-0.089	3.258	0.859
22-Mar-95	27	21	0.4882	-0.030	3.296	0.855
20-Jul-94	28	22	0.5118	0.030	3.332	0.856
20-Jul-94	28	23	0.5355	0.089	3.332	0.865
15-Aug-94	28	24	0.5592	0.149	3.332	0.872
15-Aug-94	28	25	0.5828	0.209	3.332	0.878
25-Apr-95	28	26	0.6065	0.270	3.332	0.882
25-Jul-95	28	27	0.6302	0.332	3.332	0.883
28-Oct-93	29	28	0.6538	0.396	3.367	0.880
18-Feb-94	29	29	0.6775	0.461	3.367	0.884
13-Apr-95	29	30	0.7012	0.528	3.367	0.884
9-Feb-95	30	31	0.7249	0.597	3.401	0.879
7-Mar-95	31	32	0.7485	0.670	3.434	0.878
4-Oct-94	32	33	0.7722	0.746	3.466	0.883
11-Nov-97	32.1	34	0.7959	0.827	3.469	0.897
16-Dec-93	33	35	0.8195	0.914	3.497	0.907
16-Dec-93	33	36	0.8432	1.008	3.497	0.925
14-Aug-95	33	37	0.8669	1.112	3.497	0.934
8-Sep-94	34	38	0.8905	1.229	3.526	0.925
13-Sep-95	34	39	0.9142	1.367	3.526	
10-Jan-95	44	40	0.9379	1.537	3.784	
13-Dec-94	54	41	0.9615	1.769	3.989	
15-Nov-94	62	42	0.9852	2.176	4.127	

update for EV, CV:

dCd **NM303**

LN Analysis **dCd**

Discharge, Q **Q Data, EV=10 cfs CV=0.96**

Q Data-based LN

		u	lnQ	Q
Avg:	**10**	3	4.4	84
SD:	**10**	0	2.01	7
CV:	**0.96**	-3	-0.41	1
Min:	**2**			
Max:	**45**			
Median:	**6**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.938, EV=10.4 cfs CV=0.98; max r2=0.98**

r2 u,lnQ:	0.938	u	lnQ	Q
slope, m:	1.219	3	4.47	87
intercept, b:	-2.445	0	2.01	7
N: 42		-3	-0.46	0.6
E[Q]:	10.4	Parameter Estimates		
SD[Q]:	10	from LN regression		
CV[Q]:	0.98	update graph label		

max r2 0.983

N: 42

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
4-Oct-91	2.24	1	0.0148	-2.176	0.806	0.938
13-Sep-95	2.66	2	0.0385	-1.769	0.978	0.945
15-Aug-94	2.68	3	0.0621	-1.537	0.986	0.951
14-Aug-95	3.11	4	0.0858	-1.367	1.135	0.952
16-Dec-93	3.63	5	0.1095	-1.229	1.289	0.955
16-Dec-93	3.64	6	0.1331	-1.112	1.292	0.962
28-Oct-93	3.76	7	0.1568	-1.008	1.324	0.967
18-Feb-94	3.76	8	0.1805	-0.914	1.324	0.971
2-Dec-93	3.88	9	0.2041	-0.827	1.356	0.974
25-Jul-95	4.01	10	0.2278	-0.746	1.389	0.977
15-Aug-94	4.27	11	0.2515	-0.670	1.452	0.979
8-Sep-94	4.27	12	0.2751	-0.597	1.452	0.981
4-Oct-94	4.27	13	0.2988	-0.528	1.452	0.983
20-Jul-94	4.33	14	0.3225	-0.461	1.466	0.983
13-Dec-94	4.41	15	0.3462	-0.396	1.484	0.983
15-Nov-94	4.7	16	0.3698	-0.332	1.548	0.982
24-Jan-94	4.85	17	0.3935	-0.270	1.579	0.981
20-Jul-94	4.85	18	0.4172	-0.209	1.579	0.980
11-Jul-95	5.01	19	0.4408	-0.149	1.611	0.978
24-Jan-94	5.03	20	0.4645	-0.089	1.615	0.976
10-Jan-95	5.52	21	0.4882	-0.030	1.708	0.976
11-Nov-97	5.88	22	0.5118	0.030	1.772	0.975
27-Jun-95	5.89	23	0.5355	0.089	1.773	0.974
8-Mar-94	7.65	24	0.5592	0.149	2.035	0.979
23-Jun-94	7.65	25	0.5828	0.209	2.035	0.977
12-Jun-95	9.03	26	0.6065	0.270	2.201	0.975
24-Mar-94	9.34	27	0.6302	0.332	2.234	0.973
7-Apr-94	10.32	28	0.6538	0.396	2.334	0.969
7-Mar-95	10.67	29	0.6775	0.461	2.367	0.966
7-Jun-94	11.81	30	0.7012	0.528	2.469	0.962
8-Mar-94	11.87	31	0.7249	0.597	2.474	0.958
24-Mar-94	12.9	32	0.7485	0.670	2.557	0.952
9-Feb-95	13.52	33	0.7722	0.746	2.604	0.944
25-Apr-95	13.52	34	0.7959	0.827	2.604	0.933
19-May-94	16.61	35	0.8195	0.914	2.810	0.923
4-May-94	17.19	36	0.8432	1.008	2.844	0.905
13-Apr-95	17.8	37	0.8669	1.112	2.879	0.876
23-May-95	22.71	38	0.8905	1.229	3.123	0.873
9-May-95	26.15	39	0.9142	1.367	3.264	
14-May-98	35.3	40	0.9379	1.537	3.564	
16-May-91	39.6	41	0.9615	1.769	3.679	
22-Mar-95	44.83	42	0.9852	2.176	3.803	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM305 **Date:** 29-May-00
Chemical: dCd **Analyst:** J.Johnston
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,293	20	21	2	0.00	0.00	0.00	
SD:	772	23	8	1	1.00	1.00	1.00	
CV:	0.02	1.19	0.37	0.90				first:
Min:	33,373	3	6	0.3	-0.70	-1.93	-0.93	mid:
Max:	36,404	123	48	10	4.41	3.40	5.83	last:
Median:	35,351	9	21	1	-0.46	0.03	-0.40	

dCd NM305 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.36) update r2

r2 Q,[COC]:	0.36	[dCd]	Q	r2:	0.049	0.047
slope, m:	-0.2	25	3.2	m:	0.0067	0.00027
intercept, b:	25.2	21	19.7	b:	-216	-6.94
N: 96		0	123			first:

LnConc. = mLn{Q}+b (r2=0.50) update r2 mid:

r2 lnQ,ln[COC]:	0.50	ln[dCd]	ln Q	[dCd]	Q	last:
slope, m:	-0.32	3.39	1.16	30	3	
intercept, b:	3.75	2.81	2.98	17	20	
N: 96		2.23	4.81	9	123	

for graph
dCd 0
NM305

N= 96

	Sampling Date	Q Discharge cfs	dCd Concentration ug/L	dCd Load lbs/day	Ln Q	Ln dCd Conc.	Ln dCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	15-May-91	51.3	8.9	2.5	3.94	2.19	0.90	1.35	-1.56	0.54
MFG	16-May-91	50.5	7.4	2.0	3.92	2.00	0.70	1.31	-1.75	0.24
MFG	3-Oct-91	3.69	27	0.5	1.31	3.30	-0.62	-0.68	0.74	-0.75
MFG	4-Oct-91	4.02	21.8	0.5	1.39	3.08	-0.75	-0.67	0.08	-0.79
IDEQ	28-Oct-93	4.7	26	0.7	1.55	3.26	-0.42	-0.64	0.61	-0.67
IDEQ	2-Dec-93	4.7	22	0.6	1.55	3.09	-0.59	-0.64	0.10	-0.74
IDEQ	16-Dec-93	4.8	29	0.7	1.57	3.37	-0.29	-0.64	0.99	-0.61
IDEQ	24-Jan-94	5.87	20	0.6	1.77	3.00	-0.46	-0.59	-0.15	-0.69
IDEQ	18-Feb-94	4.11	26	0.6	1.41	3.26	-0.55	-0.66	0.61	-0.73
IDEQ	18-Feb-94	4.03	26	0.6	1.39	3.26	-0.57	-0.67	0.61	-0.73
IDEQ	8-Mar-94	10.44	26	1.5	2.35	3.26	0.38	-0.39	0.61	-0.13
IDEQ	8-Mar-94	12.76	26	1.8	2.55	3.26	0.58	-0.30	0.61	0.09
IDEQ	23-Mar-94	12.97	22	1.5	2.56	3.09	0.43	-0.29	0.10	-0.08
IDEQ	7-Apr-94	18.12	23	2.2	2.90	3.14	0.81	-0.07	0.23	0.40
IDEQ	19-Apr-94	86.89	22	10.3	4.46	3.09	2.33	2.87	0.10	5.83
IDEQ	20-May-94	15.31	19	1.6	2.73	2.94	0.45	-0.19	-0.28	-0.06
IDEQ	7-Jun-94	10.72	26	1.5	2.37	3.26	0.41	-0.38	0.61	-0.10
IDEQ	23-Jun-94	7.39	24	1.0	2.00	3.18	-0.05	-0.52	0.36	-0.47
IDEQ	20-Jul-94	5.16	23	0.6	1.64	3.14	-0.45	-0.62	0.23	-0.68
IDEQ	20-Jul-94	4.74	23	0.6	1.56	3.14	-0.53	-0.64	0.23	-0.72
IDEQ	15-Aug-94	4.32	21	0.5	1.46	3.04	-0.72	-0.66	-0.02	-0.78
IDEQ	15-Aug-94	3.69	21	0.4	1.31	3.04	-0.87	-0.68	-0.02	-0.83
IDEQ	8-Sep-94	3.91	32	0.7	1.36	3.47	-0.40	-0.67	1.37	-0.66
IDEQ	28-Oct-94	3.91	27	0.6	1.36	3.30	-0.57	-0.67	0.74	-0.73
IDEQ	15-Nov-94	4.32	48	1.1	1.46	3.87	0.11	-0.66	3.40	-0.36
IDEQ	13-Dec-94	4.22	44	1.0	1.44	3.78	0.00	-0.66	2.89	-0.44
IDEQ	10-Jan-95	8	35	1.5	2.08	3.56	0.41	-0.50	1.75	-0.10
IDEQ	9-Feb-95	17.61	27	2.6	2.87	3.30	0.94	-0.09	0.74	0.61
IDEQ	7-Mar-95	14.49	30	2.3	2.67	3.40	0.85	-0.22	1.12	0.47
IDEQ	13-Apr-95	22.11	26	3.1	3.10	3.26	1.13	0.10	0.61	0.97
IDEQ	25-Apr-95	15.75	25	2.1	2.76	3.22	0.75	-0.17	0.48	0.32
IDEQ	9-May-95	30.45	18	2.9	3.42	2.89	1.08	0.46	-0.40	0.88
IDEQ	23-May-95	22.11	16	1.9	3.10	2.77	0.64	0.10	-0.66	0.17
IDEQ	27-Jun-95	7.39	22	0.9	2.00	3.09	-0.13	-0.52	0.10	-0.52
IDEQ	11-Jul-95	5.71	20	0.6	1.74	3.00	-0.49	-0.60	-0.15	-0.70
IDEQ	26-Jul-95	4.54	23	0.6	1.51	3.14	-0.58	-0.65	0.23	-0.73
IDEQ	14-Aug-95	3.82	27	0.6	1.34	3.30	-0.59	-0.68	0.74	-0.74
IDEQ	18-Oct-95	7.2	38	1.5	1.97	3.64	0.39	-0.53	2.13	-0.12
IDEQ	21-Nov-95	13	25	1.7	2.56	3.22	0.56	-0.29	0.48	0.07
IDEQ	17-Jan-96	47.8	19	4.9	3.87	2.94	1.59	1.20	-0.28	2.18
IDEQ	29-Feb-96	45	17	4.1	3.81	2.83	1.41	1.08	-0.53	1.66
IDEQ	28-Mar-96	45	17	4.1	3.81	2.83	1.41	1.08	-0.53	1.66
IDEQ	17-Apr-96	29	20	3.1	3.37	3.00	1.14	0.40	-0.15	0.99
IDEQ	8-May-96	19.1	16	1.6	2.95	2.77	0.50	-0.03	-0.66	0.00
IDEQ	19-Jun-96	15.4	19	1.6	2.73	2.94	0.45	-0.18	-0.28	-0.05
IDEQ	24-Jul-96	7.19	20	0.8	1.97	3.00	-0.26	-0.53	-0.15	-0.59
IDEQ	21-Aug-96	5.97	22	0.7	1.79	3.09	-0.35	-0.59	0.10	-0.64

IDEQ	26-Sep-96	5.15	20	0.6	1.64	3.00	-0.59	-0.62	-0.15	-0.74
IDEQ	29-Oct-96	6.22	26	0.9	1.83	3.26	-0.14	-0.57	0.61	-0.53
IDEQ	27-Nov-96	5.97	30	1.0	1.79	3.40	-0.04	-0.59	1.12	-0.46
IDEQ	13-Dec-96	8.83	28	1.3	2.18	3.33	0.29	-0.46	0.86	-0.22
IDEQ	30-Jan-97	13.5	20	1.5	2.60	3.00	0.37	-0.26	-0.15	-0.13
IDEQ	19-Feb-97	20.6	16	1.8	3.03	2.77	0.57	0.04	-0.66	0.08
IDEQ	26-Mar-97	57	13	4.0	4.04	2.56	1.38	1.59	-1.04	1.58
IDEQ	16-Apr-97	30.7	12	2.0	3.42	2.48	0.68	0.47	-1.17	0.22
IDEQ	24-Jun-97	16.7	8.8	0.8	2.82	2.17	-0.23	-0.13	-1.57	-0.58
IDEQ	23-Jul-97	10.2	14	0.8	2.32	2.64	-0.26	-0.41	-0.91	-0.59
IDEQ	14-Aug-97	7.65	17	0.7	2.03	2.83	-0.36	-0.51	-0.53	-0.64
IDEQ	4-Sep-97	6.76	18	0.7	1.91	2.89	-0.42	-0.55	-0.40	-0.67
IDEQ	16-Oct-97	6.35	22	0.8	1.85	3.09	-0.29	-0.57	0.10	-0.61
URS	11-Nov-97	5.38	29.5	0.9	1.68	3.38	-0.16	-0.61	1.05	-0.54
IDEQ	26-Nov-97	7.5	21	0.8	2.01	3.04	-0.17	-0.52	-0.02	-0.54
IDEQ	17-Dec-97	9.2	22	1.1	2.22	3.09	0.09	-0.45	0.10	-0.38
IDEQ	21-Jan-98	6.9	23	0.9	1.93	3.14	-0.16	-0.55	0.23	-0.54
IDEQ	25-Feb-98	9.58	16	0.8	2.26	2.77	-0.19	-0.43	-0.66	-0.56
IDEQ	20-Mar-98	13.5	14	1.0	2.60	2.64	0.02	-0.26	-0.91	-0.43
IDEQ	23-Apr-98	27.4	16	2.4	3.31	2.77	0.86	0.33	-0.66	0.48
IDEQ	7-May-98	36.2	8.3	1.6	3.59	2.12	0.48	0.70	-1.64	-0.02
URS	15-May-98	43.8	11.2	2.6	3.78	2.42	0.97	1.03	-1.27	0.67
IDEQ	28-May-98	45.1	10	2.4	3.81	2.30	0.89	1.08	-1.42	0.52
IDEQ	26-Jun-98	10.8	16	0.9	2.38	2.77	-0.07	-0.38	-0.66	-0.49
IDEQ	28-Jul-98	6.9	20	0.7	1.93	3.00	-0.30	-0.55	-0.15	-0.61
IDEQ	26-Aug-98	5.84	24	0.8	1.76	3.18	-0.28	-0.59	0.36	-0.60
IDEQ	24-Sep-98	5.49	22	0.6	1.70	3.09	-0.43	-0.61	0.10	-0.67
IDEQ	1-Oct-98	5.37	25	0.7	1.68	3.22	-0.33	-0.61	0.48	-0.63
IDEQ	8-Oct-98	5.37	28	0.8	1.68	3.33	-0.21	-0.61	0.86	-0.57
IDEQ	26-Oct-98	36.2	21	4.1	3.59	3.04	1.41	0.70	-0.02	1.65
USGS	27-Oct-98	3.2	28	0.5	1.16	3.33	-0.73	-0.70	0.86	-0.79
USGS	19-Nov-98	4	39	0.8	1.39	3.66	-0.18	-0.67	2.26	-0.55
USGS	10-Dec-98	6	31	1.0	1.79	3.43	0.00	-0.58	1.24	-0.44
IDEQ	31-Dec-98	7.65	32	1.3	2.03	3.47	0.28	-0.51	1.37	-0.22
IDEQ	15-Jan-99	9.97	25	1.3	2.30	3.22	0.29	-0.41	0.48	-0.21
USGS	21-Jan-99	13	22	1.5	2.56	3.09	0.43	-0.29	0.10	-0.07
IDEQ	23-Feb-99	7.05	21	0.8	1.95	3.04	-0.23	-0.54	-0.02	-0.58
IDEQ	8-Mar-99	25	18	2.4	3.22	2.89	0.88	0.23	-0.40	0.52
USGS	22-Mar-99	78	12	5.0	4.36	2.48	1.62	2.49	-1.17	2.28
USGS	19-Apr-99	80	14	6.0	4.38	2.64	1.80	2.57	-0.91	2.95
USGS	5-May-99	34	16	2.9	3.53	2.77	1.07	0.61	-0.66	0.86
USGS	23-May-99	61	8.3	2.7	4.11	2.12	1.00	1.76	-1.64	0.72
USGS	26-May-99	123	6.5	4.3	4.81	1.87	1.46	4.41	-1.86	1.79
USGS	27-May-99	110	6.4	3.8	4.70	1.86	1.33	3.85	-1.88	1.44
USGS	31-May-99	55	6.4	1.9	4.01	1.86	0.64	1.51	-1.88	0.16
USGS	15-Jun-99	49	6	1.6	3.89	1.79	0.46	1.25	-1.93	-0.05
USGS	7-Jul-99	5	10	0.3	1.61	2.30	-1.31	-0.63	-1.42	-0.93
USGS	4-Aug-99	5	17	0.5	1.61	2.83	-0.78	-0.63	-0.53	-0.80
USGS	1-Sep-99	5	21	0.6	1.61	3.04	-0.57	-0.63	-0.02	-0.73

dCd

Concentration over time analysis r2 Slope, m

dCd NM305 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.095** **-0.00017**

Time	Ln[COC]	[COC]
15-May-91	3.30	27
12-Oct-96	2.96	19
1-Sep-99	2.78	16

LnConc.=mTime+b >'96 r2, m: **0.050** **-0.00036**

27-Nov-96	3.02	21
1-Sep-99	2.66	14

Load over time analysis

dCd NM305 **Load over time**

LnLoad=mTime+b All data r2, m: **0.011** **0.00010**

Time	LnLoad	Load
15-May-91	0.03	1.0
12-Oct-96	0.22	1.3
1-Sep-99	0.32	1.4

LnLoad=mTime+b >'96 r2, m: **0.013** **0.00028**

27-Nov-96	0.09	1.1
1-Sep-99	0.37	1.4

max r2: 0.949 max r2: 0.723

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.095	-0.00017	8.99	0.011	0.00010	-3.17
0.141	-0.00021	10.43	0.018	0.00013	-4.29
0.220	-0.00027	12.38	0.025	0.00016	-5.32
0.218	-0.00027	12.64	0.017	0.00013	-4.55
0.229	-0.00029	13.27	0.010	0.00010	-3.44
0.226	-0.00029	13.31	0.007	0.00009	-2.93
0.228	-0.00030	13.51	0.004	0.00007	-2.23
0.221	-0.00030	13.45	0.003	0.00006	-1.78
0.226	-0.00030	13.75	0.001	0.00004	-1.14
0.223	-0.00030	13.78	0.000	0.00002	-0.36
0.219	-0.00031	13.82	0.000	-0.00001	0.51
0.215	-0.00031	13.86	0.000	0.00000	0.40
0.210	-0.00031	13.90	0.000	0.00001	0.06
0.212	-0.00031	14.13	0.000	0.00001	-0.13
0.212	-0.00032	14.33	0.001	0.00003	-0.80
0.215	-0.00033	14.59	0.008	0.00010	-3.44
0.223	-0.00034	15.04	0.010	0.00011	-3.85
0.219	-0.00034	15.11	0.011	0.00013	-4.24
0.217	-0.00035	15.29	0.010	0.00012	-4.03
0.218	-0.00035	15.53	0.007	0.00010	-3.24
0.218	-0.00036	15.80	0.003	0.00007	-2.24
0.223	-0.00037	16.22	0.001	0.00003	-0.86
0.228	-0.00039	16.68	0.000	-0.00002	0.95
0.215	-0.00038	16.47	0.002	-0.00005	2.13
0.208	-0.00038	16.50	0.005	-0.00009	3.68
0.181	-0.00035	15.49	0.007	-0.00011	4.18
0.156	-0.00033	14.53	0.009	-0.00013	4.94
0.137	-0.00031	13.88	0.009	-0.00013	4.99
0.127	-0.00030	13.67	0.005	-0.00010	3.99
0.113	-0.00029	13.20	0.003	-0.00008	3.05
0.104	-0.00028	12.96	0.000	-0.00003	1.43
0.096	-0.00028	12.77	0.000	0.00000	0.45
0.101	-0.00029	13.32	0.001	0.00005	-1.45
0.112	-0.00032	14.24	0.002	0.00008	-2.52
0.109	-0.00032	14.41	0.001	0.00005	-1.70
0.110	-0.00033	14.85	0.000	0.00000	0.25
0.105	-0.00034	14.94	0.002	-0.00007	2.77
0.092	-0.00033	14.51	0.008	-0.00015	5.77
0.067	-0.00028	12.86	0.008	-0.00016	5.89
0.057	-0.00027	12.35	0.006	-0.00014	5.43
0.057	-0.00027	12.69	0.000	-0.00003	1.33
0.061	-0.00030	13.42	0.002	0.00008	-2.68
0.066	-0.00032	14.23	0.012	0.00021	-7.29
0.064	-0.00033	14.50	0.029	0.00033	-11.55
0.072	-0.00036	15.76	0.037	0.00039	-13.78
0.073	-0.00038	16.36	0.047	0.00045	-16.07
0.071	-0.00039	16.76	0.039	0.00043	-15.31

0.065	-0.00039	16.69	0.030	0.00039	-13.89
0.063	-0.00040	17.04	0.018	0.00031	-10.87
0.050	-0.00036	15.91	0.013	0.00028	-9.79
0.033	-0.00030	13.66	0.011	0.00026	-9.06
0.019	-0.00024	11.32	0.012	0.00029	-10.24
0.015	-0.00022	10.77	0.015	0.00034	-12.12
0.017	-0.00025	11.72	0.023	0.00045	-15.85
0.026	-0.00032	14.42	0.062	0.00074	-26.58
0.042	-0.00043	18.43	0.091	0.00094	-33.83
0.082	-0.00062	25.29	0.082	0.00094	-33.66
0.103	-0.00073	29.20	0.072	0.00092	-32.95
0.113	-0.00081	31.96	0.058	0.00087	-30.98
0.121	-0.00088	34.61	0.043	0.00077	-27.63
0.113	-0.00090	35.15	0.032	0.00070	-24.84
0.087	-0.00081	32.14	0.024	0.00064	-22.70
0.080	-0.00082	32.53	0.016	0.00056	-19.76
0.069	-0.00081	32.12	0.014	0.00055	-19.40
0.056	-0.00077	30.54	0.008	0.00043	-15.06
0.062	-0.00086	33.78	0.003	0.00026	-9.08
0.078	-0.00102	39.70	0.001	0.00015	-4.99
0.087	-0.00114	43.89	0.005	0.00040	-14.16
0.164	-0.00161	61.08	0.008	0.00053	-18.76
0.239	-0.00206	77.48	0.024	0.00098	-35.27
0.374	-0.00274	101.96	0.051	0.00154	-55.42
0.444	-0.00322	119.25	0.044	0.00153	-55.24
0.477	-0.00357	132.03	0.029	0.00132	-47.61
0.480	-0.00378	139.79	0.016	0.00105	-37.64
0.489	-0.00402	148.28	0.005	0.00059	-21.01
0.482	-0.00419	154.77	0.000	0.00007	-1.97
0.458	-0.00430	158.59	0.003	-0.00055	20.41
0.471	-0.00467	172.07	0.002	0.00042	-14.81
0.441	-0.00484	178.31	0.011	-0.00107	39.19
0.354	-0.00439	162.03	0.041	-0.00230	83.82
0.272	-0.00398	147.10	0.089	-0.00369	134.50
0.170	-0.00316	117.16	0.135	-0.00503	183.03
0.087	-0.00234	87.51	0.202	-0.00689	250.51
0.019	-0.00118	45.39	0.301	-0.00979	355.83
0.003	0.00051	-16.19	0.597	-0.01518	551.87
0.083	0.00282	-99.95	0.723	-0.01924	699.43
0.174	0.00480	-172.07	0.721	-0.02157	784.16
0.380	0.00775	-279.38	0.660	-0.02102	764.06
0.874	0.01203	-434.91	0.645	-0.02218	806.16
0.942	0.01326	-479.79	0.614	-0.02213	804.38
0.945	0.01378	-498.45	0.546	-0.01927	700.44
0.949	0.01462	-529.15	0.404	-0.01412	513.03

update for EV, CV:

dCd **NM305**

LN Analysis **dCd**

Load **Load Data, EV=2 lbs/day CV=.90**

Load Data-based LN

Avg:	**2**			
SD:	**1**	u	ln dCd Load	dCd Load
CV:	**0.90**	3	2.5	12
Min:	**0.3**	0	0.20	1.2
Max:	**10**	-3	-2.10	0.1
Median:	**1**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.964, EV=1.6 lbs/day CV=.86; max r2=0.99**

r2 u,lnLoad:	0.964	u	lnLoad	Load
slope, m:	1.344	3	2.45	12
intercept, b:	-0.293	0	0.22	1.2
N: 96		-3	-2.01	0.1
E[Load]:	1.6	Parameter Estimates		
SD[Load]:	1	from LN regression		
CV[Load]:	0.86	update graph label		

max r2 0.989

N: 96

Date	**dCd Load lbs/day Ranked**	**i rank**	**i-3/8 / N+1/4 plotting points**	**u y-axis**	**Ln x-axis**	**r2** forward
update and rank for new data						
7-Jul-99	0.269	1	0.0065	-2.484	-1.313	0.964
15-Aug-94	**0.4**	2	0.0169	-2.123	-0.875	0.963
4-Aug-99	0.4573	3	0.0273	-1.922	-0.782	0.967
4-Oct-91	**0.5**	4	0.0377	-1.778	-0.752	0.970
27-Oct-98	**0.5**	5	0.0481	-1.664	-0.730	0.973
15-Aug-94	**0.5**	6	0.0584	-1.568	-0.717	0.975
3-Oct-91	**0.5**	7	0.0688	-1.485	-0.624	0.976
26-Sep-96	**0.6**	8	0.0792	-1.410	-0.590	0.979
14-Aug-95	**0.6**	9	0.0896	-1.343	-0.589	0.981
2-Dec-93	**0.6**	10	0.1000	-1.282	-0.586	0.983
26-Jul-95	**0.6**	11	0.1104	-1.224	-0.577	0.984
18-Feb-94	**0.6**	12	0.1208	-1.171	-0.573	0.985
1-Sep-99	0.5649	13	0.1312	-1.121	-0.571	0.986
28-Oct-94	**0.6**	14	0.1416	-1.073	-0.566	0.987
18-Feb-94	**0.6**	15	0.1519	-1.028	-0.554	0.987
20-Jul-94	**0.6**	16	0.1623	-0.985	-0.534	0.987
11-Jul-95	**0.6**	17	0.1727	-0.943	-0.487	0.988
24-Jan-94	**0.6**	18	0.1831	-0.904	-0.459	0.988
20-Jul-94	**0.6**	19	0.1935	-0.865	-0.449	0.988
24-Sep-98	**0.6**	20	0.2039	-0.828	-0.431	0.989
4-Sep-97	**0.7**	21	0.2143	-0.792	-0.424	0.989
28-Oct-93	**0.7**	22	0.2247	-0.756	-0.419	0.989
8-Sep-94	**0.7**	23	0.2351	-0.722	-0.396	0.989
14-Aug-97	**0.7**	24	0.2455	-0.689	-0.357	0.989
21-Aug-96	**0.7**	25	0.2558	-0.656	-0.347	0.989
1-Oct-98	**0.7**	26	0.2662	-0.624	-0.325	0.989
28-Jul-98	**0.7**	27	0.2766	-0.593	-0.298	0.989
16-Dec-93	**0.7**	28	0.2870	-0.562	-0.289	0.989
16-Oct-97	**0.8**	29	0.2974	-0.532	-0.286	0.988
26-Aug-98	**0.8**	30	0.3078	-0.502	-0.282	0.988
23-Jul-97	**0.8**	31	0.3182	-0.473	-0.264	0.988
24-Jul-96	**0.8**	32	0.3286	-0.444	-0.257	0.987
24-Jun-97	**0.8**	33	0.3390	-0.415	-0.235	0.987
23-Feb-99	**0.8**	34	0.3494	-0.387	-0.228	0.987
8-Oct-98	**0.8**	35	0.3597	-0.359	-0.212	0.986
25-Feb-98	**0.8**	36	0.3701	-0.332	-0.193	0.986
19-Nov-98	**0.8**	37	0.3805	-0.304	-0.175	0.985
26-Nov-97	**0.8**	38	0.3909	-0.277	-0.166	0.985
21-Jan-98	**0.9**	39	0.4013	-0.250	-0.158	0.984
11-Nov-97	**0.9**	40	0.4117	-0.223	-0.158	0.984
29-Oct-96	**0.9**	41	0.4221	-0.197	-0.139	0.984
27-Jun-95	**0.9**	42	0.4325	-0.170	-0.134	0.984
26-Jun-98	**0.9**	43	0.4429	-0.144	-0.073	0.984
23-Jun-94	**1.0**	44	0.4532	-0.117	-0.047	0.984
27-Nov-96	**1.0**	45	0.4636	-0.091	-0.037	0.984
13-Dec-94	**1.0**	46	0.4740	-0.065	-0.001	0.985
10-Dec-98	**1.0**	47	0.4844	-0.039	0.001	0.985

20-Mar-98	**1.0**	48	0.4948	-0.013	0.017	0.986
17-Dec-97	**1.1**	49	0.5052	0.013	0.085	0.987
15-Nov-94	**1.1**	50	0.5156	0.039	0.109	0.988
31-Dec-98	**1.3**	51	0.5260	0.065	0.275	0.988
13-Dec-96	**1.3**	52	0.5364	0.091	0.285	0.988
15-Jan-99	**1.3**	53	0.5468	0.117	0.293	0.988
30-Jan-97	**1.5**	54	0.5571	0.144	0.373	0.987
8-Mar-94	**1.5**	55	0.5675	0.170	0.379	0.987
18-Oct-95	**1.5**	56	0.5779	0.197	0.387	0.987
7-Jun-94	**1.5**	57	0.5883	0.223	0.405	0.987
10-Jan-95	**1.5**	58	0.5987	0.250	0.410	0.987
23-Mar-94	**1.5**	59	0.6091	0.277	0.429	0.986
21-Jan-99	**1.5**	60	0.6195	0.304	0.431	0.986
20-May-94	**1.6**	61	0.6299	0.332	0.448	0.985
19-Jun-96	**1.6**	62	0.6403	0.359	0.454	0.984
15-Jun-99	1.58172	63	0.6506	0.387	0.459	0.983
7-May-98	**1.6**	64	0.6610	0.415	0.480	0.983
8-May-96	**1.6**	65	0.6714	0.444	0.497	0.982
21-Nov-95	**1.7**	66	0.6818	0.473	0.559	0.981
19-Feb-97	**1.8**	67	0.6922	0.502	0.573	0.980
8-Mar-94	**1.8**	68	0.7026	0.532	0.579	0.979
31-May-99	1.89376	69	0.7130	0.562	0.639	0.978
23-May-95	**1.9**	70	0.7234	0.593	0.644	0.977
16-Apr-97	**2.0**	71	0.7338	0.624	0.684	0.976
16-May-91	**2.0**	72	0.7442	0.656	0.698	0.974
25-Apr-95	**2.1**	73	0.7545	0.689	0.751	0.972
7-Apr-94	**2.2**	74	0.7649	0.722	0.807	0.970
7-Mar-95	**2.3**	75	0.7753	0.756	0.850	0.969
23-Apr-98	**2.4**	76	0.7857	0.792	0.858	0.967
8-Mar-99	**2.4**	77	0.7961	0.828	0.884	0.965
28-May-98	**2.4**	78	0.8065	0.865	0.886	0.963
15-May-91	**2.5**	79	0.8169	0.904	0.899	0.960
9-Feb-95	**2.6**	80	0.8273	0.943	0.939	0.956
15-May-98	**2.6**	81	0.8377	0.985	0.970	0.952
23-May-99	**2.7**	82	0.8481	1.028	1.002	0.947
5-May-99	**2.9**	83	0.8584	1.073	1.074	0.941
9-May-95	**2.9**	84	0.8688	1.121	1.081	0.934
13-Apr-95	**3.1**	85	0.8792	1.171	1.129	0.925
17-Apr-96	**3.1**	86	0.8896	1.224	1.138	0.914
27-May-99	**3.8**	87	0.9000	1.282	1.332	0.901
26-Mar-97	**4.0**	88	0.9104	1.343	1.383	0.903
26-Oct-98	**4.1**	89	0.9208	1.410	1.409	0.916
29-Feb-96	**4.1**	90	0.9312	1.485	1.415	0.935
28-Mar-96	**4.1**	91	0.9416	1.568	1.415	0.950
26-May-99	**4.3**	92	0.9519	1.664	1.459	0.952
17-Jan-96	**4.9**	93	0.9623	1.778	1.586	
22-Mar-99	**5.0**	94	0.9727	1.922	1.617	
19-Apr-99	**6.0**	95	0.9831	2.123	1.796	
19-Apr-94	**10.3**	96	0.9935	2.484	2.331	

update for EV, CV:

dCd
LN Analysis

Concentration

Avg:	**21**
SD:	**8**
CV:	**0.37**
Min:	**6**
Max:	**48**
Median:	**21**

NM305
dCd
Conc. Data, EV=21 ug/L CV=.37
Data-based LN

u	ln[dCd]	[dCd]
3	4.1	58
0	2.99	20
-3	1.91	7

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.93, EV=22 ug/L CV=.48; max r2=0.98**

r2 u,lnConc:	0.925	u	lnConc.	Conc.
slope, m:	2.213	3	4.33	76
intercept, b:	-6.580	0	2.97	20
N: 96		-3	1.62	5
E[Conc]:	21.7	Parameter Estimates		
SD[Conc]:	10	from LN regression		
CV[Conc]:	0.48	update graph label		

max r2
0.981

N: 96

Date	dCd Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
15-Jun-99	6	1	0.0065	-2.484	1.792	0.925
27-May-99	6.4	2	0.0169	-2.123	1.856	0.919
31-May-99	6.4	3	0.0273	-1.922	1.856	0.916
26-May-99	6.5	4	0.0377	-1.778	1.872	0.917
16-May-91	7.4	5	0.0481	-1.664	2.001	0.922
7-May-98	8.3	6	0.0584	-1.568	2.116	0.926
23-May-99	8.3	7	0.0688	-1.485	2.116	0.928
24-Jun-97	8.8	8	0.0792	-1.410	2.175	0.933
15-May-91	8.9	9	0.0896	-1.343	2.186	0.939
28-May-98	10	10	0.1000	-1.282	2.303	0.948
7-Jul-99	10	11	0.1104	-1.224	2.303	0.953
15-May-98	11.2	12	0.1208	-1.171	2.416	0.963
16-Apr-97	12	13	0.1312	-1.121	2.485	0.967
22-Mar-99	12	14	0.1416	-1.073	2.485	0.970
26-Mar-97	13	15	0.1519	-1.028	2.565	0.975
23-Jul-97	14	16	0.1623	-0.985	2.639	0.978
20-Mar-98	14	17	0.1727	-0.943	2.639	0.978
19-Apr-99	14	18	0.1831	-0.904	2.639	0.979
23-May-95	16	19	0.1935	-0.865	2.773	0.981
8-May-96	16	20	0.2039	-0.828	2.773	0.981
19-Feb-97	16	21	0.2143	-0.792	2.773	0.980
25-Feb-98	16	22	0.2247	-0.756	2.773	0.979
23-Apr-98	16	23	0.2351	-0.722	2.773	0.979
26-Jun-98	16	24	0.2455	-0.689	2.773	0.979
5-May-99	16	25	0.2558	-0.656	2.773	0.979
29-Feb-96	17	26	0.2662	-0.624	2.833	0.979
28-Mar-96	17	27	0.2766	-0.593	2.833	0.979
14-Aug-97	17	28	0.2870	-0.562	2.833	0.978
4-Aug-99	17	29	0.2974	-0.532	2.833	0.978
9-May-95	18	30	0.3078	-0.502	2.890	0.978
4-Sep-97	18	31	0.3182	-0.473	2.890	0.978
8-Mar-99	18	32	0.3286	-0.444	2.890	0.977
20-May-94	19	33	0.3390	-0.415	2.944	0.976
17-Jan-96	19	34	0.3494	-0.387	2.944	0.976
19-Jun-96	19	35	0.3597	-0.359	2.944	0.975
24-Jan-94	20	36	0.3701	-0.332	2.996	0.974
11-Jul-95	20	37	0.3805	-0.304	2.996	0.974
17-Apr-96	20	38	0.3909	-0.277	2.996	0.974
24-Jul-96	20	39	0.4013	-0.250	2.996	0.974
26-Sep-96	20	40	0.4117	-0.223	2.996	0.974
30-Jan-97	20	41	0.4221	-0.197	2.996	0.973
28-Jul-98	20	42	0.4325	-0.170	2.996	0.972
15-Aug-94	21	43	0.4429	-0.144	3.045	0.971
15-Aug-94	21	44	0.4532	-0.117	3.045	0.971
26-Nov-97	21	45	0.4636	-0.091	3.045	0.971
26-Oct-98	21	46	0.4740	-0.065	3.045	0.971
23-Feb-99	21	47	0.4844	-0.039	3.045	0.971

1-Sep-99	21	48	0.4948	-0.013	3.045	0.970
4-Oct-91	21.8	49	0.5052	0.013	3.082	0.969
2-Dec-93	22	50	0.5156	0.039	3.091	0.969
23-Mar-94	22	51	0.5260	0.065	3.091	0.970
19-Apr-94	22	52	0.5364	0.091	3.091	0.970
27-Jun-95	22	53	0.5468	0.117	3.091	0.970
21-Aug-96	22	54	0.5571	0.144	3.091	0.969
16-Oct-97	22	55	0.5675	0.170	3.091	0.969
17-Dec-97	22	56	0.5779	0.197	3.091	0.968
24-Sep-98	22	57	0.5883	0.223	3.091	0.966
21-Jan-99	22	58	0.5987	0.250	3.091	0.965
7-Apr-94	23	59	0.6091	0.277	3.135	0.963
20-Jul-94	23	60	0.6195	0.304	3.135	0.963
20-Jul-94	23	61	0.6299	0.332	3.135	0.961
26-Jul-95	23	62	0.6403	0.359	3.135	0.960
21-Jan-98	23	63	0.6506	0.387	3.135	0.958
23-Jun-94	24	64	0.6610	0.415	3.178	0.956
26-Aug-98	24	65	0.6714	0.444	3.178	0.955
25-Apr-95	25	66	0.6818	0.473	3.219	0.953
21-Nov-95	25	67	0.6922	0.502	3.219	0.955
1-Oct-98	25	68	0.7026	0.532	3.219	0.956
15-Jan-99	25	69	0.7130	0.562	3.219	0.957
28-Oct-93	26	70	0.7234	0.593	3.258	0.957
18-Feb-94	26	71	0.7338	0.624	3.258	0.962
18-Feb-94	26	72	0.7442	0.656	3.258	0.966
8-Mar-94	26	73	0.7545	0.689	3.258	0.970
8-Mar-94	26	74	0.7649	0.722	3.258	0.973
7-Jun-94	26	75	0.7753	0.756	3.258	0.975
13-Apr-95	26	76	0.7857	0.792	3.258	0.976
29-Oct-96	26	77	0.7961	0.828	3.258	0.976
3-Oct-91	27	78	0.8065	0.865	3.296	0.975
28-Oct-94	27	79	0.8169	0.904	3.296	0.978
9-Feb-95	27	80	0.8273	0.943	3.296	0.980
14-Aug-95	27	81	0.8377	0.985	3.296	0.980
13-Dec-96	28	82	0.8481	1.028	3.332	0.978
8-Oct-98	28	83	0.8584	1.073	3.332	0.980
27-Oct-98	28	84	0.8688	1.121	3.332	0.980
16-Dec-93	29	85	0.8792	1.171	3.367	0.977
11-Nov-97	29.5	86	0.8896	1.224	3.384	0.976
7-Mar-95	30	87	0.9000	1.282	3.401	0.975
27-Nov-96	30	88	0.9104	1.343	3.401	0.973
10-Dec-98	31	89	0.9208	1.410	3.434	0.967
8-Sep-94	32	90	0.9312	1.485	3.466	0.960
31-Dec-98	32	91	0.9416	1.568	3.466	0.948
10-Jan-95	35	92	0.9519	1.664	3.555	0.964
18-Oct-95	38	93	0.9623	1.778	3.638	
19-Nov-98	39	94	0.9727	1.922	3.664	
13-Dec-94	44	95	0.9831	2.123	3.784	
15-Nov-94	48	96	0.9935	2.484	3.871	

update for EV, CV:

dCd **NM305**

LN Analysis **dCd**

Discharge, Q **Q Data, EV=20 cfs CV=1.19**

Q Data-based LN

		u	lnQ	Q
Avg:	**20**			
SD:	**23**	3	5.4	212
CV:	**1.19**	0	2.54	13
Min:	**3**	-3	-0.28	1
Max:	**123**			
Median:	**9**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.92, EV=19.7 cfs CV=1.33; max r2=0.98**

r2 u,lnQ:	0.919	u	lnQ	Q
slope, m:	0.990	3	5.50	245
intercept, b:	-2.446	0	2.47	12
N: 96		-3	-0.56	1
E[Q]:	19.7	Parameter Estimates		
SD[Q]:	26	from LN regression		
CV[Q]:	1.33	update graph label		

N: 96 max r2 0.980

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
27-Oct-98	3.2	1	0.0065	-2.484	1.163	0.919
3-Oct-91	3.69	2	0.0169	-2.123	1.306	0.930
15-Aug-94	3.69	3	0.0273	-1.922	1.306	0.939
14-Aug-95	3.82	4	0.0377	-1.778	1.340	0.945
8-Sep-94	3.91	5	0.0481	-1.664	1.364	0.950
28-Oct-94	3.91	6	0.0584	-1.568	1.364	0.954
19-Nov-98	4	7	0.0688	-1.485	1.386	0.958
4-Oct-91	4.02	8	0.0792	-1.410	1.391	0.961
18-Feb-94	4.03	9	0.0896	-1.343	1.394	0.963
18-Feb-94	4.11	10	0.1000	-1.282	1.413	0.965
13-Dec-94	4.22	11	0.1104	-1.224	1.440	0.967
15-Aug-94	4.32	12	0.1208	-1.171	1.463	0.969
15-Nov-94	4.32	13	0.1312	-1.121	1.463	0.970
26-Jul-95	4.54	14	0.1416	-1.073	1.513	0.971
28-Oct-93	4.7	15	0.1519	-1.028	1.548	0.973
2-Dec-93	4.7	16	0.1623	-0.985	1.548	0.974
20-Jul-94	4.74	17	0.1727	-0.943	1.556	0.975
16-Dec-93	4.8	18	0.1831	-0.904	1.569	0.976
7-Jul-99	5	19	0.1935	-0.865	1.609	0.977
4-Aug-99	5	20	0.2039	-0.828	1.609	0.978
1-Sep-99	5	21	0.2143	-0.792	1.609	0.978
26-Sep-96	5.15	22	0.2247	-0.756	1.639	0.979
20-Jul-94	5.16	23	0.2351	-0.722	1.641	0.979
1-Oct-98	5.37	24	0.2455	-0.689	1.681	0.979
8-Oct-98	5.37	25	0.2558	-0.656	1.681	0.979
11-Nov-97	5.38	26	0.2662	-0.624	1.683	0.980
24-Sep-98	5.49	27	0.2766	-0.593	1.703	0.979
11-Jul-95	5.71	28	0.2870	-0.562	1.742	0.979
26-Aug-98	5.84	29	0.2974	-0.532	1.765	0.979
24-Jan-94	5.87	30	0.3078	-0.502	1.770	0.979
21-Aug-96	5.97	31	0.3182	-0.473	1.787	0.979
27-Nov-96	5.97	32	0.3286	-0.444	1.787	0.978
10-Dec-98	6	33	0.3390	-0.415	1.792	0.978
29-Oct-96	6.22	34	0.3494	-0.387	1.828	0.977
16-Oct-97	6.35	35	0.3597	-0.359	1.848	0.976
4-Sep-97	6.76	36	0.3701	-0.332	1.911	0.976
21-Jan-98	6.9	37	0.3805	-0.304	1.932	0.975
28-Jul-98	6.9	38	0.3909	-0.277	1.932	0.974
23-Feb-99	7.05	39	0.4013	-0.250	1.953	0.973
24-Jul-96	7.19	40	0.4117	-0.223	1.973	0.972
18-Oct-95	7.2	41	0.4221	-0.197	1.974	0.971
23-Jun-94	7.39	42	0.4325	-0.170	2.000	0.970
27-Jun-95	7.39	43	0.4429	-0.144	2.000	0.969
26-Nov-97	7.5	44	0.4532	-0.117	2.015	0.968
14-Aug-97	7.65	45	0.4636	-0.091	2.035	0.968
31-Dec-98	7.65	46	0.4740	-0.065	2.035	0.967
10-Jan-95	8	47	0.4844	-0.039	2.079	0.966

13-Dec-96	8.83	48	0.4948	-0.013	2.178	0.966
17-Dec-97	9.2	49	0.5052	0.013	2.219	0.965
25-Feb-98	9.58	50	0.5156	0.039	2.260	0.964
15-Jan-99	9.97	51	0.5260	0.065	2.300	0.962
23-Jul-97	10.2	52	0.5364	0.091	2.322	0.961
8-Mar-94	10.44	53	0.5468	0.117	2.346	0.960
7-Jun-94	10.72	54	0.5571	0.144	2.372	0.959
26-Jun-98	10.8	55	0.5675	0.170	2.380	0.958
8-Mar-94	12.76	56	0.5779	0.197	2.546	0.957
23-Mar-94	12.97	57	0.5883	0.223	2.563	0.955
21-Nov-95	13	58	0.5987	0.250	2.565	0.953
21-Jan-99	13	59	0.6091	0.277	2.565	0.951
30-Jan-97	13.5	60	0.6195	0.304	2.603	0.950
20-Mar-98	13.5	61	0.6299	0.332	2.603	0.949
7-Mar-95	14.49	62	0.6403	0.359	2.673	0.948
20-May-94	15.31	63	0.6506	0.387	2.729	0.947
19-Jun-96	15.4	64	0.6610	0.415	2.734	0.946
25-Apr-95	15.75	65	0.6714	0.444	2.757	0.945
24-Jun-97	16.7	66	0.6818	0.473	2.815	0.946
9-Feb-95	17.61	67	0.6922	0.502	2.868	0.947
7-Apr-94	18.12	68	0.7026	0.532	2.897	0.947
8-May-96	19.1	69	0.7130	0.562	2.950	0.950
19-Feb-97	20.6	70	0.7234	0.593	3.025	0.953
13-Apr-95	22.11	71	0.7338	0.624	3.096	0.956
23-May-95	22.11	72	0.7442	0.656	3.096	0.958
8-Mar-99	25	73	0.7545	0.689	3.219	0.965
23-Apr-98	27.4	74	0.7649	0.722	3.311	0.968
17-Apr-96	29	75	0.7753	0.756	3.367	0.969
9-May-95	30.45	76	0.7857	0.792	3.416	0.969
16-Apr-97	30.7	77	0.7961	0.828	3.424	0.969
5-May-99	34	78	0.8065	0.865	3.526	0.972
7-May-98	36.2	79	0.8169	0.904	3.589	0.971
26-Oct-98	36.2	80	0.8273	0.943	3.589	0.969
15-May-98	43.8	81	0.8377	0.985	3.780	0.970
29-Feb-96	45	82	0.8481	1.028	3.807	0.970
28-Mar-96	45	83	0.8584	1.073	3.807	0.971
28-May-98	45.1	84	0.8688	1.121	3.809	0.969
17-Jan-96	47.8	85	0.8792	1.171	3.867	0.965
15-Jun-99	49	86	0.8896	1.224	3.892	0.961
16-May-91	50.5	87	0.9000	1.282	3.922	0.956
15-May-91	51.3	88	0.9104	1.343	3.938	0.948
31-May-99	55	89	0.9208	1.410	4.007	0.938
26-Mar-97	57	90	0.9312	1.485	4.043	0.924
23-May-99	61	91	0.9416	1.568	4.111	0.914
22-Mar-99	78	92	0.9519	1.664	4.357	0.943
19-Apr-99	80	93	0.9623	1.778	4.382	
19-Apr-94	86.89	94	0.9727	1.922	4.465	
27-May-99	110	95	0.9831	2.123	4.700	
26-May-99	123	96	0.9935	2.484	4.812	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NM305	**Date:**	13-Jun-00
Chemical:	dPb	**Analyst:**	JMacLachlan

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,293	20	41	4	0.00	0.00	0.00
SD:	772	23	16	4	1.00	1.00	1.00
CV:	0.02	1.18	0.40	1.04			
Min:	33,373	3	4	0.3	-0.71	-2.28	-0.89
Max:	36,404	123	91	22	4.41	3.10	4.76
Median:	35,351	9	38	2	-0.45	-0.18	-0.39

dPb NM305 : Concentration v. Discharge, Q

Q = mTime +b **LnQ = mTime +b**

Conc. = mQ+b (r2=0.0844)		update r2	0.08	0.0844	r2: 0.053	0.060
r2 Q,[COC]:	0.08	[tCd]	Q		m: 0.0070	0.00030
slope, m:	-0.2	44	3.2		b: -226	-8.08
intercept, b:	44.9	41	19.9			
N: 96		20	123			

LnConc. = mLn{Q}+b (r2=0.0568)		update r2	0.06	0.0568	
r2 lnQ,ln[COC]:	0.06	ln[tCd]	ln Q	[tCd]	Q
slope, m:	-0.11	3.77	1.16	44	3
intercept, b:	3.91	3.57	2.99	35	20
N: 96		3.36	4.81	29	123

for graph
dPb 0
NM305

N= 96

update for new data	Sampling Date	Q Discharge cfs	dPb Concentration ug/L	dPb Load lbs/day	Ln Q	Ln dPb Conc.	Ln dPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	15-May-91	51.3	14	3.9	3.94	2.64	1.35	1.35	-1.66	0.02
MFG	16-May-91	50.5	14	3.8	3.92	2.64	1.34	1.31	-1.66	0.01
MFG	3-Oct-91	3.69	15	0.3	1.31	2.71	-1.21	-0.69	-1.60	-0.89
MFG	4-Oct-91	4.02	24	0.5	1.39	3.18	-0.66	-0.68	-1.05	-0.83
IDEQ	28-Oct-93	4.7	29	0.7	1.55	3.37	-0.31	-0.65	-0.74	-0.78
IDEQ	2-Dec-93	4.7	30	0.8	1.55	3.40	-0.28	-0.65	-0.67	-0.77
IDEQ	16-Dec-93	4.8	40	1.0	1.57	3.69	0.03	-0.64	-0.06	-0.70
IDEQ	24-Jan-94	5.87	34	1.1	1.77	3.53	0.07	-0.60	-0.43	-0.69
IDEQ	18-Feb-94	4.11	34	0.8	1.41	3.53	-0.29	-0.67	-0.43	-0.77
IDEQ	18-Feb-94	4.03	34	0.7	1.39	3.53	-0.30	-0.68	-0.43	-0.78
IDEQ	8-Mar-94	10.44	46	2.6	2.35	3.83	0.95	-0.40	0.31	-0.30
IDEQ	8-Mar-94	12.76	46	3.2	2.55	3.83	1.15	-0.30	0.31	-0.16
IDEQ	23-Mar-94	12.97	53	3.7	2.56	3.97	1.31	-0.29	0.75	-0.02
IDEQ	7-Apr-94	18.12	57	5.6	2.90	4.04	1.72	-0.07	0.99	0.45
IDEQ	19-Apr-94	86.89	48	22.4	4.46	3.87	3.11	2.87	0.44	4.76
IDEQ	20-May-94	15.31	4	0.3	2.73	1.39	-1.11	-0.19	-2.28	-0.88
IDEQ	7-Jun-94	10.72	54	3.1	2.37	3.99	1.14	-0.39	0.81	-0.17
IDEQ	23-Jun-94	7.39	52	2.1	2.00	3.95	0.73	-0.53	0.69	-0.44
IDEQ	20-Jul-94	5.16	49	1.4	1.64	3.89	0.31	-0.63	0.50	-0.62
IDEQ	20-Jul-94	4.74	49	1.2	1.56	3.89	0.22	-0.65	0.50	-0.65
IDEQ	15-Aug-94	4.32	35	0.8	1.46	3.56	-0.21	-0.66	-0.37	-0.76
IDEQ	15-Aug-94	3.69	35	0.7	1.31	3.56	-0.36	-0.69	-0.37	-0.79
IDEQ	8-Sep-94	3.91	26	0.5	1.36	3.26	-0.60	-0.68	-0.92	-0.82
IDEQ	28-Oct-94	3.91	30	0.6	1.36	3.40	-0.46	-0.68	-0.67	-0.80
IDEQ	15-Nov-94	4.32	90	2.1	1.46	4.50	0.74	-0.66	3.03	-0.43
IDEQ	13-Dec-94	4.22	60	1.4	1.44	4.09	0.31	-0.67	1.18	-0.62
IDEQ	10-Jan-95	8	54	2.3	2.08	3.99	0.84	-0.51	0.81	-0.37
IDEQ	9-Feb-95	17.61	73	6.9	2.87	4.29	1.93	-0.10	1.98	0.80
IDEQ	7-Mar-95	14.49	61	4.8	2.67	4.11	1.56	-0.23	1.24	0.25
IDEQ	13-Apr-95	22.11	58	6.9	3.10	4.06	1.93	0.10	1.06	0.80
IDEQ	25-Apr-95	15.75	64	5.4	2.76	4.16	1.69	-0.18	1.43	0.42
IDEQ	9-May-95	30.45	64	10.5	3.42	4.16	2.35	0.45	1.43	1.71
IDEQ	23-May-95	22.11	54	6.4	3.10	3.99	1.86	0.10	0.81	0.68
IDEQ	27-Jun-95	7.39	72	2.9	2.00	4.28	1.05	-0.53	1.92	-0.23
IDEQ	11-Jul-95	5.71	72	2.2	1.74	4.28	0.79	-0.61	1.92	-0.40
IDEQ	26-Jul-95	4.54	75	1.8	1.51	4.32	0.61	-0.66	2.11	-0.50
IDEQ	14-Aug-95	3.82	74	1.5	1.34	4.30	0.42	-0.69	2.05	-0.58
IDEQ	18-Oct-95	7.2	91	3.5	1.97	4.51	1.26	-0.54	3.10	-0.06
IDEQ	21-Nov-95	13	67	4.7	2.56	4.20	1.54	-0.29	1.61	0.23
IDEQ	17-Jan-96	47.8	65	16.7	3.87	4.17	2.82	1.20	1.49	3.30
IDEQ	29-Feb-96	45	39	9.4	3.81	3.66	2.25	1.08	-0.12	1.45
IDEQ	28-Mar-96	45	39	9.4	3.81	3.66	2.25	1.08	-0.12	1.45
IDEQ	17-Apr-96	29	45	7.0	3.37	3.81	1.95	0.39	0.25	0.83
IDEQ	8-May-96	19.1	40	4.1	2.95	3.69	1.41	-0.03	-0.06	0.08
IDEQ	19-Jun-96	15.4	37	3.1	2.73	3.61	1.12	-0.19	-0.24	-0.18
IDEQ	24-Jul-96	7.19	40	1.5	1.97	3.69	0.44	-0.54	-0.06	-0.57
IDEQ	21-Aug-96	5.97	36	1.2	1.79	3.58	0.15	-0.59	-0.30	-0.67

IDEQ	26-Sep-96	5.15	37	1.0	1.64	3.61	0.02	-0.63	-0.24	-0.70
IDEQ	29-Oct-96	6.22	41	1.4	1.83	3.71	0.32	-0.58	0.01	-0.61
IDEQ	27-Nov-96	5.97	43	1.4	1.79	3.76	0.32	-0.59	0.13	-0.61
IDEQ	13-Dec-96	8.83	58	2.8	2.18	4.06	1.01	-0.47	1.06	-0.26
IDEQ	30-Jan-97	13.5	40	2.9	2.60	3.69	1.07	-0.27	-0.06	-0.22
IDEQ	19-Feb-97	20.6	49	5.4	3.03	3.89	1.69	0.03	0.50	0.42
IDEQ	26-Mar-97	57	47	14.4	4.04	3.85	2.67	1.59	0.38	2.72
IDEQ	16-Apr-97	30.7	49	8.1	3.42	3.89	2.09	0.46	0.50	1.10
IDEQ	24-Jun-97	16.7	35	3.1	2.82	3.56	1.15	-0.13	-0.37	-0.16
IDEQ	23-Jul-97	10.2	52	2.9	2.32	3.95	1.05	-0.41	0.69	-0.24
IDEQ	14-Aug-97	7.65	46	1.9	2.03	3.83	0.64	-0.52	0.31	-0.48
IDEQ	4-Sep-97	6.76	41	1.5	1.91	3.71	0.40	-0.56	0.01	-0.58
IDEQ	16-Oct-97	6.35	38	1.3	1.85	3.64	0.26	-0.58	-0.18	-0.63
URS	11-Nov-97	5.38	41.6	1.2	1.68	3.73	0.19	-0.62	0.04	-0.66
IDEQ	26-Nov-97	7.5	39	1.6	2.01	3.66	0.45	-0.53	-0.12	-0.56
IDEQ	17-Dec-97	9.2	30	1.5	2.22	3.40	0.40	-0.46	-0.67	-0.59
IDEQ	21-Jan-98	6.9	37	1.4	1.93	3.61	0.32	-0.55	-0.24	-0.61
IDEQ	25-Feb-98	9.58	42	2.2	2.26	3.74	0.77	-0.44	0.07	-0.41
IDEQ	20-Mar-98	13.5	38	2.8	2.60	3.64	1.02	-0.27	-0.18	-0.26
IDEQ	23-Apr-98	27.4	40	5.9	3.31	3.69	1.77	0.32	-0.06	0.54
IDEQ	7-May-98	36.2	23	4.5	3.59	3.14	1.50	0.70	-1.11	0.18
URS	15-May-98	43.8	25.5	6.0	3.78	3.24	1.79	1.03	-0.95	0.57
IDEQ	28-May-98	45.1	34	8.2	3.81	3.53	2.11	1.08	-0.43	1.14
IDEQ	26-Jun-98	10.8	36	2.1	2.38	3.58	0.74	-0.39	-0.30	-0.43
IDEQ	28-Jul-98	6.9	35	1.3	1.93	3.56	0.26	-0.55	-0.37	-0.63
IDEQ	26-Aug-98	5.84	31	1.0	1.76	3.43	-0.03	-0.60	-0.61	-0.72
IDEQ	24-Sep-98	5.49	31	0.9	1.70	3.43	-0.09	-0.61	-0.61	-0.73
IDEQ	1-Oct-98	5.37	32	0.9	1.68	3.47	-0.08	-0.62	-0.55	-0.73
IDEQ	8-Oct-98	5.37	31	0.9	1.68	3.43	-0.11	-0.62	-0.61	-0.74
IDEQ	26-Oct-98	36.2	26	5.1	3.59	3.26	1.62	0.70	-0.92	0.33
USGS	27-Oct-98	3.2	29	0.5	1.16	3.37	-0.69	-0.71	-0.74	-0.84
USGS	19-Nov-98	4	36	0.8	1.39	3.58	-0.26	-0.68	-0.30	-0.77
USGS	10-Dec-98	6	36	1.2	1.79	3.58	0.15	-0.59	-0.30	-0.67
IDEQ	31-Dec-98	7.65	38	1.6	2.03	3.64	0.45	-0.52	-0.18	-0.57
IDEQ	15-Jan-99	9.97	38	2.0	2.30	3.64	0.71	-0.42	-0.18	-0.44
USGS	21-Jan-99	13	44	3.1	2.56	3.78	1.12	-0.29	0.19	-0.18
IDEQ	23-Feb-99	7.05	30	1.1	1.95	3.40	0.13	-0.55	-0.67	-0.67
IDEQ	8-Mar-99	25	37	5.0	3.22	3.61	1.60	0.22	-0.24	0.31
USGS	22-Mar-99	78	23	9.7	4.36	3.14	2.27	2.49	-1.11	1.50
USGS	19-Apr-99	80	13	5.6	4.38	2.56	1.72	2.57	-1.73	0.46
USGS	5-May-99	34	26	4.8	3.53	3.26	1.56	0.61	-0.92	0.25
USGS	23-May-99	61	23	7.5	4.11	3.14	2.02	1.76	-1.11	0.96
USGS	26-May-99	123	23	15.2	4.81	3.14	2.72	4.41	-1.11	2.92
USGS	27-May-99	110	23	13.6	4.70	3.14	2.61	3.86	-1.11	2.51
USGS	31-May-99	55	22	6.5	4.01	3.09	1.87	1.50	-1.17	0.70
USGS	15-Jun-99	49	25	6.6	3.89	3.22	1.89	1.25	-0.98	0.72
USGS	7-Jul-99	17	29	2.7	2.83	3.37	0.98	-0.12	-0.74	-0.29
USGS	4-Aug-99	8.6	33	1.5	2.15	3.50	0.42	-0.48	-0.49	-0.57
USGS	1-Sep-99	5	29	0.8	1.61	3.37	-0.25	-0.64	-0.74	-0.77

dPb

Concentration over time analysis r2 Slope, m

dPb NM305 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.011** **-0.00006**

	Time	Ln[COC]	[COC]
first:	15-May-91	3.74	42
mid:	12-Oct-96	3.62	37
last:	1-Sep-99	3.56	35

LnConc.=mTime+b >'96 r2, m: **0.494** **-0.00068**

27-Nov-96	3.90	49
1-Sep-99	3.22	25

Load over time analysis

dPb NM305 **Load over time**

LnLoad=mTime+b All data r2, m: **0.038** **0.00024**

	Time	LnLoad	Load
first:	15-May-91	0.43	2
mid:	12-Oct-96	0.90	2
last:	1-Sep-99	1.15	3

LnLoad=mTime+b >'96 r2, m: **0.002** **0.00014**

27-Nov-96	0.90	2
1-Sep-99	1.04	3

max r2: 0.760 max r2: 0.973

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.011	-0.00006	5.80	0.038	0.00024	-7.50
0.030	-0.00010	7.22	0.046	0.00027	-8.69
0.063	-0.00015	8.90	0.056	0.00031	-10.07
0.108	-0.00020	10.60	0.036	0.00025	-7.91
0.143	-0.00023	11.90	0.022	0.00020	-6.22
0.158	-0.00025	12.42	0.017	0.00017	-5.25
0.172	-0.00026	12.94	0.012	0.00015	-4.27
0.177	-0.00027	13.19	0.008	0.00013	-3.52
0.187	-0.00028	13.62	0.006	0.00011	-2.78
0.198	-0.00029	14.05	0.003	0.00007	-1.62
0.210	-0.00031	14.53	0.001	0.00004	-0.34
0.211	-0.00031	14.71	0.001	0.00004	-0.34
0.212	-0.00032	14.90	0.001	0.00004	-0.56
0.207	-0.00032	14.94	0.001	0.00006	-0.98
0.200	-0.00032	14.89	0.003	0.00008	-1.93
0.199	-0.00032	15.04	0.012	0.00016	-4.72
0.477	-0.00041	18.37	0.004	0.00009	-2.28
0.474	-0.00042	18.54	0.005	0.00010	-2.62
0.472	-0.00042	18.75	0.004	0.00010	-2.41
0.475	-0.00043	19.06	0.002	0.00007	-1.60
0.478	-0.00044	19.40	0.001	0.00004	-0.57
0.510	-0.00047	20.27	0.000	-0.00001	1.21
0.546	-0.00049	21.24	0.002	-0.00007	3.47
0.628	-0.00054	22.79	0.009	-0.00015	6.35
0.694	-0.00057	24.17	0.021	-0.00023	9.19
0.679	-0.00056	23.72	0.025	-0.00026	10.19
0.674	-0.00057	23.94	0.036	-0.00031	12.07
0.676	-0.00058	24.36	0.041	-0.00034	13.11
0.662	-0.00058	24.19	0.033	-0.00031	12.08
0.654	-0.00058	24.33	0.029	-0.00030	11.69
0.648	-0.00059	24.56	0.022	-0.00026	10.45
0.636	-0.00059	24.58	0.017	-0.00024	9.59
0.623	-0.00059	24.58	0.008	-0.00017	7.04
0.620	-0.00060	24.98	0.004	-0.00012	5.35
0.599	-0.00059	24.64	0.004	-0.00013	5.55
0.576	-0.00058	24.21	0.006	-0.00015	6.49
0.547	-0.00056	23.57	0.009	-0.00020	8.15
0.515	-0.00054	22.83	0.016	-0.00027	10.67
0.480	-0.00049	21.22	0.015	-0.00027	10.68
0.445	-0.00047	20.36	0.011	-0.00024	9.70
0.408	-0.00044	19.42	0.001	-0.00009	4.14
0.416	-0.00046	20.11	0.000	0.00003	-0.08
0.424	-0.00048	20.86	0.005	0.00016	-4.94
0.414	-0.00049	21.12	0.014	0.00029	-9.42
0.419	-0.00051	21.90	0.022	0.00037	-12.37
0.437	-0.00054	23.04	0.027	0.00043	-14.37
0.442	-0.00057	23.91	0.022	0.00040	-13.40

0.468	-0.00061	25.38	0.013	0.00032	-10.73
0.489	-0.00065	26.84	0.006	0.00022	-6.91
0.494	-0.00068	27.87	0.002	0.00014	-4.02
0.490	-0.00070	28.68	0.000	0.00004	-0.59
0.449	-0.00067	27.66	0.000	0.00005	-0.89
0.451	-0.00070	28.76	0.000	0.00007	-1.58
0.421	-0.00069	28.50	0.004	0.00022	-7.02
0.393	-0.00069	28.33	0.029	0.00061	-21.18
0.355	-0.00067	27.64	0.066	0.00096	-33.79
0.369	-0.00072	29.31	0.081	0.00112	-39.40
0.321	-0.00067	27.58	0.095	0.00127	-44.96
0.281	-0.00064	26.51	0.095	0.00134	-47.54
0.255	-0.00063	26.25	0.087	0.00135	-47.93
0.239	-0.00064	26.48	0.075	0.00131	-46.27
0.207	-0.00061	25.52	0.059	0.00122	-42.97
0.181	-0.00060	25.01	0.051	0.00119	-41.99
0.206	-0.00068	27.89	0.040	0.00112	-39.57
0.187	-0.00068	27.95	0.028	0.00099	-34.87
0.147	-0.00062	25.73	0.026	0.00101	-35.65
0.120	-0.00058	24.37	0.030	0.00114	-40.23
0.085	-0.00050	21.57	0.055	0.00162	-57.74
0.145	-0.00068	28.10	0.082	0.00209	-74.54
0.203	-0.00086	34.56	0.139	0.00287	-102.99
0.194	-0.00090	36.06	0.261	0.00413	-148.61
0.170	-0.00090	35.82	0.289	0.00468	-168.61
0.149	-0.00089	35.51	0.281	0.00490	-176.66
0.150	-0.00095	37.77	0.251	0.00485	-174.63
0.150	-0.00100	39.68	0.215	0.00463	-166.71
0.143	-0.00104	41.01	0.175	0.00432	-155.42
0.143	-0.00112	43.75	0.127	0.00382	-137.45
0.191	-0.00139	53.64	0.189	0.00499	-179.87
0.224	-0.00166	63.50	0.096	0.00356	-127.82
0.189	-0.00165	63.18	0.031	0.00206	-73.36
0.148	-0.00158	60.49	0.002	0.00051	-17.21
0.089	-0.00130	50.35	0.008	-0.00117	43.98
0.032	-0.00082	32.96	0.048	-0.00313	115.15
0.015	0.00057	-17.42	0.105	-0.00541	197.76
0.066	0.00131	-44.34	0.458	-0.01145	417.33
0.437	0.00340	-120.27	0.617	-0.01535	558.94
0.563	0.00456	-162.40	0.644	-0.01803	656.58
0.596	0.00275	-96.52	0.763	-0.02210	804.31
0.760	0.00343	-121.40	0.927	-0.02695	980.94
0.737	0.00344	-121.74	0.949	-0.02854	1038.66
0.700	0.00340	-120.31	0.954	-0.02697	981.31
0.626	0.00329	-116.29	0.973	-0.02433	885.35

update for EV, CV:

dPb **NM305**
LN Analysis **dPb**

Load **Load Data, EV=3.78 lbs/day CV=1.04**
Load Data-based LN

		u	ln tCd Load	tCd Load
Avg:	**4**			
SD:	**4**	3	3.5	34
CV:	**1.04**	0	0.96	3
Min:	**0.3**	-3	-1.60	0.2
Max:	**22**			
Median:	**2**			

4 3.78
1.04 1.04

u=mLn{Load}+ b:
update for r2, EV, CV: **r2=0.989, EV=3.88lbs/day CV=1.24; max r2=0.99**

		u	lnLoad	Load		
r2 u,lnLoad:	0.989					
slope, m:	1.035	3	3.79	44		
intercept, b:	-0.919	0	0.89	2		
N: 96		-3	-2.01	0.1		
E[Load]:	3.9	Parameter Estimates			0.989	0.989
SD[Load]:	5	from LN regression			3.9	3.88
CV[Load]:	1.24	update graph label			1.2	1.24

						max r2
	dPb	N: 96				0.991
	Load	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**lbs/day**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
3-Oct-91	**0.3**	1	0.0065	-2.484	-1.211	0.989
20-May-94	**0.3**	2	0.0169	-2.123	-1.110	0.990
27-Oct-98	**0.5**	3	0.0273	-1.922	-0.695	0.989
4-Oct-91	**0.5**	4	0.0377	-1.778	-0.656	0.990
8-Sep-94	**0.5**	5	0.0481	-1.664	-0.603	0.990
28-Oct-94	**0.6**	6	0.0584	-1.568	-0.460	0.990
15-Aug-94	**0.7**	7	0.0688	-1.485	-0.364	0.990
28-Oct-93	**0.7**	8	0.0792	-1.410	-0.310	0.991
18-Feb-94	**0.7**	9	0.0896	-1.343	-0.305	0.991
18-Feb-94	**0.8**	10	0.1000	-1.282	-0.285	0.991
2-Dec-93	**0.8**	11	0.1104	-1.224	-0.276	0.991
19-Nov-98	**0.8**	12	0.1208	-1.171	-0.255	0.991
1-Sep-99	**0.8**	13	0.1312	-1.121	-0.248	0.991
15-Aug-94	**0.8**	14	0.1416	-1.073	-0.206	0.991
8-Oct-98	**0.9**	15	0.1519	-1.028	-0.110	0.991
24-Sep-98	**0.9**	16	0.1623	-0.985	-0.088	0.990
1-Oct-98	**0.9**	17	0.1727	-0.943	-0.079	0.990
26-Aug-98	**1.0**	18	0.1831	-0.904	-0.026	0.990
26-Sep-96	**1.0**	19	0.1935	-0.865	0.025	0.989
16-Dec-93	**1.0**	20	0.2039	-0.828	0.032	0.989
24-Jan-94	**1.1**	21	0.2143	-0.792	0.071	0.989
23-Feb-99	**1.1**	22	0.2247	-0.756	0.129	0.989
21-Aug-96	**1.2**	23	0.2351	-0.722	0.145	0.988
10-Dec-98	**1.2**	24	0.2455	-0.689	0.150	0.988
11-Nov-97	**1.2**	25	0.2558	-0.656	0.186	0.988
20-Jul-94	**1.2**	26	0.2662	-0.624	0.223	0.987
16-Oct-97	**1.3**	27	0.2766	-0.593	0.261	0.987
28-Jul-98	**1.3**	28	0.2870	-0.562	0.262	0.986
20-Jul-94	**1.4**	29	0.2974	-0.532	0.308	0.986
13-Dec-94	**1.4**	30	0.3078	-0.502	0.309	0.985
29-Oct-96	**1.4**	31	0.3182	-0.473	0.316	0.985
21-Jan-98	**1.4**	32	0.3286	-0.444	0.317	0.984
27-Nov-96	**1.4**	33	0.3390	-0.415	0.323	0.984
17-Dec-97	**1.5**	34	0.3494	-0.387	0.395	0.984
4-Sep-97	**1.5**	35	0.3597	-0.359	0.400	0.984
14-Aug-95	**1.5**	36	0.3701	-0.332	0.419	0.983
4-Aug-99	**1.5**	37	0.3805	-0.304	0.423	0.983
24-Jul-96	**1.5**	38	0.3909	-0.277	0.437	0.983
31-Dec-98	**1.6**	39	0.4013	-0.250	0.447	0.984
26-Nov-97	**1.6**	40	0.4117	-0.223	0.453	0.985
26-Jul-95	**1.8**	41	0.4221	-0.197	0.605	0.986
14-Aug-97	**1.9**	42	0.4325	-0.170	0.638	0.986
15-Jan-99	**2.0**	43	0.4429	-0.144	0.712	0.986
23-Jun-94	**2.1**	44	0.4532	-0.117	0.726	0.986
15-Nov-94	**2.1**	45	0.4636	-0.091	0.738	0.986
26-Jun-98	**2.1**	46	0.4740	-0.065	0.738	0.986
25-Feb-98	**2.2**	47	0.4844	-0.039	0.772	0.986

11-Jul-95	**2.2**	48	0.4948	-0.013	0.794	0.986
10-Jan-95	**2.3**	49	0.5052	0.013	0.843	0.987
8-Mar-94	**2.6**	50	0.5156	0.039	0.949	0.987
7-Jul-99	**2.7**	51	0.5260	0.065	0.975	0.987
13-Dec-96	**2.8**	52	0.5364	0.091	1.014	0.986
20-Mar-98	**2.8**	53	0.5468	0.117	1.015	0.986
23-Jul-97	**2.9**	54	0.5571	0.144	1.049	0.985
27-Jun-95	**2.9**	55	0.5675	0.170	1.052	0.985
30-Jan-97	**2.9**	56	0.5779	0.197	1.067	0.985
19-Jun-96	**3.1**	57	0.5883	0.223	1.120	0.984
21-Jan-99	**3.1**	58	0.5987	0.250	1.124	0.984
7-Jun-94	**3.1**	59	0.6091	0.277	1.136	0.984
24-Jun-97	**3.1**	60	0.6195	0.304	1.146	0.985
8-Mar-94	**3.2**	61	0.6299	0.332	1.150	0.986
18-Oct-95	**3.5**	62	0.6403	0.359	1.260	0.988
23-Mar-94	**3.7**	63	0.6506	0.387	1.308	0.989
16-May-91	**3.8**	64	0.6610	0.415	1.336	0.989
15-May-91	**3.9**	65	0.6714	0.444	1.352	0.989
8-May-96	**4.1**	66	0.6818	0.473	1.414	0.990
7-May-98	**4.5**	67	0.6922	0.502	1.499	0.990
21-Nov-95	**4.7**	68	0.7026	0.532	1.545	0.989
7-Mar-95	**4.8**	69	0.7130	0.562	1.559	0.989
5-May-99	**4.8**	70	0.7234	0.593	1.559	0.988
8-Mar-99	**5.0**	71	0.7338	0.624	1.605	0.987
26-Oct-98	**5.1**	72	0.7442	0.656	1.622	0.986
25-Apr-95	**5.4**	73	0.7545	0.689	1.691	0.985
19-Feb-97	**5.4**	74	0.7649	0.722	1.692	0.985
7-Apr-94	**5.6**	75	0.7753	0.756	1.715	0.984
19-Apr-99	**5.6**	76	0.7857	0.792	1.722	0.983
23-Apr-98	**5.9**	77	0.7961	0.828	1.774	0.982
15-May-98	**6.0**	78	0.8065	0.865	1.793	0.981
23-May-95	**6.4**	79	0.8169	0.904	1.860	0.979
31-May-99	**6.5**	80	0.8273	0.943	1.873	0.978
15-Jun-99	**6.6**	81	0.8377	0.985	1.886	0.976
13-Apr-95	**6.9**	82	0.8481	1.028	1.931	0.974
9-Feb-95	**6.9**	83	0.8584	1.073	1.934	0.971
17-Apr-96	**7.0**	84	0.8688	1.121	1.949	0.968
23-May-99	**7.5**	85	0.8792	1.171	2.021	0.965
16-Apr-97	**8.1**	86	0.8896	1.224	2.091	0.961
28-May-98	**8.2**	87	0.9000	1.282	2.110	0.954
29-Feb-96	**9.4**	88	0.9104	1.343	2.245	0.949
28-Mar-96	**9.4**	89	0.9208	1.410	2.245	0.940
22-Mar-99	**9.7**	90	0.9312	1.485	2.267	0.926
9-May-95	**10.5**	91	0.9416	1.568	2.350	0.924
27-May-99	**13.6**	92	0.9519	1.664	2.611	0.973
26-Mar-97	**14.4**	93	0.9623	1.778	2.668	
26-May-99	**15.2**	94	0.9727	1.922	2.723	
17-Jan-96	**16.7**	95	0.9831	2.123	2.816	
19-Apr-94	**22.4**	96	0.9935	2.484	3.111	

update for EV, CV:

dPb		**NM305**	41	40.9
LN Analysis		**dPb**	0.40	0.395
Concentration		**Conc. Data, EV=40.9 ug/L CV=0.395**		
Avg:	**41**	**Data-based LN**		
SD:	**16**	u	ln[tCd]	[tCd]
CV:	**0.40**	3	4.8	119
Min:	**4**	0	3.64	38
Max:	**91**	-3	2.50	12
Median:	**38**			

				0.905	0.905
u=mLn{Conc.}+b:				42.1	42.1
update for r2, EV, CV:	**r2=0.905, EV=42.1 ug/L CV=0.509; max r2=0.99**			0.509	0.509
r2 u,lnConc:	0.905	u	lnConc.	Conc.	
slope, m:	2.082	3	5.07	158	
intercept, b:	-7.545	0	3.62	38	
N: 96		-3	2.18	9	
E[Conc]:	42.1	Parameter Estimates			
SD[Conc]:	21	from LN regression			
CV[Conc]:	0.51	update graph label			

						max r2
	dPb	N: 96				0.992
	Concentration	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	r2
Date	**ug/L**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
20-May-94	4	1	0.0065	-2.484	1.386	0.905
19-Apr-99	13	2	0.0169	-2.123	2.565	0.973
15-May-91	14	3	0.0273	-1.922	2.639	0.974
16-May-91	14	4	0.0377	-1.778	2.639	0.977
3-Oct-91	15	5	0.0481	-1.664	2.708	0.984
31-May-99	22	6	0.0584	-1.568	3.091	0.992
7-May-98	23	7	0.0688	-1.485	3.135	0.992
22-Mar-99	23	8	0.0792	-1.410	3.135	0.992
23-May-99	23	9	0.0896	-1.343	3.135	0.992
26-May-99	23	10	0.1000	-1.282	3.135	0.991
27-May-99	23	11	0.1104	-1.224	3.135	0.991
4-Oct-91	24	12	0.1208	-1.171	3.178	0.991
15-Jun-99	25	13	0.1312	-1.121	3.219	0.991
15-May-98	25.5	14	0.1416	-1.073	3.239	0.991
8-Sep-94	26	15	0.1519	-1.028	3.258	0.991
26-Oct-98	26	16	0.1623	-0.985	3.258	0.990
5-May-99	26	17	0.1727	-0.943	3.258	0.990
28-Oct-93	29	18	0.1831	-0.904	3.367	0.990
27-Oct-98	29	19	0.1935	-0.865	3.367	0.990
7-Jul-99	29	20	0.2039	-0.828	3.367	0.990
1-Sep-99	29	21	0.2143	-0.792	3.367	0.990
2-Dec-93	30	22	0.2247	-0.756	3.401	0.989
28-Oct-94	30	23	0.2351	-0.722	3.401	0.989
17-Dec-97	30	24	0.2455	-0.689	3.401	0.989
23-Feb-99	30	25	0.2558	-0.656	3.401	0.989
26-Aug-98	31	26	0.2662	-0.624	3.434	0.988
24-Sep-98	31	27	0.2766	-0.593	3.434	0.988
8-Oct-98	31	28	0.2870	-0.562	3.434	0.988
1-Oct-98	32	29	0.2974	-0.532	3.466	0.987
4-Aug-99	33	30	0.3078	-0.502	3.497	0.987
24-Jan-94	34	31	0.3182	-0.473	3.526	0.987
18-Feb-94	34	32	0.3286	-0.444	3.526	0.987
18-Feb-94	34	33	0.3390	-0.415	3.526	0.988
28-May-98	34	34	0.3494	-0.387	3.526	0.988
15-Aug-94	35	35	0.3597	-0.359	3.555	0.987
15-Aug-94	35	36	0.3701	-0.332	3.555	0.988
24-Jun-97	35	37	0.3805	-0.304	3.555	0.988
28-Jul-98	35	38	0.3909	-0.277	3.555	0.988
21-Aug-96	36	39	0.4013	-0.250	3.584	0.988
26-Jun-98	36	40	0.4117	-0.223	3.584	0.988
19-Nov-98	36	41	0.4221	-0.197	3.584	0.988
10-Dec-98	36	42	0.4325	-0.170	3.584	0.988
19-Jun-96	37	43	0.4429	-0.144	3.611	0.987
26-Sep-96	37	44	0.4532	-0.117	3.611	0.988
21-Jan-98	37	45	0.4636	-0.091	3.611	0.987
8-Mar-99	37	46	0.4740	-0.065	3.611	0.987
16-Oct-97	38	47	0.4844	-0.039	3.638	0.987

20-Mar-98	38	48	0.4948	-0.013	3.638	0.986
31-Dec-98	38	49	0.5052	0.013	3.638	0.986
15-Jan-99	38	50	0.5156	0.039	3.638	0.986
29-Feb-96	39	51	0.5260	0.065	3.664	0.985
28-Mar-96	39	52	0.5364	0.091	3.664	0.985
26-Nov-97	39	53	0.5468	0.117	3.664	0.984
16-Dec-93	40	54	0.5571	0.144	3.689	0.983
8-May-96	40	55	0.5675	0.170	3.689	0.983
24-Jul-96	40	56	0.5779	0.197	3.689	0.982
30-Jan-97	40	57	0.5883	0.223	3.689	0.981
23-Apr-98	40	58	0.5987	0.250	3.689	0.981
29-Oct-96	41	59	0.6091	0.277	3.714	0.980
4-Sep-97	41	60	0.6195	0.304	3.714	0.980
11-Nov-97	41.6	61	0.6299	0.332	3.728	0.980
25-Feb-98	42	62	0.6403	0.359	3.738	0.979
27-Nov-96	43	63	0.6506	0.387	3.761	0.980
21-Jan-99	44	64	0.6610	0.415	3.784	0.979
17-Apr-96	45	65	0.6714	0.444	3.807	0.978
8-Mar-94	46	66	0.6818	0.473	3.829	0.977
8-Mar-94	46	67	0.6922	0.502	3.829	0.976
14-Aug-97	46	68	0.7026	0.532	3.829	0.975
26-Mar-97	47	69	0.7130	0.562	3.850	0.974
19-Apr-94	48	70	0.7234	0.593	3.871	0.973
20-Jul-94	49	71	0.7338	0.624	3.892	0.971
20-Jul-94	49	72	0.7442	0.656	3.892	0.969
19-Feb-97	49	73	0.7545	0.689	3.892	0.968
16-Apr-97	49	74	0.7649	0.722	3.892	0.966
23-Jun-94	52	75	0.7753	0.756	3.951	0.967
23-Jul-97	52	76	0.7857	0.792	3.951	0.965
23-Mar-94	53	77	0.7961	0.828	3.970	0.962
7-Jun-94	54	78	0.8065	0.865	3.989	0.959
10-Jan-95	54	79	0.8169	0.904	3.989	0.956
23-May-95	54	80	0.8273	0.943	3.989	0.953
7-Apr-94	57	81	0.8377	0.985	4.043	0.954
13-Apr-95	58	82	0.8481	1.028	4.060	0.949
13-Dec-96	58	83	0.8584	1.073	4.060	0.944
13-Dec-94	60	84	0.8688	1.121	4.094	0.940
7-Mar-95	61	85	0.8792	1.171	4.111	0.932
25-Apr-95	64	86	0.8896	1.224	4.159	0.924
9-May-95	64	87	0.9000	1.282	4.159	0.913
17-Jan-96	65	88	0.9104	1.343	4.174	0.897
21-Nov-95	67	89	0.9208	1.410	4.205	0.877
27-Jun-95	72	90	0.9312	1.485	4.277	0.847
11-Jul-95	72	91	0.9416	1.568	4.277	0.847
9-Feb-95	73	92	0.9519	1.664	4.290	0.825
14-Aug-95	74	93	0.9623	1.778	4.304	
26-Jul-95	75	94	0.9727	1.922	4.317	
15-Nov-94	90	95	0.9831	2.123	4.500	
18-Oct-95	91	96	0.9935	2.484	4.511	

update for EV, CV:

dPb		**NM305**			20	19.9
LN Analysis		**dPb**			1.18	1.18
Discharge, Q		**Q Data, EV=19.9 cfs CV=1.18**				
Avg:	**20**	**Q Data-based LN**				
SD:	**23**	u	lnQ	Q		
CV:	**1.18**	3	5.4	211		
Min:	**3**	0	2.55	13		
Max:	**123**	-3	-0.24	1		
Median:	**9**					

					0.927	0.927
					19.8	19.8
u=mLn{Q}+b:					1.31	1.31
update for r2, EV, CV:	**r2=0.927, EV=19.8 cfs CV=1.31; max r2=0.98**					
r2 u,lnQ:	0.927	u	lnQ	Q		
slope, m:	1.002	3	5.48	241		
intercept, b:	-2.493	0	2.49	12		
N: 96		-3	-0.51	1		
E[Q]:	19.8	Parameter Estimates				
SD[Q]:	26	from LN regression				
CV[Q]:	1.31	update graph label				

						max r2
	Q	N: 96				0.981
	Discharge	**i**	**i-3/8 / N+1/4**	**u**	**Ln**	**r2**
Date	**cfs**	**rank**	**plotting points**	**y-axis**	**x-axis**	forward
	Ranked					
update and rank for new data						
27-Oct-98	3.2	1	0.0065	-2.484	1.163	0.927
3-Oct-91	3.69	2	0.0169	-2.123	1.306	0.938
15-Aug-94	3.69	3	0.0273	-1.922	1.306	0.946
14-Aug-95	3.82	4	0.0377	-1.778	1.340	0.952
8-Sep-94	3.91	5	0.0481	-1.664	1.364	0.957
28-Oct-94	3.91	6	0.0584	-1.568	1.364	0.961
19-Nov-98	4	7	0.0688	-1.485	1.386	0.964
4-Oct-91	4.02	8	0.0792	-1.410	1.391	0.967
18-Feb-94	4.03	9	0.0896	-1.343	1.394	0.969
18-Feb-94	4.11	10	0.1000	-1.282	1.413	0.970
13-Dec-94	4.22	11	0.1104	-1.224	1.440	0.972
15-Aug-94	4.32	12	0.1208	-1.171	1.463	0.973
15-Nov-94	4.32	13	0.1312	-1.121	1.463	0.974
26-Jul-95	4.54	14	0.1416	-1.073	1.513	0.975
28-Oct-93	4.7	15	0.1519	-1.028	1.548	0.976
2-Dec-93	4.7	16	0.1623	-0.985	1.548	0.977
20-Jul-94	4.74	17	0.1727	-0.943	1.556	0.978
16-Dec-93	4.8	18	0.1831	-0.904	1.569	0.979
1-Sep-99	5	19	0.1935	-0.865	1.609	0.979
26-Sep-96	5.15	20	0.2039	-0.828	1.639	0.980
20-Jul-94	5.16	21	0.2143	-0.792	1.641	0.980
1-Oct-98	5.37	22	0.2247	-0.756	1.681	0.981
8-Oct-98	5.37	23	0.2351	-0.722	1.681	0.981
11-Nov-97	5.38	24	0.2455	-0.689	1.683	0.981
24-Sep-98	5.49	25	0.2558	-0.656	1.703	0.981
11-Jul-95	5.71	26	0.2662	-0.624	1.742	0.981
26-Aug-98	5.84	27	0.2766	-0.593	1.765	0.981
24-Jan-94	5.87	28	0.2870	-0.562	1.770	0.981
21-Aug-96	5.97	29	0.2974	-0.532	1.787	0.981
27-Nov-96	5.97	30	0.3078	-0.502	1.787	0.981
10-Dec-98	6	31	0.3182	-0.473	1.792	0.980
29-Oct-96	6.22	32	0.3286	-0.444	1.828	0.980
16-Oct-97	6.35	33	0.3390	-0.415	1.848	0.979
4-Sep-97	6.76	34	0.3494	-0.387	1.911	0.979
21-Jan-98	6.9	35	0.3597	-0.359	1.932	0.978
28-Jul-98	6.9	36	0.3701	-0.332	1.932	0.978
23-Feb-99	7.05	37	0.3805	-0.304	1.953	0.977
24-Jul-96	7.19	38	0.3909	-0.277	1.973	0.976
18-Oct-95	7.2	39	0.4013	-0.250	1.974	0.976
23-Jun-94	7.39	40	0.4117	-0.223	2.000	0.975
27-Jun-95	7.39	41	0.4221	-0.197	2.000	0.974
26-Nov-97	7.5	42	0.4325	-0.170	2.015	0.973
14-Aug-97	7.65	43	0.4429	-0.144	2.035	0.972
31-Dec-98	7.65	44	0.4532	-0.117	2.035	0.971
10-Jan-95	8	45	0.4636	-0.091	2.079	0.971
4-Aug-99	8.6	46	0.4740	-0.065	2.152	0.970
13-Dec-96	8.83	47	0.4844	-0.039	2.178	0.969

17-Dec-97	9.2	48	0.4948	-0.013	2.219	0.968
25-Feb-98	9.58	49	0.5052	0.013	2.260	0.967
15-Jan-99	9.97	50	0.5156	0.039	2.300	0.966
23-Jul-97	10.2	51	0.5260	0.065	2.322	0.965
8-Mar-94	10.44	52	0.5364	0.091	2.346	0.964
7-Jun-94	10.72	53	0.5468	0.117	2.372	0.963
26-Jun-98	10.8	54	0.5571	0.144	2.380	0.962
8-Mar-94	12.76	55	0.5675	0.170	2.546	0.961
23-Mar-94	12.97	56	0.5779	0.197	2.563	0.960
21-Nov-95	13	57	0.5883	0.223	2.565	0.958
21-Jan-99	13	58	0.5987	0.250	2.565	0.956
30-Jan-97	13.5	59	0.6091	0.277	2.603	0.955
20-Mar-98	13.5	60	0.6195	0.304	2.603	0.953
7-Mar-95	14.49	61	0.6299	0.332	2.673	0.952
20-May-94	15.31	62	0.6403	0.359	2.729	0.951
19-Jun-96	15.4	63	0.6506	0.387	2.734	0.949
25-Apr-95	15.75	64	0.6610	0.415	2.757	0.948
24-Jun-97	16.7	65	0.6714	0.444	2.815	0.947
7-Jul-99	17	66	0.6818	0.473	2.833	0.947
9-Feb-95	17.61	67	0.6922	0.502	2.868	0.947
7-Apr-94	18.12	68	0.7026	0.532	2.897	0.947
8-May-96	19.1	69	0.7130	0.562	2.950	0.950
19-Feb-97	20.6	70	0.7234	0.593	3.025	0.953
13-Apr-95	22.11	71	0.7338	0.624	3.096	0.956
23-May-95	22.11	72	0.7442	0.656	3.096	0.958
8-Mar-99	25	73	0.7545	0.689	3.219	0.965
23-Apr-98	27.4	74	0.7649	0.722	3.311	0.968
17-Apr-96	29	75	0.7753	0.756	3.367	0.969
9-May-95	30.45	76	0.7857	0.792	3.416	0.969
16-Apr-97	30.7	77	0.7961	0.828	3.424	0.969
5-May-99	34	78	0.8065	0.865	3.526	0.972
7-May-98	36.2	79	0.8169	0.904	3.589	0.971
26-Oct-98	36.2	80	0.8273	0.943	3.589	0.969
15-May-98	43.8	81	0.8377	0.985	3.780	0.970
29-Feb-96	45	82	0.8481	1.028	3.807	0.970
28-Mar-96	45	83	0.8584	1.073	3.807	0.971
28-May-98	45.1	84	0.8688	1.121	3.809	0.969
17-Jan-96	47.8	85	0.8792	1.171	3.867	0.965
15-Jun-99	49	86	0.8896	1.224	3.892	0.961
16-May-91	50.5	87	0.9000	1.282	3.922	0.956
15-May-91	51.3	88	0.9104	1.343	3.938	0.948
31-May-99	55	89	0.9208	1.410	4.007	0.938
26-Mar-97	57	90	0.9312	1.485	4.043	0.924
23-May-99	61	91	0.9416	1.568	4.111	0.914
22-Mar-99	78	92	0.9519	1.664	4.357	0.943
19-Apr-99	80	93	0.9623	1.778	4.382	
19-Apr-94	86.89	94	0.9727	1.922	4.465	
27-May-99	110	95	0.9831	2.123	4.700	
26-May-99	123	96	0.9935	2.484	4.812	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM305 **Date:** 19-Oct-00
Chemical: dZn **Analyst:** S.R. Peterson
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,293	20	3,364	275	0.00	0.00	0.00
SD:	772	23	1,356	248	1.00	1.00	1.00
CV:	0.02	1.18	0.40	0.90			
Min:	33,373	3	864	45	-0.71	-1.84	-0.93
Max:	36,404	123	7,460	1,678	4.41	3.02	5.65
Median:	35,351	9	3,155	180	-0.45	-0.15	-0.38

dZn NM305 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.26) update r2

r2 Q,[COC]:	0.27	[dZn]	Q	r2:	0.053	0.060
slope, m:	-30.1	3,866	3.2	m:	0.0070	0.00030
intercept, b:	3962.5	3,364	19.9	b:	-226	-8.08
N: 96		256	123			

LnConc. = mLn{Q}+b (r2=0.36) update r2

r2 lnQ,ln[COC]:	0.39	ln[dZn]	ln Q	[dZn]	Q
slope, m:	-0.29	8.42	1.16	4,515	3
intercept, b:	8.75	7.89	2.99	2,672	20
N: 96		7.37	4.81	1,582	123

for graph
dZn 0
NM305

N= 96

update for new data	Sampling Date	Q Discharge cfs	dZn Concentration ug/L	dZn Load lbs/day	Ln Q	Ln dZn Conc.	Ln dZn Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	15-May-91	51.3	1940	535	3.94	7.57	6.28	1.35	-1.05	1.05
MFG	16-May-91	50.5	1990	541	3.92	7.60	6.29	1.31	-1.01	1.07
MFG	3-Oct-91	3.69	2640	52	1.31	7.88	3.96	-0.69	-0.53	-0.90
MFG	4-Oct-91	4.02	4550	98	1.39	8.42	4.59	-0.68	0.87	-0.71
IDEQ	28-Oct-93	4.7	4510	114	1.55	8.41	4.74	-0.65	0.85	-0.65
IDEQ	2-Dec-93	4.7	4260	108	1.55	8.36	4.68	-0.65	0.66	-0.68
IDEQ	16-Dec-93	4.8	4830	125	1.57	8.48	4.83	-0.64	1.08	-0.61
IDEQ	24-Jan-94	5.87	4210	133	1.77	8.35	4.89	-0.60	0.62	-0.57
IDEQ	18-Feb-94	4.03	4070	88	1.39	8.31	4.48	-0.68	0.52	-0.75
IDEQ	18-Feb-94	4.11	4070	90	1.41	8.31	4.50	-0.67	0.52	-0.75
IDEQ	8-Mar-94	10.44	3760	211	2.35	8.23	5.35	-0.40	0.29	-0.26
IDEQ	8-Mar-94	12.76	3760	258	2.55	8.23	5.55	-0.30	0.29	-0.07
IDEQ	23-Mar-94	12.97	3810	266	2.56	8.25	5.58	-0.29	0.33	-0.04
IDEQ	7-Apr-94	18.12	3940	384	2.90	8.28	5.95	-0.07	0.42	0.44
IDEQ	19-Apr-94	86.89	3590	1678	4.46	8.19	7.43	2.87	0.17	5.65
IDEQ	20-May-94	15.31	2520	208	2.73	7.83	5.34	-0.19	-0.62	-0.27
IDEQ	7-Jun-94	10.72	3160	182	2.37	8.06	5.21	-0.39	-0.15	-0.38
IDEQ	23-Jun-94	7.39	3300	131	2.00	8.10	4.88	-0.53	-0.05	-0.58
IDEQ	20-Jul-94	4.74	2610	67	1.56	7.87	4.20	-0.65	-0.56	-0.84
IDEQ	20-Jul-94	5.16	2610	72	1.64	7.87	4.28	-0.63	-0.56	-0.82
IDEQ	15-Aug-94	3.69	2280	45	1.31	7.73	3.81	-0.69	-0.80	-0.93
IDEQ	15-Aug-94	4.32	2280	53	1.46	7.73	3.97	-0.66	-0.80	-0.90
IDEQ	8-Sep-94	3.91	4840	102	1.36	8.48	4.62	-0.68	1.09	-0.70
IDEQ	28-Oct-94	3.91	3890	82	1.36	8.27	4.40	-0.68	0.39	-0.78
IDEQ	15-Nov-94	4.32	6800	158	1.46	8.82	5.06	-0.66	2.53	-0.47
IDEQ	13-Dec-94	4.22	7390	168	1.44	8.91	5.12	-0.67	2.97	-0.43
IDEQ	10-Jan-95	8	5500	237	2.08	8.61	5.47	-0.51	1.58	-0.16
IDEQ	9-Feb-95	17.61	4590	435	2.87	8.43	6.08	-0.10	0.90	0.64
IDEQ	7-Mar-95	14.49	4760	371	2.67	8.47	5.92	-0.23	1.03	0.39
IDEQ	13-Apr-95	22.11	4690	558	3.10	8.45	6.32	0.10	0.98	1.14
IDEQ	25-Apr-95	15.75	4740	402	2.76	8.46	6.00	-0.18	1.01	0.51
IDEQ	9-May-95	30.45	2640	432	3.42	7.88	6.07	0.45	-0.53	0.63
IDEQ	23-May-95	22.11	2070	246	3.10	7.64	5.51	0.10	-0.95	-0.12
IDEQ	27-Jun-95	7.39	2930	116	2.00	7.98	4.76	-0.53	-0.32	-0.64
IDEQ	11-Jul-95	5.71	2920	90	1.74	7.98	4.50	-0.61	-0.33	-0.75
IDEQ	26-Jul-95	4.54	3080	75	1.51	8.03	4.32	-0.66	-0.21	-0.81
IDEQ	14-Aug-95	3.82	3470	71	1.34	8.15	4.27	-0.69	0.08	-0.82
IDEQ	18-Oct-95	7.2	5920	229	1.97	8.69	5.44	-0.54	1.89	-0.19
IDEQ	21-Nov-95	13	4210	294	2.56	8.35	5.69	-0.29	0.62	0.08
IDEQ	17-Jan-96	47.8	2830	728	3.87	7.95	6.59	1.20	-0.39	1.82
IDEQ	29-Feb-96	45	2970	719	3.81	8.00	6.58	1.08	-0.29	1.79
IDEQ	28-Mar-96	45	2830	685	3.81	7.95	6.53	1.08	-0.39	1.65
IDEQ	17-Apr-96	29	3350	523	3.37	8.12	6.26	0.39	-0.01	1.00
IDEQ	8-May-96	19.1	2910	299	2.95	7.98	5.70	-0.03	-0.34	0.10
IDEQ	19-Jun-96	15.4	1790	148	2.73	7.49	5.00	-0.19	-1.16	-0.51
IDEQ	24-Jul-96	7.19	2470	96	1.97	7.81	4.56	-0.54	-0.66	-0.72
IDEQ	21-Aug-96	5.97	2790	90	1.79	7.93	4.50	-0.59	-0.42	-0.75

IDEQ	26-Sep-96	5.15	2540	70	1.64	7.84	4.25	-0.63	-0.61	-0.83
IDEQ	29-Oct-96	6.22	4440	149	1.83	8.40	5.00	-0.58	0.79	-0.51
IDEQ	27-Nov-96	5.97	5550	178	1.79	8.62	5.18	-0.59	1.61	-0.39
IDEQ	13-Dec-96	8.83	4560	217	2.18	8.43	5.38	-0.47	0.88	-0.24
IDEQ	30-Jan-97	13.5	3260	237	2.60	8.09	5.47	-0.27	-0.08	-0.16
IDEQ	19-Feb-97	20.6	2520	279	3.03	7.83	5.63	0.03	-0.62	0.02
IDEQ	26-Mar-97	57	2110	647	4.04	7.65	6.47	1.59	-0.93	1.50
IDEQ	16-Apr-97	30.7	2080	344	3.42	7.64	5.84	0.46	-0.95	0.27
IDEQ	24-Jun-97	16.7	1500	135	2.82	7.31	4.90	-0.13	-1.38	-0.57
IDEQ	23-Jul-97	10.2	2280	125	2.32	7.73	4.83	-0.41	-0.80	-0.61
IDEQ	14-Aug-97	7.65	2850	117	2.03	7.96	4.76	-0.52	-0.38	-0.64
IDEQ	4-Sep-97	6.76	2550	93	1.91	7.84	4.53	-0.56	-0.60	-0.74
IDEQ	16-Oct-97	6.35	3410	116	1.85	8.13	4.76	-0.58	0.03	-0.64
URS	11-Nov-97	5.38	5180	150	1.68	8.55	5.01	-0.62	1.34	-0.51
IDEQ	26-Nov-97	7.5	4110	166	2.01	8.32	5.11	-0.53	0.55	-0.44
IDEQ	17-Dec-97	9.2	3810	189	2.22	8.25	5.24	-0.46	0.33	-0.35
IDEQ	21-Jan-98	6.9	3680	137	1.93	8.21	4.92	-0.55	0.23	-0.56
IDEQ	25-Feb-98	9.58	2620	135	2.26	7.87	4.91	-0.44	-0.55	-0.57
IDEQ	20-Mar-98	13.5	2230	162	2.60	7.71	5.09	-0.27	-0.84	-0.46
IDEQ	23-Apr-98	27.4	3150	464	3.31	8.06	6.14	0.32	-0.16	0.76
IDEQ	7-May-98	36.2	1630	317	3.59	7.40	5.76	0.70	-1.28	0.17
URS	15-May-98	43.8	1960	462	3.78	7.58	6.14	1.03	-1.04	0.75
IDEQ	28-May-98	45.1	1940	471	3.81	7.57	6.15	1.08	-1.05	0.79
IDEQ	26-Jun-98	10.8	2550	148	2.38	7.84	5.00	-0.39	-0.60	-0.51
IDEQ	28-Jul-98	6.9	2680	99	1.93	7.89	4.60	-0.55	-0.50	-0.71
IDEQ	26-Aug-98	5.84	3980	125	1.76	8.29	4.83	-0.60	0.45	-0.61
IDEQ	24-Sep-98	5.49	3670	108	1.70	8.21	4.69	-0.61	0.23	-0.67
IDEQ	1-Oct-98	5.37	4130	559	1.68	8.33	6.33	-0.62	0.56	1.14
IDEQ	8-Oct-98	5.37	4600	133	1.68	8.43	4.89	-0.62	0.91	-0.57
IDEQ	26-Oct-98	36.2	2980	580	3.59	8.00	6.36	0.70	-0.28	1.23
USGS	27-Oct-98	3.2	4850	83	1.16	8.49	4.42	-0.71	1.10	-0.77
USGS	19-Nov-98	4	7460	161	1.39	8.92	5.08	-0.68	3.02	-0.46
USGS	10-Dec-98	6	6640	214	1.79	8.80	5.37	-0.59	2.42	-0.25
IDEQ	31-Dec-98	7.65	4880	201	2.03	8.49	5.30	-0.52	1.12	-0.30
IDEQ	15-Jan-99	9.97	4110	220	2.30	8.32	5.40	-0.42	0.55	-0.22
USGS	21-Jan-99	13	3820	267	2.56	8.25	5.59	-0.29	0.34	-0.03
IDEQ	23-Feb-99	7.05	3190	121	1.95	8.07	4.80	-0.55	-0.13	-0.62
IDEQ	8-Mar-99	25	2810	378	3.22	7.94	5.93	0.22	-0.41	0.41
USGS	22-Mar-99	78	2010	843	4.36	7.61	6.74	2.49	-1.00	2.29
USGS	19-Apr-99	80	2400	1033	4.38	7.78	6.94	2.57	-0.71	3.05
USGS	5-May-99	34	2690	492	3.53	7.90	6.20	0.61	-0.50	0.87
USGS	23-May-99	61	1240	407	4.11	7.12	6.01	1.76	-1.57	0.53
USGS	26-May-99	123	981	649	4.81	6.89	6.48	4.41	-1.76	1.51
USGS	27-May-99	110	1020	604	4.70	6.93	6.40	3.86	-1.73	1.32
USGS	31-May-99	55	974	288	4.01	6.88	5.66	1.50	-1.76	0.05
USGS	15-Jun-99	49	864	228	3.89	6.76	5.43	1.25	-1.84	-0.19
USGS	7-Jul-99	17	1570	144	2.83	7.36	4.97	-0.12	-1.32	-0.53
USGS	4-Aug-99	8.6	2280	105	2.15	7.73	4.66	-0.48	-0.80	-0.68
USGS	1-Sep-99	5	3570	96	1.61	8.18	4.56	-0.64	0.15	-0.72

dZn

Concentration over time analysis r2 Slope, m

dZn NM305 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.074** **-0.00015**

	Time	Ln[COC]	[COC]
first:	15-May-91	8.33	4,140
mid:	12-Oct-96	8.03	3,058
last:	1-Sep-99	7.86	2,602

LnConc.=mTime+b >'96 r2, m: **0.064** **-0.00044**

	27-Nov-96	8.17	3,533
	1-Sep-99	7.73	2,276

Load over time analysis

dZn NM305 **Load over time**

LnLoad=mTime+b All data r2, m: **0.029** **0.00017**

	Time	LnLoad	Load
first:	15-May-91	4.99	147
mid:	12-Oct-96	5.32	205
last:	1-Sep-99	5.50	245

LnLoad=mTime+b >'96 r2, m: **0.033** **0.00042**

	27-Nov-96	5.18	178
	1-Sep-99	5.60	271

max r2: 0.952 max r2: 0.930

Forward time Regression on Ln Concentration(t)			Forward time Regression on Ln Load(t)		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.074	-0.00015	13.44	0.029	0.00017	-0.58
0.098	-0.00018	14.42	0.045	0.00021	-2.25
0.126	-0.00021	15.53	0.067	0.00027	-4.22
0.144	-0.00023	16.31	0.050	0.00024	-3.03
0.137	-0.00024	16.39	0.042	0.00022	-2.59
0.131	-0.00023	16.29	0.038	0.00021	-2.27
0.126	-0.00023	16.22	0.033	0.00020	-1.87
0.118	-0.00023	16.02	0.030	0.00020	-1.59
0.113	-0.00022	15.95	0.027	0.00019	-1.35
0.109	-0.00022	15.89	0.022	0.00017	-0.68
0.104	-0.00022	15.83	0.017	0.00015	0.03
0.102	-0.00022	15.85	0.017	0.00015	-0.14
0.099	-0.00022	15.87	0.019	0.00017	-0.54
0.096	-0.00022	15.87	0.022	0.00018	-1.01
0.092	-0.00022	15.83	0.028	0.00021	-1.96
0.091	-0.00022	15.90	0.057	0.00029	-4.85
0.100	-0.00024	16.41	0.060	0.00030	-5.25
0.102	-0.00024	16.67	0.060	0.00030	-5.50
0.103	-0.00025	16.88	0.056	0.00030	-5.32
0.112	-0.00027	17.43	0.044	0.00027	-4.15
0.121	-0.00028	18.05	0.034	0.00023	-2.98
0.138	-0.00031	18.91	0.020	0.00018	-0.98
0.157	-0.00033	19.88	0.010	0.00012	1.01
0.146	-0.00033	19.66	0.005	0.00009	2.11
0.143	-0.00033	19.77	0.001	0.00005	3.66
0.122	-0.00031	18.89	0.001	0.00003	4.22
0.099	-0.00027	17.75	0.000	0.00002	4.72
0.083	-0.00025	17.04	0.000	0.00002	4.61
0.073	-0.00024	16.61	0.002	0.00006	3.30
0.062	-0.00023	16.04	0.004	0.00009	2.17
0.051	-0.00021	15.42	0.010	0.00015	0.08
0.040	-0.00019	14.70	0.017	0.00019	-1.55
0.044	-0.00020	15.25	0.027	0.00025	-3.56
0.057	-0.00024	16.49	0.031	0.00027	-4.44
0.060	-0.00025	16.95	0.024	0.00025	-3.46
0.063	-0.00027	17.48	0.014	0.00020	-1.58
0.064	-0.00028	17.92	0.005	0.00012	1.13
0.061	-0.00028	18.04	0.000	0.00003	4.49
0.042	-0.00024	16.39	0.000	0.00003	4.43
0.033	-0.00021	15.62	0.001	0.00005	3.52
0.034	-0.00023	16.10	0.008	0.00017	-0.62
0.035	-0.00024	16.43	0.026	0.00030	-5.22
0.036	-0.00025	16.97	0.054	0.00044	-10.29
0.033	-0.00025	16.90	0.089	0.00057	-15.11
0.034	-0.00026	17.41	0.110	0.00066	-18.33
0.053	-0.00034	20.12	0.106	0.00067	-18.75
0.062	-0.00038	21.70	0.087	0.00062	-17.05

0.067	-0.00042	22.89	0.066	0.00056	-14.64
0.078	-0.00047	24.69	0.040	0.00044	-10.45
0.064	-0.00044	23.61	0.033	0.00042	-9.60
0.042	-0.00036	20.93	0.031	0.00042	-9.62
0.028	-0.00031	18.88	0.033	0.00045	-10.86
0.024	-0.00030	18.65	0.037	0.00051	-12.76
0.029	-0.00034	20.22	0.047	0.00060	-16.24
0.041	-0.00043	23.41	0.100	0.00090	-26.86
0.058	-0.00054	27.45	0.138	0.00111	-34.52
0.101	-0.00074	34.43	0.127	0.00111	-34.56
0.124	-0.00086	38.85	0.112	0.00108	-33.67
0.135	-0.00094	41.93	0.093	0.00103	-31.71
0.158	-0.00108	46.73	0.065	0.00089	-26.57
0.158	-0.00113	48.74	0.046	0.00078	-22.58
0.128	-0.00106	46.01	0.036	0.00072	-20.40
0.112	-0.00104	45.31	0.028	0.00067	-18.79
0.100	-0.00103	45.18	0.024	0.00066	-18.35
0.089	-0.00103	45.00	0.013	0.00050	-12.70
0.099	-0.00115	49.44	0.004	0.00030	-5.45
0.124	-0.00136	57.18	0.001	0.00013	0.71
0.123	-0.00144	59.79	0.007	0.00042	-9.58
0.187	-0.00185	74.93	0.011	0.00058	-15.56
0.253	-0.00230	91.01	0.031	0.00102	-31.46
0.348	-0.00289	112.44	0.070	0.00162	-53.27
0.414	-0.00340	130.82	0.055	0.00153	-50.04
0.477	-0.00391	149.49	0.026	0.00109	-33.92
0.482	-0.00415	158.29	0.010	0.00070	-19.63
0.491	-0.00441	167.56	0.000	0.00011	1.63
0.487	-0.00462	175.30	0.010	0.00074	-21.12
0.468	-0.00478	180.96	0.000	0.00016	-0.24
0.509	-0.00537	202.41	0.015	0.00101	-31.09
0.483	-0.00560	210.92	0.002	-0.00038	19.60
0.393	-0.00506	191.25	0.021	-0.00135	54.71
0.288	-0.00429	163.23	0.046	-0.00220	85.54
0.195	-0.00360	138.06	0.096	-0.00347	131.69
0.109	-0.00279	108.91	0.167	-0.00511	191.10
0.026	-0.00147	60.96	0.262	-0.00745	276.14
0.000	0.00005	5.53	0.678	-0.01271	467.19
0.044	0.00220	-72.47	0.862	-0.01655	606.73
0.123	0.00431	-149.02	0.868	-0.01829	669.96
0.332	0.00762	-269.41	0.833	-0.01723	631.42
0.869	0.01232	-440.52	0.825	-0.01806	661.82
0.931	0.01353	-484.40	0.815	-0.01845	676.00
0.932	0.01405	-503.23	0.814	-0.01632	598.39
0.952	0.01534	-550.37	0.930	-0.01227	451.27

update for EV, CV:

dZn
LN Analysis

Load

NM305
dZn
Load Data, EV=275lbs/d CV=.90
Load Data-based LN

Avg:	**275**	u	ln dZn Load	dZn Load
SD:	**248**	3	7.6	2068
CV:	**0.90**	0	5.32	205
Min:	**45**	-3	3.01	20
Max:	**1,678**			
Median:	**180**			

u=mLn{Load}+ b:

update for r2, EV, CV: **r^2=0.977, EV=275.5 lbs/day CV=.92; max r2=0.99**

r2 u,lnLoad:	0.977	u	lnLoad	Load
slope, m:	1.281	3	7.66	2114
intercept, b:	-6.805	0	5.31	203
N: 96		-3	2.97	20
E[Load]:	275.5	Parameter Estimates		
SD[Load]:	253	from LN regression		
CV[Load]:	0.92	update graph label		

N: 96

max r2
0.987

Date	dZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
15-Aug-94	**45**	1	0.0065	-2.484	3.812	0.977
3-Oct-91	**52**	2	0.0169	-2.123	3.959	0.979
15-Aug-94	**53**	3	0.0273	-1.922	3.970	0.980
20-Jul-94	**67**	4	0.0377	-1.778	4.198	0.980
26-Sep-96	**70**	5	0.0481	-1.664	4.254	0.981
14-Aug-95	**71**	6	0.0584	-1.568	4.267	0.983
20-Jul-94	**72**	7	0.0688	-1.485	4.283	0.983
26-Jul-95	**75**	8	0.0792	-1.410	4.321	0.984
28-Oct-94	**82**	9	0.0896	-1.343	4.405	0.984
27-Oct-98	**83**	10	0.1000	-1.282	4.425	0.985
18-Feb-94	**88**	11	0.1104	-1.224	4.480	0.985
21-Aug-96	**90**	12	0.1208	-1.171	4.495	0.986
11-Jul-95	**90**	13	0.1312	-1.121	4.496	0.987
18-Feb-94	**90**	14	0.1416	-1.073	4.500	0.987
4-Sep-97	**93**	15	0.1519	-1.028	4.530	0.987
24-Jul-96	**96**	16	0.1623	-0.985	4.560	0.987
1-Sep-99	96.033	17	0.1727	-0.943	4.565	0.987
4-Oct-91	**98**	18	0.1831	-0.904	4.589	0.987
28-Jul-98	**99**	19	0.1935	-0.865	4.600	0.987
8-Sep-94	**102**	20	0.2039	-0.828	4.623	0.987
4-Aug-99	105.49104	21	0.2143	-0.792	4.659	0.987
2-Dec-93	**108**	22	0.2247	-0.756	4.680	0.987
24-Sep-98	**108**	23	0.2351	-0.722	4.686	0.987
28-Oct-93	**114**	24	0.2455	-0.689	4.737	0.986
27-Jun-95	**116**	25	0.2558	-0.656	4.758	0.986
16-Oct-97	**116**	26	0.2662	-0.624	4.758	0.986
14-Aug-97	117.29745	27	0.2766	-0.593	4.765	0.986
23-Feb-99	120.99351	28	0.2870	-0.562	4.796	0.986
16-Dec-93	**125**	29	0.2974	-0.532	4.826	0.985
26-Aug-98	**125**	30	0.3078	-0.502	4.829	0.985
23-Jul-97	**125**	31	0.3182	-0.473	4.829	0.985
23-Jun-94	**131**	32	0.3286	-0.444	4.877	0.984
8-Oct-98	132.89676	33	0.3390	-0.415	4.890	0.984
24-Jan-94	**133**	34	0.3494	-0.387	4.890	0.983
24-Jun-97	**135**	35	0.3597	-0.359	4.904	0.983
25-Feb-98	**135**	36	0.3701	-0.332	4.906	0.982
21-Jan-98	**137**	37	0.3805	-0.304	4.917	0.981
7-Jul-99	143.5922	38	0.3909	-0.277	4.967	0.981
26-Jun-98	**148**	39	0.4013	-0.250	4.998	0.980
19-Jun-96	**148**	40	0.4117	-0.223	4.999	0.979
29-Oct-96	**149**	41	0.4221	-0.197	5.001	0.979
11-Nov-97	**150**	42	0.4325	-0.170	5.010	0.978
15-Nov-94	**158**	43	0.4429	-0.144	5.063	0.978
19-Nov-98	**161**	44	0.4532	-0.117	5.079	0.977
20-Mar-98	**162**	45	0.4636	-0.091	5.087	0.977
26-Nov-97	**166**	46	0.4740	-0.065	5.111	0.976
13-Dec-94	**168**	47	0.4844	-0.039	5.123	0.976

27-Nov-96	**178**	48	0.4948	-0.013	5.183	0.976
7-Jun-94	**182**	49	0.5052	0.013	5.205	0.976
17-Dec-97	**189**	50	0.5156	0.039	5.240	0.975
31-Dec-98	**201**	51	0.5260	0.065	5.303	0.975
20-May-94	**208**	52	0.5364	0.091	5.335	0.974
8-Mar-94	**211**	53	0.5468	0.117	5.353	0.973
10-Dec-98	**214**	54	0.5571	0.144	5.368	0.972
13-Dec-96	**217**	55	0.5675	0.170	5.378	0.971
15-Jan-99	**220**	56	0.5779	0.197	5.396	0.970
15-Jun-99	**228**	57	0.5883	0.223	5.428	0.969
18-Oct-95	**229**	58	0.5987	0.250	5.435	0.968
10-Jan-95	**237**	59	0.6091	0.277	5.467	0.967
30-Jan-97	**237**	60	0.6195	0.304	5.467	0.967
23-May-95	**246**	61	0.6299	0.332	5.506	0.967
8-Mar-94	**258**	62	0.6403	0.359	5.553	0.967
23-Mar-94	**266**	63	0.6506	0.387	5.583	0.966
21-Jan-99	267.1708	64	0.6610	0.415	5.588	0.965
19-Feb-97	**279**	65	0.6714	0.444	5.632	0.966
31-May-99	**288**	66	0.6818	0.473	5.664	0.966
21-Nov-95	**294**	67	0.6922	0.502	5.685	0.966
8-May-96	**299**	68	0.7026	0.532	5.701	0.967
7-May-98	**317**	69	0.7130	0.562	5.760	0.969
16-Apr-97	**344**	70	0.7234	0.593	5.839	0.970
7-Mar-95	**371**	71	0.7338	0.624	5.916	0.968
8-Mar-99	**378**	72	0.7442	0.656	5.935	0.966
7-Apr-94	**384**	73	0.7545	0.689	5.951	0.964
25-Apr-95	**402**	74	0.7649	0.722	5.996	0.962
23-May-99	406.9432	75	0.7753	0.756	6.009	0.959
9-May-95	**432**	76	0.7857	0.792	6.070	0.956
9-Feb-95	**435**	77	0.7961	0.828	6.075	0.953
15-May-98	**462**	78	0.8065	0.865	6.135	0.950
23-Apr-98	464.3478	79	0.8169	0.904	6.141	0.948
28-May-98	**471**	80	0.8273	0.943	6.154	0.944
5-May-99	492.0548	81	0.8377	0.985	6.199	0.940
17-Apr-96	**523**	82	0.8481	1.028	6.259	0.937
15-May-91	**535**	83	0.8584	1.073	6.283	0.937
16-May-91	**541**	84	0.8688	1.121	6.293	0.939
13-Apr-95	**558**	85	0.8792	1.171	6.324	0.940
1-Oct-98	**559**	86	0.8896	1.224	6.326	0.942
26-Oct-98	**580**	87	0.9000	1.282	6.364	0.939
27-May-99	**604**	88	0.9104	1.343	6.403	0.938
26-Mar-97	**647**	89	0.9208	1.410	6.472	0.938
26-May-99	649.16694	90	0.9312	1.485	6.476	0.952
28-Mar-96	**685**	91	0.9416	1.568	6.530	0.958
29-Feb-96	**719**	92	0.9519	1.664	6.578	0.973
17-Jan-96	**728**	93	0.9623	1.778	6.590	
22-Mar-99	**843**	94	0.9727	1.922	6.738	
19-Apr-99	**1033**	95	0.9831	2.123	6.940	
19-Apr-94	**1678**	96	0.9935	2.484	7.425	

update for EV, CV:

dZn
LN Analysis

NM305
dZn

Concentration

Conc. Data, EV=3,364 ug/L CV=.40

Avg:	**3,364**
SD:	**1,356**
CV:	**0.40**
Min:	**864**
Max:	**7,460**
Median:	**3,155**

Data-based LN

u	ln[dZn]	[dZn]
3	9.2	9992
0	8.05	3121
-3	6.88	975

u=mLn{Conc.}+b:

update for r2, EV, CV: **r^2=0.97, EV=3411 ug/L CV=.47; max r2=0.99**

r2 u,lnConc:	0.968	u	lnConc.	Conc.
slope, m:	2.229	3	9.38	11847
intercept, b:	-17.912	0	8.03	3085
N: 96		-3	6.69	803
E[Conc]:	3411.0	Parameter Estimates		
SD[Conc]:	1610	from LN regression		
CV[Conc]:	0.47	update graph label		

N: 96

max r2
0.991

Date	dZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
15-Jun-99	864	1	0.0065	-2.484	6.762	0.968
31-May-99	974	2	0.0169	-2.123	6.881	0.968
26-May-99	981	3	0.0273	-1.922	6.889	0.969
27-May-99	1020	4	0.0377	-1.778	6.928	0.975
23-May-99	1240	5	0.0481	-1.664	7.123	0.984
24-Jun-97	1500	6	0.0584	-1.568	7.313	0.989
7-Jul-99	1570	7	0.0688	-1.485	7.359	0.990
7-May-98	1630	8	0.0792	-1.410	7.396	0.990
19-Jun-96	1790	9	0.0896	-1.343	7.490	0.991
28-May-98	1940	10	0.1000	-1.282	7.570	0.991
15-May-91	1940	11	0.1104	-1.224	7.570	0.990
15-May-98	1960	12	0.1208	-1.171	7.581	0.990
16-May-91	1990	13	0.1312	-1.121	7.596	0.990
22-Mar-99	2010	14	0.1416	-1.073	7.606	0.989
23-May-95	2070	15	0.1519	-1.028	7.635	0.989
16-Apr-97	2080	16	0.1623	-0.985	7.640	0.989
26-Mar-97	2110	17	0.1727	-0.943	7.654	0.989
20-Mar-98	2230	18	0.1831	-0.904	7.710	0.988
15-Aug-94	2280	19	0.1935	-0.865	7.732	0.988
15-Aug-94	2280	20	0.2039	-0.828	7.732	0.988
4-Aug-99	2280	21	0.2143	-0.792	7.732	0.987
23-Jul-97	2280	22	0.2247	-0.756	7.732	0.987
19-Apr-99	2400	23	0.2351	-0.722	7.783	0.987
24-Jul-96	2470	24	0.2455	-0.689	7.812	0.986
20-May-94	2520	25	0.2558	-0.656	7.832	0.986
19-Feb-97	2520	26	0.2662	-0.624	7.832	0.986
26-Sep-96	2540	27	0.2766	-0.593	7.840	0.985
4-Sep-97	2550	28	0.2870	-0.562	7.844	0.985
26-Jun-98	2550	29	0.2974	-0.532	7.844	0.984
20-Jul-94	2610	30	0.3078	-0.502	7.867	0.984
20-Jul-94	2610	31	0.3182	-0.473	7.867	0.983
25-Feb-98	2620	32	0.3286	-0.444	7.871	0.983
3-Oct-91	2640	33	0.3390	-0.415	7.879	0.982
9-May-95	2640	34	0.3494	-0.387	7.879	0.982
28-Jul-98	2680	35	0.3597	-0.359	7.894	0.981
5-May-99	2690	36	0.3701	-0.332	7.897	0.981
21-Aug-96	2790	37	0.3805	-0.304	7.934	0.981
8-Mar-99	2810	38	0.3909	-0.277	7.941	0.980
28-Mar-96	2830	39	0.4013	-0.250	7.948	0.980
17-Jan-96	2830	40	0.4117	-0.223	7.948	0.979
14-Aug-97	2850	41	0.4221	-0.197	7.955	0.979
8-May-96	2910	42	0.4325	-0.170	7.976	0.979
11-Jul-95	2920	43	0.4429	-0.144	7.979	0.978
27-Jun-95	2930	44	0.4532	-0.117	7.983	0.978
29-Feb-96	2970	45	0.4636	-0.091	7.996	0.978
26-Oct-98	2980	46	0.4740	-0.065	8.000	0.979
26-Jul-95	3080	47	0.4844	-0.039	8.033	0.979

23-Apr-98	3150	48	0.4948	-0.013	8.055	0.979
7-Jun-94	3160	49	0.5052	0.013	8.058	0.979
23-Feb-99	3190	50	0.5156	0.039	8.068	0.979
30-Jan-97	3260	51	0.5260	0.065	8.089	0.979
23-Jun-94	3300	52	0.5364	0.091	8.102	0.978
17-Apr-96	3350	53	0.5468	0.117	8.117	0.978
16-Oct-97	3410	54	0.5571	0.144	8.134	0.978
14-Aug-95	3470	55	0.5675	0.170	8.152	0.977
1-Sep-99	3570	56	0.5779	0.197	8.180	0.976
19-Apr-94	3590	57	0.5883	0.223	8.186	0.975
24-Sep-98	3670	58	0.5987	0.250	8.208	0.974
21-Jan-98	3680	59	0.6091	0.277	8.211	0.973
8-Mar-94	3760	60	0.6195	0.304	8.232	0.972
8-Mar-94	3760	61	0.6299	0.332	8.232	0.971
17-Dec-97	3810	62	0.6403	0.359	8.245	0.970
23-Mar-94	3810	63	0.6506	0.387	8.245	0.969
21-Jan-99	3820	64	0.6610	0.415	8.248	0.967
28-Oct-94	3890	65	0.6714	0.444	8.266	0.966
7-Apr-94	3940	66	0.6818	0.473	8.279	0.964
26-Aug-98	3980	67	0.6922	0.502	8.289	0.963
18-Feb-94	4070	68	0.7026	0.532	8.311	0.961
18-Feb-94	4070	69	0.7130	0.562	8.311	0.960
26-Nov-97	4110	70	0.7234	0.593	8.321	0.959
15-Jan-99	4110	71	0.7338	0.624	8.321	0.958
1-Oct-98	4130	72	0.7442	0.656	8.326	0.955
24-Jan-94	4210	73	0.7545	0.689	8.345	0.953
21-Nov-95	4210	74	0.7649	0.722	8.345	0.950
2-Dec-93	4260	75	0.7753	0.756	8.357	0.947
29-Oct-96	4440	76	0.7857	0.792	8.398	0.943
28-Oct-93	4510	77	0.7961	0.828	8.414	0.942
4-Oct-91	4550	78	0.8065	0.865	8.423	0.943
13-Dec-96	4560	79	0.8169	0.904	8.425	0.943
9-Feb-95	4590	80	0.8273	0.943	8.432	0.943
8-Oct-98	4600	81	0.8377	0.985	8.434	0.941
13-Apr-95	4690	82	0.8481	1.028	8.453	0.938
25-Apr-95	4740	83	0.8584	1.073	8.464	0.935
7-Mar-95	4760	84	0.8688	1.121	8.468	0.931
16-Dec-93	4830	85	0.8792	1.171	8.483	0.924
8-Sep-94	4840	86	0.8896	1.224	8.485	0.916
27-Oct-98	4850	87	0.9000	1.282	8.487	0.903
31-Dec-98	4880	88	0.9104	1.343	8.493	0.886
11-Nov-97	5180	89	0.9208	1.410	8.553	0.875
10-Jan-95	5500	90	0.9312	1.485	8.613	0.851
27-Nov-96	5550	91	0.9416	1.568	8.622	0.809
18-Oct-95	5920	92	0.9519	1.664	8.686	0.778
10-Dec-98	6640	93	0.9623	1.778	8.801	
15-Nov-94	6800	94	0.9727	1.922	8.825	
13-Dec-94	7390	95	0.9831	2.123	8.908	
19-Nov-98	7460	96	0.9935	2.484	8.917	

update for EV, CV:

dZn **NM305**

LN Analysis **dZn**

Discharge, Q **Q Data, EV=20 cfs CV=1.19**

Q Data-based LN

		u	lnQ	Q
Avg:	**20**			
SD:	**23**	3	5.4	211
CV:	**1.18**	0	2.55	13
Min:	**3**	-3	-0.24	1
Max:	**123**			
Median:	**9**			

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.93, EV=19.8 cfs CV=1.31; max r2=0.98**

r2 u,lnQ:	0.927	u	lnQ	Q
slope, m:	1.002	3	5.48	241
intercept, b:	-2.493	0	2.49	12
N: 96		-3	-0.51	1
E[Q]:	19.8	Parameter Estimates		
SD[Q]:	26	from LN regression		
CV[Q]:	1.31	update graph label		

N: 96 max r2 0.981

update and rank for new data

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
27-Oct-98	3.2	1	0.0065	-2.484	1.163	0.927
3-Oct-91	3.69	2	0.0169	-2.123	1.306	0.938
15-Aug-94	3.69	3	0.0273	-1.922	1.306	0.946
14-Aug-95	3.82	4	0.0377	-1.778	1.340	0.952
8-Sep-94	3.91	5	0.0481	-1.664	1.364	0.957
28-Oct-94	3.91	6	0.0584	-1.568	1.364	0.961
19-Nov-98	4	7	0.0688	-1.485	1.386	0.964
4-Oct-91	4.02	8	0.0792	-1.410	1.391	0.967
18-Feb-94	4.03	9	0.0896	-1.343	1.394	0.969
18-Feb-94	4.11	10	0.1000	-1.282	1.413	0.970
13-Dec-94	4.22	11	0.1104	-1.224	1.440	0.972
15-Aug-94	4.32	12	0.1208	-1.171	1.463	0.973
15-Nov-94	4.32	13	0.1312	-1.121	1.463	0.974
26-Jul-95	4.54	14	0.1416	-1.073	1.513	0.975
28-Oct-93	4.7	15	0.1519	-1.028	1.548	0.976
2-Dec-93	4.7	16	0.1623	-0.985	1.548	0.977
20-Jul-94	4.74	17	0.1727	-0.943	1.556	0.978
16-Dec-93	4.8	18	0.1831	-0.904	1.569	0.979
1-Sep-99	5	19	0.1935	-0.865	1.609	0.979
26-Sep-96	5.15	20	0.2039	-0.828	1.639	0.980
20-Jul-94	5.16	21	0.2143	-0.792	1.641	0.980
1-Oct-98	5.37	22	0.2247	-0.756	1.681	0.981
8-Oct-98	5.37	23	0.2351	-0.722	1.681	0.981
11-Nov-97	5.38	24	0.2455	-0.689	1.683	0.981
24-Sep-98	5.49	25	0.2558	-0.656	1.703	0.981
11-Jul-95	5.71	26	0.2662	-0.624	1.742	0.981
26-Aug-98	5.84	27	0.2766	-0.593	1.765	0.981
24-Jan-94	5.87	28	0.2870	-0.562	1.770	0.981
21-Aug-96	5.97	29	0.2974	-0.532	1.787	0.981
27-Nov-96	5.97	30	0.3078	-0.502	1.787	0.981
10-Dec-98	6	31	0.3182	-0.473	1.792	0.980
29-Oct-96	6.22	32	0.3286	-0.444	1.828	0.980
16-Oct-97	6.35	33	0.3390	-0.415	1.848	0.979
4-Sep-97	6.76	34	0.3494	-0.387	1.911	0.979
21-Jan-98	6.9	35	0.3597	-0.359	1.932	0.978
28-Jul-98	6.9	36	0.3701	-0.332	1.932	0.978
23-Feb-99	7.05	37	0.3805	-0.304	1.953	0.977
24-Jul-96	7.19	38	0.3909	-0.277	1.973	0.976
18-Oct-95	7.2	39	0.4013	-0.250	1.974	0.976
23-Jun-94	7.39	40	0.4117	-0.223	2.000	0.975
27-Jun-95	7.39	41	0.4221	-0.197	2.000	0.974
26-Nov-97	7.5	42	0.4325	-0.170	2.015	0.973
14-Aug-97	7.65	43	0.4429	-0.144	2.035	0.972
31-Dec-98	7.65	44	0.4532	-0.117	2.035	0.971
10-Jan-95	8	45	0.4636	-0.091	2.079	0.971
4-Aug-99	8.6	46	0.4740	-0.065	2.152	0.970
13-Dec-96	8.83	47	0.4844	-0.039	2.178	0.969

17-Dec-97	9.2	48	0.4948	-0.013	2.219	0.968
25-Feb-98	9.58	49	0.5052	0.013	2.260	0.967
15-Jan-99	9.97	50	0.5156	0.039	2.300	0.966
23-Jul-97	10.2	51	0.5260	0.065	2.322	0.965
8-Mar-94	10.44	52	0.5364	0.091	2.346	0.964
7-Jun-94	10.72	53	0.5468	0.117	2.372	0.963
26-Jun-98	10.8	54	0.5571	0.144	2.380	0.962
8-Mar-94	12.76	55	0.5675	0.170	2.546	0.961
23-Mar-94	12.97	56	0.5779	0.197	2.563	0.960
21-Nov-95	13	57	0.5883	0.223	2.565	0.958
21-Jan-99	13	58	0.5987	0.250	2.565	0.956
30-Jan-97	13.5	59	0.6091	0.277	2.603	0.955
20-Mar-98	13.5	60	0.6195	0.304	2.603	0.953
7-Mar-95	14.49	61	0.6299	0.332	2.673	0.952
20-May-94	15.31	62	0.6403	0.359	2.729	0.951
19-Jun-96	15.4	63	0.6506	0.387	2.734	0.949
25-Apr-95	15.75	64	0.6610	0.415	2.757	0.948
24-Jun-97	16.7	65	0.6714	0.444	2.815	0.947
7-Jul-99	17	66	0.6818	0.473	2.833	0.947
9-Feb-95	17.61	67	0.6922	0.502	2.868	0.947
7-Apr-94	18.12	68	0.7026	0.532	2.897	0.947
8-May-96	19.1	69	0.7130	0.562	2.950	0.950
19-Feb-97	20.6	70	0.7234	0.593	3.025	0.953
13-Apr-95	22.11	71	0.7338	0.624	3.096	0.956
23-May-95	22.11	72	0.7442	0.656	3.096	0.958
8-Mar-99	25	73	0.7545	0.689	3.219	0.965
23-Apr-98	27.4	74	0.7649	0.722	3.311	0.968
17-Apr-96	29	75	0.7753	0.756	3.367	0.969
9-May-95	30.45	76	0.7857	0.792	3.416	0.969
16-Apr-97	30.7	77	0.7961	0.828	3.424	0.969
5-May-99	34	78	0.8065	0.865	3.526	0.972
7-May-98	36.2	79	0.8169	0.904	3.589	0.971
26-Oct-98	36.2	80	0.8273	0.943	3.589	0.969
15-May-98	43.8	81	0.8377	0.985	3.780	0.970
29-Feb-96	45	82	0.8481	1.028	3.807	0.970
28-Mar-96	45	83	0.8584	1.073	3.807	0.971
28-May-98	45.1	84	0.8688	1.121	3.809	0.969
17-Jan-96	47.8	85	0.8792	1.171	3.867	0.965
15-Jun-99	49	86	0.8896	1.224	3.892	0.961
16-May-91	50.5	87	0.9000	1.282	3.922	0.956
15-May-91	51.3	88	0.9104	1.343	3.938	0.948
31-May-99	55	89	0.9208	1.410	4.007	0.938
26-Mar-97	57	90	0.9312	1.485	4.043	0.924
23-May-99	61	91	0.9416	1.568	4.111	0.914
22-Mar-99	78	92	0.9519	1.664	4.357	0.943
19-Apr-99	80	93	0.9623	1.778	4.382	
19-Apr-94	86.89	94	0.9727	1.922	4.465	
27-May-99	110	95	0.9831	2.123	4.700	
26-May-99	123	96	0.9935	2.484	4.812	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM305 **Date:** 3-Jun-00

Chemical: tCd **Analyst:** J.Johnston

Notes: Template and Example Lognormal Analysis

Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load					
Avg:	35,285	20	21	2	0.01	-0.01	0.00		
SD:	773	23	8	2	1.00	1.00	1.00		
CV:	0.02	1.17	0.37	1.01					first:
Min:	33,373	3	6	0.4	-0.72	-1.93	-0.78		mid:
Max:	36,404	123	48	13	4.44	3.40	6.42		last:
Median:	35,334	10	21	1	-0.43	-0.03	-0.31		

tCd NM305 : Concentration v. Discharge, Q **Q = mTime +b** **LnQ = mTime +b**

Conc. = mQ+b (r2=0.283)		update r2	0.28	0.283	r2:	0.055	0.072	
r2 Q,[COC]:	0.28	[tCd]	Q		m:	0.0070	0.00033	
slope, m:	-0.2	24	3.2		b:	-228	-9.05	
intercept, b:	24.8	21	19.8					
N: 97		3	123					first:
LnConc. = mLn{Q}+b (r2=0.447)		update r2		0.45	0.447			mid:
r2 lnQ,ln[COC]:	0.45	ln[tCd]	ln Q	[tCd]	Q			last:
slope, m:	-0.30	3.37	1.16	29	3			
intercept, b:	3.71	2.83	2.99	17	20			
N: 96		2.29	4.81	10	123			

for graph

tCd 0

NM305

N= 97

	Sampling Date	Q Discharge cfs	tCd Concentration ug/L	tCd Load lbs/day	Ln Q	Ln tCd Conc.	Ln tCd Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
update for new data										
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	15-May-91	51.3	9	2.5	3.94	2.20	0.91	1.35	-1.55	0.41
MFG	16-May-91	50.5	7.7	2.1	3.92	2.04	0.74	1.32	-1.72	0.19
MFG	3-Oct-91	3.69	19	0.4	1.31	2.94	-0.98	-0.70	-0.28	-0.78
MFG	4-Oct-91	4.02	22.8	0.5	1.39	3.13	-0.71	-0.68	0.20	-0.71
IDEQ	28-Oct-93	4.7	22	0.6	1.55	3.09	-0.59	-0.65	0.10	-0.68
IDEQ	2-Dec-93	4.7	23	0.6	1.55	3.14	-0.54	-0.65	0.23	-0.66
IDEQ	16-Dec-93	4.8	26	0.7	1.57	3.26	-0.40	-0.65	0.61	-0.61
IDEQ	24-Jan-94	5.87	19	0.6	1.77	2.94	-0.51	-0.60	-0.28	-0.65
IDEQ	18-Feb-94	4.11	25	0.6	1.41	3.22	-0.59	-0.68	0.48	-0.68
IDEQ	18-Feb-94	4.03	25	0.5	1.39	3.22	-0.61	-0.68	0.48	-0.68
IDEQ	8-Mar-94	10.44	24	1.3	2.35	3.18	0.30	-0.41	0.36	-0.23
IDEQ	8-Mar-94	12.76	24	1.6	2.55	3.18	0.50	-0.31	0.36	-0.06
IDEQ	23-Mar-94	12.97	21	1.5	2.56	3.04	0.38	-0.30	-0.03	-0.16
IDEQ	7-Apr-94	18.12	25	2.4	2.90	3.22	0.89	-0.07	0.48	0.39
IDEQ	19-Apr-94	86.89	28	13.1	4.46	3.33	2.57	2.89	0.86	6.42
IDEQ	4-May-94	14.89	22	1.8	2.70	3.09	0.57	-0.21	0.10	0.01
IDEQ	20-May-94	15.31	20	1.6	2.73	3.00	0.50	-0.20	-0.15	-0.06
IDEQ	7-Jun-94	10.72	25	1.4	2.37	3.22	0.37	-0.39	0.48	-0.17
IDEQ	23-Jun-94	7.39	24	1.0	2.00	3.18	-0.05	-0.54	0.36	-0.45
IDEQ	20-Jul-94	5.16	22	0.6	1.64	3.09	-0.49	-0.63	0.10	-0.65
IDEQ	20-Jul-94	4.74	22	0.6	1.56	3.09	-0.58	-0.65	0.10	-0.67
IDEQ	15-Aug-94	4.32	21	0.5	1.46	3.04	-0.72	-0.67	-0.03	-0.71
IDEQ	15-Aug-94	3.69	21	0.4	1.31	3.04	-0.87	-0.70	-0.03	-0.75
IDEQ	8-Sep-94	3.91	30	0.6	1.36	3.40	-0.46	-0.69	1.12	-0.63
IDEQ	28-Oct-94	3.91	25	0.5	1.36	3.22	-0.64	-0.69	0.48	-0.69
IDEQ	15-Nov-94	4.32	48	1.1	1.46	3.87	0.11	-0.67	3.40	-0.36
IDEQ	13-Dec-94	4.22	45	1.0	1.44	3.81	0.02	-0.67	3.02	-0.41
IDEQ	10-Jan-95	8	38	1.6	2.08	3.64	0.49	-0.51	2.13	-0.07
IDEQ	9-Feb-95	17.61	27	2.6	2.87	3.30	0.94	-0.10	0.74	0.46
IDEQ	7-Mar-95	14.49	26	2.0	2.67	3.26	0.71	-0.23	0.61	0.16
IDEQ	13-Apr-95	22.11	27	3.2	3.10	3.30	1.17	0.10	0.74	0.83
IDEQ	25-Apr-95	15.75	25	2.1	2.76	3.22	0.75	-0.18	0.48	0.21
IDEQ	9-May-95	30.45	16	2.6	3.42	2.77	0.96	0.46	-0.66	0.49
IDEQ	23-May-95	22.11	15	1.8	3.10	2.71	0.58	0.10	-0.79	0.02
IDEQ	27-Jun-95	7.39	20	0.8	2.00	3.00	-0.23	-0.54	-0.15	-0.54
IDEQ	11-Jul-95	5.71	20	0.6	1.74	3.00	-0.49	-0.61	-0.15	-0.64
IDEQ	26-Jul-95	4.54	23	0.6	1.51	3.14	-0.58	-0.66	0.23	-0.67
IDEQ	14-Aug-95	3.82	27	0.6	1.34	3.30	-0.59	-0.69	0.74	-0.68
IDEQ	18-Oct-95	7.2	36	1.4	1.97	3.58	0.33	-0.54	1.88	-0.20
IDEQ	21-Nov-95	13	26	1.8	2.56	3.26	0.60	-0.29	0.61	0.04
IDEQ	17-Jan-96	47.8	20	5.1	3.87	3.00	1.64	1.20	-0.15	1.92
IDEQ	29-Feb-96	45	16	3.9	3.81	2.77	1.35	1.08	-0.66	1.20
IDEQ	28-Mar-96	45	18	4.4	3.81	2.89	1.47	1.08	-0.41	1.48
IDEQ	17-Apr-96	29	20	3.1	3.37	3.00	1.14	0.39	-0.15	0.78
IDEQ	8-May-96	19.1	17	1.7	2.95	2.83	0.56	-0.03	-0.53	0.00
IDEQ	19-Jun-96	15.4	14	1.2	2.73	2.64	0.15	-0.19	-0.92	-0.33
IDEQ	24-Jul-96	7.19	20	0.8	1.97	3.00	-0.26	-0.55	-0.15	-0.55

IDEQ	21-Aug-96	5.97	21	0.7	1.79	3.04	-0.39	-0.60	-0.03	-0.61
IDEQ	26-Sep-96	5.15	20	0.6	1.64	3.00	-0.59	-0.63	-0.15	-0.68
IDEQ	29-Oct-96	6.22	26	0.9	1.83	3.26	-0.14	-0.59	0.61	-0.50
IDEQ	27-Nov-96	5.97	30	1.0	1.79	3.40	-0.04	-0.60	1.12	-0.45
IDEQ	13-Dec-96	8.83	27	1.3	2.18	3.30	0.25	-0.47	0.74	-0.26
IDEQ	30-Jan-97	13.5	20	1.5	2.60	3.00	0.37	-0.27	-0.15	-0.17
IDEQ	19-Feb-97	20.6	15	1.7	3.03	2.71	0.51	0.03	-0.79	-0.05
IDEQ	26-Mar-97	57	13	4.0	4.04	2.56	1.38	1.60	-1.04	1.27
IDEQ	16-Apr-97	30.7	12	2.0	3.42	2.48	0.68	0.47	-1.17	0.13
IDEQ	24-Jun-97	16.7	8.6	0.8	2.82	2.15	-0.26	-0.14	-1.60	-0.55
IDEQ	23-Jul-97	10.2	14	0.8	2.32	2.64	-0.26	-0.42	-0.92	-0.56
IDEQ	14-Aug-97	7.65	17	0.7	2.03	2.83	-0.36	-0.53	-0.53	-0.59
IDEQ	4-Sep-97	6.76	19	0.7	1.91	2.94	-0.37	-0.56	-0.28	-0.60
IDEQ	16-Oct-97	6.35	23	0.8	1.85	3.14	-0.24	-0.58	0.23	-0.55
URS	11-Nov-97	5.38	27.4	0.8	1.68	3.31	-0.23	-0.62	0.79	-0.54
IDEQ	26-Nov-97	7.5	22	0.9	2.01	3.09	-0.12	-0.53	0.10	-0.49
IDEQ	17-Dec-97	9.2	21	1.0	2.22	3.04	0.04	-0.46	-0.03	-0.40
IDEQ	21-Jan-98	6.9	21	0.8	1.93	3.04	-0.25	-0.56	-0.03	-0.55
IDEQ	25-Feb-98	9.58	15	0.8	2.26	2.71	-0.26	-0.44	-0.79	-0.55
IDEQ	20-Mar-98	13.5	14	1.0	2.60	2.64	0.02	-0.27	-0.92	-0.42
IDEQ	23-Apr-98	27.4	16	2.4	3.31	2.77	0.86	0.33	-0.66	0.34
IDEQ	7-May-98	36.2	8.6	1.7	3.59	2.15	0.52	0.70	-1.60	-0.04
URS	15-May-98	43.8	11.2	2.6	3.78	2.42	0.97	1.03	-1.27	0.50
IDEQ	28-May-98	45.1	11	2.7	3.81	2.40	0.98	1.09	-1.30	0.52
IDEQ	26-Jun-98	10.8	16	0.9	2.38	2.77	-0.07	-0.39	-0.66	-0.46
IDEQ	28-Jul-98	6.9	20	0.7	1.93	3.00	-0.30	-0.56	-0.15	-0.57
IDEQ	26-Aug-98	5.84	24	0.8	1.76	3.18	-0.28	-0.60	0.36	-0.56
IDEQ	24-Sep-98	5.49	22	0.6	1.70	3.09	-0.43	-0.62	0.10	-0.62
IDEQ	1-Oct-98	5.37	25	0.7	1.68	3.22	-0.33	-0.62	0.48	-0.58
IDEQ	8-Oct-98	5.37	28	0.8	1.68	3.33	-0.21	-0.62	0.86	-0.53
IDEQ	26-Oct-98	36.2	22	4.3	3.59	3.09	1.46	0.70	0.10	1.43
USGS	27-Oct-98	3.2	31	0.5	1.16	3.43	-0.63	-0.72	1.24	-0.69
IDEQ	25-Nov-98	8.31	38	1.7	2.12	3.64	0.53	-0.50	2.13	-0.03
USGS	10-Dec-98	6	39	1.3	1.79	3.66	0.23	-0.60	2.26	-0.28
IDEQ	31-Dec-98	7.65	31	1.3	2.03	3.43	0.24	-0.53	1.24	-0.27
IDEQ	15-Jan-99	9.97	29	1.6	2.30	3.37	0.44	-0.43	0.99	-0.11
USGS	21-Jan-99	13	21	1.5	2.56	3.04	0.38	-0.29	-0.03	-0.16
IDEQ	23-Feb-99	7.05	22	0.8	1.95	3.09	-0.18	-0.55	0.10	-0.52
IDEQ	8-Mar-99	25	17	2.3	3.22	2.83	0.83	0.22	-0.53	0.30
USGS	22-Mar-99	78	14	5.9	4.36	2.64	1.77	2.50	-0.92	2.33
USGS	19-Apr-99	80	17	7.3	4.38	2.83	1.99	2.59	-0.53	3.15
USGS	5-May-99	34	17	3.1	3.53	2.83	1.13	0.61	-0.53	0.77
USGS	23-May-99	61	9	3.0	4.11	2.20	1.08	1.77	-1.55	0.68
USGS	26-May-99	123	9	6.0	4.81	2.20	1.78	4.44	-1.55	2.38
USGS	27-May-99	110	7	4.1	4.70	1.95	1.42	3.88	-1.80	1.35
USGS	31-May-99	55	6	1.8	4.01	1.79	0.57	1.51	-1.93	0.01
USGS	15-Jun-99	49	6	1.6	3.89	1.79	0.46	1.26	-1.93	-0.10
USGS	7-Jul-99	17	10.6	1.0	2.83	2.36	-0.03	-0.12	-1.35	-0.44
USGS	4-Aug-99	8.6	17.7	0.8	2.15	2.87	-0.20	-0.48	-0.44	-0.53
USGS	1-Sep-99	5	29							

tCd

Concentration over time analysis r2 Slope, m

tCd NM305 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.064** **-0.00014**

Time	Ln[COC]	[COC]
15-May-91	3.23	25
26-Sep-96	2.96	19
1-Sep-99	2.82	17

LnConc.=mTime+b >'96 r2, m: **0.043** **-0.00033**

29-Oct-96	3.03	21
1-Sep-99	2.70	15

Load over time analysis

tCd NM305 **Load over time**

LnLoad=mTime+b All data r2, m: **0.041** **0.00019**

Time	LnLoad	Load
15-May-91	-0.11	1
26-Sep-96	0.27	1
1-Sep-99	0.47	2

LnLoad=mTime+b >'96 r2, m: **0.104** **0.00073**

29-Oct-96	-0.09	1
1-Sep-99	0.67	2

max r2: 0.878 max r2: 0.769

Forward time Regression on Ln Concentration(t)			**Forward time Regression on Ln Load(t)**		
r2	**slope**	**intercept**	**r2**	**slope**	**intercept**
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.064	-0.00014	7.76	0.041	0.00019	-6.52
0.101	-0.00017	9.09	0.055	0.00023	-7.83
0.165	-0.00022	10.87	0.069	0.00027	-9.13
0.180	-0.00024	11.50	0.053	0.00024	-8.09
0.185	-0.00025	11.96	0.041	0.00021	-7.27
0.187	-0.00026	12.13	0.034	0.00020	-6.68
0.187	-0.00026	12.25	0.028	0.00018	-6.10
0.183	-0.00026	12.26	0.024	0.00017	-5.62
0.190	-0.00027	12.56	0.019	0.00015	-5.00
0.187	-0.00027	12.60	0.014	0.00013	-4.27
0.184	-0.00027	12.65	0.009	0.00011	-3.45
0.182	-0.00028	12.73	0.010	0.00011	-3.54
0.180	-0.00028	12.82	0.011	0.00012	-3.86
0.183	-0.00028	13.07	0.012	0.00012	-4.06
0.180	-0.00029	13.13	0.016	0.00015	-4.88
0.173	-0.00028	13.05	0.042	0.00023	-7.81
0.174	-0.00029	13.26	0.048	0.00025	-8.46
0.179	-0.00030	13.61	0.052	0.00026	-9.07
0.175	-0.00030	13.67	0.056	0.00028	-9.55
0.173	-0.00031	13.80	0.053	0.00027	-9.49
0.174	-0.00031	14.05	0.045	0.00025	-8.77
0.176	-0.00032	14.33	0.035	0.00023	-7.84
0.179	-0.00033	14.69	0.025	0.00019	-6.61
0.183	-0.00034	15.09	0.015	0.00015	-4.96
0.172	-0.00034	14.91	0.009	0.00012	-3.85
0.168	-0.00034	15.01	0.004	0.00008	-2.33
0.142	-0.00031	13.91	0.003	0.00007	-2.01
0.117	-0.00028	12.82	0.002	0.00005	-1.48
0.096	-0.00025	11.92	0.002	0.00006	-1.82
0.086	-0.00024	11.61	0.005	0.00010	-3.08
0.078	-0.00024	11.32	0.007	0.00012	-3.99
0.068	-0.00022	10.91	0.015	0.00018	-5.97
0.060	-0.00022	10.62	0.021	0.00021	-7.26
0.068	-0.00024	11.35	0.032	0.00027	-9.23
0.080	-0.00026	12.34	0.038	0.00030	-10.49
0.080	-0.00027	12.66	0.031	0.00028	-9.72
0.081	-0.00028	13.03	0.021	0.00024	-8.09
0.076	-0.00028	13.01	0.011	0.00018	-5.91
0.064	-0.00027	12.45	0.004	0.00010	-3.30
0.043	-0.00022	10.81	0.004	0.00011	-3.44
0.033	-0.00020	10.04	0.006	0.00014	-4.51
0.031	-0.00020	10.07	0.022	0.00027	-9.37
0.036	-0.00022	10.88	0.045	0.00039	-13.78
0.037	-0.00024	11.35	0.085	0.00055	-19.27
0.035	-0.00024	11.44	0.128	0.00068	-24.28
0.039	-0.00026	12.25	0.152	0.00078	-27.57
0.051	-0.00031	14.02	0.158	0.00082	-29.31

0.049	-0.00032	14.30	0.147	0.00082	-29.23
0.045	-0.00032	14.33	0.129	0.00080	-28.30
0.043	-0.00033	14.57	0.104	0.00073	-25.98
0.032	-0.00029	13.28	0.094	0.00072	-25.71
0.018	-0.00022	10.80	0.088	0.00073	-25.89
0.008	-0.00016	8.44	0.093	0.00079	-27.97
0.006	-0.00014	7.72	0.103	0.00087	-31.01
0.008	-0.00017	9.02	0.122	0.00100	-35.67
0.015	-0.00025	11.72	0.210	0.00135	-48.18
0.029	-0.00036	15.79	0.266	0.00160	-57.35
0.067	-0.00056	23.09	0.254	0.00163	-58.39
0.088	-0.00067	27.17	0.240	0.00165	-59.14
0.098	-0.00075	30.07	0.218	0.00164	-58.75
0.103	-0.00082	32.28	0.194	0.00161	-57.74
0.093	-0.00082	32.33	0.175	0.00160	-57.23
0.073	-0.00075	29.98	0.155	0.00157	-56.21
0.064	-0.00075	29.81	0.139	0.00157	-56.13
0.058	-0.00075	30.05	0.132	0.00162	-57.91
0.051	-0.00075	29.94	0.107	0.00153	-54.64
0.063	-0.00089	34.90	0.081	0.00139	-49.65
0.084	-0.00108	42.00	0.067	0.00133	-47.68
0.096	-0.00123	47.39	0.094	0.00167	-59.73
0.184	-0.00176	66.45	0.108	0.00189	-67.92
0.278	-0.00230	85.91	0.163	0.00248	-89.28
0.425	-0.00303	112.59	0.247	0.00328	-118.35
0.520	-0.00363	134.29	0.233	0.00342	-123.26
0.575	-0.00411	151.60	0.198	0.00331	-119.42
0.595	-0.00444	163.79	0.160	0.00311	-112.15
0.623	-0.00481	177.00	0.114	0.00267	-96.17
0.636	-0.00515	189.26	0.070	0.00216	-77.51
0.634	-0.00546	200.49	0.033	0.00154	-55.04
0.673	-0.00606	222.44	0.096	0.00278	-100.00
0.661	-0.00647	237.20	0.021	0.00132	-47.11
0.605	-0.00634	232.72	0.016	0.00126	-44.94
0.520	-0.00589	216.39	0.002	0.00049	-16.97
0.430	-0.00546	200.80	0.003	-0.00067	25.28
0.312	-0.00471	173.55	0.021	-0.00198	72.62
0.218	-0.00444	163.54	0.092	-0.00487	177.80
0.098	-0.00311	115.43	0.461	-0.01145	416.48
0.026	-0.00180	67.57	0.748	-0.01750	636.42
0.000	-0.00025	11.29	0.769	-0.02095	761.59
0.081	0.00415	-148.65	0.687	-0.01988	722.84
0.593	0.01070	-386.63	0.728	-0.02297	835.00
0.705	0.01250	-451.87	0.726	-0.02400	872.65
0.878	0.01523	-551.10	0.755	-0.01926	700.06

update for EV, CV:

tCd **NM305**

LN Analysis **tCd**

Load **Load Data, EV=1.75 lbs/day CV=1.01**

Load Data-based LN

		u	ln tCd Load	tCd Load
Avg:	**2**			
SD:	**2**			
CV:	**1.01**	3	2.7	15
Min:	**0.4**	0	0.21	1
Max:	**13**	-3	-2.31	0.1
Median:	**1**			

2 1.75

1.01 1.01

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.96, EV=1.72lbs/day CV=0.88; max r2=0.99**

r2 u,lnLoad:	0.955	u	lnLoad	Load		
slope, m:	1.322	3	2.53	12		
intercept, b:	-0.338	0	0.26	1		
N: 96		-3	-2.01	0.1		
E[Load]:	1.7	Parameter Estimates			0.955	0.96
SD[Load]:	2	from LN regression			1.7	1.72
CV[Load]:	0.88	update graph label			0.9	0.88

max r2 0.993

Date	tCd Load lbs/day Ranked	i rank (N: 96)	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
3-Oct-91	0.4	1	0.0065	-2.484	-0.975	0.955
15-Aug-94	0.4	2	0.0169	-2.123	-0.875	0.961
15-Aug-94	0.5	3	0.0273	-1.922	-0.717	0.964
4-Oct-91	0.5	4	0.0377	-1.778	-0.707	0.969
28-Oct-94	0.5	5	0.0481	-1.664	-0.643	0.972
27-Oct-98	0.5	6	0.0584	-1.568	-0.628	0.976
18-Feb-94	0.5	7	0.0688	-1.485	-0.612	0.978
18-Feb-94	0.6	8	0.0792	-1.410	-0.593	0.981
26-Sep-96	0.6	9	0.0896	-1.343	-0.590	0.983
14-Aug-95	0.6	10	0.1000	-1.282	-0.589	0.985
28-Oct-93	0.6	11	0.1104	-1.224	-0.586	0.986
20-Jul-94	0.6	12	0.1208	-1.171	-0.578	0.987
26-Jul-95	0.6	13	0.1312	-1.121	-0.577	0.988
2-Dec-93	0.6	14	0.1416	-1.073	-0.542	0.988
24-Jan-94	0.6	15	0.1519	-1.028	-0.511	0.989
20-Jul-94	0.6	16	0.1623	-0.985	-0.493	0.989
11-Jul-95	0.6	17	0.1727	-0.943	-0.487	0.989
8-Sep-94	0.6	18	0.1831	-0.904	-0.460	0.990
24-Sep-98	0.6	19	0.1935	-0.865	-0.431	0.990
16-Dec-93	0.7	20	0.2039	-0.828	-0.398	0.990
21-Aug-96	0.7	21	0.2143	-0.792	-0.394	0.991
4-Sep-97	0.7	22	0.2247	-0.756	-0.370	0.991
14-Aug-97	0.7	23	0.2351	-0.722	-0.357	0.991
1-Oct-98	0.7	24	0.2455	-0.689	-0.325	0.991
28-Jul-98	0.7	25	0.2558	-0.656	-0.298	0.992
26-Aug-98	0.8	26	0.2662	-0.624	-0.282	0.992
23-Jul-97	0.8	27	0.2766	-0.593	-0.264	0.992
24-Jun-97	0.8	28	0.2870	-0.562	-0.258	0.993
25-Feb-98	0.8	29	0.2974	-0.532	-0.257	0.993
24-Jul-96	0.8	30	0.3078	-0.502	-0.257	0.993
21-Jan-98	0.8	31	0.3182	-0.473	-0.249	0.993
16-Oct-97	0.8	32	0.3286	-0.444	-0.241	0.992
11-Nov-97	0.8	33	0.3390	-0.415	-0.232	0.992
27-Jun-95	0.8	34	0.3494	-0.387	-0.229	0.992
8-Oct-98	0.8	35	0.3597	-0.359	-0.212	0.992
4-Aug-99	0.8	36	0.3701	-0.332	-0.200	0.991
23-Feb-99	0.8	37	0.3805	-0.304	-0.181	0.991
29-Oct-96	0.9	38	0.3909	-0.277	-0.139	0.991
26-Nov-97	0.9	39	0.4013	-0.250	-0.119	0.991
26-Jun-98	0.9	40	0.4117	-0.223	-0.073	0.991
23-Jun-94	1.0	41	0.4221	-0.197	-0.047	0.990
27-Nov-96	1.0	42	0.4325	-0.170	-0.037	0.990
7-Jul-99	1.0	43	0.4429	-0.144	-0.031	0.990
20-Mar-98	1.0	44	0.4532	-0.117	0.017	0.989
13-Dec-94	1.0	45	0.4636	-0.091	0.021	0.989
17-Dec-97	1.0	46	0.4740	-0.065	0.039	0.989
15-Nov-94	1.1	47	0.4844	-0.039	0.109	0.989

19-Jun-96	**1.2**	48	0.4948	-0.013	0.148	0.988
10-Dec-98	**1.3**	49	0.5052	0.013	0.230	0.988
31-Dec-98	**1.3**	50	0.5156	0.039	0.244	0.988
13-Dec-96	**1.3**	51	0.5260	0.065	0.249	0.987
8-Mar-94	**1.3**	52	0.5364	0.091	0.299	0.987
18-Oct-95	**1.4**	53	0.5468	0.117	0.333	0.987
7-Jun-94	**1.4**	54	0.5571	0.144	0.366	0.987
30-Jan-97	**1.5**	55	0.5675	0.170	0.373	0.987
23-Mar-94	**1.5**	56	0.5779	0.197	0.382	0.987
21-Jan-99	**1.5**	57	0.5883	0.223	0.384	0.987
15-Jan-99	**1.6**	58	0.5987	0.250	0.442	0.987
15-Jun-99	**1.6**	59	0.6091	0.277	0.459	0.988
10-Jan-95	**1.6**	60	0.6195	0.304	0.492	0.988
20-May-94	**1.6**	61	0.6299	0.332	0.499	0.989
8-Mar-94	**1.6**	62	0.6403	0.359	0.499	0.989
19-Feb-97	**1.7**	63	0.6506	0.387	0.508	0.990
7-May-98	**1.7**	64	0.6610	0.415	0.516	0.990
25-Nov-98	**1.7**	65	0.6714	0.444	0.530	0.989
8-May-96	**1.7**	66	0.6818	0.473	0.558	0.989
4-May-94	**1.8**	67	0.6922	0.502	0.567	0.989
31-May-99	**1.8**	68	0.7026	0.532	0.574	0.988
23-May-95	**1.8**	69	0.7130	0.562	0.579	0.987
21-Nov-95	**1.8**	70	0.7234	0.593	0.598	0.987
16-Apr-97	**2.0**	71	0.7338	0.624	0.684	0.986
7-Mar-95	**2.0**	72	0.7442	0.656	0.706	0.985
16-May-91	**2.1**	73	0.7545	0.689	0.738	0.984
25-Apr-95	**2.1**	74	0.7649	0.722	0.751	0.984
8-Mar-99	**2.3**	75	0.7753	0.756	0.827	0.982
23-Apr-98	**2.4**	76	0.7857	0.792	0.858	0.982
7-Apr-94	**2.4**	77	0.7961	0.828	0.891	0.981
15-May-91	**2.5**	78	0.8065	0.865	0.910	0.981
9-Feb-95	**2.6**	79	0.8169	0.904	0.939	0.980
9-May-95	**2.6**	80	0.8273	0.943	0.964	0.979
15-May-98	**2.6**	81	0.8377	0.985	0.970	0.977
28-May-98	**2.7**	82	0.8481	1.028	0.982	0.975
23-May-99	**3.0**	83	0.8584	1.073	1.083	0.972
5-May-99	**3.1**	84	0.8688	1.121	1.135	0.969
17-Apr-96	**3.1**	85	0.8792	1.171	1.138	0.967
13-Apr-95	**3.2**	86	0.8896	1.224	1.167	0.962
29-Feb-96	**3.9**	87	0.9000	1.282	1.354	0.956
26-Mar-97	**4.0**	88	0.9104	1.343	1.383	0.959
27-May-99	**4.1**	89	0.9208	1.410	1.421	0.960
26-Oct-98	**4.3**	90	0.9312	1.485	1.455	0.961
28-Mar-96	**4.4**	91	0.9416	1.568	1.472	0.958
17-Jan-96	**5.1**	92	0.9519	1.664	1.638	0.944
22-Mar-99	**5.9**	93	0.9623	1.778	1.771	
26-May-99	**6.0**	94	0.9727	1.922	1.784	
19-Apr-99	**7.3**	95	0.9831	2.123	1.990	
19-Apr-94	**13.1**	96	0.9935	2.484	2.572	
1-Sep-99						

update for EV, CV:

tCd **NM305** 21 21.2

LN Analysis **tCd** 0.37 0.371

Concentration

Conc. Data, EV=21.2 ug/L CV=0.371

Data-based LN

		u	ln[tCd]	[tCd]
Avg:	**21**	3	4.1	58
SD:	**8**	0	2.99	20
CV:	**0.37**	-3	1.91	7
Min:	**6**			
Max:	**48**			
Median:	**21**			

0.933 0.933

u=mLn{Conc.}+b: 21.3 21.3

update for r2, EV, CV: **r2=0.933, EV=21.3 ug/L CV=0.446; max r2=0.98** 0.446 0.446

r2 u,lnConc:	0.933	u	lnConc.	Conc.
slope, m:	2.349	3	4.25	70
intercept, b:	-6.971	0	2.97	19
N: 96		-3	1.69	5
E[Conc]:	21.3	Parameter Estimates		
SD[Conc]:	9	from LN regression		
CV[Conc]:	0.45	update graph label		

max r2 0.980

Date	tCd Concentration ug/L Ranked	N: 96 i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
31-May-99	6	1	0.0065	-2.484	1.792	0.933
15-Jun-99	6	2	0.0169	-2.123	1.792	0.929
27-May-99	7	3	0.0273	-1.922	1.946	0.931
16-May-91	7.7	4	0.0377	-1.778	2.041	0.933
24-Jun-97	8.6	5	0.0481	-1.664	2.152	0.934
7-May-98	8.6	6	0.0584	-1.568	2.152	0.934
15-May-91	9	7	0.0688	-1.485	2.197	0.936
23-May-99	9	8	0.0792	-1.410	2.197	0.939
26-May-99	9	9	0.0896	-1.343	2.197	0.946
7-Jul-99	10.6	10	0.1000	-1.282	2.361	0.957
28-May-98	11	11	0.1104	-1.224	2.398	0.961
15-May-98	11.2	12	0.1208	-1.171	2.416	0.966
16-Apr-97	12	13	0.1312	-1.121	2.485	0.971
26-Mar-97	13	14	0.1416	-1.073	2.565	0.975
19-Jun-96	14	15	0.1519	-1.028	2.639	0.976
23-Jul-97	14	16	0.1623	-0.985	2.639	0.976
20-Mar-98	14	17	0.1727	-0.943	2.639	0.976
22-Mar-99	14	18	0.1831	-0.904	2.639	0.977
23-May-95	15	19	0.1935	-0.865	2.708	0.979
19-Feb-97	15	20	0.2039	-0.828	2.708	0.979
25-Feb-98	15	21	0.2143	-0.792	2.708	0.979
9-May-95	16	22	0.2247	-0.756	2.773	0.980
29-Feb-96	16	23	0.2351	-0.722	2.773	0.980
23-Apr-98	16	24	0.2455	-0.689	2.773	0.979
26-Jun-98	16	25	0.2558	-0.656	2.773	0.979
8-May-96	17	26	0.2662	-0.624	2.833	0.980
14-Aug-97	17	27	0.2766	-0.593	2.833	0.980
8-Mar-99	17	28	0.2870	-0.562	2.833	0.979
19-Apr-99	17	29	0.2974	-0.532	2.833	0.979
5-May-99	17	30	0.3078	-0.502	2.833	0.979
4-Aug-99	17.7	31	0.3182	-0.473	2.874	0.980
28-Mar-96	18	32	0.3286	-0.444	2.890	0.980
3-Oct-91	19	33	0.3390	-0.415	2.944	0.979
24-Jan-94	19	34	0.3494	-0.387	2.944	0.979
4-Sep-97	19	35	0.3597	-0.359	2.944	0.978
20-May-94	20	36	0.3701	-0.332	2.996	0.977
27-Jun-95	20	37	0.3805	-0.304	2.996	0.978
11-Jul-95	20	38	0.3909	-0.277	2.996	0.978
17-Jan-96	20	39	0.4013	-0.250	2.996	0.978
17-Apr-96	20	40	0.4117	-0.223	2.996	0.978
24-Jul-96	20	41	0.4221	-0.197	2.996	0.978
26-Sep-96	20	42	0.4325	-0.170	2.996	0.977
30-Jan-97	20	43	0.4429	-0.144	2.996	0.977
28-Jul-98	20	44	0.4532	-0.117	2.996	0.976
23-Mar-94	21	45	0.4636	-0.091	3.045	0.975
15-Aug-94	21	46	0.4740	-0.065	3.045	0.975
15-Aug-94	21	47	0.4844	-0.039	3.045	0.975

21-Aug-96	21	48	0.4948	-0.013	3.045	0.975
17-Dec-97	21	49	0.5052	0.013	3.045	0.974
21-Jan-98	21	50	0.5156	0.039	3.045	0.973
21-Jan-99	21	51	0.5260	0.065	3.045	0.972
28-Oct-93	22	52	0.5364	0.091	3.091	0.971
4-May-94	22	53	0.5468	0.117	3.091	0.972
20-Jul-94	22	54	0.5571	0.144	3.091	0.972
20-Jul-94	22	55	0.5675	0.170	3.091	0.971
26-Nov-97	22	56	0.5779	0.197	3.091	0.970
24-Sep-98	22	57	0.5883	0.223	3.091	0.969
26-Oct-98	22	58	0.5987	0.250	3.091	0.968
23-Feb-99	22	59	0.6091	0.277	3.091	0.967
4-Oct-91	22.8	60	0.6195	0.304	3.127	0.965
2-Dec-93	23	61	0.6299	0.332	3.135	0.964
26-Jul-95	23	62	0.6403	0.359	3.135	0.963
16-Oct-97	23	63	0.6506	0.387	3.135	0.961
8-Mar-94	24	64	0.6610	0.415	3.178	0.960
8-Mar-94	24	65	0.6714	0.444	3.178	0.960
23-Jun-94	24	66	0.6818	0.473	3.178	0.960
26-Aug-98	24	67	0.6922	0.502	3.178	0.959
18-Feb-94	25	68	0.7026	0.532	3.219	0.957
18-Feb-94	25	69	0.7130	0.562	3.219	0.960
7-Apr-94	25	70	0.7234	0.593	3.219	0.962
7-Jun-94	25	71	0.7338	0.624	3.219	0.963
28-Oct-94	25	72	0.7442	0.656	3.219	0.963
25-Apr-95	25	73	0.7545	0.689	3.219	0.963
1-Oct-98	25	74	0.7649	0.722	3.219	0.961
16-Dec-93	26	75	0.7753	0.756	3.258	0.959
7-Mar-95	26	76	0.7857	0.792	3.258	0.960
21-Nov-95	26	77	0.7961	0.828	3.258	0.961
29-Oct-96	26	78	0.8065	0.865	3.258	0.959
9-Feb-95	27	79	0.8169	0.904	3.296	0.957
13-Apr-95	27	80	0.8273	0.943	3.296	0.958
14-Aug-95	27	81	0.8377	0.985	3.296	0.958
13-Dec-96	27	82	0.8481	1.028	3.296	0.956
11-Nov-97	27.4	83	0.8584	1.073	3.311	0.952
19-Apr-94	28	84	0.8688	1.121	3.332	0.947
8-Oct-98	28	85	0.8792	1.171	3.332	0.942
15-Jan-99	29	86	0.8896	1.224	3.367	0.934
1-Sep-99	29	87	0.9000	1.282	3.367	0.925
8-Sep-94	30	88	0.9104	1.343	3.401	0.912
27-Nov-96	30	89	0.9208	1.410	3.401	0.895
27-Oct-98	31	90	0.9312	1.485	3.434	0.871
31-Dec-98	31	91	0.9416	1.568	3.434	0.837
18-Oct-95	36	92	0.9519	1.664	3.584	0.919
10-Jan-95	38	93	0.9623	1.778	3.638	
25-Nov-98	38	94	0.9727	1.922	3.638	
10-Dec-98	39	95	0.9831	2.123	3.664	
13-Dec-94	45	96	0.9935	2.484	3.807	
15-Nov-94	48					

update for EV, CV:

tCd **NM305** 20 19.8

LN Analysis **tCd** 1.17 1.17

Discharge, Q

Q Data, EV=19.8 cfs CV=1.17

Q Data-based LN

		u	lnQ	Q
Avg:	**20**			
SD:	**23**			
CV:	**1.17**	3	5.3	209
Min:	**3**	0	2.56	13
Max:	**123**	-3	-0.23	1
Median:	**10**			

0.932 0.932

18.8 18.8

1.23 1.23

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.932, EV=18.8 cfs CV=1.23; max r2=0.98**

		u	lnQ	Q
r2 u,lnQ:	0.932			
slope, m:	1.044	3	5.35	210
intercept, b:	-2.584	0	2.47	12
N: 96		-3	-0.40	1
E[Q]:	18.8	Parameter Estimates		
SD[Q]:	23	from LN regression		
CV[Q]:	1.23	update graph label		

max r2 0.980

N: 96

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
27-Oct-98	3.2	1	0.0065	-2.484	1.163	0.932
3-Oct-91	3.69	2	0.0169	-2.123	1.306	0.942
15-Aug-94	3.69	3	0.0273	-1.922	1.306	0.949
14-Aug-95	3.82	4	0.0377	-1.778	1.340	0.955
8-Sep-94	3.91	5	0.0481	-1.664	1.364	0.959
28-Oct-94	3.91	6	0.0584	-1.568	1.364	0.962
4-Oct-91	4.02	7	0.0688	-1.485	1.391	0.965
18-Feb-94	4.03	8	0.0792	-1.410	1.394	0.967
18-Feb-94	4.11	9	0.0896	-1.343	1.413	0.969
13-Dec-94	4.22	10	0.1000	-1.282	1.440	0.971
15-Aug-94	4.32	11	0.1104	-1.224	1.463	0.972
15-Nov-94	4.32	12	0.1208	-1.171	1.463	0.973
26-Jul-95	4.54	13	0.1312	-1.121	1.513	0.974
28-Oct-93	4.7	14	0.1416	-1.073	1.548	0.975
2-Dec-93	4.7	15	0.1519	-1.028	1.548	0.976
20-Jul-94	4.74	16	0.1623	-0.985	1.556	0.977
16-Dec-93	4.8	17	0.1727	-0.943	1.569	0.977
1-Sep-99	5	18	0.1831	-0.904	1.609	0.978
26-Sep-96	5.15	19	0.1935	-0.865	1.639	0.978
20-Jul-94	5.16	20	0.2039	-0.828	1.641	0.979
1-Oct-98	5.37	21	0.2143	-0.792	1.681	0.979
8-Oct-98	5.37	22	0.2247	-0.756	1.681	0.979
11-Nov-97	5.38	23	0.2351	-0.722	1.683	0.980
24-Sep-98	5.49	24	0.2455	-0.689	1.703	0.980
11-Jul-95	5.71	25	0.2558	-0.656	1.742	0.979
26-Aug-98	5.84	26	0.2662	-0.624	1.765	0.979
24-Jan-94	5.87	27	0.2766	-0.593	1.770	0.979
21-Aug-96	5.97	28	0.2870	-0.562	1.787	0.979
27-Nov-96	5.97	29	0.2974	-0.532	1.787	0.979
10-Dec-98	6	30	0.3078	-0.502	1.792	0.978
29-Oct-96	6.22	31	0.3182	-0.473	1.828	0.978
16-Oct-97	6.35	32	0.3286	-0.444	1.848	0.977
4-Sep-97	6.76	33	0.3390	-0.415	1.911	0.977
21-Jan-98	6.9	34	0.3494	-0.387	1.932	0.976
28-Jul-98	6.9	35	0.3597	-0.359	1.932	0.976
23-Feb-99	7.05	36	0.3701	-0.332	1.953	0.975
24-Jul-96	7.19	37	0.3805	-0.304	1.973	0.974
18-Oct-95	7.2	38	0.3909	-0.277	1.974	0.973
23-Jun-94	7.39	39	0.4013	-0.250	2.000	0.973
27-Jun-95	7.39	40	0.4117	-0.223	2.000	0.972
26-Nov-97	7.5	41	0.4221	-0.197	2.015	0.971
14-Aug-97	7.65	42	0.4325	-0.170	2.035	0.970
31-Dec-98	7.65	43	0.4429	-0.144	2.035	0.969
10-Jan-95	8	44	0.4532	-0.117	2.079	0.968
25-Nov-98	8.31	45	0.4636	-0.091	2.117	0.967
4-Aug-99	8.6	46	0.4740	-0.065	2.152	0.966
13-Dec-96	8.83	47	0.4844	-0.039	2.178	0.965

17-Dec-97	9.2	48	0.4948	-0.013	2.219	0.964
25-Feb-98	9.58	49	0.5052	0.013	2.260	0.962
15-Jan-99	9.97	50	0.5156	0.039	2.300	0.961
23-Jul-97	10.2	51	0.5260	0.065	2.322	0.960
8-Mar-94	10.44	52	0.5364	0.091	2.346	0.958
7-Jun-94	10.72	53	0.5468	0.117	2.372	0.957
26-Jun-98	10.8	54	0.5571	0.144	2.380	0.956
8-Mar-94	12.76	55	0.5675	0.170	2.546	0.955
23-Mar-94	12.97	56	0.5779	0.197	2.563	0.953
21-Nov-95	13	57	0.5883	0.223	2.565	0.951
21-Jan-99	13	58	0.5987	0.250	2.565	0.949
30-Jan-97	13.5	59	0.6091	0.277	2.603	0.947
20-Mar-98	13.5	60	0.6195	0.304	2.603	0.945
7-Mar-95	14.49	61	0.6299	0.332	2.673	0.943
4-May-94	14.89	62	0.6403	0.359	2.701	0.941
20-May-94	15.31	63	0.6506	0.387	2.729	0.938
19-Jun-96	15.4	64	0.6610	0.415	2.734	0.936
25-Apr-95	15.75	65	0.6714	0.444	2.757	0.935
24-Jun-97	16.7	66	0.6818	0.473	2.815	0.934
7-Jul-99	17	67	0.6922	0.502	2.833	0.932
9-Feb-95	17.61	68	0.7026	0.532	2.868	0.932
7-Apr-94	18.12	69	0.7130	0.562	2.897	0.933
8-May-96	19.1	70	0.7234	0.593	2.950	0.936
19-Feb-97	20.6	71	0.7338	0.624	3.025	0.940
13-Apr-95	22.11	72	0.7442	0.656	3.096	0.943
23-May-95	22.11	73	0.7545	0.689	3.096	0.946
8-Mar-99	25	74	0.7649	0.722	3.219	0.955
23-Apr-98	27.4	75	0.7753	0.756	3.311	0.960
17-Apr-96	29	76	0.7857	0.792	3.367	0.961
9-May-95	30.45	77	0.7961	0.828	3.416	0.962
16-Apr-97	30.7	78	0.8065	0.865	3.424	0.963
5-May-99	34	79	0.8169	0.904	3.526	0.969
7-May-98	36.2	80	0.8273	0.943	3.589	0.970
26-Oct-98	36.2	81	0.8377	0.985	3.589	0.969
15-May-98	43.8	82	0.8481	1.028	3.780	0.973
29-Feb-96	45	83	0.8584	1.073	3.807	0.973
28-Mar-96	45	84	0.8688	1.121	3.807	0.974
28-May-98	45.1	85	0.8792	1.171	3.809	0.973
17-Jan-96	47.8	86	0.8896	1.224	3.867	0.969
15-Jun-99	49	87	0.9000	1.282	3.892	0.965
16-May-91	50.5	88	0.9104	1.343	3.922	0.960
15-May-91	51.3	89	0.9208	1.410	3.938	0.953
31-May-99	55	90	0.9312	1.485	4.007	0.942
26-Mar-97	57	91	0.9416	1.568	4.043	0.926
23-May-99	61	92	0.9519	1.664	4.111	0.910
22-Mar-99	78	93	0.9623	1.778	4.357	
19-Apr-99	80	94	0.9727	1.922	4.382	
19-Apr-94	86.89	95	0.9831	2.123	4.465	
27-May-99	110	96	0.9935	2.484	4.700	
26-May-99	123					

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station: NM305 **Date:** 19-Oct-00
Chemical: tPb **Analyst:** S.R. Peterson
Notes: Template and Example Lognormal Analysis
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load			
Avg:	35,293	20	93	18	0.00	0.00	0.00
SD:	774	23	98	61	1.00	1.00	1.00
CV:	0.02	1.18	1.06	3.31			
Min:	33,373	3	5	0.4	-0.71	-0.89	-0.30
Max:	36,404	123	800	529	4.46	7.20	8.43
Median:	35,351	9	67	4	-0.44	-0.26	-0.24

tPb NM305 : Concentration v. Discharge, Q

Conc. = mQ+b (r2=0.485)		update r2	0.48	0.485	**Q = mTime +b**		**LnQ = mTime +b**
r2 Q,[COC]:	0.48	[tPb]	Q		r2:	0.050	0.055
slope, m:	3.0	44	3.2		m:	0.0067	0.00028
intercept, b:	34.5	93	19.7		b:	-218	-7.54
N: 98		398	123				

LnConc. = mLn{Q}+b (r2=0.216)		update r2	0.22	0.216	
r2 lnQ,ln[COC]:	0.22	ln[tPb]	ln Q	[tPb]	Q
slope, m:	0.32	3.85	1.16	47	3
intercept, b:	3.47	4.43	2.98	84	20
N: 98		5.02	4.81	152	123

for graph
tPb 0
NM305

N= 98

update for new data	Sampling Date	Q Discharge cfs	tPb Concentration ug/L	tPb Load lbs/day	Ln Q	Ln tPb Conc.	Ln tPb Load	Standardized Values = (x - Avg)/SD Q	Conc	Load
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	15-May-91	51.3	42	11.6	3.94	3.74	2.45	1.37	-0.52	-0.11
MFG	16-May-91	50.5	40	10.9	3.92	3.69	2.39	1.33	-0.54	-0.12
MFG	3-Oct-91	3.69	39	0.8	1.31	3.66	-0.26	-0.69	-0.55	-0.29
MFG	4-Oct-91	4.02	51	1.1	1.39	3.93	0.10	-0.68	-0.42	-0.28
IDEQ	28-Oct-93	4.7	40	1.0	1.55	3.69	0.01	-0.65	-0.54	-0.29
IDEQ	2-Dec-93	4.7	48	1.2	1.55	3.87	0.19	-0.65	-0.45	-0.28
IDEQ	16-Dec-93	4.8	64	1.7	1.57	4.16	0.50	-0.64	-0.29	-0.28
IDEQ	24-Jan-94	5.87	68	2.1	1.77	4.22	0.76	-0.60	-0.25	-0.27
IDEQ	18-Feb-94	4.11	73	1.6	1.41	4.29	0.48	-0.67	-0.20	-0.28
IDEQ	18-Feb-94	4.03	73	1.6	1.39	4.29	0.46	-0.68	-0.20	-0.28
IDEQ	8-Mar-94	10.44	108	6.1	2.35	4.68	1.80	-0.40	0.16	-0.20
IDEQ	8-Mar-94	12.76	108	7.4	2.55	4.68	2.00	-0.30	0.16	-0.18
IDEQ	23-Mar-94	12.97	87	6.1	2.56	4.47	1.80	-0.29	-0.06	-0.20
IDEQ	7-Apr-94	18.12	85	8.3	2.90	4.44	2.11	-0.07	-0.08	-0.17
IDEQ	19-Apr-94	86.89	442	206.6	4.46	6.09	5.33	2.90	3.56	3.10
IDEQ	4-May-94	14.89	72	5.8	2.70	4.28	1.75	-0.21	-0.21	-0.21
IDEQ	20-May-94	15.31	5	0.4	2.73	1.61	-0.89	-0.19	-0.89	-0.30
IDEQ	7-Jun-94	10.72	66	3.8	2.37	4.19	1.34	-0.39	-0.27	-0.24
IDEQ	23-Jun-94	7.39	69	2.7	2.00	4.23	1.01	-0.53	-0.24	-0.26
IDEQ	20-Jul-94	5.16	55	1.5	1.64	4.01	0.42	-0.63	-0.38	-0.28
IDEQ	20-Jul-94	4.74	55	1.4	1.56	4.01	0.34	-0.65	-0.38	-0.28
IDEQ	15-Aug-94	4.32	44	1.0	1.46	3.78	0.02	-0.66	-0.50	-0.29
IDEQ	15-Aug-94	3.69	44	0.9	1.31	3.78	-0.14	-0.69	-0.50	-0.29
IDEQ	8-Sep-94	3.91	40	0.8	1.36	3.69	-0.17	-0.68	-0.54	-0.29
IDEQ	28-Oct-94	3.91	53	1.1	1.36	3.97	0.11	-0.68	-0.40	-0.28
IDEQ	15-Nov-94	4.32	134	3.1	1.46	4.90	1.14	-0.66	0.42	-0.25
IDEQ	13-Dec-94	4.22	91	2.1	1.44	4.51	0.73	-0.67	-0.02	-0.27
IDEQ	10-Jan-95	8	200	8.6	2.08	5.30	2.15	-0.50	1.09	-0.16
IDEQ	9-Feb-95	17.61	107	10.1	2.87	4.67	2.32	-0.09	0.15	-0.14
IDEQ	7-Mar-95	14.49	95	7.4	2.67	4.55	2.00	-0.22	0.02	-0.18
IDEQ	13-Apr-95	22.11	106	12.6	3.10	4.66	2.53	0.10	0.14	-0.09
IDEQ	25-Apr-95	15.75	79	6.7	2.76	4.37	1.90	-0.17	-0.14	-0.19
IDEQ	9-May-95	30.45	108	17.7	3.42	4.68	2.87	0.46	0.16	-0.01
IDEQ	23-May-95	22.11	87	10.3	3.10	4.47	2.34	0.10	-0.06	-0.13
IDEQ	27-Jun-95	7.39	103	4.1	2.00	4.63	1.41	-0.53	0.10	-0.23
IDEQ	11-Jul-95	5.71	101	3.1	1.74	4.62	1.13	-0.60	0.08	-0.25
IDEQ	26-Jul-95	4.54	100	2.4	1.51	4.61	0.89	-0.65	0.07	-0.26
IDEQ	14-Aug-95	3.82	61	1.3	1.34	4.11	0.23	-0.69	-0.32	-0.28
IDEQ	18-Oct-95	7.2	110	4.3	1.97	4.70	1.45	-0.54	0.18	-0.23
IDEQ	21-Nov-95	13	196	13.7	2.56	5.28	2.62	-0.29	1.05	-0.08
IDEQ	17-Jan-96	47.8	110	28.3	3.87	4.70	3.34	1.21	0.18	0.16
IDEQ	29-Feb-96	45	98	23.7	3.81	4.58	3.17	1.09	0.05	0.09
IDEQ	28-Mar-96	45	52	12.6	3.81	3.95	2.53	1.09	-0.41	-0.09
IDEQ	17-Apr-96	29	109	17.0	3.37	4.69	2.83	0.40	0.17	-0.02
IDEQ	8-May-96	19.1	89	9.1	2.95	4.49	2.21	-0.03	-0.04	-0.15
IDEQ	19-Jun-96	15.4	46	3.8	2.73	3.83	1.34	-0.19	-0.48	-0.24
IDEQ	24-Jul-96	7.19	57	2.2	1.97	4.04	0.79	-0.54	-0.36	-0.27

IDEQ	21-Aug-96	5.97	49	1.6	1.79	3.89	0.45	-0.59	-0.44	-0.28
IDEQ	26-Sep-96	5.15	46	1.3	1.64	3.83	0.24	-0.63	-0.48	-0.28
IDEQ	29-Oct-96	6.22	68	2.3	1.83	4.22	0.82	-0.58	-0.25	-0.26
IDEQ	27-Nov-96	5.97	54	1.7	1.79	3.99	0.55	-0.59	-0.39	-0.27
IDEQ	13-Dec-96	8.83	96	4.6	2.18	4.56	1.52	-0.47	0.03	-0.23
IDEQ	30-Jan-97	13.5	70	5.1	2.60	4.25	1.63	-0.27	-0.23	-0.22
IDEQ	19-Feb-97	20.6	112	12.4	3.03	4.72	2.52	0.04	0.20	-0.10
IDEQ	26-Mar-97	57	87	26.7	4.04	4.47	3.28	1.61	-0.06	0.14
IDEQ	16-Apr-97	30.7	80	13.2	3.42	4.38	2.58	0.48	-0.13	-0.08
IDEQ	24-Jun-97	16.7	50	4.5	2.82	3.91	1.50	-0.13	-0.43	-0.23
IDEQ	23-Jul-97	10.2	71	3.9	2.32	4.26	1.36	-0.41	-0.22	-0.24
IDEQ	14-Aug-97	7.65	57	2.3	2.03	4.04	0.85	-0.52	-0.36	-0.26
IDEQ	4-Sep-97	6.76	56	2.0	1.91	4.03	0.71	-0.56	-0.37	-0.27
IDEQ	16-Oct-97	6.35	54	1.8	1.85	3.99	0.61	-0.58	-0.39	-0.27
URS	11-Nov-97	5.38	47.6	1.4	1.68	3.86	0.32	-0.62	-0.46	-0.28
IDEQ	26-Nov-97	7.5	47	1.9	2.01	3.85	0.64	-0.53	-0.46	-0.27
IDEQ	17-Dec-97	9.2	42	2.1	2.22	3.74	0.73	-0.45	-0.52	-0.27
IDEQ	21-Jan-98	6.9	49	1.8	1.93	3.89	0.60	-0.55	-0.44	-0.27
IDEQ	25-Feb-98	9.58	307	15.8	2.26	5.73	2.76	-0.44	2.18	-0.04
IDEQ	20-Mar-98	13.5	72	5.2	2.60	4.28	1.65	-0.27	-0.21	-0.22
IDEQ	23-Apr-98	27.4	169	24.9	3.31	5.13	3.22	0.33	0.78	0.11
IDEQ	7-May-98	36.2	74	14.4	3.59	4.30	2.67	0.71	-0.19	-0.06
URS	15-May-98	43.8	39.7	9.4	3.78	3.68	2.24	1.04	-0.54	-0.15
IDEQ	28-May-98	45.1	90	21.8	3.81	4.50	3.08	1.10	-0.03	0.06
IDEQ	26-Jun-98	10.8	49	2.8	2.38	3.89	1.05	-0.38	-0.44	-0.26
IDEQ	28-Jul-98	6.9	41	1.5	1.93	3.71	0.42	-0.55	-0.53	-0.28
IDEQ	26-Aug-98	5.84	44	1.4	1.76	3.78	0.32	-0.60	-0.50	-0.28
IDEQ	24-Sep-98	5.49	46	1.4	1.70	3.83	0.31	-0.61	-0.48	-0.28
IDEQ	1-Oct-98	5.37	42	1.2	1.68	3.74	0.19	-0.62	-0.52	-0.28
IDEQ	8-Oct-98	5.37	44	1.3	1.68	3.78	0.24	-0.62	-0.50	-0.28
IDEQ	26-Oct-98	36.2	36	7.0	3.59	3.58	1.95	0.71	-0.58	-0.19
USGS	27-Oct-98	3.2	47	0.8	1.16	3.85	-0.21	-0.71	-0.46	-0.29
USGS	19-Nov-98	4	50	1.1	1.39	3.91	0.07	-0.68	-0.43	-0.28
IDEQ	25-Nov-98	8.31	134	6.0	2.12	4.90	1.79	-0.49	0.42	-0.20
USGS	10-Dec-98	6	68	2.2	1.79	4.22	0.79	-0.59	-0.25	-0.27
IDEQ	31-Dec-98	7.65	57	2.3	2.03	4.04	0.85	-0.52	-0.36	-0.26
IDEQ	15-Jan-99	9.97	57	3.1	2.30	4.04	1.12	-0.42	-0.36	-0.25
USGS	21-Jan-99	13	54	3.8	2.56	3.99	1.33	-0.29	-0.39	-0.24
IDEQ	23-Feb-99	7.05	41	1.6	1.95	3.71	0.44	-0.55	-0.53	-0.28
IDEQ	8-Mar-99	25	48	6.5	3.22	3.87	1.87	0.23	-0.45	-0.20
USGS	22-Mar-99	78	330	138.5	4.36	5.80	4.93	2.52	2.42	1.98
USGS	19-Apr-99	80	260	111.9	4.38	5.56	4.72	2.60	1.70	1.54
USGS	5-May-99	34	52	9.5	3.53	3.95	2.25	0.62	-0.41	-0.15
USGS	23-May-99	61	220	72.2	4.11	5.39	4.28	1.78	1.30	0.89
USGS	26-May-99	123	800	529.4	4.81	6.68	6.27	4.46	7.20	8.43
USGS	27-May-99	110	270	159.8	4.70	5.60	5.07	3.90	1.80	2.33
USGS	31-May-99	55	100	29.6	4.01	4.61	3.39	1.53	0.07	0.19
USGS	15-Jun-99	49	81	21.4	3.89	4.39	3.06	1.27	-0.12	0.05
USGS	7-Jul-99	17	45.6	4.2	2.83	3.82	1.43	-0.12	-0.48	-0.23
USGS	4-Aug-99	8.6	48.2	2.2	2.15	3.88	0.80	-0.48	-0.45	-0.27
USGS	1-Sep-99	5	21	0.6	1.61	3.04	-0.57	-0.63	-0.73	-0.29

tPb

Concentration over time analysis r2 Slope, m

tPb NM305 **Concentration over time**

LnConc.=mTime+b All data r2, m: **0.008** **0.00008**

	Time	Ln[COC]	[COC]
first:	15-May-91	4.13	62
mid:	12-Oct-96	4.28	72
last:	1-Sep-99	4.36	78

LnConc.=mTime+b >'96 r2, m: **0.012** **0.00026**

	29-Oct-96	4.12	62
	1-Sep-99	4.39	80

Load over time analysis

tPb NM305 **Load over time**

LnLoad=mTime+b All data r2, m: **0.042** **0.00036**

	Time	LnLoad	Load
first:	15-May-91	0.84	2
mid:	12-Oct-96	1.56	5
last:	1-Sep-99	1.94	7

LnLoad=mTime+b >'96 r2, m: **0.047** **0.00110**

	29-Oct-96	1.06	3
	1-Sep-99	2.20	9

max r2: 0.907 max r2: 0.974

Forward time Regression on Ln Concentration(t) **Forward time Regression on Ln Load(t)**

r2	slope	intercept	r2	slope	intercept
only on >4 data points: delete last 4 rows			only on >4 data points: delete last 4 rows		
0.008	0.00008	1.55	0.042	0.00036	-11.21
0.005	0.00006	2.04	0.053	0.00042	-13.24
0.003	0.00005	2.67	0.066	0.00048	-15.51
0.001	0.00002	3.41	0.054	0.00045	-14.28
0.000	0.00001	3.88	0.045	0.00042	-13.37
0.000	0.00000	4.43	0.039	0.00039	-12.37
0.000	-0.00002	4.84	0.033	0.00037	-11.49
0.000	-0.00002	5.00	0.029	0.00035	-10.83
0.001	-0.00002	5.10	0.027	0.00034	-10.39
0.001	-0.00002	5.15	0.023	0.00032	-9.64
0.001	-0.00002	5.19	0.019	0.00029	-8.80
0.000	-0.00001	4.83	0.021	0.00031	-9.30
0.000	0.00000	4.44	0.023	0.00033	-10.05
0.000	0.00000	4.26	0.024	0.00035	-10.64
0.000	0.00001	4.10	0.028	0.00037	-11.63
0.004	0.00007	1.95	0.054	0.00051	-16.52
0.004	0.00007	1.87	0.058	0.00053	-17.40
0.001	-0.00002	5.18	0.044	0.00047	-14.98
0.001	-0.00003	5.37	0.044	0.00047	-15.27
0.001	-0.00003	5.52	0.042	0.00047	-15.13
0.002	-0.00005	6.00	0.036	0.00044	-14.14
0.003	-0.00006	6.53	0.030	0.00041	-12.92
0.007	-0.00009	7.45	0.022	0.00036	-11.08
0.011	-0.00012	8.47	0.015	0.00029	-8.77
0.019	-0.00015	9.76	0.008	0.00022	-6.15
0.024	-0.00018	10.65	0.004	0.00016	-3.79
0.019	-0.00016	9.98	0.003	0.00013	-3.00
0.018	-0.00016	9.95	0.001	0.00009	-1.37
0.009	-0.00011	8.41	0.002	0.00011	-2.28
0.007	-0.00010	7.94	0.003	0.00015	-3.60
0.006	-0.00009	7.65	0.004	0.00017	-4.41
0.004	-0.00008	7.10	0.006	0.00023	-6.40
0.004	-0.00008	7.13	0.007	0.00025	-7.24
0.002	-0.00006	6.42	0.013	0.00034	-10.47
0.001	-0.00005	6.15	0.017	0.00041	-12.82
0.000	-0.00003	5.41	0.017	0.00041	-13.00
0.000	-0.00001	4.60	0.014	0.00040	-12.43
0.000	0.00002	3.69	0.011	0.00036	-11.03
0.000	0.00000	4.21	0.005	0.00025	-7.25
0.001	0.00004	2.87	0.004	0.00024	-6.95
0.007	0.00014	-0.62	0.008	0.00034	-10.55
0.012	0.00019	-2.49	0.018	0.00052	-16.99
0.017	0.00023	-4.15	0.032	0.00070	-23.54
0.014	0.00022	-3.65	0.043	0.00084	-28.63
0.023	0.00029	-6.03	0.061	0.00104	-35.72
0.029	0.00034	-7.93	0.075	0.00120	-41.33
0.024	0.00032	-7.10	0.077	0.00126	-43.61

0.022	0.00032	-7.08	0.071	0.00126	-43.48
0.017	0.00029	-6.26	0.060	0.00120	-41.46
0.012	0.00026	-4.92	0.047	0.00110	-37.75
0.013	0.00027	-5.47	0.040	0.00106	-36.42
0.010	0.00025	-4.71	0.031	0.00097	-33.05
0.015	0.00033	-7.51	0.032	0.00102	-35.12
0.016	0.00036	-8.53	0.033	0.00110	-37.93
0.028	0.00048	-13.20	0.047	0.00138	-47.81
0.036	0.00058	-16.72	0.079	0.00186	-65.35
0.044	0.00068	-20.29	0.108	0.00229	-80.87
0.039	0.00067	-19.93	0.115	0.00248	-87.85
0.043	0.00074	-22.47	0.119	0.00266	-94.29
0.041	0.00076	-23.29	0.114	0.00273	-96.70
0.039	0.00078	-23.96	0.105	0.00275	-97.59
0.035	0.00078	-23.99	0.093	0.00272	-96.32
0.028	0.00074	-22.33	0.076	0.00256	-90.56
0.021	0.00067	-19.91	0.063	0.00246	-86.86
0.012	0.00054	-15.05	0.051	0.00234	-82.73
0.007	0.00043	-11.13	0.038	0.00211	-74.50
0.042	0.00107	-34.21	0.056	0.00272	-96.52
0.046	0.00119	-38.69	0.058	0.00295	-104.69
0.089	0.00171	-57.48	0.093	0.00388	-138.57
0.102	0.00194	-65.77	0.125	0.00476	-170.51
0.085	0.00187	-63.44	0.155	0.00567	-203.19
0.111	0.00231	-79.25	0.232	0.00739	-265.72
0.105	0.00239	-82.32	0.238	0.00802	-288.44
0.088	0.00231	-79.50	0.221	0.00816	-293.46
0.073	0.00222	-76.21	0.198	0.00808	-290.79
0.060	0.00211	-71.94	0.173	0.00782	-281.34
0.043	0.00187	-63.38	0.142	0.00735	-264.30
0.028	0.00159	-53.02	0.109	0.00672	-241.32
0.010	0.00101	-31.97	0.117	0.00743	-267.03
0.002	0.00046	-12.33	0.069	0.00593	-212.71
0.000	-0.00018	10.97	0.032	0.00416	-148.55
0.001	0.00034	-7.95	0.025	0.00405	-144.49
0.000	-0.00008	7.58	0.005	0.00200	-70.12
0.005	-0.00105	42.63	0.001	-0.00093	36.26
0.023	-0.00251	95.74	0.022	-0.00483	177.93
0.079	-0.00538	199.77	0.092	-0.01135	414.94
0.225	-0.00994	365.67	0.330	-0.02270	827.34
0.509	-0.01675	613.24	0.627	-0.03550	1292.44
0.467	-0.01809	661.91	0.634	-0.04069	1480.90
0.425	-0.01868	683.33	0.617	-0.04353	1584.16
0.712	-0.02615	954.88	0.860	-0.05654	2057.22
0.696	-0.02667	973.75	0.862	-0.05865	2134.15
0.812	-0.02024	739.99	0.920	-0.05061	1841.61
0.907	-0.01536	562.39	0.974	-0.04298	1564.03

update for EV, CV:

tPb **NM305**

LN Analysis **tPb**

Load

Load Data, EV=18.3 lbs/day CV=3.3

Load Data-based LN

		u	ln tPb Load	tPb Load
Avg:	**18.3**			
SD:	**61**			
CV:	**3.31**	3	6.4	598
Min:	**0.4**	0	1.67	5
Max:	**529**	-3	-3.06	0.05
Median:	**4**			

18 18.3
3.31 3.3

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.93, EV=13.1lbs/day CV=2.63; max r2=0.97**

		u	lnLoad	Load
r2 u,lnLoad:	0.932			
slope, m:	0.696	3	5.85	347
intercept, b:	-1.069	0	1.54	5
N: 98		-3	-2.78	0.1
E[Load]:	13.06	Parameter Estimates		
SD[Load]:	34	from LN regression		
CV[Load]:	2.63	update graph label		

0.932 0.93
13.1 13.1
2.6 2.63

max r2
0.970

N: 98

Date	tPb Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
20-May-94	0.4	1	0.0064	-2.491	-0.887	0.932
1-Sep-99	0.6	2	0.0165	-2.131	-0.571	0.935
3-Oct-91	0.8	3	0.0267	-1.931	-0.256	0.937
27-Oct-98	0.8	4	0.0369	-1.788	-0.212	0.941
8-Sep-94	0.8	5	0.0471	-1.674	-0.173	0.944
15-Aug-94	0.9	6	0.0573	-1.578	-0.135	0.946
28-Oct-93	1.0	7	0.0674	-1.495	0.011	0.948
15-Aug-94	1.0	8	0.0776	-1.421	0.022	0.951
19-Nov-98	1.1	9	0.0878	-1.355	0.073	0.953
4-Oct-91	1.1	10	0.0980	-1.293	0.098	0.955
28-Oct-94	1.1	11	0.1081	-1.236	0.109	0.957
1-Oct-98	1.2	12	0.1183	-1.183	0.193	0.958
2-Dec-93	1.2	13	0.1285	-1.134	0.194	0.960
14-Aug-95	1.3	14	0.1387	-1.086	0.226	0.961
8-Oct-98	1.3	15	0.1489	-1.041	0.240	0.963
26-Sep-96	1.3	16	0.1590	-0.998	0.243	0.964
24-Sep-98	1.4	17	0.1692	-0.957	0.307	0.965
11-Nov-97	1.4	18	0.1794	-0.918	0.320	0.966
26-Aug-98	1.4	19	0.1896	-0.879	0.324	0.967
20-Jul-94	1.4	20	0.1997	-0.843	0.338	0.967
28-Jul-98	1.5	21	0.2099	-0.807	0.420	0.968
20-Jul-94	1.5	22	0.2201	-0.772	0.423	0.969
23-Feb-99	1.6	23	0.2303	-0.738	0.442	0.969
21-Aug-96	1.6	24	0.2405	-0.705	0.454	0.970
18-Feb-94	1.6	25	0.2506	-0.672	0.459	0.970
18-Feb-94	1.6	26	0.2608	-0.641	0.479	0.970
16-Dec-93	1.7	27	0.2710	-0.610	0.502	0.970
27-Nov-96	1.7	28	0.2812	-0.579	0.551	0.970
21-Jan-98	1.8	29	0.2913	-0.549	0.598	0.970
16-Oct-97	1.8	30	0.3015	-0.520	0.612	0.970
26-Nov-97	1.9	31	0.3117	-0.491	0.640	0.970
4-Sep-97	2.0	32	0.3219	-0.462	0.711	0.970
13-Dec-94	2.1	33	0.3321	-0.434	0.726	0.970
17-Dec-97	2.1	34	0.3422	-0.406	0.732	0.970
24-Jan-94	2.1	35	0.3524	-0.379	0.764	0.970
10-Dec-98	2.2	36	0.3626	-0.352	0.786	0.970
24-Jul-96	2.2	37	0.3728	-0.325	0.791	0.969
4-Aug-99	2.2	38	0.3830	-0.298	0.802	0.969
29-Oct-96	2.3	39	0.3931	-0.271	0.822	0.968
14-Aug-97	2.3	40	0.4033	-0.245	0.853	0.967
31-Dec-98	2.3	41	0.4135	-0.219	0.853	0.967
26-Jul-95	2.4	42	0.4237	-0.193	0.893	0.966
23-Jun-94	2.7	43	0.4338	-0.167	1.009	0.964
26-Jun-98	2.8	44	0.4440	-0.141	1.046	0.964
15-Jan-99	3.1	45	0.4542	-0.115	1.118	0.963
11-Jul-95	3.1	46	0.4644	-0.089	1.132	0.962
15-Nov-94	3.1	47	0.4746	-0.064	1.136	0.961

21-Jan-99	3.8	48	0.4847	-0.038	1.329	0.960
7-Jun-94	3.8	49	0.4949	-0.013	1.337	0.960
19-Jun-96	3.8	50	0.5051	0.013	1.338	0.960
23-Jul-97	3.9	51	0.5153	0.038	1.360	0.959
27-Jun-95	4.1	52	0.5254	0.064	1.410	0.958
7-Jul-99	4.2	53	0.5356	0.089	1.428	0.958
18-Oct-95	4.3	54	0.5458	0.115	1.449	0.957
24-Jun-97	4.5	55	0.5560	0.141	1.502	0.956
13-Dec-96	4.6	56	0.5662	0.167	1.517	0.955
30-Jan-97	5.1	57	0.5763	0.193	1.626	0.954
20-Mar-98	5.2	58	0.5865	0.219	1.654	0.953
4-May-94	5.8	59	0.5967	0.245	1.752	0.952
25-Nov-98	6.0	60	0.6069	0.271	1.790	0.952
8-Mar-94	6.1	61	0.6170	0.298	1.803	0.952
23-Mar-94	6.1	62	0.6272	0.325	1.803	0.952
8-Mar-99	6.5	63	0.6374	0.352	1.865	0.951
25-Apr-95	6.7	64	0.6476	0.379	1.901	0.951
26-Oct-98	7.0	65	0.6578	0.406	1.948	0.951
7-Mar-95	7.4	66	0.6679	0.434	2.002	0.950
8-Mar-94	7.4	67	0.6781	0.462	2.003	0.950
7-Apr-94	8.3	68	0.6883	0.491	2.115	0.949
10-Jan-95	8.6	69	0.6985	0.520	2.153	0.950
8-May-96	9.1	70	0.7087	0.549	2.213	0.950
15-May-98	9.4	71	0.7188	0.579	2.236	0.951
5-May-99	9.5	72	0.7290	0.610	2.253	0.952
9-Feb-95	10.1	73	0.7392	0.641	2.316	0.953
23-May-95	10.3	74	0.7494	0.672	2.337	0.953
16-May-91	10.9	75	0.7595	0.705	2.386	0.954
15-May-91	11.6	76	0.7697	0.738	2.450	0.954
19-Feb-97	12.4	77	0.7799	0.772	2.519	0.956
28-Mar-96	12.6	78	0.7901	0.807	2.533	0.957
13-Apr-95	12.6	79	0.8003	0.843	2.534	0.958
16-Apr-97	13.2	80	0.8104	0.879	2.581	0.958
21-Nov-95	13.7	81	0.8206	0.918	2.618	0.958
7-May-98	14.4	82	0.8308	0.957	2.668	0.956
25-Feb-98	15.8	83	0.8410	0.998	2.761	0.954
17-Apr-96	17.0	84	0.8511	1.041	2.834	0.952
9-May-95	17.7	85	0.8613	1.086	2.873	0.949
15-Jun-99	21.4	86	0.8715	1.134	3.061	0.945
28-May-98	21.8	87	0.8817	1.183	3.084	0.942
29-Feb-96	23.7	88	0.8919	1.236	3.167	0.937
23-Apr-98	24.9	89	0.9020	1.293	3.215	0.928
26-Mar-97	26.7	90	0.9122	1.355	3.284	0.916
17-Jan-96	28.3	91	0.9224	1.421	3.342	0.899
31-May-99	29.6	92	0.9326	1.495	3.387	0.884
23-May-99	72.2	93	0.9427	1.578	4.279	0.967
19-Apr-99	111.9	94	0.9529	1.674	4.718	0.965
22-Mar-99	138.5	95	0.9631	1.788	4.931	
27-May-99	159.8	96	0.9733	1.931	5.074	
19-Apr-94	206.6	97	0.9835	2.131	5.331	
26-May-99	529.4	98	0.9936	2.491	6.272	

update for EV, CV:

tPb **NM305** 93 92.7

LN Analysis **tPb** 1.06 1.06

Concentration

Conc. Data, EV=92.7 ug/L CV=1.06

Data-based LN

		u	ln[tPb]	[tPb]
Avg:	**93**	3	6.8	859
SD:	**98**	0	4.15	64
CV:	**1.06**	-3	1.55	5
Min:	**5**			
Max:	**800**			
Median:	**67**			

0.878 0.878

u=mLn{Conc.}+b: 92.1 92.1

update for r2, EV, CV: **r2=0.878, EV=92.1 ug/L CV=0.802; max r2=0.98** 0.802 0.802

r2 u,lnConc:	0.878	u	lnConc.	Conc.
slope, m:	1.420	3	6.39	594
intercept, b:	-6.068	0	4.27	72
N: 98		-3	2.16	9
E[Conc]:	92.1	Parameter Estimates		
SD[Conc]:	74	from LN regression		
CV[Conc]:	0.80	update graph label		

max r2 0.981

N: 98

update and rank for new data

Date	tPb Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
20-May-94	5	1	0.0064	-2.491	1.609	0.878
1-Sep-99	21	2	0.0165	-2.131	3.045	0.892
26-Oct-98	36	3	0.0267	-1.931	3.584	0.887
3-Oct-91	39	4	0.0369	-1.788	3.664	0.891
15-May-98	39.7	5	0.0471	-1.674	3.681	0.896
16-May-91	40	6	0.0573	-1.578	3.689	0.901
28-Oct-93	40	7	0.0674	-1.495	3.689	0.905
8-Sep-94	40	8	0.0776	-1.421	3.689	0.908
28-Jul-98	41	9	0.0878	-1.355	3.714	0.911
23-Feb-99	41	10	0.0980	-1.293	3.714	0.913
15-May-91	42	11	0.1081	-1.236	3.738	0.916
17-Dec-97	42	12	0.1183	-1.183	3.738	0.918
1-Oct-98	42	13	0.1285	-1.134	3.738	0.920
15-Aug-94	44	14	0.1387	-1.086	3.784	0.921
15-Aug-94	44	15	0.1489	-1.041	3.784	0.924
26-Aug-98	44	16	0.1590	-0.998	3.784	0.925
8-Oct-98	44	17	0.1692	-0.957	3.784	0.927
7-Jul-99	45.6	18	0.1794	-0.918	3.820	0.928
19-Jun-96	46	19	0.1896	-0.879	3.829	0.930
26-Sep-96	46	20	0.1997	-0.843	3.829	0.932
24-Sep-98	46	21	0.2099	-0.807	3.829	0.933
26-Nov-97	47	22	0.2201	-0.772	3.850	0.934
27-Oct-98	47	23	0.2303	-0.738	3.850	0.936
11-Nov-97	47.6	24	0.2405	-0.705	3.863	0.937
2-Dec-93	48	25	0.2506	-0.672	3.871	0.938
8-Mar-99	48	26	0.2608	-0.641	3.871	0.939
4-Aug-99	48.2	27	0.2710	-0.610	3.875	0.939
21-Aug-96	49	28	0.2812	-0.579	3.892	0.940
21-Jan-98	49	29	0.2913	-0.549	3.892	0.940
26-Jun-98	49	30	0.3015	-0.520	3.892	0.941
24-Jun-97	50	31	0.3117	-0.491	3.912	0.941
19-Nov-98	50	32	0.3219	-0.462	3.912	0.941
4-Oct-91	51	33	0.3321	-0.434	3.932	0.941
28-Mar-96	52	34	0.3422	-0.406	3.951	0.941
5-May-99	52	35	0.3524	-0.379	3.951	0.941
28-Oct-94	53	36	0.3626	-0.352	3.970	0.941
27-Nov-96	54	37	0.3728	-0.325	3.989	0.941
16-Oct-97	54	38	0.3830	-0.298	3.989	0.941
21-Jan-99	54	39	0.3931	-0.271	3.989	0.941
20-Jul-94	55	40	0.4033	-0.245	4.007	0.940
20-Jul-94	55	41	0.4135	-0.219	4.007	0.940
4-Sep-97	56	42	0.4237	-0.193	4.025	0.939
24-Jul-96	57	43	0.4338	-0.167	4.043	0.938
14-Aug-97	57	44	0.4440	-0.141	4.043	0.938
31-Dec-98	57	45	0.4542	-0.115	4.043	0.937
15-Jan-99	57	46	0.4644	-0.089	4.043	0.935
14-Aug-95	61	47	0.4746	-0.064	4.111	0.934

16-Dec-93	64	48	0.4847	-0.038	4.159	0.933
7-Jun-94	66	49	0.4949	-0.013	4.190	0.933
24-Jan-94	68	50	0.5051	0.013	4.220	0.933
29-Oct-96	68	51	0.5153	0.038	4.220	0.934
10-Dec-98	68	52	0.5254	0.064	4.220	0.934
23-Jun-94	69	53	0.5356	0.089	4.234	0.934
30-Jan-97	70	54	0.5458	0.115	4.248	0.935
23-Jul-97	71	55	0.5560	0.141	4.263	0.935
4-May-94	72	56	0.5662	0.167	4.277	0.935
20-Mar-98	72	57	0.5763	0.193	4.277	0.935
18-Feb-94	73	58	0.5865	0.219	4.290	0.935
18-Feb-94	73	59	0.5967	0.245	4.290	0.935
7-May-98	74	60	0.6069	0.271	4.304	0.934
25-Apr-95	79	61	0.6170	0.298	4.369	0.933
16-Apr-97	80	62	0.6272	0.325	4.382	0.934
15-Jun-99	81	63	0.6374	0.352	4.394	0.935
7-Apr-94	85	64	0.6476	0.379	4.443	0.935
23-Mar-94	87	65	0.6578	0.406	4.466	0.937
23-May-95	87	66	0.6679	0.434	4.466	0.940
26-Mar-97	87	67	0.6781	0.462	4.466	0.942
8-May-96	89	68	0.6883	0.491	4.489	0.943
28-May-98	90	69	0.6985	0.520	4.500	0.945
13-Dec-94	91	70	0.7087	0.549	4.511	0.947
7-Mar-95	95	71	0.7188	0.579	4.554	0.949
13-Dec-96	96	72	0.7290	0.610	4.564	0.952
29-Feb-96	98	73	0.7392	0.641	4.585	0.955
26-Jul-95	100	74	0.7494	0.672	4.605	0.958
31-May-99	100	75	0.7595	0.705	4.605	0.962
11-Jul-95	101	76	0.7697	0.738	4.615	0.965
27-Jun-95	103	77	0.7799	0.772	4.635	0.968
13-Apr-95	106	78	0.7901	0.807	4.663	0.971
9-Feb-95	107	79	0.8003	0.843	4.673	0.974
8-Mar-94	108	80	0.8104	0.879	4.682	0.977
8-Mar-94	108	81	0.8206	0.918	4.682	0.979
9-May-95	108	82	0.8308	0.957	4.682	0.980
17-Apr-96	109	83	0.8410	0.998	4.691	0.980
18-Oct-95	110	84	0.8511	1.041	4.700	0.978
17-Jan-96	110	85	0.8613	1.086	4.700	0.975
19-Feb-97	112	86	0.8715	1.134	4.718	0.974
15-Nov-94	134	87	0.8817	1.183	4.898	0.977
25-Nov-98	134	88	0.8919	1.236	4.898	0.975
23-Apr-98	169	89	0.9020	1.293	5.130	0.981
21-Nov-95	196	90	0.9122	1.355	5.278	0.978
10-Jan-95	200	91	0.9224	1.421	5.298	0.977
23-May-99	220	92	0.9326	1.495	5.394	0.972
19-Apr-99	260	93	0.9427	1.578	5.561	0.965
27-May-99	270	94	0.9529	1.674	5.598	0.976
25-Feb-98	307	95	0.9631	1.788	5.727	
22-Mar-99	330	96	0.9733	1.931	5.799	
19-Apr-94	442	97	0.9835	2.131	6.091	
26-May-99	800	98	0.9936	2.491	6.685	

update for EV, CV:

tPb **NM305** 20 19.7

LN Analysis **tPb** 1.18 1.18

Discharge, Q

Q Data, EV=19.7 cfs CV=1.18

Q Data-based LN

		u	lnQ	Q
Avg:	**20**			
SD:	**23**			
CV:	**1.18**	3	5.3	209
Min:	**3**	0	2.55	13
Max:	**123**	-3	-0.25	1
Median:	**9**			

0.934 0.934
18.6 18.6
1.23 1.23

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.934, EV=18.6 cfs CV=1.23; max r2=0.98**

		u	lnQ	Q
r2 u,lnQ:	0.934			
slope, m:	1.042	3	5.34	209
intercept, b:	-2.567	0	2.46	12
N: 98		-3	-0.42	1
E[Q]:	18.6	Parameter Estimates		
SD[Q]:	23	from LN regression		
CV[Q]:	1.23	update graph label		

max r2
0.980

N: 98

update and rank for new data

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
27-Oct-98	3.2	1	0.0064	-2.488	1.163	0.934
3-Oct-91	3.69	2	0.0167	-2.127	1.306	0.944
15-Aug-94	3.69	3	0.0270	-1.927	1.306	0.951
14-Aug-95	3.82	4	0.0373	-1.783	1.340	0.957
8-Sep-94	3.91	5	0.0476	-1.669	1.364	0.961
28-Oct-94	3.91	6	0.0578	-1.573	1.364	0.964
19-Nov-98	4	7	0.0681	-1.490	1.386	0.967
4-Oct-91	4.02	8	0.0784	-1.416	1.391	0.969
18-Feb-94	4.03	9	0.0887	-1.349	1.394	0.971
18-Feb-94	4.11	10	0.0990	-1.287	1.413	0.972
13-Dec-94	4.22	11	0.1093	-1.231	1.440	0.973
15-Aug-94	4.32	12	0.1195	-1.177	1.463	0.975
15-Nov-94	4.32	13	0.1298	-1.127	1.463	0.975
26-Jul-95	4.54	14	0.1401	-1.080	1.513	0.976
28-Oct-93	4.7	15	0.1504	-1.035	1.548	0.977
2-Dec-93	4.7	16	0.1607	-0.992	1.548	0.978
20-Jul-94	4.74	17	0.1710	-0.950	1.556	0.978
16-Dec-93	4.8	18	0.1812	-0.911	1.569	0.978
1-Sep-99	5	19	0.1915	-0.872	1.609	0.979
26-Sep-96	5.15	20	0.2018	-0.835	1.639	0.979
20-Jul-94	5.16	21	0.2121	-0.799	1.641	0.979
1-Oct-98	5.37	22	0.2224	-0.764	1.681	0.979
8-Oct-98	5.37	23	0.2326	-0.730	1.681	0.980
11-Nov-97	5.38	24	0.2429	-0.697	1.683	0.980
24-Sep-98	5.49	25	0.2532	-0.664	1.703	0.980
11-Jul-95	5.71	26	0.2635	-0.633	1.742	0.979
26-Aug-98	5.84	27	0.2738	-0.601	1.765	0.979
24-Jan-94	5.87	28	0.2841	-0.571	1.770	0.979
21-Aug-96	5.97	29	0.2943	-0.541	1.787	0.979
27-Nov-96	5.97	30	0.3046	-0.511	1.787	0.978
10-Dec-98	6	31	0.3149	-0.482	1.792	0.978
29-Oct-96	6.22	32	0.3252	-0.453	1.828	0.977
16-Oct-97	6.35	33	0.3355	-0.425	1.848	0.977
4-Sep-97	6.76	34	0.3458	-0.397	1.911	0.976
21-Jan-98	6.9	35	0.3560	-0.369	1.932	0.975
28-Jul-98	6.9	36	0.3663	-0.342	1.932	0.975
23-Feb-99	7.05	37	0.3766	-0.314	1.953	0.974
24-Jul-96	7.19	38	0.3869	-0.287	1.973	0.973
18-Oct-95	7.2	39	0.3972	-0.261	1.974	0.972
23-Jun-94	7.39	40	0.4075	-0.234	2.000	0.971
27-Jun-95	7.39	41	0.4177	-0.208	2.000	0.971
26-Nov-97	7.5	42	0.4280	-0.181	2.015	0.970
14-Aug-97	7.65	43	0.4383	-0.155	2.035	0.969
31-Dec-98	7.65	44	0.4486	-0.129	2.035	0.968
10-Jan-95	8	45	0.4589	-0.103	2.079	0.967
25-Nov-98	8.31	46	0.4692	-0.077	2.117	0.966
4-Aug-99	8.6	47	0.4794	-0.052	2.152	0.965

13-Dec-96	8.83	48	0.4897	-0.026	2.178	0.964
17-Dec-97	9.2	49	0.5000	0.000	2.219	0.964
25-Feb-98	9.58	50	0.5103	0.026	2.260	0.963
15-Jan-99	9.97	51	0.5206	0.052	2.300	0.961
23-Jul-97	10.2	52	0.5308	0.077	2.322	0.960
8-Mar-94	10.44	53	0.5411	0.103	2.346	0.959
7-Jun-94	10.72	54	0.5514	0.129	2.372	0.958
26-Jun-98	10.8	55	0.5617	0.155	2.380	0.957
8-Mar-94	12.76	56	0.5720	0.181	2.546	0.957
23-Mar-94	12.97	57	0.5823	0.208	2.563	0.955
21-Nov-95	13	58	0.5925	0.234	2.565	0.953
21-Jan-99	13	59	0.6028	0.261	2.565	0.951
30-Jan-97	13.5	60	0.6131	0.287	2.603	0.950
20-Mar-98	13.5	61	0.6234	0.314	2.603	0.948
7-Mar-95	14.49	62	0.6337	0.342	2.673	0.947
4-May-94	14.89	63	0.6440	0.369	2.701	0.945
20-May-94	15.31	64	0.6542	0.397	2.729	0.944
19-Jun-96	15.4	65	0.6645	0.425	2.734	0.942
25-Apr-95	15.75	66	0.6748	0.453	2.757	0.941
24-Jun-97	16.7	67	0.6851	0.482	2.815	0.941
7-Jul-99	17	68	0.6954	0.511	2.833	0.940
9-Feb-95	17.61	69	0.7057	0.541	2.868	0.941
7-Apr-94	18.12	70	0.7159	0.571	2.897	0.942
8-May-96	19.1	71	0.7262	0.601	2.950	0.946
19-Feb-97	20.6	72	0.7365	0.633	3.025	0.950
13-Apr-95	22.11	73	0.7468	0.664	3.096	0.953
23-May-95	22.11	74	0.7571	0.697	3.096	0.956
8-Mar-99	25	75	0.7674	0.730	3.219	0.965
23-Apr-98	27.4	76	0.7776	0.764	3.311	0.969
17-Apr-96	29	77	0.7879	0.799	3.367	0.970
9-May-95	30.45	78	0.7982	0.835	3.416	0.971
16-Apr-97	30.7	79	0.8085	0.872	3.424	0.972
5-May-99	34	80	0.8188	0.911	3.526	0.976
7-May-98	36.2	81	0.8290	0.950	3.589	0.976
26-Oct-98	36.2	82	0.8393	0.992	3.589	0.975
15-May-98	43.8	83	0.8496	1.035	3.780	0.977
29-Feb-96	45	84	0.8599	1.080	3.807	0.978
28-Mar-96	45	85	0.8702	1.127	3.807	0.979
28-May-98	45.1	86	0.8805	1.177	3.809	0.978
17-Jan-96	47.8	87	0.8907	1.231	3.867	0.976
15-Jun-99	49	88	0.9010	1.287	3.892	0.974
16-May-91	50.5	89	0.9113	1.349	3.922	0.971
15-May-91	51.3	90	0.9216	1.416	3.938	0.966
31-May-99	55	91	0.9319	1.490	4.007	0.958
26-Mar-97	57	92	0.9422	1.573	4.043	0.946
23-May-99	61	93	0.9524	1.669	4.111	0.931
22-Mar-99	78	94	0.9627	1.783	4.357	0.925
19-Apr-99	80	95	0.9730	1.927	4.382	
19-Apr-94	86.89	96	0.9833	2.127	4.465	
27-May-99	110	97	0.9936	2.488	4.700	
26-May-99	123	97	0.9936	2.488	4.812	

Secondary Scale For LN graphs

u	**Cumulative Frequecny** secondary y-axis	**Candidate x-axis positions** x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

INPUT Data (in red). Update Analysis After Inputing Data. see comment

Station:	NM305	**Date:**	3-Jun-00
Chemical:	tZn	**Analyst:**	J.Johnston

Notes:
Input Discharge and Concentration Data below (in red)

	Date	Discharge	Concentration	Load				
Avg:	35,285	20	3,338	278	0.00	0.00	0.00	
SD:	773	23	1,410	265	1.00	1.00	1.00	
CV:	0.02	1.17	0.42	0.95				first:
Min:	33,373	4	21	0.6	-0.70	-2.35	-1.05	mid:
Max:	36,404	123	7,250	1,781	4.44	2.78	5.66	last:
Median:	35,334	10	3,120	173	-0.44	-0.15	-0.40	

tZn	**NM305**		**: Concentration v. Discharge, Q**		**Q = mTime +b**		**LnQ = mTime +b**	
Conc. = mQ+b (r2=0.199)		update r2	0.20	0.199	r2:	0.055	0.064	
r2 Q,[COC]:	0.20	[tZn]	Q		m:	0.0070	0.00031	
slope, m:	-27.1	3,775	3.7		b:	-228	-8.28	
intercept, b:	3875.0	3,338	19.9					
N: 97		546	123					first:
LnConc. = mLn{Q}+b (r2=0.0906)		update r2		0.09	0.0906			mid:
r2 lnQ,ln[COC]:	0.09	ln[tZn]	ln Q	[tZn]	Q			last:
slope, m:	-0.21	8.24	1.31	3,793	4			
intercept, b:	8.52	7.88	2.99	2,653	20			
N: 97		7.50	4.81	1,801	123			

								tZn	for graph
N= 97								NM305	0
	Sampling Date	**Q Discharge**	**tZn Concentration**	**tZn Load**	**Ln Q**	**Ln tZn Conc.**	**Ln tZn Load**	**Standardized Values = (x - Avg)/SD**	
update for new data		**cfs**	**ug/L**	**lbs/day**				**Q**	**Conc**	**Load**
DATA:		x-axis	y-axis	y-axis	x-axis	y-axis	y-axis			
MFG	15-May-91	51.3	1800	496.8	3.94	7.50	6.21	1.35	-1.09	0.82
MFG	16-May-91	50.5	1900	516.2	3.92	7.55	6.25	1.32	-1.02	0.90
MFG	3-Oct-91	3.69	3120	61.9	1.31	8.05	4.13	-0.70	-0.15	-0.81
MFG	4-Oct-91	4.02	4490	97.1	1.39	8.41	4.58	-0.68	0.82	-0.68
IDEQ	28-Oct-93	4.7	4490	113.5	1.55	8.41	4.73	-0.65	0.82	-0.62
IDEQ	2-Dec-93	4.7	4350	110.0	1.55	8.38	4.70	-0.65	0.72	-0.63
IDEQ	16-Dec-93	4.8	4590	118.5	1.57	8.43	4.78	-0.65	0.89	-0.60
IDEQ	24-Jan-94	5.87	3830	121.0	1.77	8.25	4.80	-0.60	0.35	-0.59
IDEQ	18-Feb-94	4.11	4020	88.9	1.41	8.30	4.49	-0.68	0.48	-0.71
IDEQ	18-Feb-94	4.03	4020	87.2	1.39	8.30	4.47	-0.68	0.48	-0.72
IDEQ	8-Mar-94	10.44	3730	209.5	2.35	8.22	5.34	-0.41	0.28	-0.26
IDEQ	8-Mar-94	12.76	3730	256.1	2.55	8.22	5.55	-0.31	0.28	-0.08
IDEQ	23-Mar-94	12.97	3750	261.7	2.56	8.23	5.57	-0.30	0.29	-0.06
IDEQ	7-Apr-94	18.12	3840	374.3	2.90	8.25	5.93	-0.07	0.36	0.36
IDEQ	19-Apr-94	86.89	3810	1781.1	4.46	8.25	7.48	2.89	0.34	5.66
IDEQ	4-May-94	14.89	3250	260.4	2.70	8.09	5.56	-0.21	-0.06	-0.07
IDEQ	20-May-94	15.31	2390	196.9	2.73	7.78	5.28	-0.20	-0.67	-0.31
IDEQ	7-Jun-94	10.72	3000	173.0	2.37	8.01	5.15	-0.39	-0.24	-0.40
IDEQ	23-Jun-94	7.39	3250	129.2	2.00	8.09	4.86	-0.54	-0.06	-0.56
IDEQ	20-Jul-94	5.16	2600	72.2	1.64	7.86	4.28	-0.63	-0.52	-0.78
IDEQ	20-Jul-94	4.74	2600	66.3	1.56	7.86	4.19	-0.65	-0.52	-0.80
IDEQ	15-Aug-94	4.32	2260	52.5	1.46	7.72	3.96	-0.67	-0.76	-0.85
IDEQ	15-Aug-94	3.69	2260	44.9	1.31	7.72	3.80	-0.70	-0.76	-0.88
IDEQ	8-Sep-94	3.91	4560	95.9	1.36	8.43	4.56	-0.69	0.87	-0.69
IDEQ	28-Oct-94	3.91	3780	79.5	1.36	8.24	4.38	-0.69	0.31	-0.75
IDEQ	15-Nov-94	4.32	7020	163.2	1.46	8.86	5.09	-0.67	2.61	-0.43
IDEQ	13-Dec-94	4.22	7170	162.8	1.44	8.88	5.09	-0.67	2.72	-0.43
IDEQ	10-Jan-95	8	5570	239.7	2.08	8.63	5.48	-0.51	1.58	-0.14
IDEQ	9-Feb-95	17.61	4370	414.0	2.87	8.38	6.03	-0.10	0.73	0.51
IDEQ	7-Mar-95	14.49	4790	373.4	2.67	8.47	5.92	-0.23	1.03	0.36
IDEQ	13-Apr-95	22.11	4840	575.7	3.10	8.48	6.36	0.10	1.07	1.12
IDEQ	25-Apr-95	15.75	4900	415.2	2.76	8.50	6.03	-0.18	1.11	0.52
IDEQ	9-May-95	30.45	2860	468.5	3.42	7.96	6.15	0.46	-0.34	0.72
IDEQ	23-May-95	22.11	2050	243.9	3.10	7.63	5.50	0.10	-0.91	-0.13
IDEQ	27-Jun-95	7.39	2940	116.9	2.00	7.99	4.76	-0.54	-0.28	-0.61
IDEQ	11-Jul-95	5.71	2910	89.4	1.74	7.98	4.49	-0.61	-0.30	-0.71
IDEQ	26-Jul-95	4.54	3030	74.0	1.51	8.02	4.30	-0.66	-0.22	-0.77
IDEQ	14-Aug-95	3.82	3380	69.5	1.34	8.13	4.24	-0.69	0.03	-0.79
IDEQ	18-Oct-95	7.2	5800	224.7	1.97	8.67	5.41	-0.55	1.75	-0.20
IDEQ	21-Nov-95	13	4210	294.4	2.56	8.35	5.69	-0.30	0.62	0.06
IDEQ	17-Jan-96	47.8	2760	709.8	3.87	7.92	6.56	1.20	-0.41	1.63
IDEQ	29-Feb-96	45	2810	680.3	3.81	7.94	6.52	1.08	-0.37	1.52
IDEQ	28-Mar-96	45	2730	660.9	3.81	7.91	6.49	1.08	-0.43	1.44
IDEQ	17-Apr-96	29	3310	516.4	3.37	8.10	6.25	0.39	-0.02	0.90
IDEQ	8-May-96	19.1	2900	298.0	2.95	7.97	5.70	-0.03	-0.31	0.08
IDEQ	19-Jun-96	15.4	1760	145.8	2.73	7.47	4.98	-0.19	-1.12	-0.50
IDEQ	24-Jul-96	7.19	2440	94.4	1.97	7.80	4.55	-0.55	-0.64	-0.69

IDEQ	21-Aug-96	5.97	2780	89.3	1.79	7.93	4.49	-0.60	-0.40	-0.71
IDEQ	26-Sep-96	5.15	2500	69.3	1.64	7.82	4.24	-0.63	-0.59	-0.79
IDEQ	29-Oct-96	6.22	4360	145.9	1.83	8.38	4.98	-0.59	0.73	-0.50
IDEQ	27-Nov-96	5.97	5220	167.7	1.79	8.56	5.12	-0.60	1.34	-0.42
IDEQ	13-Dec-96	8.83	4430	210.4	2.18	8.40	5.35	-0.47	0.77	-0.25
IDEQ	30-Jan-97	13.5	3190	231.7	2.60	8.07	5.45	-0.27	-0.10	-0.17
IDEQ	19-Feb-97	20.6	2500	277.1	3.03	7.82	5.62	0.03	-0.59	0.00
IDEQ	26-Mar-97	57	2160	662.4	4.04	7.68	6.50	1.60	-0.84	1.45
IDEQ	16-Apr-97	30.7	2080	343.5	3.42	7.64	5.84	0.47	-0.89	0.25
IDEQ	24-Jun-97	16.7	1500	134.8	2.82	7.31	4.90	-0.14	-1.30	-0.54
IDEQ	23-Jul-97	10.2	2140	117.4	2.32	7.67	4.77	-0.42	-0.85	-0.60
IDEQ	14-Aug-97	7.65	2720	111.9	2.03	7.91	4.72	-0.53	-0.44	-0.63
IDEQ	4-Sep-97	6.76	2440	88.7	1.91	7.80	4.49	-0.56	-0.64	-0.71
IDEQ	16-Oct-97	6.35	3430	117.2	1.85	8.14	4.76	-0.58	0.07	-0.61
URS	11-Nov-97	5.38	5140	148.8	1.68	8.54	5.00	-0.62	1.28	-0.49
IDEQ	26-Nov-97	7.5	4130	166.6	2.01	8.33	5.12	-0.53	0.56	-0.42
IDEQ	17-Dec-97	9.2	3800	188.1	2.22	8.24	5.24	-0.46	0.33	-0.34
IDEQ	21-Jan-98	6.9	3530	131.0	1.93	8.17	4.88	-0.56	0.14	-0.55
IDEQ	25-Feb-98	9.58	2760	142.3	2.26	7.92	4.96	-0.44	-0.41	-0.51
IDEQ	20-Mar-98	13.5	2160	156.9	2.60	7.68	5.06	-0.27	-0.84	-0.46
IDEQ	23-Apr-98	27.4	3210	473.2	3.31	8.07	6.16	0.33	-0.09	0.74
IDEQ	7-May-98	36.2	1620	315.5	3.59	7.39	5.75	0.70	-1.22	0.14
URS	15-May-98	43.8	2130	501.9	3.78	7.66	6.22	1.03	-0.86	0.84
IDEQ	28-May-98	45.1	1930	468.3	3.81	7.57	6.15	1.09	-1.00	0.72
IDEQ	26-Jun-98	10.8	2550	148.2	2.38	7.84	5.00	-0.39	-0.56	-0.49
IDEQ	28-Jul-98	6.9	2660	98.7	1.93	7.89	4.59	-0.56	-0.48	-0.68
IDEQ	26-Aug-98	5.84	3910	122.8	1.76	8.27	4.81	-0.60	0.41	-0.58
IDEQ	24-Sep-98	5.49	3650	107.8	1.70	8.20	4.68	-0.62	0.22	-0.64
IDEQ	1-Oct-98	5.37	4120	119.0	1.68	8.32	4.78	-0.62	0.56	-0.60
IDEQ	8-Oct-98	5.37	4700	135.8	1.68	8.46	4.91	-0.62	0.97	-0.54
IDEQ	26-Oct-98	36.2	2990	582.3	3.59	8.00	6.37	0.70	-0.25	1.15
USGS	19-Nov-98	4	7100	152.8	1.39	8.87	5.03	-0.68	2.67	-0.47
IDEQ	25-Nov-98	8.31	7250	324.1	2.12	8.89	5.78	-0.50	2.78	0.17
USGS	10-Dec-98	6	7000	226.0	1.79	8.85	5.42	-0.60	2.60	-0.20
IDEQ	31-Dec-98	7.65	4790	197.1	2.03	8.47	5.28	-0.53	1.03	-0.30
IDEQ	15-Jan-99	9.97	4100	219.9	2.30	8.32	5.39	-0.43	0.54	-0.22
USGS	21-Jan-99	13	3800	265.8	2.56	8.24	5.58	-0.30	0.33	-0.05
IDEQ	23-Feb-99	7.05	3180	120.6	1.95	8.06	4.79	-0.55	-0.11	-0.59
IDEQ	8-Mar-99	25	2870	386.0	3.22	7.96	5.96	0.22	-0.33	0.41
USGS	22-Mar-99	78	2300	965.2	4.36	7.74	6.87	2.50	-0.74	2.59
USGS	19-Apr-99	80	2600	1119.0	4.38	7.86	7.02	2.59	-0.52	3.17
USGS	5-May-99	34	2600	475.6	3.53	7.86	6.16	0.61	-0.52	0.74
USGS	23-May-99	61	1300	426.6	4.11	7.17	6.06	1.77	-1.45	0.56
USGS	26-May-99	123	1500	992.6	4.81	7.31	6.90	4.44	-1.30	2.69
USGS	27-May-99	110	1100	651.0	4.70	7.00	6.48	3.88	-1.59	1.40
USGS	31-May-99	55	950	281.1	4.01	6.86	5.64	1.51	-1.69	0.01
USGS	15-Jun-99	49	870	229.3	3.89	6.77	5.44	1.26	-1.75	-0.18
USGS	7-Jul-99	17	1760	161.0	2.83	7.47	5.08	-0.12	-1.12	-0.44
USGS	4-Aug-99	8.6	2250	104.1	2.15	7.72	4.65	-0.48	-0.77	-0.66
USGS	1-Sep-99	5	21	0.6	1.61	3.04	-0.57	-0.64	-2.35	-1.05

tZn

Concentration over time analysis | r2 | Slope, m

tZn	**NM305**		**Concentration over time**	
LnConc.=mTime+b All data r2, m:			**0.071**	**-0.00023**
Time	**Ln[COC]**	**[COC]**		
15-May-91	8.42	4,540		
26-Sep-96	7.98	2,910		
1-Sep-99	7.73	2,283		
LnConc.=mTime+b >'96 r2, m:			**0.097**	**-0.00089**
29-Oct-96	8.37	4,311		
1-Sep-99	7.45	1,718		

Load over time analysis

tZn	**NM305**		**Load over time**	
LnLoad=mTime+b All data r2, m:			**0.004**	**0.00008**
Time	**LnLoad**	**Load**		
15-May-91	5.11	166		
26-Sep-96	5.27	194		
1-Sep-99	5.35	211		
LnLoad=mTime+b >'96 r2, m:			**0.000**	**0.00001**
29-Oct-96	5.31	203		
1-Sep-99	5.32	204		

max r2: #DIV/0!

Forward time Regression on Ln Concentration(t)

r2	**slope**	**intercept**
only on >4 data points: delete last 4 rows		
0.071	-0.00023	15.99
0.088	-0.00026	17.16
0.107	-0.00030	18.46
0.113	-0.00032	19.13
0.110	-0.00032	19.38
0.106	-0.00032	19.31
0.103	-0.00032	19.27
0.099	-0.00032	19.17
0.097	-0.00032	19.22
0.095	-0.00032	19.22
0.092	-0.00032	19.23
0.091	-0.00032	19.30
0.090	-0.00032	19.38
0.088	-0.00032	19.46
0.086	-0.00033	19.51
0.084	-0.00033	19.57
0.085	-0.00033	19.82
0.091	-0.00035	20.48
0.094	-0.00036	20.89
0.095	-0.00037	21.22
0.100	-0.00039	21.87
0.106	-0.00041	22.60
0.116	-0.00044	23.59
0.128	-0.00047	24.70
0.123	-0.00047	24.72
0.122	-0.00048	25.02
0.108	-0.00046	24.24
0.094	-0.00043	23.31
0.084	-0.00042	22.75
0.079	-0.00041	22.59
0.072	-0.00040	22.19
0.064	-0.00039	21.71
0.056	-0.00037	21.13
0.058	-0.00039	21.72
0.067	-0.00043	23.22
0.069	-0.00045	23.92
0.071	-0.00047	24.74
0.073	-0.00049	25.56
0.072	-0.00051	26.14
0.060	-0.00048	24.92
0.054	-0.00047	24.56
0.056	-0.00049	25.52
0.058	-0.00052	26.47
0.061	-0.00055	27.61
0.059	-0.00057	28.13
0.061	-0.00060	29.27
0.076	-0.00069	32.70

max r2: #DIV/0!

Forward time Regression on Ln Load(t)

r2	**slope**	**intercept**
only on >4 data points: delete last 4 rows		
0.004	0.00008	2.48
0.008	0.00012	1.09
0.016	0.00017	-0.59
0.010	0.00013	0.54
0.007	0.00012	1.19
0.005	0.00010	1.57
0.004	0.00009	1.99
0.003	0.00008	2.37
0.002	0.00007	2.76
0.001	0.00005	3.47
0.000	0.00003	4.25
0.000	0.00003	4.18
0.001	0.00004	3.87
0.001	0.00005	3.53
0.002	0.00007	2.74
0.009	0.00015	0.02
0.010	0.00016	-0.54
0.011	0.00017	-0.79
0.011	0.00017	-0.88
0.009	0.00016	-0.58
0.006	0.00013	0.57
0.003	0.00009	1.98
0.001	0.00004	3.87
0.000	-0.00003	6.26
0.001	-0.00006	7.59
0.004	-0.00011	9.34
0.005	-0.00013	10.00
0.006	-0.00015	10.72
0.006	-0.00015	10.76
0.004	-0.00012	9.73
0.002	-0.00010	8.79
0.000	-0.00004	6.83
0.000	0.00000	5.35
0.001	0.00005	3.39
0.001	0.00007	2.78
0.000	0.00004	4.02
0.000	-0.00002	6.20
0.002	-0.00011	9.29
0.007	-0.00022	13.11
0.007	-0.00023	13.49
0.006	-0.00021	12.99
0.002	-0.00011	9.35
0.000	0.00000	5.37
0.002	0.00012	0.91
0.006	0.00024	-3.31
0.010	0.00031	-5.90
0.009	0.00030	-5.60

0.084	-0.00076	35.03	0.005	0.00023	-3.16
0.089	-0.00081	37.02	0.002	0.00015	0.03
0.097	-0.00089	39.74	0.000	0.00001	5.13
0.089	-0.00089	39.68	0.000	-0.00005	6.96
0.076	-0.00085	38.38	0.000	-0.00008	8.31
0.067	-0.00083	37.77	0.000	-0.00009	8.47
0.066	-0.00087	39.00	0.000	-0.00007	7.98
0.073	-0.00095	42.18	0.000	-0.00002	6.05
0.084	-0.00109	46.90	0.002	0.00023	-3.11
0.101	-0.00125	52.94	0.006	0.00039	-8.86
0.131	-0.00150	61.73	0.004	0.00035	-7.20
0.151	-0.00169	68.72	0.002	0.00025	-3.88
0.164	-0.00185	74.61	0.000	0.00013	0.72
0.184	-0.00207	82.67	0.000	-0.00010	8.92
0.188	-0.00221	87.53	0.002	-0.00028	15.53
0.174	-0.00222	88.10	0.004	-0.00043	20.74
0.168	-0.00231	91.23	0.006	-0.00057	25.82
0.166	-0.00243	95.70	0.008	-0.00069	30.42
0.166	-0.00258	101.01	0.015	-0.00099	41.08
0.177	-0.00282	109.83	0.023	-0.00129	52.15
0.203	-0.00321	123.82	0.032	-0.00162	63.85
0.209	-0.00343	131.90	0.023	-0.00146	58.13
0.258	-0.00405	154.13	0.021	-0.00145	58.01
0.302	-0.00469	177.47	0.012	-0.00117	47.57
0.369	-0.00560	210.42	0.005	-0.00081	34.61
0.421	-0.00646	241.57	0.009	-0.00117	47.85
0.472	-0.00735	273.88	0.021	-0.00192	74.75
0.492	-0.00798	296.77	0.034	-0.00262	100.19
0.512	-0.00860	319.36	0.054	-0.00349	132.01
0.527	-0.00928	343.98	0.082	-0.00457	171.00
0.538	-0.01003	371.22	0.117	-0.00591	219.83
0.590	-0.01137	419.98	0.101	-0.00591	219.61
0.568	-0.01172	432.36	0.136	-0.00737	272.84
0.539	-0.01209	446.02	0.146	-0.00838	309.48
0.501	-0.01240	457.08	0.179	-0.01031	379.38
0.479	-0.01307	481.65	0.230	-0.01295	475.28
0.462	-0.01403	516.39	0.292	-0.01634	598.58
0.454	-0.01579	580.47	0.380	-0.02177	795.64
0.443	-0.01729	634.68	0.569	-0.03004	1096.35
0.437	-0.01940	711.34	0.690	-0.03814	1390.55
0.459	-0.02312	846.63	0.745	-0.04571	1665.61
0.434	-0.02463	901.72	0.744	-0.04948	1802.55
0.389	-0.02481	908.24	0.781	-0.05520	2010.58
0.385	-0.02605	953.40	0.789	-0.05804	2113.80
0.362	-0.02691	984.67	0.756	-0.05728	2086.29
0.375	-0.03103	1134.59	0.714	-0.05865	2136.23
0.459	-0.04353	1589.05	0.741	-0.07193	2619.15
0.709	-0.07908	2882.74	0.807	-0.10093	3674.64
1.000	-0.16693	6080.12	1.000	-0.18630	6781.61
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

update for EV, CV:

tZn
LN Analysis

NM305
tZn

Load

Load Data, EV=278 lbs/day CV=0.96
Load Data-based LN

		u	ln tZn Load	tZn Load
Avg:	**278**			
SD:	**265**	3	7.7	2250
CV:	**0.95**	0	5.30	201
Min:	**0.6**	-3	2.89	18.0
Max:	**1,781**			
Median:	**173**			

278	278
0.95	0.96

u=mLn{Load}+ b:

update for r2, EV, CV: **r2=0.84, EV=344lbs/day CV=1.47; max r2=0.99**

		u	lnLoad	Load
r2 u,lnLoad:	0.835			
slope, m:	0.931	3	8.48	4838
intercept, b:	-4.900	0	5.26	193
N: 97		-3	2.04	7.7
E[Load]:	343.5	Parameter Estimates		
SD[Load]:	506	from LN regression		
CV[Load]:	1.47	update graph label		

0.835	0.84
343.5	344
1.5	1.47

N: 97

Date	tZn Load lbs/day Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 #DIV/0! r2 forward
update and rank for new data						
1-Sep-99	**0.6**	1	0.0064	-2.488	-0.571	0.835
15-Aug-94	**44.9**	2	0.0167	-2.127	3.804	0.984
15-Aug-94	**52.5**	3	0.0270	-1.927	3.961	0.984
3-Oct-91	**61.9**	4	0.0373	-1.783	4.126	0.984
20-Jul-94	**66.3**	5	0.0476	-1.669	4.194	0.985
26-Sep-96	**69.3**	6	0.0578	-1.573	4.238	0.986
14-Aug-95	**69.5**	7	0.0681	-1.490	4.241	0.987
20-Jul-94	**72.2**	8	0.0784	-1.416	4.279	0.987
26-Jul-95	**74.0**	9	0.0887	-1.349	4.304	0.987
28-Oct-94	**79.5**	10	0.0990	-1.287	4.376	0.988
18-Feb-94	**87.2**	11	0.1093	-1.231	4.468	0.988
4-Sep-97	**88.7**	12	0.1195	-1.177	4.486	0.989
18-Feb-94	**88.9**	13	0.1298	-1.127	4.487	0.990
21-Aug-96	**89.3**	14	0.1401	-1.080	4.492	0.990
11-Jul-95	**89.4**	15	0.1504	-1.035	4.493	0.991
24-Jul-96	**94.4**	16	0.1607	-0.992	4.547	0.991
8-Sep-94	**95.9**	17	0.1710	-0.950	4.564	0.991
4-Oct-91	**97.1**	18	0.1812	-0.911	4.576	0.991
28-Jul-98	**98.7**	19	0.1915	-0.872	4.593	0.991
4-Aug-99	**104.1**	20	0.2018	-0.835	4.645	0.991
24-Sep-98	**107.8**	21	0.2121	-0.799	4.680	0.991
2-Dec-93	**110.0**	22	0.2224	-0.764	4.700	0.992
14-Aug-97	**111.9**	23	0.2326	-0.730	4.718	0.992
28-Oct-93	**113.5**	24	0.2429	-0.697	4.732	0.992
27-Jun-95	**116.9**	25	0.2532	-0.664	4.761	0.993
16-Oct-97	**117.2**	26	0.2635	-0.633	4.764	0.993
23-Jul-97	**117.4**	27	0.2738	-0.601	4.766	0.993
16-Dec-93	**118.5**	28	0.2841	-0.571	4.775	0.993
1-Oct-98	**119.0**	29	0.2943	-0.541	4.779	0.993
23-Feb-99	**120.6**	30	0.3046	-0.511	4.793	0.993
24-Jan-94	**121.0**	31	0.3149	-0.482	4.795	0.993
26-Aug-98	**122.8**	32	0.3252	-0.453	4.811	0.992
23-Jun-94	**129.2**	33	0.3355	-0.425	4.861	0.992
21-Jan-98	**131.0**	34	0.3458	-0.397	4.876	0.992
24-Jun-97	**134.8**	35	0.3560	-0.369	4.904	0.992
8-Oct-98	**135.8**	36	0.3663	-0.342	4.911	0.991
25-Feb-98	**142.3**	37	0.3766	-0.314	4.958	0.991
19-Jun-96	**145.8**	38	0.3869	-0.287	4.982	0.991
29-Oct-96	**145.9**	39	0.3972	-0.261	4.983	0.990
26-Jun-98	**148.2**	40	0.4075	-0.234	4.998	0.990
11-Nov-97	**148.8**	41	0.4177	-0.208	5.002	0.990
19-Nov-98	**152.8**	42	0.4280	-0.181	5.029	0.989
20-Mar-98	**156.9**	43	0.4383	-0.155	5.055	0.989
7-Jul-99	**161.0**	44	0.4486	-0.129	5.081	0.989
13-Dec-94	**162.8**	45	0.4589	-0.103	5.092	0.988
15-Nov-94	**163.2**	46	0.4692	-0.077	5.095	0.988
26-Nov-97	**166.6**	47	0.4794	-0.052	5.116	0.988

27-Nov-96	**167.7**	48	0.4897	-0.026	5.122	0.988
7-Jun-94	**173.0**	49	0.5000	0.000	5.153	0.988
17-Dec-97	**188.1**	50	0.5103	0.026	5.237	0.988
20-May-94	**196.9**	51	0.5206	0.052	5.282	0.988
31-Dec-98	**197.1**	52	0.5308	0.077	5.284	0.988
8-Mar-94	**209.5**	53	0.5411	0.103	5.345	0.987
13-Dec-96	**210.4**	54	0.5514	0.129	5.349	0.987
15-Jan-99	**219.9**	55	0.5617	0.155	5.393	0.986
18-Oct-95	**224.7**	56	0.5720	0.181	5.415	0.986
10-Dec-98	**226.0**	57	0.5823	0.208	5.420	0.985
15-Jun-99	**229.3**	58	0.5925	0.234	5.435	0.984
30-Jan-97	**231.7**	59	0.6028	0.261	5.445	0.984
10-Jan-95	**239.7**	60	0.6131	0.287	5.480	0.983
23-May-95	**243.9**	61	0.6234	0.314	5.497	0.983
8-Mar-94	**256.1**	62	0.6337	0.342	5.545	0.982
4-May-94	**260.4**	63	0.6440	0.369	5.562	0.981
23-Mar-94	**261.7**	64	0.6542	0.397	5.567	0.981
21-Jan-99	**265.8**	65	0.6645	0.425	5.583	0.980
19-Feb-97	**277.1**	66	0.6748	0.453	5.624	0.980
31-May-99	**281.1**	67	0.6851	0.482	5.639	0.980
21-Nov-95	**294.4**	68	0.6954	0.511	5.685	0.980
8-May-96	**298.0**	69	0.7057	0.541	5.697	0.979
7-May-98	**315.5**	70	0.7159	0.571	5.754	0.979
25-Nov-98	**324.1**	71	0.7262	0.601	5.781	0.979
16-Apr-97	**343.5**	72	0.7365	0.633	5.839	0.978
7-Mar-95	**373.4**	73	0.7468	0.664	5.923	0.977
7-Apr-94	**374.3**	74	0.7571	0.697	5.925	0.976
8-Mar-99	**386.0**	75	0.7674	0.730	5.956	0.974
9-Feb-95	**414.0**	76	0.7776	0.764	6.026	0.972
25-Apr-95	**415.2**	77	0.7879	0.799	6.029	0.971
23-May-99	**426.6**	78	0.7982	0.835	6.056	0.970
28-May-98	**468.3**	79	0.8085	0.872	6.149	0.968
9-May-95	**468.5**	80	0.8188	0.911	6.150	0.970
23-Apr-98	**473.2**	81	0.8290	0.950	6.160	0.971
5-May-99	**475.6**	82	0.8393	0.992	6.165	0.971
15-May-91	**496.8**	83	0.8496	1.035	6.208	0.969
15-May-98	**501.9**	84	0.8599	1.080	6.218	0.969
16-May-91	**516.2**	85	0.8702	1.127	6.247	0.967
17-Apr-96	**516.4**	86	0.8805	1.177	6.247	0.964
13-Apr-95	**575.7**	87	0.8907	1.231	6.356	0.958
26-Oct-98	**582.3**	88	0.9010	1.287	6.367	0.957
27-May-99	**651.0**	89	0.9113	1.349	6.478	0.951
28-Mar-96	**660.9**	90	0.9216	1.416	6.494	0.958
26-Mar-97	**662.4**	91	0.9319	1.490	6.496	0.963
29-Feb-96	**680.3**	92	0.9422	1.573	6.523	0.957
17-Jan-96	**709.8**	93	0.9524	1.669	6.565	0.941
22-Mar-99	**965.2**	94	0.9627	1.783	6.872	0.932
26-May-99	**992.6**	95	0.9730	1.927	6.900	0.973
19-Apr-99	**1119.0**	96	0.9833	2.127	7.020	1.000
19-Apr-94	**1781.1**	97	0.9936	2.488	7.485	#DIV/0!

update for EV, CV:

tZn **NM305** 3,338 3340

LN Analysis **tZn** 0.42 0.422

Concentration

Conc. Data, EV=3340 ug/L CV=0.422

Avg:	**3,338**	**Data-based LN**		
SD:	**1,410**	u	ln[tZn]	[tZn]
CV:	**0.42**	3	9.2	10366
Min:	**21**	0	8.03	3075
Max:	**7,250**	-3	6.82	912
Median:	**3,120**			

0.653 0.653

u=mLn{Conc.}+b: 4140.6 4140

update for r2, EV, CV: **r2=0.653, EV=4140 ug/L CV=0.99; max r2=0.99** 0.990 0.99

r2 u,lnConc:	0.653	u	lnConc.	Conc.
slope, m:	1.210	3	10.47	35121
intercept, b:	-9.664	0	7.99	2943
N: 97		-3	5.51	247
E[Conc]:	4140.6	Parameter Estimates		
SD[Conc]:	4099	from LN regression		
CV[Conc]:	0.99	update graph label		

N: 97

Date	tZn Concentration ug/L Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	max r2 #DIV/0! r2 forward
update and rank for new data						
1-Sep-99	21	1	0.0064	-2.488	3.045	0.653
15-Jun-99	870	2	0.0167	-2.127	6.768	0.971
31-May-99	950	3	0.0270	-1.927	6.856	0.975
27-May-99	1100	4	0.0373	-1.783	7.003	0.982
23-May-99	1300	5	0.0476	-1.669	7.170	0.987
24-Jun-97	1500	6	0.0578	-1.573	7.313	0.989
26-May-99	1500	7	0.0681	-1.490	7.313	0.989
7-May-98	1620	8	0.0784	-1.416	7.390	0.990
19-Jun-96	1760	9	0.0887	-1.349	7.473	0.990
7-Jul-99	1760	10	0.0990	-1.287	7.473	0.990
15-May-91	1800	11	0.1093	-1.231	7.496	0.989
16-May-91	1900	12	0.1195	-1.177	7.550	0.989
28-May-98	1930	13	0.1298	-1.127	7.565	0.989
23-May-95	2050	14	0.1401	-1.080	7.626	0.989
16-Apr-97	2080	15	0.1504	-1.035	7.640	0.989
15-May-98	2130	16	0.1607	-0.992	7.664	0.988
23-Jul-97	2140	17	0.1710	-0.950	7.669	0.988
26-Mar-97	2160	18	0.1812	-0.911	7.678	0.987
20-Mar-98	2160	19	0.1915	-0.872	7.678	0.987
4-Aug-99	2250	20	0.2018	-0.835	7.719	0.987
15-Aug-94	2260	21	0.2121	-0.799	7.723	0.986
15-Aug-94	2260	22	0.2224	-0.764	7.723	0.986
22-Mar-99	2300	23	0.2326	-0.730	7.741	0.985
20-May-94	2390	24	0.2429	-0.697	7.779	0.985
24-Jul-96	2440	25	0.2532	-0.664	7.800	0.984
4-Sep-97	2440	26	0.2635	-0.633	7.800	0.984
26-Sep-96	2500	27	0.2738	-0.601	7.824	0.983
19-Feb-97	2500	28	0.2841	-0.571	7.824	0.983
26-Jun-98	2550	29	0.2943	-0.541	7.844	0.982
20-Jul-94	2600	30	0.3046	-0.511	7.863	0.982
20-Jul-94	2600	31	0.3149	-0.482	7.863	0.981
19-Apr-99	2600	32	0.3252	-0.453	7.863	0.981
5-May-99	2600	33	0.3355	-0.425	7.863	0.980
28-Jul-98	2660	34	0.3458	-0.397	7.886	0.980
14-Aug-97	2720	35	0.3560	-0.369	7.908	0.979
28-Mar-96	2730	36	0.3663	-0.342	7.912	0.978
17-Jan-96	2760	37	0.3766	-0.314	7.923	0.977
25-Feb-98	2760	38	0.3869	-0.287	7.923	0.977
21-Aug-96	2780	39	0.3972	-0.261	7.930	0.976
29-Feb-96	2810	40	0.4075	-0.234	7.941	0.975
9-May-95	2860	41	0.4177	-0.208	7.959	0.974
8-Mar-99	2870	42	0.4280	-0.181	7.962	0.973
8-May-96	2900	43	0.4383	-0.155	7.972	0.973
11-Jul-95	2910	44	0.4486	-0.129	7.976	0.972
27-Jun-95	2940	45	0.4589	-0.103	7.986	0.971
26-Oct-98	2990	46	0.4692	-0.077	8.003	0.970
7-Jun-94	3000	47	0.4794	-0.052	8.006	0.969

26-Jul-95	3030	48	0.4897	-0.026	8.016	0.968
3-Oct-91	3120	49	0.5000	0.000	8.046	0.967
23-Feb-99	3180	50	0.5103	0.026	8.065	0.966
30-Jan-97	3190	51	0.5206	0.052	8.068	0.965
23-Apr-98	3210	52	0.5308	0.077	8.074	0.964
4-May-94	3250	53	0.5411	0.103	8.086	0.962
23-Jun-94	3250	54	0.5514	0.129	8.086	0.961
17-Apr-96	3310	55	0.5617	0.155	8.105	0.960
14-Aug-95	3380	56	0.5720	0.181	8.126	0.958
16-Oct-97	3430	57	0.5823	0.208	8.140	0.957
21-Jan-98	3530	58	0.5925	0.234	8.169	0.955
24-Sep-98	3650	59	0.6028	0.261	8.202	0.953
8-Mar-94	3730	60	0.6131	0.287	8.224	0.951
8-Mar-94	3730	61	0.6234	0.314	8.224	0.951
23-Mar-94	3750	62	0.6337	0.342	8.230	0.950
28-Oct-94	3780	63	0.6440	0.369	8.237	0.949
17-Dec-97	3800	64	0.6542	0.397	8.243	0.947
21-Jan-99	3800	65	0.6645	0.425	8.243	0.946
19-Apr-94	3810	66	0.6748	0.453	8.245	0.943
24-Jan-94	3830	67	0.6851	0.482	8.251	0.941
7-Apr-94	3840	68	0.6954	0.511	8.253	0.938
26-Aug-98	3910	69	0.7057	0.541	8.271	0.934
18-Feb-94	4020	70	0.7159	0.571	8.299	0.931
18-Feb-94	4020	71	0.7262	0.601	8.299	0.928
15-Jan-99	4100	72	0.7365	0.633	8.319	0.924
1-Oct-98	4120	73	0.7468	0.664	8.324	0.921
26-Nov-97	4130	74	0.7571	0.697	8.326	0.916
21-Nov-95	4210	75	0.7674	0.730	8.345	0.911
2-Dec-93	4350	76	0.7776	0.764	8.378	0.906
29-Oct-96	4360	77	0.7879	0.799	8.380	0.903
9-Feb-95	4370	78	0.7982	0.835	8.383	0.898
13-Dec-96	4430	79	0.8085	0.872	8.396	0.891
4-Oct-91	4490	80	0.8188	0.911	8.410	0.884
28-Oct-93	4490	81	0.8290	0.950	8.410	0.876
8-Sep-94	4560	82	0.8393	0.992	8.425	0.866
16-Dec-93	4590	83	0.8496	1.035	8.432	0.853
8-Oct-98	4700	84	0.8599	1.080	8.455	0.838
7-Mar-95	4790	85	0.8702	1.127	8.474	0.820
31-Dec-98	4790	86	0.8805	1.177	8.474	0.798
13-Apr-95	4840	87	0.8907	1.231	8.485	0.769
25-Apr-95	4900	88	0.9010	1.287	8.497	0.732
11-Nov-97	5140	89	0.9113	1.349	8.545	0.685
27-Nov-96	5220	90	0.9216	1.416	8.560	0.620
10-Jan-95	5570	91	0.9319	1.490	8.625	0.538
18-Oct-95	5800	92	0.9422	1.573	8.666	0.411
10-Dec-98	7000	93	0.9524	1.669	8.854	0.970
15-Nov-94	7020	94	0.9627	1.783	8.857	0.956
19-Nov-98	7100	95	0.9730	1.927	8.868	0.984
13-Dec-94	7170	96	0.9833	2.127	8.878	1.000
25-Nov-98	7250	97	0.9936	2.488	8.889	#DIV/0!

update for EV, CV:

tZn **NM305** 20 19.9

LN Analysis **tZn** 1.17 1.17

Discharge, Q

Q Data, EV=19.9 cfs CV=1.17

Q Data-based LN

		u	lnQ	Q
Avg:	**20**			
SD:	**23**			
CV:	**1.17**	3	5.3	209
Min:	**4**	0	2.56	13
Max:	**123**	-3	-0.23	1
Median:	**10**			

0.926 0.926
19.8 19.8
1.28 1.28

u=mLn{Q}+b:

update for r2, EV, CV: **r2=0.926, EV=19.8 cfs CV=1.28; max r2=0.98**

		u	lnQ	Q
r2 u,lnQ:	0.926			
slope, m:	1.016	3	5.45	233
intercept, b:	-2.541	0	2.50	12
N: 97		-3	-0.45	1
E[Q]:	19.8	Parameter Estimates		
SD[Q]:	25	from LN regression		
CV[Q]:	1.28	update graph label		

N: 97

max r2
#DIV/0!

Date	Q Discharge cfs Ranked	i rank	i-3/8 / N+1/4 plotting points	u y-axis	Ln x-axis	r2 forward
update and rank for new data						
3-Oct-91	3.69	1	0.0064	-2.488	1.306	0.926
15-Aug-94	3.69	2	0.0167	-2.127	1.306	0.940
14-Aug-95	3.82	3	0.0270	-1.927	1.340	0.948
8-Sep-94	3.91	4	0.0373	-1.783	1.364	0.954
28-Oct-94	3.91	5	0.0476	-1.669	1.364	0.958
19-Nov-98	4	6	0.0578	-1.573	1.386	0.962
4-Oct-91	4.02	7	0.0681	-1.490	1.391	0.965
18-Feb-94	4.03	8	0.0784	-1.416	1.394	0.968
18-Feb-94	4.11	9	0.0887	-1.349	1.413	0.970
13-Dec-94	4.22	10	0.0990	-1.287	1.440	0.971
15-Aug-94	4.32	11	0.1093	-1.231	1.463	0.973
15-Nov-94	4.32	12	0.1195	-1.177	1.463	0.974
26-Jul-95	4.54	13	0.1298	-1.127	1.513	0.975
28-Oct-93	4.7	14	0.1401	-1.080	1.548	0.976
2-Dec-93	4.7	15	0.1504	-1.035	1.548	0.977
20-Jul-94	4.74	16	0.1607	-0.992	1.556	0.978
16-Dec-93	4.8	17	0.1710	-0.950	1.569	0.979
1-Sep-99	5	18	0.1812	-0.911	1.609	0.979
26-Sep-96	5.15	19	0.1915	-0.872	1.639	0.980
20-Jul-94	5.16	20	0.2018	-0.835	1.641	0.981
1-Oct-98	5.37	21	0.2121	-0.799	1.681	0.981
8-Oct-98	5.37	22	0.2224	-0.764	1.681	0.982
11-Nov-97	5.38	23	0.2326	-0.730	1.683	0.982
24-Sep-98	5.49	24	0.2429	-0.697	1.703	0.982
11-Jul-95	5.71	25	0.2532	-0.664	1.742	0.982
26-Aug-98	5.84	26	0.2635	-0.633	1.765	0.982
24-Jan-94	5.87	27	0.2738	-0.601	1.770	0.982
21-Aug-96	5.97	28	0.2841	-0.571	1.787	0.982
27-Nov-96	5.97	29	0.2943	-0.541	1.787	0.982
10-Dec-98	6	30	0.3046	-0.511	1.792	0.982
29-Oct-96	6.22	31	0.3149	-0.482	1.828	0.982
16-Oct-97	6.35	32	0.3252	-0.453	1.848	0.981
4-Sep-97	6.76	33	0.3355	-0.425	1.911	0.981
21-Jan-98	6.9	34	0.3458	-0.397	1.932	0.980
28-Jul-98	6.9	35	0.3560	-0.369	1.932	0.980
23-Feb-99	7.05	36	0.3663	-0.342	1.953	0.980
24-Jul-96	7.19	37	0.3766	-0.314	1.973	0.979
18-Oct-95	7.2	38	0.3869	-0.287	1.974	0.978
23-Jun-94	7.39	39	0.3972	-0.261	2.000	0.978
27-Jun-95	7.39	40	0.4075	-0.234	2.000	0.977
26-Nov-97	7.5	41	0.4177	-0.208	2.015	0.976
14-Aug-97	7.65	42	0.4280	-0.181	2.035	0.975
31-Dec-98	7.65	43	0.4383	-0.155	2.035	0.975
10-Jan-95	8	44	0.4486	-0.129	2.079	0.974
25-Nov-98	8.31	45	0.4589	-0.103	2.117	0.973
4-Aug-99	8.6	46	0.4692	-0.077	2.152	0.972
13-Dec-96	8.83	47	0.4794	-0.052	2.178	0.971

17-Dec-97	9.2	48	0.4897	-0.026	2.219	0.970
25-Feb-98	9.58	49	0.5000	0.000	2.260	0.970
15-Jan-99	9.97	50	0.5103	0.026	2.300	0.969
23-Jul-97	10.2	51	0.5206	0.052	2.322	0.967
8-Mar-94	10.44	52	0.5308	0.077	2.346	0.966
7-Jun-94	10.72	53	0.5411	0.103	2.372	0.965
26-Jun-98	10.8	54	0.5514	0.129	2.380	0.964
8-Mar-94	12.76	55	0.5617	0.155	2.546	0.964
23-Mar-94	12.97	56	0.5720	0.181	2.563	0.962
21-Nov-95	13	57	0.5823	0.208	2.565	0.960
21-Jan-99	13	58	0.5925	0.234	2.565	0.959
30-Jan-97	13.5	59	0.6028	0.261	2.603	0.957
20-Mar-98	13.5	60	0.6131	0.287	2.603	0.956
7-Mar-95	14.49	61	0.6234	0.314	2.673	0.954
4-May-94	14.89	62	0.6337	0.342	2.701	0.952
20-May-94	15.31	63	0.6440	0.369	2.729	0.951
19-Jun-96	15.4	64	0.6542	0.397	2.734	0.949
25-Apr-95	15.75	65	0.6645	0.425	2.757	0.948
24-Jun-97	16.7	66	0.6748	0.453	2.815	0.947
7-Jul-99	17	67	0.6851	0.482	2.833	0.946
9-Feb-95	17.61	68	0.6954	0.511	2.868	0.946
7-Apr-94	18.12	69	0.7057	0.541	2.897	0.947
8-May-96	19.1	70	0.7159	0.571	2.950	0.950
19-Feb-97	20.6	71	0.7262	0.601	3.025	0.953
13-Apr-95	22.11	72	0.7365	0.633	3.096	0.956
23-May-95	22.11	73	0.7468	0.664	3.096	0.958
8-Mar-99	25	74	0.7571	0.697	3.219	0.965
23-Apr-98	27.4	75	0.7674	0.730	3.311	0.968
17-Apr-96	29	76	0.7776	0.764	3.367	0.969
9-May-95	30.45	77	0.7879	0.799	3.416	0.969
16-Apr-97	30.7	78	0.7982	0.835	3.424	0.969
5-May-99	34	79	0.8085	0.872	3.526	0.972
7-May-98	36.2	80	0.8188	0.911	3.589	0.971
26-Oct-98	36.2	81	0.8290	0.950	3.589	0.969
15-May-98	43.8	82	0.8393	0.992	3.780	0.970
29-Feb-96	45	83	0.8496	1.035	3.807	0.970
28-Mar-96	45	84	0.8599	1.080	3.807	0.971
28-May-98	45.1	85	0.8702	1.127	3.809	0.969
17-Jan-96	47.8	86	0.8805	1.177	3.867	0.965
15-Jun-99	49	87	0.8907	1.231	3.892	0.961
16-May-91	50.5	88	0.9010	1.287	3.922	0.956
15-May-91	51.3	89	0.9113	1.349	3.938	0.948
31-May-99	55	90	0.9216	1.416	4.007	0.938
26-Mar-97	57	91	0.9319	1.490	4.043	0.924
23-May-99	61	92	0.9422	1.573	4.111	0.913
22-Mar-99	78	93	0.9524	1.669	4.357	0.943
19-Apr-99	80	94	0.9627	1.783	4.382	0.925
19-Apr-94	86.89	95	0.9730	1.927	4.465	0.871
27-May-99	110	96	0.9833	2.127	4.700	1.000
26-May-99	123	97	0.9936	2.488	4.812	#DIV/0!

Secondary Scale For LN graphs

u	**Cumulative Frequecny**	**Candidate x-axis positions**	
	secondary y-axis	x-axis position	
-4.00	**0.00003**	10000	1000
-3.00	**0.00135**	10000	1000
-2.00	**0.02275**	10000	1000
-1.00	**0.15866**	10000	1000
0.00	**0.50000**	10000	1000
1.00	**0.84134**	10000	1000
2.00	**0.97725**	10000	1000
3.00	**0.99865**	10000	1000
4.00	**0.99997**	10000	1000

-0.134	130
0	263
0.134	972