TRENDASSESSMENT TECHNIQUES: APPLICATION TO PRAIRIE PROVINCES WATER BOARD WATER QUALITY DATA SET

Prepared for the
PRAIRIE PROVINCES WATER BOARD

by:

A.H. El-Shaarawi[1],
S.R. Esterby[2],
and J. Yip[1]
[1]Rivers Research Branch
[2]Lakes Research Branch
National Water Research Institute
Burlington, Ontario, Canada

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TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

A data set from the monitoring network of the Prairie Provinces Water Board has been examined for features pertinent to the choice of methods of analysis for time trends. The methods have been described and a preliminary analysis of the data is reported. The data set consists of up to 17 years of measurements at 11 sampling locations for 30 water quality variables at approximately a monthly frequency, with the occurrence of missing data and values below the analytical detection limits depending upon variable and location. Nonparametric methods suitable for the detection and estimation of monotonic trend in the presence of seasonal variability are described. Regression methods for the estimation of monotonic and more general trends in the presence of seasonality are also described. The nonparametric methods are applicable in the presence of extreme values and non-normality, but depend upon the assumption of a monotonic trend. Regression methods encompass other forms of trend but require more effort to ensure that model assumptions are met. Serial dependence is problematic for both types of methods. The results of all the analyses are given in the report with examples of discussions by variable and by location also given. It is clear that changes over time have occurred for some variables and locations. The extensive results reported here, together with any further analysis required upon examination of the results in light of information such as location characteristics and analytical methodology, should allow extensive conclusions to be drawn about trends in water quality. On the basis of this analysis we conclude that the nonparametric tests such as the Kendall and Spearman trend tests could be adequately used as a tool for the preliminary examination of the data and for the quick screening for trend in various parameters. For example, the application of these tests to the data from South Saskatchewan River at Highway 41 indicated increasing trends for conductivity, turbidity, B (DISS), pH, Na (DISS), Cl (DISS), K (DISS), while a decreasing trend for (P-TOT), A-BHC, Ca(DISS) and Mn (DISS) showed a decreasing trend.

An overall summary of the results are given in Table 1. The pair of columns in Table 1 for each location give the following information on each water quality variable:

1) The left column labelled No. Mo. gives the number of months for which either the Kendall or Spearman trend tests were significant at the 0.05 level.

2) The right column labelled year gives the direction of change (+ means increase over years, - means decrease) when the Kendall seasonal trend test was significant at the 0.05 level. A sign with a or b indicates that although the Kendall seasonal trend test was significant with the direction as indicated by the sign, the Sen confidence limits for the slope were both O (a), or the nonparametric slope estimator was O (b). An * in this column means that the test of homogeneity of change was significant at the 0.05 level, that is, the changes over time are either of different magnitude or different sign for some months than for others.

3) A blank pair of columns indicates no significant results for that location and water quality parameter whereas a line through both pairs of columns indicates either that the data was not available or not adequate for analysis.

The Kendall Spearman tests on individual months and the seasonal Kendall test are able to detect monotonic changes which could be either step changes or a linear change. The nonparametric slope estimator and corresponding confidence intervals are appropriate if the change is linear. If inhomogeneity of change is indicated, then a single test or estimator for all months not appropriate and individual months or groups of months must be assessed. As emphasized elsewhere in the report, these results require further examination taking into account knowledge about the water quality parameters (e.g. analytical methods, size of measurable differences, values below detection limit, expected form of seasonability etc.) and knowledge about the river and sampling location. The complexity of the results in the table and the need for further interpretive work in using the table do not detract from the value of the data set, but rather show that there is a lot of information in the data set.

Table 1: Summary of the Kendall and Spearman Trend Tests on individual months and of the Seasonal Kendall Tests on all months of the year over the Period 1974 to 1989.

	AK0001		EK0001		KH0001		CK0001		LC0001		EA0003		FE0001		AD0001		MD0002		KH0002		JM0014			
Water Quality Variable	S. Sask Hwy 41		N. Sask Hwy. 3		Sask Man. bound		Red near Bindloss		Red near Erwood		Churchill		Battle		Beaver		Assini-boine		Carrot		Qu' Appelle		Homog. Trend No.	
	No. Mo.	Yr.	No. Mo.	Yr.	No. Mo.	Yr.	No. Mo.	Yr.	No. Mo.	Yr.	No. Mo.	Yr.	No. Mo.	Yr.	No. Mo.	Yr.	No. Mo.	Yr.	No. Mo.	Yr.	No. Mo.	Yr.	+	-
TDS	1		1	-	1		6	*-	4	*-	1						1		1					1
Cond.	2	+	1	+	1		2	*	3	*-		-				+	1	+	1	2			4	1
Temp.	1		1	*							1		1		1		1				1			
Turb.	4	+	6	*+	1		2	*+			1	+	3	+	1		1		1	1			3	
B(Diss)	4	+	5	*+	1						3				2		1	+			1		2	
TN	1		2		7	-	2	-	9	-	3	-	2	-	10	-	8	-	8	-	5	-		9
pH	2	+	1	+			1	+	1	*			2	+	1		2		1				4	
DO	-------		1								2	-			2				2	1				1
NFR	2	*	1	+	2		3		1	-						-	2	-	1	-			1	4
Na(Diss)	2	+	3	-			5	-	2	-	---------				3	+	2						2	3
Ma(Diss)	-------		2	-	1	-	5	-	6	*-	---------				1	-	1		------		1	-		5
P-tot(Diss)	3	-	3	*	1		1		3	-			1		1		2				4	-		3
P-tot	-------		4	*+	---------		2	*	4	-	---------		1		2	*	1		------		4	-		2
SO4(Diss)	-------				---------		-------		5	*-	---------			-	3	*-	1		5	-	1			2
Cl(Diss)	11	+	6	-	1	+	-------						2		3	+	2						3	1
a-BHC	3	-	5	-	7	-	3	-	7	-	4	-	6	-	7	-	7	-	5	-	6	-		11
K(Diss)	3	+	3	-	1		2		3	-	2	-	2	*	10	-			1	8	-		1	5
Ca(Diss)	1	-	1	-	1	-	1	-	5	*-		-	2	*	1	+	1		1	-	1		1	6
Mn(Diss)		-		-			3	-	1	-	1	-	1		1				1	1	+		1	5
Alk-tot	-------		1		2		2		2		1		1		1	+	2	+			1	+	3	
Fe(Diss)	-------		5	-	---------		5	-	3	-	6	-	2	-			3	-			7	-b		6
Cu-tot	5	*	1		1		3	*-b	3	-b	1	-b	1	-	2	-b	1				1	-b		1
Zn-tot	-------			-	4		1	-	2	-	3	*-	3		1		2		3	-	3	-		5
T.Coli	2	*	1	+	1			-	5	-	---------			-	7	-	5	-	2	-			1	6
F.Coli	1				---------		1		5	-b	---------				1		1	-	2	2	+b			1
Hg-tot	-------		6	-a	8	-a	5	-a	10	-a	---------		5	-a	7	-a	-------		3	-a	4	-a		
Pb-tot	-------		9	-	---------		7	-	10	-	8	-	7	-	11	-	7	-	11	-	9	-		9
Flow	3		1			-	5	*+			7	-			7	-	1	-	1		-			5
No. +		7		7		1		3		0		1		2		5		3		0		3		
No. -		4		12		6		13		20		12		8		11		8		9		12		
Homog. Trend																								
No. +		7		4		1		1		0		1		2		5		3		0		2		
No. -		4		11		5		10		12		10		7		8		8		8		9		

Notes:
a- sen confidence limits for the slop were 0
b- non parametric slope estimator was 0
*- sig. inhomogeneity at .05 level
Homog. Trend- excludes those with *, a or b results

1. INTRODUCTION

This report gives the results of a study undertaken at the request of the Prairie Provinces Water Board (PPWB), with the objectives of 1) identifying trend assessment techniques appropriate for the types of data which have been collected by the PPWB and 2) applying these techniques to data from the eleven interprovincial streams monitored by the PPWB. The structure of the report follows the order of tasks necessary to meet these objectives, i.e., a) description of the data, b) statistical methods, and c) results. To assist the reader definitions of statistical terms are included in Appendix A5.

The magnitude of the data set specified by the PPWB in this study has limited the extent and rigour of the data analyses. Data collected on thirty parameters at eleven sampling locations over a period of about 17 years warrants more that a few months for the statistical analysis. Thus, the work that is reported here can be considered to be an initial phase, and further interpretive work is required.

Nonparametric methods which are being used to analyze similar data sets have been emphasized because they are more generally applicable than parametric methods. Such methods used alone give no assurance that all the information has been extracted from the data or that all the particular features of the data set have been taken into account. At the very least, informative plots of the data are also essential. The nonparametric methods provide a test of the hypothesis of randomness that is powerful against a monotonic trend. It thus becomes clear that although these tests are robust to extreme values and various distributions, both serial dependence and non-monotonic changes can render the test results invalid.

Regression methods, in which the data is blocked by season in the same manner as the nonparametric tests discussed, are also considered since models incorporating non-monotonic changes are handled in the same way as monotonic changes. Inclusion of serial dependence may also be simpler. However, since additional distributional assumptions are involved and the methods are more sensitive to extreme values, considerably more work may be required to ensure the assumptions of the analysis are adequately met. Such work would typically include the analyses of residuals to determine if the assumption of normality is satisfied and the computation of the autocorrelation function for the residuals to see if the assumption of independence is acceptable.

In summary, the report identifies useful methods for detecting and estimating time trends in water quality data and gives the results of the application of these techniques to the specified data set. It does not give the results of a complete analysis of the data, since the volume of data precluded even many of the essential plots (plotting (a) the original data against time or various explanatory variables, (b) the autocorrelation functions for the data or residuals; etc.) from being done. However, from this initial phase of the data analysis it can be concluded that inferences about changes over time are possible from the current record of about 17 years.

2. DATA AND STATISTICAL METHODS

2.1 Description of the Data

The data set, consisting of measurements on thirty variables plus temperature and flow at eleven sampling locations (Table 2.1), was provided by the PPWB. The variables were selected to provide a characterization of the biological, physical and chemical aspects of water quality. The samples were collected at approximately monthly intervals between April 1974 and February 1990. Since the data were provided by the PPWB, no description is given of the sampling or analytical methods, and the data for each variable at a given station were considered to be generated using sampling and analytical methods that would provide consistent results over the period of interest.

TABLE 2.1 Water Quality Variables and Sampling Locations

Water Quality Variables

Physicals

pH
Conductivity
Oxygen (diss.)
Turbidity
Residue (Non Filtered)

Bacteria

Total Coliform
Fecal Coliform

Major Ions

Chloride (diss.)
Sodium (diss.)
Magnesium (diss.)
Calcium (diss.)
Potassium (diss.)
Sulphate (diss.)
Alkalinity ($CaCO_3$)
Total Dissolved Solids

Nutrients

Phosphorus (total as P)
Phosphorus (diss. as P)
Nitrogen (total calc)
Nirtogen (diss. NO_2+NO_3 an N)

Trace Metals

Manganese (diss.)
Lead (total)
Copper (total)
Zinc (total)
Iron (diss.)
Boron (diss.)
Mercury (total)

Pesticides

Lindane
2, 4-D
Alpha BHC
2, 4, 5-T

Sampling Locations

South Saskatchewan River at Highway 41 (OOALO5AKOOO1)
North Saskatchewan River at Highway 3 (OOSAO5EFOOO1)
Saskatchewan River near Manitoba boundary (OOMAO5KHOOO1)
Red Deer River near Bindloss (OOALO5CKOOO1)
Battle River near Unwin (OOSAO5FEOOO1)
Qu'Appelle River near Welby (OOSAO5JMOO14)
Assiniboine River at Kamsack (OOSAO5MDOOO2)
Churchill River at Wasawakasik Lake (OOSO8EAOOO3)
Red Deer River near Erwood (OOSAO5LCOOO1)
Carrot River near Turnberry (OOSAO5KHOOO2)
Beaver River at Beaver Crossing (OOALO8ADOOO1).

In order to begin consideration of the types of statistical methods which could be applied, information about the occurrence of missing data, detection limits, and the presence of observations below the detection limit are also required. This is summarized for all eleven sites, by variable, for the 33 variables (Table 2.2). An additional site, identified as Qu'Appelle River (JM0001), is also shown since it was included on the data file, but it will not be considered further since it was not sampled often enough to include in the study.

It is clear that for all variables and all stations there are some missing observations, with the number being dependent upon the variable, location, and month. There are either no observations below the detection limit or one at 4 or fewer locations for all major ions, all physical variables except NFR, and total phosphorous and total nitrogen. These variables also have, in general, fewer missing observations and thus constitute the best data records for trend assessment. An exception may be alkalinity, since the numerous detection limit changes indicate method changes, and this will need to be considered in the interpretation of the results. For bacteria, trace metals, and pesticides, two situations prevail, either 1) many non-detects are present for all locations (lead, mercury, lindane, 2,4-D, and 2,4,5-T) and thus all of this data is unsuitable for trend assessment, or 2) the number of non-detects varies with location, which will result in better trend assessment data for some locations then for others.

Table 2.2 Summary of Sampling Frequency and Observations below the Analytical Detection Limit for all Variables and Locations.

NUMBER OF YEARS WITH MEASUREMENT IN MONTH

TDS* 00201L

DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NOT STATE	CK0001	0	16	16	15	15	16	16	16	16	16	15	16	16
	EF0001	0	16	16	13	13	16	16	15	16	15	16	16	16
	JM0001	0	1	1	1	1	2	2	2	2	2	2	1	1
	KH0001	0	16	14	15	7	16	15	15	15	15	15	9	16
	EA0003	0	12	12	12	2	11	16	16	15	14	14	2	10
	JM0014	0	15	13	14	14	12	14	13	12	14	13	14	15
	LC0001	0	16	13	14	16	16	16	16	16	16	16	16	16
	FE0001	0	15	16	14	14	16	16	16	15	16	16	15	16
	AD0001	0	15	16	14	15	15	14	16	16	16	16	16	16
	AK0001	0	15	16	15	15	16	16	16	16	16	16	16	16
	MD0002	0	16	13	14	15	15	16	15	15	16	16	14	16
	KH0002	0	16	14	15	14	16	14	16	16	16	16	14	16

COND(F) 02041F

DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NOT STATE	CK0001	0	15	14	13	15	13	14	13	15	14	14	15	16
	EF0001	0	15	14	12	15	15	16	14	15	14	13	16	16
	JM0001	0	1	1	1	2	2	2	1	2	2	2	1	1
	KH0001	0	16	14	15	7	16	15	15	15	15	15	9	15
	EA0003	0	12	12	11	3	12	16	16	15	13	14	2	9
	JM0014	0	15	13	14	13	14	14	13	12	14	13	15	15
	LC0001	0	16	14	15	16	16	15	16	15	16	16	16	16
	FE0001	0	15	15	14	14	15	15	13	15	14	14	16	16
	AD0001	0	14	15	11	15	15	15	14	14	13	13	15	16
	AK0001	0	14	15	13	14	14	15	15	15	14	15	16	15
	MD0002	0	16	14	15	16	16	16	16	15	16	16	16	15
	KH0002	0	16	14	14	14	15	15	16	16	16	16	15	16

TEMP(F) 02061F

DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NOT STATE	CK0001	0	16	16	15	16	16	16	16	16	16	16	16	16
	EF0001	0	15	14	13	15	16	16	15	16	16	16	16	16
	JM0001	0	1	1	1	2	2	2	1	2	2	2	1	1
	KH0001	0	16	14	15	7	16	15	15	15	15	15	9	16
	EA0003	0	12	12	12	3	12	16	16	15	14	14	2	10
	JM0014	0	14	13	14	14	14	14	13	13	14	13	15	15
	LC0001	0	17	17	17	17	17	17	17	17	17	17	17	17
	FE0001	0	15	16	14	16	16	16	16	16	16	16	16	16
	AD0001	0	15	16	13	16	16	16	16	15	16	16	16	16
	AK0001	0	15	16	15	16	16	16	16	16	16	16	16	16
	MD0002	0	16	14	15	16	16	15	16	15	16	16	16	16
	KH0002	0	16	14	15	14	16	15	16	16	16	16	15	16

Table 2.2 Continued.

TURB(F) 02073F DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
			NUMBER OF YEARS WITH MEASUREMENT IN MONTH											
NOT STATE	CK0001	0	10	9	9	11	9	10	11	11	11	11	11	11
	EF0001	0	9	8	9	9	10	11	10	11	10	11	11	10
	JM0001	0	0	0	0	0	0	0	0	0	0	0	0	0
	KH0001	0	9	8	9	3	9	8	9	9	9	9	3	8
	EA0003	0	6	7	8	1	9	9	10	9	9	8	2	3
	JM0014	0	10	8	9	9	9	9	9	8	10	9	9	10
	LC0001	0	9	8	9	9	9	9	10	8	10	10	9	8
	FE0001	0	9	10	8	10	9	11	11	11	10	11	11	11
	AD0001	0	10	9	8	10	9	11	11	11	11	11	10	11
	AK0001	0	9	11	9	11	10	11	11	11	11	11	11	11
	MD0002	0	10	8	9	9	9	9	10	8	10	10	8	9
	KH0002	0	9	8	9	8	8	9	10	8	10	10	9	8

B-DISS 05105D DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.02MG/L	CK0001	0	12	15	12	14	15	13	15	14	16	14	13	13
(FOR ALL)	EF0001	3	12	14	10	13	16	13	15	14	16	14	13	13
	JM0001	0	1	1	1	2	1	1	2	2	1	2	1	1
	KH0001	0	13	14	12	5	15	11	15	13	14	13	6	13
	EA0003	4	9	12	10	3	11	13	16	13	13	12	2	7
	JM0014	0	12	13	11	12	14	12	13	11	14	11	12	12
	LC0001	1	13	14	11	14	15	13	16	14	15	14	13	13
	FE0001	0	12	16	11	14	15	13	15	14	16	14	13	13
	AD0001	0	12	16	11	14	15	13	15	14	16	14	13	13
	AK0001	5	12	16	12	14	15	13	15	14	16	14	13	13
	MD0002	0	13	14	12	14	15	13	16	13	15	14	13	13
	KH0002	0	13	14	12	12	15	13	16	15	15	14	12	13

NO3+NO2 07106L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
74-08,77 0.002MG/L	CK0001	67	15	15	15	16	16	16	16	16	16	16	15	16
	EF0001	32	15	14	13	15	16	16	16	16	16	16	16	15
09,77-END 10UG/L	JM0001	4	1	1	1	2	2	2	2	2	2	2	1	1
	KH0001	17	16	14	15	7	16	15	15	15	15	15	9	16
	EA0003	69	12	12	12	3	12	16	16	15	14	13	2	10
	JM0014	59	15	13	14	14	14	14	13	13	14	13	15	15
	LC0001	72	16	14	15	16	16	16	16	16	16	16	16	16
	FE0001	93	15	16	14	16	16	16	16	16	16	16	16	15
	AD0001	27	15	16	14	16	16	16	16	16	16	16	16	16
	AK0001	55	15	16	15	16	16	16	16	16	16	16	16	15
	MD0002	49	16	14	15	16	16	16	16	15	16	15	16	15
	KH0002	45	16	14	15	14	16	15	16	16	16	16	15	15

Table 2.2 Continued.

NUMBER OF YEARS WITH MEASUREMENT IN MONTH

TN* 07602L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NOT STATE	CK0001	0	15	14	15	16	16	16	16	16	15	16	14	16
	EF0001	0	15	14	13	15	16	16	16	16	16	16	16	15
	JM0001	0	1	1	1	2	2	2	2	2	2	1	1	1
	KH0001	0	16	13	15	7	16	15	15	15	15	15	9	16
	EA0003	0	12	12	12	2	12	16	16	15	14	13	2	10
	JM0014	0	13	12	14	14	14	14	13	13	14	12	15	15
	LC0001	0	16	14	15	15	16	16	16	16	16	16	16	16
	FE0001	0	15	16	14	16	16	16	16	16	16	15	16	16
	AD0001	0	14	16	14	16	16	16	16	16	16	16	16	16
	AK0001	0	15	16	15	16	16	16	16	15	16	15	16	15
	MD0002	0	16	14	15	16	16	16	15	15	16	15	16	15
	KH0002	0	16	14	15	14	15	15	16	16	16	16	15	15

DO 08101F DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10UG/L	CK0001	0	14	15	15	15	15	16	16	16	14	15	15	16
(FOR ALL)	EF0001	0	15	14	13	14	16	16	16	16	16	16	15	16
	JM0001	0	1	1	1	2	2	2	1	2	2	2	1	1
	KH0001	0	16	14	15	7	13	14	15	15	15	15	8	16
	EA0003	0	11	12	12	3	9	15	16	15	14	14	2	10
	JM0014	0	15	13	14	14	13	12	13	13	14	12	15	15
	LC0001	0	16	14	15	15	15	15	16	15	16	16	16	16
	FE0001	0	15	16	14	15	16	15	16	15	16	15	16	16
	AD0001	0	15	16	14	16	16	16	15	16	16	15	16	16
	AK0001	0	15	16	14	16	16	16	16	16	16	15	15	14
	MD0002	1	16	14	15	16	15	15	16	15	16	16	16	16
	KH0002	1	16	14	15	14	12	13	16	16	16	16	14	16

ALK-TOT 10101L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
74-09,79 0.5MG/L	CK0001	0	15	15	14	16	16	16	16	16	15	16	16	16
10,79-02,81 2MG/L	EF0001	0	16	16	13	14	16	16	16	16	16	16	16	16
03,81-08,84 0.5MG/L	JM0001	0	1	1	1	2	2	2	2	2	2	2	1	1
09,84-11,85 2MG/L	KH0001	0	16	14	15	7	16	15	15	15	15	15	9	16
12,85-END 0.1MG/L	EA0003	0	12	12	12	3	11	16	16	15	14	14	2	10
	JM0014	0	15	13	14	14	13	14	13	12	14	13	15	15
	LC0001	0	16	13	14	16	16	16	16	16	16	16	16	16
	FE0001	0	15	16	14	15	16	16	16	15	16	16	16	16
	AD0001	0	15	16	14	16	16	14	16	16	16	16	16	16
	AK0001	0	15	16	15	15	16	16	16	16	16	16	16	16
	MD0002	0	16	13	14	16	15	16	16	15	16	16	16	16
	KH0002	0	16	14	15	14	16	15	16	16	16	16	15	16

Table 2.2 Continued.

NUMBER OF YEARS WITH MEASUREMENT IN MONTH

PH(F) 10301F DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NOT STATE	CK0001	0	15	14	14	16	16	16	16	14	16	16	16	16
	EF0001	0	16	15	12	14	16	16	16	15	16	16	16	16
	JM0001	0	1	1	1	2	2	2	0	2	2	2	1	1
	KH0001	0	16	14	15	7	15	15	15	15	15	15	9	15
	EA0003	0	12	12	12	3	12	16	15	15	14	14	2	10
	JM0014	0	14	13	14	14	14	14	13	13	13	13	15	15
	LC0001	0	16	14	15	16	16	16	15	16	16	16	16	16
	FE0001	0	14	16	14	16	16	16	15	15	15	16	16	16
	AD0001	0	15	15	13	16	16	16	16	14	15	16	16	16
	AK0001	0	15	16	14	14	15	15	16	15	16	16	16	16
	MD0002	0	16	14	15	15	16	16	15	15	16	16	16	16
	KH0002	0	16	14	15	14	15	15	16	16	16	16	15	15

NFR 10401L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10MG/L (FOR ALL)	CK0001	3	14	15	14	16	15	16	16	15	16	16	16	15
	EF0001	5	15	16	13	14	15	16	16	15	15	16	16	15
	JM0001	1	1	1	1	1	1	1	1	2	2	2	1	1
	KH0001	1	16	14	15	7	15	15	14	14	15	15	9	16
	EA0003	12	11	12	12	3	11	15	15	14	14	13	2	10
	JM0014	2	15	13	14	14	14	14	13	13	14	13	15	15
	LC0001	15	15	14	15	15	15	15	15	16	15	15	16	15
	FE0001	2	15	15	14	16	15	16	16	15	16	16	15	15
	AD0001	6	15	16	14	15	15	16	16	15	16	15	15	15
	AK0001	5	14	16	14	15	15	16	15	15	15	15	16	15
	MD0002	3	16	14	15	15	15	15	16	15	15	16	16	16
	KH0002	2	16	14	15	14	15	15	15	16	16	16	15	16

NA-DISS 11103L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.02MG/L (FOR ALL)	CK0001	0	16	16	15	15	16	16	16	16	16	15	16	16
	EF0001	0	16	16	13	14	16	16	16	16	16	16	16	16
	JM0001	0	1	1	1	2	2	2	2	2	2	2	1	1
	KH0001	0	16	14	15	7	16	15	15	15	15	15	9	16
	EA0003	0	12	12	12	3	12	16	16	15	14	14	2	10
	JM0014	0	15	13	14	14	13	14	13	12	14	13	14	15
	LC0001	0	16	14	14	16	16	16	16	16	16	16	16	16
	FE0001	0	15	16	14	15	16	16	16	16	16	16	15	16
	AD0001	0	15	16	14	16	16	16	16	16	16	16	16	16
	AK0001	0	15	16	15	15	16	16	16	16	16	16	16	16
	MD0002	0	16	14	14	16	15	16	16	15	16	16	15	16
	KH0002	0	16	14	15	14	16	15	16	16	16	16	14	16

Table 2.2 Continued.

MG-DISS 12102L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
			NUMBER OF YEARS WITH MEASUREMENT IN MONTH											
74-03,75 NOT STATE	CK0001	1	16	16	15	15	16	16	16	16	16	15	16	16
04,75-END 0.01MG/L	EF0001	0	16	16	13	14	16	16	16	16	16	16	16	16
	JM0001	0	1	1	1	1	2	2	2	2	2	2	1	1
	KH0001	0	16	14	15	7	16	15	15	15	15	15	9	16
	EA0003	0	12	12	12	2	12	16	16	15	14	14	2	10
	JM0014	0	15	13	14	14	13	14	13	12	14	13	15	15
	LC0001	0	16	15	14	16	16	16	16	16	16	16	16	16
	FE0001	0	15	16	14	14	16	16	16	16	16	16	16	16
	AD0001	0	15	16	14	15	16	16	16	16	16	16	16	16
	AK0001	0	15	16	15	15	16	16	16	16	16	16	16	16
	MD0002	0	16	15	14	16	15	16	16	15	16	16	16	16
	KH0002	0	16	14	15	14	16	15	16	16	16	16	15	16

P-TOT-DISS 15103D DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NOT STATE	CK0001	12	14	15	14	14	14	13	14	14	14	14	15	14
	EF0001	0	15	14	12	13	14	14	13	14	14	14	15	14
	JM0001	0	0	0	0	0	0	0	0	0	0	0	0	0
	KH0001	3	15	12	14	7	14	13	13	13	13	13	8	15
	EA0003	9	11	11	11	2	11	13	13	12	12	11	2	9
	JM0014	0	15	13	14	14	14	13	13	13	14	13	15	15
	LC0001	1	14	14	14	14	14	13	12	14	14	13	15	14
	FE0001	0	13	15	13	13	14	13	13	13	14	14	15	15
	AD0001	0	14	14	13	14	14	13	14	14	14	14	15	15
	AK0001	3	13	15	14	14	14	14	14	13	14	14	14	14
	MD0002	0	14	14	14	14	14	14	14	13	14	13	15	15
	KH0002	3	13	12	13	12	14	15	13	14	14	14	14	14

P-TOT 15406L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
04,05,74 0.0002MG/L	CK0001	1	16	16	15	16	16	16	16	16	16	16	16	16
	EF0001	0	16	16	13	14	16	16	16	16	16	16	16	16
06,74-END 2UG/L	JM0001	0	1	1	1	2	2	2	2	2	2	2	1	1
	KH0001	0	16	14	15	7	16	15	15	15	15	15	9	16
	EA0003	0	12	12	12	3	12	15	15	15	14	14	2	10
	JM0014	0	15	13	14	14	14	13	13	13	14	13	15	15
	LC0001	0	16	14	15	16	16	16	14	16	16	15	16	16
	FE0001	0	15	16	14	16	16	16	15	16	16	16	16	16
	AD0001	0	15	16	14	16	16	16	16	16	16	16	16	16
	AK0001	0	15	16	15	16	16	16	16	16	16	16	16	16
	MD0002	0	16	15	15	16	16	16	16	15	16	15	16	16
	KH0002	0	15	13	15	14	16	12	16	16	16	15	14	16

Table 2.2 Continued.

NUMBER OF YEARS WITH MEASUREMENT IN MONTH

SO4-DISS 16304L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
08,74-END 0.2MG/L	CK0001	0	16	16	15	15	16	16	16	16	16	15	16	16
	EF0001	0	16	16	13	14	16	16	16	16	16	16	16	16
REST NOT STATE	JM0001	0	1	1	1	2	2	2	2	2	2	2	1	1
	KH0001	0	16	14	15	7	16	15	15	15	15	15	9	16
	EA0003	0	12	12	12	3	12	16	16	15	14	14	2	10
	JM0014	0	15	13	14	14	12	14	13	12	14	13	15	15
	LC0001	0	16	14	15	16	16	16	16	16	16	16	16	16
	FE0001	0	15	16	14	15	16	16	16	16	16	16	16	16
	AD0001	0	15	16	14	16	16	16	16	16	16	16	16	16
	AK0001	0	15	16	15	15	16	16	16	16	16	16	16	16
	MD0002	0	16	15	14	16	15	16	16	15	16	16	16	16
	KH0002	0	16	14	15	14	16	15	16	16	16	16	15	16

CL-DISS 17206L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.05MG/L	CK0001	1	16	16	15	15	16	16	16	16	16	15	16	16
(FOR ALL)	EF0001	1	16	16	13	14	16	16	16	16	16	16	16	16
	JM0001	0	1	1	1	2	2	2	2	2	2	2	1	1
	KH0001	0	16	14	15	7	16	15	15	15	15	15	9	16
	EA0003	0	12	12	12	3	12	16	16	15	14	14	2	10
	JM0014	0	15	13	14	14	13	14	13	12	14	13	14	15
	LC0001	0	16	14	14	16	16	16	16	16	16	16	16	16
	FE0001	1	15	16	14	15	16	16	16	16	16	16	16	16
	AD0001	1	15	16	14	16	15	16	16	16	16	16	16	16
	AK0001	0	15	16	15	15	16	16	16	16	16	16	16	16
	MD0002	0	16	15	14	16	15	16	15	15	16	16	15	16
	KH0002	0	16	14	15	14	16	14	16	16	16	16	14	16

LINDANE 18070L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.001UG/L	CK0001	120	13	16	12	12	15	13	14	15	15	14	12	13
(FOR ALL)	EF0001	88	13	16	10	11	16	12	15	14	16	14	13	12
	JM0001	11	1	1	1	2	1	1	1	1	2	2	0	1
	KH0001	78	12	13	11	4	15	12	14	13	15	13	6	13
	EA0003	104	9	11	10	2	11	13	15	13	14	11	2	7
	JM0014	109	11	13	11	11	14	12	12	11	14	11	12	10
	LC0001	126	13	13	11	13	14	12	15	14	16	14	13	13
	FE0001	94	12	16	11	12	15	13	15	14	16	14	13	13
	AD0001	148	12	16	11	13	15	13	15	14	16	14	13	13
	AK0001	74	11	16	12	12	15	13	15	14	16	14	13	13
	MD0002	95	12	15	12	13	15	13	15	13	16	14	13	13
	KH0002	123	13	14	12	11	15	13	15	14	16	14	12	13

Table 2.2 Continued.

NUMBER OF YEARS WITH MEASUREMENT IN MONTH

A-BHC 18075L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NOT STATE	CK0001	34	12	15	11	10	14	12	13	14	14	13	11	12
	EF0001	29	12	15	9	10	14	11	14	13	15	13	12	11
	JM0001	0	0	0	0	0	0	0	0	1	1	1	0	0
	KH0001	10	11	12	10	4	14	11	13	12	14	12	6	12
	EA0003	11	9	10	10	2	11	13	14	13	13	11	2	8
	JM0014	21	11	13	11	11	14	12	12	11	14	11	12	10
	LC0001	43	12	13	10	11	13	11	14	13	15	13	12	12
	FE0001	7	11	15	10	10	14	12	14	13	15	13	12	12
	AD0001	50	11	15	10	11	14	12	14	13	15	13	12	12
	AK0001	16	10	15	11	10	14	12	14	13	15	13	12	12
	MD0002	19	11	13	11	11	14	12	14	12	15	13	12	12
	KH0002	44	12	13	11	10	14	12	14	13	15	13	12	12

24D 18500L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.03UG/L FOR:	CK0001	100	14	16	14	12	15	14	15	13	15	15	14	12
05,85-11,85	EF0001	46	14	16	11	13	16	14	15	14	15	15	13	15
07,86	JM0001	4	1	1	1	2	1	1	0	1	2	2	1	1
08,87	KH0001	58	14	13	14	5	15	11	14	14	15	14	5	13
03,88-END	EA0003	120	10	11	11	3	11	14	15	14	13	12	1	8
	JM0014	76	13	12	13	12	14	13	13	12	14	12	13	11
REST NOT STATE	LC0001	148	14	13	13	14	15	14	15	15	15	15	14	14
	FE0001	108	12	16	12	14	15	13	15	15	16	15	14	13
	AD0001	149	13	15	13	15	15	14	15	15	16	14	14	12
	AK0001	53	13	15	14	14	15	13	15	15	16	15	14	13
	MD0002	90	13	14	14	14	15	14	15	13	16	15	13	14
	KH0002	144	14	13	14	12	14	13	15	15	15	15	12	14

245T 18510L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.05UG/L FOR:	CK0001	162	13	16	14	12	15	14	15	13	16	15	14	12
05,06,08,09,12,85	EF0001	124	13	16	11	13	16	14	15	14	15	16	14	15
05,87-END	JM0001	10	1	1	1	2	1	1	0	1	2	2	1	1
	KH0001	125	14	13	14	5	15	11	14	14	15	14	6	13
REST NOT STATE	EA0003	119	12	12	12	3	12	16	16	15	13	14	1	10
	JM0014	139	13	12	13	12	14	13	13	12	14	12	13	11
	LC0001	163	14	13	13	14	15	14	15	15	15	15	14	14
	FE0001	166	12	16	12	14	15	13	15	15	16	16	15	14
	AD0001	164	12	15	13	15	15	14	15	15	16	14	14	12
	AK0001	165	12	15	14	14	15	13	15	15	16	15	14	13
	MD0002	163	13	14	14	14	15	14	15	13	16	15	13	14
	KH0002	161	14	13	14	11	14	13	15	15	16	15	12	14

Table 2.2 Continued.

NUMBER OF YEARS WITH MEASUREMENT IN MONTH

K-DISS 19103L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.02MG/L	CK0001	0	16	16	15	15	16	16	16	16	16	15	16	16
(FOR ALL)	EF0001	0	16	16	13	13	16	16	16	16	16	16	16	16
	JM0001	0	1	1	1	2	2	2	2	2	2	2	1	1
	KH0001	0	16	14	15	7	16	15	15	15	15	15	9	16
	EA0003	0	12	12	12	3	12	16	16	15	14	14	2	10
	JM0014	0	15	13	14	14	13	14	13	12	14	13	14	15
	LC0001	0	16	14	14	16	16	16	16	16	16	16	16	16
	FE0001	0	15	16	14	15	16	16	16	16	16	16	16	16
	AD0001	0	15	16	14	16	16	16	16	16	16	16	16	16
	AK0001	0	15	16	15	15	16	16	16	16	16	16	16	16
	MD0002	0	16	14	14	16	15	16	16	15	16	16	16	16
	KH0002	0	16	14	15	14	16	15	16	16	16	16	15	16

CA-DISS 20101L DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.5MG/L	CK0001	1	16	16	15	15	16	16	16	16	16	15	16	16
(FOR ALL)	EF0001	0	15	14	14	14	16	16	16	16	16	16	15	16
	JM0001	0	1	1	1	2	2	2	2	2	2	2	1	1
	KH0001	0	16	14	15	7	16	15	15	15	15	15	9	16
	EA0003	0	9	11	10	2	11	13	15	13	14	11	2	7
	JM0014	0	15	13	14	14	13	14	13	12	14	13	15	15
	LC0001	0	16	14	14	16	16	16	16	16	16	16	16	16
	FE0001	0	14	16	14	15	16	16	16	16	16	15	15	15
	AD0001	0	15	16	14	16	16	16	16	16	16	16	16	16
	AK0001	0	15	16	15	15	16	16	16	16	16	16	16	16
	MD0002	0	16	14	14	16	15	16	16	15	16	16	16	16
	KH0002	0	16	14	15	14	16	15	16	16	16	16	15	16

MN-DISS 25104D DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10UG/L	CK0001	69	10	10	9	9	10	10	10	9	10	10	10	10
(FOR ALL)	EF0001	79	9	7	9	9	10	10	10	10	11	10	10	10
	JM0001	0	0	0	0	0	0	0	0	0	0	0	0	0
	KH0001	59	10	8	9	3	10	9	10	9	9	9	5	9
	EA0003	69	7	7	8	1	9	10	11	11	8	8	2	5
	JM0014	5	11	9	10	10	10	11	9	9	11	9	11	11
	LC0001	17	10	8	9	10	10	10	10	10	10	10	10	10
	FE0001	32	9	10	8	9	10	10	10	10	10	10	10	10
	AD0001	16	10	11	10	10	10	10	10	11	10	11	11	10
	AK0001	82	9	10	9	9	10	10	10	10	10	10	10	10
	MD0002	1	10	8	9	10	10	11	10	9	9	10	10	10
	KH0002	0	10	8	9	9	10	10	10	10	10	10	10	10

Table 2.2 Continued.

NUMBER OF YEARS WITH MEASUREMENT IN MONTH

FE-DISS 26104D

DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
50UG/L	CK0001	68	10	10	9	9	10	10	10	9	10	10	10	10
(FOR ALL)	EF0001	74	9	7	9	9	10	10	10	10	11	10	10	10
	JM0001	0	0	0	0	0	0	0	0	0	0	0	0	0
	KH0001	59	10	8	9	3	10	9	10	9	9	9	5	9
	EA0003	49	7	7	8	1	9	10	11	11	8	8	2	5
	JM0014	76	11	9	10	10	10	11	9	9	11	9	11	11
	LC0001	9	10	8	9	10	10	10	10	10	10	10	10	10
	FE0001	28	9	10	8	9	10	10	10	10	10	10	10	10
	AD0001	9	10	10	10	11	10	11	11	10	10	11	10	10
	AK0001	80	9	10	9	9	10	10	10	10	10	10	10	10
	MD0002	41	10	8	9	10	10	11	10	9	10	10	10	10
	KH0002	0	10	8	9	9	10	10	10	10	10	10	10	10

CU-TOT 29005P

DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1UG/L	CK0001	7	10	9	9	9	10	10	10	10	10	10	10	10
(FOR ALL)	EF0001	15	9	8	9	8	10	10	10	10	10	10	10	10
	JM0001	0	0	0	0	0	0	0	0	0	0	0	0	0
	KH0001	5	10	8	9	3	10	9	9	9	9	9	5	9
	EA0003	25	7	7	8	1	8	10	10	10	8	8	2	5
	JM0014	2	10	8	9	10	10	10	9	9	10	9	10	10
	LC0001	16	10	8	9	10	10	10	10	10	10	10	10	10
	FE0001	3	9	10	8	9	10	10	10	9	10	10	10	10
	AD0001	20	9	10	10	10	10	10	10	10	9	10	9	10
	AK0001	9	9	9	9	9	10	10	10	10	10	9	10	10
	MD0002	3	10	8	9	10	10	10	10	9	10	10	10	10
	KH0002	10	10	8	9	9	10	10	10	10	10	10	10	10

ZN-TOT 30005P

DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1UG/L	CK0001	3	10	9	8	7	9	10	10	10	10	10	10	10
(FOR ALL)	EF0001	8	9	7	9	8	9	10	10	10	10	10	10	10
	JM0001	0	0	0	0	0	0	0	0	0	0	0	0	0
	KH0001	4	10	8	9	2	10	8	9	9	9	9	5	9
	EA0003	14	7	7	8	1	8	10	10	10	8	8	2	5
	JM0014	3	10	8	9	9	10	10	9	9	10	9	10	10
	LC0001	10	10	8	9	8	10	10	10	10	10	10	10	10
	FE0001	2	9	10	7	8	9	10	10	9	10	10	10	10
	AD0001	6	8	10	10	9	10	10	10	10	9	10	8	8
	AK0001	7	9	9	8	7	9	10	10	10	10	9	10	10
	MD0002	6	10	8	9	9	10	10	10	9	10	10	10	10
	KH0002	5	10	8	9	8	10	10	10	10	10	10	10	10

Table 2.2 Continued.

NUMBER OF YEARS WITH MEASUREMENT IN MONTH

T.COLI 36001F DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NOT STATE	CK0001	35	15	15	14	13	11	11	11	11	9	12	15	14
	EF0001	23	14	12	12	14	14	13	14	13	15	14	12	13
	JM0001	1	1	1	1	2	2	2	2	2	2	2	1	1
	KH0001	43	16	14	13	6	13	11	13	13	14	12	9	13
	EA0003	77	11	12	10	3	10	16	14	14	13	13	2	9
	JM0014	21	15	13	12	11	11	13	10	12	13	12	15	14
	LC0001	29	16	14	13	15	15	14	14	14	15	14	16	15
	FE0001	19	13	12	12	12	13	13	14	12	10	11	13	14
	AD0001	19	14	13	11	13	12	11	13	14	14	14	14	13
	AK0001	23	14	14	14	13	12	13	13	11	10	12	15	14
	MD0002	12	16	14	12	14	15	13	14	14	15	16	16	14
	KH0002	24	15	14	13	12	14	13	14	13	15	16	14	13

F.COLI 36011F DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NOT STATE	CK0001	66	16	15	15	13	13	14	16	15	15	13	15	15
	EF0001	38	14	14	13	13	15	15	16	15	13	14	15	16
	JM0001	4	1	1	1	2	2	1	2	2	2	2	1	1
	KH0001	83	14	13	12	6	13	12	12	13	13	13	9	12
	EA0003	104	12	12	11	3	10	16	16	15	14	14	2	9
	JM0014	41	14	12	13	12	13	13	13	13	14	13	15	14
	LC0001	71	16	14	14	14	15	15	16	15	16	16	16	14
	FE0001	40	15	15	14	14	16	16	15	15	15	13	15	16
	AD0001	42	14	14	14	12	16	14	15	16	14	15	14	14
	AK0001	56	15	15	15	13	15	15	16	15	15	13	13	16
	MD0002	30	16	14	14	15	15	15	16	14	16	16	16	15
	KH0002	65	16	14	14	13	14	14	16	16	16	16	15	15

HG-TOT 80011P DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0.05UG/L	CK0001	96	10	11	10	10	11	11	11	11	11	11	11	11
(FOR ALL)	EF0001	102	11	11	9	10	11	11	11	11	11	11	10	11
	JM0001	0	0	0	0	0	0	0	0	0	0	0	0	0
	KH0001	100	11	8	10	4	11	10	10	10	10	10	6	10
	EA0003	86	7	8	9	1	9	11	11	11	9	9	2	6
	JM0014	78	11	9	10	11	11	11	10	10	11	10	11	11
	LC0001	115	11	9	10	11	11	11	11	11	11	11	11	11
	FE0001	102	9	10	9	10	11	11	11	11	11	10	11	11
	AD0001	118	11	11	11	11	11	10	10	11	10	11	10	11
	AK0001	115	10	11	10	10	11	11	11	11	11	11	11	11
	MD0002	109	11	9	9	11	11	11	11	10	11	11	11	11
	KH0002	77	11	9	10	10	11	10	11	11	11	11	11	11

Table 2.2 Continued.

NUMBER OF YEARS WITH MEASUREMENT IN MONTH

PB-TOT 82002P DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
74-07,84 4UG/L	CK0001	58	10	10	9	9	10	10	10	10	10	10	10	10
10,84-END 1UG/L	EF0001	68	10	10	8	9	9	10	10	10	10	10	10	10
	JM0001	0	0	0	0	0	0	0	0	0	0	0	0	0
	KH0001	63	10	8	9	3	10	9	9	9	9	9	4	10
	EA0003	68	7	7	8	1	8	10	10	10	8	8	2	5
	JM0014	69	10	9	9	10	10	10	9	9	10	9	10	10
	LC0001	95	10	8	9	10	10	10	10	10	10	10	10	10
	FE0001	71	9	10	8	9	10	10	10	10	10	10	10	10
	AD0001	93	9	10	10	10	10	10	10	10	9	10	9	10
	AK0001	67	9	10	9	9	10	10	10	10	10	9	10	10
	MD0002	76	10	8	9	10	10	10	10	9	10	10	10	10
	KH0002	92	10	9	10	10	9	10	10	9	10	10	10	10

Q-DM(M3/S) DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NOT STATE	CK0001	0	13	13	13	14	14	14	14	14	14	14	14	14
	EF0001	0	13	13	11	12	14	14	14	14	14	14	14	14
	JM0001	0	1	1	1	2	2	2	2	2	2	2	1	1
	KH0001	0	13	12	13	6	14	13	14	13	13	13	9	14
	EA0003	0	10	9	10	3	10	14	14	13	12	13	1	10
	JM0014	0	12	11	12	12	12	12	12	12	12	12	13	13
	LC0001	0	13	12	13	14	14	14	14	14	14	14	14	14
	FE0001	0	13	13	12	14	14	14	14	14	14	14	14	14
	AD0001	0	12	13	12	14	14	14	14	14	14	14	14	14
	AK0001	0	12	13	13	14	14	14	14	14	14	14	14	14
	MD0002	0	13	12	13	14	14	14	14	14	14	14	14	14
	KH0002	0	13	13	13	13	13	14	14	13	14	13	14	14

Q-MM(M3/S) DETECTION LIMITS	STATION	ND	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NOT STATE	CK0001	0	4	4	4	5	5	5	5	5	5	5	5	5
	EF0001	0	4	4	4	4	5	5	5	5	5	5	5	5
	JM0001	0	0	0	0	0	0	0	0	0	0	0	0	0
	KH0001	0	0	0	0	0	0	0	0	0	0	0	0	0
	EA0003	0	0	0	0	0	0	0	0	0	0	0	0	0
	JM0014	0	3	3	3	3	3	3	3	3	3	3	4	4
	LC0001	0	4	4	4	5	5	5	5	5	5	5	5	5
	FE0001	0	4	4	4	5	5	5	5	5	5	5	5	5
	AD0001	0	4	4	4	5	5	5	5	5	5	5	5	5
	AK0001	0	4	4	4	5	5	5	5	5	5	5	5	5
	MD0002	0	0	0	0	0	0	0	0	0	0	0	0	0
	KH0002	0	4	4	4	4	5	5	5	5	5	4	5	4

A characteristic of this data which is important to the choice of statistical methodology is seasonality. The sample frequency is monthly. Thus, methods which use all of the data need to account for the seasonal differences and, as shown by Esterby et al. (1989), seasonality can contribute the largest amount of variation.

2.2 Statistical Methods

Methods are given for the analysis for trend of river water quality data with the features of monthly sampling frequency, moderate record length (here about 17 years), seasonality, missing data and, for some variables, the presence of observations below the analytical detection limit. Although the sampling interval is long enough so that serial correlation may not be present, the effect of serial correlation on the methods described here will also be considered. Both nonparametric and parametric methods are included, and the importance of graphical representations are emphasized at all stages of the data analysis.

Because of the large amount of water quality data collected over time by a number of agencies, there is interest in a technique or set of techniques that can be applied to identify trends in a wide range of situations. Hirsch et al. (1982) illustrated the use of a blocked Kendall's τ, which they called the seasonal Kendall test for trend, and concluded that this provides a widely applicable test for such a purpose. An alternative to τ is Spearman's rank correlation coefficient, ρ_s which has also been used in testing for trend in water quality data (e.g., Lettenmaier, 1976; El-Shaarawi et al., 1983). These procedures involve testing the hypothesis of randomness using a statistic that is powerful for the alternative of a trend. Hirsch et al. (1982) note that the form of the trend is general, that is, a monotonic change over time including both gradual and sudden changes.

The reasons for using nonparametric techniques are their robustness to non-normality and extreme values and the ease with which values below the detection limit can be handled. In addition, both ρ_s and τ compare favourably to the parametric alternative, the regression slope estimator for β, when the normality assumption is met, in that they both have asymptotic relative efficiency of about 0.98 relative to β (Conover, 1980). ρ_s is slightly more powerful than τ, but τ converges to normality faster (van Belle and Hughes, 1984). Values below the detection limit are treated as ties in the nonparametric methods and hence limitations on the usefulness of these techniques are just those due to the presence of ties.

The procedure described by Hirsch <u>et</u> <u>al</u>. (1982) accounts for seasonality through blocking, either months or seasons, and can be calculated in the presence of missing values, e.g., not all months were measured every year. Implicit to this procedure, is the assumption that the trend is the same for all months or seasons. Van Belle and Hughes (1984) give a modification that permits a test of homogeneity of trend as well as a test for trend. If homogeneity exists, then a measure of average trend such as the seasonal Kendall τ can be used, otherwise only tests within individual months or seasons or within sets of homogeneous months or seasons are appropriate. The measure of average trend used in the seasonal Kendall test is actually a weighted average of the τ's in the individual months.

Hirsch <u>et al</u>. (1982) extend the non-parametric point estimator of the slope given by Thiel (1958) and Sen (1968) to account for seasonality and call it the seasonal Kendall slope estimator. Gilbert (1987) gives a simple procedure for a confidence limit for the slope.

In the nonparametric procedures, it is assumed that the data are not serially dependent. The set of monthly values of a water quality variable over a number of years appears generally to satisfy the assumption of independence and thus the assumptions are generally satisfied when the trend test is applied to observations from the same month. However, the seasonal Kendall τ test, which combines statistics calculated for each month, also requires independence between months. Hirsch and Slack (1984) proposed a modified seasonal Kendall τ which uses the estimate of covariance between months given by Dietz and Killeen (1981). The latter authors also give a test for trend which accounts for seasons but differs from that of Hirsch and Slack since both positive and negative trends make a positive contribution to the test statistic, whereas in the Hirsch and Slack test, negative and positive slopes cancel each other. Hirsch and Slack show, through Monte Carlo studies, that the power of the Dietz and Killeen test is low for the number of years typically available in water quality data series (<20 years) and that the modified seasonal Kendall τ performs poorly for fewer than 10 years and is less powerful than the original test when the data are independent.

Regression analysis is widely used for assessing trends and has been applied to water quality data, for example, by El-Shaarawi et al. (1983) and Esterby et al. (1989). It also permits estimation of the point of change in a regression relationship, which is useful for detecting step changes in a water quality variable, through the procedure of Esterby and El-Shaarawi (1981). Regression analysis is flexible since many forms of the model describing the relationship between the water quality variable and time, including components to account for seasonality and other covariates, can be handled by the same methodology. The availability of diagnostic plots makes it a useful tool for determining the appropriate form of the relationship, which may not be linear. In the ordinary least squares analysis, it involves additional assumptions, specifically that the error terms belong to a single normal distribution. The method is robust to moderate non-normality, but as with the nonparametric procedures, is sensitive to serial dependence. Comparison of regression methods which include seasonality and the seasonal Kendall τ for water quality variables sampled monthly showed that the procedures gave essentially the same conclusions about trend for the particular data sets used, but that regression methods were more useful in modelling the form of the trend (Esterby et al. 1989). If used simply as a test for monotonic trend, the nonparametric methods are easier to apply, provided that independence can be assumed.

2.3 Description of the Methods

Only the methods used in this report are described here. Let Y_{ij} be the measurement on a water quality variable in month j of year i where j = 1,2,...,12 and i = 1,2,...,n, represent the years in chronological order. To allow for missing data, let n_j = number of years with measurements in month j and thus the total number of measurements for the variable is $N=\sum_{j=1}^{12} n_j$

2.3.1 Plots

Plots are essential in the analysis of data and can be informative at all stages of the analysis. For the present purposes at the beginning of the analysis a plot of Y_{ij} versus some representation of cumulative time, eg. month 1 to 12n, will show the strength of seasonal cycles, the presence of extreme observations, gaps in the data record and possibly suggest other sources or variation or factors which should be considered in the analysis. Plots of Y_{ij} versus i(year), separately for each j (month) are also useful since this corresponds to the method of blocking used to account for seasonality in the tests described here. Plots during other stages, will be included either in method description or the results section.

2.3.2 Nonparametric Tests Applied to One Month

These tests for trend are used to evaluate the evidence given in the data against of the null hypothesis, H_o, that the Y_{ij} for $i=1,2,...,n_j$ are random and identically distributed. Values of the statistic which are large in magnitude provide evidence against the null hypothesis.

The Mann Kendall statistic for month j, S_j, is given by

$$S_j = \sum_{i<k} \operatorname{sgn}(Y_{kj} - Y_{ij}) \tag{1}$$

where

$$\operatorname{sgn}(Y_{kj}-Y_{ij}) = \begin{cases} 1 \text{ if } Y_{kj}>Y_{ij} \\ 0 \text{ if } Y_{kj}=Y_{ij} \\ -1 \text{ if } Y_{kj}<Y_{ij} \end{cases} \tag{2}$$

Under H_0, the expected value of S_j is 0 and the variance is

$$\operatorname{var}(S_j) = n_j(n_j-1)(2n_j+5)/18 \tag{3}$$

and in the presence of ties

$$\operatorname{var}(S_j) = \{n_j(n_j-1)(2n_j+5) - \sum_t t(t-1)(2t+5)\}/18 \tag{4}$$

where t = number of Y_{ij} involved in a tie. The test of the null hypothesis is based upon

$$Z_j = \begin{cases} \dfrac{S_j-1}{[\operatorname{var}(S_j)]^{1/2}} & S_j>0 \\ 0 & S_j=0 \\ \dfrac{S_j+1}{[\operatorname{var}(S_j)]^{1/2}} & S_j<0 \end{cases} \tag{5}$$

where Z_j is approximately N(0,1), -1 and +1 are continuity corrections. This normal approximation is good for n_j 10 unless there are very extensive or numerous ties and, in the absence of ties, exact probabilities are available for n<10 (Kendall, 1970, Appendix Table 1). The Kendall correlation coefficient for month j is $_j$ where

$$\tau_j = \frac{S_j}{\frac{1}{2} n_j(n_j-1)}. \tag{6}$$

Tests based on S_j or on $_j$ are equivalent.

Denote by R_{ij} the rank of Y_{ij} among the n_j observations for month j. Then Spearman rank correlation coefficient ρ_{sj} is given by

$$\rho_{sj} = 1 - \frac{6 \sum_{i=1}^{n_j} d_{ij}^2}{n^3 - n} \tag{7}$$

where $d_{ij} = i - R_{ij}$. To test the hypothesis of randomness, H_0, tables of the exact significance levels of ρ_{sj} are available for n 10 (Snedecor and Cochran, 1980, Table A11 ii). For larger n, calculate the statistic

$$T_j = \rho_{sj} \sqrt{\frac{n-2}{1-\rho_s^2}} \tag{8}$$

which has approximately a t-distribution with n-2 degrees of freedom. If there are ties in the Y_{ij}, then midranks should be used, where the midranks are given by the average of the ranks which the tied observations would possess if they were distinguishable. For extensive ties, instead of expression (7) above, ρ_{sj} should be calculated by using the set of midranks in the usual formula for the product moment correlation coefficient (Conover, 1980, p.252).

To obtain the nonparametric slope estimator, the $M_j=n_j(n_j-1)/2$ quantities Q_{ikj} are calculated, where

$$Q_{ikj} = \frac{Y_{ij} - Y_{kj}}{i-k} \qquad \text{for } i>k. \tag{9}$$

Sen's estimator of the slope is the median of the Q_{ikj}. For n as small as 10, unless there are extensive ties (Gilbert, 1987), the $100(1-\alpha)\%$ confidence interval for the slope is given by $(Q_{(m1)},Q_{(m2+1)})$ where

$$m1 = (M_j - Z_{1-\alpha/2} [var(S_j)]^{½})/2$$

$$m2 = (M_j + Z_{1-\alpha/2} [var(S_j)]^{½})/2 \tag{10}$$

The $var(S_j)$ is given by (3) or, in the presence of ties by (4), $Z_{1-\alpha/2}$ is the $(1-\alpha/2)$ quantile of the standard normal distribution and $Q_{(m)}$ is the m-th largest value among all the Q_{ikj}. When m is not an integer, obtain $Q_{(m)}$ by interpolating linearly between the two values $Q_{(m')}$ and $Q_{(m")}$ where m' and m" are the integers which bracket m.

Tests of the hypothesis H_0 using the above described nonparametric procedures in the presence of values below the detection limit do not require a value to be assigned to these observations. The only limitation observations below the detection limit place on the procedures is the introduction of ties when multiple non-detects are present, since non-detects are assigned rank 1 or the lowest midrank. However in the case of the slope estimation, each value below the detection limit must be assigned a numerical value to calculate the set of Q_{ikj}. Gilbert (1987) suggests using one half the detection limit.

Analogous to the Pearson partial product moment correlation coeficient, partial correlation coefficients are available for both Kendall's τ and spearman's ρ_s. The Kendall's partial τ is used here to assess the association between a water quality variable and time, independent of the influence of flow. Let the subscripts V, t and F denote the water quality variable, time and flow, respectively. Then the Kendall's partial correlation coefficient of the variable and time with flow, $T_{vt.F}$, is given by

$$\tau_{vt \cdot F} = \frac{\tau_{vt} - \tau_{tF}\tau_{vF}}{\sqrt{(1-\tau^2_{tF})(1-\tau^2_{vF})}}$$

where τ_{vt}, τ_{tF}, and τ_{vF} are the pair-wise Kendall's τ's between the three quantities. Since tests of significance are not yet availabe for the partial τ, it will be interpreted qualitatively.

2.3.3 Non-Parametric Methods Applied to Yearly Data

In this section, the null hypothesis, H_0, assumes that the $Y_{1j}, Y_{2j}, \ldots, Y_{nj}$ are random and identically distributed for each j. All procedures are based on the Mann Kendall statistic applied to the data blocked by seasons, which for this description are taken as months, but could be combinations of months.

The seasonal Kendall τ (Hirsch et al., 1982), which involves the additional assumption of serial independence, has as its test statistic

$$Z=\begin{cases} \dfrac{S-1}{[\mathrm{var}(S)]^{1/2}} & S>0 \\ 0 & S=0 \\ \dfrac{S+1}{[\mathrm{var}(S)]^{1/2}} & S<0 \end{cases} \tag{11}$$

where

$$S=\sum_{j=1}^{12} S_j \tag{12}$$

and

$$\mathrm{var}(S) = \sum_{j=1}^{12} \mathrm{var}\ (S_j). \tag{13}$$

S_j is given by (1), and $\mathrm{var}(S_j)$ by (3) or, in the presence of ties by (4). Z is approximately $N(0,1)$, with large values of $|Z|$ providing evidence against H_0.

The Sen estimator for slope is extended in an analogous fashion for seasonal data. The Q_{ikj} of equation (9) are calculated for $j=1,2,...,12$ and the point estimate is given as the median over all M values of Q_{ikj}, where $M=\sum_{j=1}^{12} M_j$. The $100(1-\alpha)\%$ confidence interval is given by $Q_{(m1)},Q_{(m2+1)}$ where m1 and m2 are obtained by replacing M_j by M and the var (S_j) by var(S) in the expressions of (10).

The seasonal Kendall τ statistic and slope estimator are applicable only if the trend is homogeneous over seasons. From (12) it can be seen that positive and negative terms, corresponding to increases and decreases over time, will tend to cancel each other. A test for homogeneity of trend (van Belle and Hughes, 1984) is obtained by first standardizing the S_j to give

$$Z_j= S_j/[\mathrm{var}(S_j)]^{1/2} \tag{14}$$

for $j=1,2,...,12$. Under H_0, each Z_j^2 has approximately a chi-square distribution with 1 degree of freedom. The statistic obtained as the sum of the Z_j^2,

$$X^2_{total} = \sum_{j=1}^{12} Z_j^2 \tag{15}$$

can be partitioned into a component due to trend,

$$X^2_{trend} = 12\ \bar{Z}^2 \tag{16}$$

with $\bar{Z}$ equal to the mean of Z_j for $j=1,2,...,12$, and a component which gives a measure of departure of the individual Z_j from the mean, which can be called X^2_{homog}, and is obtained as

$$X^2_{homog} = \sum_{j=1}^{12} Z_j^2 - 12\ \bar{Z}^2. \tag{17}$$

X^2_{homog} has a chi-square distribution with 11 degrees of freedom, and large values provide evidence against homogeneity of trend.

To account for situations where observations close in time might be expected to be dependent, Hirsch and Slack (1984) defined the modified seasonal Kendall's τ by taking into account the covariation between months. Thus the variance of S is taken as

$$\text{var}(S) = \sum_{j=1}^{12} \text{var}(S_j) + \sum_{\substack{j,h \\ j \neq h}} \text{cov}(S_j, S_h) \tag{18}$$

where the estimator of the covariance between months j and h, for $j \neq h$, is

$$\text{cov}(S_j, S_h) = K_{jh}/3 + (n^3-n)\ r_{jh}/9 \tag{19}$$

with

$$K_{jh} = \sum_{i<\ell} \text{sgn}[(X_{\ell j}-X_{ij})(X_{\ell h}-X_{ih})] \tag{20}$$

and

$$r_{jh} = \sum_{i,\ell,k} \text{sgn}\ [(X_{\ell j}-X_{ij})(X_{\ell h}-X_{ih})] \tag{21}$$

The modification to the test statistic (11) is to use (18) for the var(S), instead of (13). If there are ties, (4) is used for the var(S_j) in (18). To accommodate missing values, Hirsch and Slack extended the definition of sgn so the sgn $(X_{\ell j}-X_{ij}) = 0$ if either $X_{\ell j}$ or X_{ij} is missing.

An alternative test based on Kendall's τ, in which positive and negative trends do not cancel each other, is that of Deitz and Killeen (1981). Let $\underline{S} = (S_1,S_2,\ldots,S_{12})^t$, where the S_j are given by (1). Denote the variance-covariance matrix by Σ, where $\Sigma=(\sigma_{jh})$ with σ_{jj} given by (3) or (4) and σ_{jh}, for $j \neq h$, by (19). Then the test statistic is

$$\underline{S}' \ \Sigma^{-1} \ \underline{S} \tag{22}$$

which has approximately a chi-square distribution with 12 degrees of freedom. From a limited Monte Carlo study, Hirsch and Slack show that more years of data are required for this test to achieve an acceptable power than needed for the modified seasonal Kendall τ.

2.3.4 Regression Methods Applied to One Month

The change in a water quality variable over time for one month can be described by a regression model. The form of the regression model used here is a polynomial in time of degree p, with $p \leq 3$, which for month j and degree three is

$$Y_{ij}=\alpha_{0j}+\alpha_{1j}t_{ij}+\alpha_{2j}t^2_{ij}+\alpha_{3j}t^3_{ij}+\varepsilon_{ij} \tag{23}$$

where $i=1,2,\ldots,n_j$ and t_{ij} is the year in which the ith observation in month j was made. The t_{ij} will be within the range 1,2,...,n., where n is the number of years of observation, but t_{ij} is used instead of i since there are missing values. The degree of the polynomial can be determined in a forward fashion by checking at the kth step, whether a polynomial of degree k provides a significant reduction in the residual sum of squares over a polynomial of degree k-1. Thus, the presence of a non-monotonic trend can be detected.

As discussed earlier, normal theory regression analysis involves the assumption that the ε_{ij} are independent and identically normally distributed with mean 0 and variance σ^2. Data transformation and weighted analysis are two methods which can be used when modifications to the model in (23) are needed to satisfy these assumptions. Diagnostics based on the residuals, including plots, are useful in checking these assumptions as well as the adequacy of the form of the model in (23).

2.3.5 Regression Methods Applied to Yearly Data.

Equation (23) provides the model of degree 3 for all months if now j=1,2,...,12, and the time variable allows for the possibility of different months of observation in different years, ie

$$Y_{ij}=\alpha_{0j}+\alpha_{1j}t_{ij}+\alpha_{2j}t^2_{ij}+\alpha_{3j}t^3_{ij}+\varepsilon_{ij} \tag{24}$$

But as with the nonparametric methods, the need to consider the possibility of serial dependence arises. Although, given the correct values for p, the degree of the polynomial for each month, the least squares estimates of the parameters of model (24) are unbiased whatever the distributional characteristics of ε_{ij}, they are not the most efficient estimates when serial dependence exists. But this is not the most serious problem induced. The main difficulty is that inferences about the model parameters can be misleading due to over or under estimation of their standard errors.

A general technique for dealing with autocorrelation in a regression model is to estimate the parameters of the model using ordinary least squares, estimate the autocorrelation function $\{\rho_k\}$ using the residuals, and then, prior to performing the test of significance, modify the variances and covariances of the regression coefficients by including the contribution of serial correlation.

The modification to the test of significance is given here for the case that is illustrated in the results section, namely, homogeneity of trend over months, with the form being a linear trend. Then model (23) reduces to

$$Y_{ij}=\alpha_{0j}+\beta t_{ij}+\eta_{ij} \tag{25}$$

for j=1,2,...,12, and i=1,2,...,n_j, where β is used as the single slope parameter instead of the α_{ij}'s as used in (24). The η_{ij} come from a stationary process such that $\text{cov}(\eta_t, \eta_{t+k})=\sigma^2\rho_k$ with $\rho_0=1$, where single subscripts have been used for easier description and the subscripts t and t+k indicate observations that are k months apart. In the case of independence η_{ij} becomes ε_{ij} as in (24).

The hypothesis of interest is one of no trend, namely Ho : $\beta=0$. Under independence of ε_{ij} the usual test of significance for the slope parameter can be used. In the presence of serial correlation, an adjustment to the test of the slope can be made by which the serial dependence is taken into account (El-Shaarawi, 1991). This requires estimates of the autocorrelation coefficients $\{\rho_k\}$, which can be obtained from regression residuals as mentioned above or residuals obtained by subtracting the median of a specific month from the values within the same month. If the observations are indexed from t=1,2,...,N, where N= 12n, and there are no missing observations, then the autocorrelation coefficient of lag k, for k=0,1,..., is given by

$$r_k = c_k/c_o \tag{26}$$

with
$$c_k = \frac{1}{N}\sum_{i=k+1}^{N}(r_i-\bar{r})(r_{i-k}-\bar{r}) \tag{27}$$

where r_i is the ith residual and $\bar{r}$ is the mean of the N residuals (theoretically 0 for the regression residuals).

3. RESULTS GIVEN SEPARATELY FOR EACH LOCATION

3.1 Location AK0001 on the South Saskatchewan River

3.1.1 Non-parametric Tests

The results of performing the various non-parametric tests on the data set from the South Saskatchewan River at Station AK0001 are summarized in Table 3.1. The detailed results are given in Table A1.1 in the Appendix. The *'s shown in Table 3.1 indicate significant trends. For the columns corresponding to various months, a * refers to significance by Kendalls τ and/or Spearman's Correlation

ρ_s, while for the overall trend tests, the results refer to the seasonal Kendall's τ, modified seasonal Kendall's τ ($M\tau$) and the homogeneity (H) and the trend tests (vB) of van Belle. The direction of the trend is determined from the sign of the estimate of the slope (Sen's estimator) which is listed in the last column of the table. Slopes with * indicate that the confidence interval for the slope does not include zero, which means that the slope is significantly different from zero. The significance level used is 5% in all cases.

Table 3.1 **Summary of the Results of the Tests for Trend at the South Saskatchewan River Location AK0001 for all Variables having Adequate Data for the Tests**

Water Quality Variable	Test for Time Trend in Individual Months												Test or Estimate based on Twelve Months				
	J	F	M	A	M	J	J	A	S	O	N	D	τ	$M\tau$	H	vB	Slope
TDS							*										
Cond.								*				*	*			*	1.833*
Temp.					*												
Turb.		*				*			*			*	*	*		*	0.767*
B(Diss)	*	*									*	*	*	*		*	0.0014*
TN										*							
pH				*								*	*			*	0.0111*
DO																	
NFR										*		*			*		
Na(Diss)		*					*						*				0.2000*
Mg(Diss)																	
P-Tot(Diss)	*		*	*									*	*		*	-0.0005*
P-Tot																	
SO_4(Diss)																	
Cl(Diss)	*	*	*	*		*	*	*	*	*	*	*	*	*		*	0.250*
α-BHC							*	*		*			*	*		*	-0.003*
K-(Diss)							*	*	*				*				0.0136*
Ca(Diss)												*	*	*		*	-0.2600*
Mn(Diss)													*			*	-0.0007*
Cu-Tot	*	*				*		*	*							*	
T.Coli		*		*											*		
F.Coli									*								
Flow				*		*		*									

An * under a month indicates that either one or both of Kendall's τ or Spearman's ρ_s were significant at the 5% level. Similarly an * under the test for all months indicates significance at the 5% level, and beside the slope estimator, it indicates that the 95% nonparametric confidence interval for the true slope does not include zero.

τ stands for seasonal Kendall's τ, $M\tau$ for the modified seasonal Kendall's τ, H and vB for the test of homogeneity and trend of van Belle and Hughes, and slope for the seasonal modification of Sen's slope esimator.

The number of parameters considered in the table is 23. These represent all the cases for which it is possible to perform the trend analysis. Other parameters were excluded from the analysis due in part to the non availability of sufficient data (high proportion of missing and\or censored values) or due to the occurrence of many changes in the analytical methods which are confounded with the time trend. Four parameters (DO, Mg[Diss], P-TOT, SO_4[Diss]) did not show any significant trends for either the monthly analysis or the overall analysis. Five parameters show trends for one or more months but no overall trend for the entire year. These are TDS, temperature, TN, F. Coli and Flow. By consulting the Table which gives the detailed results of the non-parametric analysis, it can be seen that the statistic τ and ρ_s are negative for the flow from April through September For three of these months (April, June and August), there is a statistically significant decreasing trend. Hence one can conclude that from the late spring to early fall the flow rate data showed a significant decrease. In the case of TDS, temperature, TN and F.Coli there is no consistent and systematic pattern for the signs or the magnitude of the trend statistics. So the conclusion for these variables is that the data do not support the hypothesis of change.

Conductivity data show significant changes for August and December, and the overall trend statistic is significant with a positive slope. However the modified τ is not significant. This may be due to the presence of serial correlation. More detailed discussion about this will be given later. Turbidity is showing a strong increasing trend. February, September, and December statistics are significant by τ and ρ_s and the trend is increasing. For June, τ is not significant but Spearman's ρ_s is significant and negative. The overall result shows that the seasonal τ, the modified τ, vB, and slope statistics are all significant, and the slope is positive which shows an increasing trend for this parameter.

For B(Diss) the monthly analysis showed that an increasing trend is present for November, December, January, and February. The overall analysis indicates the homogeneity (H is not significant) of the trend, which is significant by all the three trend test statistics, and a positive slope, indicating an increasing trend.

PH values showed an increasing trend for April and December. The homogeneity test is not significant and the seasonal τ, vB, and the slope tests are significant and showed an increase in pH values over the study period.

An increasing trend is found for NFR during October by Spearmans ρ_s and for December by both τ and ρ_s statistics. However, the overall test statistics were not significant and the reason for this may be due to the significance of the test for homogeneity.

February and July Na(Diss) values showed a significant increase and the same result was obtained on seasonal τ, vB, and the slope test statistics. For P-Tot(Diss) significant decreases have occurred in January, March and April. The same conclusion is reached for the overall data set, where all the test statistics showed a decreasing homogeneous trend. The strongest increasing significant trend was found for each month except March for Cl(Diss). The seasonal τ, modified τ, vB, and the slope are all significant. The monthly values indicate that [illegible]-BHC is decreasing for July, August and October. The seasonal τ, modified τ, vB and slope are decreasing for this water quality variable. For K(Diss) the results indicate an increasing trend for July, August, and September. Only seasonal τ and the slope statistics were significant for this parameter. For Ca(Diss), 10 months out of 12 have negative Kendall's τ statistics. This shows that a decreasing trend, although not significant except for December, is likely. The seasonal τ, modified τ, vB, and slope have supported this conclusion since all tests are significant. The same result is obtained for Mn-(Diss), where none of the monthly values were significant, but, seasonal τ was significant and the slope was negative and significant. The variable Cu-Tot shows significance for five months, but there appears to be too much variability in the magnitude and sign of the different slopes since the results for overall data are non-significant. For T-Coli, only two months, (February and April) are showing significant trends which are of opposite direction. The overall test statistics do not support the existence of trend, but indicate heterogeneity.

3.1.2 Elimination of the Flow Effects in the Nonparametric Tests

Partial Kendall's τ is used to eliminate the variation of the flow from the association between the water quality parameter and time. The distributional characteristics of partial τ are not known and hence it is not possible to compute the significance level associated with this test. The test statistic was computed only as a descriptive tool to see the impact of adjusting the τ values, by removing the effect of the flow. For example if the τ value is almost the same as the partial τ then the impact of the flow is not important. Table 3.2 gives the value of τ for each parameter, the value of τ for the association between the flow and the water quality parameter and the partial τ of the water quality parameter after removing the flow effects. All the values of τ for the association between TDS and flow are negative. From the Table it can be seen that there are very small differences between τ and the partial τ, for both statistics have low values and in most cases the same sign. Negative τ values are obtained showing negative association between the flow and conductance. The effect of this is clear on the partial τ; for example, the January partial τ is double that of τ and the June values are of the same magnitude but they are of opposite sign. There appear to be no major differences between τ and its partial version for temperature. There is a consistent positive association between turbidity and flow with May showing the highest association. With the elimination of the effects of flow, the partial τ are all positive with the May partial τ value about 3.5 times that of τ. The effects of eliminating the flow variation on τ appear to be small for B-(Diss), since very small differences occurred between the two test statistics. Negative association is obtained between TN and flow from late fall to early spring, while positive association between the two water quality parameters is found for the remaining months. There are no substantial differences between partial τ and τ. The same can be seen to hold for DO. February and August showed a major influence from the variations of the flow on ALK-Tot, where the February values indicate that

Table 3.2 Partial Kendall Tau and Pairwise Kendall Tau's for each Water Quality Variable , Flow and Time at location AK0001

MSS AK0001 (PARTIAL RANK CORRELATION)

TDS*	00201L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	TDS*	-.1238	.1435	-.2563	.1952	-.1601	.2110	.3667	.2689	.2204	.0167	-.0418	-.3264	.0208
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
TDS* VS	Q-DM(M3/S)	-.6545	-.6580	-.2402	-.3313	-.3094	-.5667	-.6484	-.4862	-.7080	-.6703	-.6481	-.4199	-.5135
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.4406	-.6924	-.2042	-.2801	-.3630	-.5405	-.5984	-.4305	-.7146	-.6713	-.6494	-.3865	-.5136
TDS*	AS CONSTANT	.0392	.3271	.1257	-.3839	-.3017	-.4110	-.1453	-.3016	.1468	.0595	.1542	.0580	-.0781
Q-DM(M3/S)	AS CONSTANT	-.0930	.3177	-.2233	.0655	-.2588	-.0603	.2037	.1016	.2574	.0523	.0687	-.2781	-.0223

COND(F)	02061F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	COND(F)	.1868	.3062	-.1538	.3000	-.0549	.1429	.2190	.5025	.1209	.0957	.1423	-.4135	.0955
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
COND(F) VS	Q-DM(M3/S)	-.7091	-.5649	-.4909	-.1395	-.3939	-.5385	-.6410	-.5883	-.5455	-.4774	-.4693	-.4416	-.5019
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.7422	-.6456	-.4766	-.0157	-.4185	-.5366	-.6174	-.4950	-.5436	-.4831	-.5001	-.4073	-.4983
COND(F)	AS CONSTANT	.3225	.4009	.1208	-.4002	-.2750	-.4480	-.2674	-.1273	.0132	.0899	.2416	.0052	-.0345
Q-DM(M3/S)	AS CONSTANT	.3578	.4731	-.0767	.2686	-.1631	-.1326	.0009	.3700	.1086	.1269	.2404	-.3755	.0655

TEMP(F)	02061F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	TEMP(F)	-.1794	-.1411	-.1302	.0848	.3967	.1277	-.1026	.0928	-.1008	-.0936	.1054	-.2069	-.0142
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
TEMP(F) VS	Q-DM(M3/S)	.0821	.3381	-.3091	-.2034	-.0670	.0000	.0569	-.0447	-.0778	.3391	-.0237	.0590	.2330
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.1004	.3654	-.2929	-.1856	.0274	.0650	.0234	-.0098	-.0839	.3439	-.0396	.1016	.2326
TEMP(F)	AS CONSTANT	.1077	.2036	.1477	-.4127	-.2229	-.4543	-.3371	-.3825	-.0633	.0691	.1478	.2038	-.0765
Q-DM(M3/S)	AS CONSTANT	-.1883	-.2030	-.0798	-.0007	.3926	.1430	-.0887	.0820	-.1056	-.1115	.1100	-.2222	.0040

TURB(F)	02073F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	TURB(F)	.4226	.5872	.2778	-.0909	.2501	-.1273	.0545	.3303	.6000	.4909	.3303	.7091	.2113
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
TURB(F) VS	Q-DM(M3/S)	.2000	.4001	.3333	.4226	.8571	.5556	.4444	.5000	.5556	.3333	.3409	.5000	.5611
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.1790	.3953	.3000	.4253	.9711	.5626	.4932	.7197	.7368	.3642	.0997	.5306	.5927
TURB(F)	AS CONSTANT	.0072	-.1253	.0959	-.4227	-.8925	-.6606	-.6080	-.6726	-.5837	-.1591	.1040	-.2747	-.2425
Q-DM(M3/S)	AS CONSTANT	.4145	.5846	.2350	.1052	.8936	.3657	.3445	.6537	.7595	.5093	.3164	.7237	.3089

B-DISS	05105D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	B-DISS	.4122	.4743	.0481	-.1583	.2617	-.1961	.2086	.0000	.1231	.3323	.4108	.4738	.1917
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
B-DISS VS	Q-DM(M3/S)	.1409	-.1671	.2561	.1734	.2746	.3366	-.2826	-.2989	-.3145	-.4565	.0577	-.3210	-.0766
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.1139	-.2690	.2518	.1193	.3567	.2835	-.2301	-.3238	-.3105	-.4959	-.0018	-.4734	-.0631
B-DISS	AS CONSTANT	.0364	.2548	.1731	-.4036	-.3261	-.4165	-.3003	-.4030	-.0172	.2201	.1326	.4064	-.0663
Q-DM(M3/S)	AS CONSTANT	.4051	.5103	.0022	-.0956	.3475	-.0529	.1246	-.1305	.1116	.3907	.4074	.5737	.3869

Table 3.2 Continued

NO3+NO2	07106L		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION															
TIME	VS	NO3+NO2	-.0766	-.0255	-.0673	-.2082	-.2294	-.1460	-.4134	-.0170	-.4088	.4103	-.1049	-.1546	-.0298
TIME	VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
NO3+NO2	VS	Q-DM(M3/S)	-.3512	-.2668	-.3484	.2011	.6974	.5282	.4430	.3564	.4331	.2245	-.1910	-.4838	-.0957
PARTIAL RANK CORRELATION															
TIME	AS	CONSTANT	-.3466	-.2659	-.3426	.0922	.6805	.5236	.3529	.3791	.4506	.2321	-.1690	-.4687	-.0983
NO3+NO2	AS	CONSTANT	.0686	.1403	.1668	-.3859	-.1015	-.4446	-.1930	-.4052	.1684	-.0689	.1131	.1296	-.0809
Q-DM(M3/S)	AS	CONSTANT	-.0479	.0129	-.0052	-.2292	-.0981	.1214	-.3115	.1393	-.4278	.4219	-.1619	-.0747	-.0376

TN*	07602L		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION															
TIME	VS	TN*	-.0574	-.0586	-.0957	-.2500	-.1423	-.1849	-.2092	-.0490	.1277	.5673	-.2333	-.2571	-.0385
TIME	VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
TN*	VS	Q-DM(M3/S)	-.2290	-.4000	-.0513	.3315	.4286	.6409	.3094	.0915	.4111	.1419	-.3000	-.3077	.0164
PARTIAL RANK CORRELATION															
TIME	AS	CONSTANT	-.2251	-.3964	-.0348	.2578	.4109	.6355	.2590	.0788	.4222	.1497	-.2768	-.2735	.0134
TN*	AS	CONSTANT	.0800	.1295	.1756	-.3689	-.1899	-.4402	-.2967	-.3822	-.1188	-.0583	.0803	.1171	-.0771
Q-DM(M3/S)	AS	CONSTANT	-.0378	-.0020	-.0880	-.1294	-.0493	.1516	-.1161	-.0151	.1651	.5687	-.2013	-.2136	-.0373

DO	08101F		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION															
TIME	VS	DO	.0481	.2427	-.0221	.0084	-.1925	-.1849	-.0513	-.3530	-.1447	.0966	.0288	-.1461	.0020
TIME	VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
DO	VS	Q-DM(M3/S)	.3512	.4675	-.0458	-.1000	-.1648	-.0663	.0226	.2333	.2135	-.2223	-.0915	.0155	-.1265
PARTIAL RANK CORRELATION															
TIME	AS	CONSTANT	.3486	.4510	-.0425	-.1063	-.2192	-.1705	.0055	.1130	.2081	-.2266	-.0967	.0440	-.1267
DO	AS	CONSTANT	.0792	.0332	.1787	-.4212	-.2712	-.4720	-.3400	-.3322	-.0249	.0561	.1478	.1912	-.0780
Q-DM(M3/S)	AS	CONSTANT	.0173	.2015	-.0141	-.0372	-.2402	-.2411	-.0464	-.2932	-.1363	.1067	.0427	-.1517	-.0080

ALK-TOT	10101L		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION															
TIME	VS	ALK-TOT	-.1914	.1849	-.0383	-.0096	-.2954	.0084	-.0936	-.2185	.2857	-.0522	-.1958	-.1925	-.0003
TIME	VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
ALK-TOT	VS	Q-DM(M3/S)	-.3206	-.6581	-.3742	.1039	.1000	-.3094	.4295	.4778	.0663	.2446	-.5487	-.1768	-.2593
PARTIAL RANK CORRELATION															
TIME	AS	CONSTANT	-.3102	-.7034	-.3737	.1100	.0343	-.3424	.4248	.4371	.0857	.2468	-.5363	-.1461	-.2601
ALK-TOT	AS	CONSTANT	.0318	.3562	.1782	-.4212	-.2117	-.4711	-.3342	-.3269	-.0773	.0472	.0452	.1582	-.0805
Q-DM(M3/S)	AS	CONSTANT	-.1720	.3734	.0317	.0377	-.2813	-.1543	.0621	-.0428	.2904	-.0622	-.1409	-.1649	-.0212

PH(F)	10301F		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION															
TIME	VS	PH(F)	-.0495	.2864	.1809	.4167	.1262	.2957	.1300	-.1864	.0433	.0999	.2206	.4459	.1025
TIME	VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
PH(F)	VS	Q-DM(M3/S)	.3439	.2073	.2501	-.4560	-.3637	-.2669	-.1023	-.0928	-.2778	-.0962	.1513	.2186	-.0066
PARTIAL RANK CORRELATION															
TIME	AS	CONSTANT	.3503	.1757	.2250	-.3406	-.3466	-.1567	-.0623	-.1813	-.2761	-.1000	.1237	.1539	.0013
PH(F)	AS	CONSTANT	.1151	.0881	.1410	-.2841	-.2000	-.4037	-.3319	-.4108	-.0447	.0430	.1152	.1023	-.0774
Q-DM(M3/S)	AS	CONSTANT	-.0864	.2654	.1428	.2789	.0467	.2040	.1017	-.2416	.0293	.1036	.2032	.4226	.1023

Table 3.2 Continued

NFR	10401L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	NFR	.4608	.3150	.2210	-.3333	-.2952	-.3000	-.2762	.2706	.2596	.4058	.1941	.5718	.0822
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
NFR VS	Q-DM(M3/S)	.4114	.2369	.4733	.4774	.7436	.7802	.6667	.3530	.6234	.1438	.3933	.6316	.5846
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.4180	.2045	.4520	.3944	.7266	.7574	.6337	.5143	.6613	.1428	.3762	.6511	.5948
NFR	AS CONSTANT	-.1219	.0730	.0872	-.3148	-.0176	-.3628	-.2185	-.5330	-.2871	-.0281	.0755	-.2740	-.1555
Q-DM(M3/S)	AS CONSTANT	.4665	.2925	.1570	-.1666	-.1900	.0923	-.0700	.4705	.3764	.4055	.1509	.5958	.1577

MA-DISS	11103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	MA-DISS	.2212	.4304	.0097	.0865	-.0840	.3000	.4167	.1941	.1008	.0251	.0168	-.1088	.0814
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
MA-DISS VS	Q-DM(M3/S)	-.5847	.3158	.2223	-.0779	-.3889	-.6923	-.7363	-.7000	-.5746	-.7514	-.4831	-.3978	-.4513
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.6227	.2851	.2242	-.0460	-.4211	-.6542	-.6954	-.6906	-.5728	-.7529	-.4908	-.3865	-.4478
MA-DISS	AS CONSTANT	.2783	.0070	.1819	-.4160	-.2870	-.3528	-.0551	-.3551	.0037	.0786	.1743	.1574	-.0460
Q-DM(M3/S)	AS CONSTANT	.3395	.4105	-.0315	.0595	-.1939	-.0185	.2607	-.1140	.0848	.0756	.1000	-.0382	.0521

MG-DISS	12102L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	MG-DISS	-.1619	-.0840	-.3254	.2871	-.1958	.1423	.2762	.1590	.1345	-.1167	-.0251	-.6161	-.0057
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
MG-DISS VS	Q-DM(M3/S)	-.4848	-.5195	-.3590	-.6065	-.2905	-.4420	-.6188	-.4725	-.6703	-.6703	-.5445	-.4023	-.5759
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.4784	-.5146	-.3231	-.5589	-.3518	-.4276	-.5807	-.4514	-.6700	-.6714	-.5468	-.3711	-.5781
MG-DISS	AS CONSTANT	.0144	.1154	.0710	-.3227	-.3066	-.4366	-.2249	-.3557	.0479	-.0614	.1560	-.0846	-.0990
Q-DM(M3/S)	AS CONSTANT	-.1353	-.0122	-.2842	.0449	-.2823	-.0710	.0885	-.0280	.1318	-.1275	.0645	-.6014	-.0618

P-TOT-DISS	15103D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	P-TOT-DISS	-.5290	-.3062	-.3536	-.3536	-.2135	-.2873	.1933	.0263	.0000	-.1956	-.2778	-.1117	-.1411
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
P-TOT-DISSVS	Q-DM(M3/S)	-.2444	-.1846	-.0303	.5038	.0938	.2290	-.1103	.2455	.1122	-.1271	.4496	.1846	.0743
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2323	-.1498	.0360	.4186	.0468	.1164	-.0482	.2770	.1123	-.1231	.5152	.2105	.0642
P-TOT-DISS	AS CONSTANT	-.0467	.0913	.1805	-.2992	-.2167	-.4127	-.3275	-.4036	-.0553	.0083	.3139	.2124	-.0680
Q-DM(M3/S)	AS CONSTANT	-.5249	-.2878	-.3541	-.1812	-.1981	-.2119	.1666	.1349	.0062	-.1931	-.3878	-.1515	-.1361

P-TOT	15406L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	P-TOT	-.2952	-.4500	-.1148	-.3431	-.2689	-.3361	-.1345	.2000	.3667	.2110	-.0251	.1757	-.0912
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
P-TOT VS	Q-DM(M3/S)	-.0909	-.3742	.2710	.4420	.7445	.7072	.5445	.1209	.3626	.2210	.3000	.2431	.4278
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0673	-.3511	.2984	.3495	.7282	.6610	.5353	.2187	.4121	.2191	.3070	.2174	.4238
P-TOT	AS CONSTANT	.0673	-.0319	.2202	-.3184	-.0475	-.3196	-.3218	-.4203	-.2167	-.0143	.1594	.1509	-.0429
Q-DM(M3/S)	AS CONSTANT	-.2894	-.4324	-.1726	-.1935	-.1495	-.0278	.0647	.2690	.4155	.2090	-.0725	.1368	-.0644

Table 3.2 Continued

SO4-DISS	16304L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	SO4-DISS	-.1827	.0084	.0781	.1723	-.0667	.3264	.3500	.0753	.0418	.0084	-.0753	-.2427	.0340
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
SO4-DISS VS	Q-DM(M3/S)	-.7385	-.4156	-.1723	-.3484	-.4725	-.6851	-.0681	-.6188	-.7514	-.7735	-.4916	-.3978	-.5994
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.7374	-.4210	-.1899	-.3088	-.5026	-.6376	-.8503	-.6408	-.7509	-.7742	-.4872	-.3698	-.5989
SO4-DISS	AS CONSTANT	-.0664	.1599	.1965	-.3898	-.2983	-.3296	-.0792	-.4315	-.0357	.0622	.1237	.1014	-.0716
Q-DM(M3/S)	AS CONSTANT	-.1721	.0748	.1125	.0305	-.2049	.0272	.1163	-.2244	.0008	.0535	-.0050	-.1868	-.0157

CL-DISS	17206L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	CL-DISS	.4785	.4937	.4519	.3981	.2373	.4538	.5607	.6444	.4435	.5439	.3500	.3066	.3065
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
CL-DISS VS	Q-DM(M3/S)	-.6260	.1299	.0129	-.2857	-.5282	-.7667	-.6409	-.6409	-.5304	-.3536	-.2778	-.2652	-.4447
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.7656	.0695	-.0777	-.1424	-.5009	-.7068	-.5779	-.5568	-.5654	-.4430	-.3542	-.3724	-.4436
CL-DISS	AS CONSTANT	.5701	.0902	.1947	-.3482	-.1278	-.1794	.0294	.0483	.2373	.2870	.2686	.3254	.0688
Q-DM(M3/S)	AS CONSTANT	.6894	.4843	.4571	.3198	.1397	.1891	.4744	.5615	.4895	.5943	.4104	.4604	.3045

24D	18500L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	24D	-.2265	-.1101	-.3431	.0815	.0842	.3091	-.2793	.1720	.2711	-.1410	-.0237	-.1458	-.0484
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
24D VS	Q-DM(M3/S)	-.0943	-.2363	-.0308	-.0801	-.4394	-.2992	.1545	-.3519	.0569	-.1826	.0814	.0938	-.0400
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0760	-.2243	.0333	-.0507	-.4331	-.1884	.0657	-.3142	.0746	-.1798	.0858	.1245	-.0440
24D	AS CONSTANT	.0717	.1200	.1799	-.4161	-.2165	-.3946	-.3136	-.3515	-.0732	.0074	.1469	.2035	-.0798
Q-DM(M3/S)	AS CONSTANT	-.2198	-.0796	-.3433	.0529	-.0197	.2046	-.2440	.0425	.2750	-.1373	-.0360	-.1670	-.0517

A-BHC	18075L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	A-BHC	-.5260	-.3359	.1144	-.1716	-.3611	-.0348	-.6329	-.6584	-.4026	-.6225	-.3098	-.5054	-.3525
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
A-BHC VS	Q-DM(M3/S)	-.1237	.0351	-.0290	.3546	.1763	-.2981	-.0329	.3740	-.4434	-.2335	-.3771	-.3958	-.0979
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0896	.0888	-.0507	.3161	.1024	-.3517	-.3414	.1738	-.5094	-.2724	-.3533	-.3555	-.1343
A-BHC	AS CONSTANT	.0306	.1633	.1841	-.3898	-.1821	-.4832	-.4671	-.1982	-.2846	-.1477	.0314	-.0167	-.1205
Q-DM(M3/S)	AS CONSTANT	-.5208	-.3446	.1216	-.0267	-.3345	-.1985	-.6854	-.6011	-.4771	-.6327	-.2786	-.4783	-.3630

K-DISS	19103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	K-DISS	.1774	.1277	.0394	-.3173	-.0085	.2070	.4658	.3698	.2394	-.0672	-.0171	-.3221	.0694
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
K-DISS VS	Q-DM(M3/S)	-.7628	-.2134	.2822	.4000	.0904	-.7249	-.6329	-.5889	-.5571	-.5445	-.5174	-.3484	-.3380
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.7948	-.2358	.2799	.3100	.0909	-.7232	-.5699	-.5208	-.5611	-.5438	-.5204	-.3099	-.3344
K-DISS	AS CONSTANT	.3555	.1746	.1756	-.3371	-.2310	-.4459	-.0670	-.2222	.0973	-.0043	.1585	.0841	-.0577
Q-DM(M3/S)	AS CONSTANT	.3832	.1634	-.0119	-.1796	.0128	-.1945	.3437	.1920	.2518	-.0588	.0681	-.2791	.0460

CA-DISS	20101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	CA-DISS	-.2952	-.0333	-.2297	-.2762	-.3193	-.0840	-.2833	-.2833	.1667	.0753	-.1423	-.5941	-.0765
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
CA-DISS VS	Q-DM(M3/S)	-.3333	-.5032	-.4774	.2821	.1326	-.0556	.5385	.6044	.4066	.2210	-.6481	-.2210	-.1830
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3221	-.5039	-.4556	.1904	.0639	-.1050	.4901	.5596	.4223	.2193	-.6407	-.1392	-.1901
CA-DISS	AS CONSTANT	-.0083	.1449	.0817	-.3709	-.2006	-.4575	-.2328	-.2793	-.1362	.0168	.0693	.0708	-.0935
Q-DM(M3/S)	AS CONSTANT	-.2822	.0445	-.1666	-.1812	-.2994	-.1224	-.1261	-.0692	.2072	.0698	-.0646	-.5770	-.0926

MN-DISS	25104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	MN-DISS	-.3891	-.2981	-.4410	-.4333	-.3892	-.3676	-.4166	-.3103	-.1451	-.4714	-.4243	-.3869	-.3538
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
MN-DISS VS	Q-DM(M3/S)	-.0778	-.0563	-.2333	-.3290	-.2292	-.2062	.0412	-.1182	-.4335	-.3858	.0000	-.4835	-.1636
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0463	-.0148	-.1746	-.6247	-.3559	-.4478	-.1178	-.2707	-.4468	-.4200	.0684	-.4539	-.2049
MN-DISS	AS CONSTANT	.0660	.1313	.0878	-.6609	-.3569	-.5784	-.3561	-.4463	-.1322	-.1830	.1595	-.0003	-.1469
Q-DM(M3/S)	AS CONSTANT	-.3848	-.2936	-.4172	-.6668	-.4668	-.5272	-.4285	-.3882	-.1877	-.4974	-.4288	-.3449	-.3726

FE-DISS	26104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	FE-DISS	-.6537	-.7076	-.7845	-.6537	-.7076	-.7076	-.7076	-.2557	-.2268	-.7621	-.3810	-.5443	-.5446
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
FE-DISS VS	Q-DM(M3/S)	-.1155	-.5345	-.3290	-.0658	-.4717	.2621	.2621	.0458	-.4454	-.4717	.2621	-.5766	-.1690
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0744	-.6206	-.3084	-.4955	-.9237	-.0900	.0316	-.0588	-.4709	-.6901	.3466	-.5762	-.2527
FE-DISS	AS CONSTANT	.0205	-.3957	-.1342	-.6130	-.9062	-.3888	-.2276	-.3861	-.1789	-.5719	.2738	-.1853	-.2053
Q-DM(M3/S)	AS CONSTANT	-.6502	-.7552	-.7809	-.7524	-.9517	-.6843	-.6815	-.2581	-.2811	-.8471	-.4387	-.5440	-.5675

CU-TOT	29005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	CU-TOT	.2166	-.5089	-.0282	-.3772	.2955	-.5394	-.3492	.5147	.4535	-.4869	.2626	.2268	-.0122
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
CU-TOT VS	Q-DM(M3/S)	.2582	-.9309	-.2928	.3904	.8365	.4286	.5401	.2062	.5641	.1690	-.0806	.2673	.3984
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.2453	-1.0077	-.2926	.2760	.9733	.2468	.4780	.5106	.6619	.2120	-.1241	.2351	.3986
CU-TOT	AS CONSTANT	.0371	-1.0556	.1792	-.3198	-.9131	-.2884	-.1928	-.5849	-.4223	.1339	.1722	.1345	-.0794
Q-DM(M3/S)	AS CONSTANT	.2008	-1.0423	.0259	-.2552	.9163	-.4293	-.2088	.6576	.5877	-.4999	.2780	.1868	.0205

ZN-TOT	30005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	ZN-TOT	-.5000	-.3662	.1091	-.1429	.2222	-.4667	-.3865	-.1798	-.0222	.1451	.0682	.2418	-.0858
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
ZN-TOT VS	Q-DM(M3/S)	-.7333	-.5521	.1380	.6000	.4286	.7857	.8154	.1091	.4286	.4115	.2224	.2887	.3929
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.7976	-.5429	.1211	.6012	.5058	.7288	.7885	.0440	.4281	.4113	.2153	.2554	.3889
ZN-TOT	AS CONSTANT	-.4684	-.0776	.1670	-.4221	-.3701	-.1533	-.0478	-.3733	-.0503	-.0296	.1329	.1259	-.0480
Q-DM(M3/S)	AS CONSTANT	-.6400	-.3488	.0866	.1502	.3653	-.2040	-.1997	-.1502	.0015	.1444	.0374	.1998	-.0603

Table 3.2 Continued

T.COLI	36001F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	T.COLI	-.1326	.3846	.0796	-.5528	-.4187	-.3226	-.1988	-.3149	.0484	.1141	.1502	-.0114	-.0527
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
T.COLI VS	Q-DM(M3/S)	.2000	-.0909	-.1086	.5002	.5118	.3484	.3048	.3519	-.3386	.2335	.1113	.2223	.2144
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.2148	-.1592	-.1253	.3545	.4698	.2403	.2573	.2634	-.3368	.2314	.0916	.2284	.2112
T.COLI	AS CONSTANT	.1209	.1924	.1098	-.1987	-.0211	-.3811	-.3001	-.3082	-.0410	.0065	.1300	.1942	-.0680
Q-DM(M3/S)	AS CONSTANT	-.1545	.4033	.1013	-.4362	-.3596	-.1979	-.1060	-.2078	.0317	.1095	.1364	-.0552	-.0370

F.COLI	36011F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	F.COLI	-.0100	.0586	-.0117	.0000	-.1883	-.2233	-.1363	-.0416	.4862	.2352	.2301	.2419	.0668
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
F.COLI VS	Q-DM(M3/S)	-.0318	-.1231	-.1281	.0000	.5241	.2194	.4364	.2013	.0143	-.0193	-.5230	.3461	.2030
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0310	-.1330	-.1281	.0000	.5029	.1364	.4187	.2009	.0470	-.0278	-.5776	.3157	.2093
F.COLI	AS CONSTANT	.0906	.1505	.1795	-.4199	-.1579	-.4222	-.3155	-.3844	-.0708	.0386	.3192	.1132	-.0934
Q-DM(M3/S)	AS CONSTANT	-.0072	.0774	.0115	.0000	-.0812	-.1430	.0147	.0396	.4878	.2360	.3624	.1923	.0846

PB-TOT	82002P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL'S TAU CORRELATION														
TIME VS	PB-TOT	-.5893	-.3869	-.4642	-.5893	-.2148	-.6128	-.8819	-.6460	-.3027	-.6885	-.3869	-.5804	-.5013
TIME VS	Q-DM(M3/S)	.0909	.1419	.1795	-.4199	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1445	.1868	-.0777
PB-TOT VS	Q-DM(M3/S)	-.0778	-.6198	.4666	.2646	.5641	.6944	.5361	.3223	.1543	.0529	.4835	-.4835	.2515
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0302	-.6188	.6311	.0235	.5414	.5929	.5318	.1048	.1447	.1043	.5911	-.4688	.2464
PB-TOT	AS CONSTANT	.0559	-.1352	.5056	-.3388	-.1359	-.0440	.3321	-.2441	-.0088	.0958	.4107	-.1316	.0578
Q-DM(M3/S)	AS CONSTANT	-.5864	-.3848	-.6298	-.5463	-.1054	-.4669	-.8811	-.5974	-.2982	-.6916	-.5273	-.5699	-.4993

removing the effect of flow led to increasing the positive association with time, while the magnitude of partial τ indicates that part of the trend during this month can be attributed to the flow. The sign of partial τ is the same as that of τ and the differences in the absolute values are not large. NFR and flow are positively correlated, and the impact of this correlation can be seen in the differences between τ and partial τ, especially for April through September. With the exception of February and March, Na(Diss) and flow show strong negative association especially for the summer months, this resulted in reducing the partial association in the summer months between Na and time with partial τ having opposite signs to that of τ for June and August. The same conclusion is obtained for dissolved Cl. Mg(Diss) and SO_4(Diss) showed the same pattern of negative association with the flow. This results in major changes in the values of τ after eliminating the effects of the flow for June, July and August. For α-BHC, the elimination of the variation in the flow results in very little change in the association of this parameter with time. The flow has major effects on the variation of K(Diss) for January, June and August. The remaining water quality parameters do not show major changes in the τ values as a result of eliminating the flow variations.

3.1.3 Regression Analysis

For each month and water quality variable, a stepwise forward polynomial regression model, of at most third degree, is considered for detecting time trend in the log values. The reason for the log transformation is its frequent use as a model for environmental data. This regression approach has the advantages of (1) including forms for the trend pattern more complicated than the linear form; (2) allowing us to find which parts of the year are likely to reflect the changes in the water quality conditions, and (3) reducing the impact of serial correlation on the performance of the test statistics, since measurements made one year apart are not likely to be autocorrelated. Table 3.3 gives the summary of the fitted regression models. For each water quality parameter, the results for the months where significant ($p<0.05$) regressions were found are included in the table. Also given are the estimates $\hat{\alpha}_0$, $\hat{\alpha}_1$, $\hat{\alpha}_2$, $\hat{\alpha}_3$, of the parameters α_0, α_1, α_2, α_3 of the model

$$\ln y_i = \alpha_0+\alpha_1 i+\alpha_2 i^2+\alpha_3 i^3+\varepsilon_i \ ,$$

where y_i is the observed value of the water quality variable in a specific month of the i-th year. Note that when no value is given in the table for $\hat{\alpha}_3$, then a quadratic equation was fitted to the data. Similarly the absence of $\hat{\alpha}_2$ and $\hat{\alpha}_3$ means that the linear model is adequate. The number of years, n, included in the monthly analysis and the coefficient of determination ,R^2, are given in the table.

TDS values indicate that only the month of September was subject to significant changes. A second degree polynomial is identified as a model for this data set with the $\hat{\alpha}_2$ having a negative sign. This indicates a non monotonic trend has occurred with a maximum value occurring within the data record. March, August, September and December are the months, where changes have been identified for conductivity. A linear decreasing trend is indicated for December, while a quadratic model is found adequate for August and September with negative $\hat{\alpha}_2$ values. March showed a much more complicated pattern of the changes since a polynomial of 3rd degree is used to fit the data in this month. For temperature, a linear increasing trend was obtained in May, while quadratic models were fitted to the June and October data. Linear trends were identified for turbidity in February and December, while quadratic and cubic equations were used for June and November. A consistent increasing linear trend was identified for B-Dissolved in February, November, and December. For TN and pH increasing trends were found in October and December respectively. Complicated patterns of

Table 3.3 **Summary of Regression Analysis by Variable and Month for South Saskatchewan River at Highway 41 (AK0001)**

Parameter	Month	Estimate of Regression Parameter α_0	α_1	α_2	α_3	n Years	100 R^2
TDS	Sept	5.0830	0.0619	-0.0032		16	36.4
Cond.	April	5.2040	0.2845	-0.0306	0.0001	14	54.2
	Aug.	5.5602	0.0643	-0.0026		16	68.3
	Sept.	5.3475	0.1284	-0.0062		16	45.6
	Dec.	6.2870	-0.0152			15	30.2
Temp.	May	2.2841	0.0326			16	25.5
	June	3.0528	-0.0746	0.0049		16	35.4
	Oct.	2.4180	-0.1832	0.0110		16	32.5
Turb.	Feb.	-0.3447	0.1985			11	51.6
	June	-0.7929	1.0355	-0.0516		11	66.2
	Nov.	-55.5088	16.0645	-1.4328	0.0413	11	91.8
	Dec.	-0.5801	0.1926			11	68.9
B(Diss)	Feb.	-3.2334	0.0713			16	37.9
	Nov.	-3.6281	0.0734			12	36.8
	Dec.	-3.1243	0.0610			16	45.7
TN	Oct.	-1.8248	0.0914			15	56.5
DO	April	2.1201	0.1694	-0.0223	0.0008	16	59.2
	July	2.5564	-0.0982	0.0048		16	39.2
	Aug.	2.2861	-0.0139			15	30.0
Alk-Tot	March	5.1275	-0.0845	0.0046		15	33.8
	July	4.5974	0.0324	-0.0021		16	33.6
	Aug.	4.9782	-0.1485	0.0195	-0.0007	16	33.4
	Sept.	4.9050	-0.1368	0.0203	-0.0009	16	37.6
pH	Dec.	2.0560	0.0040			16	29.0
Na(Diss)	Feb.	2.4209	0.0235			16	39.8
	March	1.7757	0.4044	-0.0456	0.0015	15	62.0
	Sept.	2.4059	0.1550	-0.0086		16	30.9
NFR	Jan.	0.7053	0.1212			14	37.3
	Nov.	-0.1054	1.1850	-0.1530	0.0058	16	39.4
	Dec.	-0.1244	0.1608			16	51.4
Mg(Diss)	Dec.	3.0972	-0.0178			16	51.0
P-Tot(Diss)	Jan.	-2.0882	-0.1053			13	41.0
	March	-1.9817	-0.1456			14	32.0
	April	-8.1933	2.1810	-0.2741	0.0097	14	66.0
	Sept.	-1.0421	-1.6178	0.1813	-0.0061	14	41.6

Table 3.3 Continued

Parameter	Month	Estimate of Regression Parameter α_0	α_1	α_2	α_3	n Years	100 R^2
P-Tot	Jan.	-3.2557	0.2167	-0.0146		15	51.0
	Nov.	-4.2527	0.2539	-0.0146		16	34.0
Cl(Diss)	Jan.	1.4802	0.0574			15	40.9
	Feb.	1.6222	0.0448			16	42.6
	April	1.5782	0.0383			15	29.0
	June	0.3708	0.0578			16	29.2
	July	0.4493	0.0844			16	51.5
	Aug.	0.8647	0.0748			16	60.6
	Sept.	0.3920	0.2665	-0.0122		16	65.3
	Oct.	1.3429	0.0516			16	50.8
	Nov.	1.5267	0.0361			16	27.2
α-BHC	July	-4.6960	-0.1161			14	56.5
	Aug.	-4.3129	-0.1550			13	65.8
	Oct.	-4.0745	-0.1426			13	54.3
K(Diss)	July	0.0418	0.0326			16	36.8
	Aug.	0.3471	0.0300			16	25.7
	Sept.	0.0441	0.1327	-0.0068		16	38.8
Ca(Diss)	Dec.	4.1683	-0.0172			16	59.6
Mn(Diss)	Dec.	-2.5177	-0.2079			10	46.7
Fe(Diss)	Jan.	-1.1925	-0.2126			10	75.4
	Feb.	-1.3704	-0.1873			11	71.4
	March	-0.9370	-0.2377			10	79.4
	April	-1.9471	-0.1502			09	62.1
	May	-1.2663	-0.2133			10	59.5
	June	-1.6930	-0.1695			10	67.2
	July	-2.0651	-0.1284			10	70.3
	Oct.	-1.5564	-0.1826			10	66.1
	Dec.	-1.6554	-0.1812			10	62.2
T. Coli	Feb.	8.1742	-2.3949	0.3352	-0.0124	14	49
Pb-Tot	Jan.	-4.1630	-0.1809			9	65.4
	Feb.	-4.4934	-0.1604			10	46.2
	April	-4.1624	-0.1814			9	52.0
	June	-4.1286	-0.1776			10	51.0
	Aug.	-4.3469	-0.1876			10	66.0
	Oct.	-4.2080	-0.2002			9	71.0
	Nov.	-4.6086	-0.1642			10	50.6
	Dec.	-4.3555	-0.1913			10	62.6
Flow	April	5.3189	-0.0519			14	32.0

The summary is given only for months in which a significant ($p<0.05$) relationship with time was found although the data for all months were analyzed.

changes have been found for DO, Alk(Tot), Na(Diss), P-Tot(Diss) where the model fitted varied by month. For NFR, increasing trends were obtained for January and December, while a cubic equation was fitted for the November data. In January and November quadratic equations were used to represent P-Tot, with negative α_2's. The most consistent trend patterns were obtained for dissolved Cl, where nine months showed significant increasing trends. Also negative decreasing trends were found for three months for α-BHC; one month for Ca(Diss) and Mn(Diss); nine months for Fe(Diss); eight months for PB-Tot, and for the month of April for the flow. Total Coliform showed variability only for February.

3.2 Other Locations

The analyses described for location AK0001 in Section 3.1 have also been done for the remaining 10 locations but no discussion will be given of the results. The summary tables of the nonparametric analysis are given as Tables 3.4 to 3.13. The detailed tables of the nonparametric analysis are given in Appendix A1 as Tables A1.2 to A1.11 and the tables for the partial Kendall's τ in Appendix A2 as Tables A2.2 to A2.11.

Table 3.4 **Summary of the Results of the Tests for Trend for North Saskatchewan River at Highway 3 (EF0001) for all Variables having Adequate Data for the Tests**

Water Quality Variable	Test for Time Trend in Individual Months												Test or Estimate based on Twelve Months				
	J	F	M	A	M	J	J	A	S	O	N	D	τ	Mτ	H	vB	Slope
TDS						*							*			*	-0.667
Cond.		*											*	*		*	1.818*
Temp.				*											*		
Turb.	*							*	*	*	*	*	*	*	*	*	0.625*
B(Diss)	*	*								*	*	*	*	*	*	*	0.002*
TN	*			*													
pH											*		*			*	0.010*
DO											*						
NFR										*			*			*	0.211*
Na(Diss)				*	*	*							*	*		*	-0.1556*
Mg(Diss)						*					*		*	*		*	-0.067*
P-Tot(Diss)	*	*		*											*		
P-Tot	*	*	*									*	*	*	*	*	0.0014*
SO_4(Diss)																	
Cl(Diss)	*		*						*	*	*	*	*	*		*	-0.2550*
α-BHC	*	*					*		*		*		*	*		*	-0.0002*
K(Diss)				*	*	*							*			*	-0.0112*
Ca(Diss)						*							*	*		*	-0.1528*
Mn(Diss)													*			*	-0.0010*
ALK-Tot		*															
Fe(Diss)																	
Cu-Tot		*				*	*			*		*	*	*		*	-0.0030*
Zn-Tot													*	*		*	-0.0002*
T. Coli												*	*			*	1.500*
F. Coli																	
Hg-Tot	*	*		*	*	*				*			*	*		*	
Pb-Tot	*	*			*	*	*		*	*	*	*	*	*		*	-0.0003*
Flow			*														

An * under a month indicates that either one or both of Kendall's τ or Spearman's ρ_s were significant at the 5% level. Similarly an * under the test for all months indicates significance at the 5% level, and beside the slope estimator, it indicates that the 95% nonparametric confidence interval for the true slope does not include zero.

τ stands for seasonal Kendall's τ, Mτ for the modified seasonal Kendall's τ, H and vB for the test of homogeneity and trend of van Belle and Hughes, and slope for the seasonal modification of Sen's slope esimator.

Table 3.5 **Summary of the Results of the Tests for Trend for Red Deer River near Bindloss(CK0001) for all Variables having Adequate Data for the Tests**

Water Quality Variable	Test for Time Trend in Individual Months												Test or Estimate based on Twelve Months				
	J	F	M	A	M	J	J	A	S	O	N	D	τ	Mτ	H	vB	Slope
TDS	*	*	*							*	*	*	*	*	*	*	-2.375*
Cond.	*											*			*		
Temp.																	
Turb.	*										*		*	*	*	*	0.453*
B(Diss)																	
TN	*			*									*	*		*	-0.009*
DO																	
ALK-Tot	*			*													
pH												*	*			*	0.007*
NFR	*			*	*												
Na(Diss)	*	*	*								*	*	*	*		*	-0.460*
Mg(Diss)	*	*								*	*	*	*	*		*	-0.238*
P-Tot(Diss)				*													
P-Tot				*	*										*		
α-BHC								*	*	*			*	*		*	-0.0001*
K(Diss)	*	*															
Ca(Diss)	*												*	*		*	-0.322*
Mn(Diss)							*		*			*	*			*	-0.001*
Fe(Diss)	*	*	*							*		*	*	*		*	-0.003*
Cu-Tot							*			*	*				*		
Zn-Tot							*						*	*		*	-0.0005*
T. Coli													*			*	-0.500*
F. Coli												*					
Hg-Tot	*			*						*	*	*	*	*		*	
Pb-Tot	*	*	*	*		*				*		*	*	*		*	-0.0004*
Flow	*	*	*								*	*	*		*	*	0.500*

An * under a month indicates that either one or both of Kendall's τ or Spearman's ρ_s were significant at the 5% level. Similarly an * under the test for all months indicates significance at the 5% level, and beside the slope estimator, it indicates that the 95% nonparametric confidence interval for the true slope does not include zero.

τ stands for seasonal Kendall's τ, Mτ for the modified seasonal Kendall's τ, H and vB for the test of homogeneity and trend of van Belle and Hughes, and slope for the seasonal modification of Sen's slope esimator.

Table 3.6 **Summary of the Results of the Tests for Trend for Saskatchewan River near Manitoba boundary (KH0001) for all Variables having Adequate Data for the Tests**

Water Quality Variable	Test for Time Trend in Individual Months												Test or Estimate based on Twelve Months				
	J	F	M	A	M	J	J	A	S	O	N	D	τ	$M\tau$	H	vB	Slope
TDS			*														
Cond.										*						*	
Temp.																	
Turb.		*															
B(Diss)			*														
TN	*	*			*	*	*		*			*	*	*		*	-0.016*
DO																	
ALK-Tot		*	*														
pH																	
NFR											*	*					
Na(Diss)																	
Mg(Diss)												*	*			*	-0.079*
P-Tot(Diss)			*														
Cl(Diss)			*										*			*	0.083*
α-BHC	*				*		*	*	*	*		*	*	*		*	-0.0003*
K(Diss)	*																
Ca(Diss)								*					*			*	-0.171*
Mn(Diss)													*			*	-0.0006*
Cu-Tot						*											
Zn-Tot			*			*	*	*							*		
T. Coli								*					*			*	-0.160*
Hg-Tot	*		*		*	*		*	*	*		*	*	*		*	
Flow													*			*	-7.774*

An * under a month indicates that either one or both of Kendall's τ or Spearman's ρ_s were significant at the 5% level. Similarly an * under the test for all months indicates significance at the 5% level, and beside the slope estimator, it indicates that the 95% nonparametric confidence interval for the true slope does not include zero.

τ stands for seasonal Kendall's τ, $M\tau$ for the modified seasonal Kendall's τ, H and vB for the test of homogeneity and trend of van Belle and Hughes, and slope for the seasonal modification of Sen's slope esimator.

Table 3.7 **Summary of the Results of the Tests for Trend for Churchill River at Wasawakasik Lake (EA0003) for all Variables having Adequate Data for the Tests**

Water Quality Variable	Test for Time Trend in Individual Months												Test or Estimate based on Twelve Months				
	J	F	M	A	M	J	J	A	S	O	N	D	τ	$M\tau$	H	vB	Slope
TDS					*											*	
Cond.													*			*	-1.182*
Temp.							*										
Turb.					*								*	*		*	0.200*
B(Diss)	*		*		*											*	
TN							*	*	*				*	*		*	-0.008*
DO		*				*							*	*		*	-0.050*
ALK-Tot					*												
pH																	
NFR																	
Na(Diss)																	
P-Tot(Diss)																	
Cl(Diss)																	
α-BHC		*			*			*	*				*	*		*	-0.002*
K(Diss)	*											*	*			*	-0.018*
Ca(Diss)													*			*	-0.083*
Mn(Diss)									*				*			*	-0.001*
Fe(Diss)		*	*				*	*	*	*			*	*		*	-0.003*
Cu-Tot						*							*	*		*	
Zn-Tot						*			*	*			*		*		-0.0001*
Pb-Tot	*		*		*	*	*	*	*	*			*	*		*	-0.0004*
Flow		*	*				*	*	*	*		*	*	*		*	-25.422*

An * under a month indicates that either one or both of Kendall's τ or Spearman's ρ_s were significant at the 5% level. Similarly an * under the test for all months indicates significance at the 5% level, and beside the slope estimator, it indicates that the 95% nonparametric confidence interval for the true slope does not include zero.

τ stands for seasonal Kendall's τ, $M\tau$ for the modified seasonal Kendall's τ, H and vB for the test of homogeneity and trend of van Belle and Hughes, and slope for the seasonal modification of Sen's slope esimator.

Table 3.8 **Summary of the Results of the Tests for Trend for Qu'Appelle River near Welby (JM0014) for all Variables having Adequate Data for the Tests**

Water Quality Variable	Test for Time Trend in Individual Months												Test or Estimate based on Twelve Months				
	J	F	M	A	M	J	J	A	S	O	N	D	τ	Mτ	H	vB	Slope
TDS																	
Cond.							*					*					
Temp.												*					
Turb.												*					
B(Diss)							*										
TN	*	*				*					*	*	*	*		*	-0.033*
DO											*						
ALK-Tot						*							*			*	-1.500*
pH																	
NFR																	
Na(Diss)																	
Mg(Diss)			*										*			*	-0.389*
P-Tot(Diss)				*	*						*	*	*	*		*	-0.006*
P-Tot							*			*	*	*	*	*		*	-0.006*
SO_4(Diss)										*							
Cl(Diss)																	
α-BHC				*	*		*	*	*			*	*	*		*	-0.0002*
K(Diss)	*		*		*	*	*			*	*	*	*	*		*	-0.264*
Ca(Diss)						*											
Mn(Diss)						*							*	*		*	0.009*
Fe(Diss)	*	*			*		*		*	*		*	*	*		*	
Cu-Tot				*									*			*	
Zn-Tot				*		*			*				*	*		*	-0.0003*
T. Coli																	
F. Coli							*	*					*	*		*	
Hg-Tot	*			*		*						*	*	*		*	
Pb-Tot	*		*	*		*	*		*	*	*	*	*	*		*	-0.0004*
Flow													*			*	-0.141*

An * under a month indicates that either one or both of Kendall's τ or Spearman's ρ_s were significant at the 5% level. Similarly an * under the test for all months indicates significance at the 5% level, and beside the slope estimator, it indicates that the 95% nonparametric confidence interval for the true slope does not include zero.

τ stands for seasonal Kendall's τ, Mτ for the modified seasonal Kendall's τ, H and vB for the test of homogeneity and trend of van Belle and Hughes, and slope for the seasonal modification of Sen's slope esimator.

Table 3.9 **Summary of the Results of the Tests for Trend for Red Deer River near Erwood (LC0001) for all Variables having Adequate Data for the Tests**

Water Quality Variable	Test for Time Trend in Individual Months												Test or Estimate based on Twelve Months				
	J	F	M	A	M	J	J	A	S	O	N	D	τ	Mτ	H	vB	Slope
TDS				*	*	*				*			*	*	*	*	-4.250*
Cond.				*		*	*						*		*	*	-4.800*
Temp.																	
Turb.																	
B(Diss)																	
TN	*	*	*		*	*			*	*	*	*	*	*		*	-0.029*
DO																	
ALK-Tot				*						*							
pH						*									*		
NFR				*									*			*	-0.096*
Na(Diss)				*						*			*			*	-0.141*
Mg(Diss)				*		*	*		*	*	*		*	*	*	*	-0.369*
P-Tot(Diss)			*		*							*	*	*		*	-0.0005*
P-Tot	*		*	*								*	*	*		*	-0.0005*
SO_4(Diss)				*	*		*			*	*		*	*	*	*	-2.236*
Cl(Diss)																	
α-BHC				*	*		*		*	*	*	*	*	*		*	-0.0001*
K(Diss)					*	*				*			*	*		*	-0.092*
Ca(Diss)					*	*	*		*	*			*	*	*	*	-0.9091*
Mn(Diss)		*											*			*	-0.001*
Fe(Diss)	*	*	*										*	*		*	-0.003*
Cu-Tot				*		*				*			*			*	
Zn-Tot									*	*			*	*		*	-0.0002*
T. Coli	*	*		*	*							*	*	*		*	-2.000*
F. Coli	*	*	*		*							*	*	*		*	
Hg-Tot	*		*		*	*	*	*	*	*	*	*	*	*		*	
Pb-Tot	*			*	*	*	*	*	*	*	*	*	*	*		*	-0.0004*
Flow																	

An * under a month indicates that either one or both of Kendall's τ or Spearman's ρ_s were significant at the 5% level. Similarly an * under the test for all months indicates significance at the 5% level, and beside the slope estimator, it indicates that the 95% nonparametric confidence interval for the true slope does not include zero.

τ stands for seasonal Kendall's τ, Mτ for the modified seasonal Kendall's τ, H and vB for the test of homogeneity and trend of van Belle and Hughes, and slope for the seasonal modification of Sen's slope esimator.

Table 3.10 **Summary of the Results of the Tests for Trend for Battle River near Unwin (FE0001) for all Variables having Adequate Data for the Tests**

Water Quality Variable	Test for Time Trend in Individual Months												Test or Estimate based on Twelve Months				
	J	F	M	A	M	J	J	A	S	O	N	D	τ	$M\tau$	H	vB	Slope
TDS																	
Cond.																	
Temp.					*												
Turb.		*									*	*	*	*		*	0.500*
B(Diss)																	
TN		*										*	*	*		*	-0.023*
DO																	
ALK-Tot				*													
pH	*				*								*			*	0.013*
NFR																	
Na(Diss)																	
Mg(Diss)																	
P-Tot(Diss)		*															
P-Tot	*																
SO_4(Diss)													*				-1.692
Cl(Diss)				*	*												
α-BHC	*	*			*			*		*		*	*	*		*	-0.0003*
K(Diss)		*		*											*		
Ca(Diss)				*		*									*		
Mn(Diss)	*																
Fe(Diss)									*			*	*	*		*	-0.002*
Cu-Tot												*	*			*	-0.0002*
Zn-Tot			*		*				*								
T. Coli													*			*	-0.800*
F. Coli																	
Hg-Tot		*		*		*				*		*	*	*		*	
Pb-Tot	*	*				*		*		*	*	*	*	*		*	-0.0003*
Flow																	

An * under a month indicates that either one or both of Kendall's τ or Spearman's ρ_s were significant at the 5% level. Similarly an * under the test for all months indicates significance at the 5% level, and beside the slope estimator, it indicates that the 95% nonparametric confidence interval for the true slope does not include zero.

τ stands for seasonal Kendall's τ, $M\tau$ for the modified seasonal Kendall's τ, H and vB for the test of homogeneity and trend of van Belle and Hughes, and slope for the seasonal modification of Sen's slope esimator.

Table 3.11 **Summary of the Results of the Tests for Trend Beaver River at Beaver Crossing (AD0001) for all Variables having Adequate Data for the Tests**

Water Quality Variable	Test for Time Trend in Individual Months												Test or Estimate based on Twelve Months				
	J	F	M	A	M	J	J	A	S	O	N	D	τ	M^-	H	vB	Slope
TDS																	
Cond.													*	*		*	3.250*
Temp.												*					
Turb.		*															
B(Diss)				*							*						
TN	*	*		*	*	*	*	*		*	*	*	*	*		*	–0.037*
DO	*	*															
ALK-Tot	*												*	*		*	2.333*
pH				*													
NFR													*	*		*	–0.200*
Na(Diss)	*		*								*		*	*		*	0.276*
Mg(Diss)						*							*			*	–0.113*
P-Tot(Diss)				*													
P-Tot	*			*												*	
SO_4(Diss)				*	*	*							*	*	*	*	–0.360*
Cl(Diss)				*				*		*			*			*	0.050*
α-BHC		*			*		*	*	*	*	*		*	*		*	–0.0001*
K(Diss)	*	*	*	*	*	*	*			*	*	*	*	*		*	–0.150*
Ca(Diss)										*			*			*	0.200*
Mn(Diss)				*												*	
Fe(Diss)																	
Cu-Tot	*										*		*			*	
Zn-Tot									*							*	
T. Coli		*		*				*	*	*	*	*	*	*		*	–4.000*
F. Coli				*													
Hg-Tot	*	*					*	*	*	*		*	*	*		*	
Pb-Tot	*		*	*	*	*	*	*	*	*	*	*	*	*		*	–0.0004*
Flow	*	*						*	*	*	*	*	*	*		*	–0.680*

An * under a month indicates that either one or both of Kendall's τ or Spearman's ρ_s were significant at the 5% level. Similarly an * under the test for all months indicates significance at the 5% level, and beside the slope estimator, it indicates that the 95% nonparametric confidence interval for the true slope does not include zero.

τ stands for seasonal Kendall's τ, M^- for the modified seasonal Kendall's τ, H and vB for the test of homogeneity and trend of van Belle and Hughes, and slope for the seasonal modification of Sen's slope esimator.

Table 3.12 **Summary of the Results of the Tests for Trend for the Assiniboine River at Kamsack (MD0002) for all Variables having Adequate Data for the Tests**

Water Quality Variable	Test for Time Trend in Individual Months												Test or Estimate based on Twelve Months				
	J	F	M	A	M	J	J	A	S	O	N	D	τ	Mτ	H	vB	Slope
TDS				*													
Cond.				*									*				5.0*
Temp.										*							
Turb.							*										
B(Diss)										*			*				0.001*
TN	*		*	*			*	*	*		*	*	*	*		*	-0.043*
DO																	
ALK-Tot				*					*				*	*		*	1.667*
pH	*	*															
NFR				*						*			*	*		*	-0.286*
Na(Diss)				*		*											
Mg(Diss)				*													
P-Tot(Diss)				*								*					
P-Tot												*					
SO_4(Diss)				*													
Cl(Diss)					*	*											
α-BHC	*				*			*	*	*	*	*	*	*		*	-0.0003*
K(Diss)																	
Ca(Diss)				*													
Mn(Diss)																	
Fe(Diss)							*		*		*		*	*		*	-0.001*
Cu-Tot										*			*			*	
Zn-Tot			*			*											
T. Coli	*				*	*					*	*	*	*		*	-6.333*
F. Coli									*				*			*	-1.232*
Pb-Tot				*	*		*	*	*	*	*		*	*		*	-0.0004*
Flow									*				*			*	-0.021*

An * under a month indicates that either one or both of Kendall's τ or Spearman's ρ_s were significant at the 5% level. Similarly an * under the test for all months indicates significance at the 5% level, and beside the slope estimator, it indicates that the 95% nonparametric confidence interval for the true slope does not include zero.

τ stands for seasonal Kendall's τ, Mτ for the modified seasonal Kendall's τ, H and vB for the test of homogeneity and trend of van Belle and Hughes, and slope for the seasonal modification of Sen's slope esimator.

Table 3.13 **Summary of the Results of the Tests for Trend for the Carrot River near Turnberry (KH0002) for all Variables having Adequate Data for the Tests**

Water Quality Variable	Test for Time Trend in Individual Months												Test or Estimate based on Twelve Months				
	J	F	M	A	M	J	J	A	S	O	N	D	τ	Mτ	H	vB	Slope
TDS			*														
Cond.			*														
Temp.																	
Turb.					*												
B(Diss)																	
TN	*				*	*		*	*	*	*	*	*	*		*	-0.030*
DO	*			*													
ALK-Tot																	
pH												*					
NFR								*					*	*		*	-0.323*
Na(Diss)																	
P-Tot(Diss)																	
SO_4(Diss)	*	*	*				*					*	*	*		*	-2.050*
Cl(Diss)																	
α-BHC						*	*		*		*	*	*	*		*	-0.0001*
K(Diss)					*												
Ca(Diss)		*											*	*		*	-0.763*
Mn(Diss)									*								
Fe(Diss)																	
Cu-Tot																	
Zn-Tot		*		*			*						*	*		*	-0.0003*
T. Coli					*			*					*	*		*	-0.817*
F. Coli				*	*												
Hg-Tot		*							*	*			*	*		*	
Pb-Tot	*	*	*	*	*	*	*		*	*	*	*	*	*		*	-0.0003*
Flow										*							

An * under a month indicates that either one or both of Kendall's τ or Spearman's ρ_s were significant at the 5% level. Similarly an * under the test for all months indicates significance at the 5% level, and beside the slope estimator, it indicates that the 95% nonparametric confidence interval for the true slope does not include zero.

τ stands for seasonal Kendall's τ, Mτ for the modified seasonal Kendall's τ, H and vB for the test of homogeneity and trend of van Belle and Hughes, and slope for the seasonal modification of Sen's slope esimator.

4. EXAMPLES OF RESULTS SUMMARIZED BY VARIABLE

4.1 Total Dissolved Solids

4.1.1 South Saskatchewan River.(AK0001)

Table 4.1 gives the concentration of total dissolved solids (TDS) at station 41 in the South Saskatchewan River (SSR) for each month and for the years 1974 through 1990. Missing concentrations are represented in the table by the value -99.99. Only 15 values were missing out of 204, and 13 of these are located at the beginning and the end of the data series. This makes the issue of dealing with serial correlation quite simple. Figure 4.1 displays the time plots of these data, with Fig. 1a showing the data for the first six months (Jan.-June), while the remaining data are displayed in Fig. 1b. These plots indicate a strong seasonality in the TDS values with the winter months (Dec.,Jan., and Feb.) showing the highest level and the summer months showing the lowest level. Furthermore, the plots clearly indicate that higher values of TDS are associated with a higher level of variability. As a consequence of this observation, parametric analysis may require removing this association by data transformation such as taking the logs prior to the performance of the statistical analysis. In all of the plots, it appears that no trend pattern exists for TDS.

To test for trend, Kendall's τ and Spearman's rank correlation coefficient ρ_s were computed for each month (Table 4.2) Only TDS values in July showed a significant ($p < 0.05$) increasing trend. To supplement these two tests, the slope of the linear regression and its 95% confidence limits were computed using the

Table 4.1 Concentration of Total Dissolved Solids at South Saskatchewan River at Highway 41 (AK0001).

TDS* '00201L'

Year	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
1974	-99.99	-99.99	-99.99	223	188	149	158	185	179	238	232	289
1975	282	260	222	218	251	148	149	213	187	219	216	286
1976	246	231	245	209	167	188	157	167	179	230	238	285
1977	293	219	204	232	280	220	211	200	201	256	252	310
1978	278	247	210	264	180	156	161	179	170	213	244	250
1979	266	247	210	225	206	149	189	205	236	262	252	308
1980	287	272	229	209	189	159	226	213	210	224	208	250
1981	217	235	205	261	172	169	171	170	193	290	226	263
1982	364	285	231	232	217	169	165	210	227	247	204	256
1983	233	216	204	225	199	165	180	214	227	268	297	343
1984	183	221	204	227	242	237	163	220	243	283	305	262
1985	-99.99	258	192	-99.99	153	158	210	231	208	240	215	270
1986	229	231	194	210	184	166	178	211	227	228	320	254
1987	236	216	210	225	167	209	198	186	177	217	236	252
1988	350	302	194	241	195	159	188	211	232	281	220	272
1989	273	298	260	236	184	163	202	203	178	206	197	219
1990	254	261	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99

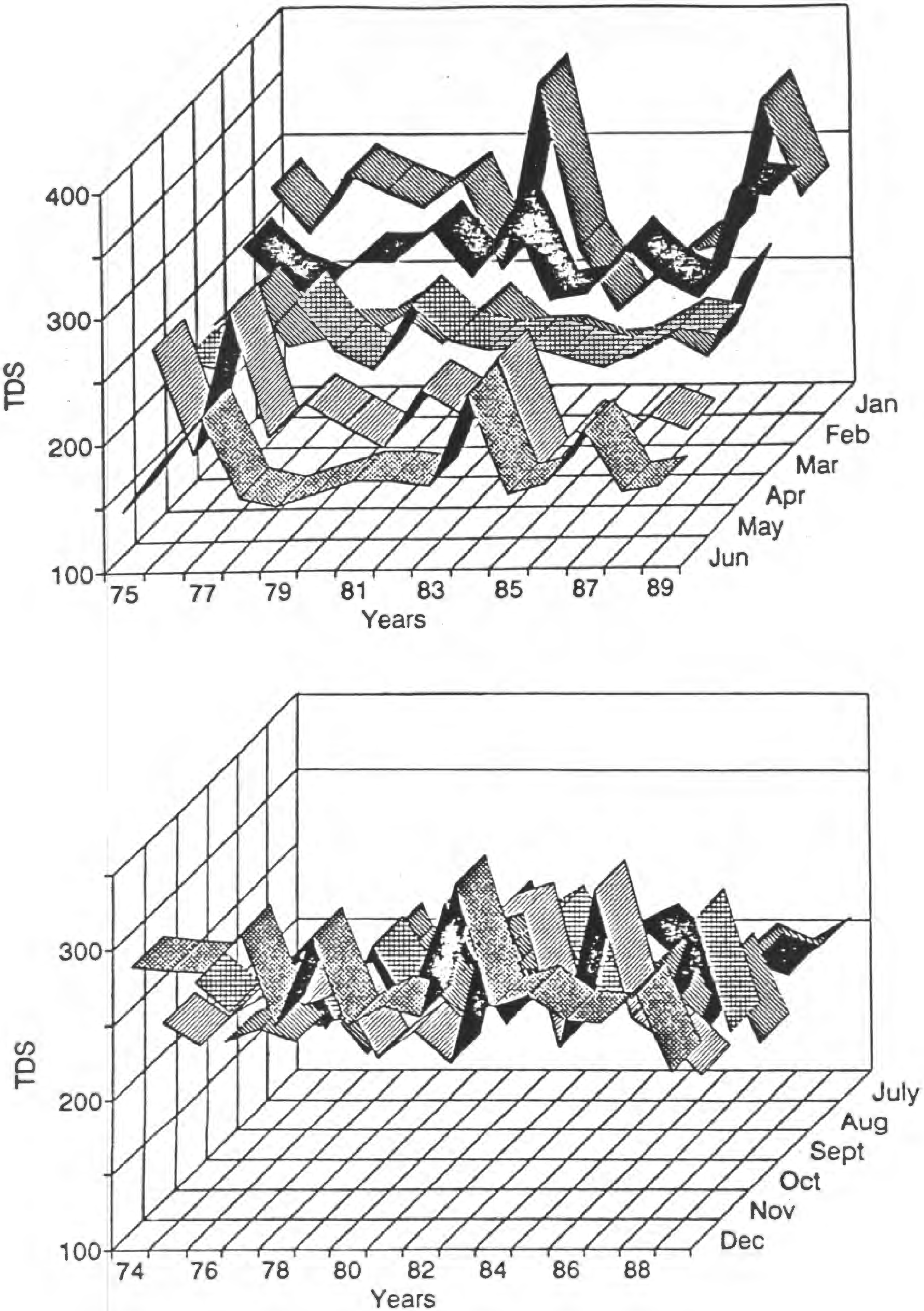


Fig. 4.1 Concentration of Total Dissolved Solids at Location AK0001.

Table 4.2 Trend Test Statistics for TDS at Location AK0001 on the South Saskatchewan River

Month	τ	Spearman	Sen Slope and Confidence limits		Slope[1] Log Scale	Median Logscale
		ρ_t	$L\beta$	β	$U\beta$	
Jan	-0.643	-.214	-7.164	-1.556	6.076	-.033
Feb	0.768	.239	-2.751	1.452	5.280	.007
March	-1.300	-.303	-3.000	-1.500	0.850	-.044
April	0.977	.322	-1.466	0.400	2.106	.002
May	-0.092	-.257	-6.387	-1.500	2.158	-.011
June	1.129	.299	-1.070	0.967	2.617	.055
July	1.981*	.488	-0.008	2.514	4.064	.012
Aug	1.444	.356	-0.402	1.697	4.000	.088
Sept	1.176	.242	-0.769	2.568	5.523	.009
Oct	0.090	.027	-3.537	0.313	4.238	.002
Nov	-0.225	-.117	-3.541	-0.520	7.280	.001
Dec	-1.758	-.476	-5.232	-2.840	0.445	-.011

[1] From linear regression.

* Indicates significance at the 5% level.

nonparametric method of Sen. Significant trends are indicated when the slope's confidence interval does not include zero. When the slope is significant and negative e.g. the lower and upper 95% confidence limits are negative, it indicates a decreasing trend, and conversly, an increasing trend. The slopes are also given in Table 4.2. In each month the confidence limits include the zero value for the slope, which indicates the absence of significant trends. Given also in the table are the estimates of the monthly slopes using linear regression on the log scale. The results indicate that none of the slopes were significant. One of the advantages of using regression is the ability to test for a more complicated trend pattern by fitting higher order polynomials to the data. Using this approach, the values for the month of September were found to be fitted by a quadratic equation. For the two months (July and September) where a change was indicated, the values of TDS are plotted in Figure 4.2. These plots indicate a slight increase in July and the possibility of a maximum in TDS values for September around 1984. The latter observation explains the reason for the quadratic equation for September.

To see if serial correlation has an effect, the seasonality is removed from the data series by subtracting the median of a specific month from the values within the same month. These median values are given in Table 4.2. Serial correlation coefficients up to lag 24 are given in Table 4.3. Only the autocorrelation at lag 1 was significant. This indicates that observations within the same month are uncorrelated and, under the normality assumption, statistically independent. Hence the results obtained from the use of Kendall's τ, the Spearman's correlation and Sen's confidence limits for the monthly data are valid. The effects of the auto- correlation need to be considered when we

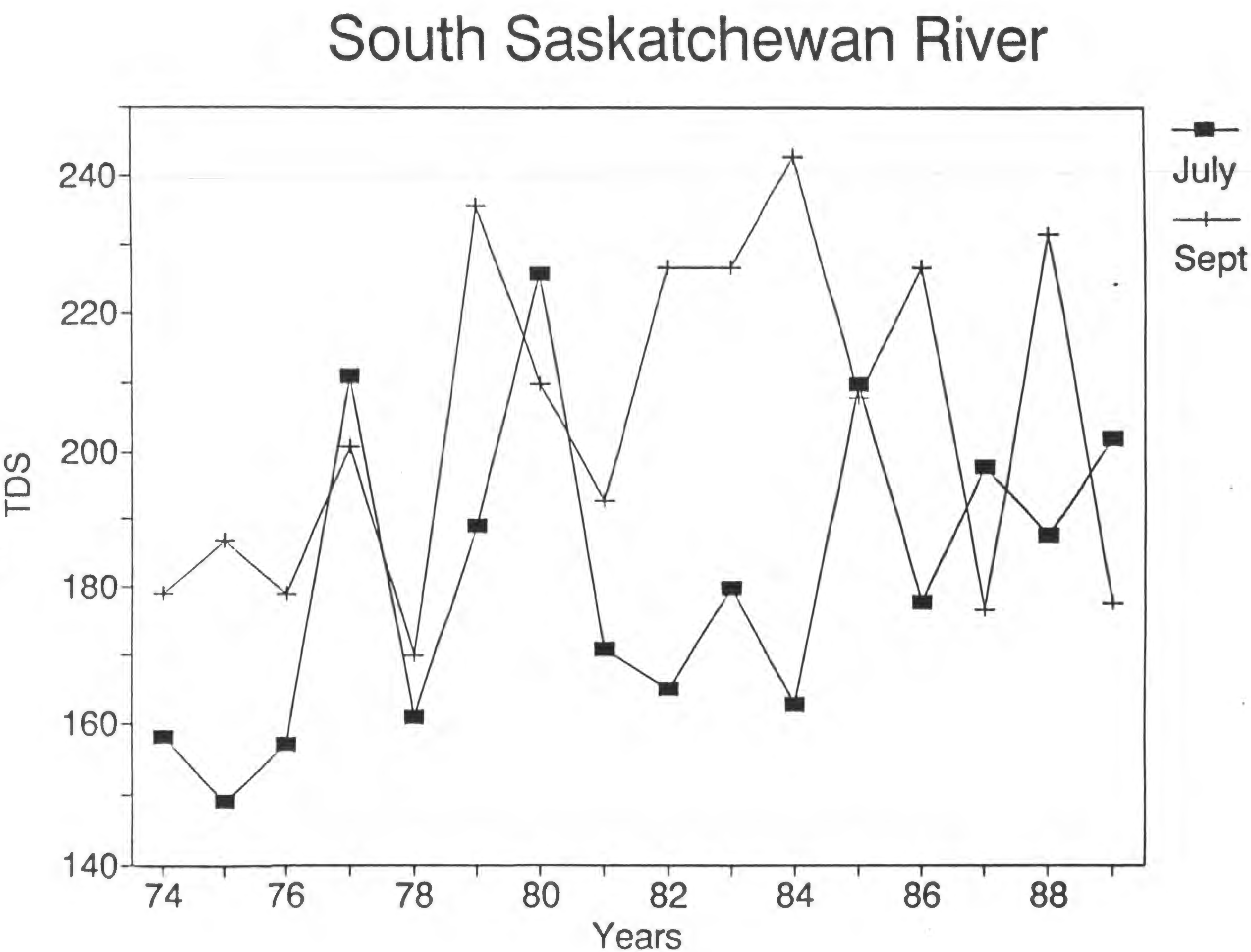


Fig. 4.2 Concentration of Total Dissolved Solids versus Year at Location AK0001 for the Months showing a Significant Change over Time.

Table 4.3 Autocorrelation Function for Deseasonalized TDS at Location AK0001.

Lag	1	2	3	4	5	6	7	8	9	10	11	12
Auto Correlation	.24*	.03	.04	-.05	-.05	.00	.02	-.11	-.08	-.08	-.04	-.02
Lag	13	14	15	16	17	18	19	20	21	22	23	24
Auto Correlation	-.10	-.10	-.04	-.14	-.16	-.11	-.11	-.06	.00	-.01	.00	.12

* Significant at the 5% level

combine the seasonal test statistics. This effect can be seen by considering the model :

$$Y_{ij}=\alpha_j+\beta i+\varepsilon_{ij},$$

where Y_{ij} represents the TDS concentration in the jth month and the ith year, α_j is the effect due to the jth month and β is the slope of the regression line within each month. This model is based on the fact that the results of the previous analysis do not support the presence of significant trends in the data. We are interested in testing

$$H : \beta = 0.$$

Ordinary Linear regression (ignoring serial correlation) gives $\hat{\beta}=0.002827$ as an estimate of β. This estimate is unbiased regardless of the presence or absence of serial correlation. The estimate of the standard deviation of $\hat{\beta}$ is $S(\hat{\beta}) = 0.513$, which is computed under the assumption that the serial correlations of all lags are equal to zero. On the other hand, taking the 1st lag auto correlation (ρ_1=0.24) into account yields, as an estimate for the standard deviation of $\hat{\beta}$, the value 0.626. This increases the standard deviation of the slope by about 20% of that obtained under the assumption of independence. The consequence of the increase in $S(\hat{\beta})$ with ρ_1, is that a trend will be detected more frequently when positive serial correlation is present. For TDS the conclusion is the same (no trend is supported by the data) at the 5% significance level, whether serial correlation is accounted for or not.

Similar results are obtained if instead of using linear regression models to make inferences about the form and magnitude of the trend, the non parametric seasonal Kendall τ is computed under the assumption of independence or its modification ($M\tau$) for the presence of serial correlation is computed. The values of seasonal τ and the modified seasonal τ are 0.839 and 0.694. As expected, the value of $M\tau$ is smaller than that of τ (because serial correlation is positive) and both values are not significant. The computation of a single trend test for the entire data set is based on the assumption that the direction and magnitude of the monthly trend test statistics do not vary significantly. This assumption can be tested using van Belle's factorization of the variability in the monthly

τ into two asymptotically independent statistics, one for testing the homogeneity of the monthly values and the other for testing the assumption that the common value of the trend test (assuming homogeneity) is not different from zero. The computed values for the homogeneity and the trend statistics are 15.6827 and 0.6338, respectively, and neither is significant. Both tests indicate that TDS in the South Saskatchewan River station (AK0001) did not show any significant change during the period of study. Thus the variability in the data is due to seasonality.

4.1.2 Other Locations, Nonparametric Tests

Table 4.4 summarizes the results of performing various non-parametric tests (Kendall τ, Spearman's ρ_s and Sen's confidence limits) on the TDS data for all sampling stations. In the Table, four rows are used to present a summary for each sampling station. The first row indicates the presence of a significant trend and which test showed significance at the 5 percent level. For example, only the month of June for North Saskatchewan River station EF0001 showed significance by both the Kendall's τ and Spearman's ρ_s statistics. The symbols K and S indicate significance by τ and ρ_s respectively. The remaining three rows give Sen's estimate of the slope and the upper and lower confidence limits. These are useful for showing the direction and magnitude of the trend and also these confidence limits could be used to test for the existance of significant trends.

The monthly values of Kendall's τ and/or Spearman's ρ_s (Tables A1.2 to A1.11 in the Appendix) show a significant decreasing trend in TDS for June at the Saskatchewan River station (EF0001); in January, February, March, October, November, and December for the Red Deer River near Bindloss station (CK0001); in May for the Churchill River station (EA0003); in March for the Carrot River station (KH0002); and in May, June, and October for the Red Deer River near Erwood station (LC0001). An increasing trend in TDS values was supported for station KH0001 in March; in July for the South Saskatchewan River station (AK0001); in April for MD0002 and April for LC0001. A homogeneous decreasing trend was observed only for station EF0001. Significant but monthly non-homogeneous decreasing trends were found for stations CK0001 and LC0001. For station CK0001 all the slopes with the exception of April were negative. The significant trends occur for October, November, December, January, February, and March with the high slopes occurring in the winter and the low occurring in the fall months. Figure 4.3 gives the plots of TDS concentration for station CK0001 for the months with significant trends. For station LC0001, the non homogeneity of the trend can be clearly seen from the values of Sen's slope estimates or from Fig. 4.4, where an increasing trend is apparent for April and strong decreasing trends for May, June, and October.

Table 4.4 Summary of Nonparametric Tests by Month for Total Dissolved Solids at the Eleven Locations.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test						K,S						
	Low. Sen C.I.	-2.103	-1.737	-3.985	-3.357	-3.843	-4.100	-3.530	-2.202	-2.228	-2.150	-2.740	-2.052
	Sen Slope	0.056	1.199	-2.146	0.175	-1.775	-2.536	-0.833	-0.709	-0.667	-0.368	-0.955	0.464
	Upp. Sen C.I.	2.400	4.433	1.740	4.000	0.707	-0.082	1.452	1.276	0.523	1.319	1.472	3.385
CK0001													
	Trend Test	K,S	K,S	K,S							K,S	K	K,S
	Low. Sen C.I.	-16.190	-12.841	-19.101	-0.667	-5.811	-5.454	-3.532	-2.560	-3.284	-5.435	-9.602	-14.458
	Sen Slope	-10.662	-6.873	-9.539	4.200	0.818	-1.336	-0.354	-0.125	-0.917	-2.500	-5.478	-9.057
	Upp. Sen C.I.	-3.358	-0.252	-0.620	7.520	6.472	3.090	2.106	2.149	1.921	0.000	-0.128	-3.586
KH0001													
	Trend Test			K									
	Low. Sen C.I.	-2.970	-0.353	0.000	-4.776	-2.117	-4.851	-3.290	-3.249	-2.588	-3.396	-5.783	-3.600
	Sen Slope	-0.788	1.385	1.692	4.500	0.381	-1.222	-1.333	-1.111	-0.429	-0.167	-0.250	-1.550
	Upp. Sen C.I.	1.450	3.647	3.000	12.538	2.900	1.688	1.000	1.410	2.171	3.107	4.891	0.355
EA0003													
	Trend Test												
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table 4.4 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test												
	Low. Sen C.I.	-7.900	-10.800	-51.900	-31.400	-5.000	-6.000	-22.600	-11.000	-10.800	-11.700	-11.900	-5.600
	Sen Slope	-2.200	-3.600	-14.800	-7.400	9.000	9.400	-4.300	-2.400	2.000	-5.200	-2.900	6.000
	Upp. Sen C.I.	16.800	14.800	9.600	16.300	19.200	24.500	10.700	6.500	10.700	4.600	9.500	22.400
LC0001													
	Trend Test				K,S	K,S	K,S				K,S		
	Low. Sen C.I.	-15.806	-13.017	-16.208	1.431	-10.570	-13.080	-9.365	-10.069	-8.361	-10.899	-13.785	-19.883
	Sen Slope	-0.333	2.067	-3.000	6.643	-3.167	-8.250	-5.313	-3.111	-4.762	-7.222	-6.133	-5.469
	Upp. Sen C.I.	11.256	13.027	19.228	12.133	-0.426	-3.548	1.076	3.289	1.606	-3.966	2.471	6.295
FE0001													
	Trend Test												
	Low. Sen C.I.	-18.800	-8.600	-24.500	-4.700	-16.900	-17.500	-25.500	-23.700	-31.500	-20.500	-18.600	-27.700
	Sen Slope	4.000	7.500	-8.100	10.900	-2.200	-5.500	-7.900	-7.500	-7.900	-2.600	-0.300	4.800
	Upp. Sen C.I.	25.300	26.600	24.700	25.500	16.100	7.000	4.600	7.900	19.300	20.300	25.900	38.800
AD0001													
	Trend Test												
	Low. Sen C.I.	-2.814	-3.162	-3.300	-6.260	-5.199	-7.230	-5.166	-2.383	-1.407	-2.430	-3.216	-4.192
	Sen Slope	2.400	2.367	2.231	-0.300	0.546	-1.375	-0.100	0.792	3.646	2.017	1.750	2.000
	Upp. Sen C.I.	9.752	6.961	8.661	2.342	5.816	2.125	4.737	4.000	7.298	6.266	10.327	9.942

Table 4.4 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test							K					
	Low. Sen C.I.	-7.164	-2.751	-3.000	-1.466	-6.387	-1.070	-0.008	-0.402	-0.769	-3.537	-3.541	-5.232
	Sen Slope	-1.556	1.452	-1.500	0.400	-1.500	0.967	2.514	1.697	2.568	0.313	-0.520	-2.840
	Upp. Sen C.I.	6.076	5.280	0.850	2.106	2.158	2.617	4.064	4.000	5.523	4.238	7.280	0.445
MD0002													
	Trend Test				K,S								
	Low. Sen C.I.	-20.300	-15.400	-33.900	3.200	-11.700	-1.500	-12.200	-14.100	-20.400	-10.600	-20.900	-14.600
	Sen Slope	0.800	-0.600	-2.900	12.100	1.000	2.400	-2.200	-3.300	-4.800	14.300	-5.500	-1.000
	Upp. Sen C.I.	19.400	12.700	17.300	23.300	14.400	11.400	9.700	9.600	6.900	54.400	6.900	7.600
KH0002													
	Trend Test			K									
	Low. Sen C.I.	-75.000	-88.700	-68.700	-9.800	-15.800	-11.500	-25.000	-14.600	-29.700	-18.300	-41.000	-48.800
	Sen Slope	-21.000	-29.300	-38.000	-0.400	-2.200	4.000	-4.400	6.000	-3.000	1.000	9.000	-9.000
	Upp. Sen C.I.	18.500	19.900	-4.000	7.900	10.700	22.000	11.500	30.500	16.000	13.800	59.900	25.600
JM0001													
	Trend Test												
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

4.2 Conductance

4.2.1 South Saskatchewan River

Table 4.5 gives the monthly medians of conductance for the data collected from Station AK0001. A clear seasonal cycle is indicated, which shows high values for the winter months (December, January, and February) and low values for May, June, July, and August and then high values for October and November.

The data were then transformed and the log monthly medians were subtracted from the corresponding yearly monthly values to remove seasonality. The autocorrelation function was then computed for the residual series. These are given in Table 4.6, which shows that the correlation coefficients of lag 1 and 2 are positive and significant. The effects of this will be further considered when combining the results from various months. The important fact to be observed is that at higher lags serial correlation seems to be absent. This makes the results of the monthly nonparametric analysis valid. A significant increasing trend was found for August and a decreasing trend for December. This can be seen in Table 4.7 for station AK0001. The Sen slope estimates are positive for nine months and negative for three (March, May and December). The seasonal τ is significant and the homogeneity test is not significant. The overall Sen's slope estimate and its confidence limits are all positive. This means that if no serial correlation is present, the data indicates a significant increase in conductance. The modified seasonal τ shows on the other hand that this trend is not significant. Furthermore regression analysis, performed in the same manner as that used for TDS, gave a slope of 0.0029, which is significant ($p<.05$) if serial correlation is ignored. However, the inclusion of serial correlation in the analysis led to nonsignificant results, in agreement with the nonparametric tests.

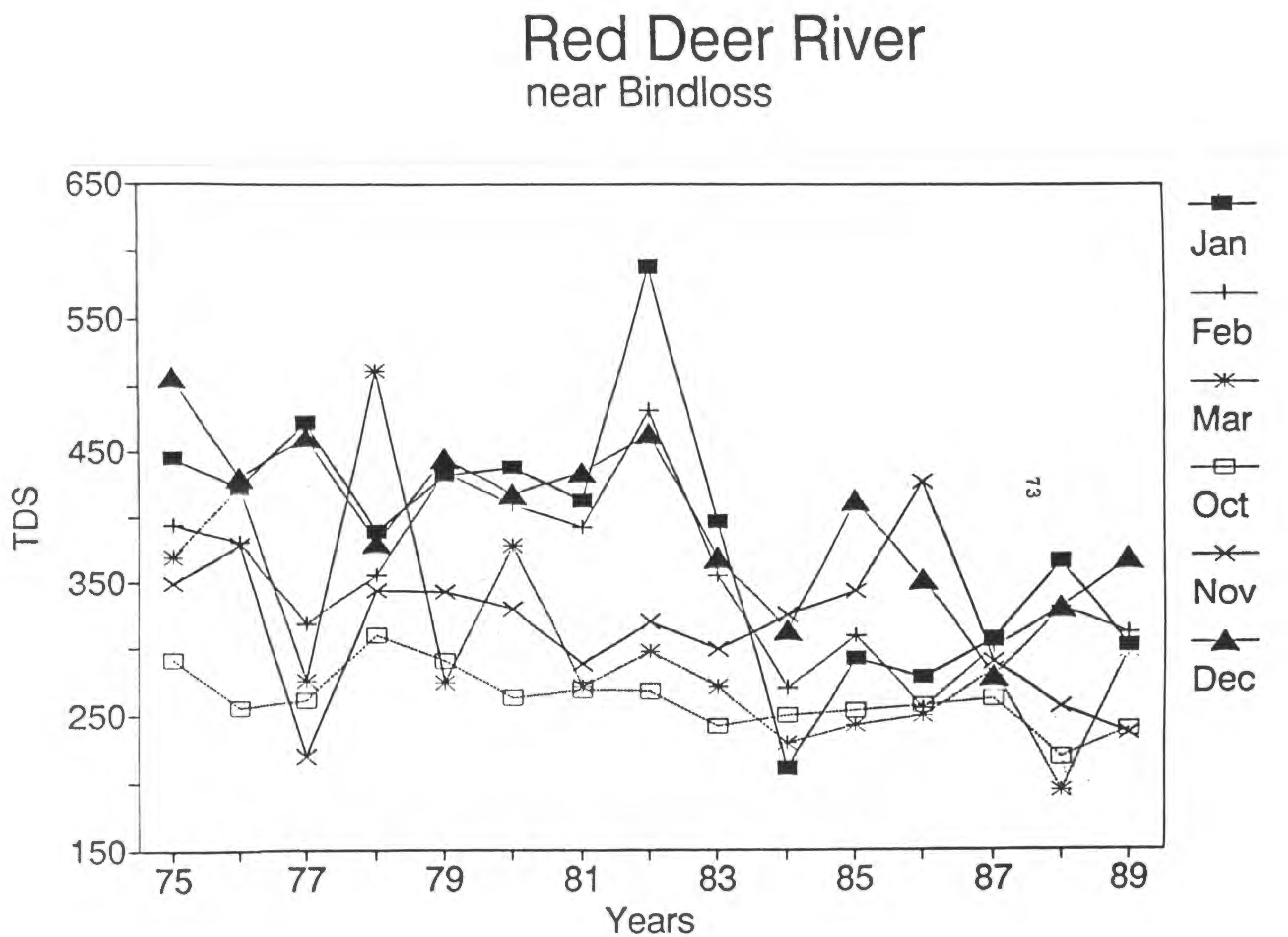


Fig. 4.3 Concentration of Total Dissolved Solids versus Year at Location CK0001 for the Months showing a Significant Change over Time.

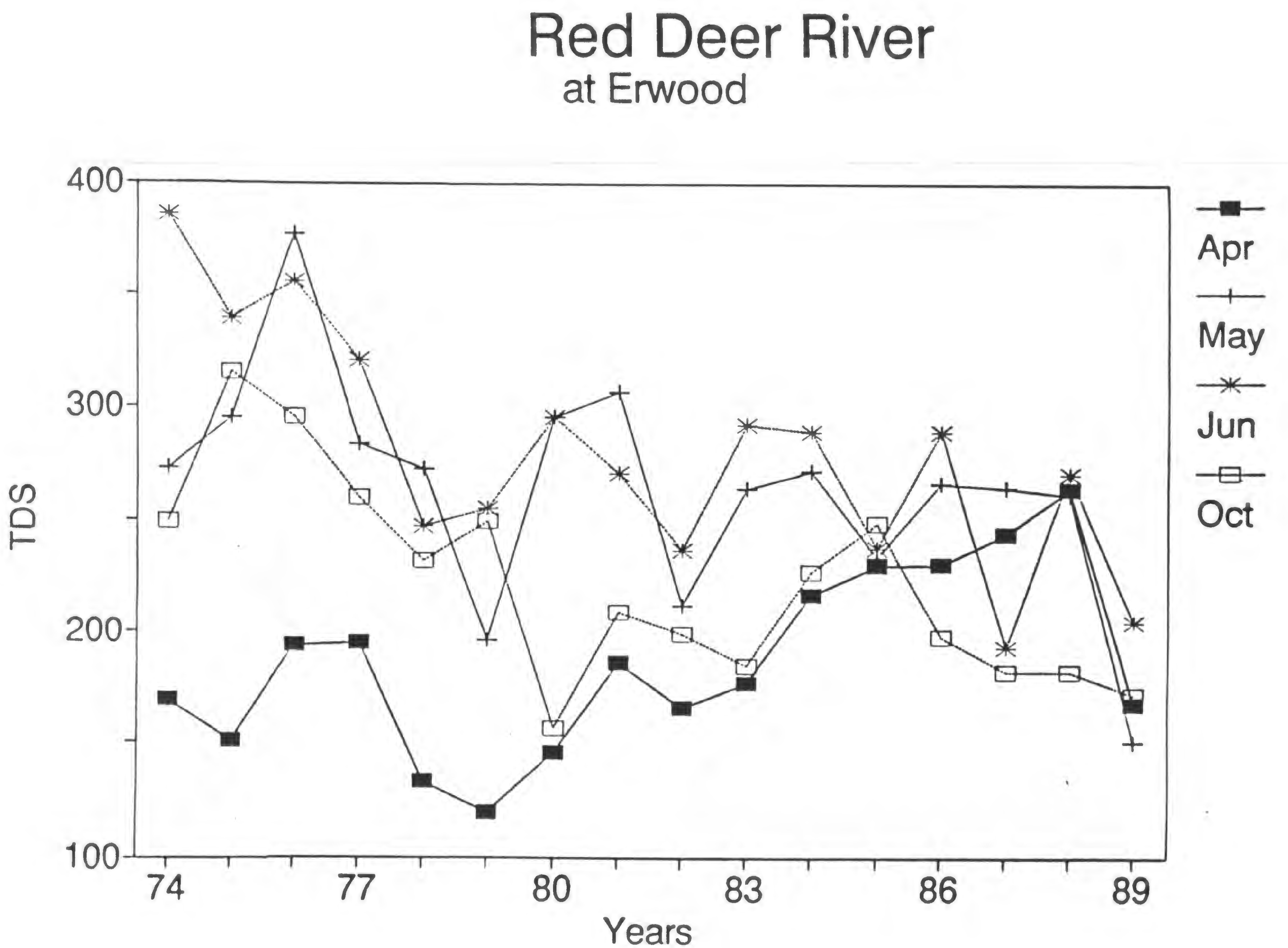


Fig. 4.4 Concentration of Total Dissolved Solids versus Year at Location LC0001 for the Months showing a Significant Change over Time.

Table 4.5 Median Monthly Conductance Values at Station AK0001

Month	Jan.	Feb.	March	April	May	Jun.	July	Aug.
Median	424	425	389	400	360	305	337	337
		Sept.	Oct.	Nov.	Dec.			
		360	450	412	474			

Table 4.6 Autocorrelation Function for Conductance at Station AK0001

Lag	1	2	3	4	5	6	7	8
Auto Correlation	.32*	.17*	.10	.08	.06	.06	-.04	-.13
	9	10	11	12	13	14	15	16
	-.14	-.11	-.03	-.12	-.10	-.10	-.06	-.09
	17	18	19	20	21	22	23	24
	-.10	-.14	-.10	-.10	-.09	.02	-.10	.01

Table 4.7 Summary of Nonparametric Tests by Month for Conductance at the Eleven Locations.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test		K,S										
	Low. Sen C.I.	-1.766	0.426	-6.146	-3.390	-0.394	-8.000	-6.408	-3.651	-3.027	-2.866	-3.090	-5.066
	Sen Slope	2.708	5.550	2.664	1.667	3.714	0.046	0.200	0.900	0.400	2.333	-0.200	-0.056
	Upp. Sen C.I.	8.847	8.692	12.000	10.866	7.760	6.497	5.289	6.701	6.600	6.625	3.781	5.618
CK0001													
	Trend Test	K,S											K,S
	Low. Sen C.I.	-37.854	-24.922	-30.044	-0.300	-7.504	-7.259	-9.289	-1.547	-2.475	-4.032	-16.357	-28.276
	Sen Slope	-19.000	-5.400	-19.080	8.333	1.133	0.000	1.398	2.857	3.333	1.600	-5.000	-20.763
	Upp. Sen C.I.	-3.280	7.854	10.891	15.000	13.729	9.792	11.344	7.605	9.951	7.937	5.945	-10.033
KH0001													
	Trend Test										K,S		
	Low. Sen C.I.	-3.296	-1.750	-0.596	-22.747	-1.714	-10.302	-4.620	-4.000	-5.146	0.624	-8.899	-4.516
	Sen Slope	0.119	3.000	2.250	5.846	2.606	-3.167	0.600	0.000	-0.091	3.667	1.450	-0.286
	Upp. Sen C.I.	3.851	7.776	4.837	19.514	6.655	1.314	5.011	4.872	4.044	7.559	5.320	3.237
EA0003													
	Trend Test												
	Low. Sen C.I.	-6.267	-4.064	-7.362	–	-4.469	-3.334	-4.404	-5.768	-4.084	-3.378	–	-9.760
	Sen Slope	-4.000	-0.607	-3.000	–	-1.500	-1.236	-0.875	-1.429	-1.139	1.333	–	-2.556
	Upp. Sen C.I.	1.858	0.684	1.017	–	0.209	1.714	1.958	2.391	2.638	3.180	–	2.793

Table 4.7 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test							S					K,S
	Low. Sen C.I.	-8.000	-10.800	-55.500	-40.000	-19.900	-4.600	-20.900	-11.100	-11.100	-4.300	-13.300	3.700
	Sen Slope	10.000	4.300	-13.000	-10.200	-2.400	15.700	-7.700	1.700	5.000	5.000	5.300	19.700
	Upp. Sen C.I.	35.200	34.700	25.500	37.900	28.200	30.400	2.500	21.700	19.500	14.800	20.900	45.300
LC0001													
	Trend Test				K,S		K,S	K,S					
	Low. Sen C.I.	-8.400	-12.600	-20.000	3.700	-15.000	-26.900	-18.600	-29.100	-19.100	-13.600	-18.300	-46.700
	Sen Slope	5.200	3.200	-5.400	11.800	-2.700	-14.300	-10.400	-5.100	-6.800	-5.900	-5.600	-12.600
	Upp. Sen C.I.	16.700	19.700	18.100	21.700	3.600	-5.700	-1.300	5.400	2.600	1.400	4.500	10.600
FE0001													
	Trend Test												
	Low. Sen C.I.	-14.900	-10.800	-35.100	-14.100	-13.100	-18.500	-32.700	-34.400	-51.000	-33.700	-25.400	-53.800
	Sen Slope	22.900	21.200	-0.600	9.500	17.200	-2.900	-2.300	-6.500	-10.600	21.100	-3.900	-6.500
	Upp. Sen C.I.	58.900	48.900	52.500	36.400	40.100	16.200	10.000	21.600	34.800	54.800	29.800	42.200
AD0001													
	Trend Test												
	Low. Sen C.I.	-2.813	-2.600	-6.515	-5.258	-7.022	-10.426	-14.390	-3.710	-5.920	-14.519	-4.485	-3.655
	Sen Slope	7.444	5.600	2.250	1.800	4.231	-3.333	-1.857	4.000	8.417	4.399	5.500	9.375
	Upp. Sen C.I.	20.581	14.652	14.839	6.689	16.103	5.167	6.849	10.787	18.893	21.376	19.215	17.114

Table 4.7 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test								K,S				K,S
	Low. Sen C.I.	-6.568	-3.139	-11.417	-1.225	-10.800	-3.150	-3.409	1.170	-5.401	-8.120	-6.203	-14.366
	Sen Slope	3.000	6.800	-4.381	3.500	-1.333	0.667	4.444	6.500	1.500	3.500	2.812	-7.333
	Upp. Sen C.I.	14.632	19.013	10.101	9.640	8.134	7.434	9.656	10.766	15.034	11.056	13.610	-0.149
MD0002													
	Trend Test				K,S								
	Low. Sen C.I.	-18.900	-17.800	-16.300	7.200	-3.900	-5.600	-25.400	-21.700	-36.100	-16.500	-14.300	-16.700
	Sen Slope	1.700	3.000	4.000	19.000	10.500	5.100	-3.700	-4.700	-4.500	38.300	1.200	3.000
	Upp. Sen C.I.	19.000	25.400	18.700	29.000	26.400	20.200	14.200	17.300	14.800	81.400	16.500	17.000
KH0002													
	Trend Test			K									
	Low. Sen C.I.	-94.600	-137.60	-123.50	-11.600	-24.200	-18.400	-42.300	-31.300	-41.400	-29.100	-60.900	-76.400
	Sen Slope	0.200	-21.000	-89.200	0.000	4.200	6.300	-3.400	12.300	7.100	10.200	16.200	-15.300
	Upp. Sen C.I.	70.900	111.000	0.900	13.700	26.100	54.300	36.600	60.700	40.000	42.300	102.400	62.700
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

4.2.2 Other Locations, Nonparametric Tests

Table 4.7 summarizes the results for all sampling stations and the detailed results are in Tables A1.2 to A1.11. The monthly analysis showed a significant increasing trend in February for Conductance at Station EF0001 and also a significant overall increasing trend by seasonal τ. The same conclusion is seen using van Belle's trend statistics and Sen's confidence limits. For station CK0001, negative trends were found for December and January, but because of a very high heterogeneity in the magnitude of the slope from month to month, the seasonal τ and the Sen's slope estimates indicated a non-significant overall trend. However, the heterogeneity test is highly significant and thus interpretation of the results should be restricted to monthly statistics. Station KH0001's data indicate a significant positive trend for October by both the monthly τ and Spearman's r_s. The overall seasonal τ did not show significance, but the van Belle's trend test and the Sen's confidence limits indicate that this station was subject to an increasing trend. None of the monthly τ and/or r_s values showed a change for station EA0003. However the individual monthly slope estimates were negative, except for October, although not significant. This gives support for the result the the seasonal τ was significant and negative, which indicates a decreasing trend for this station. A positive significant seasonal τ was found for MD0002, but a non significant seasonal τ was observed for station MD0002. The data for station LC0001 showed an increasing trend for April and negative trend for June and July. The seasonal τ showed negative trend and the trend is homogeneous. The pattern of the trend can be easily shown from Fig 4.5 for station LC0001. Finally station AD0001 showed an increasing overall trend by seasonal τ and Sen's confidence interval for the slope.

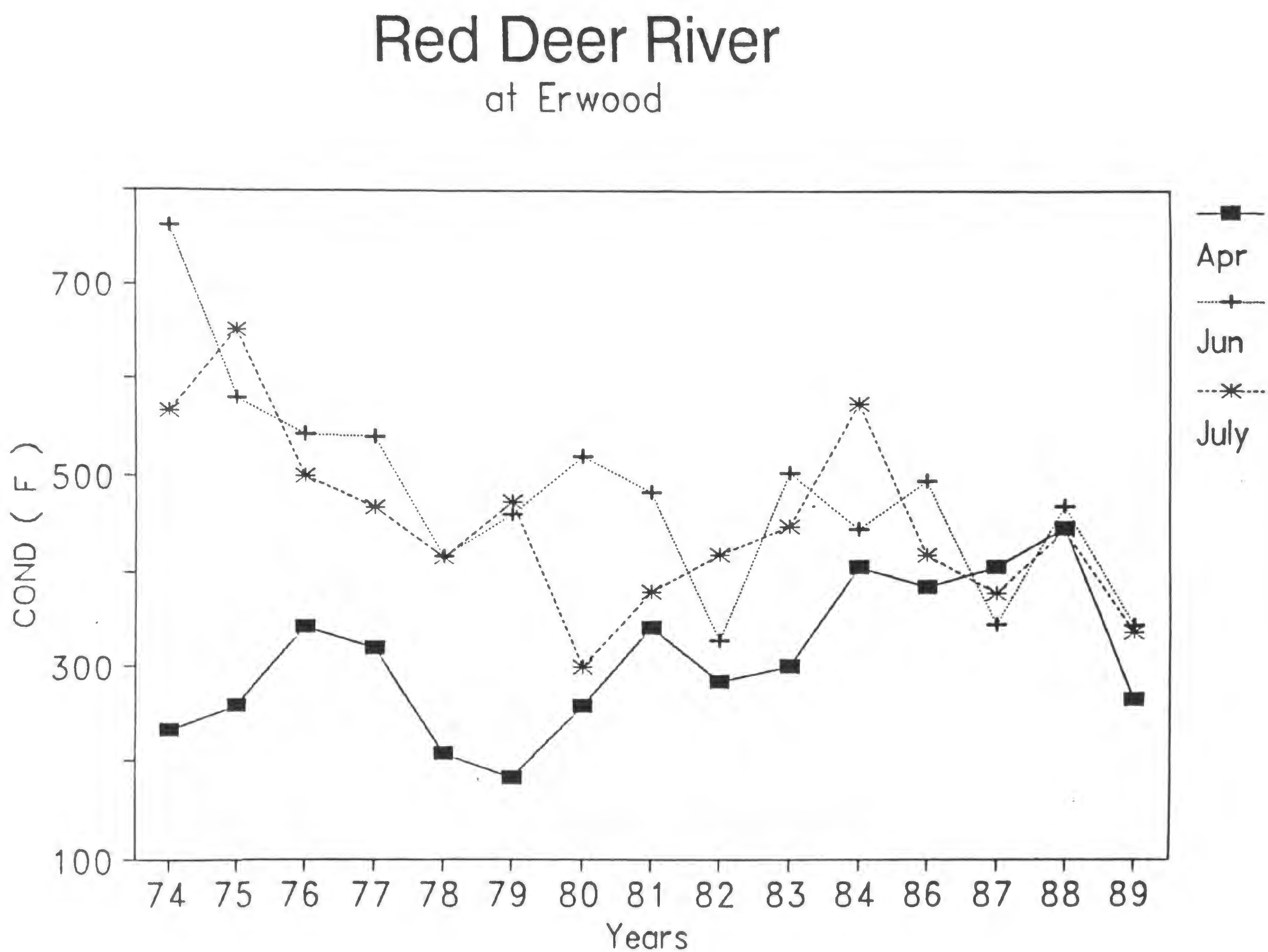


Fig. 4.5 Conductance versus Year at Location LC0001 for the Months showing a Significant Change over Time.

4.3 Turbidity

4.3.1 South Saskatchewan River (AK0001)

Evidence of an increasing trend in the measured turbidity values can be seen from the significant values of τ and Spearman's statistic for February, September and December (Table 4.8). In June Spearman's correlation was significant and negative (Table A1.1) indicating a decrease in turbidity. This was not, however, supported by τ which is not significant in June. Seasonal Kendall τ is significant indicating an overall increase in the turbidity values. There is no evidence against the homogeneity in the trend by the fact that van Belle's statistic for homogeneity is not significant, while the trend statistic is significant. To account for the possible presence of serial correlation, the modified seasonal Kendall is found to be 2.002 which is also significant.

4.3.2 Other Locations, Nonparametric Tests

Increases in the values of turbidity measurements are suggested by the significance of Kendall's τ and Spearman's correlation for station EF0001 (Table 4.8) for January, August, September, October, November, and December and these months are plotted in Fig. 4.6. Seasonal τ is significant but the homogeneity test is also significant. This indicates a significant increasing trend with a seasonal variation in the rate of increase. Tables A1.2 to A1.11 give the detailed results.

January and November showed significant increases for turbidity at the Red Deer River near Bindloss station (CK0001) but the overall test did not support that the increase has occurred for the entire historical record. Similarly no trend conclusions can be reached for stations KH0001, MD0002, KH0002, JM0014, LC0001,and AD0001. Station EA0003 showed a significant increasing trend for turbidity.

Table 4.8 Summary of Nonparametric Tests by Month for Turbidity at the Eleven Locations.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test	K,S							K,S	K,S	K,S	K,S	K,S
	Low. Sen C.I.	0.008	-0.910	-2.056	-7.299	-15.815	-7.718	-55.321	-0.037	0.071	0.613	0.450	0.220
	Sen Slope	0.511	0.529	0.436	5.947	0.267	-2.050	-5.200	2.350	0.688	1.033	0.780	0.678
	Upp. Sen C.I.	0.949	1.502	3.367	23.000	16.494	1.316	1.630	10.812	2.306	1.561	1.498	1.267
CK0001													
	Trend Test	K,S										K,S	
	Low. Sen C.I.	0.128	-1.820	-54.836	-98.010	-4.253	-30.300	-117.71	-25.100	-15.644	-24.367	0.773	-0.416
	Sen Slope	0.425	0.206	-11.031	-23.636	2.640	1.500	-16.000	4.571	0.722	0.067	1.780	0.640
	Upp. Sen C.I.	2.448	0.588	10.689	4.265	13.100	5.651	3.916	14.040	7.388	7.064	4.669	1.363
KH0001													
	Trend Test		S										
	Low. Sen C.I.	-0.186	-0.061	-0.600	-99.990	-9.629	-6.794	-2.800	-10.200	-16.849	-6.270	-99.990	-0.320
	Sen Slope	0.331	0.650	0.376	-0.750	-2.583	-2.750	3.464	-0.896	1.800	3.424	-2.040	0.712
	Upp. Sen C.I.	1.080	1.796	0.949	-99.990	1.247	0.000	7.900	0.800	6.250	11.600	-99.990	2.253
EA0003													
	Trend Test					S							
	Low. Sen C.I.	-0.400	-0.153	-0.058	--	-0.052	-0.270	-0.564	-0.130	-1.007	-1.470	--	******
	Sen Slope	0.100	0.114	0.080	--	0.310	0.400	0.186	0.238	0.253	0.083	--	0.000
	Upp. Sen C.I.	0.643	0.488	0.200	--	0.587	0.570	0.455	0.450	1.054	1.100	--	******

Table 4.8 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test												K,S
	Low. Sen C.I.	-1.451	-2.169	-1.180	-19.800	-2.471	-1.860	-3.650	-4.529	-4.560	-0.271	-1.523	-1.645
	Sen Slope	-0.200	-0.413	0.778	-5.500	2.417	1.500	1.600	2.333	-1.600	2.000	0.208	-0.875
	Upp. Sen C.I.	0.911	2.578	3.160	2.150	9.741	6.907	7.500	13.477	5.337	6.000	1.616	0.000
LC0001													
	Trend Test												
	Low. Sen C.I.	-0.313	-0.577	-0.780	-10.000	-1.977	-4.530	-1.189	-0.646	-0.389	-0.475	-0.300	-0.100
	Sen Slope	-0.075	0.187	0.327	-5.806	0.056	-0.867	0.200	0.165	0.271	-0.040	0.013	0.102
	Upp. Sen C.I.	0.283	0.683	2.080	3.500	1.868	0.513	0.761	0.692	0.846	0.333	0.409	0.686
FE0001													
	Trend Test		K,S									K	K,S
	Low. Sen C.I.	-0.316	0.123	-2.196	-39.767	-85.152	-2.008	-42.003	-5.645	-1.162	-0.445	0.000	0.019
	Sen Slope	0.574	0.500	0.148	-3.400	-11.000	0.364	1.333	-0.167	0.860	0.983	0.788	0.675
	Upp. Sen C.I.	3.000	1.071	2.570	18.222	9.546	3.577	7.040	3.173	6.552	2.222	1.424	1.560
AD0001													
	Trend Test		K,S										
	Low. Sen C.I.	-0.267	-0.040	-2.708	-7.861	-1.640	-0.910	-1.237	-1.264	-0.339	-0.391	-0.300	-0.363
	Sen Slope	0.383	0.658	-0.136	-0.143	-0.438	-0.111	-0.200	0.083	0.083	0.100	0.163	0.200
	Upp. Sen C.I.	0.844	1.706	1.601	2.595	0.640	2.021	1.027	1.196	0.393	0.954	0.709	0.722

Table 4.8 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test		K,S				S			K,S			K,S
	Low. Sen C.I.	-1.155	-0.124	-5.100	-14.843	-10.092	-26.114	-4.376	-1.071	0.900	-0.891	-2.587	0.297
	Sen Slope	0.476	1.000	1.067	-2.800	2.875	-12.143	0.122	0.943	3.300	2.000	0.713	0.875
	Upp. Sen C.I.	2.633	2.610	8.848	3.142	19.342	4.239	3.915	6.044	9.023	3.000	3.114	1.426
MD0002													
	Trend Test							S					
	Low. Sen C.I.	-0.509	-1.166	-0.784	-17.133	-4.400	-1.067	-0.221	-2.472	-1.371	-0.446	-0.576	-0.901
	Sen Slope	0.400	0.291	0.388	-3.083	1.156	2.583	1.800	0.318	0.300	0.275	-0.148	-0.283
	Upp. Sen C.I.	1.731	1.756	2.268	2.749	4.693	4.600	3.066	2.759	1.115	1.712	0.699	0.826
KH0002													
	Trend Test					S							
	Low. Sen C.I.	-1.250	-4.985	-1.235	-87.503	-1.862	-19.940	-5.095	-7.302	-1.172	-1.228	-1.891	-1.483
	Sen Slope	-0.229	-2.688	0.633	-7.917	1.600	-0.894	-0.425	-0.950	0.357	1.129	-0.213	-0.100
	Upp. Sen C.I.	0.810	1.382	1.723	9.777	4.198	9.175	2.014	2.594	2.702	2.112	0.946	0.439
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

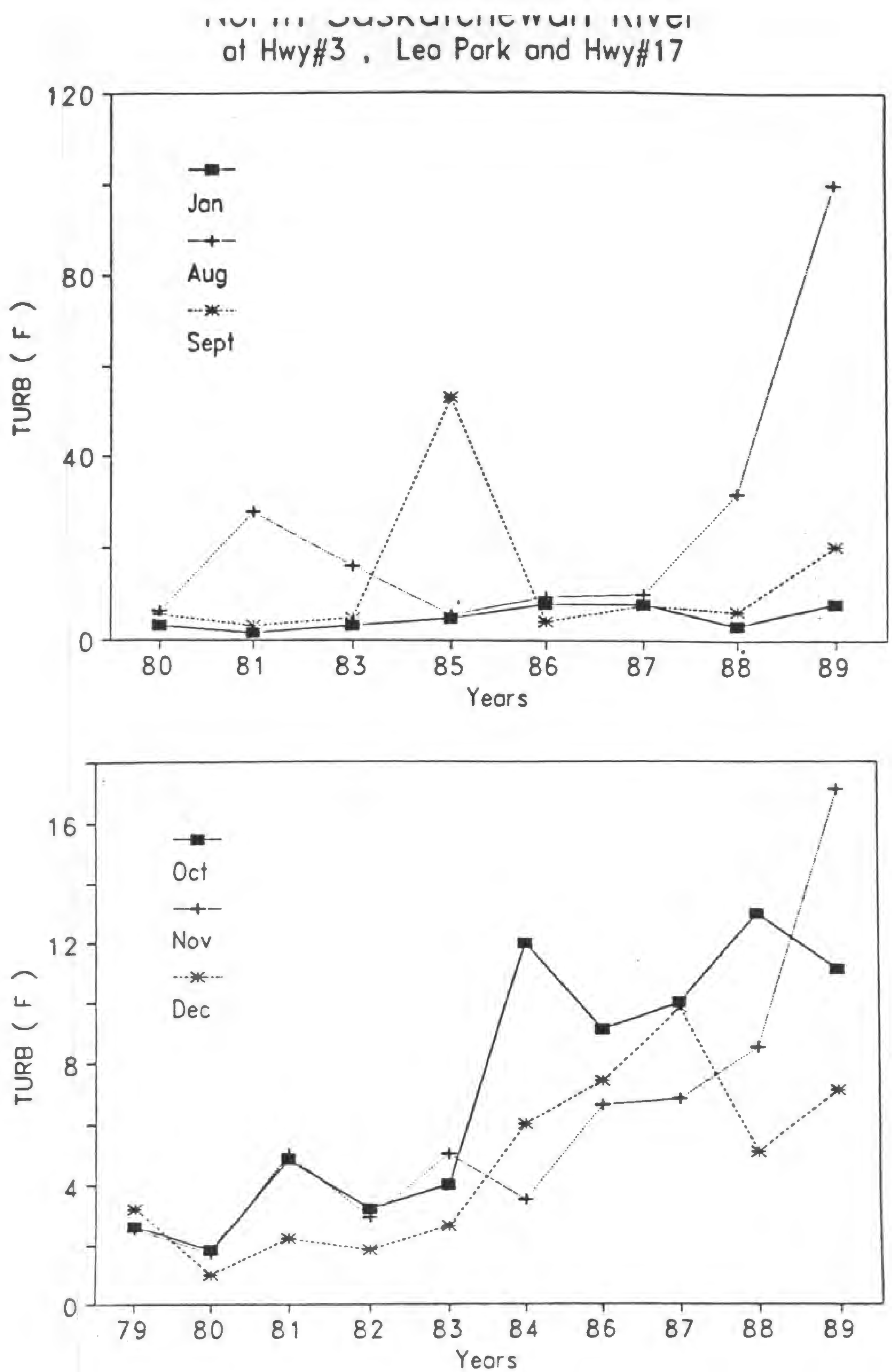


Fig. 4.6 Turbidity versus Year at Location EF0001 for Months showing a Significant Change over Time.

4.4 **Summary of Nonparametric Tests**

4.4.1 Temperature

For all the stations, none of the test statistics indicated an overall change (Table A1.1 to A1.11). There are only two stations (EF0001 and CK0001) with heterogenous variability. There are a few months where a significant increasing change has occurred and in all cases the slope was positive (Table 4.9).

4.4.2 Dissolved Boron

At only three sampling station (EF0001, AD0001, MD0002) did this parameter show significant increasing trends by the use of the seasonal τ statistic (Tables A1.1 to A1.11 and 4.10). After the removal of the effect of serial correlation, the trend at station MD0002 was not significant. Only the modified τ was significant for stations EF0001 and AK0001. The trend at station AK0001 is homogeneous for the entire data set, but for station EF0001 the data indicate that a non-homogeneous and increasing trend has occurred. Concentration versus year is plotted for months with a significant change (Fig. 4.7).

Table 4.9 Summary of Nonparametric Tests by Month for Temperature at the Eleven Locations.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test				K,S								
	Low. Sen C.I.	-0.063	-0.060	-0.135	0.196	-0.190	-0.220	-0.304	-0.103	-0.417	-0.316	-0.069	-0.100
	Sen Slope	0.000	0.000	-0.040	0.750	0.293	0.007	0.083	0.283	-0.167	0.000	0.000	-0.010
	Upp. Sen C.I.	0.000	0.000	0.000	1.064	0.726	0.223	0.418	0.626	0.246	0.323	0.000	0.000
CK0001													
	Trend Test												
	Low. Sen C.I.	-0.013	-0.059	-0.116	-0.375	-0.121	-0.333	-0.447	-0.200	-0.817	-0.500	-0.100	-0.107
	Sen Slope	0.000	0.000	-0.055	0.228	0.438	0.014	0.000	0.205	-0.187	-0.146	0.000	-0.018
	Upp. Sen C.I.	0.000	0.000	0.000	0.781	0.988	0.411	0.459	0.453	0.316	0.295	0.200	0.000
KH0001													
	Trend Test												
	Low. Sen C.I.	0.000	0.000	-0.029	-0.745	-0.333	-0.354	-0.167	-0.201	-0.250	-0.080	-0.154	0.000
	Sen Slope	0.000	0.000	0.000	0.189	0.265	-0.071	0.100	0.182	0.125	0.100	-0.014	0.000
	Upp. Sen C.I.	0.000	0.000	0.000	1.503	0.720	0.164	0.253	0.667	0.317	0.333	0.000	0.000
EA0003													
	Trend Test							K,S					
	Low. Sen C.I.	0.000	0.000	-0.046	--	-0.272	-0.500	0.000	-0.187	-0.215	-0.363	--	0.000
	Sen Slope	0.000	0.000	0.000	--	0.291	-0.109	0.164	0.131	0.000	-0.192	--	0.000
	Upp. Sen C.I.	0.000	0.000	0.000	--	1.005	0.265	0.317	0.500	0.250	0.147	--	0.000

Table 4.9 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test												S
	Low. Sen C.I.	-0.016	0.000	-0.066	-0.624	-0.667	-0.220	-0.397	-0.375	-0.649	-0.250	-0.097	0.000
	Sen Slope	0.000	0.000	0.000	0.000	0.040	0.000	-0.018	0.133	-0.273	0.196	0.000	0.000
	Upp. Sen C.I.	0.000	0.000	0.049	0.651	0.645	0.121	0.340	0.749	0.493	0.800	0.086	0.010
LC0001													
	Trend Test												
	Low. Sen C.I.	0.000	0.000	-0.100	-0.293	-0.656	-0.667	-0.400	-0.228	-0.500	-0.137	-0.046	0.000
	Sen Slope	0.000	0.000	-0.008	0.112	0.061	-0.165	-0.127	0.143	0.014	0.268	0.000	0.000
	Upp. Sen C.I.	0.000	0.000	0.000	0.617	0.586	0.296	0.000	0.528	0.380	0.500	0.022	0.000
FE0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
AD0001													
	Trend Test												K
	Low. Sen C.I.	-0.077	-0.039	-0.078	-0.200	-0.227	-0.241	-0.383	-0.250	-0.427	-0.437	-0.020	-0.070
	Sen Slope	0.000	0.000	0.000	0.300	0.270	0.000	0.000	0.125	-0.254	-0.200	0.000	0.000
	Upp. Sen C.I.	0.017	0.000	0.085	0.689	0.697	0.295	0.361	0.391	0.054	0.031	0.040	0.000

Table 4.9 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test					K,S							
	Low. Sen C.I.	-0.053	-0.050	-0.137	-0.306	0.009	-0.250	-0.448	-0.245	-0.625	-0.576	-0.167	-0.099
	Sen Slope	0.000	0.000	-0.025	0.058	0.433	0.106	-0.069	0.111	-0.150	-0.071	0.000	-0.014
	Upp. Sen C.I.	0.000	0.000	0.060	0.741	0.875	0.474	0.348	0.400	0.325	0.346	0.214	0.040
MD0002													
	Trend Test										K,S		
	Low. Sen C.I.	0.000	0.000	-0.049	-0.348	-0.535	-0.500	-0.182	-0.087	-0.333	0.125	-0.033	0.000
	Sen Slope	0.000	0.000	0.000	0.135	-0.046	-0.091	0.000	0.217	-0.053	0.333	0.000	0.000
	Upp. Sen C.I.	0.000	0.000	0.000	0.565	0.392	0.170	0.171	0.604	0.254	0.500	0.056	0.000
KH0002													
	Trend Test												
	Low. Sen C.I.	0.000	0.000	-0.052	-0.199	-0.389	-0.750	-0.186	-0.190	-0.482	-0.138	-0.047	0.000
	Sen Slope	0.000	0.000	0.000	0.313	0.167	-0.333	-0.040	0.180	0.000	0.158	0.000	0.000
	Upp. Sen C.I.	0.000	0.000	0.000	0.652	0.583	0.156	0.120	0.566	0.262	0.438	0.043	0.000
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table 4.10 Summary of Nonparametric Tests by Month for Dissolved Boron at the Eleven Locations.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test	K,S	K,S								K,S	K,S	K,S
	Low. Sen C.I.	0.000	0.002	-0.008	-0.005	-0.007	-0.007	-0.004	0.000	-0.001	0.000	0.003	0.000
	Sen Slope	0.004	0.005	0.003	-0.003	-0.003	-0.003	0.001	0.002	0.001	0.002	0.007	0.004
	Upp. Sen C.I.	0.008	0.010	0.011	0.005	0.001	0.000	0.010	0.006	0.004	0.003	0.011	0.008
CK0001													
	Trend Test												
	Low. Sen C.I.	-0.006	0.000	-0.015	-0.015	-0.002	-0.005	0.000	-0.003	-0.002	-0.001	0.000	-0.003
	Sen Slope	0.000	0.003	-0.002	-0.009	0.001	-0.002	0.004	0.000	0.000	0.000	0.002	0.000
	Upp. Sen C.I.	0.006	0.007	0.007	0.004	0.005	0.000	0.008	0.003	0.003	0.001	0.004	0.003
KH0001													
	Trend Test			K									
	Low. Sen C.I.	-0.004	-0.010	0.000	-99.990	-0.005	-0.003	-0.002	-0.003	-0.002	-0.001	-0.008	-0.003
	Sen Slope	0.001	0.000	0.005	0.006	-0.000	0.000	0.000	-0.001	0.000	0.000	0.005	0.000
	Upp. Sen C.I.	0.007	0.005	0.007	-99.990	0.003	0.002	0.002	0.002	0.002	0.004	0.020	0.003
EA0003													
	Trend Test	S		K,S		K							
	Low. Sen C.I.	0.000	-0.001	0.000	--	0.000	-0.001	-0.002	-0.004	-0.003	-0.002	--	-0.002
	Sen Slope	0.001	0.000	0.001	--	0.003	0.001	0.000	-0.000	0.000	0.000	--	0.000
	Upp. Sen C.I.	0.003	0.002	0.004	--	0.004	0.004	0.002	0.002	0.004	0.002	--	0.006

Table 4.10 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test							K,S					
	Low. Sen C.I.	-0.030	-0.006	-0.020	-0.017	-0.012	-0.010	-0.010	-0.010	-0.007	-0.014	-0.010	-0.015
	Sen Slope	-0.009	0.003	-0.005	-0.004	0.000	-0.001	-0.004	0.002	0.002	-0.003	-0.003	-0.003
	Upp. Sen C.I.	0.004	0.010	0.010	0.005	0.013	0.010	-0.000	0.019	0.011	0.010	0.001	0.008
LC0001													
	Trend Test												
	Low. Sen C.I.	-0.010	-0.007	-0.015	-0.006	-0.003	-0.004	-0.000	-0.004	-0.002	-0.002	-0.005	-0.007
	Sen Slope	-0.001	0.000	0.000	-0.001	0.000	0.001	0.003	-0.002	0.000	0.002	0.000	-0.003
	Upp. Sen C.I.	0.003	0.006	0.020	0.006	0.004	0.007	0.008	0.000	0.003	0.005	0.007	0.001
FE0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
AD0001													
	Trend Test				K							K,S	
	Low. Sen C.I.	-0.008	-0.003	-0.010	-0.013	-0.003	-0.006	-0.005	-0.007	-0.004	-0.001	0.000	-0.003
	Sen Slope	0.001	0.001	0.000	-0.007	-0.001	0.000	0.000	-0.003	0.000	0.001	0.003	0.003
	Upp. Sen C.I.	0.008	0.004	0.006	0.000	0.002	0.006	0.006	0.000	0.004	0.005	0.007	0.007

Table 4.10 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test	S	K,S									K,S	K,S
	Low. Sen C.I.	-0.003	0.000	-0.006	-0.006	-0.001	-0.005	0.000	-0.001	0.000	0.000	0.002	0.002
	Sen Slope	0.008	0.006	0.000	-0.001	0.002	-0.002	0.000	0.000	0.000	0.002	0.006	0.005
	Upp. Sen C.I.	0.017	0.015	0.010	0.003	0.007	0.003	0.002	0.002	0.003	0.004	0.010	0.010
MD0002													
	Trend Test										K,S		
	Low. Sen C.I.	-0.014	-0.004	-0.003	-0.005	-0.002	-0.003	-0.001	-0.010	-0.003	0.003	-0.004	-0.005
	Sen Slope	-0.002	0.001	0.004	-0.001	0.001	0.000	0.001	-0.004	0.001	0.005	0.001	0.000
	Upp. Sen C.I.	0.005	0.005	0.010	0.008	0.005	0.006	0.003	0.002	0.005	0.009	0.007	0.006
KH0002													
	Trend Test												
	Low. Sen C.I.	-0.020	-0.014	-0.024	-0.003	-0.003	-0.002	-0.005	-0.009	-0.006	-0.002	-0.008	-0.008
	Sen Slope	-0.004	-0.005	-0.002	0.008	0.000	0.005	-0.002	-0.005	-0.000	0.002	0.007	0.000
	Upp. Sen C.I.	0.009	0.007	0.016	0.021	0.003	0.008	0.000	0.003	0.003	0.007	0.017	0.008
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

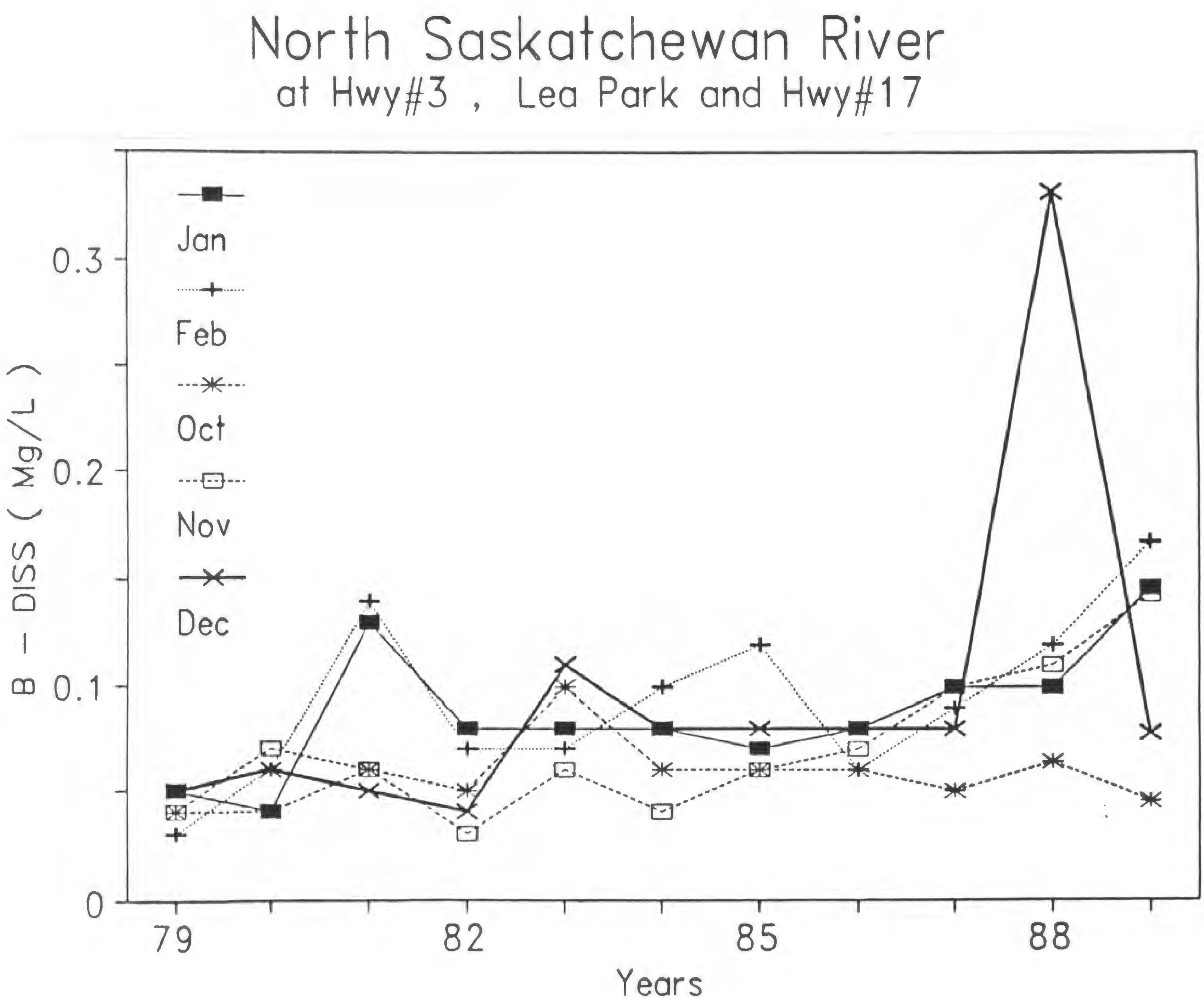


Fig. 4.7 Dissolved Boron versus Year at Location EF0001 - for Months showing a Significant Change over Time.

4.4.3 Total Nitrogen

The analysis of TN data reveals strong ($p<0.01$) decreasing trends in the values of this parameter at most sampling stations. The monthly τ values, Spearman's correlation and Sen's confidence limit show that strong monthly trends have occurred (Table 4.11) for stations AD0001, LC0001, KH0001, KH0002, MD0002 and JM0014. Stations showing significant negative trend for at most three months are AK0001, EF0001, CK0001, EA0003, and FE0001. Stations with both significant seasonal and modified seasonal τ include CK0001, KH00001, EA0003, MD0002, KH0002, JM0014, LC0001, and AD0001 (Tables A1.1 to A1.11). It is also important that none of the stations indicated heterogeneity of the trend by van Belle's test. Plots showing significant months are given in Figs. 4.8, 4.9, and 4.10.

4.4.4 Dissolved Oxygen

Summary statistics for this parameter are given in Table 4.12 which indicate very little changes have occurred in the DO values during study (see also Tables A1.1 to A1.11). The monthly values of the trend tests show that for only five stations there is at most two months that showed significance. Station EA0003 is the only one with a significant overall decreasing trend, since both τ and the modified τ are significant and negative.

4.4.5 pH

The results of testing for trend in pH values are summarized in Table 4.13 There are very few months where a significant trend was obtained. Seasonal Kendall τ indicated that stations EF0001, and CK0001 were significant (Tables A1.1 to A1.11). However, this significance may be the result of serial correlation since the corresponding modified seasonal τ was not significant.

4.4.6 Non-filtered Residue

Stations MD0002, AD0001, and KH0002, showed a decreasing trend in the values of this parameter since both τ and modified τ are significant for those stations (Tables A1.1 to A1.11 and 4.14). The remaining stations showed no significant trend using the modified τ and only Station EF0001, and LC0001 indicated significant trend using the seasonal Kendall's τ. The first station shows an increasing trend while the second shows a decreasing one.

4.4.7 Disolved Sodium

Dissolved Na concentrations at station EF0001 showed strong decreasing trends (Table 4.15) particularly for April, May, and June (Fig. 4.11) where Sen's slope estimates are negative and quite large for these months. Both seasonal τ and modified τ are significant indicating that the trend is significant even after the elimination of serial correlation (see Tables A1.1 to A1.11). The same story holds for station CK0001 where the late fall and winter months showed the significant decrease. Stations KH0001, JM0014, EF0001, and KH0002 did not show any sign of change during the study period. Station AD0001 showed a significant increase in the Na values with the high rate (slope) of increase occurring in the fall and winter months. Most of the trend occurring at stations LC0001, and AK0001 is the result of the significant serial correlation, since seasonal τ is significant but modified τ is not significant.

4.4.8 Total Dissolved Phosphorous

Non-homogeneous increasing trend has been identified for station EF0001 (Fig. 4.12) where the seasonal and modified seasonal τ statistics were positive

Table 4.11 Summary of Nonparametric Tests by Month for Total Nitrogen at the Eleven Locations.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test	S			K,S								
	Low. Sen C.I.	-0.002	-0.026	-0.038	-0.136	-0.073	-0.047	-0.043	-0.024	-0.044	-0.026	-0.030	-0.032
	Sen Slope	0.014	0.008	-0.003	-0.073	-0.037	-0.020	-0.007	-0.004	-0.014	-0.005	-0.011	-0.012
	Upp. Sen C.I.	0.039	0.035	0.040	-0.021	0.010	0.013	0.034	0.039	0.021	0.020	0.012	0.026
CK0001													
	Trend Test	K,S			K,S								
	Low. Sen C.I.	-0.034	-0.050	-0.194	-0.347	-0.143	-0.024	-0.033	-0.038	-0.038	-0.020	-0.008	-0.020
	Sen Slope	-0.016	-0.022	-0.031	-0.183	-0.046	-0.000	0.011	-0.003	0.000	-0.006	0.000	-0.007
	Upp. Sen C.I.	-0.005	0.006	0.067	-0.050	0.024	0.038	0.084	0.044	0.036	0.005	0.010	0.005
KH0001													
	Trend Test	K,S	K,S			K,S	K,S	K,S		K,S			K,S
	Low. Sen C.I.	-0.024	-0.045	-0.033	-0.098	-0.066	-0.042	-0.030	-0.058	-0.026	-0.016	-0.041	-0.028
	Sen Slope	-0.020	-0.021	-0.010	-0.013	-0.039	-0.020	-0.010	-0.010	-0.013	-0.003	-0.003	-0.015
	Upp. Sen C.I.	-0.016	-0.007	0.000	0.082	-0.005	-0.003	-0.001	0.005	0.000	0.016	0.032	-0.005
EA0003													
	Trend Test							S	K,S	K			
	Low. Sen C.I.	-0.025	-0.015	-0.025	--	-0.024	-0.017	-0.019	-0.018	-0.018	-0.010	--	-0.028
	Sen Slope	-0.012	-0.004	-0.009	--	-0.013	-0.008	-0.009	-0.008	-0.009	-0.004	--	-0.008
	Upp. Sen C.I.	0.002	0.004	0.006	--	0.005	0.000	0.000	-0.002	0.000	0.003	--	0.008

Table 4.11 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test	K,S	K,S				K,S					K,S	K,S
	Low. Sen C.I.	-0.052	-0.077	-0.072	-0.159	-0.063	-0.062	-0.161	-0.083	-0.065	-0.073	-0.062	-0.074
	Sen Slope	-0.032	-0.049	-0.026	-0.036	-0.011	-0.025	-0.032	-0.028	-0.017	-0.016	-0.037	-0.053
	Upp. Sen C.I.	-0.003	-0.022	0.022	0.007	0.037	0.001	0.055	0.050	0.046	0.015	-0.007	-0.026
LC0001													
	Trend Test	K,S	K,S	K,S		K,S	K,S			K,S	K,S	K,S	K,S
	Low. Sen C.I.	-0.076	-0.104	-0.088	-0.275	-0.059	-0.099	-0.039	-0.025	-0.030	-0.032	-0.035	-0.092
	Sen Slope	-0.040	-0.053	-0.040	-0.091	-0.040	-0.050	-0.011	-0.012	-0.018	-0.021	-0.024	-0.049
	Upp. Sen C.I.	-0.023	-0.017	-0.020	0.072	-0.011	-0.024	0.005	0.000	-0.009	-0.014	-0.016	-0.024
FE0001													
	Trend Test		S										K,S
	Low. Sen C.I.	-0.044	-0.058	-0.073	-0.169	-0.109	-0.043	-0.080	-0.041	-0.026	-0.088	-0.077	-0.061
	Sen Slope	-0.014	-0.020	-0.030	-0.074	-0.049	-0.019	-0.015	-0.011	0.005	-0.025	-0.036	-0.035
	Upp. Sen C.I.	0.022	0.005	0.003	0.060	0.019	0.007	0.037	0.024	0.062	0.020	0.004	-0.016
AD0001													
	Trend Test	K,S	K,S		K,S	K,S	K,S	K,S	K,S		K,S	K,S	K,S
	Low. Sen C.I.	-0.075	-0.091	-0.088	-0.126	-0.064	-0.066	-0.061	-0.054	-0.038	-0.037	-0.059	-0.080
	Sen Slope	-0.040	-0.052	-0.033	-0.082	-0.035	-0.040	-0.045	-0.028	-0.012	-0.027	-0.044	-0.052
	Upp. Sen C.I.	-0.011	-0.015	0.007	-0.022	-0.012	-0.013	-0.018	-0.004	0.018	-0.009	-0.028	-0.020

Table 4.11 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test										K,S		
	Low. Sen C.I.	-0.065	-0.046	-0.049	-0.108	-0.088	-0.061	-0.041	-0.019	-0.012	0.002	-0.056	-0.022
	Sen Slope	0.021	0.014	0.012	-0.048	-0.025	-0.014	-0.011	0.000	0.007	0.025	-0.008	-0.001
	Upp. Sen C.I.	0.155	0.135	0.093	0.028	0.048	0.021	0.013	0.017	0.022	0.056	0.037	0.048
MD0002													
	Trend Test	K,S		S	K,S			K,S	K,S	K,S		K,S	K,S
	Low. Sen C.I.	-0.141	-0.174	-0.214	-0.251	-0.053	-0.061	-0.068	-0.084	-0.117	-0.089	-0.069	-0.096
	Sen Slope	-0.059	-0.043	-0.070	-0.126	-0.020	-0.030	-0.030	-0.037	-0.077	-0.017	-0.036	-0.033
	Upp. Sen C.I.	-0.017	0.044	0.004	-0.020	0.050	0.002	-0.001	-0.004	-0.041	0.074	-0.019	-0.009
KH0002													
	Trend Test	K,S				K,S	K,S		K,S	K,S	K,S	K,S	K,S
	Low. Sen C.I.	-0.073	-0.070	-0.081	-0.169	-0.057	-0.057	-0.056	-0.056	-0.040	-0.040	-0.040	-0.082
	Sen Slope	-0.043	-0.026	-0.029	-0.032	-0.036	-0.032	-0.026	-0.030	-0.024	-0.030	-0.021	-0.049
	Upp. Sen C.I.	-0.010	0.057	0.007	0.116	-0.020	-0.016	0.007	-0.014	-0.007	-0.020	-0.010	-0.017
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

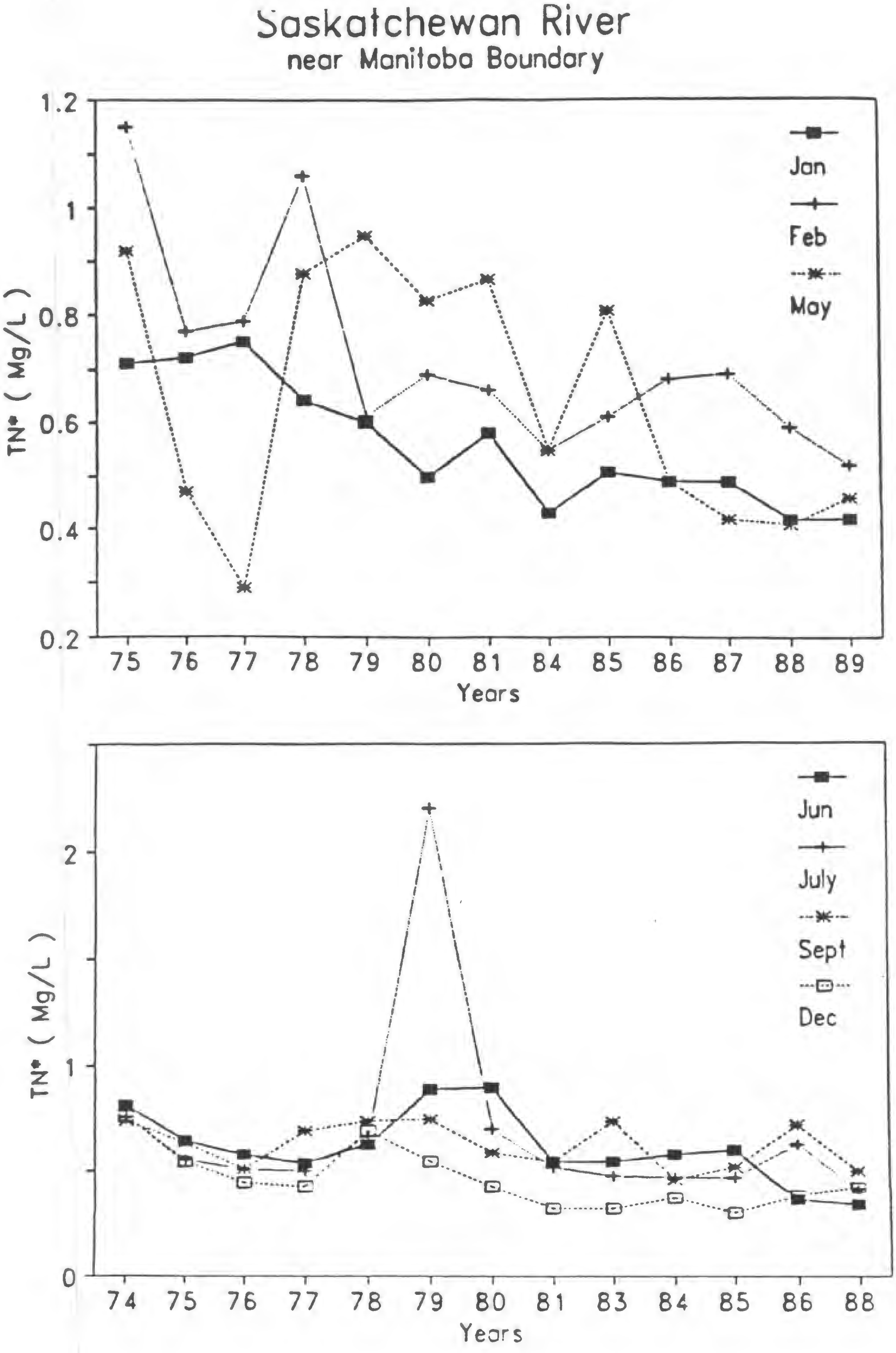


Fig. 4.8 Total Nitrogen versus Year at Location KH0001 for Months showing a Significant Change over Time.

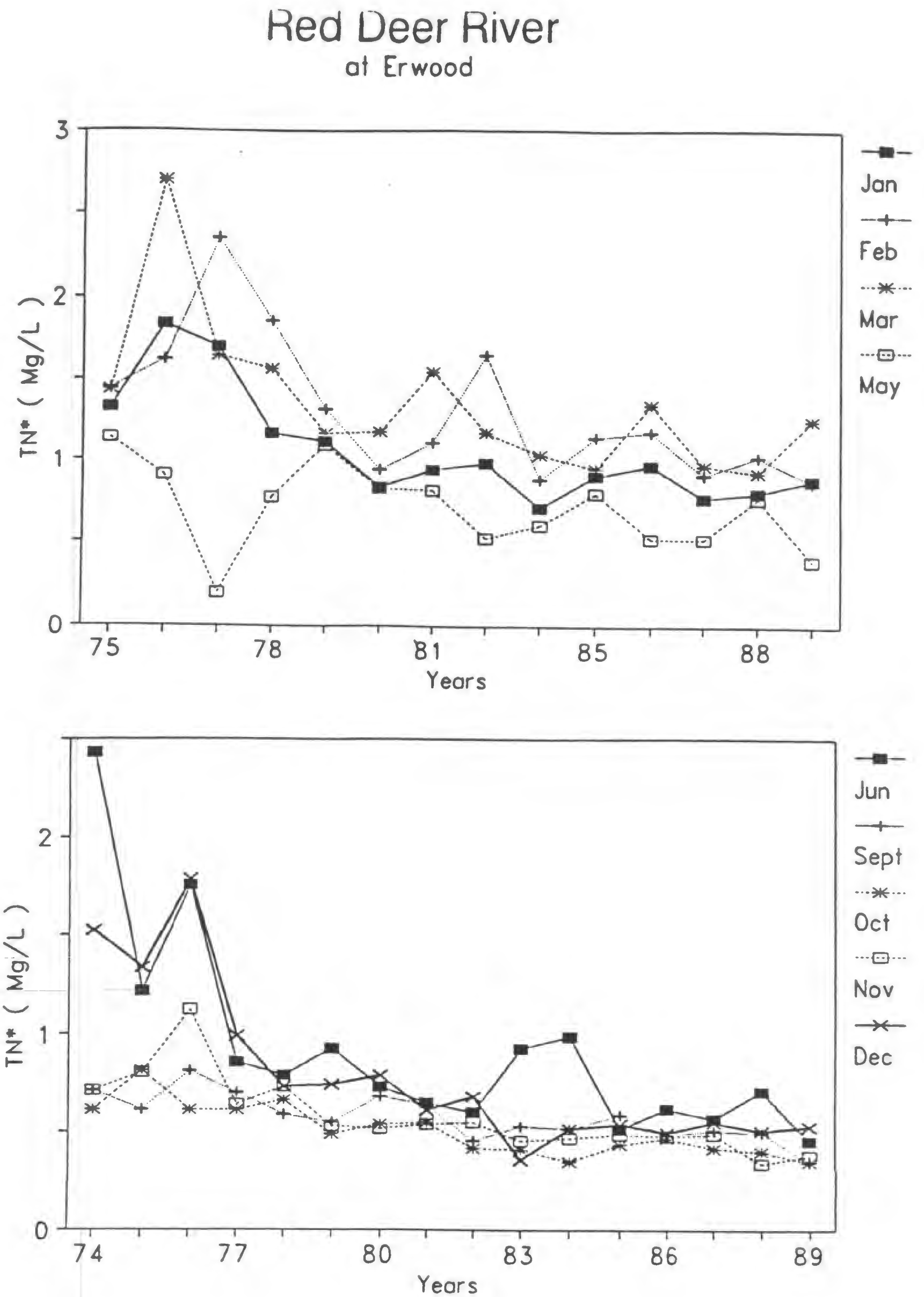


Fig. 4.9 Total Nitrogen versus Year at Location LC0001 for Months showing a Significant Change over Time.

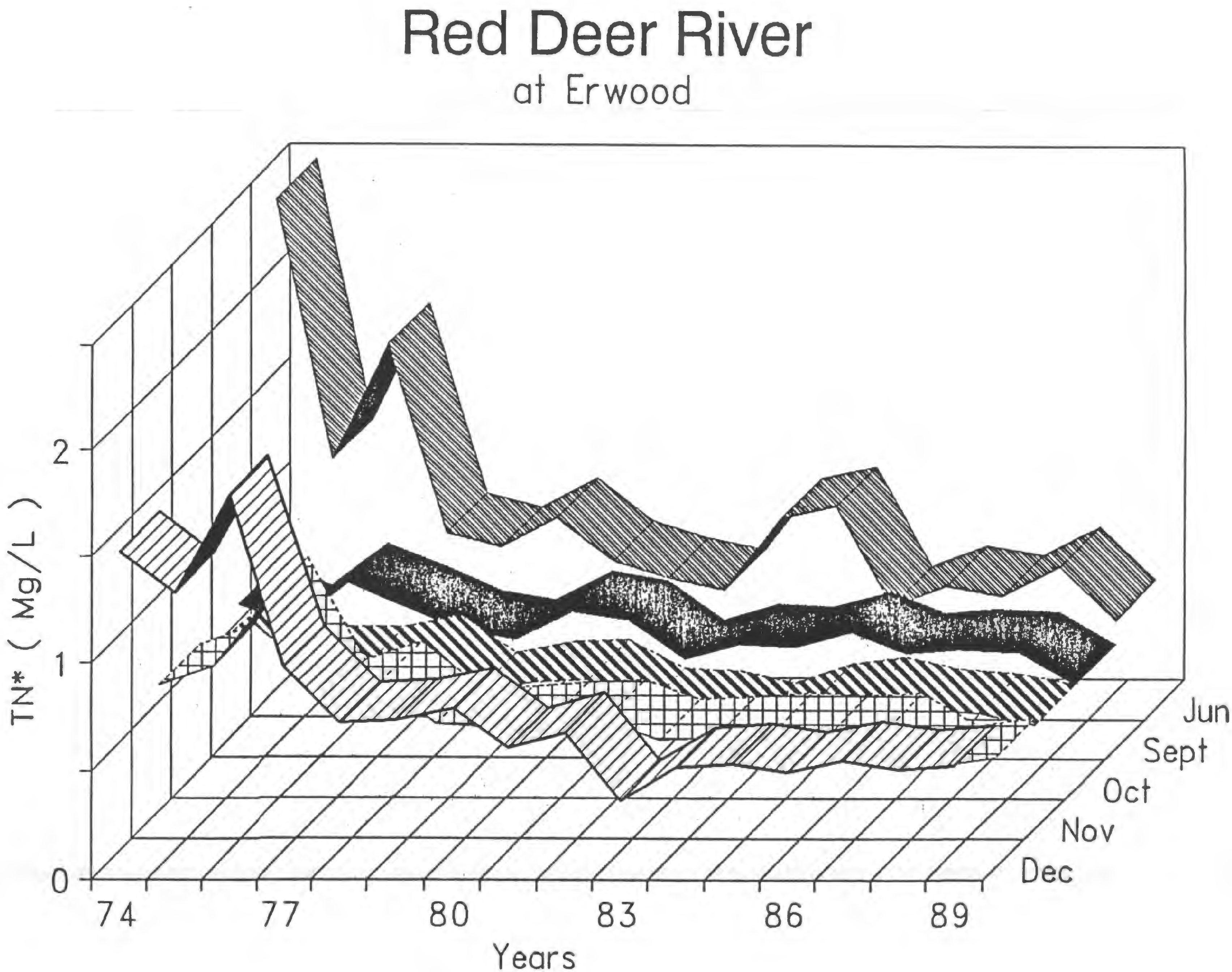


Fig. 4.10 Alternative format for Fig. 4.9 (lower plot).

Table 4.12 Summary of Nonparametric Tests by Month for Dissolved Oxygen at the Eleven Locations.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test											K,S	
	Low. Sen C.I.	-0.077	-0.154	-0.300	-0.081	-0.334	-0.100	-0.226	-0.178	-0.169	-0.078	-0.184	-0.110
	Sen Slope	0.063	-0.061	-0.047	0.084	-0.094	0.052	-0.030	-0.100	-0.053	0.061	-0.091	0.094
	Upp. Sen C.I.	0.214	0.045	0.186	0.292	0.078	0.300	0.200	0.027	0.097	0.196	-0.011	0.262
CK0001													
	Trend Test												
	Low. Sen C.I.	-0.092	-0.548	-0.300	-0.252	-0.193	-0.200	-0.213	-0.200	-0.120	-0.085	-0.133	-0.122
	Sen Slope	0.241	0.029	0.186	-0.046	-0.050	-0.073	-0.071	-0.089	-0.010	0.000	-0.025	0.122
	Upp. Sen C.I.	0.648	0.526	0.729	0.178	0.108	0.061	0.126	0.040	0.067	0.149	0.100	0.458
KH0001													
	Trend Test												
	Low. Sen C.I.	-0.079	-0.136	-0.176	-0.813	-0.150	-0.200	-0.145	-0.060	-0.051	-0.178	-0.465	-0.114
	Sen Slope	0.000	0.000	0.000	-0.125	-0.035	-0.050	-0.033	0.011	0.020	-0.020	0.287	0.000
	Upp. Sen C.I.	0.073	0.164	0.159	0.293	0.111	0.060	0.077	0.131	0.079	0.200	0.922	0.200
EA0003													
	Trend Test		K,S				K,S						
	Low. Sen C.I.	-0.200	-0.274	-0.141	--	-0.200	-0.240	-0.119	-0.121	-0.079	-0.158	--	-0.471
	Sen Slope	-0.085	-0.146	-0.021	--	-0.028	-0.125	-0.033	-0.075	-0.007	-0.025	--	-0.014
	Upp. Sen C.I.	0.201	0.000	0.064	--	0.200	-0.019	0.059	0.035	0.054	0.156	--	0.625

Table 4.12 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test											S	
	Low. Sen C.I.	-0.264	-0.468	-0.026	-0.308	-0.233	-0.129	-0.100	-0.120	-0.095	-0.356	-0.200	-0.105
	Sen Slope	-0.033	-0.058	0.182	-0.058	0.024	0.040	0.067	0.067	0.057	-0.100	-0.100	0.067
	Upp. Sen C.I.	0.277	0.217	0.533	0.141	0.267	0.200	0.367	0.200	0.226	0.051	0.004	0.230
LC0001													
	Trend Test												
	Low. Sen C.I.	-0.644	-0.478	-0.442	-0.200	-0.200	-0.068	-0.250	-0.253	-0.150	-0.135	-0.275	-0.050
	Sen Slope	-0.106	-0.056	-0.013	-0.050	-0.050	0.011	-0.042	-0.027	0.000	-0.057	-0.100	0.060
	Upp. Sen C.I.	0.312	0.634	0.392	0.094	0.092	0.139	0.160	0.100	0.194	0.062	0.008	0.272
FE0001													
	Trend Test												
	Low. Sen C.I.	-0.193	-0.253	-0.616	-0.243	-0.185	-0.036	-0.200	-0.157	-0.150	-0.031	-0.283	-0.432
	Sen Slope	-0.092	-0.068	0.060	-0.075	-0.054	0.080	-0.014	0.000	-0.052	0.067	-0.065	-0.123
	Upp. Sen C.I.	0.046	0.050	1.005	0.171	0.092	0.190	0.182	0.204	0.024	0.157	0.054	0.267
AD0001													
	Trend Test	K,S	K,S										
	Low. Sen C.I.	-0.235	-0.385	-0.440	-0.069	-0.224	-0.140	-0.164	-0.250	-0.076	-0.100	-0.392	-0.687
	Sen Slope	-0.131	-0.100	-0.033	0.060	-0.080	0.004	-0.017	-0.070	0.029	0.033	0.021	-0.251
	Upp. Sen C.I.	-0.045	-0.004	0.410	0.208	0.025	0.120	0.143	0.095	0.139	0.204	0.125	0.136

Table 4.12 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
MD0002													
	Trend Test												
	Low. Sen C.I.	-0.339	-0.250	-0.186	-0.131	-0.180	-0.080	-0.137	-0.125	-0.100	-0.327	-0.322	-0.266
	Sen Slope	-0.137	0.057	0.100	0.037	-0.069	0.000	-0.007	0.011	-0.014	-0.096	-0.135	0.084
	Upp. Sen C.I.	0.186	0.267	0.358	0.141	0.100	0.130	0.161	0.090	0.085	0.083	0.022	0.389
KH0002													
	Trend Test	K,S			K,S								
	Low. Sen C.I.	-0.307	-0.144	-0.326	-0.484	-0.144	-0.250	-0.153	-0.100	-0.022	-0.165	-0.600	-0.200
	Sen Slope	-0.130	-0.040	-0.120	-0.238	0.106	-0.063	0.033	0.033	0.040	-0.042	-0.114	0.158
	Upp. Sen C.I.	-0.022	0.027	0.088	0.000	0.255	0.057	0.212	0.150	0.087	0.186	0.374	0.449
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table 4.13 Summary of Nonparametric Tests by Month for pH at the Eleven Locations.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test											K,S	
	Low. Sen C.I.	-0.025	-0.020	-0.023	-0.033	-0.047	-0.056	-0.059	-0.058	-0.025	-0.015	0.000	0.000
	Sen Slope	0.000	0.013	0.028	0.000	0.000	0.020	0.000	-0.020	0.011	0.016	0.033	0.025
	Upp. Sen C.I.	0.031	0.050	0.050	0.033	0.060	0.100	0.067	0.022	0.052	0.050	0.056	0.044
CK0001													
	Trend Test												K,S
	Low. Sen C.I.	-0.050	0.000	-0.021	-0.010	-0.013	-0.025	-0.040	-0.040	-0.025	-0.020	-0.014	0.000
	Sen Slope	-0.003	0.020	0.033	0.000	0.013	0.012	0.000	0.000	0.000	0.000	0.019	0.037
	Upp. Sen C.I.	0.035	0.050	0.078	0.034	0.032	0.058	0.040	0.036	0.027	0.017	0.039	0.058
KH0001													
	Trend Test												
	Low. Sen C.I.	-0.054	-0.022	-0.029	-0.072	-0.021	-0.038	-0.055	-0.050	-0.025	-0.040	-0.159	-0.008
	Sen Slope	-0.017	0.036	0.030	0.000	0.025	-0.013	-0.018	-0.014	0.022	0.000	-0.007	0.017
	Upp. Sen C.I.	0.019	0.076	0.078	0.146	0.044	0.013	0.011	0.017	0.058	0.033	0.107	0.050
EA0003													
	Trend Test												
	Low. Sen C.I.	-0.080	-0.095	-0.058	--	-0.072	-0.073	-0.050	-0.046	-0.044	-0.062	--	-0.022
	Sen Slope	0.030	0.030	0.018	--	0.004	-0.023	-0.017	0.017	0.014	0.000	--	0.065
	Upp. Sen C.I.	0.093	0.100	0.165	--	0.100	0.026	0.000	0.067	0.076	0.068	--	0.150

Table 4.13 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test												
	Low. Sen C.I.	-0.051	-0.028	-0.021	-0.028	-0.017	-0.037	-0.050	-0.014	-0.025	-0.075	-0.040	-0.050
	Sen Slope	0.000	0.008	0.014	0.020	0.000	0.000	0.000	0.000	0.000	-0.029	-0.017	-0.010
	Upp. Sen C.I.	0.031	0.049	0.064	0.071	0.040	0.033	0.059	0.033	0.010	0.033	0.000	0.014
LC0001													
	Trend Test						K,S						
	Low. Sen C.I.	0.000	0.000	-0.025	-0.010	-0.063	-0.061	-0.067	-0.050	-0.038	-0.050	-0.038	-0.036
	Sen Slope	0.017	0.014	0.025	0.030	-0.032	-0.035	-0.033	-0.020	-0.013	-0.018	0.000	0.000
	Upp. Sen C.I.	0.044	0.081	0.081	0.071	0.000	0.000	0.013	0.000	0.022	0.000	0.033	0.038
FE0001													
	Trend Test	K				K,S							
	Low. Sen C.I.	-0.051	-0.011	-0.014	0.000	0.000	0.000	-0.075	-0.050	-0.025	-0.018	-0.017	0.000
	Sen Slope	-0.025	0.020	0.018	0.033	0.025	0.023	0.000	0.000	0.000	0.000	0.033	0.025
	Upp. Sen C.I.	0.000	0.035	0.100	0.065	0.044	0.050	0.040	0.038	0.020	0.025	0.065	0.053
AD0001													
	Trend Test				K,S								
	Low. Sen C.I.	-0.020	-0.027	-0.025	0.000	-0.033	-0.033	-0.068	-0.018	-0.051	0.000	-0.011	-0.033
	Sen Slope	0.000	0.010	0.000	0.036	0.000	0.012	-0.023	0.000	-0.009	0.011	0.016	0.014
	Upp. Sen C.I.	0.039	0.033	0.050	0.083	0.033	0.048	0.032	0.018	0.025	0.036	0.067	0.042

Table 4.13 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test				K,S								S
	Low. Sen C.I.	-0.084	-0.010	-0.031	0.000	-0.046	-0.012	-0.023	-0.077	-0.064	-0.025	-0.024	0.000
	Sen Slope	-0.014	0.014	0.030	0.033	0.017	0.025	0.014	-0.017	0.000	0.000	0.000	0.025
	Upp. Sen C.I.	0.050	0.064	0.100	0.075	0.081	0.076	0.043	0.030	0.050	0.025	0.049	0.060
MD0002													
	Trend Test	K,S	S										
	Low. Sen C.I.	0.020	0.000	-0.050	0.000	-0.025	-0.042	-0.050	-0.010	-0.016	-0.043	-0.050	-0.039
	Sen Slope	0.050	0.020	0.013	0.033	0.000	-0.013	-0.013	0.000	0.000	0.000	-0.003	0.000
	Upp. Sen C.I.	0.080	0.040	0.075	0.063	0.019	0.012	0.020	0.025	0.014	0.020	0.025	0.029
KH0002													
	Trend Test												K,S
	Low. Sen C.I.	-0.033	-0.027	-0.025	-0.050	-0.050	-0.038	-0.050	-0.019	-0.033	-0.050	-0.050	0.000
	Sen Slope	-0.002	0.013	0.017	0.000	0.000	-0.014	-0.018	0.000	0.000	-0.010	0.000	0.020
	Upp. Sen C.I.	0.021	0.041	0.054	0.046	0.040	0.012	0.033	0.038	0.025	0.000	0.053	0.043
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table 4.14 Summary of Nonparametric Tests by Month for Non-filtered Residue at the Eleven Locations.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test										K,S		
	Low. Sen C.I.	-0.250	-0.321	-0.665	-7.260	-7.152	-4.370	-4.219	-1.101	-1.000	0.147	0.000	-0.007
	Sen Slope	0.000	0.318	0.000	4.000	-0.250	-0.835	0.702	0.333	0.200	0.787	0.333	0.225
	Upp. Sen C.I.	0.000	0.651	0.920	14.332	11.573	1.815	5.774	6.127	2.000	1.546	0.813	0.500
CK0001													
	Trend Test	K,S			K,S	S							
	Low. Sen C.I.	0.000	-0.250	-28.089	-86.667	-51.801	-8.682	-39.297	-13.061	-4.626	-4.114	-1.609	-0.442
	Sen Slope	0.333	0.025	-1.818	-45.992	-15.556	3.861	-0.986	5.000	2.140	-1.394	0.325	0.375
	Upp. Sen C.I.	1.254	0.451	11.401	-4.678	0.273	16.099	25.683	35.925	11.961	3.279	2.651	1.026
KH0001													
	Trend Test											K,S	S
	Low. Sen C.I.	-0.778	-0.407	-0.804	-16.138	-9.000	-5.018	-3.829	-12.351	-5.501	-7.602	-2.209	-0.066
	Sen Slope	-0.025	0.308	-0.333	-0.500	-2.567	-0.727	-1.500	-3.067	-0.200	-2.680	-1.125	0.512
	Upp. Sen C.I.	0.578	1.250	0.500	26.230	2.325	6.016	1.720	1.425	5.589	2.186	-0.500	1.000
EA0003													
	Trend Test												
	Low. Sen C.I.	0.000	0.000	-0.407	--	-0.250	-0.272	-0.095	-0.650	-0.173	-0.389	--	0.000
	Sen Slope	0.000	0.000	-0.118	--	0.000	-0.080	0.000	-0.333	0.044	-0.118	--	0.000
	Upp. Sen C.I.	0.000	0.116	0.000	--	0.096	0.099	0.212	0.000	0.228	0.111	--	0.250

Table 4.14 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test												
	Low. Sen C.I.	-1.428	-2.013	-0.958	-30.410	-6.161	-8.829	-5.506	-8.388	-5.989	-6.022	-1.797	-1.340
	Sen Slope	-0.533	0.600	0.600	-7.000	1.273	-2.940	0.617	-0.560	-1.600	-0.880	0.143	-0.400
	Upp. Sen C.I.	0.628	1.985	3.000	2.201	8.030	2.691	4.339	4.876	3.057	3.704	1.724	0.214
LC0001													
	Trend Test				K,S								
	Low. Sen C.I.	-0.286	-1.124	-1.622	-14.101	-1.333	-1.892	-0.812	-0.766	-0.162	-0.500	-0.117	-0.386
	Sen Slope	-0.125	0.000	-0.300	-6.800	-0.500	-0.300	-0.125	-0.087	0.000	0.000	0.000	-0.086
	Upp. Sen C.I.	0.016	0.471	0.576	-1.802	0.586	0.204	0.243	0.200	0.138	0.133	0.000	0.000
FE0001													
	Trend Test												
	Low. Sen C.I.	-0.584	-1.027	-1.333	-39.617	-15.263	-5.625	-4.410	-1.220	-0.304	-1.485	-0.671	-0.528
	Sen Slope	0.250	0.125	0.167	-8.066	-0.750	-0.414	0.629	0.333	0.392	0.000	0.182	0.333
	Upp. Sen C.I.	1.436	0.678	1.984	14.617	7.101	2.175	2.787	2.611	2.285	1.310	0.782	0.717
AD0001													
	Trend Test												
	Low. Sen C.I.	-0.117	-0.285	-0.711	-8.269	-2.040	-2.680	-3.500	-1.783	-1.200	-0.808	-0.286	-0.197
	Sen Slope	0.250	0.000	-0.143	-1.000	-0.875	-1.311	-1.589	-0.500	-0.577	-0.400	0.000	0.000
	Upp. Sen C.I.	0.557	0.475	0.250	1.614	0.190	0.638	0.602	0.385	0.190	0.046	0.250	0.269

Table 4.14 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test										S		K,S
	Low. Sen C.I.	0.000	-1.000	-7.978	-18.419	-52.730	-43.871	-10.009	-1.000	-1.500	-0.014	-0.740	0.141
	Sen Slope	0.693	0.500	1.100	-7.333	-16.100	-15.375	-2.333	0.927	1.667	1.455	0.308	0.500
	Upp. Sen C.I.	1.988	1.800	5.537	2.861	14.101	2.285	0.964	3.833	6.000	3.400	2.777	1.547
MD0002													
	Trend Test				S						S		
	Low. Sen C.I.	-1.256	-0.418	-2.207	-9.620	-4.390	-3.746	-0.542	-2.000	-1.267	-1.333	-0.500	-1.000
	Sen Slope	-0.222	0.111	-0.657	-4.400	-0.583	0.200	1.000	-0.500	-0.450	-0.558	-0.129	-0.469
	Upp. Sen C.I.	0.240	0.771	0.777	0.826	2.174	2.704	1.750	0.717	0.269	0.000	0.271	0.111
KH0002													
	Trend Test								K				
	Low. Sen C.I.	-0.848	-0.515	-1.000	-19.043	-4.056	-11.248	-3.010	-3.277	-1.542	-2.707	-0.419	-0.841
	Sen Slope	-0.205	-0.091	-0.500	-9.546	-0.500	-0.625	-0.886	-1.473	-0.240	-0.842	0.100	-0.175
	Upp. Sen C.I.	0.285	0.411	0.500	8.883	3.012	6.000	0.884	0.000	0.968	0.500	0.667	0.356
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table 4.15 Summary of Nonparametric Tests by Month for Dissolved Sodium at the Eleven Locations.

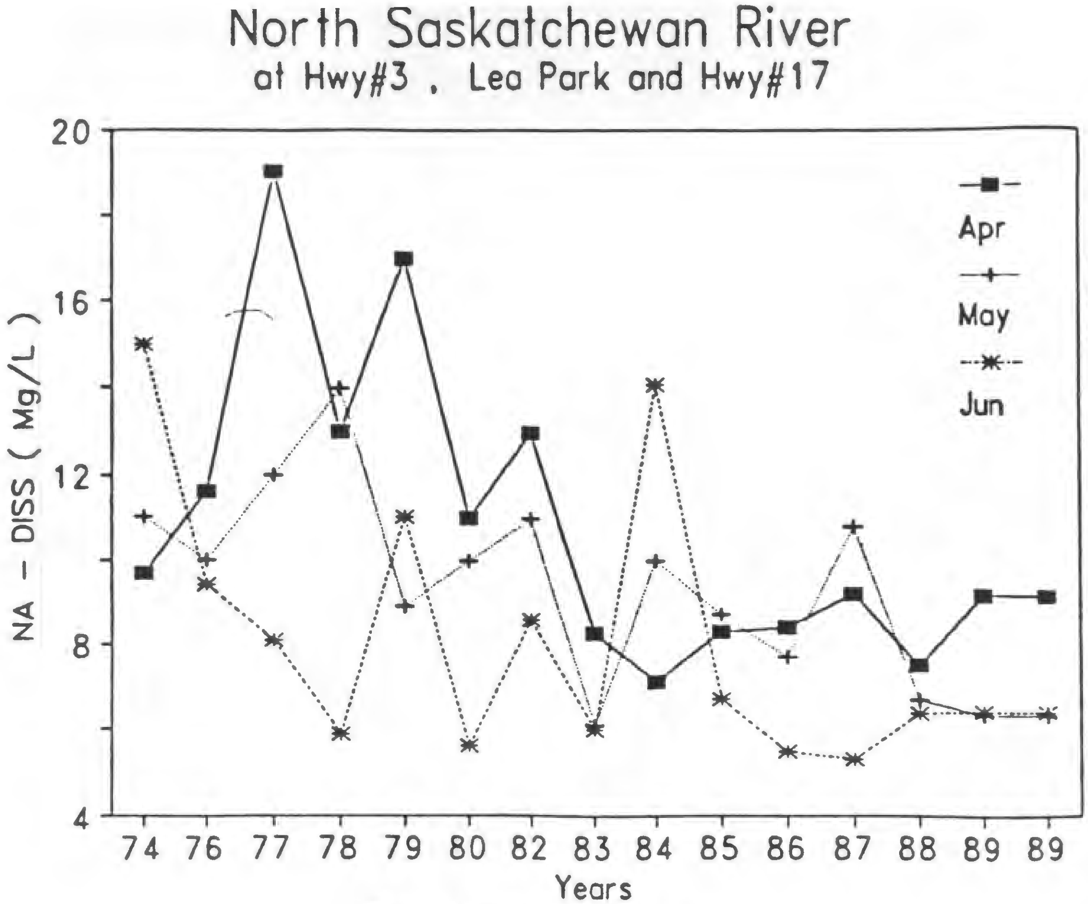
Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test				K,S	K,S	K,S						
	Low. Sen C.I.	-0.175	-0.342	-0.837	-0.952	-0.744	-0.691	-0.504	-0.475	-0.384	-0.519	-0.429	-0.398
	Sen Slope	0.023	0.015	-0.247	-0.350	-0.418	-0.294	-0.110	-0.168	-0.051	-0.137	-0.181	-0.124
	Upp. Sen C.I.	0.273	0.397	0.179	0.000	-0.129	0.012	0.321	0.100	0.200	0.190	0.032	0.178
CK0001													
	Trend Test	K,S	K,S	K,S								K,S	K,S
	Low. Sen C.I.	-1.811	-1.773	-2.344	-0.737	-1.169	-0.994	-0.420	-0.295	-0.717	-0.532	-1.242	-2.298
	Sen Slope	-1.156	-0.988	-1.236	-0.083	-0.665	-0.204	0.117	0.117	-0.041	0.000	-0.870	-1.444
	Upp. Sen C.I.	-0.179	-0.200	-0.209	0.618	0.284	0.511	0.822	0.745	0.547	0.344	-0.436	-0.485
KH0001													
	Trend Test												
	Low. Sen C.I.	-0.400	-0.260	-0.179	-0.393	-0.281	-0.642	-0.500	-0.442	-0.381	-0.209	-0.648	-0.463
	Sen Slope	-0.183	0.133	0.000	0.622	0.000	-0.317	-0.100	-0.050	0.000	0.222	-0.105	-0.123
	Upp. Sen C.I.	0.049	0.450	0.250	1.663	0.400	0.053	0.283	0.346	0.385	0.529	0.589	0.142
EA0003													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table 4.15 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test												
	Low. Sen C.I.	-5.760	-3.017	-9.566	-5.728	-5.024	-4.844	-9.506	-1.581	-2.880	-2.500	-2.979	-1.760
	Sen Slope	-1.000	-0.046	-3.500	-1.444	0.514	-0.778	-2.917	1.171	1.625	-0.583	-1.000	0.233
	Upp. Sen C.I.	3.397	6.912	2.312	2.596	6.011	2.817	1.255	3.817	4.761	1.500	2.433	2.760
LC0001													
	Trend Test				K,S						K,S		
	Low. Sen C.I.	-0.843	-0.557	-0.646	0.059	-0.475	-0.900	-0.600	-0.431	-0.639	-0.694	-0.930	-1.000
	Sen Slope	-0.138	0.040	0.000	0.258	-0.050	-0.327	-0.284	-0.008	-0.132	-0.300	-0.379	-0.227
	Upp. Sen C.I.	0.485	0.909	2.135	0.536	0.099	0.018	0.171	0.488	0.343	-0.106	0.108	0.285
FE0001													
	Trend Test												
	Low. Sen C.I.	-5.913	-3.444	-6.892	-0.590	-4.910	-3.809	-5.961	-7.523	-8.059	-6.570	-6.301	-7.317
	Sen Slope	-0.625	0.000	-1.167	2.375	-0.961	-0.292	-1.414	-2.013	-1.417	-0.162	0.400	0.311
	Upp. Sen C.I.	5.000	4.620	6.227	6.000	2.797	2.463	2.667	3.718	5.332	6.472	7.236	7.399
AD0001													
	Trend Test	S		S								K,S	
	Low. Sen C.I.	-0.416	-0.023	-0.120	-1.004	-0.633	-0.639	-0.600	-0.292	-0.495	-0.304	0.011	-0.492
	Sen Slope	0.500	0.567	0.667	-0.045	0.004	-0.075	0.106	0.293	0.318	0.347	0.561	0.350
	Upp. Sen C.I.	1.570	1.484	1.412	0.380	0.638	0.372	0.676	0.748	1.188	0.928	1.225	1.184

Table 4.15 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test		K,S					K,S					
	Low. Sen C.I.	-0.250	0.000	-0.421	-0.617	-0.976	-0.148	0.090	-0.242	-0.509	-0.828	-0.446	-0.328
	Sen Slope	0.200	0.300	0.000	0.167	-0.080	0.198	0.484	0.329	0.573	0.500	0.231	0.009
	Upp. Sen C.I.	0.860	0.679	0.326	0.800	0.333	0.565	1.177	1.285	1.315	1.408	1.040	0.327
MD0002													
	Trend Test				K,S		S						
	Low. Sen C.I.	-1.641	-3.415	-5.414	0.119	-0.474	-0.072	-1.164	-2.271	-2.224	-0.975	-2.139	-1.090
	Sen Slope	-0.144	-0.740	-1.420	0.600	0.840	0.750	-0.154	-0.370	-0.402	4.540	-0.633	-0.073
	Upp. Sen C.I.	1.866	1.440	1.435	1.222	2.305	1.324	1.189	1.192	0.898	11.872	1.376	0.800
KH0002													
	Trend Test												
	Low. Sen C.I.	-24.461	-27.733	-24.228	-2.976	-1.968	-1.304	-4.012	-4.740	-5.922	-5.030	-9.535	-13.589
	Sen Slope	-6.200	-11.000	-12.000	-0.500	0.712	2.778	0.431	3.608	0.647	1.525	4.478	-1.944
	Upp. Sen C.I.	7.385	11.453	6.000	0.846	3.470	9.355	5.864	12.351	5.231	6.617	17.657	9.724
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--



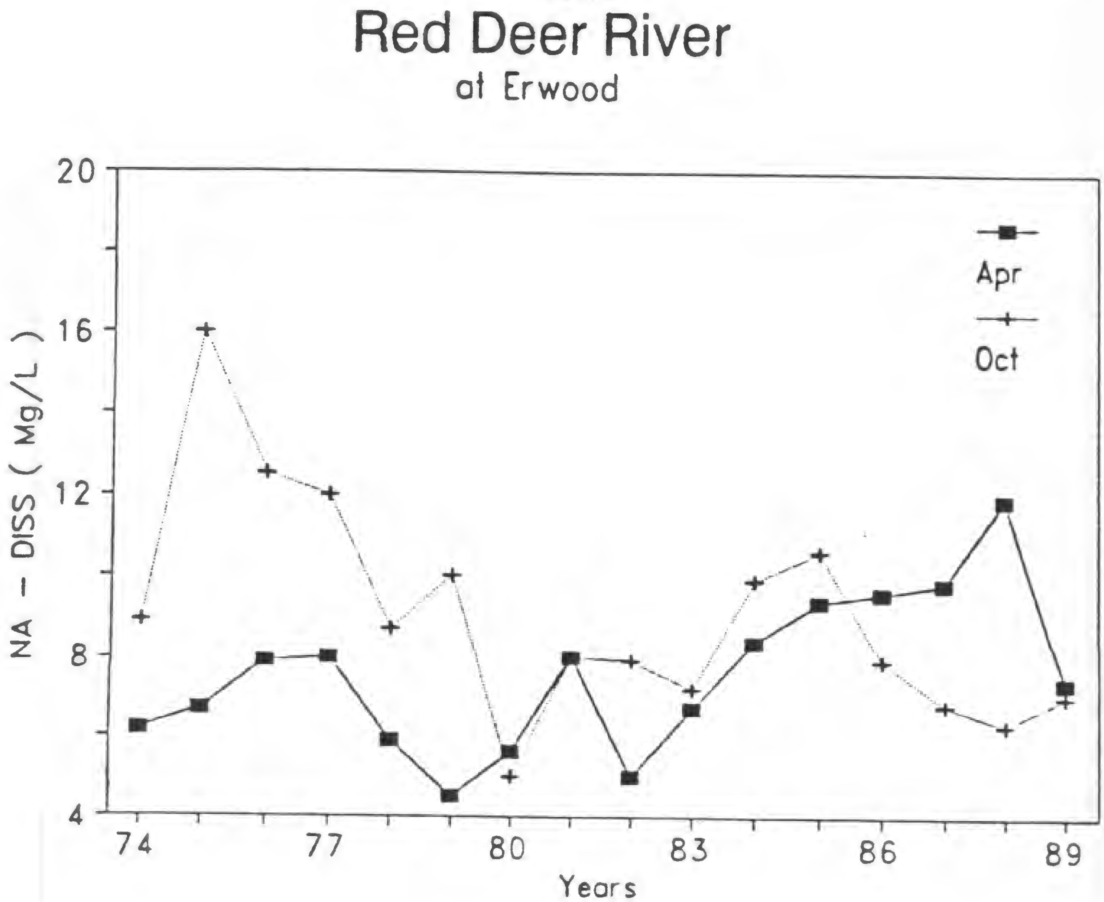


Fig. 4.11 Dissolved Sodium versus Year at Location EF0001 and LC0001 for Months Showing a significant Change over Time.

and significant (See tables A1.1 to A1.11). The monthly slope confidence limits (Table 4.16) and both test statistics τ and Spearman's correlation were significant and positive for January and February. The trend test statistics for the stations CK0001, KH0001, EA0003, FE0001, AD0001, and MD0002 did support the hypothesis of the absence of trend on the basis of the entire data set, however, in few cases the monthly test statistics indicated the presence of trend for data in a particular month. Negative (decreasing) significant trends have been indicated for stations JM0014, LC0001, and AK0001. The monthly tests showed that the decrease occurred in April, May, November, and December for station JM0014 and in December, March, and May for station LC0001 (Fig.4.12), while station AK0001 showed trend in January, March, and April.

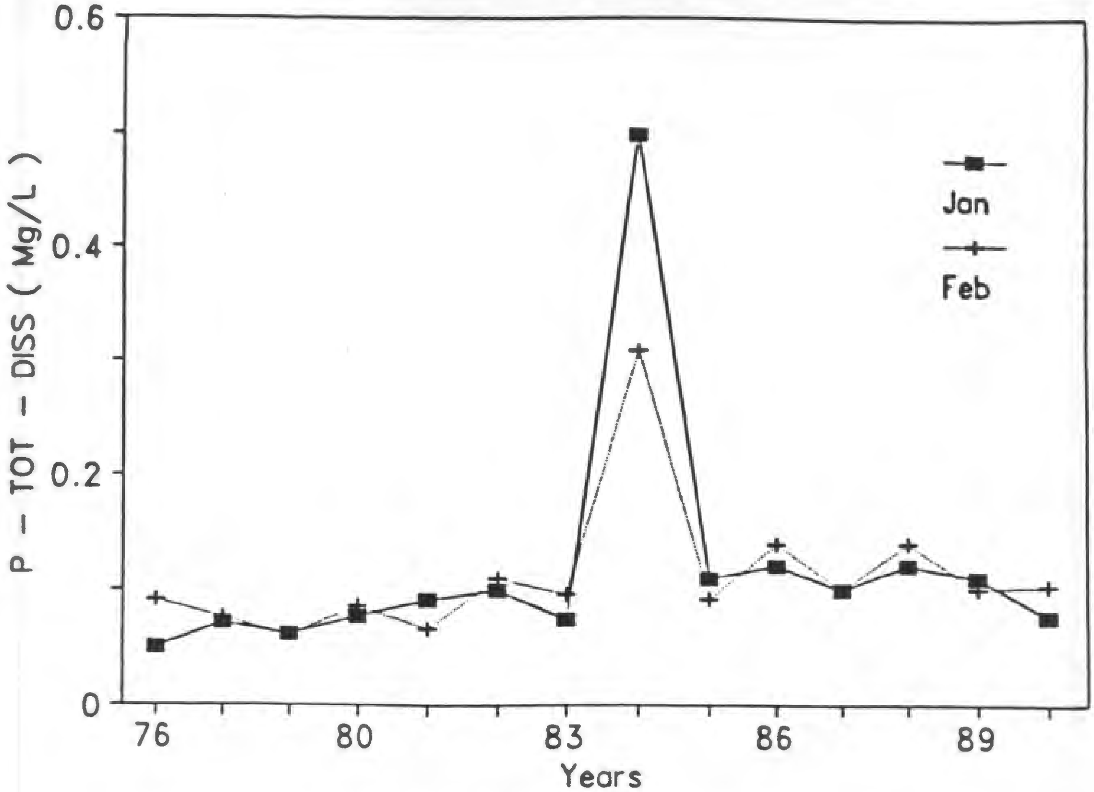
4.4.9 α-BHC

For all stations a homogeneous and significant decreasing trend has been indicated by the test statistics as can be seen in Table 4.17 and A1.1 to A1.11. Concentrations versus month are plotted for months with significant changes for EF0001, KH0001, and LC0001 (Figs. 4.13, 4.14, and 4.15)

4.5 Other Water Quality Variables

In a manner similar to the above descriptions, the changes by water quality variable can be summarized from the tables in Appendices A1 and A2 and from the plots in appendix A3.

at Hwy#3 , Lea Park and Hwy#17



Red Deer River

at Erwood

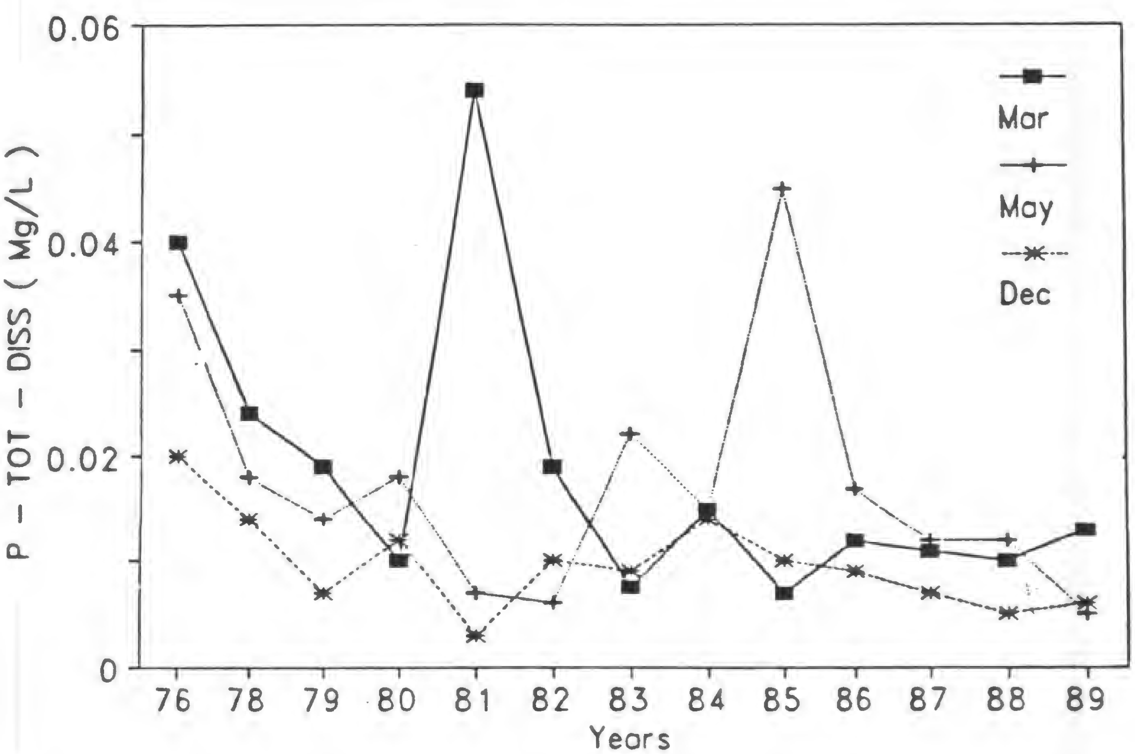


Fig. 4.12 Total Dissolved Phosphorous versus Year at Location EF0001 and LC0001 for Months Showing a significant Change over Time.

Table 4.16 Summary of Nonparametric Tests by Month for Total Dissolved Phosphorous at the Eleven Locations.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test	K,S	K,S		S								
	Low. Sen C.I.	0.0012	0.0005	-0.0006	-0.0105	-0.0026	-0.0021	-0.0019	-0.0020	-0.0020	-0.0043	-0.0050	-0.0023
	Sen Slope	0.0045	0.0025	0.0038	-0.0040	0.0001	0.0000	0.0009	-0.0003	0.0000	-0.0018	-0.0017	0.0015
	Upp. Sen C.I.	0.0065	0.0064	0.0089	0.0015	0.0026	0.0032	0.0043	0.0017	0.0019	0.0031	0.0009	0.0035
CK0001													
	Trend Test				K,S								
	Low. Sen C.I.	-0.0008	-0.0016	-0.0036	-0.0066	-0.0016	-0.0008	-0.0015	-0.0007	-0.0006	-0.0008	-0.0010	-0.0005
	Sen Slope	-0.0003	-0.0003	-0.0003	-0.0040	-0.0003	0.0006	-0.0003	0.0000	0.0000	-0.0002	0.0000	-0.0002
	Upp. Sen C.I.	0.0007	0.0004	0.0024	-0.0011	0.0006	0.0060	0.0026	0.0012	0.0007	0.0002	0.0008	0.0000
KH0001													
	Trend Test			S									
	Low. Sen C.I.	-0.0004	-0.0011	0.0000	-0.0029	-0.0030	-0.0007	-0.0009	-0.0010	-0.0003	-0.0005	-0.0079	-0.0003
	Sen Slope	0.0001	-0.0002	0.0004	-0.0007	-0.0012	0.0000	0.0000	-0.0002	0.0003	0.0000	0.0004	0.0003
	Upp. Sen C.I.	0.0006	0.0008	0.0010	0.0020	0.0001	0.0005	0.0010	0.0002	0.0013	0.0010	0.0019	0.0010
EA0003													
	Trend Test												
	Low. Sen C.I.	-0.0007	-0.0002	-0.0006	--	-0.0010	-0.0002	-0.0006	-0.0004	-0.0010	-0.0008	--	-0.0009
	Sen Slope	-0.0003	0.0001	0.0000	--	-0.0002	0.0002	-0.0001	0.0000	-0.0002	0.0000	--	0.0000
	Upp. Sen C.I.	0.0004	0.0004	0.0008	--	0.0002	0.0007	0.0003	0.0005	0.0002	0.0008	--	0.0007

Table 4.16 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test				K,S	K,S						K,S	K,S
	Low. Sen C.I.	-0.0125	-0.0149	-0.0089	-0.0127	-0.0149	-0.0142	-0.0164	-0.0130	-0.0186	-0.0220	-0.0126	-0.0117
	Sen Slope	-0.0055	-0.0075	0.0030	-0.0079	-0.0071	-0.0073	-0.0072	-0.0029	-0.0030	-0.0103	-0.0080	-0.0055
	Upp. Sen C.I.	0.0014	0.0050	0.0147	-0.0012	-0.0011	0.0037	0.0074	0.0075	0.0124	0.0019	-0.0022	0.0000
LC0001													
	Trend Test			K,S		K							K,S
	Low. Sen C.I.	-0.0022	-0.0032	-0.0032	-0.0077	-0.0026	-0.0033	-0.0016	-0.0007	-0.0004	-0.0004	-0.0010	-0.0010
	Sen Slope	-0.0005	-0.0015	-0.0015	-0.0016	-0.0010	-0.0002	-0.0002	-0.0001	0.0000	0.0000	-0.0004	-0.0007
	Upp. Sen C.I.	0.0004	0.0003	-0.0006	0.0034	0.0000	0.0010	0.0020	0.0012	0.0006	0.0003	0.0001	-0.0002
FE0001													
	Trend Test		S										
	Low. Sen C.I.	-0.0010	0.0000	-0.0038	-0.0138	-0.0022	-0.0020	-0.0019	-0.0017	-0.0014	-0.0018	-0.0031	-0.0020
	Sen Slope	0.0000	0.0011	0.0016	-0.0029	-0.0007	-0.0007	0.0000	0.0003	-0.0006	-0.0004	-0.0010	-0.0004
	Upp. Sen C.I.	0.0013	0.0021	0.0050	0.0019	0.0002	0.0014	0.0036	0.0030	0.0005	0.0012	0.0009	0.0005
AD0001													
	Trend Test				K,S								
	Low. Sen C.I.	-0.0031	-0.0020	-0.0070	-0.0147	-0.0014	-0.0007	-0.0013	-0.0015	-0.0017	-0.0031	-0.0041	-0.0014
	Sen Slope	-0.0015	-0.0010	-0.0004	-0.0094	0.0000	0.0014	0.0003	0.0000	-0.0003	-0.0006	-0.0007	0.0002
	Upp. Sen C.I.	0.0015	0.0004	0.0010	-0.0054	0.0015	0.0066	0.0020	0.0021	0.0016	0.0010	0.0011	0.0010

Table 4.16 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test	K,S		S	S								
	Low. Sen C.I.	-0.0094	-0.0094	-0.0106	-0.0060	-0.0016	-0.0020	-0.0003	-0.0015	-0.0003	-0.0014	-0.0037	-0.0039
	Sen Slope	-0.0041	-0.0043	-0.0041	-0.0020	-0.0003	-0.0009	0.0004	0.0000	0.0002	-0.0001	-0.0011	-0.0005
	Upp. Sen C.I.	-0.0009	0.0019	0.0010	0.0007	0.0005	0.0003	0.0010	0.0010	0.0010	0.0012	0.0013	0.0016
MD0002													
	Trend Test				K,S								K
	Low. Sen C.I.	-0.0111	-0.0103	-0.0086	-0.0132	-0.0044	-0.0037	-0.0052	-0.0120	-0.0113	-0.0077	-0.0058	-0.0071
	Sen Slope	-0.0010	-0.0013	0.0007	-0.0076	0.0016	-0.0003	0.0006	0.0000	-0.0022	0.0103	-0.0016	-0.0020
	Upp. Sen C.I.	0.0004	0.0005	0.0053	-0.0008	0.0078	0.0030	0.0058	0.0099	0.0030	0.0547	0.0020	0.0000
KH0002													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table 4.17 Summary of Nonparametric Tests by Month for α-BHC at the Eleven Locations.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test	K	K,S					K,S		K,S		K,S	
	Low. Sen C.I.	-0.0005	-0.0003	-0.0005	-0.0003	-0.0002	-0.0004	-0.0005	-0.0004	-0.0005	-0.0007	-0.0007	-0.0003
	Sen Slope	-0.0003	-0.0002	0.0000	-0.0001	0.0000	0.0000	-0.0002	-0.0001	-0.0002	-0.0003	-0.0004	-0.0001
	Upp. Sen C.I.	0.0000	0.0000	0.0005	0.0002	0.0001	0.0001	0.0000	0.0000	0.0000	0.0001	-0.0002	0.0000
CK0001													
	Trend Test								K,S	K,S	K,S		
	Low. Sen C.I.	0.0000	0.0000	-0.0004	-0.0005	-0.0005	-0.0005	-0.0005	-0.0005	-0.0006	-0.0011	-0.0003	-0.0001
	Sen Slope	0.0000	0.0000	0.0000	0.0000	-0.0002	-0.0001	-0.0002	-0.0003	-0.0003	-0.0005	0.0000	0.0000
	Upp. Sen C.I.	0.0000	0.0000	0.0005	0.0002	0.0000	0.0000	0.0000	-0.0001	0.0000	-0.0002	0.0000	0.0000
KH0001													
	Trend Test	K,S				K,S		K,S	K,S	K,S	K		K,S
	Low. Sen C.I.	-0.0010	-0.0008	-0.0010	*******	-0.0003	-0.0008	-0.0006	-0.0006	-0.0006	-0.0010	-0.0032	-0.0010
	Sen Slope	-0.0007	-0.0004	0.0000	0.0012	-0.0002	-0.0004	-0.0003	-0.0004	-0.0003	-0.0004	-0.0005	-0.0008
	Upp. Sen C.I.	-0.0004	0.0003	0.0008	*******	0.0000	0.0000	0.0000	-0.0003	-0.0002	0.0000	0.0016	-0.0002
EA0003													
	Trend Test		K,S			K			K,S	K,S			
	Low. Sen C.I.	-0.0006	-0.0006	-0.0004	--	-0.0005	-0.0005	-0.0004	-0.0004	-0.0004	-0.0007	--	-0.0006
	Sen Slope	-0.0002	-0.0003	0.0002	--	-0.0002	-0.0003	-0.0002	-0.0002	-0.0002	-0.0002	--	-0.0001
	Upp. Sen C.I.	0.0000	0.0000	0.0008	--	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	--	0.0004

Table 4.17 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test				K,S	K,S		K,S	K	K,S			K,S
	Low. Sen C.I.	-0.0003	-0.0003	-0.0003	-0.0005	-0.0007	-0.0005	-0.0006	-0.0006	-0.0006	-0.0007	-0.0005	-0.0008
	Sen Slope	0.0000	-0.0001	0.0000	-0.0002	-0.0003	-0.0001	-0.0003	-0.0004	-0.0003	-0.0001	-0.0002	-0.0005
	Upp. Sen C.I.	0.0000	0.0000	0.0005	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0001	0.0000	-0.0001
LC0001													
	Trend Test				K	K,S		K,S		K,S	K,S	K,S	K
	Low. Sen C.I.	0.0000	0.0000	-0.0004	-0.0006	-0.0005	-0.0003	-0.0003	-0.0004	-0.0004	-0.0005	-0.0003	-0.0002
	Sen Slope	0.0000	0.0000	0.0000	-0.0004	-0.0003	-0.0001	-0.0002	-0.0002	-0.0002	-0.0003	-0.0002	0.0000
	Upp. Sen C.I.	0.0000	0.0000	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0001	0.0000	0.0000
FE0001													
	Trend Test	K,S	K			K,S			K		K,S		K,S
	Low. Sen C.I.	-0.0006	-0.0002	-0.0010	-0.0002	-0.0005	-0.0009	-0.0006	-0.0008	-0.0007	-0.0012	-0.0010	-0.0008
	Sen Slope	-0.0003	-0.0001	0.0000	0.0000	-0.0004	-0.0005	-0.0003	-0.0005	-0.0002	-0.0005	-0.0003	-0.0005
	Upp. Sen C.I.	-0.0002	0.0000	0.0010	0.0000	-0.0002	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	-0.0004
AD0001													
	Trend Test		K			K,S		K,S	K,S	K,S	K	K,S	
	Low. Sen C.I.	-0.0003	-0.0002	-0.0004	-0.0004	-0.0003	-0.0002	-0.0003	-0.0005	-0.0004	-0.0003	-0.0005	0.0000
	Sen Slope	0.0000	-0.0001	0.0000	0.0000	-0.0002	0.0000	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002	0.0000
	Upp. Sen C.I.	0.0000	0.0000	0.0003	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table 4.17 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test							K,S	K,S		K,S		
	Low. Sen C.I.	-0.0005	-0.0002	-0.0005	-0.0003	-0.0005	-0.0003	-0.0005	-0.0008	-0.0008	-0.0010	-0.0007	-0.0010
	Sen Slope	-0.0001	0.0000	0.0003	0.0000	-0.0002	0.0000	-0.0003	-0.0005	-0.0003	-0.0006	-0.0003	-0.0003
	Upp. Sen C.I.	0.0000	0.0000	0.0012	0.0003	0.0000	0.0003	-0.0001	-0.0003	0.0000	-0.0001	0.0002	0.0000
MD0002													
	Trend Test	K				K,S			K,S	K,S	K,S	K,S	K,S
	Low. Sen C.I.	-0.0006	-0.0003	0.0000	-0.0005	-0.0007	-0.0007	-0.0005	-0.0012	-0.0011	-0.0010	-0.0006	-0.0010
	Sen Slope	-0.0003	-0.0001	0.0000	-0.0002	-0.0004	-0.0002	-0.0002	-0.0007	-0.0008	-0.0003	-0.0003	-0.0005
	Upp. Sen C.I.	0.0000	0.0000	0.0003	0.0000	0.0000	0.0002	0.0001	-0.0004	-0.0002	-0.0002	0.0000	0.0000
KH0002													
	Trend Test						K,S	K,S		K,S		K,S	K
	Low. Sen C.I.	0.0000	0.0000	0.0000	-0.0008	-0.0004	-0.0006	-0.0003	-0.0003	-0.0004	-0.0005	-0.0002	-0.0003
	Sen Slope	0.0000	0.0000	0.0000	-0.0003	-0.0003	-0.0003	-0.0002	-0.0001	-0.0002	-0.0002	-0.0001	-0.0001
	Upp. Sen C.I.	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

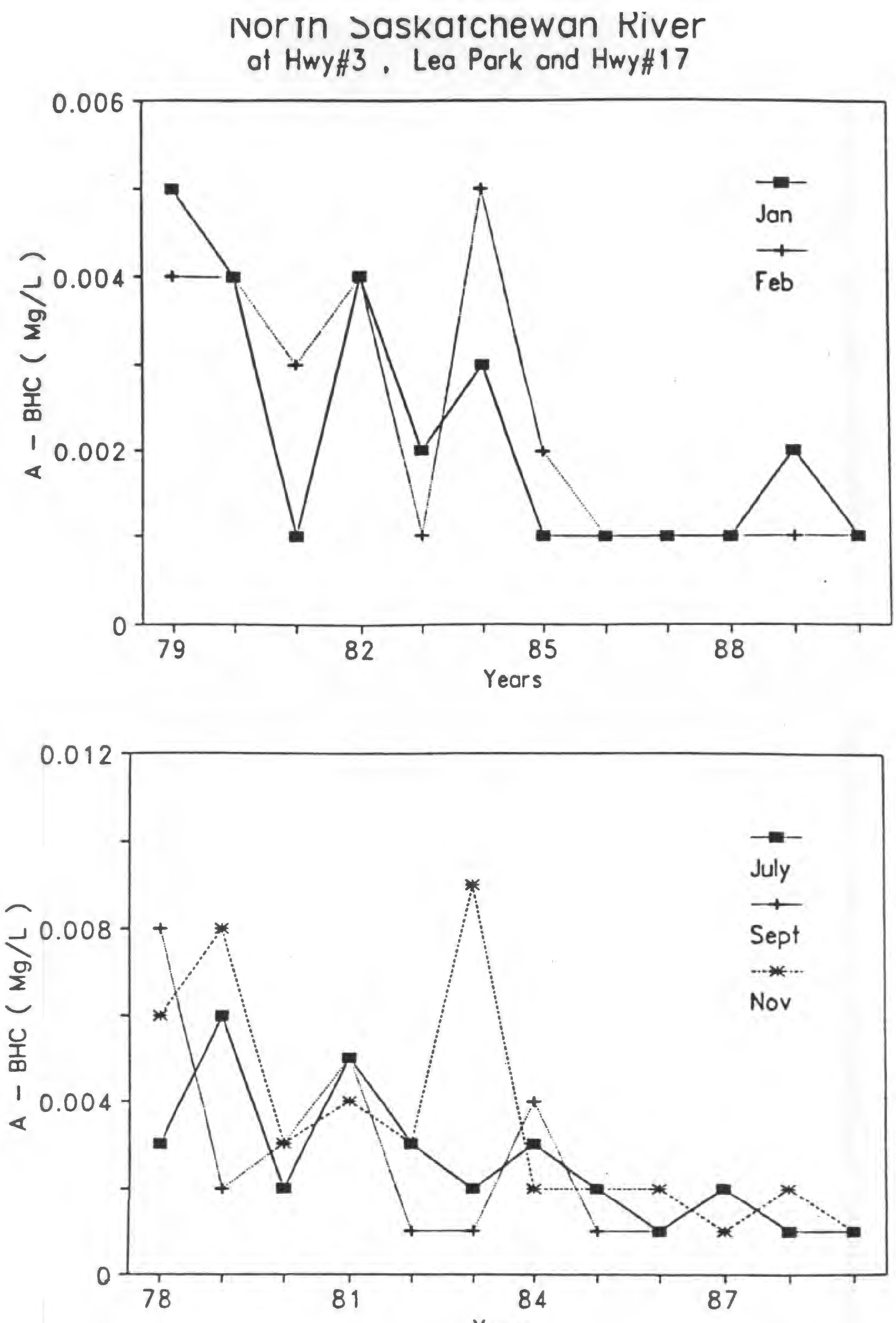


Fig. 4.13 α-BHC versus Year at Location EF0001 for Months Showing a Significant Change over Time.

Saskatchewan River
near Manitoba Boundary

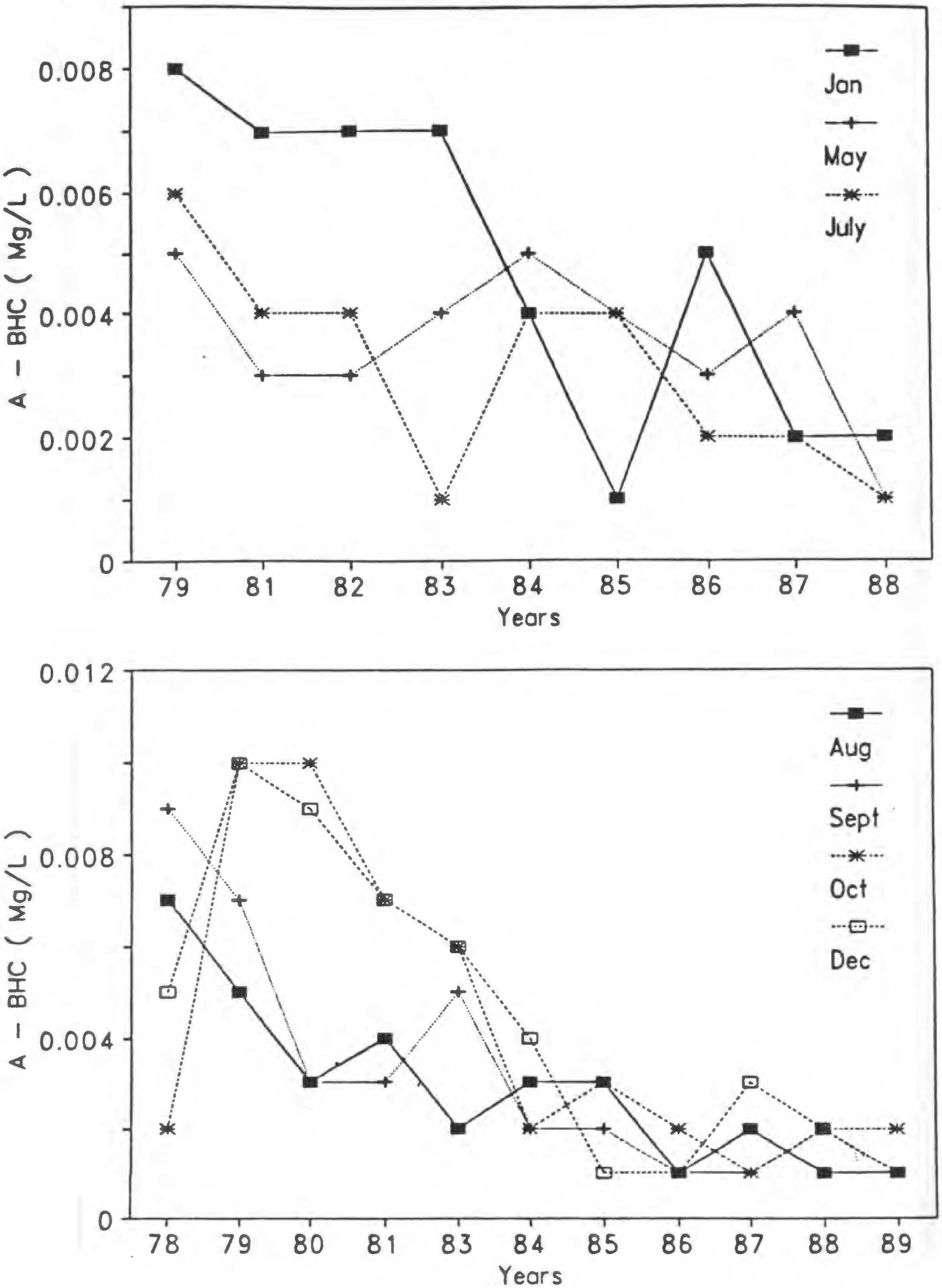


Fig. 4.14 α-BHC versus Year at Location KH0001 for Months Showing a Significant Change over Time.

Red Deer River
at Erwood

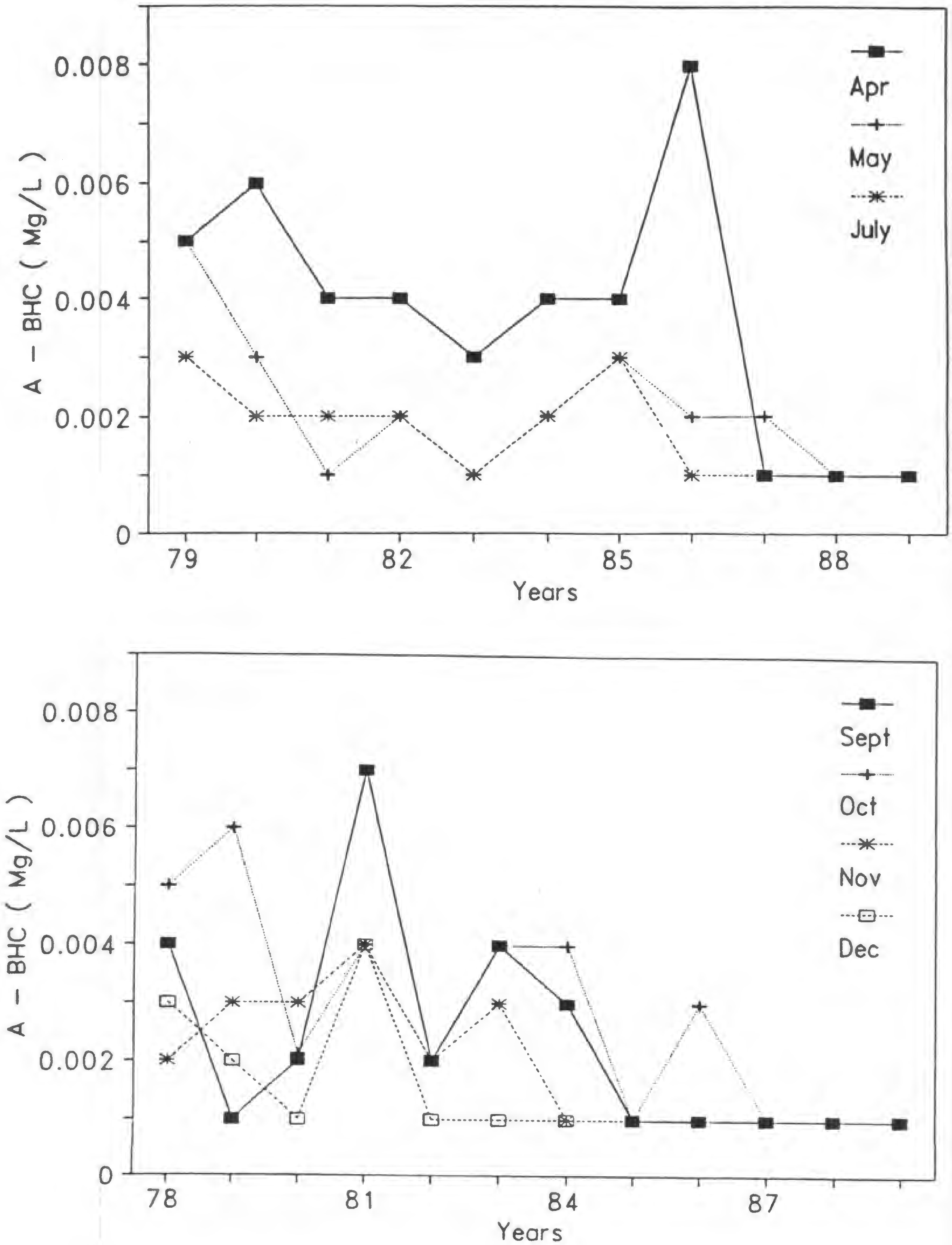


Fig. 4.15 α-BHC versus Year at Location LC0001 for Months Showing a Significant Change over Time.

5. RECOMMENDATIONS

The present report is concerned with the analysis for trend of an existing set of water quality data. It addresses method identification and includes a large number of results of the application of the identified methods. Thus, the scope is limited by the objectives and the sheer volume of the data and short time for the work. The following recommendations are to be considered with these factors in mind.

1. The results of the tests and estimation methods given here need to be examined on a variable-by-variable basis for each location, taking into account knowledge about the characteristics of the location, the years in which monitoring was done, the analytical methodology and all other pertinent information. This was not considered to be part of the study and such information was not provided. Such an examination may be expected to lead to re-analysis or further analysis in some cases; which is not a short coming but merely the nature of data analysis. For example, in the future for those constituents of concern, possible causes for changes over time should be postulated and additional statistical analysis indicated.
2. The sampling frequency should be continued for the near future in order to maintain the integrity of the data record. Seasonality contributes the highest proportion of variability in the data and, from the present results, it appears that changes over time are not homogeneous over all seasons. Thus the analysis recommended in 1. should provide very important information about appropriate sampling frequency. However, to provide a quantitative recommendation, an assessment, including all the objectives of the monitoring network (eg. station differences), would be needed. This is beyond the present scope.
3. The variables that are measured may need to be examined with respect to redundancy of information, the ability to measure quantitatively and the value of the record if many method changes occur. This, however, is part of the larger problem which should be addressed for constituents of concern.

4. The capability to analyze data as it is collected, at least yearly, is imperative so that the important input of the people involved is available, which helps ensure good quality data, and so that results can be reported promptly. Many monitoring networks have been set up without including the capability to analyze the data, and, as agencies attempt to correct this omission, the link between the various stages should be emphasized. The objectives and the nature of the system determine the design and the design determines the possible methods of statistical analysis, type of information that will be available from the analysis of the data and the strength of the conclusions that can be drawn.

5. The nonparamatric tests (Kendall's τ and Spearman's ρ_s) are recommended as screening trend tests. These should be supplementd by time plots to justify the use of these tests and help in the interpretation of the results. The reason for this is that these tests are designed to detect monontonic (increasing or decreasing) trends and hence non-significant tests might be indicative of a more complicated form of trend. The use of Sen's slope estimator is also recommended as a measure for the trend rate. This estimate is adequate when τ and ρ_s are adequate. Finally the van Belle's test for the homogeneity of the trends should be computed to test the consistency of the monthly τ values prior to computing the seasonal τ and using it as a test for the entire historical record.

6. Further work is recommended to interpret the results of the present work. The collaboration between the authors of this report and the researchers who designed the data collection and know the limitations of the sampling and analytical methods is essential to the full understanding of the apparent results given here.

7. The mainframe computer package that has been developed to conduct the nonparametric statistical methods should be converted so it can be run on micro-computers. This package is currently available on the CCIW computer.

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Appendix A1

Tables of Nonparametric Analysis by Water Quality Variable and Location

Table	Station Number	Station Name
A1.1	AK0001	South Saskatchewan River at Hwy 41
A1.2	EF0001	North Saskatchewan River at Hwy 3, Lea Park and Hwy 17
A1.3	CK0001	Red Deer River near Bindloss
A1.4	KH0001	Saskatchewan River near Manitoba Boundary
A1.5	EA0003	Churchill River at outlet Wasawakasik Lake
A1.6	JM0014	Qu'Appelle River near Welby
A1.7	LC0001	Red Dear River at Erwood
A1.8	FE0001	Battle River near Unwin
A1.9	AD0001	Beaver River at Beaver Crossing
A1.10	MD0002	Assiniboine River near Kamsack
A1.11	KH0002	Carrot River near Turberry

South Saskatchewan River at Hwy 41 AK0001

Table A1.1

TDS

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.6433	.7677	-1.3000	.9967	-.9023	1.1290	* 1.9810	1.4436	1.1762	.0900	-.2253	-1.7577
SPEARMAN STAT.	-.7910	.9208	-1.1450	1.2696	-.9965	1.1735	2.0933	1.4249	.9329	.0991	-.4405	-2.0237
KENDALL COEFFICIENT	-.1238	.1167	-.3143	.1429	-.1833	.1833	.3667	.2500	.1833	.0167	-.0500	-.3333
SPEARMAN COEFFICIENT	-.2143	.2390	-.3027	.3321	-.2574	.2993	.4882	.3559	.2419	.0265	-.1169	-.4757
SEN UPPER CONF. INT.	-7.1640	-2.7510	-3.0000	-1.4661	-6.3866	-1.0701	-.0075	-.4022	-.7693	-3.5372	-3.5414	-5.2324
SEN ESTIMATED OF SLOPE	-1.5556	1.4524	-1.5000	.4000	-1.5000	.9667	2.5139	1.6970	2.5682	.3131	-.5195	-2.8397
SEN LOWER CONF. INT.	6.0758	5.2796	.8500	2.1055	2.1577	2.6168	4.0639	4.0000	5.5234	4.2383	7.2802	.4453

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	13.7094	
SEASONAL KENDALL STATISTIC =	.8393	
MODIFY SEA. KEN. STATISTIC =	.6936	
VAN BELLE (HOMO) STATISTIC =	15.6827	
VAN BELLE (TEND) STATISTIC =	.6328	
KENDALL COEFFICIENT =	.0348	
SPEARMAN COEFFICIENT =	.0508	
SEASONAL UPPER CONF. INT. =	-.5000	
SEASONAL ESTIMATED OF SLOPE =	.2857	
SEASONAL LOWER CONF. INT. =	1.1687	

* SIGNIFICANT AT 5 % LEVEL

COND (F)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.9307	1.5855	-.7321	1.4826	-.2737	.7423	1.1382	* 2.5850	.6022	.4955	.7662	* -2.1332
SPEARMAN STAT.	.7071	1.6799	-.5353	1.4628	-.5473	.5337	1.2391	* 3.4645	.7559	.5971	.6679	* -2.2662
KENDALL COEFFICIENT	.1868	.2952	-.1538	.2747	-.0549	.1429	.2190	.4667	.1209	.0857	.1333	-.4286
SPEARMAN COEFFICIENT	.2000	.4223	-.1593	.3890	-.1560	.1464	.3250	.6929	.2132	.1634	.1757	-.5321
SEN UPPER CONF. INT.	-6.5680	-3.1394	-11.4169	-1.2246	-10.8000	-3.1501	-3.4091	1.1697	-5.4012	-8.1195	-6.2031	-14.3657
SEN ESTIMATED OF SLOPE	3.0000	6.8000	-4.3810	3.5000	-1.3333	.6667	4.4444	6.5000	1.5000	3.5000	2.8117	-7.3333
SEN LOWER CONF. INT.	14.6317	19.0128	10.1012	9.6397	8.1337	7.4344	9.6560	10.7659	15.0338	11.0558	13.6100	-.1491

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	18.1493	
SEASONAL KENDALL STATISTIC =	2.1381	*
MODIFY SEA. KEN. STATISTIC =	1.7144	
VAN BELLE (HOMO) STATISTIC =	16.1562	
VAN BELLE (TEND) STATISTIC =	4.3069	*
KENDALL COEFFICIENT =	-.0035	
SPEARMAN COEFFICIENT =	-.0032	
SEASONAL UPPER CONF. INT. =	.0907	
SEASONAL ESTIMATED OF SLOPE =	1.8333	
SEASONAL LOWER CONF. INT. =	4.1539	

* SIGNIFICANT AT 5 % LEVEL

South Saskatchewan River at Hwy 41 AK0001

TEMP (F)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.3912	-.4874	-.6525	.4524	* 2.1225	.6793	-.5440	.4968	-.6449	-.5980	.1008	-.6586
SPEARMAN STAT.	-.4026	-.1095	-.6476	.6737	* 2.3485	.9540	-.4968	.4855	-.6882	-.3297	.2064	-.4741
KENDALL COEFFICIENT	-.7363	-.3714	-.2190	.0500	.3667	.0833	-.1500	.0667	-.1429	-.1619	-.0857	-.2381
SPEARMAN COEFFICIENT	-.1154	-.0304	-.1768	.1772	.5316	.2471	-.1316	.1287	-.1875	-.0911	.0571	-.1304
SEN'S UPPER CONF. INT.	-.0533	-.0500	-.1365	-.3055	.0086	-.2500	-.4476	-.2450	-.6250	-.5758	-.1667	-.0989
SEN'S EST. OF SLOPE	.0000	.0000	-.0250	.0583	.4330	.1056	-.0690	.1107	-.1500	-.0714	.0000	-.0143
SEN'S LOWER CONF. INT.	.0000	.0000	.0603	.7407	.8750	.4744	.3481	.4000	.3245	.3460	.2136	.0404

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	13.0940	
SEASONAL KENDALL STATISTIC =	-.0992	
MODIFY SEA. KEN. STATISTIC =	-.0754	
VAN BELLE (HOMO) STATISTIC =	9.4244	
VAN BELLE (TEND) STATISTIC =	.1054	
KENDALL COEFFICIENT =	.0810	
SPEARMAN COEFFICIENT =	.[illegible]78	
SEASONAL UPPER CONF. INT. =	-.0189	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL LOWER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

TURB. (F) (THE FIRST FIVE ROWS HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.9974	* 1.9757	.9383	-1.1628	.9918	-1.5205	.2335	1.4056	* 2.7727	1.6994	.7184	* 2.7727
SPEARMAN STAT.	1.1422	* 2.3902	.9354	-1.4434	1.4678	* -2.4095	.3570	1.5022	* 4.6537	1.4434	1.1147	* 4.6537
KENDALL COEFFICIENT	.2857	.4667	.2778	-.2889	.2000	-.3778	.0545	.3091	.6889	.4222	.1556	.6889
SPEARMAN COEFFICIENT	.4226	.6455	.3333	-.4545	.4606	-.6485	.1182	.4477	.8545	.4545	.3667	.8545
SEN'S UPPER CONF. INT.	-1.1546	-.1238	-5.0997	-14.8425	-10.0922	-26.1142	-4.3758	-1.0709	.9000	-.8913	-2.5872	.2972
SEN'S EST. OF SLOPE	.4764	1.0000	1.0667	-2.8000	2.8750	-12.1429	.1222	.9429	3.3000	2.0000	.7125	.8750
SEN'S LOWER CONF. INT.	2.6329	2.6101	8.8477	3.1418	19.3422	4.2394	3.9147	6.0439	9.0229	3.0000	3.1137	1.4256

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	13.7323	
SEASONAL KENDALL STATISTIC =	3.4037	*
MODIFY SEA. KEN. STATISTIC =	2.0022	*
VAN BELLE (HOMO) STATISTIC =	19.6045	
VAN BELLE (TEND) STATISTIC =	12.1027	*
KENDALL COEFFICIENT =	-.0876	
SPEARMAN COEFFICIENT =	-.1261	
SEASONAL UPPER CONF. INT. =	.3333	
SEASONAL ESTIMATED OF SLOPE =	.7667	
SEASONAL LOWER CONF. INT. =	1.3000	

* SIGNIFICANT AT 5 % LEVEL

B-DISS

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.8741	* 2.5726	.2106	-.7722	1.3099	-.9203	.9982	.0000	1.3793	1.7020	* 2.7107	* 2.3537
SPEARMAN STAT.	* 2.2903	* 3.2588	.2161	-.8010	1.2620	-.8916	1.1711	.1257	1.6157	1.8939	* 3.4204	* 2.8373
KENDALL COEFFICIENT	.4182	.3714	-.0606	-.2088	.1429	-.2308	-.0667	-.1868	-.0095	.1795	.5152	.4545
SPEARMAN COEFFICIENT	.6068	.6705	.0682	-.2253	.3304	-.2596	.3089	.0363	.4089	.4959	.7343	.6678
SEN'S UPPER CONF. INT.	-.0025	.0001	-.0057	-.0055	-.0009	-.0050	.0000	-.0014	.0000	.0000	.0020	.0017
SEN'S EST. OF SLOPE	.0075	.0058	.0000	-.0009	.0022	-.0017	.0000	.0000	.0000	.0017	.0059	.0050
SEN'S LOWER CONF. INT.	.0174	.0148	.0095	.0033	.0067	.0025	.0015	.0016	.0027	.0042	.0104	.0096

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.0619	
SEASONAL KENDALL STATISTIC =	3.7506	*
MODIFY SEA. KEN. STATISTIC =	[illegible]	*
VAN BELLE (HOMO) STATISTIC =	17.0126	
VAN BELLE (TEND) STATISTIC =	15.0045	*
KENDALL COEFFICIENT =	-.2149	
SPEARMAN COEFFICIENT =	-.1870	
SEASONAL UPPER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0014	
SEASONAL LOWER CONF. INT. =	.0022	

* SIGNIFICANT AT 5 % LEVEL

TN*

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.4511	.3602	.2253	-1.3507	-.7662	-.9925	-1.1267	-.0908	.7947	* 2.5300	-.7423	-.1485
SPEARMAN STAT.	.4714	.4320	-.1349	-1.4249	-.4968	-.9359	-1.2373	-.1597	.8500	* 3.3801	-.8605	-.3363
KENDALL COEFFICIENT	.0667	.0667	.0333	-.2500	-.1500	-.2000	-.2167	-.0667	.1238	.4667	-.1429	-.0286
SPEARMAN COEFFICIENT	.1250	.1147	-.0360	-.3559	-.1316	-.2426	-.3140	-.0426	.2295	.6839	-.2321	-.0929
SEN'S UPPER CONF. INT.	-.0650	-.0462	-.0489	-.1083	-.0878	-.0613	-.0407	-.0194	-.0123	.0019	-.0561	-.0223
SEN'S EST. OF SLOPE	.0210	.0143	.0119	-.0480	-.0254	-.0143	-.0107	.0000	.0067	.0250	-.0080	-.0014
SEN'S LOWER CONF. INT.	.1552	.1348	.0931	.0280	.0479	.0205	.0130	.0173	.0219	.0556	.0374	.0483

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	8.0291
SEASONAL KENDALL STATISTIC =	-.3219
MODIFY SEA. KEN. STATISTIC =	-.3306
VAN BELLE (HOMO) STATISTIC =	12.6028
VAN BELLE (TEND) STATISTIC =	.0611
KENDALL COEFFICIENT =	-.2372
SPEARMAN COEFFICIENT =	-.3359
SEASONAL UPPER CONF. INT. =	-.0100
SEASONAL ESTIMATED OF SLOPE =	-.0010
SEASONAL LOWER CONF. INT. =	.0100

* SIGNIFICANT AT 5 % LEVEL

PH (F)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.6626	1.1121	.8826	2.0062 *	.6465	1.4988	.6825	-.9480	-.4017	.2043	.5572	1.9080
SPEARMAN STAT.	-.6267	1.2125	.8672	2.2977 *	.7634	1.6242	.7200	-.7669	-.3722	.3984	.7634	2.2085 *
KENDALL COEFFICIENT	-.1868	.0857	.1209	.2967	.0857	.2190	.0500	-.2381	-.1619	-.1238	-.0095	.2762
SPEARMAN COEFFICIENT	-.1780	.3188	.2429	.5527	.2071	.4107	.1890	-.2080	-.1027	.1098	.2071	.5223
SEN'S UPPER CONF. INT.	-.0844	-.0097	-.0309	.0000	-.0455	-.0115	-.0227	-.0765	-.0637	-.0250	-.0242	.0000
SEN'S EST. OF SLOPE	-.0143	.0143	.0300	.0333	.0167	.0250	.0143	-.0167	.0000	.0000	.0000	.0250
SEN'S LOWER CONF. INT.	.0500	.0635	.1000	.0750	.0807	.0762	.0433	.0300	.0500	.0250	.0493	.0600

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.2274	
SEASONAL KENDALL STATISTIC =	2.1466	*
MODIFY SEA. KEN. STATISTIC =	1.1955	
VAN BELLE (HOMO) STATISTIC =	9.9925	
VAN BELLE (TEND) STATISTIC =	4.6699	*
KENDALL COEFFICIENT =	.0756	
SPEARMAN COEFFICIENT =	.2501	
SEASONAL UPPER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0111	
SEASONAL LOWER CONF. INT. =	.0200	

* SIGNIFICANT AT 5 % LEVEL

NFR

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.9043	1.0964	1.0965	-1.7321	-1.5341	-1.6208	-1.4351	1.3908	1.0433	1.8716	.6449	2.6612 *
SPEARMAN STAT.	2.1810	1.2467	1.0719	-2.0817	-1.4585	-1.7052	-1.6583	1.4303	1.1291	2.3711 *	.5670	3.1386 *
KENDALL COEFFICIENT	.3590	.1619	.2088	-.3333	-.2952	-.3000	-.2762	.2381	.1868	.3407	.1048	.4505
SPEARMAN COEFFICIENT	.5495	.3268	.2956	-.5000	-.3750	-.4147	-.4179	.3688	.3099	.5648	.1554	.6714
SEN'S UPPER CONF. INT.	.0000	-1.0000	-7.9783	-18.4188	-52.7296	-43.8713	-10.0087	-1.0000	-1.5000	-.0140	-.7401	.1412
SEN'S EST. OF SLOPE	.6932	.5000	1.1000	-7.3333	-16.1000	-15.3750	-2.3333	.9273	1.6667	1.4545	.3077	.5000
SEN'S LOWER CONF. INT.	1.9883	1.8000	5.5374	2.8606	14.1010	2.2848	.9640	3.8325	6.0000	3.4000	2.7773	1.5472

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.4704	
SEASONAL KENDALL STATISTIC =	1.2498	
MODIFY SEA. KEN. STATISTIC =	1.1298	
VAN BELLE (HOMO) STATISTIC =	27.6762	*
VAN BELLE (TEND) STATISTIC =	2.4182	
KENDALL COEFFICIENT =	-.1485	
SPEARMAN COEFFICIENT =	-.2006	
SEASONAL UPPER CONF. INT. =	-.1416	
SEASONAL ESTIMATED OF SLOPE =	.2404	
SEASONAL LOWER CONF. INT. =	.6667	

* SIGNIFICANT AT 5 % LEVEL

NA-DISS

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.8236	* 1.9868	.0497	.4465	-.4511	1.6208	* 2.2511	1.0387	1.2882	.8919	.7441	.0991
SPEARMAN STAT.	.8216	* 2.2189	-.0256	.5138	-.4040	1.5205	* 2.2638	1.1989	1.4223	.8361	.9097	.0097
KENDALL COEFFICIENT	.1429	.3524	-.0286	.0667	-.1000	.3000	.4167	.1667	.2381	.1619	.1238	.0095
SPEARMAN COEFFICIENT	.2308	.5241	-.0071	.1411	-.1074	.3765	.5176	.3051	.3670	.2259	.2446	.0027
SEN'S UPPER CONF. INT.	-.2500	.0000	-.4210	-.6171	-.9762	-.1483	.0904	-.2417	-.5093	-.8279	-.4459	-.3280
SEN'S EST. OF SLOPE	.2000	.3000	.0000	.1667	-.0800	.1979	.4838	.3293	.5727	.5000	.2308	.0091
SEN'S LOWER CONF. INT.	.8604	.6785	.3260	.8000	.3333	.5651	1.1769	1.2850	1.3153	1.4080	1.0401	.3273

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	11.3357	
SEASONAL KENDALL	STATISTIC =	3.1370	*
MODIFY SEA. KEN.	STATISTIC =	1.7793	
VAN BELLE (HOMO)	STATISTIC =	7.1221	
VAN BELLE (TEND)	STATISTIC =	9.7010	*
KENDALL	COEFFICIENT =	.1642	
SPEARMAN	COEFFICIENT =	.2747	
SEASONAL UPPER	CONF. INT. =	.0714	
SEASONAL ESTIMATED OF SLOPE =		.2000	
SEASONAL LOWER	CONF. INT. =	.3333	

* SIGNIFICANT AT 5 % LEVEL

P-TOT DISS (THE FIRST ROW HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.3315	-1.4255	-1.7545	-1.7545	-1.0475	-1.4255	.9401	.1229	.6210	-.5571	-1.2247	-.6749
SPEARMAN STAT.	* -3.1550	-1.7322	* -2.8570	* -2.6507	-.9769	-1.3906	1.0719	.1459	.5543	-.5924	-1.2793	-.8714
KENDALL COEFFICIENT	-.5152	-.2967	-.3626	-.3626	-.2527	-.2967	.1209	-.0256	.0256	-.2051	-.2821	-.1795
SPEARMAN COEFFICIENT	-.7063	-.4473	-.6363	-.6077	-.2714	-.3725	.2956	.0440	.1648	-.1758	-.3599	-.2541
SEN'S UPPER CONF. INT.	-.0094	-.0094	-.0106	-.0060	-.0016	-.0020	-.0003	-.0015	-.0003	-.0014	-.0037	-.0039
SEN'S EST. OF SLOPE	-.0041	-.0043	-.0041	-.0020	-.0003	-.0009	.0004	.0000	.0002	-.0001	-.0011	-.0005
SEN'S LOWER CONF. INT.	-.0009	.0019	.0010	.0007	.0005	.0003	.0010	.0010	.0010	.0012	.0013	.0016

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	19.2445	
SEASONAL KENDALL	STATISTIC =	-3.0353	*
MODIFY SEA. KEN.	STATISTIC =	-2.3423	*
VAN BELLE (HOMO)	STATISTIC =	11.0959	
VAN BELLE (TEND)	STATISTIC =	9.2078	*
KENDALL	COEFFICIENT =	-.3172	
SPEARMAN	COEFFICIENT =	-.4161	
SEASONAL UPPER	CONF. INT. =	-.0010	
SEASONAL ESTIMATED OF SLOPE =		-.0005	
SEASONAL LOWER	CONF. INT. =	-.0002	

* SIGNIFICANT AT 5

CL-DISS

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 1.9738	* 2.3783	* 2.3316	* 2.0407	1.2666	* 2.4362	* 3.0196	* 3.4703	* 2.7747	* 3.0720	* 2.5238	* 2.7747
SPEARMAN STAT.	2.0833	* 2.6729	* 2.4303	* 2.2821	.9570	* 2.5898	* 3.8803	* 5.1873	* 3.2906	* 4.3339	* 3.2353	* 3.1966
KENDALL COEFFICIENT	.3846	.4476	.4286	.3524	.2000	.4333	.5500	.6333	.5238	.5810	.4857	.5238
SPEARMAN COEFFICIENT	.5154	.5955	.5589	.5348	.2476	.5691	.7199	.8110	.6741	.7686	.6679	.6634
SEN'S UPPER CONF. INT.	-.0075	.0716	.0313	.0000	-.0611	.0230	.1567	.2000	.1262	.1592	.0823	.1000
SEN'S EST. OF SLOPE	.3500	.2667	.2167	.2500	.1300	.1432	.3106	.3339	.3250	.4200	.3500	.2111
SEN'S LOWER CONF. INT.	.7950	.6690	.5510	.5297	.4000	.2200	.4659	.4517	.5173	.5856	.6400	.3520

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.8954	
SEASONAL KENDALL STATISTIC =	8.6855	*
MODIFY SEA. KEN. STATISTIC =	3.6265	*
VAN BELLE (HOMO) STATISTIC =	3.7460	
VAN BELLE (TEND) STATISTIC =	75.3111	*
KENDALL COEFFICIENT =	.0028	
SPEARMAN COEFFICIENT =	-.0120	
SEASONAL UPPER CONF. INT. =	.2000	
SEASONAL ESTIMATED OF SLOPE =	.2500	
SEASONAL LOWER CONF. INT. =	.3225	

* SIGNIFICANT AT 5 % LEVEL

A-BHC (THE FIRST ROW HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.6238	-1.3101	.4753	-.6509	-1.7285	-.1461	* -3.0218	* -3.0369	-1.5086	* -2.5969	-.7245	-1.7652
SPEARMAN STAT.	-1.6864	-1.0938	.5979	-.5230	-1.7968	.0332	* -3.7446	* -4.3516	-1.3059	* -3.2670	-.3292	-2.1084
KENDALL COEFFICIENT	-.7222	-.5385	.0182	-.3333	-.4505	-.2727	-.7143	-.7179	-.4066	-.6667	-.3091	-.5273
SPEARMAN COEFFICIENT	-.5375	-.3011	.1955	-.1818	-.4604	.0105	-.7341	-.7953	-.3527	-.7185	-.1091	-.5750
SEN'S UPPER CONF. INT.	-.0005	-.0002	-.0005	-.0003	-.0005	-.0003	-.0005	-.0008	-.0008	-.0010	-.0007	-.0010
SEN'S EST. OF SLOPE	-.0001	.0000	.0003	.0000	-.0002	.0000	-.0003	-.0005	-.0003	-.0006	-.0003	-.0003
SEN'S LOWER CONF. INT.	.0000	.0000	.0012	.0003	.0000	.0003	-.0001	-.0003	.0000	-.0001	.0002	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	20.5009	
SEASONAL KENDALL STATISTIC =	-5.3041	*
MODIFY SEA. KEN. STATISTIC =	-3.1716	*
VAN BELLE (HOMO) STATISTIC =	13.1498	
VAN BELLE (TEND) STATISTIC =	26.2666	*
KENDALL COEFFICIENT =	.0056	
SPEARMAN COEFFICIENT =	.2534	
SEASONAL UPPER CONF. INT. =	-.0003	
SEASONAL ESTIMATED OF SLOPE =	-.0003	
SEASONAL LOWER CONF. INT. =	-.0001	

* SIGNIFICANT AT 5 % LEVEL

K-DISS

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.6653	.4983	.2003	-1.6371	-.0453	1.0924	* 2.4545	* 1.9850	1.9460	.1488	.5489	-1.2433
SPEARMAN STAT.	1.0894	.5071	.4049	-1.6327	.0385	1.1830	* 2.5700	* 2.2115	* 2.1878	.1934	.6713	-1.4504
KENDALL COEFFICIENT	.0549	.0476	-.0286	-.3333	-.0500	.1333	.3833	.3500	.3143	.0095	.0476	-.2762
SPEARMAN COEFFICIENT	.3000	.1393	.1116	-.4125	.0103	.3015	.5662	.5088	.5188	.0536	.1830	-.3732
SEN'S UPPER CONF. INT.	-.0405	-.0358	-.1907	-.1617	-.0821	-.0235	.0117	.0000	.0000	-.0438	-.0257	-.0621
SEN'S EST. OF SLOPE	.0167	.0143	.0000	-.0778	.0000	.0100	.0516	.0543	.0500	.0071	.0111	-.0208
SEN'S LOWER CONF. INT.	.0890	.0600	.0596	.0231	.0290	.0569	.0847	.1191	.1000	.1000	.0800	.0234

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.0760	
SEASONAL KENDALL STATISTIC =	1.9898	*
MODIFY SEA. KEN. STATISTIC =	1.3985	
VAN BELLE (HOMO) STATISTIC =	16.5822	
VAN BELLE (TEND) STATISTIC =	3.6453	
KENDALL COEFFICIENT =	.0500	
SPEARMAN COEFFICIENT =	.1474	
SEASONAL UPPER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0136	
SEASONAL LOWER CONF. INT. =	.0286	

* SIGNIFICANT AT 5 % LEVEL

CA-DISS

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.0402	-.0495	-1.1891	-1.4351	-1.7143	-.4511	-1.5308	-1.5308	.6433	.2973	-.1982	* -2.7747
SPEARMAN STAT.	-1.2006	.0773	-1.1376	-1.4585	-2.1434	-.6420	-1.8091	-1.5067	.3755	.3134	-.3134	* -3.3718
KENDALL COEFFICIENT	-.2088	-.0095	-.2381	-.2762	-.3333	-.1000	-.2833	-.2833	.1238	.0476	-.0476	-.5429
SPEARMAN COEFFICIENT	-.3275	.0214	-.3009	-.3750	-.4971	-.1691	-.4353	-.3735	.1036	.0866	-.0866	-.6830
SEN'S UPPER CONF. INT.	-2.0235	-1.2578	-1.3959	-1.1406	-.8931	-.4241	-.8422	-.7964	-.3422	-.2732	-.5062	-1.1260
SEN'S EST. OF SLOPE	-.7750	-.0333	-.5250	-.5333	-.3356	-.0792	-.3950	-.4773	.1000	.1000	-.1000	-.8889
SEN'S LOWER CONF. INT.	.9000	1.0562	.2284	.1477	.0464	.3540	.1619	.1781	.6207	.5000	.3738	-.4138

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.8843	
SEASONAL KENDALL STATISTIC =	-3.2027	*
MODIFY SEA. KEN. STATISTIC =	-2.5492	*
VAN BELLE (HOMO) STATISTIC =	10.5932	
VAN BELLE (TEND) STATISTIC =	10.0342	*
KENDALL COEFFICIENT =	-.1453	
SPEARMAN COEFFICIENT =	-.1590	
SEASONAL UPPER CONF. INT. =	-.4390	
SEASONAL ESTIMATED OF SLOPE =	-.2600	
SEASONAL LOWER CONF. INT. =	-.1000	

* SIGNIFICANT AT 5 % LEVEL

MN-DISS (THE FIRST SIX ROWS HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.6419	-.8889	-1.4415	-1.3918	-1.4546	-1.4028	-1.5899	-1.1951	.0000	-1.1771	-.9631	-1.0933
SPEARMAN STAT.	-1.2632	-1.1547	-1.6320	-1.4772	-1.3954	-1.5173	-1.5938	-1.6864	.1103	-1.4120	-1.2872	-1.2872
KENDALL COEFFICIENT	-.3571	-.5000	-.6111	-.6667	-.6000	-.5111	-.5556	-.4222	-.1111	-.4444	-.3889	-.5000
SPEARMAN COEFFICIENT	-.4583	-.4000	-.5250	-.4875	-.4424	-.4727	-.4909	-.5121	.0417	-.4708	-.4375	-.4375
SEN'S UPPER CONF. INT.	-.0024	-.0033	-.0032	-.0013	-.0023	-.0050	-.0047	-.0045	-.0063	-.0062	-.0064	-.0036
SEN'S EST. OF SLOPE	-.0004	-.0005	-.0006	-.0005	-.0007	-.0010	-.0010	-.0010	.0000	-.0007	-.0009	-.0010
SEN'S LOWER CONF. INT.	.0025	.0016	.0000	.0000	.0000	.0000	.0000	.0005	.0030	.0025	.0025	.0019

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	16.4619	
SEASONAL KENDALL STATISTIC =	-4.0186	*
MODIFY SEA. KEN. STATISTIC =	-1.3610	
VAN BELLE (HOMO) STATISTIC =	2.4163	
VAN BELLE (TEND) STATISTIC =	16.1519	*
KENDALL COEFFICIENT =	-.2052	
SPEARMAN COEFFICIENT =	.0638	
SEASONAL UPPER CONF. INT. =	-.0011	
SEASONAL ESTIMATED OF SLOPE =	-.0007	
SEASONAL LOWER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

CU-TOT (THE FIRST SIX ROWS HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.8764	* -2.0266	.0000	-1.2768	1.1722	* -2.1553	-1.3674	* 1.9640	1.8623	-1.1818	1.4128	.3456
SPEARMAN STAT.	* 3.1740	* -2.8286	.0110	-1.6681	1.6462	* -2.9707	-1.7692	* 2.5298	* 3.0000	-.9366	2.0725	.4934
KENDALL COEFFICIENT	.2857	-.7143	-.0556	-.4444	.2444	-.5556	-.4222	.2889	.3333	-.5714	.2222	-.1667
SPEARMAN COEFFICIENT	.7917	-.7560	.0042	-.5333	.5030	-.7242	-.5303	.6667	.7500	-.3571	.6167	.1833
SEN'S UPPER CONF. INT.	.0000	-.0007	-.0012	-.0014	-.0011	-.0018	-.0004	.0000	.0000	-.0003	.0000	.0000
SEN'S EST. OF SLOPE	.0001	-.0003	.0000	-.0002	.0004	-.0007	-.0001	.0001	.0003	-.0002	.0002	.0000
SEN'S LOWER CONF. INT.	.0002	.0000	.0015	.0003	.0017	.0000	.0001	.0004	.0008	.0002	.0005	.0004

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.3468	
SEASONAL KENDALL STATISTIC =	.1217	
MODIFY SEA. KEN. STATISTIC =	.1020	
VAN BELLE (HOMO) STATISTIC =	30.4556	*
VAN BELLE (TEND) STATISTIC =	.0324	
KENDALL COEFFICIENT =	-.2076	
SPEARMAN COEFFICIENT =	-.1383	
SEASONAL UPPER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL LOWER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

T. COLI

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.4279	* 2.6844	.3883	* -2.5849	-1.8647	-1.5281	-.9249	-1.3315	.1862	.4946	.7302	-.0555
SPEARMAN STAT.	-.3250	* 3.9927	.5552	* -3.2685	-1.9750	-1.4110	-.9888	-1.0879	.2322	.6549	.9727	.0609
KENDALL COEFFICIENT	-.1026	.5641	.0110	-.5897	-.4545	-.3333	-.2564	-.3455	-.1111	-.0303	.0330	-.0769
SPEARMAN COEFFICIENT	-.0975	.7692	.1582	-.7019	-.5297	-.3915	-.2857	-.3409	.0818	.2028	.2703	.0176
SEN'S UPPER CONF. INT.	-27.2409	9.8419	-8.4700	-54.6839	-202.6118	-134.8223	-40.6258	-9.1765	-1.7660	-1.9569	-1.9690	-2.0418
SEN'S EST. OF SLOPE	-1.6667	30.9327	1.0000	-6.1250	-11.5000	-79.1667	-2.3333	-3.0000	.0000	.0000	4.0000	.0000
SEN'S LOWER CONF. INT.	11.6093	60.0632	19.6852	-1.3566	.1268	4.0444	4.4465	2.3674	4.1391	2.5812	33.1407	2.0418

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	18.0797	
SEASONAL KENDALL STATISTIC =	-1.1162	
MODIFY SEA. KEN. STATISTIC =	-.8914	
VAN BELLE (HOMO) STATISTIC =	21.9838	*
VAN BELLE (TEND) STATISTIC =	1.4938	
KENDALL COEFFICIENT =	-.2395	
SPEARMAN COEFFICIENT =	-.2934	
SEASONAL UPPER CONF. INT. =	-1.7527	
SEASONAL ESTIMATED OF SLOPE =	-.2222	
SEASONAL LOWER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

F. COLI

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.0562	.9899	-.0562	.0000	-.9528	-1.1448	-.6991	-.2057	* 2.4649	.8571	.7385	.7884
SPEARMAN STAT.	.0533	.9940	.4543	.1551	-.8815	-.9988	-.5166	-.1385	* 3.0559	1.0226	.9716	1.1599
KENDALL COEFFICIENT	-.1209	.1648	-.3524	-.2051	-.2571	-.2571	-.2833	-.2000	.2967	.0303	-.0909	-.2190
SPEARMAN COEFFICIENT	.0154	.2758	.1250	.0467	-.2375	-.2670	-.1368	-.0384	.6615	.3077	.2937	.3063
SEN'S UPPER CONF. INT.	-4.7587	-2.0000	-.2146	-1.2080	-5.4779	-18.0875	-2.3421	-1.0000	.0000	-.4000	-.2002	.0000
SEN'S EST. OF SLOPE	.0000	1.2500	.0000	.0000	-.8333	-4.0000	.0000	.0000	1.2857	.1484	.0000	.0000
SEN'S LOWER CONF. INT.	3.1897	9.3740	.0000	.8423	.9130	.7595	.6679	.7405	3.0000	.9720	3.4154	.9512

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.7150
SEASONAL KENDALL STATISTIC =	.5485
MODIFY SEA. KEN. STATISTIC =	.4904
VAN BELLE (HOMO) STATISTIC =	11.0945
VAN BELLE (TEND) STATISTIC =	.6184
KENDALL COEFFICIENT =	-.3030
SPEARMAN COEFFICIENT =	-.1797
SEASONAL UPPER CONF. INT. =	.0000
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL LOWER CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

Q-DM(M3/S) (THE LAST THREE ROWS HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.4114	.6724	.8541	* -2.0834	-1.1496	* -2.2445	-1.6971	-1.9161	-.2737	.1642	.7138	.9307
SPEARMAN STAT.	.4012	.2421	.9476	* -2.5033	-1.3858	* -2.3711	-1.7697	* -2.2392	-.4843	.2826	.6748	.7886
KENDALL COEFFICIENT	.0909	.1282	.1795	-.4286	-.2308	-.4505	-.3407	-.3846	-.0549	.0330	.1209	.1868
SPEARMAN COEFFICIENT	.1259	.0728	.2747	-.5857	-.3714	-.5648	-.4549	-.5429	-.1385	.0813	.1912	.2220
SEN'S UPPER CONF. INT.	-7.2083	-3.8183	-4.6719	-15.6000	-51.8503	-78.0699	-46.0000	-16.8912	-10.3886	-5.7487	-3.0847	-3.9644
SEN'S EST. OF SLOPE	1.3500	2.0000	3.0525	-7.0000	-19.0000	-43.7000	-17.5000	-5.2000	-2.3000	1.5000	1.6900	1.3000
SEN'S LOWER CONF. INT.	6.1169	3.6537	12.1814	-.3128	15.6407	-2.9177	5.2335	.1876	6.7410	8.4335	8.3923	8.0254

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	14.1306
SEASONAL KENDALL	STATISTIC =	-1.7475
MODIFY SEA. KEN.	STATISTIC =	-1.0631
VAN BELLE (HOMO)	STATISTIC =	17.4502
VAN BELLE (TEND)	STATISTIC =	2.6300
KENDALL	COEFFICIENT =	-.1315
SPEARMAN	COEFFICIENT =	-.2274
SEASONAL UPPER	CONF. INT. =	-4.5453
SEASONAL ESTIMATED	OF SLOPE =	-2.0000
SEASONAL LOWER	CONF. INT. =	.1730

* SIGNIFICANT AT 5 % LEVEL

Q-MM(M3/S) (THE LAST TWELVE ROWS HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.3397	.0000	1.0190	-.5053	-1.7146	-.7348	-.7348	-.2449	.7348	.2449	.0000	.0000
SPEARMAN STAT.	-.6172	.2887	1.8856	-.5952	* -3.5762	-1.2990	-1.2990	-.5447	.7559	.5447	.1741	.1741
KENDALL COEFFICIENT	-.3333	.0000	.6667	-.4000	-.8000	-.4000	-.4000	-.2000	.4000	.2000	.0000	.0000
SPEARMAN COEFFICIENT	-.4000	.2000	.8000	-.3250	-.9000	-.6000	-.6000	-.3000	.4000	.3000	.1000	.1000
SEN'S UPPER CONF. INT.	-99.9900	-99.9900	-99.9900	-80.2390	-99.9900	-99.9900	-99.9900	-99.9900	-99.9900	-99.9900	-99.9900	-99.9900
SEN'S EST. OF SLOPE	-16.1833	-12.7000	16.9167	-22.5000	-49.5833	-138.0000	-65.7500	-14.4750	26.5000	13.9583	-.8833	-.6250
SEN'S LOWER CONF. INT.	-99.9900	-99.9900	-99.9900	89.1604	-99.9900	-99.9900	-99.9900	-99.9900	-99.9900	-99.9900	-99.9900	-99.9900

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	9.4000
SEASONAL KENDALL	STATISTIC =	-.9071
MODIFY SEA. KEN.	STATISTIC =	-.4672
VAN BELLE (HOMO)	STATISTIC =	9.3232
VAN BELLE (TEND)	STATISTIC =	.7590
KENDALL	COEFFICIENT =	-.1103
SPEARMAN	COEFFICIENT =	-.1452
SEASONAL UPPER	CONF. INT. =	-26.6945
SEASONAL ESTIMATED	OF SLOPE =	-6.1667
SEASONAL LOWER	CONF. INT. =	5.9230

* SIGNIFICANT AT 5 % LEVEL

Table A1.2

TDS* 00201L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.0902	1.2168	-1.5338	.1220	-1.4873	* -2.1225	-1.0392	-1.0458	-1.1891	-.4968	-1.2632	.3616
SPEARMAN STAT.	.0605	1.2309	-1.6547	.2375	-1.7828	* -2.3304	-1.0024	-.9148	-1.2812	-.4855	-1.4114	.2759
KENDALL COEFFICIENT	.0000	.2167	-.3590	.0256	-.2833	-.4167	-.2000	-.2500	-.2381	-.1167	-.2500	.0333
SPEARMAN COEFFICIENT	.0162	.3125	-.4464	.0714	-.4301	-.5287	-.2679	-.2375	-.3348	-.1287	-.3529	.0735
SEN LOWER CONF. INT.	-2.1032	-1.7367	-3.9854	-3.3574	-3.8431	-4.1001	-3.5303	-2.2021	-2.2279	-2.1501	-2.7399	-2.0522
SEN ESTIMATED OF SLOPE	.0556	1.1987	-2.1458	.1750	-1.7750	-2.5357	-.8333	-.7091	-.6667	-.3681	-.9545	.4643
SEN UPPER CONF. INT.	2.4000	4.4331	1.7397	4.0000	.7069	-.0817	1.4520	1.2763	.5232	1.3191	1.4723	3.3852

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	10.8713	
SEASONAL KENDALL STATISTIC =	-2.3829	*
MODIFY SEA. KEN. STATISTIC =	-1.9458	
VAN BELLE (HOMO) STATISTIC =	10.2725	
VAN BELLE (TEND) STATISTIC =	5.8618	*
KENDALL COEFFICIENT =	-.0640	
SPEARMAN COEFFICIENT =	-.0929	
SEASONAL LOWER CONF. INT. =	-1.2575	
SEASONAL ESTIMATED OF SLOPE =	-.6667	
SEASONAL UPPER CONF. INT. =	-.0707	

* SIGNIFICANT AT 5 % LEVEL

COND(F) 02041F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.3971	* 2.2083	.4114	1.0965	1.8828	.0451	.0991	.6022	.1642	.6101	-.0902	-.0902
SPEARMAN STAT.	1.2117	* 2.1560	.4239	1.2874	2.0767	.0413	.1967	.4843	.2673	.4412	-.0991	-.0550
KENDALL COEFFICIENT	.2500	.4000	.0909	.2088	.3524	.0000	.0095	.1209	.0330	.1282	-.0333	-.0333
SPEARMAN COEFFICIENT	.3081	.4993	.1329	.3484	.4991	.0110	.0545	.1385	.0769	.1319	-.0265	-.0147
SEN LOWER CONF. INT.	-1.7660	.4255	-6.1457	-3.3904	-.3944	-8.0000	-6.4077	-3.6508	-3.0274	-2.8662	-3.0903	-5.0657
SEN ESTIMATED OF SLOPE	2.7083	5.5500	2.6635	1.6667	3.7143	.0455	.2000	.9000	.4000	2.3333	-.2000	-.0556
SEN UPPER CONF. INT.	8.8469	8.6915	12.0000	10.8659	7.7596	6.4965	5.2889	6.7006	6.6003	6.6253	3.7811	5.6180

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	13.5182	
SEASONAL KENDALL STATISTIC =	2.4216	*
MODIFY SEA. KEN. STATISTIC =	2.1345	*
VAN BELLE (HOMO) STATISTIC =	6.7439	
VAN BELLE (TEND) STATISTIC =	5.7914	*
KENDALL COEFFICIENT =	.0153	
SPEARMAN COEFFICIENT =	.0103	
SEASONAL LOWER CONF. INT. =	.2828	
SEASONAL ESTIMATED OF SLOPE =	1.8182	
SEASONAL UPPER CONF. INT. =	3.1265	

* SIGNIFICANT AT 5 % LEVEL

TEMP(F) 02061F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.0504	-.9195	-1.3989	* 2.7414	1.4000	.2264	.7746	1.5855	-1.0879	-.0452	-.9520	-1.7442
SPEARMAN STAT.	-.5648	-.5478	-1.2292	* 3.1574	1.8893	.3537	.5762	1.4143	-.8730	-.0248	-.4968	-1.4519
KENDALL COEFFICIENT	-.5333	-.4000	-.4615	.5385	.2333	.0000	.0667	.2952	-.2500	-.0333	-.4833	-.5500
SPEARMAN COEFFICIENT	-.1493	-.1449	-.3475	.6736	.4507	.0941	.1522	.3652	-.2272	-.0066	-.1316	-.3618
SEN LOWER CONF. INT.	-.0625	-.0595	-.1353	.1963	-.1900	-.2201	-.3039	-.1025	-.4167	-.3162	-.0693	-.1000
SEN ESTIMATED OF SLOPE	.0000	.0000	-.0402	.7500	.2929	.0071	.0833	.2833	-.1667	.0000	.0000	-.0095
SEN UPPER CONF. INT.	.0000	.0000	.0000	1.0641	.7263	.2226	.4183	.6260	.2462	.3234	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	20.4860	
SEASONAL KENDALL STATISTIC =	-.0983	
MODIFY SEA. KEN. STATISTIC =	-.0761	
VAN BELLE (HOMO) STATISTIC =	21.6615	*
VAN BELLE (TEND) STATISTIC =	.0184	
KENDALL COEFFICIENT =	.0004	
SPEARMAN COEFFICIENT =	.1067	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

TURB(F) 02073F (THE 4 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.2542	1.1628	.6186	.9383	.1043	-1.4791	-1.4056	* 2.0572	* 2.1864	* 2.7727	* 3.4641	* 2.4988
SPEARMAN STAT.	* 2.9448	1.8118	1.3265	1.3332	.2659	-2.0960	-1.0149	* 2.3333	* 2.6778	* 4.6537	* 6.9531	* 3.5231
KENDALL COEFFICIENT	.5111	.2889	.2143	.2778	.0556	-.3455	-.3455	.5111	.4909	.6889	.7455	.5636
SPEARMAN COEFFICIENT	.7212	.5394	.4762	.4500	.1000	-.5727	-.3205	.6364	.6659	.8545	.9182	.7614
SEN LOWER CONF. INT.	.0079	-.9095	-2.0560	-7.2992	-15.8147	-7.7182	-55.3208	-.0368	.0712	.6134	.4500	.2196
SEN ESTIMATED OF SLOPE	.5111	.5286	.4357	5.9472	.2667	-2.0500	-5.2000	2.3500	.6875	1.0333	.7800	.6778
SEN UPPER CONF. INT.	.9492	1.5017	3.3669	22.9997	16.4939	1.3162	1.6301	10.8124	2.3060	1.5609	1.4979	1.2667

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	22.1675	
SEASONAL KENDALL STATISTIC =	4.4480	*
MODIFY SEA. KEN. STATISTIC =	2.9518	*
VAN BELLE (HOMO) STATISTIC =	27.1893	*
VAN BELLE (TEND) STATISTIC =	20.0333	*
KENDALL COEFFICIENT =	-.1094	
SPEARMAN COEFFICIENT =	-.1494	
SEASONAL LOWER CONF. INT. =	.4227	
SEASONAL ESTIMATED OF SLOPE =	.6250	
SEASONAL UPPER CONF. INT. =	.8000	

* SIGNIFICANT AT 5 % LEVEL

B-DISS 05105D

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.4903	* 2.9617	1.1722	-.7597	-1.5882	-1.4827	.5960	1.7541	1.1569	* 2.4622	* 3.2126	* 2.4359
SPEARMAN STAT.	* 3.2310	* 4.0330	1.2344	-.5557	-1.3448	-1.2737	.4115	1.8741	1.2438	* 3.2050	* 4.6111	* 3.6986
KENDALL COEFFICIENT	.4103	.4667	.2444	-.2121	-.3500	-.3846	.0857	.1868	.0667	.3626	.5897	.3846
SPEARMAN COEFFICIENT	.6978	.7331	.4000	-.1731	-.3382	-.3585	.1134	.4758	.3154	.6791	.8118	.7445
SEN LOWER CONF. INT.	.0002	.0020	-.0079	-.0052	-.0074	-.0067	-.0042	.0000	-.0008	.0000	.0033	.0000
SEN ESTIMATED OF SLOPE	.0044	.0050	.0033	-.0026	-.0033	-.0029	.0011	.0017	.0006	.0022	.0073	.0041
SEN UPPER CONF. INT.	.0076	.0100	.0105	.0050	.0010	.0003	.0100	.0061	.0037	.0033	.0111	.0078

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	16.7793	
SEASONAL KENDALL STATISTIC =	4.0493	*
MODIFY SEA. KEN. STATISTIC =	2.8444	*
VAN BELLE (HOMO) STATISTIC =	31.4253	*
VAN BELLE (TEND) STATISTIC =	17.3071	*
KENDALL COEFFICIENT =	-.2463	
SPEARMAN COEFFICIENT =	-.2717	
SEASONAL LOWER CONF. INT. =	.0008	
SEASONAL ESTIMATED OF SLOPE =	.0020	
SEASONAL UPPER CONF. INT. =	.0033	

* SIGNIFICANT AT 5 % LEVEL

NO3+NO2 07106L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.8516	1.7612	.9203	-1.6971	-1.5119	.1391	-.0452	1.4901	-.3246	-.1352	1.1321	1.7363
SPEARMAN STAT.	* 2.2947	1.9756	1.1419	-1.7914	-1.2438	.1294	.0440	1.9009	-.1735	.0248	1.2989	2.0423
KENDALL COEFFICIENT	.3167	.3000	.1538	-.3407	-.4500	-.1000	-.0333	-.2333	-.1833	-.0333	.1667	.3143
SPEARMAN COEFFICIENT	.5228	.4669	.3255	-.4593	-.3154	.0346	.0118	.4529	-.0463	.0066	.3279	.4929
SEN LOWER CONF. INT.	-.0010	-.0035	-.0100	-.0468	-.0349	-.0108	-.0206	.0000	-.0230	-.0237	-.0065	-.0024
SEN ESTIMATED OF SLOPE	.0154	.0108	.0087	-.0300	-.0078	.0000	.0000	.0000	.0000	-.0037	.0036	.0051
SEN UPPER CONF. INT.	.0264	.0326	.0350	.0051	.0000	.0200	.0212	.0076	.0142	.0177	.0100	.0195

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.3413
SEASONAL KENDALL STATISTIC =	1.5449
MODIFY SEA. KEN. STATISTIC =	1.5347
VAN BELLE (HOMO) STATISTIC =	16.8491
VAN BELLE (TEND) STATISTIC =	2.3556
KENDALL COEFFICIENT =	-.2622
SPEARMAN COEFFICIENT =	-.4017
SEASONAL LOWER CONF. INT. =	.0000
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0043

* SIGNIFICANT AT 5 % LEVEL

TN* 07602L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.8909	.5414	-.1220	* -2.4635	-1.5774	-1.4864	-.5859	-.3161	-.8580	-.4524	-.4968	-.6937
SPEARMAN STAT.	* 2.2288	.5222	.0000	* -2.8820	-1.3284	-1.6540	-.6162	-.2067	-.9934	-.5762	-.4968	-.4840
KENDALL COEFFICIENT	.3500	.0833	-.0256	-.4945	-.3000	-.2952	-.1167	-.0833	-.1833	-.1167	-.1167	-.1429
SPEARMAN COEFFICIENT	.5118	.1382	.0000	-.6396	-.3346	-.4170	-.1625	-.0551	-.2566	-.1522	-.1316	-.1330
SEN LOWER CONF. INT.	-.0022	-.0262	-.0377	-.1355	-.0727	-.0470	-.0434	-.0243	-.0440	-.0261	-.0298	-.0324
SEN ESTIMATED OF SLOPE	.0137	.0077	-.0028	-.0733	-.0374	-.0200	-.0070	-.0044	-.0138	-.0047	-.0113	-.0122
SEN UPPER CONF. INT.	.0389	.0348	.0401	-.0210	.0096	.0128	.0342	.0391	.0214	.0200	.0122	.0264

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.1766
SEASONAL KENDALL STATISTIC =	-1.8053
MODIFY SEA. KEN. STATISTIC =	-1.6789
VAN BELLE (HOMO) STATISTIC =	13.1103
VAN BELLE (TEND) STATISTIC =	3.6519
KENDALL COEFFICIENT =	-.2528
SPEARMAN COEFFICIENT =	-.4021
SEASONAL LOWER CONF. INT. =	-.0167
SEASONAL ESTIMATED OF SLOPE =	-.0082
SEASONAL UPPER CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

DO 08101F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.6798	-1.4903	-.3674	1.2836	-1.0805	.8580	-.2258	-1.6241	-.6774	.7238	* -2.2324	.8121
SPEARMAN STAT.	.7171	-1.7754	-.4881	1.2292	-1.0640	.7492	.1404	-1.6617	-.4742	.1901	* -2.2768	.7113
KENDALL COEFFICIENT	.0833	-.3000	-.1026	.2564	-.2000	.1333	-.0667	-.3167	-.1500	.1000	-.4476	.1333
SPEARMAN COEFFICIENT	.1882	-.4287	-.1456	.3475	-.2735	.1963	.0375	-.4059	-.1257	.0507	-.5339	.1868
SEN LOWER CONF. INT.	-.0774	-.1540	-.3002	-.0807	-.3340	-.1000	-.2260	-.1776	-.1689	-.0776	-.1839	-.1103
SEN ESTIMATED OF SLOPE	.0631	-.0608	-.0472	.0838	-.0938	.0522	-.0304	-.1000	-.0528	.0614	-.0909	.0944
SEN UPPER CONF. INT.	.2136	.0450	.1857	.2923	.0777	.3000	.2000	.0272	.0973	.1963	-.0106	.2620

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.8346
SEASONAL KENDALL STATISTIC =	-1.0250
MODIFY SEA. KEN. STATISTIC =	-.9660
VAN BELLE (HOMO) STATISTIC =	14.7528
VAN BELLE (TEND) STATISTIC =	.9303
KENDALL COEFFICIENT =	.3099
SPEARMAN COEFFICIENT =	.4821
SEASONAL LOWER CONF. INT. =	-.0667
SEASONAL ESTIMATED OF SLOPE =	-.0250
SEASONAL UPPER CONF. INT. =	.0200

* SIGNIFICANT AT 5 % LEVEL

ALK-TOT 10101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.9925	* 2.2083	-.3674	1.2591	-1.1754	-1.7733	.4076	.1364	1.2193	1.5806	-.0452	.8580
SPEARMAN STAT.	1.3713	* 2.5553	-.3574	1.4628	-1.2599	-1.7679	.4152	.3342	1.1926	1.5868	-.1129	1.1231
KENDALL COEFFICIENT	.1667	.4000	-.1026	.2527	-.2500	-.3833	.0333	-.0333	.2000	.2667	-.0333	.1333
SPEARMAN COEFFICIENT	.3441	.5640	-.1071	.3890	-.3191	-.4272	.1103	.0890	.3037	.3904	-.0301	.2875
SEN LOWER CONF. INT.	-.9604	.1478	-2.0004	-.7867	-2.6170	-2.4751	-.8302	-1.4751	-.4468	-.3800	-1.5914	-1.4786
SEN ESTIMATED OF SLOPE	.4273	1.6458	-.1056	1.0000	-.6098	-.6214	.1667	.0000	.8000	1.0417	.0000	1.1909
SEN UPPER CONF. INT.	1.3634	3.7234	2.0000	3.0669	.5901	.0000	1.3945	2.0000	2.1773	2.5500	1.5000	5.1557

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	13.[illegible]
SEASONAL KENDALL	STATISTIC =	1.5521
MODIFY SEA. KEN.	STATISTIC =	1.2924
VAN BELLE (HOMO)	STATISTIC =	14.6751
VAN BELLE (TEND)	STATISTIC =	2.3414
KENDALL	COEFFICIENT =	.0533
SPEARMAN	COEFFICIENT =	.0934
SEASONAL LOWER	CONF. INT. =	.0000
SEASONAL ESTIMATED	OF SLOPE =	.2500
SEASONAL UPPER	CONF. INT. =	.7143

* SIGNIFICANT AT 5 % LEVEL

PH(F) 10301F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.1385	.8061	1.1893	-.1108	-.0908	.6346	.1359	-1.2505	.6835	.9595	* 2.0981	1.9130
SPEARMAN STAT.	.3147	.8396	1.1735	-.0762	.1349	.8432	.1597	-1.0132	.6392	1.0026	* 2.3804	1.9796
KENDALL COEFFICIENT	-.1167	.0476	.1515	-.0989	-.0833	.0667	-.0167	-.3143	.0500	.0833	.3000	.2667
SPEARMAN COEFFICIENT	.0838	.2268	.3479	-.0220	.0360	.2199	.0426	-.2705	.1684	.2588	.5368	.4676
SEN LOWER CONF. INT.	-.0250	-.0197	-.0231	-.0333	-.0470	-.0562	-.0594	-.0577	-.0250	-.0154	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0125	.0275	.0000	.0000	.0200	.0000	-.0200	.0108	.0160	.0333	.0250
SEN UPPER CONF. INT.	.0307	.0500	.0500	.0333	.0600	.1000	.0667	.0223	.0520	.0500	.0558	.0444

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	9.4684	
SEASONAL KENDALL	STATISTIC =	2.0573	*
MODIFY SEA. KEN.	STATISTIC =	1.2585	
VAN BELLE (HOMO)	STATISTIC =	9.3302	
VAN BELLE (TEND)	STATISTIC =	4.2084	*
KENDALL	COEFFICIENT =	.1493	
SPEARMAN	COEFFICIENT =	.3338	
SEASONAL LOWER	CONF. INT. =	.0000	
SEASONAL ESTIMATED	OF SLOPE =	.0100	
SEASONAL UPPER	CONF. INT. =	.0250	

* SIGNIFICANT AT 5 % LEVEL

NFR 10401L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.2661	1.1786	.0614	1.0402	-.0495	-.7662	.6760	.8433	.3473	* 2.4906	1.5606	1.7464
SPEARMAN STAT.	-1.0494	1.2309	.5400	1.0069	-.0902	-.9934	.9329	.6747	.3689	* 3.2897	1.4929	1.5445
KENDALL COEFFICIENT	-.4667	.1667	-.0256	.2088	-.0095	-.1500	.1167	.1429	.0476	.4167	.1833	.2762
SPEARMAN COEFFICIENT	-.2795	.3125	.1607	.2791	-.0250	-.2566	.2419	.1839	.1018	.6603	.3706	.3938
SEN LOWER CONF. INT.	-.2500	-.3206	-.6649	-7.2603	-7.1516	-4.3703	-4.2191	-1.1013	-1.0000	.1468	.0000	-.0070
SEN ESTIMATED OF SLOPE	.0000	.3183	.0000	4.0000	-.2500	-.8350	.7020	.3333	.2000	.7867	.3333	.2250
SEN UPPER CONF. INT.	.0000	.6508	.9203	14.3316	11.5733	1.8146	5.7738	6.1273	2.0000	1.5458	.8128	.5000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	16.2478	
SEASONAL KENDALL STATISTIC =	2.3582	*
MODIFY SEA. KEN. STATISTIC =	1.9055	
VAN BELLE (HOMO) STATISTIC =	12.4926	
VAN BELLE (TEND) STATISTIC =	5.1516	*
KENDALL COEFFICIENT =	-.1261	
SPEARMAN COEFFICIENT =	-.1360	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.2111	
SEASONAL UPPER CONF. INT. =	.4114	

* SIGNIFICANT AT 5 % LEVEL

MA-DISS 11103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.3155	.1352	-1.2202	* -2.0317	* -2.6717	* -1.9810	-.5403	-1.1290	-.4056	-.7662	-1.6241	-1.1730
SPEARMAN STAT.	.5307	.1349	-1.4760	* -3.0559	* -3.2768	* -2.1602	-.5905	-1.0424	-.4405	-.7843	-1.6834	-1.0826
KENDALL COEFFICIENT	.0500	.0167	-.2564	-.4286	-.5333	-.3667	-.1000	-.2333	-.0833	-.1500	-.3167	-.2333
SPEARMAN COEFFICIENT	.1404	.0360	-.4066	-.6615	-.6588	-.5000	-.1559	-.2684	-.1169	-.2051	-.4103	-.2779
SEN LOWER CONF. INT.	-.1750	-.3416	-.8369	-.9522	-.7439	-.6907	-.5038	-.4750	-.3841	-.5186	-.4286	-.3979
SEN ESTIMATED OF SLOPE	.0227	.0151	-.2467	-.3500	-.4181	-.2944	-.1101	-.1676	-.0512	-.1371	-.1813	-.1236
SEN UPPER CONF. INT.	.2729	.3968	.1792	.0000	-.1288	.0115	.3213	.1000	.2000	.1898	.0324	.1779

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.3669	
SEASONAL KENDALL STATISTIC =	-3.7024	*
MODIFY SEA. KEN. STATISTIC =	-2.2483	*
VAN BELLE (HOMO) STATISTIC =	8.8450	
VAN BELLE (TEND) STATISTIC =	14.2833	*
KENDALL COEFFICIENT =	-.0398	
SPEARMAN COEFFICIENT =	-.0419	
SEASONAL LOWER CONF. INT. =	-.2500	
SEASONAL ESTIMATED OF SLOPE =	-.1556	
SEASONAL UPPER CONF. INT. =	-.0956	

* SIGNIFICANT AT 5 % LEVEL

MG-DISS 12102L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.8121	.5440	-.1220	.0549	-.5414	* -2.0752	-1.1762	-1.7225	-1.0827	-.4502	* -2.3095	-.3155
SPEARMAN STAT.	-.8581	.7608	-.1642	.1066	-.5677	* -2.3259	-1.2373	-1.7016	-1.0394	-.5563	* -2.6397	-.0798
KENDALL COEFFICIENT	-.1667	.0500	-.0256	-.0110	-.1167	-.4000	-.2500	-.3667	-.2167	-.0833	-.4667	-.0667
SPEARMAN COEFFICIENT	-.2235	.1993	-.0495	.0308	-.1500	-.5279	-.3140	-.4140	-.2676	-.1471	-.5765	-.0213
SEN LOWER CONF. INT.	-.2908	-.1361	-.3181	-.2244	-.2658	-.3454	-.3000	-.2524	-.2000	-.1833	-.3282	-.1977
SEN ESTIMATED OF SLOPE	-.0733	.0367	-.0188	.0000	-.0317	-.1742	-.1175	-.1063	-.0683	-.0351	-.1500	-.0500
SEN UPPER CONF. INT.	.2131	.2000	.1042	.2891	.2465	-.0028	.0429	.0052	.0833	.0912	-.0110	.2291

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.2208	
SEASONAL KENDALL STATISTIC =	-2.9797	*
MODIFY SEA. KEN. STATISTIC =	-2.2449	*
VAN BELLE (HOMO) STATISTIC =	8.3842	
VAN BELLE (TEND) STATISTIC =	8.3473	*
KENDALL COEFFICIENT =	.0188	
SPEARMAN COEFFICIENT =	.0430	
SEASONAL LOWER CONF. INT. =	-.1227	
SEASONAL ESTIMATED OF SLOPE =	-.0667	
SEASONAL UPPER CONF. INT. =	-.0245	

* SIGNIFICANT AT 5 % LEVEL

P-TOT-DISS15103D (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.6293	* 2.2513	1.5809	-1.7726	.0547	.1654	1.2836	-.3290	.1659	-.9869	-1.4864	.9869
SPEARMAN STAT.	* 3.4304	* 3.1479	2.0300	* -2.6941	.1753	.2327	1.1636	-.4647	.3791	-.5433	-1.7234	1.8077
KENDALL COEFFICIENT	.4857	.4286	.3333	-.3846	.0110	-.0110	.2564	-.0769	-.0330	-.2088	-.2952	.1868
SPEARMAN COEFFICIENT	.6893	.6725	.5402	-.6305	.0505	.0670	.3310	-.1330	.1088	-.1549	-.4313	.4626
SEN LOWER CONF. INT.	.0012	.0005	-.0006	-.0105	-.0026	-.0021	-.0019	-.0020	-.0020	-.0043	-.0050	-.0023
SEN ESTIMATED OF SLOPE	.0045	.0025	.0038	-.0040	.0001	.0000	.0009	-.0003	.0000	-.0018	-.0017	.0015
SEN UPPER CONF. INT.	.0065	.0064	.0089	.0015	.0026	.0032	.0043	.0017	.0019	.0031	.0009	.0035

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	9.2192	
SEASONAL KENDALL STATISTIC =	1.2843	
MODIFY SEA. KEN. STATISTIC =	1.0333	
VAN BELLE (HOMO) STATISTIC =	21.8736	*
VAN BELLE (TEND) STATISTIC =	1.7200	
KENDALL COEFFICIENT =	-.2221	
SPEARMAN COEFFICIENT =	-.3647	
SEASONAL LOWER CONF. INT. =	-.0003	
SEASONAL ESTIMATED OF SLOPE =	.0005	
SEASONAL UPPER CONF. INT. =	.0013	

* SIGNIFICANT AT 5 % LEVEL

P-TOT 15406L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.9856	* 2.2759	* 2.4048	-.8270	-.8121	-.9005	.0000	1.7577	.2253	1.3971	-.3619	1.8169
SPEARMAN STAT.	* 4.1955	* 2.6296	* 3.1340	-.9855	-.5449	-1.2149	-.0771	2.0399	.2288	1.4081	-.5705	* 2.3895
KENDALL COEFFICIENT	.5167	.3500	.4359	-.2088	-.1667	-.1667	.0000	.3167	.0333	.2500	-.1000	.2833
SPEARMAN COEFFICIENT	.7463	.5750	.6868	-.2736	-.1441	-.3088	-.0206	.4787	.0610	.3522	-.1507	.5382
SEN LOWER CONF. INT.	.0016	.0000	.0008	-.0185	-.0116	-.0100	-.0083	-.0006	-.0016	-.0010	-.0022	.0000
SEN ESTIMATED OF SLOPE	.0046	.0033	.0048	-.0050	-.0038	-.0023	.0002	.0029	.0004	.0020	-.0002	.0020
SEN UPPER CONF. INT.	.0068	.0075	.0119	.0062	.0053	.0037	.0153	.0073	.0030	.0041	.0021	.0035

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.9880	
SEASONAL KENDALL STATISTIC =	2.8203	*
MODIFY SEA. KEN. STATISTIC =	2.1033	*
VAN BELLE (HOMO) STATISTIC =	22.2851	*
VAN BELLE (TEND) STATISTIC =	8.2702	*
KENDALL COEFFICIENT =	-.3178	
SPEARMAN COEFFICIENT =	-.4877	
SEASONAL LOWER CONF. INT. =	.0003	
SEASONAL ESTIMATED OF SLOPE =	.0014	
SEASONAL UPPER CONF. INT. =	.0024	

* SIGNIFICANT AT 5 % LEVEL

SO4-DISS 16304L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.9952	-.0451	-.1834	1.3159	-.2707	-.3602	-.6316	-1.3132	-.0451	-.2707	-.5425	.0000
SPEARMAN STAT.	1.2956	-.0743	-.0592	1.3433	-.2426	-.3092	-.7813	-1.1325	-.1514	-.1432	-.5279	.1211
KENDALL COEFFICIENT	.1500	-.0167	-.0513	.2527	-.0667	-.0667	-.1333	-.2833	-.0167	-.0667	-.1333	-.0167
SPEARMAN COEFFICIENT	.3272	-.0199	-.0179	.3615	-.0647	-.0824	-.2044	-.2897	-.0404	-.0382	-.1397	.0324
SEN LOWER CONF. INT.	-.4000	-.9884	-.8379	-.3646	-.7602	-1.1605	-1.8403	-1.1795	-1.3333	-1.0000	-.8090	-1.4297
SEN ESTIMATED OF SLOPE	.2478	-.0111	-.0225	.7400	-.1156	-.2617	-.3333	-.5000	-.0864	-.0795	-.3000	.0000
SEN UPPER CONF. INT.	.7221	1.0577	.7463	1.7003	.6515	.8870	1.0066	.3579	.7323	.5413	.4697	1.0694

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	4.8367	
SEASONAL KENDALL STATISTIC =	-.4581	
MODIFY SEA. KEN. STATISTIC =	-.2722	
VAN BELLE (HOMO) STATISTIC =	5.3014	
VAN BELLE (TEND) STATISTIC =	.1522	
KENDALL COEFFICIENT =	-.1085	
SPEARMAN COEFFICIENT =	-.1368	
SEASONAL LOWER CONF. INT. =	-.3333	
SEASONAL ESTIMATED OF SLOPE =	-.0375	
SEASONAL UPPER CONF. INT. =	.1582	

* SIGNIFICANT AT 5 % LEVEL

CL-DISS 17206L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.0281	-1.7612	* -2.6844	-1.7022	-1.8046	-1.6208	-.9023	-.9005	* -2.2557	* -2.5689	* -2.9775	* -3.1580
SPEARMAN STAT.	* -2.6650	-2.0562	* -3.9240	-2.0773	-1.5763	-1.5904	-1.0517	-.8819	* -2.5021	* -3.0248	* -3.6827	* -4.3594
KENDALL COEFFICIENT	-.3833	-.3500	-.5641	-.3626	-.3500	-.3000	-.1833	-.1667	-.4333	-.4833	-.5667	-.6000
SPEARMAN COEFFICIENT	-.5801	-.4816	-.7637	-.5143	-.3882	-.3912	-.2706	-.2294	-.5559	-.6287	-.7015	-.7588
SEN LOWER CONF. INT.	-.4500	-.6788	-1.6688	-.5348	-.2965	-.3349	-.3000	-.3394	-.3843	-.6457	-.3658	-.5740
SEN ESTIMATED OF SLOPE	-.2500	-.2333	-.6583	-.2500	-.1367	-.1267	-.0708	-.1000	-.2100	-.2861	-.2216	-.3733
SEN UPPER CONF. INT.	-.0028	.0205	-.1661	.0535	.0146	.0297	.1000	.1333	-.0346	-.1119	-.0724	-.2259

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	16.8787	
SEASONAL KENDALL STATISTIC =	-6.9729	*
MODIFY SEA. KEN. STATISTIC =	-3.4050	*
VAN BELLE (HOMO) STATISTIC =	5.8853	
VAN BELLE (TEND) STATISTIC =	49.4675	*
KENDALL COEFFICIENT =	-.1100	
SPEARMAN COEFFICIENT =	-.1436	
SEASONAL LOWER CONF. INT. =	-.2857	
SEASONAL ESTIMATED OF SLOPE =	-.2250	
SEASONAL UPPER CONF. INT. =	-.1591	

* SIGNIFICANT AT 5 % LEVEL

LINDANE 18070L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 1.9865	* 2.2065	1.7374	1.4142	.4206	* 2.1477	1.0104	.6202	1.2781	1.1076	1.2826	* 2.2079
SPEARMAN STAT.	* 2.6941	* 3.1081	2.0393	2.1084	1.0826	* 2.7200	1.7988	1.8797	2.1266	1.5667	1.8388	* 3.1864
KENDALL COEFFICIENT	-.0513	-.3833	.1556	-.4545	-.5167	.1818	-.5238	-.8022	-.5167	-.3187	-.2564	-.1212
SPEARMAN COEFFICIENT	.6305	.6390	.5848	.5750	.2779	.6521	.4464	.4769	.4941	.4121	.4849	.7098
SEN LOWER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0002	.0000	.0000	.0002	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0002	.0000	.0008	.0000	.0000	.0004	.0000	.0000	.0000	.0001	.0001	.0001

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.5695	
SEASONAL KENDALL STATISTIC =	4.9329	*
MODIFY SEA. KEN. STATISTIC =	3.4266	*
VAN BELLE (HOMO) STATISTIC =	4.1217	
VAN BELLE (TEND) STATISTIC =	25.2874	*
KENDALL COEFFICIENT =	-.5666	
SPEARMAN COEFFICIENT =	.1827	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

A-BBC 18075L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.2958	* -2.1267	-.1087	-.9366	-.5165	-.2576	* -2.6709	-1.8108	* -2.4292	-1.3768	* -2.9551	-1.4183
SPEARMAN STAT.	-2.0300	* -2.5223	.0000	-1.0000	-.3946	.1365	* -2.9157	-1.4052	* -2.8003	-1.5670	* -4.1261	-1.2654
KENDALL COEFFICIENT	-.7273	-.6000	-.2222	-.4222	-.3187	-.3455	-.6923	-.6410	-.6381	-.4103	-.7576	-.5636
SPEARMAN COEFFICIENT	-.5402	-.5732	.0000	-.3333	-.1132	.0455	-.6440	-.3901	-.6134	-.4272	-.7937	-.3886
SEN LOWER CONF. INT.	-.0005	-.0003	-.0005	-.0003	-.0002	-.0004	-.0005	-.0004	-.0005	-.0007	-.0007	-.0003
SEN ESTIMATED OF SLOPE	-.0003	-.0002	.0000	-.0001	.0000	.0000	-.0002	-.0001	-.0002	-.0003	-.0004	-.0001
SEN UPPER CONF. INT.	.0000	.0000	.0005	.0002	.0001	.0001	.0000	.0000	.0000	.0001	-.0002	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 17.0567
SEASONAL KENDALL STATISTIC = -5.7165 *
MODIFY SEA. KEN. STATISTIC = -2.8637 *
VAN BELLE (HOMO) STATISTIC = 9.8845
VAN BELLE (TEND) STATISTIC = 30.1198 *
KENDALL COEFFICIENT = -.2142
SPEARMAN COEFFICIENT = .0326
SEASONAL LOWER CONF. INT. = -.0003
SEASONAL ESTIMATED OF SLOPE = -.0002
SEASONAL UPPER CONF. INT. = -.0001

* SIGNIFICANT AT 5 % LEVEL

24D 18500L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.4356	-.6788	-.2350	-1.8477	.6811	-.3883	-1.0076	.3333	1.2579	-.3983	-.3674	-1.3065
SPEARMAN STAT.	-1.2187	-.8078	-.2463	-1.4052	.4180	-.2980	-1.0750	.4179	1.4788	-.1902	-.3296	-1.6669
KENDALL COEFFICIENT	-.3407	-.1667	-.0909	-.5641	.0667	-.1429	-.2952	-.0110	.1429	-.1238	-.1026	-.3333
SPEARMAN COEFFICIENT	-.3319	-.2110	-.0818	-.3901	.1110	-.0857	-.2857	.1198	.3795	-.0527	-.0989	-.4196
SEN LOWER CONF. INT.	-.0426	-.0200	-.0350	-.0335	-.0053	-.0100	-.0120	-.0080	-.0017	-.0122	-.0072	-.0131
SEN ESTIMATED OF SLOPE	-.0138	-.0032	-.0003	-.0219	.0011	-.0008	-.0011	.0000	.0018	-.0007	-.0010	-.0064
SEN UPPER CONF. INT.	.0024	.0105	.0303	.0000	.0053	.0056	.0020	.0090	.0048	.0050	.0100	.0023

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 20.4931
SEASONAL KENDALL STATISTIC = -1.4479
MODIFY SEA. KEN. STATISTIC = -.8611
VAN BELLE (HOMO) STATISTIC = 8.8914
VAN BELLE (TEND) STATISTIC = 2.4237
KENDALL COEFFICIENT = -.2607
SPEARMAN COEFFICIENT = -.2680
SEASONAL LOWER CONF. INT. = -.0034
SEASONAL ESTIMATED OF SLOPE = -.0007
SEASONAL UPPER CONF. INT. = .0000

* SIGNIFICANT AT 5 % LEVEL

245T 18510L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.4065	1.6525	1.8029	* 2.5466	* 2.4089	* 3.3193	1.6973	1.5982	* 3.1536	1.2495	.9439	.7732
SPEARMAN STAT.	1.5486	1.8739	* 2.3040	* 3.9927	* 3.1446	* 6.3203	* 2.3966	2.0773	* 5.1758	1.5728	1.1114	.9274
KENDALL COEFFICIENT	.0769	.0167	.0909	.1538	-.0167	.2527	-.3333	-.0549	.1810	-.1000	-.0769	-.0286
SPEARMAN COEFFICIENT	.4231	.4478	.6091	.7692	.6434	.8769	.5536	.5143	.8205	.3875	.3055	.2491
SEN LOWER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	-.0002
SEN ESTIMATED OF SLOPE	.0008	.0001	.0012	.0037	.0000	.0005	.0000	.0000	.0004	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0037	.0037	.0043	.0057	.0034	.0037	.0000	.0040	.0023	.0024	.0034	.0033

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.1303	
SEASONAL KENDALL STATISTIC =	6.3751	*
MODIFY SEA. KEN. STATISTIC =	2.6690	*
VAN BELLE (HOMO) STATISTIC =	7.3110	
VAN BELLE (TEND) STATISTIC =	42.3836	*
KENDALL COEFFICIENT =	-.3366	
SPEARMAN COEFFICIENT =	.0790	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0001	
SEASONAL UPPER CONF. INT. =	.0011	

* SIGNIFICANT AT 5 % LEVEL

K-DISS 19103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.7746	.1835	-.2462	* -2.1963	* -2.0378	* -2.9438	.0453	.5440	-1.1344	-1.0042	-1.4566	-1.0014
SPEARMAN STAT.	.6853	.1542	-.5971	* -2.5524	* -2.6701	* -3.5209	-.0165	.5933	-1.4316	-.9691	-1.5136	-.7696
KENDALL COEFFICIENT	.0667	-.0833	-.1026	-.4615	-.4167	-.6500	-.0333	.0500	-.2667	-.2667	-.3333	-.2500
SPEARMAN COEFFICIENT	.1801	.0412	-.1772	-.6099	-.5809	-.6853	-.0044	.1566	-.3574	-.2507	-.3750	-.2015
SEN LOWER CONF. INT.	-.0134	-.0167	-.0333	-.3237	-.1495	-.1200	-.0750	-.0250	-.0462	-.0333	-.0449	-.0400
SEN ESTIMATED OF SLOPE	.0074	.0000	-.0021	-.1857	-.0721	-.0665	.0000	.0081	-.0127	-.0140	-.0183	-.0158
SEN UPPER CONF. INT.	.0262	.0250	.1000	-.0240	.0000	-.0070	.0592	.0348	.0160	.0154	.0072	.0233

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.5913	
SEASONAL KENDALL STATISTIC =	-2.9516	*
MODIFY SEA. .KEN. STATISTIC =	-1.8010	
VAN BELLE (HOMO) STATISTIC =	14.9130	
VAN BELLE (TEND) STATISTIC =	9.1407	*
KENDALL COEFFICIENT =	-.1562	
SPEARMAN COEFFICIENT =	-.1281	
SEASONAL LOWER CONF. INT. =	-.0227	
SEASONAL ESTIMATED OF SLOPE =	-.0112	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

CA-DISS 20101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.3507	.5403	-1.0391	.9307	-1.5774	* -2.7492	-.7204	-.8563	-1.5381	.1801	-.8433	-.4511
SPEARMAN STAT.	-1.1640	.6939	-.9940	.8381	-1.7978	* -3.3891	-.8225	-.7200	-1.4148	.1101	-.9027	-.5563
KENDALL COEFFICIENT	-.2500	.1000	-.2308	.1868	-.3000	-.5167	-.1333	-.1667	-.3167	.0333	-.1810	-.1000
SPEARMAN COEFFICIENT	-.2971	.1824	-.2871	.2352	-.4331	-.6713	-.2147	-.1890	-.3537	.0294	-.2429	-.1471
SEN LOWER CONF. INT.	-.9302	-.3461	-.8003	-.3161	-.8474	-.7400	-.4000	-.7721	-.4689	-.3891	-.5932	-.4000
SEN ESTIMATED OF SLOPE	-.3250	.2268	-.2955	.4500	-.3484	-.4250	-.1000	-.2250	-.1732	.0659	-.1333	-.0822
SEN UPPER CONF. INT.	.1851	.7000	.4755	1.0817	.1847	-.1376	.2313	.3021	.0365	.3814	.2627	.4723

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	18.7926	
SEASONAL KENDALL STATISTIC =	-2.7935	*
MODIFY SEA. KEN. STATISTIC =	-2.6109	*
VAN BELLE (HOMO) STATISTIC =	11.1926	
VAN BELLE (TEND) STATISTIC =	7.4805	*
KENDALL COEFFICIENT =	-.0266	
SPEARMAN COEFFICIENT =	-.0495	
SEASONAL LOWER CONF. INT. =	-.2667	
SEASONAL ESTIMATED OF SLOPE =	-.1528	
SEASONAL UPPER CONF. INT. =	-.0500	

* SIGNIFICANT AT 5 % LEVEL

MN-DISS 25104D (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.9305	-1.1110	-1.3395	-.3210	-1.4732	-.7449	-1.8732	-1.0985	-1.8514	-1.8516	-1.3674	-.9312
SPEARMAN STAT.	-2.1722	-1.6330	-1.1722	-.5991	-1.3600	-.5865	-1.9300	-1.6729	-1.9065	-2.0717	-1.3600	-.8308
KENDALL COEFFICIENT	-.6000	-.4222	-.7143	-.2222	-.6444	-.3333	-.6444	-.3778	-.5636	-.6000	-.4222	-.3778
SPEARMAN COEFFICIENT	-.6091	-.5000	-.4643	-.2208	-.4333	-.2030	-.5636	-.5091	-.5364	-.5909	-.4333	-.2818
SEN LOWER CONF. INT.	-.0047	-.0025	-.0014	-.0047	-.0018	-.0050	-.0060	-.0045	-.0027	-.0046	-.0047	-.0030
SEN ESTIMATED OF SLOPE	-.0010	-.0007	-.0005	-.0002	-.0009	-.0008	-.0016	-.0009	-.0009	-.0011	-.0010	-.0007
SEN UPPER CONF. INT.	.0000	.0010	.0000	.0050	.0000	.0005	.0000	.0007	.0000	.0000	.0006	.0003

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	22.0174	*
SEASONAL KENDALL STATISTIC =	-4.6293	*
MODIFY SEA. KEN. STATISTIC =	-1.6353	
VAN BELLE (HOMO) STATISTIC =	2.6657	
VAN BELLE (TEND) STATISTIC =	21.7834	*
KENDALL COEFFICIENT =	-.2093	
SPEARMAN COEFFICIENT =	.0117	
SEASONAL LOWER CONF. INT. =	-.0011	
SEASONAL ESTIMATED OF SLOPE =	-.0010	
SEASONAL UPPER CONF. INT. =	-.0005	

* SIGNIFICANT AT 5 % LEVEL

FE-DISS 26104D (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.8255	* -2.2376	-.4704	-.5270	-1.4239	* -2.8957	-1.7321	-1.8308	* -3.0794	-1.6274	-.2034	* -2.6444
SPEARMAN STAT.	-2.1213	-2.1047	-.7590	-.6110	-1.2012	* -3.2521	* -2.4290	-1.9148	* -3.3322	-1.2907	.2322	* -2.3902
KENDALL COEFFICIENT	-.6444	-.8222	-.3333	-.2222	-.6444	-.9111	-.5111	-.7333	-.9273	-.6889	-.3778	-.9111
SPEARMAN COEFFICIENT	-.6000	-.5970	-.3214	-.2250	-.3909	-.7545	-.6515	-.5606	-.7432	-.4152	.0818	-.6455
SEN LOWER CONF. INT.	-.0061	-.0058	-.0084	-.0121	-.0049	-.0066	-.0104	-.0041	-.0050	-.0055	-.0041	-.0055
SEN ESTIMATED OF SLOPE	-.0023	-.0033	-.0036	-.0017	.0000	-.0050	-.0054	-.0015	-.0040	-.0027	.0000	-.0028
SEN UPPER CONF. INT.	.0000	.0000	.0227	.0177	.0000	.0000	.0003	.0000	.0000	.0000	.0004	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 25.6462 *
SEASONAL KENDALL STATISTIC = -6.1338 *
MODIFY SEA. KEN. STATISTIC = -2.3245 *
VAN BELLE (HOMO) STATISTIC = 9.1483
VAN BELLE (TEND) STATISTIC = 35.9144 *
KENDALL COEFFICIENT = -.3366
SPEARMAN COEFFICIENT = -.0253
SEASONAL LOWER CONF. INT. = -.0038
SEASONAL ESTIMATED OF SLOPE = -.0030
SEASONAL UPPER CONF. INT. = -.0015

* SIGNIFICANT AT 5 % LEVEL

CU-TOT 29005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.2735	-1.0894	-.8796	.0000	-.5434	* -2.4345	-1.6164	1.8623	1.3190	-.8204	1.1583	-.3725
SPEARMAN STAT.	-.1287	-1.0000	-.9011	-.1768	-.4014	* -2.8939	-1.9452	1.7692	1.5680	-.8114	1.2907	-.2843
KENDALL COEFFICIENT	-.1556	-.3333	-.3571	.0000	-.3333	-.6444	-.4222	.2889	.1111	-.2889	.0222	-.2444
SPEARMAN COEFFICIENT	-.0455	-.3333	-.3452	-.0667	-.1500	-.7152	-.5667	.5303	.4848	-.2758	.4152	-.1000
SEN LOWER CONF. INT.	-.0006	-.0005	-.0015	-.0011	-.0006	-.0014	-.0036	.0000	.0000	-.0003	.0000	-.0002
SEN ESTIMATED OF SLOPE	.0000	-.0001	-.0002	.0001	.0000	-.0005	-.0008	.0003	.0001	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0006	.0001	.0003	.0008	.0003	.0000	.0002	.0005	.0005	.0001	.0001	.0001

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 18.1339
SEASONAL KENDALL STATISTIC = -1.1095
MODIFY SEA. KEN. STATISTIC = -.8253
VAN BELLE (HOMO) STATISTIC = 17.3149
VAN BELLE (TEND) STATISTIC = 1.2835
KENDALL COEFFICIENT = -.2411
SPEARMAN COEFFICIENT = -.1825
SEASONAL LOWER CONF. INT. = -.0001
SEASONAL ESTIMATED OF SLOPE = .0000
SEASONAL UPPER CONF. INT. = .0000

* SIGNIFICANT AT 5 % LEVEL

SN-TOT 30005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.4368	-.9918	-1.7249	.0000	.1237	-1.2572	-1.6994	1.4241	-.8115	-.7323	-1.2710	.2705
SPEARMAN STAT.	-1.7412	-1.0830	-2.2822	.0551	.2343	-1.3367	-1.7552	1.9001	-.4870	-.8405	-1.3483	.1890
KENDALL COEFFICIENT	-.3778	-.2889	-.7143	.0000	.0714	-.3333	-.4222	.2222	-.2444	-.2889	-.3778	.0222
SPEARMAN COEFFICIENT	-.5242	-.3576	-.7143	.0208	.0952	-.4273	-.5273	.5833	-.1697	-.2848	-.4303	.0667
SEN LOWER CONF. INT.	-.0013	-.0013	-.0015	-.0030	-.0020	-.0047	-.0092	.0000	-.0010	-.0004	-.0008	-.0005
SEN ESTIMATED OF SLOPE	-.0004	-.0003	-.0007	.0000	.0003	-.0006	-.0020	.0010	-.0001	-.0001	-.0004	.0001
SEN UPPER CONF. INT.	.0003	.0001	.0000	.0018	.0029	.0006	.0005	.0024	.0008	.0003	.0002	.0004

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	11.9886	
SEASONAL KENDALL STATISTIC =	-2.3073	*
MODIFY SEA. KEN. STATISTIC =	-2.1438	*
VAN BELLE (HOMO) STATISTIC =	11.1310	
VAN BELLE (TEND) STATISTIC =	5.2345	*
KENDALL COEFFICIENT =	-.2525	
SPEARMAN COEFFICIENT =	-.3325	
SEASONAL LOWER CONF. INT. =	-.0004	
SEASONAL ESTIMATED OF SLOPE =	-.0002	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

T.COLI 36001F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.8772	1.0402	-.4685	-.4899	.9528	-.1488	-.3674	1.8120	-.3068	.7730	1.4771	* 1.9695
SPEARMAN STAT.	.9684	1.2735	-.8275	-.4975	.9523	-.1805	-.3853	1.6952	-.3158	.9387	1.7849	* 2.5987
KENDALL COEFFICIENT	.1648	.2088	-.1273	-.1282	.1048	-.0476	-.1026	.3407	-.1026	.0989	.2564	.3590
SPEARMAN COEFFICIENT	.2692	.3451	-.2659	-.1484	.2554	-.0500	-.1154	.4396	-.0948	.2615	.4739	.6168
SEN LOWER CONF. INT.	-10.9359	-33.1337	-104.2360	-37.1432	-3.2137	-9.5030	-110.0667	-.4085	-10.9118	-.8748	-.9616	.0000
SEN ESTIMATED OF SLOPE	25.0000	9.5455	-6.1818	-2.4500	.6667	-.6667	-1.7500	3.6667	-.4500	2.3571	3.2429	4.1111
SEN UPPER CONF. INT.	55.1110	47.4390	82.1782	17.0148	48.7892	3.8758	36.6778	21.2085	2.0000	14.4633	9.8291	15.8804

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	11.5259	
SEASONAL KENDALL STATISTIC =	2.1438	*
MODIFY SEA. KEN. STATISTIC =	1.4567	
VAN BELLE (HOMO) STATISTIC =	9.1867	
VAN BELLE (TEND) STATISTIC =	4.2249	*
KENDALL COEFFICIENT =	-.2876	
SPEARMAN COEFFICIENT =	-.4087	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	1.5000	
SEASONAL UPPER CONF. INT. =	3.6171	

* SIGNIFICANT AT 5 % LEVEL

F.COLI 36011F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.0902	.0991	-.2481	-.7720	.5191	.1029	-.7035	1.1055	1.4512	-.2677	-.8718	.3863
SPEARMAN STAT.	-.0715	.1837	-.3204	-1.1601	.5677	.2096	-.5404	1.1191	1.4826	.0684	-.5070	.8225
KENDALL COEFFICIENT	-.0333	.0095	-.1282	-.2727	-.0833	-.1429	-.2190	.1238	.0833	-.3333	-.4615	-.4000
SPEARMAN COEFFICIENT	-.0191	.0509	-.0962	-.3444	.1500	.0580	-.1482	.2964	.3684	.0206	-.1511	.2147
SEN LOWER CONF. INT.	-13.3757	-6.0212	-4.4583	-1.5777	-1.1094	-1.2000	-7.3343	-.5000	.0000	-.5658	-1.6747	.0000
SEN ESTIMATED OF SLOPE	-.0769	.6667	.0000	-.3818	.0000	.0000	-.8000	.4000	.3095	.0000	.0000	.0000
SEN UPPER CONF. INT.	10.6801	8.1394	6.9717	2.3975	2.0000	2.0000	1.3345	4.0000	2.0000	.1500	.0000	.0000

************** OVER ALL RESULTS *************

.. AND KILLEN STATISTIC	=	14.0022
SEASONAL KENDALL STATISTIC	=	.4161
MODIFY SEA. KEN. STATISTIC	=	.2686
VAN BELLE (HOMO) STATISTIC	=	5.7176
VAN BELLE (TEND) STATISTIC	=	.0421
KENDALL COEFFICIENT	=	-.4031
SPEARMAN COEFFICIENT	=	-.3518
SEASONAL LOWER CONF. INT.	=	.0000
SEASONAL ESTIMATED OF SLOPE	=	.0000
SEASONAL UPPER CONF. INT.	=	.0000

* SIGNIFICANT AT 5 % LEVEL

HG-TOT 80011F (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
	*	*		*	*	*				*		
MANN & KENDALL STAT.	-2.1213	-2.4495	-1.9030	-2.3528	-2.1213	-2.4162	-1.2081	-1.2649	-.3672	-2.1213	-1.5667	-1.9415
SPEARMAN STAT.	-.5332	-1.3093	-.7942	-1.3600	-.5332	-1.2307	-.4059	.5332	-.0955	-.5332	.2582	-1.3450
KENDALL COEFFICIENT	-1.0000	-1.0000	-1.0000	-.9556	-1.0000	-.9636	-.7455	-.9636	-.4909	-1.0000	-1.0000	-.8182
SPEARMAN COEFFICIENT	-.1750	-.4000	-.2875	-.4333	-.1750	-.3795	-.1341	.1750	-.0318	-.1750	.0909	-.4091
SEN LOWER CONF. INT.	.0000	-.0014	-.0014	-.0026	.0000	-.0020	-.0011	.0000	-.0011	.0000	.0000	-.0017
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC	=	16.3405	
SEASONAL KENDALL STATISTIC	=	-6.1829	*
MODIFY SEA. KEN. STATISTIC	=	-2.1864	*
VAN BELLE (HOMO) STATISTIC	=	4.2310	
VAN BELLE (TEND) STATISTIC	=	40.2605	*
KENDALL COEFFICIENT	=	-.6117	
SPEARMAN COEFFICIENT	=	.2383	
SEASONAL LOWER CONF. INT.	=	.0000	
SEASONAL ESTIMATED OF SLOPE	=	.0000	
SEASONAL UPPER CONF. INT.	=	.0000	

* SIGNIFICANT AT 5 % LEVEL

PB-TOT   82002P   (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.9626	* -2.1970	-1.6690	-.4256	* -1.9837	* -2.4891	* -2.1553	-.2766	* -2.0368	* -2.9626	* -3.1844	* -2.9693
SPEARMAN STAT.	* -4.4777	* -2.6583	-2.3771	-.5872	* -2.4482	* -2.9448	* -2.9707	-.2235	-2.2781	* -4.3681	* -4.9135	* -3.6934
KENDALL COEFFICIENT	-.8667	-.6444	-.6429	-.2222	-.7222	-.7333	-.5556	-.2000	-.6444	-.8667	-.9556	-.9556
SPEARMAN COEFFICIENT	-.8455	-.6848	-.6964	-.2167	-.6792	-.7212	-.7242	-.0788	-.6273	-.8394	-.8667	-.7939
SEN LOWER CONF. INT.	-.0010	-.0006	-.0008	-.0006	-.0007	-.0010	-.0017	-.0006	-.0007	-.0007	-.0006	-.0006
SEN ESTIMATED OF SLOPE	-.0005	-.0004	-.0004	-.0002	-.0002	-.0005	-.0005	.0000	-.0001	-.0004	-.0002	-.0003
SEN UPPER CONF. INT.	-.0001	.0000	.0000	.0002	.0000	.0000	.0000	.0004	.0000	-.0001	.0000	.0000

************** OVER ALL RESULTS *************

.IETS AND [illegible] ISTIC =	18.9147	
SEASONAL KENDALL STATISTIC =	-7.4262	*
MODIFY SEA. KEN. STATISTIC =	-2.[illegible]55[illegible]	*
VAN BELLE (HOMO) STATISTIC =	9.4453	
VAN BELLE (TEND) STATISTIC =	54.8567	*
KENDALL COEFFICIENT =	-.3004	
SPEARMAN COEFFICIENT =	-.1632	
SEASONAL LOWER CONF. INT. =	-.0004	
SEASONAL ESTIMATED OF SLOPE =	-.0003	
SEASONAL UPPER CONF. INT. =	-.0002	

* SIGNIFICANT AT 5 % LEVEL

Q-DM(M3/S)------   (THE 3 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.1843	.3661	* 2.1999	.4114	-.6022	-.7117	.4927	-.9307	-.9307	.7138	.3832	.2193
SPEARMAN STAT.	.2559	.1642	* 2.7109	.5384	-.5948	-.7396	.2980	-.9727	-.7886	.6507	.6909	.2865
KENDALL COEFFICIENT	.0000	.0769	.4545	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1209	.0769	.0330
SPEARMAN COEFFICIENT	.0769	.0495	.6705	.1678	-.1692	-.2088	.0857	-.2703	-.2220	.1846	.1956	.0824
SEN LOWER CONF. INT.	-1.8000	-3.1803	.0089	-36.0324	-29.2356	-32.5802	-16.1298	-21.4637	-13.1858	-3.7975	-4.3503	-5.0936
SEN ESTIMATED OF SLOPE	.0714	1.4854	4.0000	2.5556	-7.2222	-5.0000	7.3333	-6.2000	-7.0000	1.5000	1.1250	1.1429
SEN UPPER CONF. INT.	2.9844	6.7364	5.6667	13.8743	12.2029	13.6878	48.3369	8.1214	6.3009	9.3042	6.0522	7.2373

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	11.3845
SEASONAL KENDALL STATISTIC =	.3011
MODIFY SEA. KEN. STATISTIC =	.1938
VAN BELLE (HOMO) STATISTIC =	8.4567
VAN BELLE (TEND) STATISTIC =	.2687
KENDALL COEFFICIENT =	-.0104
SPEARMAN COEFFICIENT =	.0209
SEASONAL LOWER CONF. INT. =	-1.3101
SEASONAL ESTIMATED OF SLOPE =	.2222
SEASONAL UPPER CONF. INT. =	2.1881

* SIGNIFICANT AT 5 % LEVEL

Table A1.3

TDS* 00201L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.4312	* -2.1182	* -2.1801	1.7837	.2707	-.5414	-.3155	-.0451	-.9023	* -2.0340	* -2.0281	* -2.8393
SPEARMAN STAT.	* -3.7287	* -2.8992	* -2.4587	1.7854	.1984	-.7521	-.1239	-.0138	-.9600	* -2.2982	-1.8432	* -3.9811
KENDALL COEFFICIENT	-.4500	-.4000	-.4286	.3333	.0333	-.1167	-.0667	-.0167	-.1833	-.4095	-.3833	-.5333
SPEARMAN COEFFICIENT	-.7059	-.6125	-.5634	.4438	.0529	-.1971	-.0331	-.0037	-.2485	-.5375	-.4419	-.7287
SEN LOWER CONF. INT.	-16.1902	-12.8405	-19.1014	-.6667	-5.8110	-5.4538	-3.5320	-2.5603	-3.2840	-5.4352	-9.6016	-14.4575
SEN ESTIMATED OF SLOPE	-10.6616	-6.8730	-9.5385	4.2000	.8182	-1.3364	-.3542	-.1250	-.9167	-2.5000	-5.4780	-9.0571
SEN UPPER CONF. INT.	-3.3582	-.2517	-.6202	7.5199	6.4723	3.0903	2.1064	2.1490	1.9208	.0000	-.1276	-3.5855

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.7499	
SEASONAL KENDALL STATISTIC =	[illegible]	*
MODIFY SEA. KEN. STATISTIC =	-2.7691	*
VAN BELLE (HOMO) STATISTIC =	21.0057	*
VAN BELLE (TEND) STATISTIC =	14.9201	*
KENDALL COEFFICIENT =	-.1009	
SPEARMAN COEFFICIENT =	-.1250	
SEASONAL LOWER CONF. INT. =	-3.7545	
SEASONAL ESTIMATED OF SLOPE =	-2.3750	
SEASONAL UPPER CONF. INT. =	-1.0000	

* SIGNIFICANT AT 5 % LEVEL

COND(F) 02041F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.2269	-.7676	-1.0982	1.7837	.3674	.0000	.2440	1.1891	1.0402	.5483	-1.1382	* -3.2416
SPEARMAN STAT.	* -2.8332	-1.2874	-1.2681	1.7587	.1277	.0495	.2559	1.3905	.9218	.3250	-1.0604	* -4.9384
KENDALL COEFFICIENT	-.4286	-.1648	-.2308	.3333	.0513	-.0110	.0513	.2190	.2088	.0989	-.2190	-.6000
SPEARMAN COEFFICIENT	-.6179	-.3484	-.3571	.4384	.0385	.0143	.0769	.3598	.2571	.0934	-.2821	-.7971
SEN LOWER CONF. INT.	-37.8536	-24.9218	-30.0435	-.2997	-7.5037	-7.2589	-9.2885	-1.5465	-2.4753	-4.0319	-16.3569	-28.2759
SEN ESTIMATED OF SLOPE	-19.0000	-5.4000	-19.0795	8.3333	1.1333	.0000	1.3977	2.8571	3.3333	1.6000	-5.0000	-20.7626
SEN UPPER CONF. INT.	-3.2799	7.8539	10.8913	15.0000	13.7291	9.7915	11.3439	7.6046	9.9514	7.9374	5.9445	-10.0333

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.0108	
SEASONAL KENDALL STATISTIC =	-1.1184	
MODIFY SEA. KEN. STATISTIC =	-.9590	
VAN BELLE (HOMO) STATISTIC =	23.8234	*
VAN BELLE (TEND) STATISTIC =	.9074	
KENDALL COEFFICIENT =	-.0649	
SPEARMAN COEFFICIENT =	-.0981	
SEASONAL LOWER CONF. INT. =	-4.3317	
SEASONAL ESTIMATED OF SLOPE =	-1.4583	
SEASONAL UPPER CONF. INT. =	1.0000	

* SIGNIFICANT AT 5 % LEVEL

TEMP(F) 02061F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.5237	-1.3066	-1.5637	1.2168	1.6709	.2720	.0000	1.0857	-.8580	-.7218	.5595	-1.7553
SPEARMAN STAT.	-.0138	-.9874	-1.4064	1.7162	1.9836	.2454	-.1266	1.1483	-.9389	-.5962	.6824	-1.6294
KENDALL COEFFICIENT	-.4833	-.4667	-.4095	.2167	.2833	.0000	-.0167	.1667	-.1833	-.1500	-.0667	-.5167
SPEARMAN COEFFICIENT	-.0037	-.2551	-.3634	.4169	.4684	.0654	-.0338	.2934	-.2434	-.1574	.1794	-.3993
SEN LOWER CONF. INT.	-.0130	-.0589	-.1163	-.3745	-.1208	-.3333	-.4473	-.2000	-.8167	-.5000	-.1000	-.1073
SEN ESTIMATED OF SLOPE	.0000	.0000	-.0545	.2275	.4375	.0136	.0000	.2045	-.1866	-.1458	.0000	-.0183
SEN UPPER CONF. INT.	.0000	.0000	.0000	.7814	.9880	.4112	.4593	.4530	.3156	.2945	.2000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	[illegible].[illegible]673
SEASONAL KENDALL	STATISTIC =	-.4576
MODIFY SEA. KEN.	STATISTIC =	-.3694
VAN BELLE (HOMO)	STATISTIC =	14.2949
VAN BELLE (TEND)	STATISTIC =	.3086
KENDALL	COEFFICIENT =	.0533
SPEARMAN	COEFFICIENT =	.1607
SEASONAL LOWER	CONF. INT. =	-.0158
SEASONAL ESTIMATED	OF SLOPE =	.0000
SEASONAL UPPER	CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

TURB(F) 02073F (THE 4 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.8737	.7298	-1.1468	-1.7905	.7298	1.0199	-1.1022	1.0932	.6247	.1562	* 2.9673	1.4791
SPEARMAN STAT.	* 4.5934	.8321	-.8321	-2.1974	.8321	.8211	-1.3450	.8735	.7821	.1160	* 4.5362	1.6496
KENDALL COEFFICIENT	.6889	.2222	-.3333	-.4182	.2222	.1111	-.3091	.2364	.1273	.0182	.6727	.3455
SPEARMAN COEFFICIENT	.8515	.3000	-.3000	-.5909	.3000	.2788	-.4091	.2795	.2523	.0386	.8341	.4818
SEN LOWER CONF. INT.	.1278	-1.8200	-54.8364	-98.0099	-4.2533	-30.3003	-117.7122	-25.1002	-15.6438	-24.3667	.7726	-.4164
SEN ESTIMATED OF SLOPE	.4250	.2056	-11.0313	-23.6364	2.6400	1.5000	-16.0000	4.5714	.7222	.0667	1.7800	.6400
SEN UPPER CONF. INT.	2.4477	.5880	10.6893	4.2650	13.0997	5.6513	3.9163	14.0401	7.3878	7.0644	4.6694	1.3632

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	20.9794	
SEASONAL KENDALL	STATISTIC =	2.2065	*
MODIFY SEA. KEN.	STATISTIC =	2.1934	*
VAN BELLE (HOMO)	STATISTIC =	24.2880	*
VAN BELLE (TEND)	STATISTIC =	4.9902	*
KENDALL	COEFFICIENT =	-.0241	
SPEARMAN	COEFFICIENT =	.0235	
SEASONAL LOWER	CONF. INT. =	.0000	
SEASONAL ESTIMATED	OF SLOPE =	.4533	
SEASONAL UPPER	CONF. INT. =	1.1648	

* SIGNIFICANT AT 5 % LEVEL

B-DISS 05105D

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.0614	1.8553	-.6216	-1.5352	.5017	-1.4942	1.7940	.1666	.5054	.2267	1.5843	-.1871
SPEARMAN STAT.	.3713	1.9204	-.5673	-1.3059	.3493	-1.5000	1.9368	.0609	.7288	.2826	1.7190	-.2605
KENDALL COEFFICIENT	-.0256	.3000	-.1818	-.3187	.0095	-.4103	.2952	-.0549	-.0333	-.1209	.1538	-.1538
SPEARMAN COEFFICIENT	.1113	.4566	-.1766	-.3527	.0964	-.4121	.4732	.0176	.1912	.0813	.4602	-.0783
SEN LOWER CONF. INT.	-.0060	.0000	-.0152	-.0154	-.0022	-.0050	.0000	-.0033	-.0018	-.0011	.0000	-.0032
SEN ESTIMATED OF SLOPE	.0000	.0033	-.0020	-.0091	.0009	-.0022	.0036	.0000	.0000	.0000	.0015	.0000
SEN UPPER CONF. INT.	.0057	.0067	.0065	.0036	.0049	.0004	.0078	.0034	.0025	.0014	.0041	.0033

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	16.2189	
SEASONAL KENDALL STATISTIC =	1.0634	
MODIFY SEA. KEN. STATISTIC =	.7840	
VAN BELLE (HOMO) STATISTIC =	14.0912	
VAN BELLE (TEND) STATISTIC =	.6804	
KENDALL COEFFICIENT =	-.3480	
SPEARMAN COEFFICIENT =	-.3962	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0014	

* SIGNIFICANT AT 5 % LEVEL

NO3+NO2 07106L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.9023	-1.2658	-.8433	* -2.1371	* -2.7042	-.9392	.0521	-1.7346	.9382	-.6792	* -2.0255	-1.4038
SPEARMAN STAT.	-.7346	-1.2989	-.7841	* -2.4594	-1.7199	-.2592	.6277	-.2094	1.6330	-.1184	-2.0866	-1.5553
KENDALL COEFFICIENT	-.1833	-.2667	-.1810	-.4500	-.8667	-.5333	-.3667	-.8667	-.3167	-.5000	-.5048	-.3000
SPEARMAN COEFFICIENT	-.1926	-.3279	-.2125	-.5493	-.4176	-.0691	.1654	-.0559	.4000	-.0316	-.5009	-.3838
SEN LOWER CONF. INT.	-.0196	-.0322	-.0698	-.1503	-.0098	-.0011	.0000	.0000	.0000	-.0008	-.0050	-.0067
SEN ESTIMATED OF SLOPE	-.0051	-.0082	-.0225	-.0719	.0000	.0000	.0000	.0000	.0000	.0000	-.0025	-.0033
SEN UPPER CONF. INT.	.0070	.0108	.0178	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0012

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.1523	
SEASONAL KENDALL STATISTIC =	-3.9397	*
MODIFY SEA. KEN. STATISTIC =	-2.8528	*
VAN BELLE (HOMO) STATISTIC =	10.8010	
VAN BELLE (TEND) STATISTIC =	15.5147	*
KENDALL COEFFICIENT =	-.4415	
SPEARMAN COEFFICIENT =	-.4301	
SEASONAL LOWER CONF. INT. =	-.0011	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

TW* 07602L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.6166	-1.5308	-.9307	* -2.5213	-1.1706	-.0902	.5871	-.2253	.0993	-.5980	.0997	-1.5379
SPEARMAN STAT.	* -3.5931	-1.7052	-.7233	* -2.6600	-1.1640	.0330	.4517	-.3120	.1837	-.5737	.0902	-1.7542
KENDALL COEFFICIENT	-.5000	-.2833	-.1868	-.4667	-.2167	-.0333	.0833	-.0500	-.0095	-.1619	-.0286	-.3143
SPEARMAN COEFFICIENT	-.6926	-.4147	-.2044	-.5794	-.2971	.0088	.1199	-.0831	.0509	-.1571	.0250	-.4375
SEN LOWER CONF. INT.	-.0344	-.0500	-.1942	-.3471	-.1425	-.0235	-.0331	-.0376	-.0377	-.0203	-.0076	-.0200
SEN ESTIMATED OF SLOPE	-.0162	-.0218	-.0314	-.1831	-.0461	-.0004	.0106	-.0030	.0000	-.0057	.0000	-.0073
SEN UPPER CONF. INT.	-.0050	.0055	.0667	-.0503	.0237	.0378	.0840	.0441	.0358	.0051	.0100	.0050

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.9846	
SEASONAL KENDALL STATISTIC =	-3.0494	*
MODIFY SEA. KEN. STATISTIC =	-2.4013	*
VAN BELLE (HOMO) STATISTIC =	11.8546	
VAN BELLE (TEND) STATISTIC =	9.0745	*
KENDALL COEFFICIENT =	-.3744	
SPEARMAN COEFFICIENT =	-.5241	
SEASONAL LOWER CONF. INT. =	-.0157	
SEASONAL ESTIMATED OF SLOPE =	-.0090	
SEASONAL UPPER CONF. INT. =	-.0035	

* SIGNIFICANT AT 5 % LEVEL

DO 08101F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.5774	.0495	.7928	-.8461	-.7947	-1.1762	-.7662	-1.3534	-.2990	.1492	-.7466	.6433
SPEARMAN STAT.	1.7903	.1289	.9773	-.7394	-.9132	-1.2053	-.4968	-1.4249	-.4477	.1676	-.5904	.8326
KENDALL COEFFICIENT	.2833	.0095	.1429	-.2000	-.1810	-.2500	-.1500	-.2667	-.1048	-.0095	-.1810	.1238
SPEARMAN COEFFICIENT	.4316	.0357	.2616	-.2009	-.2455	-.3066	-.1316	-.3559	-.1232	.0464	-.1616	.2250
SEN LOWER CONF. INT.	-.0915	-.5475	-.3000	-.2519	-.1930	-.2000	-.2130	-.2000	-.1204	-.0850	-.1333	-.1215
SEN ESTIMATED OF SLOPE	.2414	.0286	.1857	-.0462	-.0500	-.0733	-.0714	-.0893	-.0100	.0000	-.0250	.1222
SEN UPPER CONF. INT.	.6482	.5256	.7290	.1779	.1077	.0611	.1264	.0402	.0672	.1487	.1000	.4582

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	9.4332
SEASONAL KENDALL STATISTIC =	-.8175
MODIFY SEA. KEN. STATISTIC =	-.8796
VAN BELLE (HOMO) STATISTIC =	8.7122
VAN BELLE (TEND) STATISTIC =	.6394
KENDALL COEFFICIENT =	.2708
SPEARMAN COEFFICIENT =	.3999
SEASONAL LOWER CONF. INT. =	-.0595
SEASONAL ESTIMATED OF SLOPE =	-.0200
SEASONAL UPPER CONF. INT. =	.0324

* SIGNIFICANT AT 5 % LEVEL

ALK-TOT 10101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.1611	-.7204	-1.0901	* 2.9729	.6760	-.6303	.4056	.4056	.2258	-.3964	-.8563	-1.4407
SPEARMAN STAT.	* -2.8496	-1.0764	-1.4788	* 2.9904	.9934	-.5336	.1294	.6449	.1956	-.4115	-.8019	-1.8547
KENDALL COEFFICIENT	-.4000	-.1333	-.2190	.5619	.1167	-.1167	.0667	.0667	.0167	-.0857	-.1667	-.2667
SPEARMAN COEFFICIENT	-.6059	-.2765	-.3795	.6384	.2566	-.1412	.0346	.1695	.0522	-.1134	-.2096	-.4441
SEN LOWER CONF. INT.	-10.7130	-6.6643	-13.3590	2.0000	-1.8121	-2.8546	-1.5414	-1.1241	-1.3052	-3.0349	-4.5490	-10.0000
SEN ESTIMATED OF SLOPE	-6.6778	-1.4848	-4.3333	5.3333	.7222	-1.0000	.4667	.3889	.2857	-.2857	-1.2500	-4.6077
SEN UPPER CONF. INT.	-.6000	3.0767	4.2510	7.5880	3.9043	1.0852	2.4575	2.1915	2.4382	1.7577	3.3565	1.9930

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	24.5233	
SEASONAL KENDALL STATISTIC =	-.8112	
MODIFY SEA. KEN. STATISTIC =	-.6419	
VAN BELLE (HOMO) STATISTIC =	18.8484	
VAN BELLE (TEND) STATISTIC =	.5674	
KENDALL COEFFICIENT =	-.0546	
SPEARMAN COEFFICIENT =	-.0804	
SEASONAL LOWER CONF. INT. =	-1.1306	
SEASONAL ESTIMATED OF SLOPE =	-.2857	
SEASONAL UPPER CONF. INT. =	.5000	

* SIGNIFICANT AT 5 % LEVEL

PH(F) 10301F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.4101	1.7306	1.3825	.7889	1.1925	.6882	.0461	-.3522	-.5606	.1407	1.3722	* 2.1955
SPEARMAN STAT.	-.2675	1.9274	1.1513	.7288	1.2470	.7084	.1377	-.3069	-.4708	.3120	1.4282	* 2.3941
KENDALL COEFFICIENT	-.1500	.1810	.2088	-.0167	.1000	.0167	-.1167	-.1619	-.2571	-.1667	.1500	.3000
SPEARMAN COEFFICIENT	-.0713	.4714	.3154	.1912	.3162	.1860	.0368	-.0848	-.1295	.0831	.3566	.5390
SEN LOWER CONF. INT.	-.0500	.0000	-.0211	-.0101	-.0132	-.0250	-.0400	-.0400	-.0250	-.0198	-.0143	.0000
SEN ESTIMATED OF SLOPE	-.0033	.0200	.0333	.0000	.0125	.0118	.0000	.0000	.0000	.0000	.0191	.0369
SEN UPPER CONF. INT.	.0349	.0500	.0783	.0337	.0317	.0582	.0400	.0363	.0267	.0167	.0391	.0576

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	11.9071	
SEASONAL KENDALL STATISTIC =	2.3692	*
MODIFY SEA. KEN. STATISTIC =	1.3488	
VAN BELLE (HOMO) STATISTIC =	9.1328	
VAN BELLE (TEND) STATISTIC =	5.6229	*
KENDALL COEFFICIENT =	.1293	
SPEARMAN COEFFICIENT =	.3301	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0071	
SEASONAL UPPER CONF. INT. =	.0182	

* SIGNIFICANT AT 5 % LEVEL

MFR 10401L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.1563	.4101	-.6022	* -2.4312	-1.9300	.9005	-.0900	.4454	.9005	-.7218	.5428	1.1921
SPEARMAN STAT.	* 2.3744	.4236	-.3598	* -2.8715	* -2.3090	1.0271	-.3984	.4807	1.1514	-.6363	.6507	1.3668
KENDALL COEFFICIENT	.3333	.0000	-.1209	-.4500	-.3714	.1667	-.0167	.0857	.1667	-.1500	.0667	.2000
SPEARMAN COEFFICIENT	.5500	.1125	-.1033	-.6088	-.5393	.2647	-.1059	.1321	.2941	-.1676	.1713	.3545
SEN LOWER CONF. INT.	.0000	-.2500	-28.0888	-86.6667	-51.8013	-8.6821	-39.2966	-13.0606	-4.6255	-4.1137	-1.6091	-.4417
SEN ESTIMATED OF SLOPE	.3333	.0250	-1.8182	-45.9917	-15.5556	3.8611	-.9864	5.0000	2.1404	-1.3939	.3250	.3750
SEN UPPER CONF. INT.	1.2536	.4508	11.4012	-4.6779	.2728	16.0985	25.6829	35.9249	11.9611	3.2788	2.6508	1.0256

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.2325
SEASONAL KENDALL STATISTIC =	.2043
MODIFY SEA. KEN. STATISTIC =	.2436
VAN BELLE (HOMO) STATISTIC =	18.8313
VAN BELLE (TEND) STATISTIC =	.0497
KENDALL COEFFICIENT =	-.0196
SPEARMAN COEFFICIENT =	.0512
SEASONAL LOWER CONF. INT. =	-.4857
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.4355

* SIGNIFICANT AT 5 % LEVEL

MA-DISS 11103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.2618	* -2.3095	* -2.4308	-.2980	-1.5339	-.5443	.3155	.2707	-.4524	-.1501	* -2.7492	* -2.8814
SPEARMAN STAT.	* -3.5280	* -3.2383	* -2.9140	-.1450	-1.2924	-.4658	.5251	.4264	-.3621	-.1870	* -2.9442	* -3.9896
KENDALL COEFFICIENT	-.4500	-.4667	-.4857	-.0857	-.3000	-.1500	.0500	.0333	-.1167	-.0857	-.5167	-.5333
SPEARMAN COEFFICIENT	-.6860	-.6544	-.6286	-.0402	-.3265	-.1235	.1390	.1132	-.0963	-.0518	-.6184	-.7294
SEN LOWER CONF. INT.	-1.8111	-1.7731	-2.3439	-.7372	-1.1693	-.9943	-.4203	-.2945	-.7166	-.5318	-1.2415	-2.2977
SEN ESTIMATED OF SLOPE	-1.1561	-.9875	-1.2364	-.0833	-.6646	-.2043	.1167	.1174	-.0408	.0000	-.8702	-1.4438
SEN UPPER CONF. INT.	-.1789	-.2000	-.2093	.6184	.2839	.5110	.8216	.7454	.5474	.3437	-.4355	-.4849

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.6445
SEASONAL KENDALL STATISTIC =	-4.3608 *
MODIFY SEA. KEN. STATISTIC =	-3.0596 *
VAN BELLE (HOMO) STATISTIC =	16.5438
VAN BELLE (TEND) STATISTIC =	18.8131 *
KENDALL COEFFICIENT =	-.0114
SPEARMAN COEFFICIENT =	-.0030
SEASONAL LOWER CONF. INT. =	-.7000
SEASONAL ESTIMATED OF SLOPE =	-.4600
SEASONAL UPPER CONF. INT. =	-.2445

* SIGNIFICANT AT 5 % LEVEL

MG-DISS 12102L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -3.1998	* -2.2511	-1.6846	1.2372	.3161	-1.2606	-1.7143	-1.1730	-.8121	-1.8828	* -2.6590	* -3.2416
SPEARMAN STAT.	* -5.0016	* -3.3027	-1.9227	1.2239	.4405	-1.5623	-1.7568	-.9540	-1.1013	* -2.2609	* -3.2962	* -4.8404
KENDALL COEFFICIENT	-.6000	-.4167	-.3333	.2381	.0333	-.2333	-.3333	-.2333	-.1667	-.3714	-.5000	-.6000
SPEARMAN COEFFICIENT	-.8007	-.6618	-.4705	.3214	.1169	-.3853	-.4250	-.2471	-.2824	-.5313	-.6610	-.7912
SEN LOWER CONF. INT.	-2.0158	-1.4209	-1.6546	-.1500	-.2760	-.4477	-.3276	-.2500	-.3000	-.4043	-.8419	-1.3667
SEN ESTIMATED OF SLOPE	-1.1429	-.6826	-.5600	.2250	.0333	-.1789	-.1477	-.1050	-.1000	-.1917	-.4742	-.8397
SEN UPPER CONF. INT.	-.3681	-.1387	.0760	.6101	.3750	.1500	.0231	.0782	.1412	.0176	-.1881	-.5297

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	22.5422	
SEASONAL KENDALL STATISTIC =	-5.3472	*
MODIFY SEA. KEN. STATISTIC =	-3.0436	*
VAN BELLE (HOMO) STATISTIC =	19.4759	
VAN BELLE (TEND) STATISTIC =	27.9861	*
KENDALL COEFFICIENT =	.0156	
SPEARMAN COEFFICIENT =	-.0010	
SEASONAL LOWER CONF. INT. =	-.3250	
SEASONAL ESTIMATED OF SLOPE =	-.2375	
SEASONAL UPPER CONF. INT. =	-.1500	

* SIGNIFICANT AT 5 % LEVEL

P-TOT-DISS15103D (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.7730	-.8000	-.2193	* -2.5220	-.3832	.5522	-.2200	.1109	.1141	-1.1613	.1525	-1.4146
SPEARMAN STAT.	-.6028	-.9630	-.1792	* -2.5321	-.5000	.5781	-.3869	.0952	.2634	-1.1961	.0612	-1.2414
KENDALL COEFFICIENT	-.2088	-.2190	-.0549	-.5165	-.0769	.0769	-.0769	-.0549	-.1648	-.2967	-.1048	-.4286
SPEARMAN COEFFICIENT	-.1714	-.2580	-.0516	-.5901	-.1429	.1717	-.1110	.0275	.0758	-.3264	.0170	-.3374
SEN LOWER CONF. INT.	-.0008	-.0016	-.0036	-.0066	-.0016	-.0008	-.0015	-.0007	-.0006	-.0008	-.0010	-.0005
SEN ESTIMATED OF SLOPE	-.0003	-.0003	-.0003	-.0040	-.0003	.0006	-.0003	.0000	.0000	-.0002	.0000	-.0002
SEN UPPER CONF. INT.	.0007	.0004	.0024	-.0011	.0006	.0060	.0026	.0012	.0007	.0002	.0008	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	14.0974
SEASONAL KENDALL STATISTIC =	-1.9174
MODIFY SEA. KEN. STATISTIC =	-1.6456
VAN BELLE (HOMO) STATISTIC =	7.9545
VAN BELLE (TEND) STATISTIC =	3.5903
KENDALL COEFFICIENT =	-.2877
SPEARMAN COEFFICIENT =	-.3143
SEASONAL LOWER CONF. INT. =	-.0004
SEASONAL ESTIMATED OF SLOPE =	-.0002
SEASONAL UPPER CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

P-TOT 15406L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.8082	.4064	.5457	* -2.3412	* -2.5689	.1352	-.0900	-.2707	-.4511	-1.1267	1.7109	1.5078
SPEARMAN STAT.	2.0278	.5421	.6274	* -2.8496	* -2.9216	.0248	-.3984	-.4040	-.2814	-1.0240	1.4519	1.5833
KENDALL COEFFICIENT	.3000	.0500	.0857	-.4333	-.4833	.0167	-.0167	-.0667	-.1000	-.2167	.3167	.1833
SPEARMAN COEFFICIENT	.4765	.1434	.1714	-.6059	-.6154	.0066	-.1059	-.1074	-.0750	-.2640	.3618	.3897
SEN LOWER CONF. INT.	-.0001	-.0015	-.0141	-.0442	-.0388	-.0074	-.0190	-.0069	-.0075	-.0042	-.0005	.0000
SEN ESTIMATED OF SLOPE	.0006	.0002	.0011	-.0204	-.0165	.0010	-.0010	-.0008	-.0010	-.0016	.0012	.0003
SEN UPPER CONF. INT.	.0014	.0018	.0132	-.0051	-.0052	.0101	.0256	.0066	.0084	.0017	.0033	.0010

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.1375	
SEASONAL KENDALL STATISTIC =	-.2363	
MODIFY SEA. KEN. STATISTIC =	-.1971	
VAN BELLE (HOMO) STATISTIC =	22.5412	*
VAN BELLE (TEND) STATISTIC =	.0449	
KENDALL COEFFICIENT =	-.0725	
SPEARMAN COEFFICIENT =	-.0181	
SEASONAL LOWER CONF. INT. =	-.0010	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0005	

* SIGNIFICANT AT 5 % LEVEL

A-BBC 18075L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.1448	-.8397	-.1648	-.6624	-1.8613	-1.8699	-1.3840	* -3.0218	* -2.3004	* -2.6148	-1.3788	-1.0288
SPEARMAN STAT.	1.2344	.0773	-.0887	-.5865	-1.8023	-1.8257	-1.1799	* -4.2595	* -2.7358	* -2.9738	-.9989	-.4581
KENDALL COEFFICIENT	-.8485	-.6762	-.2364	-.3778	-.5165	-.6061	-.4359	-.7143	-.5824	-.6410	-.6000	-.6061
SPEARMAN COEFFICIENT	.3636	.0214	-.0295	-.2030	-.4615	-.5000	-.3352	-.7758	-.6198	-.6676	-.3159	-.1434
SEN LOWER CONF. INT.	.0000	.0000	-.0004	-.0005	-.0005	-.0005	-.0005	-.0005	-.0006	-.0011	-.0003	-.0001
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	-.0002	-.0001	-.0002	-.0003	-.0003	-.0005	.0000	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0005	.0002	.0000	.0000	.0000	-.0001	.0000	-.0002	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.1435	
SEASONAL KENDALL STATISTIC =	-5.4043	*
MODIFY SEA. KEN. STATISTIC =	-2.8917	*
VAN BELLE (HOMO) STATISTIC =	9.4295	
VAN BELLE (TEND) STATISTIC =	24.8591	*
KENDALL COEFFICIENT =	-.1218	
SPEARMAN COEFFICIENT =	.2162	
SEASONAL LOWER CONF. INT. =	-.0002	
SEASONAL ESTIMATED OF SLOPE =	-.0001	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

24D 18500L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.3039	1.5864	1.3780	.8767	1.8516	1.0021	.0520	.6862	1.4224	.4505	* 2.8636	.5787
SPEARMAN STAT.	1.5467	1.7309	1.6483	.9338	2.0277	.9898	.2712	.6451	1.6583	.9274	* 4.7086	1.1071
KENDALL COEFFICIENT	-.0330	.1167	.0769	-.0606	.1810	.0989	-.2000	.0256	.0286	-.2762	-.0769	-.3333
SPEARMAN COEFFICIENT	.4077	.4199	.4297	.2832	.4902	.2747	.0750	.1909	.4179	.2491	.8055	.3304
SEN LOWER CONF. INT.	.0000	.0000	.0000	-.0003	.0000	-.0010	-.0019	-.0007	.0000	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0004	.0004	.0000	.0014	.0011	.0000	.0003	.0002	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0029	.0020	.0031	.0024	.0035	.0040	.0023	.0021	.0020	.0006	.0019	.0012

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	18.5539	
SEASONAL KENDALL STATISTIC =	4.0224	*
MODIFY SEA. KEN. STATISTIC =	1.8945	
VAN BELLE (HOMO) STATISTIC =	6.0967	
VAN BELLE (TEND) STATISTIC =	16.4550	*
KENDALL COEFFICIENT =	-.3271	
SPEARMAN COEFFICIENT =	-.0565	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0007	

* SIGNIFICANT AT 5 % LEVEL

245T 18510L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.7487	* 2.6234	1.0040	* 2.3113	* 2.3094	* 2.2576	* 2.7417	.8839	1.2704	1.4335	1.1584	* 2.1483
SPEARMAN STAT.	* 2.5524	* 3.9896	1.8297	* 3.4923	* 3.4135	* 3.3235	* 4.3217	1.7518	2.0726	* 2.2821	1.9651	* 3.1864
KENDALL COEFFICIENT	-.2051	-.3500	-.4725	-.2121	-.3524	-.3187	-.1810	-.5897	-.5000	-.4476	-.4505	-.3939
SPEARMAN COEFFICIENT	.6099	.7294	.4670	.7413	.6875	.6923	.7679	.4670	.4846	.5348	.4934	.7098
SEN LOWER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0037	.0000	.0000	.0039	.0000	.0000	.0042	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.2171	
SEASONAL KENDALL STATISTIC =	6.3218	*
MODIFY SEA. KEN. STATISTIC =	2.3694	*
VAN BELLE (HOMO) STATISTIC =	4.7114	
VAN BELLE (TEND) STATISTIC =	39.9335	*
KENDALL COEFFICIENT =	-.6519	
SPEARMAN COEFFICIENT =	.2429	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

K-DISS 19103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.9157	-1.4476	-1.2443	-.5946	-.2714	-.2707	1.3096	.6774	-.3680	-.3000	-.7253	-1.4038
SPEARMAN STAT.	* -2.7113	* -2.3485	-1.3354	-.6375	-.2953	-.3259	1.8816	.7667	-.3314	-.1837	-.6334	-1.5205
KENDALL COEFFICIENT	-.4333	-.3000	-.2762	-.1238	-.0833	-.0667	.2167	.1000	-.1833	-.1238	-.1833	-.3000
SPEARMAN COEFFICIENT	-.5868	-.5316	-.3473	-.1741	-.0787	-.0868	.4493	.2007	-.0882	-.0509	-.1669	-.3765
SEN LOWER CONF. INT.	-.1011	-.1066	-.2462	-.2720	-.1265	-.0614	-.0282	-.0393	-.0268	-.0333	-.0442	-.1000
SEN ESTIMATED OF SLOPE	-.0522	-.0439	-.0750	-.0462	-.0112	-.0081	.0333	.0146	.0000	.0000	-.0125	-.0437
SEN UPPER CONF. INT.	.0000	.0405	.0980	.2600	.0940	.0864	.1000	.0647	.0247	.0333	.0333	.0167

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	8.3872	
SEASONAL KENDALL STATISTIC =	-1.8728	
MODIFY SEA. KEN. STATISTIC =	-1.1099	
VAN BELLE (HOMO) STATISTIC =	9.1304	
VAN BELLE (TEND) STATISTIC =	3.5799	
KENDALL COEFFICIENT =	-.1736	
SPEARMAN COEFFICIENT =	-.2086	
SEASONAL LOWER CONF. INT. =	-.0287	
SEASONAL ESTIMATED OF SLOPE =	-.0118	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

CA-DISS 20101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.2083	-1.0805	-1.3362	1.8310	1.3971	-1.4476	-1.5774	-1.2168	-1.3971	-1.7837	-.5403	-.8104
SPEARMAN STAT.	* -2.7795	-1.2664	-1.5904	1.8350	1.4350	-1.3547	-1.7456	-1.1989	-1.4350	-1.9415	-.5905	-1.1013
KENDALL COEFFICIENT	-.4167	-.2000	-.2571	.3524	.2500	-.3000	-.3000	-.2333	-.2667	-.3524	-.1000	-.1500
SPEARMAN COEFFICIENT	-.5963	-.3206	-.4036	.4536	.3581	-.3404	-.4228	-.3051	-.3581	-.4741	-.1559	-.2824
SEN LOWER CONF. INT.	-2.4872	-2.0845	-3.9551	-.1528	-.2748	-1.2587	-.6936	-1.0321	-.8474	-.9860	-1.1256	-1.9022
SEN ESTIMATED OF SLOPE	-1.6703	-.5467	-1.4000	.7667	.3192	-.4675	-.2667	-.4308	-.2333	-.4250	-.2350	-.6512
SEN UPPER CONF. INT.	-.1018	1.0704	.6628	1.4124	1.0351	.1074	.0750	.3031	.1394	.1282	.9153	.7070

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	16.2609	
SEASONAL KENDALL STATISTIC =	-2.9656	*
MODIFY SEA. KEN. STATISTIC =	-2.6810	*
VAN BELLE (HOMO) STATISTIC =	16.6614	
VAN BELLE (TEND) STATISTIC =	8.6195	*
KENDALL COEFFICIENT =	-.0441	
SPEARMAN COEFFICIENT =	-.0967	
SEASONAL LOWER CONF. INT. =	-.5519	
SEASONAL ESTIMATED OF SLOPE =	-.3222	
SEASONAL UPPER CONF. INT. =	-.1058	

* SIGNIFICANT AT 5 % LEVEL

MN-DISS 25104D (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.4647	-1.7466	-1.1771	-.9859	-1.2607	-.2806	* -2.0368	-1.6632	* -2.0139	-1.5628	-1.3036	* -2.0176
SPEARMAN STAT.	-2.1213	-2.2781	-1.3801	-.7817	-1.3251	-.1029	-2.2069	-1.9843	-2.2244	-1.9148	-1.3367	-2.1213
KENDALL COEFFICIENT	-.4667	-.5556	-.4444	-.4444	-.5556	-.2444	-.6444	-.6667	-.6000	-.5111	-.4667	-.6889
SPEARMAN COEFFICIENT	-.6000	-.6273	-.4625	-.2833	-.4242	-.0364	-.6152	-.6000	-.6182	-.5606	-.4273	-.6000
SEN LOWER CONF. INT.	-.0041	-.0063	-.0044	-.0034	-.0016	-.0050	-.0060	-.0085	-.0047	-.0046	-.0038	-.0033
SEN ESTIMATED OF SLOPE	-.0013	-.0013	-.0007	-.0008	-.0003	.0000	-.0027	-.0013	-.0010	-.0010	-.0006	-.0010
SEN UPPER CONF. INT.	.0011	.0000	.0005	.0016	.0000	.0034	.0000	.0000	.0000	.0002	.0003	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.0520	
SEASONAL KENDALL STATISTIC =	-5.1263	*
MODIFY SEA. KEN. STATISTIC =	-1.8679	
VAN BELLE (HOMO) STATISTIC =	2.7524	
VAN BELLE (TEND) STATISTIC =	26.5249	*
KENDALL COEFFICIENT =	-.2116	
SPEARMAN COEFFICIENT =	-.0393	
SEASONAL LOWER CONF. INT. =	-.0013	
SEASONAL ESTIMATED OF SLOPE =	-.0010	
SEASONAL UPPER CONF. INT. =	-.0006	

* SIGNIFICANT AT 5 % LEVEL

FE-DISS 26104D (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.2376	* -2.3515	* -1.9837	-.5213	-1.6323	-1.0171	-1.7616	-1.6432	-1.7374	* -2.8479	-.7157	* -2.5560
SPEARMAN STAT.	-2.0393	-2.1551	-2.0953	-.3559	-1.6462	-.3542	-1.8998	-2.2135	-1.9761	* -2.5506	-.2582	* -2.3333
KENDALL COEFFICIENT	-.8222	-.8667	-.7222	-.1667	-.6000	-.5556	-.5556	-.6111	-.6444	-.9556	-.5111	-.9111
SPEARMAN COEFFICIENT	-.5848	-.6061	-.6208	-.1333	-.5030	-.1242	-.5576	-.6417	-.5727	-.6697	-.0909	-.6364
SEN LOWER CONF. INT.	-.0052	-.0058	-.0249	-.0125	-.0093	-.0040	-.0100	-.0072	-.0066	-.0055	-.0049	-.0063
SEN ESTIMATED OF SLOPE	-.0024	-.0035	-.0053	-.0043	-.0041	.0000	-.0050	-.0047	-.0030	-.0040	.0000	-.0041
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0374	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.5197	
SEASONAL KENDALL STATISTIC =	-6.1189	*
MODIFY SEA. KEN. STATISTIC =	-2.4004	*
VAN BELLE (HOMO) STATISTIC =	5.4490	
VAN BELLE (TEND) STATISTIC =	37.9150	*
KENDALL COEFFICIENT =	-.3401	
SPEARMAN COEFFICIENT =	-.0419	
SEASONAL LOWER CONF. INT. =	-.0043	
SEASONAL ESTIMATED OF SLOPE =	-.0034	
SEASONAL UPPER CONF. INT. =	-.0010	

* SIGNIFICANT AT 5 % LEVEL

CU-TOT 29005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.2205	-.9487	-1.3553	-.8386	1.1722	-1.3416	-1.8783	.5388	.0000	* -2.0139	* 2.2098	.7449
SPEARMAN STAT.	1.3600	-.8833	-1.3332	-.9486	.8994	-1.2568	* -2.4889	.2495	.2322	-2.2963	* 3.5466	.8502
KENDALL COEFFICIENT	-.0667	-.3333	-.3889	-.2778	.2444	-.3333	-.4667	.1111	-.0222	-.6000	.2889	.0222
SPEARMAN COEFFICIENT	.4333	-.3167	-.4500	-.3375	.3030	-.4061	-.6606	.0879	.0818	-.6303	.7818	.2879
SEN LOWER CONF. INT.	.0000	-.0004	-.0045	-.0062	-.0002	-.0034	-.0046	-.0047	-.0013	-.0004	.0000	-.0001
SEN ESTIMATED OF SLOPE	.0000	-.0001	-.0011	-.0007	.0005	-.0007	-.0023	.0003	.0000	-.0002	.0002	.0001
SEN UPPER CONF. INT.	.0002	.0001	.0018	.0011	.0024	.0004	.0002	.0021	.0007	.0000	.0004	.0003

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.7264	*
SEASONAL KENDALL STATISTIC =	-.7667	
MODIFY SEA. KEN. STATISTIC =	-.7[illegible]	
VAN BELLE (HOMO) STATISTIC =	21.4519	*
VAN BELLE (TEND) STATISTIC =	.6556	
KENDALL COEFFICIENT =	-.0610	
SPEARMAN COEFFICIENT =	.0330	
SEASONAL LOWER CONF. INT. =	-.0001	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

ZN-TOT 30005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.0927	-.2097	-1.1135	-.6008	-.8386	-1.6994	-1.8783	-.1796	-1.3416	-.4472	-.0912	-.2781
SPEARMAN STAT.	-.2756	-.1435	-1.7056	-.8550	-.8448	-2.1895	* -2.9448	-.3717	-1.1254	-.5050	.1631	-.2582
KENDALL COEFFICIENT	-.1556	-.1111	-.3571	-.2381	-.2778	-.4222	-.4667	-.0667	-.3333	-.1111	-.1111	-.2000
SPEARMAN COEFFICIENT	-.0970	-.0542	-.5714	-.3571	-.3042	-.6121	-.7212	-.1303	-.3697	-.1758	.0576	-.0909
SEN LOWER CONF. INT.	-.0018	-.0012	-.0025	-.1009	-.0028	-.0116	-.0108	-.0152	-.0029	-.0016	-.0010	-.0006
SEN ESTIMATED OF SLOPE	.0000	.0000	-.0007	-.0080	-.0004	-.0010	-.0050	-.0008	-.0009	-.0004	.0000	.0000
SEN UPPER CONF. INT.	.0007	.0005	.0010	.0037	.0015	.0005	.0006	.0076	.0004	.0006	.0006	.0006

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	7.9945	
SEASONAL KENDALL STATISTIC =	-2.6110	*
MODIFY SEA. KEN. STATISTIC =	-2.0026	*
VAN BELLE (HOMO) STATISTIC =	4.4893	
VAN BELLE (TEND) STATISTIC =	7.1368	*
KENDALL COEFFICIENT =	-.0389	
SPEARMAN COEFFICIENT =	-.0181	
SEASONAL LOWER CONF. INT. =	-.0008	
SEASONAL ESTIMATED OF SLOPE =	-.0005	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

T.COLI 36001F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.1286	.2003	-1.5213	-.7423	-.9370	-1.7285	-.9370	-1.6796	-.2097	-.6934	-1.5235	.8259
SPEARMAN STAT.	-1.0786	.1837	-1.5517	-.7472	-1.1459	-1.7851	-1.0149	-2.1209	-.3673	-.6726	-1.3005	.9387
KENDALL COEFFICIENT	-.3524	-.0286	-.4286	-.2308	-.2364	-.4545	-.2364	-.4909	-.1111	-.2121	-.5238	-.0989
SPEARMAN COEFFICIENT	-.2866	.0509	-.4088	-.2198	-.3568	-.5114	-.3205	-.5773	-.1375	-.2080	-.3393	.2615
SEN LOWER CONF. INT.	-10.2587	-4.7749	-2.1964	-24.9125	-62.8040	-66.3540	-157.5367	-28.5290	-24.6743	-8.0892	-1.1517	.0000
SEN ESTIMATED OF SLOPE	-1.2222	.0000	-.8889	-2.1250	-6.2500	-20.0000	-32.0000	-10.0000	-1.4545	-1.7143	-.2857	.0000
SEN UPPER CONF. INT.	1.0000	6.0673	.0000	2.5208	2.5251	1.9467	128.1578	.0000	28.7859	1.7781	.0000	.6667

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 12.4055
SEASONAL KENDALL STATISTIC = -2.[illegible]
MODIFY SEA. KEN. STATISTIC = -1.6576
VAN BELLE (HOMO) STATISTIC = 6.6916
VAN BELLE (TEND) STATISTIC = 8.6350 *
KENDALL COEFFICIENT = -.1742
SPEARMAN COEFFICIENT = -.1147
SEASONAL LOWER CONF. INT. = -1.5000
SEASONAL ESTIMATED OF SLOPE = -.5000
SEASONAL UPPER CONF. INT. = .0000

* SIGNIFICANT AT 5 % LEVEL

F.COLI 36011F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.3993	-.1051	1.6222	.0000	.9168	-.0551	-.9023	.2973	-.6954	.0000	.7615	* 2.4360
SPEARMAN STAT.	.8107	.0966	1.7587	.4599	.6548	-.1066	-1.0148	.4444	-.5904	.0456	1.8168	* 3.4304
KENDALL COEFFICIENT	-.2333	-.2381	.0095	-.3846	.1795	-.0549	-.1833	.0476	-.1619	-.0256	-.6571	-.1619
SPEARMAN COEFFICIENT	.2118	.0268	.4384	.1374	.1937	-.0308	-.2618	.1223	-.1616	.0137	.4500	.6893
SEN LOWER CONF. INT.	.0000	-1.0000	.0000	.0000	-1.3768	-4.3323	-13.8403	-7.2896	-9.0329	-2.0025	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.1538	.0000	1.0000	.0000	-3.8322	1.1111	-1.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.2787	.6667	.6667	.0000	4.0056	3.3333	6.9394	19.5989	4.0658	1.2503	.0000	.2175

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 14.3090
SEASONAL KENDALL STATISTIC = 1.1109
MODIFY SEA. KEN. STATISTIC = .9837
VAN BELLE (HOMO) STATISTIC = 9.7244
VAN BELLE (TEND) STATISTIC = 1.8216
KENDALL COEFFICIENT = -.1109
SPEARMAN COEFFICIENT = .0680
SEASONAL LOWER CONF. INT. = .0000
SEASONAL ESTIMATED OF SLOPE = .0000
SEASONAL UPPER CONF. INT. = .0000

* SIGNIFICANT AT 5 % LEVEL

BG-TOT 80011P (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
	*			*						*	*	*
MANN & KENDALL STAT.	-2.0889	-1.8856	-1.9046	-2.5096	.1002	-1.0265	-1.1161	-.7283	-1.0056	-2.4898	-2.2148	-2.4495
				*						*		
SPEARMAN STAT.	-.6601	-.3780	-1.0102	-2.4290	.7149	-.5619	-.8658	-.2739	-.5047	-2.3594	-1.0797	-1.3093
KENDALL COEFFICIENT	-1.0000	-.9636	-.8667	-.8222	-.4909	-.4909	-.5273	-.5273	-.6000	-.8182	-.9273	-1.0000
SPEARMAN COEFFICIENT	-.2273	-.1250	-.3364	-.6515	.2318	-.1841	-.2773	-.0909	-.1659	-.6182	-.3386	-.4000
SEN LOWER CONF. INT.	-.0011	.0000	-.0021	-.0120	.0000	-.0044	-.0028	-.0027	-.0014	-.0060	-.0017	-.0014
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	-.0025	.0000	.0000	.0000	.0000	.0000	-.0025	.0000	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN   STATISTIC =   11.7875
SEASONAL KENDALL   STATISTIC =   [illegible]  *
MODIFY SEA. KEN.   STATISTIC =   -2.4619  *
VAN BELLE (HOMO)   STATISTIC =    7.6979
VAN BELLE (TEND)   STATISTIC =   31.1024  *
KENDALL          COEFFICIENT =   -.4782
SPEARMAN         COEFFICIENT =    .1221
SEASONAL LOWER    CONF. INT. =    .0000
SEASONAL ESTIMATED OF SLOPE =     .0000
SEASONAL UPPER    CONF. INT. =    .0000
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* SIGNIFICANT AT 5 % LEVEL

PB-TOT 82002P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
	*	*				*				*		*
MANN & KENDALL STAT.	-2.2478	-2.7775	-1.9152	-1.8869	-1.4899	-2.0967	-1.7132	-.2705	-1.9470	-2.4891	-1.9359	-2.2220
	*	*	*	*						*		*
SPEARMAN STAT.	-2.3333	-3.5823	-2.7188	-2.6866	-1.4800	-2.2422	-1.8700	-.2235	-1.8998	-3.4101	-2.1213	-2.3902
KENDALL COEFFICIENT	-.7333	-.8222	-.6111	-.5556	-.5111	-.6000	-.4667	-.1111	-.6000	-.7333	-.6000	-.6889
SPEARMAN COEFFICIENT	-.6364	-.7848	-.7167	-.7125	-.4636	-.6212	-.5515	-.0788	-.5576	-.7697	-.6000	-.6455
SEN LOWER CONF. INT.	-.0006	-.0007	-.0012	-.0019	-.0007	-.0021	-.0024	-.0026	-.0010	-.0007	-.0006	-.0006
SEN ESTIMATED OF SLOPE	-.0002	-.0004	-.0005	-.0006	-.0003	-.0003	-.0009	-.0003	-.0004	-.0004	-.0002	-.0002
SEN UPPER CONF. INT.	.0000	-.0001	.0000	.0001	.0000	.0000	.0002	.0011	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN   STATISTIC =   14.0539
SEASONAL KENDALL   STATISTIC =   -6.6435  *
MODIFY SEA. KEN.   STATISTIC =   -2.8786  *
VAN BELLE (HOMO)   STATISTIC =    4.2518
VAN BELLE (TEND)   STATISTIC =   44.8641  *
KENDALL          COEFFICIENT =   -.1749
SPEARMAN         COEFFICIENT =   -.0566
SEASONAL LOWER    CONF. INT. =   -.0005
SEASONAL ESTIMATED OF SLOPE =    -.0004
SEASONAL UPPER    CONF. INT. =   -.0002
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* SIGNIFICANT AT 5 % LEVEL

Q-DM(M3/S)------ (THE 3 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.3183	* 2.2615	* 2.3183	-1.0965	-1.4781	-.4927	.1642	-.2193	.1642	.0547	1.6971	* 2.7920
SPEARMAN STAT.	* 3.0411	* 2.7734	* 3.2812	-1.1513	-1.3105	-.4843	.0533	-.2327	.0381	-.1143	* 2.2136	* 3.1292
KENDALL COEFFICIENT	.4872	.4615	.4872	-.2308	-.2967	-.0989	.0330	-.0549	.0330	.0110	.3407	.5604
SPEARMAN COEFFICIENT	.6758	.6415	.7033	-.3154	-.3538	-.1385	.0154	-.0670	.0110	-.0330	.5385	.6703
SEN LOWER CONF. INT.	.1574	.1236	.4054	-24.5080	-17.1808	-10.0582	-7.0560	-6.3372	-2.3492	-1.8260	-.1050	.2646
SEN ESTIMATED OF SLOPE	.9425	.8333	2.0167	-4.8000	-5.6333	-1.7400	1.1200	-.2667	.3200	.0750	.7350	.7250
SEN UPPER CONF. INT.	1.4893	1.6527	4.4350	3.1197	1.6301	5.3127	20.6342	3.7312	3.0404	2.9815	1.5814	.9343

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.4582	
SEASONAL KENDALL STATISTIC =	2.3017	*
MODIFY SEA. KEN. STATISTIC =	1.4671	
VAN BELLE (HOMO) STATISTIC =	24.2763	*
VAN BELLE (TEND) STATISTIC =	5.9980	*
KENDALL COEFFICIENT =	.0049	
SPEARMAN COEFFICIENT =	.0714	
SEASONAL LOWER CONF. INT. =	.1010	
SEASONAL ESTIMATED OF SLOPE =	.5000	
SEASONAL UPPER CONF. INT. =	.8636	

* SIGNIFICANT AT 5 % LEVEL

Table A1.4

TDS* 00201L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.6774	1.7074	* 2.0340	1.5019	.4064	-1.0418	-.9910	-.7928	-.5457	-.1485	.0000	-1.5806
SPEARMAN STAT.	-.7142	1.7914	2.0325	1.8766	.4180	-1.2467	-1.0494	-.7053	-.7291	-.2972	-.3673	-1.3284
KENDALL COEFFICIENT	-.1500	.2967	.3714	.5238	.0500	-.2190	-.2000	-.1619	-.1238	-.0286	-.0556	-.3167
SPEARMAN COEFFICIENT	-.1875	.4593	.4911	.6429	.1110	-.3268	-.2795	-.1920	-.1982	-.0821	-.1375	-.3346
SEN LOWER CONF. INT.	-2.9701	-.3529	.0000	-4.7757	-2.1168	-4.8509	-3.2896	-3.2488	-2.5884	-3.3960	-5.7829	-3.6000
SEN ESTIMATED OF SLOPE	-.7875	1.3846	1.6923	4.5000	.3810	-1.2222	-1.3333	-1.1111	-.4286	-.1667	-.2500	-1.5500
SEN UPPER CONF. INT.	1.4501	3.6468	3.0000	12.5377	2.9002	1.6879	1.0000	1.4099	2.1705	3.1071	4.8914	.3546

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	11.5187
SEASONAL KENDALL STATISTIC =	-.4383
MODIFY SEA. KEN. STATISTIC =	-.2743
VAN BELLE (HOMO) STATISTIC =	15.9298
VAN BELLE (TEND) STATISTIC =	.0006
KENDALL COEFFICIENT =	-.2315
SPEARMAN COEFFICIENT =	-.3781
SEASONAL LOWER CONF. INT. =	-1.0000
SEASONAL ESTIMATED OF SLOPE =	-.1742
SEASONAL UPPER CONF. INT. =	.4948

* SIGNIFICANT AT 5 % LEVEL

COND(F) 02041F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.1805	1.4255	1.6371	.9011	1.3534	-1.2402	.2474	.0993	-.0495	* 2.3316	.5213	-.4955
SPEARMAN STAT.	.3147	1.6587	1.9274	1.4186	1.2793	-1.5403	.2193	.1192	-.0129	* 2.7168	.4014	-.3134
KENDALL COEFFICIENT	.0167	.2747	.2952	.3333	.2333	-.2571	.0476	-.0095	-.0095	.4286	.1667	-.1048
SPEARMAN COEFFICIENT	.0838	.4319	.4714	.5357	.3235	-.3929	.0607	.0330	-.0036	.6018	.1500	-.0866
SEN LOWER CONF. INT.	-3.2964	-1.7496	-.5957	-22.7474	-1.7143	-10.3018	-4.6202	-4.0000	-5.1455	.6242	-8.8994	-4.5155
SEN ESTIMATED OF SLOPE	.1186	3.0000	2.2500	5.8462	2.6061	-3.1667	.6000	.0000	-.0909	3.6667	1.4500	-.2857
SEN UPPER CONF. INT.	3.8505	7.7759	4.8366	19.5137	6.6551	1.3136	5.0114	4.8717	4.0438	7.5593	5.3199	3.2372

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	14.0189
SEASONAL KENDALL STATISTIC =	1.8757
MODIFY SEA. KEN. STATISTIC =	1.0282
VAN BELLE (HOMO) STATISTIC =	11.0867
VAN BELLE (TEND) STATISTIC =	4.2799 *
KENDALL COEFFICIENT =	-.2571
SPEARMAN COEFFICIENT =	-.4063
SEASONAL LOWER CONF. INT. =	.0000
SEASONAL ESTIMATED OF SLOPE =	1.1429
SEASONAL UPPER CONF. INT. =	2.3254

* SIGNIFICANT AT 5 % LEVEL

TEMP(F) 02061F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.7196	-.7683	-.3875	.6008	1.1290	-.7083	1.1000	.7484	.7466	1.1622	-1.1599	.0524
SPEARMAN STAT.	-.1321	.0190	-.0386	.7590	1.3087	-.4774	1.0349	.7875	.6577	1.2850	-.9486	.5449
KENDALL COEFFICIENT	-.5833	-.6484	-.4286	.2381	.1833	-.2381	.1429	.0857	.1048	.1238	-.6111	-.4000
SPEARMAN COEFFICIENT	-.0353	.0055	-.0107	.3214	.3301	-.1313	.2759	.2134	.1795	.3357	-.3375	.1441
SEN LOWER CONF. INT.	.0000	.0000	-.0290	-.7447	-.3333	-.3540	-.1667	-.2013	-.2500	-.0804	-.1536	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.1889	.2650	-.0714	.1000	.1818	.1250	.1000	-.0143	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	1.5025	.7196	.1636	.2532	.6667	.3165	.3333	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 7.3753
SEASONAL KENDALL STATISTIC = .7930
MODIFY SEA. KEN. STATISTIC = .6653
VAN BELLE (HOMO) STATISTIC = 8.6282
VAN BELLE (TEND) STATISTIC = .2791
KENDALL COEFFICIENT = .0259
SPEARMAN COEFFICIENT = .1984
SEASONAL LOWER CONF. INT. = .0000
SEASONAL ESTIMATED OF SLOPE = .0000
SEASONAL UPPER CONF. INT. = .0000

* SIGNIFICANT AT 5 % LEVEL

TURB(F) 02073F (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.3553	1.8558 *	.8386	.0000	-1.4676	-1.7828	1.1468	-.9383	.4193	.7298	.0000	1.6335
SPEARMAN STAT.	1.3960	2.8814 *	1.1121	-.5774	-1.1121	-2.1909	1.4607	-1.0427	.8448	.9354	-.5774	2.3382
KENDALL COEFFICIENT	.3889	.5714	.2222	-.3333	-.4444	-.6429	.3333	-.2778	.1111	.2222	-.3333	.4286
SPEARMAN COEFFICIENT	.4667	.7619	.3875	-.5000	-.3875	-.6667	.4833	-.3667	.3042	.3333	-.5000	.6905
SEN LOWER CONF. INT.	-.1857	-.0612	-.6000	-99.9900	-9.6290	-6.7936	-2.7997	-10.2000	-16.8486	-6.2700	-99.9900	-.3196
SEN ESTIMATED OF SLOPE	.3313	.6500	.3762	-.7500	-2.5833	-2.7500	3.4643	-.8958	1.8000	3.4238	-2.0400	.7117
SEN UPPER CONF. INT.	1.0800	1.7961	.9493	-99.9900	1.2467	.0000	7.8998	.7999	6.2500	11.5999	-99.9900	2.2531

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 12.3738
SEASONAL KENDALL STATISTIC = 1.2086
MODIFY SEA. KEN. STATISTIC = 1.0198
VAN BELLE (HOMO) STATISTIC = 19.4794
VAN BELLE (TEND) STATISTIC = .8434
KENDALL COEFFICIENT = .2108
SPEARMAN COEFFICIENT = .3568
SEASONAL LOWER CONF. INT. = -.1095
SEASONAL ESTIMATED OF SLOPE = .3000
SEASONAL UPPER CONF. INT. = .6897

* SIGNIFICANT AT 5 % LEVEL

B-DISS 05105D

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.3688	-.1652	* 2.2153	1.2247	-.4491	-.2415	.3561	-.6178	.1687	1.2041	.9564	.2484
SPEARMAN STAT.	.5164	-.0457	2.1735	2.3094	-.2614	-.2050	.3134	-.7130	.2903	1.2962	1.0691	.2467
KENDALL COEFFICIENT	.0256	-.0769	.4242	.6000	-.1429	-.2000	-.0857	-.2051	-.0989	.0769	.3333	-.0513
SPEARMAN COEFFICIENT	.1538	-.0132	.5664	.8000	-.0723	-.0682	.0866	-.2102	.0835	.3640	.4714	.0742
SEN LOWER CONF. INT.	-.0044	-.0100	.0000	-99.9900	-.0052	-.0025	-.0018	-.0033	-.0017	-.0005	-.0081	-.0025
SEN ESTIMATED OF SLOPE	.0011	.0000	.0049	.0055	-.0003	.0000	.0000	-.0008	.0000	.0003	.0050	.0000
SEN UPPER CONF. INT.	.0066	.0050	.0069	-99.9900	.0033	.0017	.0020	.0020	.0020	.0038	.0200	.0033

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 19.2793
SEASONAL KENDALL STATISTIC = 1.0629
MODIFY SEA. KEN. STATISTIC = .8406
VAN BELLE (HOMO) STATISTIC = 8.1438
VAN BELLE (TEND) STATISTIC = 2.7123
KENDALL COEFFICIENT = -.3125
SPEARMAN COEFFICIENT = -.3179
SEASONAL LOWER CONF. INT. = .0000
SEASONAL ESTIMATED OF SLOPE = .0000
SEASONAL UPPER CONF. INT. = .0012

* SIGNIFICANT AT 5 % LEVEL

NO3+NO2 07106L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.9039	* -2.0317	-.8433	.0000	-1.3448	-1.2842	-1.0025	-.9544	-.4575	.0503	.2120	1.1859
SPEARMAN STAT.	* -2.2158	* -2.2780	-.9809	.4906	-1.3746	-1.4104	-.8361	-1.0860	-.3526	.0966	.4818	1.3780
KENDALL COEFFICIENT	-.4000	-.4286	-.1810	.0476	-.3667	-.3905	-.2762	-.2762	-.2190	-.0857	.0000	.1333
SPEARMAN COEFFICIENT	-.5096	-.5495	-.2625	.2143	-.3449	-.3643	-.2259	-.2884	-.0973	.0268	.1792	.3456
SEN LOWER CONF. INT.	-.0122	-.0122	-.0104	-.0604	-.0281	-.0082	-.0050	-.0050	-.0050	-.0047	-.0154	-.0013
SEN ESTIMATED OF SLOPE	-.0060	-.0061	-.0033	.0002	-.0055	-.0025	-.0023	-.0013	.0000	.0000	.0008	.0012
SEN UPPER CONF. INT.	.0000	.0000	.0050	.0333	.0001	.0000	.0017	.0020	.0029	.0051	.0081	.0051

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 10.1529
SEASONAL KENDALL STATISTIC = -2.5434 *
MODIFY SEA. KEN. STATISTIC = -2.1702 *
VAN BELLE (HOMO) STATISTIC = 10.0873
VAN BELLE (TEND) STATISTIC = 5.4917 *
KENDALL COEFFICIENT = -.3794
SPEARMAN COEFFICIENT = -.5633
SEASONAL LOWER CONF. INT. = -.0033
SEASONAL ESTIMATED OF SLOPE = -.0017
SEASONAL UPPER CONF. INT. = .0000

* SIGNIFICANT AT 5 % LEVEL

TW* 07602L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -4.1505	* -2.6944	-1.8401	-.3004	* -2.5689	* -2.1332	* -2.0810	-1.2914	* -2.1402	-.3464	-.3128	* -2.6220
SPEARMAN STAT.	* -8.0762	* -3.8572	-1.7631	-.1601	* -2.5069	* -2.6176	* -2.3360	-1.4464	* -2.4701	-.2842	-.3559	* -3.4368
KENDALL COEFFICIENT	-.7833	-.5897	-.3905	-.1429	-.4833	-.4286	-.4095	-.2762	-.4476	-.0667	-.1111	-.5167
SPEARMAN COEFFICIENT	-.9074	-.7582	-.4393	-.0714	-.5566	-.5875	-.5438	-.3723	-.5652	-.0786	-.1333	-.6765
SEN LOWER CONF. INT.	-.0240	-.0450	-.0325	-.0981	-.0661	-.0421	-.0303	-.0579	-.0258	-.0158	-.0413	-.0283
SEN ESTIMATED OF SLOPE	-.0200	-.0210	-.0100	-.0125	-.0386	-.0200	-.0100	-.0100	-.0129	-.0033	-.0034	-.0150
SEN UPPER CONF. INT.	-.0156	-.0073	.0004	.0821	-.0047	-.0032	-.0007	.0050	.0000	.0159	.0320	-.0050

************** OVER ALL RESULTS *************

```
DIETS AND KILLEN   STATISTIC =    25.3252
SEASONAL KENDALL   STATISTIC =    -6.9296  *
MODIFY SEA. KEN.   STATISTIC =    -3.6519  *
VAN BELLE (HOMO)   STATISTIC =    13.8967
VAN BELLE (TEND)   STATISTIC =    43.0759  *
KENDALL          COEFFICIENT =     -.2657
SPEARMAN         COEFFICIENT =     -.3591
SEASONAL LOWER    CONF. INT. =     -.0200
SEASONAL ESTIMATED OF SLOPE  =     -.0155
SEASONAL UPPER    CONF. INT. =     -.0100
```

* SIGNIFICANT AT 5 % LEVEL

DO 08101F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.0456	-.1100	-.0993	-.9011	-.6749	-.8261	-.9934	.2980	.9480	-.1982	.6186	-.0905
SPEARMAN STAT.	-.0413	-.0419	-.0805	-1.4186	-.7032	-1.1291	-1:0786	.3265	1.2050	.0805	.8660	-.2620
KENDALL COEFFICIENT	-.0833	-.0549	-.0476	-.3333	-.1795	-.2088	-.2190	.0286	.1238	-.0476	.2143	-.0500
SPEARMAN COEFFICIENT	-.0110	-.0121	-.0223	-.5357	-.2074	-.3099	-.2866	.0902	.3170	.0223	.3333	-.0699
SEN LOWER CONF. INT.	-.0789	-.1364	-.1762	-.8134	-.1500	-.2000	-.1445	-.0600	-.0510	-.1778	-.4646	-.1139
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	-.1250	-.0345	-.0500	-.0333	.0111	.0200	-.0200	.2873	.0000
SEN UPPER CONF. INT.	.0734	.1638	.1593	.2926	.1108	.0595	.0769	.1308	.0789	.2000	.9215	.2000

************** OVER ALL RESULTS *************

```
DIETS AND KILLEN   STATISTIC =     6.5167
SEASONAL KENDALL   STATISTIC =     -.5040
MODIFY SEA. KEN.   STATISTIC =     -.5214
VAN BELLE (HOMO)   STATISTIC =     4.4723
VAN BELLE (TEND)   STATISTIC =      .3678
KENDALL          COEFFICIENT =      .0123
SPEARMAN         COEFFICIENT =      .0711
SEASONAL LOWER    CONF. INT. =     -.0388
SEASONAL ESTIMATED OF SLOPE  =      .0000
SEASONAL UPPER    CONF. INT. =      .0186
```

* SIGNIFICANT AT 5 % LEVEL

ALK-TOT 10101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.2193	* 2.0317	* 2.0340	1.2015	1.5370	.0000	-.3013	-1.1921	-.2990	-.2489	.0000	-1.1730
SPEARMAN STAT.	-1.2373	* 2.7358	* 2.4190	1.2910	1.7346	-.1450	-.3004	-.9988	-.5071	-.3460	.0772	-1.1514
KENDALL COEFFICIENT	-.2500	.3846	.3714	.4286	.2500	-.0095	-.1429	-.2571	-.1048	-.0857	.0000	-.2333
SPEARMAN COEFFICIENT	-.3140	.6198	.5571	.5000	.4206	-.0402	-.0830	-.2670	-.1393	-.0955	.0292	-.2941
SEN LOWER CONF. INT.	-1.5701	.0000	.0000	-5.6751	-.3333	-1.5465	-1.2227	-1.9145	-1.0275	-1.5190	-4.9010	-2.1055
SEN ESTIMATED OF SLOPE	-.5635	1.4000	1.1667	2.6923	.7619	.0000	.0000	-.5000	-.0769	-.0769	.3000	-.8000
SEN UPPER CONF. INT.	.6467	2.9544	2.2339	7.0126	2.5432	1.8197	.9107	.2967	.8402	1.7751	4.0229	.6583

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	11.7343
SEASONAL KENDALL STATISTIC =	.4089
MODIFY SEA. KEN. STATISTIC =	.2533
VAN BELLE (HOMO) STATISTIC =	16.4163
VAN BELLE (TEND) STATISTIC =	.5745
KENDALL COEFFICIENT =	-.1836
SPEARMAN COEFFICIENT =	-.2995
SEASONAL LOWER CONF. INT. =	-.2727
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.5000

* SIGNIFICANT AT 5 % LEVEL

PH(F) 10301F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.9993	1.2771	.9480	.0000	1.3988	-1.0042	-1.1612	-.9992	1.0478	-.1497	.0000	1.4059
SPEARMAN STAT.	-.7550	1.3763	.9487	.4058	1.7809	-.8570	-1.1488	-.8465	1.1154	-.2744	-.2101	1.3668
KENDALL COEFFICIENT	-.2500	.1648	.1238	-.0476	.2000	-.2762	-.3333	-.2571	.1429	-.0857	-.0556	.1810
SPEARMAN COEFFICIENT	-.1978	.3692	.2545	.1786	.4429	-.2313	-.3036	-.2286	.2955	-.0759	-.0792	.3545
SEN LOWER CONF. INT.	-.0541	-.0215	-.0287	-.0719	-.0206	-.0375	-.0551	-.0500	-.0253	-.0400	-.1587	-.0084
SEN ESTIMATED OF SLOPE	-.0167	.0357	.0300	.0000	.0250	-.0133	-.0182	-.0143	.0222	.0000	-.0071	.0167
SEN UPPER CONF. INT.	.0192	.0757	.0781	.1463	.0437	.0125	.0110	.0173	.0575	.0333	.1070	.0500

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	16.1157
SEASONAL KENDALL STATISTIC =	.4666
MODIFY SEA. KEN. STATISTIC =	.2887
VAN BELLE (HOMO) STATISTIC =	11.6977
VAN BELLE (TEND) STATISTIC =	.2739
KENDALL COEFFICIENT =	.0255
SPEARMAN COEFFICIENT =	.1775
SEASONAL LOWER CONF. INT. =	-.0083
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0136

* SIGNIFICANT AT 5 % LEVEL

MFR 10401L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.4073	.9939	-.9449	-.3004	-.8433	-.2474	-1.1496	-1.3686	-.0495	-.9403	* -2.5159	1.8095
SPEARMAN STAT.	-.5705	1.0328	-1.0096	-.3227	-.5737	-.4017	-.8881	-1.0938	-.2972	-.6139	* -3.4773	* 2.1476
KENDALL COEFFICIENT	-.1167	.1429	-.2190	-.1429	-.1810	-.0476	-.2308	-.2747	-.0095	-.1810	-.7222	.3000
SPEARMAN COEFFICIENT	-.1507	.2857	-.2696	-.1429	-.1571	-.1107	-.2484	-.3011	-.0821	-.1679	-.7958	.4978
SEN LOWER CONF. INT.	-.7778	-.4071	-.8037	-16.1384	-9.0000	-5.0182	-3.8289	-12.3506	-5.5007	-7.6018	-2.2092	-.0664
SEN ESTIMATED OF SLOPE	-.0250	.3077	-.3333	-.5000	-2.5667	-.7273	-1.5000	-3.0667	-.2000	-2.6800	-1.1250	.5115
SEN UPPER CONF. INT.	.5776	1.2500	.5000	26.2297	2.3252	6.0157	1.7201	1.4252	5.5892	2.1861	-.5000	1.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	17.4970
SEASONAL KENDALL	STATISTIC =	-1.3205
MODIFY SEA. KEN.	STATISTIC =	-1.0803
VAN BELLE (HOMO)	STATISTIC =	14.0228
VAN BELLE (TEND)	STATISTIC =	3.2229
KENDALL	COEFFICIENT =	.1193
SPEARMAN	COEFFICIENT =	.2025
SEASONAL LOWER	CONF. INT. =	-.7218
SEASONAL ESTIMATED OF SLOPE =		-.3200
SEASONAL UPPER	CONF. INT. =	.1389

* SIGNIFICANT AT 5 % LEVEL

MA-DISS 11103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.5806	.7117	.0997	1.0634	.2274	-1.7837	-.8433	-.4480	.0496	1.0927	-.7379	-.9945
SPEARMAN STAT.	-1.6943	.6909	.1611	1.9217	.3788	-2.0083	-.9880	-.3853	-.1289	.9844	-.7075	-.9359
KENDALL COEFFICIENT	-.3167	.1429	-.0286	.3333	-.0167	-.3524	-.1810	-.1238	-.0095	.1810	-.2778	-.2167
SPEARMAN COEFFICIENT	-.4125	.1956	.0446	.6518	.1007	-.4866	-.2643	-.1063	-.0357	.2634	-.2583	-.2426
SEN LOWER CONF. INT.	-.4000	-.2600	-.1791	-.3927	-.2809	-.6423	-.5000	-.4421	-.3814	-.2092	-.6479	-.4630
SEN ESTIMATED OF SLOPE	-.1825	.1333	.0000	.6222	.0000	-.3167	-.1000	-.0500	.0000	.2222	-.1048	-.1233
SEN UPPER CONF. INT.	.0490	.4497	.2500	1.6634	.4000	.0530	.2825	.3460	.3848	.5286	.5891	.1420

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	10.7820
SEASONAL KENDALL	STATISTIC =	-1.1356
MODIFY SEA. KEN.	STATISTIC =	-.6714
VAN BELLE (HOMO)	STATISTIC =	10.7343
VAN BELLE (TEND)	STATISTIC =	.7993
KENDALL	COEFFICIENT =	-.2918
SPEARMAN	COEFFICIENT =	-.4072
SEASONAL LOWER	CONF. INT. =	-.1444
SEASONAL ESTIMATED OF SLOPE =		-.0392
SEASONAL UPPER	CONF. INT. =	.0228

* SIGNIFICANT AT 5 % LEVEL

MG-DISS 12102L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.7577	.9899	.6937	.6008	.8121	-1.7837	-1.3908	-1.4864	-1.1448	-1.0901	-.8386	* -2.0281
SPEARMAN STAT.	-1.7754	.9940	.7053	.8550	.8225	-2.1166	-1.7943	-1.8304	-.9916	-.9701	-.8448	-1.7309
KENDALL COEFFICIENT	-.3333	.1648	.1238	.2381	.1333	-.3524	-.2952	-.2952	-.2571	-.2190	-.2778	-.3833
SPEARMAN COEFFICIENT	-.4287	.2758	.1920	.3571	.2147	-.5063	-.4455	-.4527	-.2652	-.2598	-.3042	-.4199
SEN LOWER CONF. INT.	-.3177	-.0796	-.1473	-.5367	-.1269	-.4227	-.2404	-.2785	-.3168	-.2741	-.5058	-.3781
SEN ESTIMATED OF SLOPE	-.1708	.0818	.0500	.1125	.0692	-.1875	-.1000	-.0929	-.0900	-.1000	-.1367	-.2286
SEN UPPER CONF. INT.	.0644	.4121	.3593	1.0019	.3804	.0228	.0510	.0333	.0726	.1352	.1616	-.0051

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	16.9578	
SEASONAL KENDALL STATISTIC =	-2.6592	*
MODIFY SEA. KEN. STATISTIC =	-1.4433	
VAN BELLE (HOMO) STATISTIC =	14.7512	
VAN BELLE (TEND) STATISTIC =	5.8498	*
KENDALL COEFFICIENT =	-.1534	
SPEARMAN COEFFICIENT =	-.2372	
SEASONAL LOWER CONF. INT. =	-.1333	
SEASONAL ESTIMATED OF SLOPE =	-.0789	
SEASONAL UPPER CONF. INT. =	-.0253	

* SIGNIFICANT AT 5 % LEVEL

P-TOT-DISS15103D (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.5013	-.2756	1.7161	-.7596	-1.7669	.1236	.1894	-1.1206	.9923	-.0614	.2494	.9528
SPEARMAN STAT.	.4906	-.1994	* 2.2392	-.8306	-1.8797	.0319	.0957	-1.1044	1.2017	-.0228	.3086	.9594
KENDALL COEFFICIENT	.0095	-.0909	.2747	-.3333	-.4066	-.0513	-.1026	-.3333	.1282	-.0513	.0714	.1048
SPEARMAN COEFFICIENT	.1348	-.0629	.5429	-.3482	-.4769	.0096	.0288	-.3159	.3407	-.0069	.1250	.2571
SEN LOWER CONF. INT.	-.0004	-.0011	.0000	-.0029	-.0030	-.0007	-.0009	-.0010	-.0003	-.0005	-.0079	-.0003
SEN ESTIMATED OF SLOPE	.0001	-.0002	.0004	-.0007	-.0012	.0000	.0000	-.0002	.0003	.0000	.0004	.0003
SEN UPPER CONF. INT.	.0006	.0008	.0010	.0020	.0001	.0005	.0010	.0002	.0013	.0010	.0019	.0010

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	9.1396
SEASONAL KENDALL STATISTIC =	.3974
MODIFY SEA. KEN. STATISTIC =	.2572
VAN BELLE (HOMO) STATISTIC =	10.5254
VAN BELLE (TEND) STATISTIC =	.0424
KENDALL COEFFICIENT =	-.1617
SPEARMAN COEFFICIENT =	-.1513
SEASONAL LOWER CONF. INT. =	-.0001
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0002

* SIGNIFICANT AT 5 % LEVEL

CL-DISS 17206L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.2258	1.4255	* 2.0290	1.5019	1.2666	.3473	1.1476	.4967	.9910	1.1410	-.6290	-1.1730
SPEARMAN STAT.	-.0193	1.2051	* 2.4416	2.2822	1.2826	.6950	1.1599	.5171	.9844	1.1339	-.7942	-1.0271
KENDALL COEFFICIENT	.0167	.2747	.3905	.5238	.2000	.0476	.1619	.0667	.1810	.2000	-.2222	-.2333
SPEARMAN COEFFICIENT	-.0051	.3286	.5607	.7143	.3243	.1893	.3063	.1420	.2634	.3000	-.2875	-.2647
SEN LOWER CONF. INT.	-.1570	-.1396	.0076	-.9807	-.0850	-.2500	-.0439	-.1833	-.1080	-.1102	-.7435	-.2287
SEN ESTIMATED OF SLOPE	.0127	.1333	.2000	.3900	.1464	.0500	.1000	.0600	.1000	.1143	-.1810	-.0929
SEN UPPER CONF. INT.	.1420	.3388	.3261	3.3886	.5166	.4000	.3242	.3340	.2676	.2876	.2000	.1103

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.5439	
SEASONAL KENDALL STATISTIC =	2.4193	*
MODIFY SEA. KEN. STATISTIC =	1.5029	
VAN BELLE (HOMO) STATISTIC =	9.9[illegible]	
VAN BELLE (TEND) STATISTIC =	6.4765	*
KENDALL COEFFICIENT =	-.1568	
SPEARMAN COEFFICIENT =	-.2087	
SEASONAL LOWER CONF. INT. =	.0128	
SEASONAL ESTIMATED OF SLOPE =	.0833	
SEASONAL UPPER CONF. INT. =	.1429	

* SIGNIFICANT AT 5 % LEVEL

A-BBC 18075L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -3.1957	-1.1148	-.1831	.0000	* -2.3375	-1.5428	* -2.3323	* -3.4279	* -3.1781	* -2.2200	-1.3389	* -2.7735
SPEARMAN STAT.	* -4.6190	-1.0419	-.1717	-.2887	* -2.5105	-1.2654	* -2.4019	* -5.8404	* -4.6012	-2.1054	-1.8121	* -3.6242
KENDALL COEFFICIENT	-.8545	-.3333	-.1556	.0000	-.6484	-.5273	-.6410	-.8485	-.7363	-.6364	-.6000	-.6667
SPEARMAN COEFFICIENT	-.8386	-.3129	-.0606	-.2000	-.5868	-.3886	-.5865	-.8794	-.7989	-.5542	-.6714	-.7535
SEN LOWER CONF. INT.	-.0010	-.0008	-.0010	-99.9900	-.0003	-.0008	-.0006	-.0006	-.0006	-.0010	-.0032	-.0010
SEN ESTIMATED OF SLOPE	-.0007	-.0004	.0000	.0012	-.0002	-.0004	-.0003	-.0004	-.0003	-.0004	-.0005	-.0008
SEN UPPER CONF. INT.	-.0004	.0003	.0008	-99.9900	.0000	.0000	.0000	-.0003	-.0002	.0000	.0016	-.0002

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	22.8515	
SEASONAL KENDALL STATISTIC =	-7.2975	*
MODIFY SEA. KEN. STATISTIC =	-3.5954	*
VAN BELLE (HOMO) STATISTIC =	14.2400	
VAN BELLE (TEND) STATISTIC =	47.3456	*
KENDALL COEFFICIENT =	-.2294	
SPEARMAN COEFFICIENT =	-.1434	
SEASONAL LOWER CONF. INT. =	-.0005	
SEASONAL ESTIMATED OF SLOPE =	-.0003	
SEASONAL UPPER CONF. INT. =	-.0003	

* SIGNIFICANT AT 5 % LEVEL

NG-TOT 80011P (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
	*		*		*	*		*	*	*		*
MANN & KENDALL STAT.	-2.4495	-1.8333	-2.0889	-1.4446	-2.1213	-2.3528	-1.6830	-2.3528	-2.0889	-2.5560	.5547	-2.4495
SPEARMAN STAT.	-1.3093	-.9366	-.6601	-2.2819	-.5332	-1.3600	-.3629	-1.3600	-.6601	-1.9917	.7559	-1.3093
KENDALL COEFFICIENT	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-.9556	-.9111	-.9556	-1.0000	-.9111	.0000	-1.0000
SPEARMAN COEFFICIENT	-.4000	-.3571	-.2273	-.8500	-.1750	-.4333	-.1273	-.4333	-.2273	-.5758	.4000	-.4000
SEN LOWER CONF. INT.	-.0014	-.0014	-.0013	-99.9900	.0000	-.0021	-.0011	-.0020	-.0011	-.0033	-.0069	-.0014
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	-.0033	.0000	.0000	.0000	.0000	.0000	-.0020	.0025	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	-99.9900	.0000	.0000	.0000	.0000	.0000	.0000	.0100	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	14.4769	
SEASONAL KENDALL STATISTIC =	-6.9620	*
MODIFY SEA. KEN. STATISTIC =	-2.5137	*
VAN BELLE (HOMO) STATISTIC =	9.0863	
VAN BELLE (TEND) STATISTIC =	44.5308	*
KENDALL COEFFICIENT =	-.5436	
SPEARMAN COEFFICIENT =	.2326	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

Q-DM(M3/S)------ (THE 3 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.9761	-1.5086	-.3661	.0000	-.7117	-.9168	-1.3686	-.3661	-1.5281	-.3661	-.7298	-.4927
SPEARMAN STAT.	-.9682	-1.4032	-.4599	.1721	-.6427	-.7916	-1.3668	-.3296	-1.7452	-.3853	-.8321	-.5789
KENDALL COEFFICIENT	-.2051	-.3333	-.0769	.0667	-.1429	-.2051	-.2747	-.0769	-.3333	-.0769	-.2222	-.0989
SPEARMAN COEFFICIENT	-.2802	-.4056	-.1374	.0857	-.1824	-.2321	-.3670	-.0989	-.4657	-.1154	-.3000	-.1648
SEN LOWER CONF. INT.	-21.2658	-29.2303	-24.5504	-221.2281	-116.4032	-74.4304	-52.8966	-38.1107	-35.3391	-19.8548	-49.2798	-12.4207
SEN ESTIMATED OF SLOPE	-6.4714	-13.0000	-2.4545	56.5556	-36.5000	-22.5000	-23.0000	-9.0060	-9.0625	-2.4821	-6.6250	-1.7143
SEN UPPER CONF. INT.	5.6877	7.5706	14.3607	157.0708	46.5833	30.7583	21.4012	24.8056	6.0333	21.6877	17.8994	10.1605

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	10.9958	
SEASONAL KENDALL STATISTIC =	-2.7461	*
MODIFY SEA. KEN. STATISTIC =	-1.6423	
VAN BELLE (HOMO) STATISTIC =	3.0340	
VAN BELLE (TEND) STATISTIC =	7.1256	*
KENDALL COEFFICIENT =	-.2148	
SPEARMAN COEFFICIENT =	-.3140	
SEASONAL LOWER CONF. INT. =	-15.2867	
SEASONAL ESTIMATED OF SLOPE =	-7.7738	
SEASONAL UPPER CONF. INT. =	-1.9154	

* SIGNIFICANT AT 5 % LEVEL

Table A1.5

TDS* 00201L

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-1.0972	-.7561	-.6186	* -2.1019	-1.0366	-.3602	-.3464	.0549	.4927	-1.3416
SPEARMAN STAT.	-1.2619	-.6726	-.6256	* -2.5352	-.8611	-.2648	-.4279	-.1066	.4218	-1.3954
KENDALL COEFFICIENT	-.2424	-.1818	-.1515	-.4909	-.2000	-.0667	-.0667	-.0110	.0989	-.3333
SPEARMAN COEFFICIENT	-.3706	-.2080	-.1941	-.6455	-.2263	-.0706	-.1179	-.0308	.1209	-.4424
SEN LOWER CONF. INT.	-2.6179	-1.4133	-3.0407	-2.2261	-2.3500	-1.5765	-2.0379	-1.3140	-1.4054	-3.6448
SEN ESTIMATED OF SLOPE	-.5359	-.1000	-.6875	-1.1643	-.8250	-.3567	-.5750	.0000	.2000	-1.3667
SEN UPPER CONF. INT.	.7065	.5386	.6677	-.0306	.6830	1.3434	1.4561	1.9282	.8208	.3796

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	9.5929	
SEASONAL KENDALL STATISTIC =	-1.9400	
MODIFY SEA. KEN. STATISTIC =	-.9559	
VAN BELLE (HOMO) STATISTIC =	4.8896	
VAN BELLE (TEND) STATISTIC =	5.0566	*
KENDALL COEFFICIENT =	.1814	
SPEARMAN COEFFICIENT =	.2886	
SEASONAL LOWER CONF. INT. =	-.8607	
SEASONAL ESTIMATED OF SLOPE =	-.4000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

COND(F) 02041F

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-1.0972	-.3453	-1.5617	-1.7184	-.4958	-.6760	-.7423	-.6124	.4942	-.5213
SPEARMAN STAT.	-1.1534	-.4752	-1.7008	-1.8003	-.4461	-.8611	-.7634	-.7570	.2903	-.8321
KENDALL COEFFICIENT	-.2424	-.1212	-.3818	-.3939	-.1000	-.1333	-.1429	-.1538	.0769	-.1667
SPEARMAN COEFFICIENT	-.3427	-.1486	-.4932	-.4948	-.1184	-.2243	-.2071	-.2225	.0835	-.3000
SEN LOWER CONF. INT.	-6.2671	-4.0641	-7.3617	-4.4687	-3.3344	-4.4043	-5.7677	-4.0842	-3.3779	-9.7598
SEN ESTIMATED OF SLOPE	-4.0000	-.6071	-3.0000	-1.5000	-1.2361	-.8750	-1.4286	-1.1389	1.3333	-2.5556
SEN UPPER CONF. INT.	1.8583	.6838	1.0167	.2086	1.7143	1.9575	2.3912	2.6379	3.1801	2.7928

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	7.1278	
SEASONAL KENDALL STATISTIC =	-2.1051	*
MODIFY SEA. KEN. STATISTIC =	-1.1289	
VAN BELLE (HOMO) STATISTIC =	3.5321	
VAN BELLE (TEND) STATISTIC =	5.4470	*
KENDALL COEFFICIENT =	.1511	
SPEARMAN COEFFICIENT =	.2386	
SEASONAL LOWER CONF. INT. =	-2.3035	
SEASONAL ESTIMATED OF SLOPE =	-1.1818	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

TEMP(F) 02061F

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	.0000	-.5340	-1.9013	1.1685	-.7233	* 2.0518	.9934	-.1669	-1.1566	-.8704
SPEARMAN STAT.	.4467	.5557	-1.1202	1.2140	-.6133	* 2.2902	1.0277	.0609	-1.1736	.6139
KENDALL COEFFICIENT	-.4242	-.7576	-.7879	.2424	-.1667	.3000	.1619	-.1209	-.2747	-.9111
SPEARMAN COEFFICIENT	.1399	.1731	-.3339	.3584	-.1618	.5221	.2741	.0176	-.3209	.2121
SEN LOWER CONF. INT.	.0000	.0000	-.0455	-.2715	-.5000	.0000	-.1871	-.2152	-.3634	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.2913	-.1091	.1643	.1308	.0000	-.1923	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	1.0052	.2654	.3167	.5000	.2500	.1470	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 13.5846
SEASONAL KENDALL STATISTIC = .1747
MODIFY SEA. KEN. STATISTIC = .1298
VAN BELLE (HOMO) STATISTIC = 12.9790
VAN BELLE (TEND) STATISTIC = .1297
KENDALL COEFFICIENT = .1160
SPEARMAN COEFFICIENT = .3177
SEASONAL LOWER CONF. INT. = .0000
SEASONAL ESTIMATED OF SLOPE = .0000
SEASONAL UPPER CONF. INT. = .0000

* SIGNIFICANT AT 5 % LEVEL

TURB(F) 02073F (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	.3757	1.3672	1.1309	1.8869	1.5639	.6261	1.5639	.7298	.1257	.0000
SPEARMAN STAT.	.5322	1.9217	1.3698	* 2.8892	1.5275	1.1254	1.9843	.8833	.5688	.1260
KENDALL COEFFICIENT	.2000	.4286	.2857	.5000	.4444	.1556	.4444	.2222	.0000	-.3333
SPEARMAN COEFFICIENT	.2571	.6518	.4881	.7375	.5000	.3697	.6000	.3167	.2262	.1250
SEN LOWER CONF. INT.	-.4000	-.1533	-.0580	-.0523	-.2700	-.5638	-.1300	-1.0066	-1.4699	-99.9900
SEN ESTIMATED OF SLOPE	.1000	.1143	.0804	.3100	.4000	.1857	.2375	.2533	.0833	.0000
SEN UPPER CONF. INT.	.6433	.4882	.2000	.5870	.5700	.4547	.4500	1.0540	1.0995	-99.9900

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 12.2523
SEASONAL KENDALL STATISTIC = 3.4188 *
MODIFY SEA. KEN. STATISTIC = 2.0631 *
VAN BELLE (HOMO) STATISTIC = 4.1156
VAN BELLE (TEND) STATISTIC = 10.7718 *
KENDALL COEFFICIENT = .2854
SPEARMAN COEFFICIENT = .4459
SEASONAL LOWER CONF. INT. = .0760
SEASONAL ESTIMATED OF SLOPE = .2000
SEASONAL UPPER CONF. INT. = .2667

* SIGNIFICANT AT 5 % LEVEL

B-DISS 05105D

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	1.4978	-.2892	* 2.0239	* 1.9910	1.1914	-.2304	-.4981	.1242	-.0710	.5095
SPEARMAN STAT.	* 2.3664	-.0166	* 2.5298	1.9992	1.2793	-.0220	-.3853	-.2651	.0996	.8796
KENDALL COEFFICIENT	.1111	-.2727	.2000	.3455	.1026	-.1667	-.2051	-.0769	-.1818	-.1429
SPEARMAN COEFFICIENT	.6667	-.0052	.6667	.5545	.3599	-.0059	-.1154	-.0797	.0315	.3661
SEN LOWER CONF. INT.	.0000	-.0014	.0000	.0000	-.0006	-.0017	-.0040	-.0028	-.0021	-.0018
SEN ESTIMATED OF SLOPE	.0010	.0000	.0014	.0028	.0014	.0000	-.0002	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0029	.0018	.0035	.0040	.0035	.0019	.0019	.0039	.0024	.0064

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	11.7422	
SEASONAL KENDALL	STATISTIC =	1.4730	
MODIFY SEA. KEN.	STATISTIC =	1.0037	
VAN BELLE (HOMO)	STATISTIC =	8.6784	
VAN BELLE (TEND)	STATISTIC =	4.2695	*
KENDALL	COEFFICIENT =	-.0054	
SPEARMAN	COEFFICIENT =	.2345	
SEASONAL LOWER	CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =		.0000	
SEASONAL UPPER	CONF. INT. =	.0010	

* SIGNIFICANT AT 5 % LEVEL

NO3+NO2 07106L

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	* -2.0911	* -2.6348	-1.4691	.4297	-1.6270	-1.5878	* -2.5802	-1.1163	-1.0690	.3005
SPEARMAN STAT.	-1.8088	* -3.6242	-1.5140	1.2757	.9058	.3761	-.7600	.9387	.8563	.5592
KENDALL COEFFICIENT	-.6364	-.6364	-.4242	-.6364	-1.0000	-.9333	-.9810	-.9560	-.9487	-.2889
SPEARMAN COEFFICIENT	-.4965	-.7535	-.4318	.3741	.2353	.1000	-.2063	.2615	.2500	.1939
SEN LOWER CONF. INT.	-.0024	-.0064	-.0032	.0000	.0000	.0000	.0000	.0000	.0000	-.0006
SEN ESTIMATED OF SLOPE	-.0010	-.0028	-.0013	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0000	-.0010	.0006	.0000	.0000	.0000	.0000	.0000	.0000	.0013

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	14.9374	
SEASONAL KENDALL	STATISTIC =	-4.5990	*
MODIFY SEA. KEN.	STATISTIC =	-3.2749	*
VAN BELLE (HOMO)	STATISTIC =	9.8855	
VAN BELLE (TEND)	STATISTIC =	18.0772	*
KENDALL	COEFFICIENT =	-.7324	
SPEARMAN	COEFFICIENT =	-.4269	
SEASONAL LOWER	CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =		.0000	
SEASONAL UPPER	CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

TP* 07602L

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-1.8558	-1.0359	-1.1094	-1.3779	-1.9000	-1.9419	* -2.2324	* -2.0399	-1.1023	-1.3525
SPEARMAN STAT.	-1.6851	-.8165	-1.0939	-1.3888	-1.7828	* -2.2682	* -2.4644	-2.0833	-1.0831	-1.7274
KENDALL COEFFICIENT	-.4242	-.2727	-.3030	-.3333	-.3833	-.3833	-.4476	-.4505	-.2564	-.3778
SPEARMAN COEFFICIENT	-.4703	-.2500	-.3269	-.4021	-.4301	-.5184	-.5643	-.5154	-.3104	-.5212
SEN LOWER CONF. INT.	-.0250	-.0153	-.0251	-.0240	-.0167	-.0191	-.0178	-.0181	-.0100	-.0284
SEN ESTIMATED OF SLOPE	-.0119	-.0039	-.0093	-.0134	-.0078	-.0093	-.0083	-.0089	-.0038	-.0080
SEN UPPER CONF. INT.	.0019	.0035	.0055	.0049	.0000	.0000	-.0020	.0000	.0033	.0084

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.5583	
SEASONAL KENDALL STATISTIC =	-5.1236	*
MODIFY SEA. KEN. STATISTIC =	-3.1184	*
VAN BELLE (HOMO) STATISTIC =	1.7826	
VAN BELLE (TEND) STATISTIC =	25.4338	*
KENDALL COEFFICIENT =	.0967	
SPEARMAN COEFFICIENT =	.2111	
SEASONAL LOWER CONF. INT. =	-.0110	
SEASONAL ESTIMATED OF SLOPE =	-.0080	
SEASONAL UPPER CONF. INT. =	-.0050	

* SIGNIFICANT AT 5 % LEVEL

DO 08101F

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-1.5617	* -2.0669	-.8992	-.2097	* -2.4368	-.8137	-1.6411	-.2200	-.2193	-.1796
SPEARMAN STAT.	-1.6597	* -2.2745	-.8471	-.4128	* -2.9834	-1.0950	-1.5486	-.1562	.2251	-.4070
KENDALL COEFFICIENT	-.3818	-.4848	-.2424	-.1111	-.5048	-.1833	-.3524	-.0769	-.0549	-.0667
SPEARMAN COEFFICIENT	-.4841	-.5839	-.2587	-.1542	-.6375	-.2809	-.3946	-.0451	.0648	-.1424
SEN LOWER CONF. INT.	-.2000	-.2744	-.1405	-.2000	-.2401	-.1189	-.1205	-.0785	-.1582	-.4706
SEN ESTIMATED OF SLOPE	-.0846	-.1456	-.0211	-.0278	-.1250	-.0333	-.0750	-.0071	-.0250	-.0143
SEN UPPER CONF. INT.	.2006	.0000	.0640	.2000	-.0193	.0588	.0347	.0541	.1561	.6248

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	11.8248	
SEASONAL KENDALL STATISTIC =	-3.3311	*
MODIFY SEA. KEN. STATISTIC =	-2.1834	*
VAN BELLE (HOMO) STATISTIC =	6.3227	
VAN BELLE (TEND) STATISTIC =	10.7183	*
KENDALL COEFFICIENT =	-.2689	
SPEARMAN COEFFICIENT =	-.3780	
SEASONAL LOWER CONF. INT. =	-.0857	
SEASONAL ESTIMATED OF SLOPE =	-.0500	
SEASONAL UPPER CONF. INT. =	-.0250	

* SIGNIFICANT AT 5 % LEVEL

ALK-TOT 10101L

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-1.0972	.1371	-.8935	* -2.3426	-1.0366	-.1352	-.2973	.3832	.2193	-.7263
SPEARMAN STAT.	-1.0484	.0664	-.8778	* -2.6778	-.8968	-.0908	-.3069	.4063	.1715	-.5410
KENDALL COEFFICIENT	-.2424	.0303	-.2121	-.5636	-.2000	-.0333	-.0667	.0769	.0330	-.2444
SPEARMAN COEFFICIENT	-.3147	.0210	-.2675	-.6659	-.2331	-.0243	-.0848	.1165	.0495	-.1879
SEN LOWER CONF. INT.	-2.2732	-1.1823	-2.5430	-1.9575	-1.9864	-1.0874	-1.6459	-.9710	-1.0922	-3.3295
SEN ESTIMATED OF SLOPE	-.7100	.0400	-.6200	-.9714	-.6521	-.0756	-.3750	.2000	.1500	-.3000
SEN UPPER CONF. INT.	.5825	.6370	.6606	-.2970	.8803	1.3798	1.3135	1.7466	.8286	.7929

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	10.1802
SEASONAL KENDALL	STATISTIC =	-1.5752
MODIFY SEA. KEN.	STATISTIC =	-.7662
VAN BELLE (HOMO)	STATISTIC =	6.0611
VAN BELLE (TEND)	STATISTIC =	3.3512
KENDALL	COEFFICIENT =	.1867
SPEARMAN	COEFFICIENT =	.3069
SEASONAL LOWER	CONF. INT. =	-.6834
SEASONAL ESTIMATED OF SLOPE	=	-.3000
SEASONAL UPPER	CONF. INT. =	.0500

* SIGNIFICANT AT 5 % LEVEL

PH(F) 10301F

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	.8268	.4842	.7609	.1378	-.8159	-1.5114	.4476	.7189	.1666	1.4647
SPEARMAN STAT.	.6667	.6785	1.0484	.1550	-.8078	-1.6242	.4345	.9684	.2059	2.0234
KENDALL COEFFICIENT	.1515	.0606	.1212	.0000	-.2000	-.3905	.0476	.0769	-.0549	.2444
SPEARMAN COEFFICIENT	.2063	.2098	.3147	.0490	-.2110	-.4107	.1196	.2692	.0593	.5818
SEN LOWER CONF. INT.	-.0800	-.0948	-.0584	-.0722	-.0731	-.0500	-.0456	-.0444	-.0623	-.0216
SEN ESTIMATED OF SLOPE	.0303	.0303	.0183	.0042	-.0226	-.0167	.0167	.0143	.0000	.0650
SEN UPPER CONF. INT.	.0929	.1000	.1646	.1000	.0264	.0000	.0674	.0756	.0679	.1500

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	10.1183
SEASONAL KENDALL	STATISTIC =	.4646
MODIFY SEA. KEN.	STATISTIC =	.2253
VAN BELLE (HOMO)	STATISTIC =	6.6378
VAN BELLE (TEND)	STATISTIC =	.7183
KENDALL	COEFFICIENT =	-.0352
SPEARMAN	COEFFICIENT =	.0342
SEASONAL LOWER	CONF. INT. =	-.0143
SEASONAL ESTIMATED OF SLOPE	=	.0000
SEASONAL UPPER	CONF. INT. =	.0235

* SIGNIFICANT AT 5 % LEVEL

MFR 10401L

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	.2013	.2374	-1.8027	-.7509	-.8047	.4115	-1.6788	.6121	-1.1324	1.5025
SPEARMAN STAT.	.8123	.5615	-1.8088	-.6051	-.7155	.8222	-1.3199	.9387	-.9476	1.8407
KENDALL COEFFICIENT	-.4909	-.3636	-.5758	-.4182	-.2571	-.0857	-.4505	.0330	-.3846	-.0222
SPEARMAN COEFFICIENT	.2614	.1748	-.4965	-.1977	-.1946	.2223	-.3560	.2615	-.2747	.5455
SEN LOWER CONF. INT.	.0000	.0000	-.4067	-.2500	-.2724	-.0950	-.6502	-.1726	-.3894	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	-.1181	.0000	-.0800	.0000	-.3333	.0444	-.1181	.0000
SEN UPPER CONF. INT.	.0000	.1164	.0000	.0959	.0991	.2123	.0000	.2278	.1111	.2500

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	11.6764
SEASONAL KENDALL STATISTIC =	-1.2139
MODIFY SEA. KEN. STATISTIC =	-.9287
VAN BELLE (HOMO) STATISTIC =	10.4330
VAN BELLE (TEND) STATISTIC =	1.0270
KENDALL COEFFICIENT =	.0276
SPEARMAN COEFFICIENT =	.2591
SEASONAL LOWER CONF. INT. =	.0000
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

P-TOT-DISS15103D (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-1.2571	.9587	.3209	-1.1091	1.0730	-.6226	-.1403	-1.4596	.1584	-.1070
SPEARMAN STAT.	-1.3005	1.1795	.4905	-1.0390	1.1636	-.6307	-.0664	-1.4617	.4551	-.1657
KENDALL COEFFICIENT	-.3455	.0909	-.0545	-.3455	.0769	-.2308	-.1515	-.3939	-.0545	-.1667
SPEARMAN COEFFICIENT	-.3977	.3659	.1614	-.3273	.3310	-.1868	-.0210	-.4196	.1500	-.0625
SEN LOWER CONF. INT.	-.0007	-.0002	-.0006	-.0010	-.0002	-.0006	-.0004	-.0010	-.0008	-.0009
SEN ESTIMATED OF SLOPE	-.0003	.0001	.0000	-.0002	.0002	-.0001	.0000	-.0002	.0000	.0000
SEN UPPER CONF. INT.	.0004	.0004	.0008	.0002	.0007	.0003	.0005	.0002	.0008	.0007

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	9.7471
SEASONAL KENDALL STATISTIC =	-.6837
MODIFY SEA. KEN. STATISTIC =	-.5366
VAN BELLE (HOMO) STATISTIC =	7.0674
VAN BELLE (TEND) STATISTIC =	.5251
KENDALL COEFFICIENT =	-.0905
SPEARMAN COEFFICIENT =	.0493
SEASONAL LOWER CONF. INT. =	-.0002
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

CL-DISS 17206L

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-.4889	-.0695	-.4929	1.9172	.2727	.4112	.3484	.6606	-.0558	.1811
SPEARMAN STAT.	-.6785	.0774	-.3561	* 2.4464	.2759	.4996	.3200	.6587	-.1486	-.0600
KENDALL COEFFICIENT	-.2121	-.0909	-.2424	.2424	-.0167	-.0167	.0286	.0989	-.1209	-.0222
SPEARMAN COEFFICIENT	-.2098	.0265	-.1119	.6119	.0735	.1324	.0884	.1868	-.0429	-.0212
SEN LOWER CONF. INT.	-.0751	-.0421	-.0500	.0000	-.0500	-.0292	-.0500	-.0413	-.0289	-.0797
SEN ESTIMATED OF SLOPE	-.0045	.0000	.0000	.0160	.0000	.0000	.0083	.0182	.0000	.0000
SEN UPPER CONF. INT.	.0273	.0465	.0246	.0297	.0667	.0500	.0782	.1000	.0336	.0694

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	6.1554	
SEASONAL KENDALL STATISTIC =	.8650	
MODIFY SEA. KEN. STATISTIC =	.5264	
VAN BELLE (HOMO) STATISTIC =	4.2791	
VAN BELLE (TEND) STATISTIC =	.7204	
KENDALL COEFFICIENT =	.0702	
SPEARMAN COEFFICIENT =	.2335	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0182	

* SIGNIFICANT AT 5 % LEVEL

A-BHC 18075L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-1.1204	* -2.3380	.7243	* -2.0037	-1.8477	-1.7982	* -2.2799	* -2.5020	-1.8125	-1.0357
SPEARMAN STAT.	-1.1835	* -2.7031	.7540	-1.9757	-1.8870	-1.9535	* -2.7038	* -2.6843	-1.7426	-1.3698
KENDALL COEFFICIENT	-.5556	-.7333	.1111	-.6000	-.5641	-.4945	-.6410	-.7692	-.6000	-.5000
SPEARMAN COEFFICIENT	-.4083	-.6909	.2576	-.5500	-.4945	-.4912	-.6319	-.6291	-.5023	-.4881
SEN LOWER CONF. INT.	-.0006	-.0006	-.0004	-.0005	-.0005	-.0004	-.0004	-.0004	-.0007	-.0006
SEN ESTIMATED OF SLOPE	-.0002	-.0003	.0002	-.0002	-.0003	-.0002	-.0002	-.0002	-.0002	-.0001
SEN UPPER CONF. INT.	.0000	.0000	.0008	.0000	.0000	.0000	.0000	.0000	.0000	.0004

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	14.6994	
SEASONAL KENDALL STATISTIC =	-5.2539	*
MODIFY SEA. KEN. STATISTIC =	-2.7727	*
VAN BELLE (HOMO) STATISTIC =	7.8494	
VAN BELLE (TEND) STATISTIC =	26.4238	*
KENDALL COEFFICIENT =	-.2439	
SPEARMAN COEFFICIENT =	-.1043	
SEASONAL LOWER CONF. INT. =	-.0003	
SEASONAL ESTIMATED OF SLOPE =	-.0002	
SEASONAL UPPER CONF. INT. =	-.0001	

* SIGNIFICANT AT 5 % LEVEL

24D 18500L

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	* 2.3528	* 2.4495	* 2.4162	* 2.4568	* 2.4202	1.4949	* 2.8170	* 2.5089	* 2.2854	1.6440
SPEARMAN STAT.	* 3.5115	* 4.0000	* 3.5737	* 4.0000	* 3.4698	2.0083	* 4.3840	* 3.6086	* 3.2670	* 2.4580
KENDALL COEFFICIENT	-.0222	-.1273	-.0909	-.0182	.0549	-.2190	.0110	-.0769	-.1818	-.1429
SPEARMAN COEFFICIENT	.7788	.8000	.7659	.8000	.7077	.4866	.7846	.7363	.7185	.7083
SEN LOWER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0003	.0000	.0002	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0026	.0024	.0019	.0033	.0027	.0020	.0026	.0024	.0009	.0010

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.3202	
SEASONAL KENDALL STATISTIC =	6.9986	*
MODIFY SEA. KEN. STATISTIC =	3.0877	*
VAN BELLE (HOMO) STATISTIC =	1.2787	
VAN BELLE (TEND) STATISTIC =	52.9463	*
KENDALL COEFFICIENT =	-.5026	
SPEARMAN COEFFICIENT =	.1849	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0003	

* SIGNIFICANT AT 5 % LEVEL

245T 18510L

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-.7731	* 2.0857	-.0827	.9808	.0000	1.3819	.8552	* 2.0528	-.1223	* -2.3166
SPEARMAN STAT.	-.3617	* 3.0936	.3279	1.0678	.1763	1.9479	1.1191	* 2.8661	.1944	-2.1381
KENDALL COEFFICIENT	-.4848	-.0909	-.4545	-.1212	-.3500	-.3833	-.2571	-.1538	-.3407	-.7778
SPEARMAN COEFFICIENT	-.1136	.6993	.1031	.3199	.0471	.4618	.2964	.6538	.0560	-.6030
SEN LOWER CONF. INT.	-.0999	.0000	.0000	.0000	.0000	.0000	.0000	.0000	-.0004	-.2215
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	-.0998
SEN UPPER CONF. INT.	.0000	.0047	.0000	.0052	.0000	.0000	.0037	.0040	.0006	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	21.7815
SEASONAL KENDALL STATISTIC =	1.4208
MODIFY SEA. KEN. STATISTIC =	.7384
VAN BELLE (HOMO) STATISTIC =	16.5033
VAN BELLE (TEND) STATISTIC =	1.6499
KENDALL COEFFICIENT =	-.4090
SPEARMAN COEFFICIENT =	.1347
SEASONAL LOWER CONF. INT. =	.0000
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

K-DISS 19103L

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-1.9415	-.1378	-1.1932	-1.0376	-1.4506	-.7233	-1.5025	.0000	-1.0433	* -2.1553
SPEARMAN STAT.	* -2.5494	-.1883	-1.5140	-1.2344	-1.6081	-.5449	-1.3668	-.1601	-1.4725	* -2.5092
KENDALL COEFFICIENT	-.4848	-.0606	-.3636	-.2727	-.3167	-.1667	-.3524	-.0330	-.2308	-.5556
SPEARMAN COEFFICIENT	-.6276	-.0594	-.4318	-.3636	-.3949	-.1441	-.3545	-.0462	-.3912	-.6636
SEN LOWER CONF. INT.	-.9331	-.0417	-.6202	-.0610	-.5091	-.0552	-.0869	-.0250	-.1565	-2.3915
SEN ESTIMATED OF SLOPE	-.0725	-.0017	-.0242	-.0157	-.0250	-.0100	-.0200	.0000	-.0333	-.9650
SEN UPPER CONF. INT.	.0000	.0188	.0122	.0083	.0050	.0200	.0042	.0290	.0213	-.0015

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.5195	
SEASONAL KENDALL STATISTIC =	-3.3461	*
MODIFY SEA. KEN. STATISTIC =	-1.8045	
VAN BELLE (HOMO) STATISTIC =	4.3966	
VAN BELLE (TEND) STATISTIC =	12.5102	*
KENDALL COEFFICIENT =	.1053	
SPEARMAN COEFFICIENT =	.2084	
SEASONAL LOWER CONF. INT. =	-.0333	
SEASONAL ESTIMATED OF SLOPE =	-.0178	
SEASONAL UPPER CONF. INT. =	-.0061	

* SIGNIFICANT AT 5 % LEVEL

CA-DISS 20101L

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-.3128	-1.1749	.4472	-1.4882	-.7348	-.7928	-.9168	-.6040	-1.0932	-.4557
SPEARMAN STAT.	-.7320	-1.0879	.3982	-1.5503	-.7081	-.8640	-1.0672	-.8051	-.9989	-.8306
KENDALL COEFFICIENT	-.1111	-.3091	.1111	-.3818	-.1795	-.1619	-.2051	-.1429	-.2727	-.2381
SPEARMAN COEFFICIENT	-.2667	-.3409	.1394	-.4591	-.2088	-.2330	-.3063	-.2264	-.3159	-.3482
SEN LOWER CONF. INT.	-.8233	-.4682	-.5290	-.5000	-.3572	-.2862	-.4339	-.4107	-.6284	-1.2000
SEN ESTIMATED OF SLOPE	-.0792	-.1000	.0571	-.2000	-.0625	-.0538	-.1292	-.0625	-.1154	-.1667
SEN UPPER CONF. INT.	.3540	.0556	.3666	.0605	.2001	.1560	.1178	.3302	.0740	.2329

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	8.5292	
SEASONAL KENDALL STATISTIC =	-2.3119	*
MODIFY SEA. KEN. STATISTIC =	-1.2952	
VAN BELLE (HOMO) STATISTIC =	2.4575	
VAN BELLE (TEND) STATISTIC =	5.4497	*
KENDALL COEFFICIENT =	.2104	
SPEARMAN COEFFICIENT =	.3398	
SEASONAL LOWER CONF. INT. =	-.1639	
SEASONAL ESTIMATED OF SLOPE =	-.0833	
SEASONAL UPPER CONF. INT. =	-.0091	

* SIGNIFICANT AT 5 % LEVEL

MN-DISS 25104D (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-1.1257	-1.2296	-1.6084	-1.7220	-.6624	-1.2400	-1.4863	-2.1826 *	-1.2666	.0000
SPEARMAN STAT.	-1.4863	-1.8766	-1.7866	-1.9843	-.4602	-1.2567	-1.6193	-2.9360 *	-1.6282	-.1741
KENDALL COEFFICIENT	-.6190	-.5238	-.7143	-.6111	-.3778	-.4909	-.5636	-.7857	-.5000	-.4000
SPEARMAN COEFFICIENT	-.5536	-.6429	-.5893	-.6000	-.1606	-.3864	-.4750	-.7679	-.5536	-.1000
SEN LOWER CONF. INT.	-.0054	-.0044	-.0028	-.0081	-.0049	-.0030	-.0017	-.0197	-.0139	-.0105
SEN ESTIMATED OF SLOPE	-.0013	-.0016	-.0010	-.0012	.0000	-.0004	-.0009	-.0027	-.0012	.0000
SEN UPPER CONF. INT.	.0015	.0009	.0000	.0000	.0016	.0000	.0000	.0000	.0020	.0029

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   22.8023  *
SEASONAL KENDALL  STATISTIC =   -4.1976  *
MODIFY SEA. KEN.  STATISTIC =   -1.6475
VAN BELLE (HOMO)  STATISTIC =    2.9673
VAN BELLE (TEND)  STATISTIC =   18.5290  *
KENDALL         COEFFICIENT =    -.2318
SPEARMAN        COEFFICIENT =     .0408
SEASONAL LOWER   CONF. INT. =    -.0013
SEASONAL ESTIMATED OF SLOPE =    -.0010
SEASONAL UPPER   CONF. INT. =     .0000
```

* SIGNIFICANT AT 5 % LEVEL

FE-DISS 26104D (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-1.6744	-2.0386 *	-2.5240 *	.4256	-1.8255	-2.7373 *	-2.6615 *	-2.1826 *	-1.9926 *	-1.0607
SPEARMAN STAT.	-1.7903	-3.2206 *	-3.2392 *	.3559	-2.1213	-2.9220 *	-2.6614 *	-3.1740 *	-2.2629	-.4472
KENDALL COEFFICIENT	-.8095	-.8095	-.9286	.0556	-.6444	-.8545	-.8545	-.7857	-.7857	-1.0000
SPEARMAN COEFFICIENT	-.6250	-.8214	-.7976	.1333	-.6000	-.6977	-.6636	-.7917	-.6786	-.2500
SEN LOWER CONF. INT.	-.0085	-.0081	-.0066	-.0044	-.0049	-.0094	-.0046	-.0150	-.0158	-.0079
SEN ESTIMATED OF SLOPE	-.0043	-.0043	-.0043	.0004	-.0013	-.0040	-.0027	-.0071	-.0044	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0055	.0000	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   18.7737
SEASONAL KENDALL  STATISTIC =   -5.8956  *
MODIFY SEA. KEN.  STATISTIC =   -2.6505  *
VAN BELLE (HOMO)  STATISTIC =    8.3146
VAN BELLE (TEND)  STATISTIC =   37.0063  *
KENDALL         COEFFICIENT =    -.2857
SPEARMAN        COEFFICIENT =     .0181
SEASONAL LOWER   CONF. INT. =    -.0043
SEASONAL ESTIMATED OF SLOPE =    -.0033
SEASONAL UPPER   CONF. INT. =    -.0017
```

* SIGNIFICANT AT 5 % LEVEL

CU-TOT 39005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	.1568	-.9011	.0000	.0000	-2.3166 *	-1.2205	-1.5336	-1.4613	-1.7269	1.4434
SPEARMAN STAT.	.2410	-.7590	.1754	.0437	-2.1381	-.6416	-1.0000	-1.4142	-2.1909	3.1305
KENDALL COEFFICIENT	-.0476	-.3333	-.2143	-.2857	-.7778	-.6000	-.6889	-.6429	-.7143	.2000
SPEARMAN COEFFICIENT	.1071	-.3214	.0714	.0179	-.6030	-.2212	-.3333	-.5000	-.6667	.8750
SEN LOWER CONF. INT.	-.0008	-.0056	-.0003	-.0004	-.0002	-.0001	-.0001	-.0002	-.0004	.0000
SEN ESTIMATED OF SLOPE	.0000	-.0006	.0000	.0000	.0000	.0000	.0000	-.0001	-.0001	.0002
SEN UPPER CONF. INT.	.0006	.0013	.0002	.0017	.0000	.0000	.0000	.0000	.0000	.0003

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   14.7050
SEASONAL KENDALL  STATISTIC =   -3.0465  *
MODIFY SEA. KEN.  STATISTIC =   -2.0233
VAN BELLE (HOMO)  STATISTIC =   13.5556
VAN BELLE (TEND)  STATISTIC =    5.8741  *
KENDALL         COEFFICIENT =    -.4488
SPEARMAN        COEFFICIENT =    -.2197
SEASONAL LOWER   CONF. INT. =    -.0001
SEASONAL ESTIMATED OF SLOPE =     .0000
SEASONAL UPPER   CONF. INT. =     .0000
```

* SIGNIFICANT AT 5 % LEVEL

PB-TOT 82002P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-2.6442 *	-.4704	-1.9258	-1.9696 *	-3.1608 *	-3.3121 *	-2.2478 *	-2.6806 *	-3.0398 *	-1.4434
SPEARMAN STAT.	-5.2358 *	-.7590	-2.5431 *	-2.5000 *	-4.3154 *	-4.8456 *	-2.3333 *	-3.3070 *	-7.1792 *	-1.3868
KENDALL COEFFICIENT	-1.0000	-.3333	-.7143	-.7857	-1.0000	-1.0000	-.7333	-1.0000	-1.0000	-1.0000
SPEARMAN COEFFICIENT	-.9196	-.3214	-.7202	-.7143	-.8364	-.8636	-.6364	-.8036	-.9464	-.6250
SEN LOWER CONF. INT.	-.0008	-.0006	-.0007	-.0007	-.0006	-.0006	-.0006	-.0008	-.0007	-.0008
SEN ESTIMATED OF SLOPE	-.0002	-.0001	-.0004	-.0004	-.0004	-.0004	-.0002	-.0002	-.0005	-.0006
SEN UPPER CONF. INT.	.0000	.0003	.0000	.0000	.0000	-.0001	.0000	.0000	-.0001	.0000

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   23.9392  *
SEASONAL KENDALL  STATISTIC =   -7.6374  *
MODIFY SEA. KEN.  STATISTIC =   -3.2216  *
VAN BELLE (HOMO)  STATISTIC =    6.1511
VAN BELLE (TEND)  STATISTIC =   57.6772  *
KENDALL         COEFFICIENT =    -.3074
SPEARMAN        COEFFICIENT =    -.0568
SEASONAL LOWER   CONF. INT. =    -.0005
SEASONAL ESTIMATED OF SLOPE =    -.0004
SEASONAL UPPER   CONF. INT. =    -.0001
```

* SIGNIFICANT AT 5 % LEVEL

Q-DM(M3/S)------ (THE 3 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	5	6	7	8	9	10	12
MANN & KENDALL STAT.	-.9839	* -1.9809	-1.6994	-.4472	-1.2591	* -2.3540	-1.7082	* -2.4686	* -3.0504	* -2.2361
SPEARMAN STAT.	-1.8700	* -3.1593	* -2.4889	-.3982	-1.5417	* -2.8487	* -2.3094	* -3.7238	* -4.8266	* -3.6934
KENDALL COEFFICIENT	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556
SPEARMAN COEFFICIENT	-.5515	-.7667	-.6606	-.1394	-.4066	-.6352	-.5714	-.7622	-.8242	-.7939
SEN LOWER CONF. INT.	-20.7672	-31.0666	-34.3702	-53.8008	-64.0450	-80.7006	-95.6739	-82.4436	-58.0885	-39.6747
SEN ESTIMATED OF SLOPE	-8.3000	-18.5446	-10.1429	-12.8750	-27.5000	-44.3000	-49.3750	-45.8500	-33.3167	-16.2000
SEN UPPER CONF. INT.	19.0657	-1.8009	11.7344	32.7284	6.8004	-9.9198	7.1897	-15.1135	-16.2490	-5.6268

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   [illegible].0282
SEASONAL KENDALL  STATISTIC =   -5.7779  *
MODIFY SEA. KEN.  STATISTIC =   -2.5417  *
VAN BELLE (HOMO)  STATISTIC =    5.3877
VAN BELLE (TEND)  STATISTIC =   33.4604  *
KENDALL          COEFFICIENT =   -.0429
SPEARMAN         COEFFICIENT =   -.0556
SEASONAL LOWER   CONF. INT. =  -34.3239
SEASONAL ESTIMATED OF SLOPE =  -25.4222
SEASONAL UPPER   CONF. INT. =  -17.2124
```

* SIGNIFICANT AT 5 % LEVEL

Table A1.6

TDS* 00201L (THE 1 YESR HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.3964	-.7321	-1.5352	-.8212	1.3715	.7117	-.4881	-.6857	.3832	-1.0982	-.7676	1.2372
SPEARMAN STAT.	-.2809	-.6693	-1.4872	-.6427	1.1802	.5789	-.5543	-.6080	.2673	-1.3132	-.8340	1.5074
KENDALL COEFFICIENT	-.0857	-.1538	-.3187	-.1648	.3030	.1429	-.1026	-.1515	.0769	-.2308	-.1648	.2381
SPEARMAN COEFFICIENT	-.0777	-.1978	-.3945	-.1824	.3497	.1648	-.1648	-.1888	.0769	-.3681	-.2341	.3857
SEN LOWER CONF. INT.	-7.9	-10.8	-51.9	-31.4	-5.0	-6.0	-22.6	-11.0	-10.8	-11.7	-11.9	-5.6
SEN ESTIMATED OF SLOPE	-2.2	-3.6	-14.8	-7.4	9.0	9.4	-4.3	-2.4	2.0	-5.2	-2.9	6.0
SEN UPPER CONF. INT.	16.8	14.8	9.6	16.3	19.2	24.5	10.7	6.5	10.7	4.6	9.5	22.4

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	11.3036
SEASONAL KENDALL STATISTIC =	-.7877
MODIFY SEA. KEN. STATISTIC =	-.5057
VAN BELLE (HOMO) STATISTIC =	9.6295
VAN BELLE (TEND) STATISTIC =	.6631
KENDALL COEFFICIENT =	.0657
SPEARMAN COEFFICIENT =	.0227
SEASONAL LOWER CONF. INT. =	-4.8
SEASONAL ESTIMATED OF SLOPE =	-1.3
SEASONAL UPPER CONF. INT. =	2.2

* SIGNIFICANT AT 5 % LEVEL

COND (F) 02041F (THE 1 YEAR MISSING DATA HAS OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.2372	.2449	-.6022	-.7321	-.1642	1.6971	-1.8948	.6186	1.2062	1.3472	.5444	* 2.1801
SPEARMAN STAT.	1.4910	.2192	-.5315	-.4975	.1753	1.7697	* -2.5251	.6490	1.6795	1.4880	.6679	* 2.3689
KENDALL COEFFICIENT	.2381	.0256	-.1209	-.1538	-.0330	.3407	-.4103	.1212	.2308	.2564	.1048	.4095
SPEARMAN COEFFICIENT	.3821	.0659	-.1516	-.1484	.0505	.4549	-.6058	.2010	.4363	.4093	.1821	.5491
SEN LOWER CONF. INT.	-8.0	-10.8	-55.5	-40.0	-19.9	-4.6	-20.9	-11.1	-11.1	-4.3	-13.3	3.7
SEN ESTIMATED OF SLOPE	10.0	4.3	-13.0	-10.2	-2.4	15.7	-7.7	1.7	5.0	5.0	5.3	19.7
SEN UPPER CONF. INT.	35.2	34.7	25.5	37.9	28.2	30.4	2.5	21.7	19.5	14.8	20.9	45.3

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.9148
SEASONAL KENDALL STATISTIC =	1.7915
MODIFY SEA. KEN. STATISTIC =	1.0924
VAN BELLE (HOMO) STATISTIC =	14.9976
VAN BELLE (TEND) STATISTIC =	2.6908
KENDALL COEFFICIENT =	.0686
SPEARMAN COEFFICIENT =	.0595
SEASONAL LOWER CONF. INT. =	-.2
SEASONAL ESTIMATED OF SLOPE =	4.9
SEASONAL UPPER CONF. INT. =	9.6

* SIGNIFICANT AT 5 % LEVEL

TEMP(F) 02061F (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.2892	.0000	-.6758	.0549	.3859	-.2817	-.3693	.4295	-.7699	.9798	-.2533	1.6145
SPEARMAN STAT.	-.7600	.6693	-.5988	-.0228	-.0114	-.2673	-.0228	.3620	-.8092	.8563	-.1805	* 2.2928
KENDALL COEFFICIENT	-.6264	-.4615	-.2747	-.0110	.0330	-.1868	-.1282	.0513	-.1868	.1795	-.1619	-.2000
SPEARMAN COEFFICIENT	-.2143	.1978	-.1703	-.0066	-.0033	-.0769	-.0069	.1085	-.2275	.2500	-.0500	.5366
SEN LOWER CONF. INT.	-.0160	.0000	-.0663	-.6239	-.6667	-.2199	-.3969	-.3750	-.6490	-.2501	-.0974	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0400	.0000	-.0175	.1333	-.2727	.1964	.0000	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0490	.6511	.6448	.1206	.3403	.7490	.4925	.8001	.0863	.0100

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	10.4517
SEASONAL KENDALL STATISTIC =	-.0676
MODIFY SEA. KEN. STATISTIC =	-.0696
VAN BELLE (HOMO) STATISTIC =	6.8919
VAN BELLE (TEND) STATISTIC =	.0025
KENDALL COEFFICIENT =	.0135
SPEARMAN COEFFICIENT =	.1189
SEASONAL LOWER CONF. INT. =	.0000
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

TURB(F) 02073F (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.8980	-.4987	.9383	-.7298	1.3553	1.0483	1.3553	1.4961	-.6261	1.8869	.4193	* -2.0738
SPEARMAN STAT.	-.7162	-.6164	1.2721	-1.0981	1.5966	1.3487	1.9001	1.8428	-.2930	1.8394	.6469	* -2.7031
KENDALL COEFFICIENT	-.2444	-.2143	.2778	-.2222	.3889	.2778	.3889	.4286	-.1556	.5000	.1111	-.5556
SPEARMAN COEFFICIENT	-.2455	-.2440	.4333	-.3833	.5167	.4542	.5833	.6012	-.1030	.5708	.2375	-.6909
SEN LOWER CONF. INT.	-1.4511	-2.1693	-1.1800	-19.7997	-2.4713	-1.8601	-3.6496	-4.5291	-4.5599	-.2711	-1.5229	-1.6448
SEN ESTIMATED OF SLOPE	-.2000	-.4132	.7778	-5.5000	2.4167	1.5000	1.6000	2.3333	-1.6000	2.0000	.2083	-.8750
SEN UPPER CONF. INT.	.9113	2.5779	3.1599	2.1498	9.7413	6.9069	7.5000	13.4765	5.3374	6.0000	1.6162	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.6233
SEASONAL KENDALL STATISTIC =	.9471
MODIFY SEA. KEN. STATISTIC =	.7493
VAN BELLE (HOMO) STATISTIC =	18.6624
VAN BELLE (TEND) STATISTIC =	1.4673
KENDALL COEFFICIENT =	.0683
SPEARMAN COEFFICIENT =	.1581
SEASONAL LOWER CONF. INT. =	-.2602
SEASONAL ESTIMATED OF SLOPE =	.2500
SEASONAL UPPER CONF. INT. =	1.0000

* SIGNIFICANT AT 5 % LEVEL

B-DISS 05105D (THE 2 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.3779	.7385	-.5483	-.5512	.1100	-.2774	* -2.3476	.3123	.3303	-.6285	-1.5986	-.7561
SPEARMAN STAT.	-1.3317	.4272	-1.0069	-.4012	.2942	-.4410	* -3.0987	.2394	.2673	-.9044	-1.7919	-.8165
KENDALL COEFFICIENT	-.3333	.1026	-.1636	-.1515	-.0110	-.1212	-.5641	.0545	.0330	-.2000	-.4242	-.1818
SPEARMAN COEFFICIENT	-.3881	.1277	-.3182	-.1259	.0846	-.1381	-.6827	.0795	.0769	-.2886	-.4930	-.2500
SEN LOWER CONF. INT.	-.0303	-.0062	-.0200	-.0167	-.0120	-.0100	-.0100	-.0101	-.0065	-.0140	-.0100	-.0150
SEN ESTIMATED OF SLOPE	-.0093	.0025	-.0050	-.0042	.0000	-.0007	-.0035	.0022	.0020	-.0028	-.0030	-.0027
SEN UPPER CONF. INT.	.0044	.0100	.0100	.0050	.0128	.0100	-.0001	.0186	.0109	.0100	.0008	.0075

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.1229	
SEASONAL KENDALL STATISTIC =	-1.8203	
MODIFY SEA. KEN. STATISTIC =	-.8634	
VAN BELLE (HOMO) STATISTIC =	8.7541	
VAN BELLE (TEND) STATISTIC =	3.6239	
KENDALL COEFFICIENT =	-.0307	
SPEARMAN COEFFICIENT =	-.0243	
SEASONAL LOWER CONF. INT. =	-.0040	
SEASONAL ESTIMATED OF SLOPE =	-.0017	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

NO3+NO2 07106L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.0000	* -2.0926	-1.1496	-.8889	-.6364	-1.7273	-1.8324	* -2.4195	-.5789	-1.4763	-.7053	-1.1486
SPEARMAN STAT.	.2031	* -2.2524	-1.0242	-.6628	.7559	.0305	-1.2348	-.9630	-.0076	-.8313	-.5604	-.8465
KENDALL COEFFICIENT	-.0286	-.4872	-.2308	-.2527	-.8022	-.9341	-.7179	-.9487	-.4945	-.6410	-.2381	-.2762
SPEARMAN COEFFICIENT	.0562	-.5618	-.2835	-.1879	.2132	.0088	-.3489	-.2788	-.0022	-.2431	-.1536	-.2286
SEN LOWER CONF. INT.	-.0200	-.0515	-.0417	-.0365	.0000	.0000	-.0067	-.0028	-.0069	-.0057	-.0130	-.0200
SEN ESTIMATED OF SLOPE	.0000	-.0244	-.0125	-.0100	.0000	.0000	.0000	.0000	.0000	.0000	-.0018	-.0070
SEN UPPER CONF. INT.	.0102	.0000	.0145	.0051	.0000	.0000	.0000	.0000	.0000	.0000	.0028	.0053

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.8515	
SEASONAL KENDALL STATISTIC =	-3.9002	*
MODIFY SEA. KEN. STATISTIC =	-2.2419	*
VAN BELLE (HOMO) STATISTIC =	5.5227	
VAN BELLE (TEND) STATISTIC =	17.8992	*
KENDALL COEFFICIENT =	-.4171	
SPEARMAN COEFFICIENT =	-.3423	
SEASONAL LOWER CONF. INT. =	-.0020	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

TN* 07602L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-2.2615 *	-3.6429 *	-1.0402	-1.6448	-.6022	-1.9738 *	-.9168	-.9761	-.5483	-.8935	-2.5765 *	-2.8277 *
SPEARMAN STAT.	-3.0072 *	-8.6193 *	-1.0938	-1.5267	-1.0415	-2.5907 *	-.8015	-.9068	-.4882	-.8778	-3.4388 *	-3.3967 *
KENDALL COEFFICIENT	-.4872	-.8182	-.2088	-.3407	-.1209	-.4066	-.2051	-.2051	-.1209	-.2121	-.5048	-.5619
SPEARMAN COEFFICIENT	-.6717	-.9388	-.3011	-.4033	-.2879	-.5989	-.2349	-.2637	-.1396	-.2675	-.6902	-.6857
SEN LOWER CONF. INT.	-.0523	-.0768	-.0721	-.1591	-.0633	-.0622	-.1608	-.0830	-.0647	-.0726	-.0616	-.0738
SEN ESTIMATED OF SLOPE	-.0323	-.0492	-.0260	-.0358	-.0111	-.0250	-.0320	-.0279	-.0167	-.0158	-.0367	-.0533
SEN UPPER CONF. INT.	-.0033	-.0219	.0221	.0072	.0366	.0007	.0550	.0503	.0460	.0152	-.0067	-.0256

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	20.8246	
SEASONAL KENDALL	STATISTIC =	-5.7326	*
MODIFY SEA. KEN.	STATISTIC =	-2.7585	*
VAN BELLE (HOMO)	STATISTIC =	10.9425	
VAN BELLE (TEND)	STATISTIC =	33.0154	*
KENDALL	COEFFICIENT =	-.0679	
SPEARMAN	COEFFICIENT =	-.0862	
SEASONAL LOWER	CONF. INT. =	-.0423	
SEASONAL ESTIMATED OF	SLOPE =	-.0333	
SEASONAL UPPER	CONF. INT. =	-.0214	

* SIGNIFICANT AT 5 % LEVEL

DO 08101F (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.3464	-.4279	1.8120	-1.0999	.3674	.6255	.6124	.8573	1.0965	-1.4434	-1.9347	.5457
SPEARMAN STAT.	-.4675	-.5022	1.8573	-1.1781	.3667	.7380	.4881	.6211	1.3152	-1.3247	-2.4759 *	.6544
KENDALL COEFFICIENT	-.0667	-.1026	.3407	-.2527	.0513	.0606	.1026	.1538	.2088	-.3333	-.3905	.0857
SPEARMAN COEFFICIENT	-.1286	-.1497	.4725	-.3220	.1099	.2273	.1456	.1841	.3549	-.3864	-.5661	.1786
SEN LOWER CONF. INT.	-.2644	-.4678	-.0255	-.3080	-.2334	-.1290	-.1003	-.1200	-.0948	-.3555	-.2000	-.1051
SEN ESTIMATED OF SLOPE	-.0333	-.0583	.1818	-.0583	.0243	.0396	.0667	.0667	.0571	-.1000	-.1000	.0667
SEN UPPER CONF. INT.	.2765	.2165	.5333	.1409	.2668	.2000	.3667	.2000	.2264	.0511	.0036	.2295

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	11.0696
SEASONAL KENDALL	STATISTIC =	.1479
MODIFY SEA. KEN.	STATISTIC =	.1257
VAN BELLE (HOMO)	STATISTIC =	13.7225
VAN BELLE (TEND)	STATISTIC =	.0368
KENDALL	COEFFICIENT =	.2179
SPEARMAN	COEFFICIENT =	.3526
SEASONAL LOWER	CONF. INT. =	-.0410
SEASONAL ESTIMATED OF	SLOPE =	.0000
SEASONAL UPPER	CONF. INT. =	.0556

* SIGNIFICANT AT 5 % LEVEL

ALK-TOT 10101L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.4351	.7321	.2745	.1097	1.3422	* 2.6825	-.3056	-.4114	.3832	.2449	.1488	.2474
SPEARMAN STAT.	1.5904	.6886	.1143	.2021	1.4286	* 3.0923	-.2054	-.2887	.5157	.0638	.1418	.0129
KENDALL COEFFICIENT	.2762	.1538	.0330	.0110	.2821	.5385	-.0769	-.0909	.0769	.0256	.0095	.0476
SPEARMAN COEFFICIENT	.4036	.2033	.0330	.0582	.3956	.6659	-.0618	-.0909	.1473	.0192	.0393	.0036
SEN LOWER CONF. INT.	-2.8957	-5.1790	-6.2406	-9.2995	-4.6112	2.0051	-4.0067	-6.8172	-4.5287	-3.6019	-3.1273	-2.5440
SEN ESTIMATED OF SLOPE	3.8000	2.8750	.7500	.4444	5.1948	7.6667	-.4167	-1.3750	.6667	.2679	.0833	.4000
SEN UPPER CONF. INT.	11.9419	9.6667	6.1497	10.6531	15.5632	13.5206	5.0167	4.5276	6.6158	8.5017	3.1519	6.1516

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.4838	
SEASONAL KENDALL STATISTIC =	2.0497	*
MODIFY SEA. KEN. STATISTIC =	1.0014	
VAN BELLE (HOMO) STATISTIC =	8.2846	
VAN BELLE (TEND) STATISTIC =	3.9486	*
KENDALL COEFFICIENT =	-.0271	
SPEARMAN COEFFICIENT =	-.0537	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	1.5000	
SEASONAL UPPER CONF. INT. =	3.2500	

* SIGNIFICANT AT 5 % LEVEL

FE(F) 10301F (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.3326	.5550	.9459	.7325	.5044	-.2257	.2471	.8283	-.5863	-.9835	-1.5165	-.9650
SPEARMAN STAT.	-.2942	.6403	.8881	.5315	.6387	.0419	.3899	.8967	-.3389	-1.0305	-1.3668	-.6476
KENDALL COEFFICIENT	-.1429	.0513	.0989	.0110	-.0330	-.1868	-.0256	-.0256	-.3590	-.2564	-.4095	-.3143
SPEARMAN COEFFICIENT	-.0846	.1896	.2484	.1516	.1813	.0121	.1168	.2610	-.1016	-.2967	-.3545	-.1768
SEN LOWER CONF. INT.	-.0510	-.0282	-.0206	-.0282	-.0167	-.0369	-.0500	-.0143	-.0250	-.0745	-.0400	-.0500
SEN ESTIMATED OF SLOPE	.0000	.0077	.0143	.0200	.0000	.0000	.0000	.0000	.0000	-.0286	-.0171	-.0100
SEN UPPER CONF. INT.	.0306	.0489	.0640	.0709	.0400	.0333	.0586	.0333	.0100	.0329	.0000	.0139

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	9.8470
SEASONAL KENDALL STATISTIC =	-.3146
MODIFY SEA. KEN. STATISTIC =	-.1698
VAN BELLE (HOMO) STATISTIC =	7.3916
VAN BELLE (TEND) STATISTIC =	.0529
KENDALL COEFFICIENT =	.2427
SPEARMAN COEFFICIENT =	.5039
SEASONAL LOWER CONF. INT. =	-.0083
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

NFR 10401L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.9910	.9168	1.0965	-1.3686	.3832	-1.2591	.1834	-.2440	-.6022	-.7321	.2489	-1.4950
SPEARMAN STAT.	-1.0277	.9837	1.2781	-1.4434	.3134	-1.3292	.4834	-.3481	-.5473	-.5924	.2550	-1.5652
KENDALL COEFFICIENT	-.2000	.1795	.2088	-.2747	.0769	-.2527	.0256	-.0513	-.1209	-.1538	.0095	-.3333
SPEARMAN COEFFICIENT	-.2741	.2843	.3462	-.3846	.0901	-.3582	.1442	-.1044	-.1560	-.1758	.0705	-.3982
SEN LOWER CONF. INT.	-1.4279	-2.0133	-.9583	-30.4103	-6.1605	-8.8292	-5.5056	-8.3881	-5.9885	-6.0221	-1.7974	-1.3402
SEN ESTIMATED OF SLOPE	-.5333	.6000	.6000	-7.0000	1.2727	-2.9400	.6167	-.5595	-1.6000	-.8800	.1429	-.4000
SEN UPPER CONF. INT.	.6279	1.9851	3.0000	2.2006	8.0295	2.6914	4.3389	4.8759	3.0573	3.7036	1.7242	.2142

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	13.1401
SEASONAL KENDALL STATISTIC =	-1.1928
MODIFY SEA. KEN. STATISTIC =	-.8978
VAN BELLE (HOMO) STATISTIC =	8.6755
VAN BELLE (TEND) STATISTIC =	1.2437
KENDALL COEFFICIENT =	.0175
SPEARMAN COEFFICIENT =	.0806
SEASONAL LOWER CONF. INT. =	-.9236
SEASONAL ESTIMATED OF SLOPE =	-.3417
SEASONAL UPPER CONF. INT. =	.2658

* SIGNIFICANT AT 5 % LEVEL

MA-DISS 11103L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.5946	-.0611	-1.5876	-.7699	.2440	-.5483	-1.4642	.9600	.7117	-.7348	-.5483	.6470
SPEARMAN STAT.	-.4115	-.0228	-1.7269	-.6068	.4039	-.6628	-1.2237	1.1802	.7396	-.9272	-.4647	.8014
KENDALL COEFFICIENT	-.1238	-.0256	-.3187	-.1868	.0513	-.1209	-.3077	.2121	.1429	-.1795	-.1209	.0857
SPEARMAN COEFFICIENT	-.1134	-.0069	-.4462	-.1725	.1209	-.1879	-.3462	.3497	.2088	-.2692	-.1330	.2170
SEN LOWER CONF. INT.	-5.7596	-3.0167	-9.5659	-5.7282	-5.0237	-4.8436	-9.5063	-1.5808	-2.8802	-2.5002	-2.9789	-1.7595
SEN ESTIMATED OF SLOPE	-1.0000	-.0455	-3.5000	-1.4444	.5136	-.7778	-2.9167	1.1714	1.6250	-.5833	-1.0000	.2333
SEN UPPER CONF. INT.	3.3969	6.9121	2.3121	2.5962	6.0105	2.8173	1.2553	3.8173	4.7605	1.5000	2.4332	2.7595

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	7.2172
SEASONAL KENDALL STATISTIC =	-1.1092
MODIFY SEA. KEN. STATISTIC =	-.8055
VAN BELLE (HOMO) STATISTIC =	7.4925
VAN BELLE (TEND) STATISTIC =	1.1694
KENDALL COEFFICIENT =	.1230
SPEARMAN COEFFICIENT =	.1242
SEASONAL LOWER CONF. INT. =	-1.4286
SEASONAL ESTIMATED OF SLOPE =	-.5000
SEASONAL UPPER CONF. INT. =	.5416

* SIGNIFICANT AT 5 % LEVEL

MG-DISS 12102L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.5457	-.6101	* -2.1351	-.8212	-.2449	1.0402	-1.2836	-1.5909	-.3844	-.7348	-1.5855	-.6937
SPEARMAN STAT.	-.3820	-.7866	* -2.2911	-.6267	-.0182	.9556	-1.2850	-1.5215	-.5315	-.5828	-1.7059	-.6984
KENDALL COEFFICIENT	-.1238	-.1282	-.4286	-.1648	-.0769	.2088	-.2821	-.3939	-.0989	-.1795	-.3143	-.1429
SPEARMAN COEFFICIENT	-.1054	-.2308	-.5516	-.1780	-.0055	.2659	-.3613	-.4336	-.1516	-.1731	-.4277	-.1902
SEN LOWER CONF. INT.	-1.0127	-1.5032	-2.8914	-2.2862	-1.3256	-.6642	-1.5033	-1.3630	-.9456	-1.0337	-1.6804	-1.6744
SEN ESTIMATED OF SLOPE	-.2400	-.6018	-1.4636	-.6750	-.0343	.5222	-.6400	-.6750	-.1000	-.4403	-.6000	-.6727
SEN UPPER CONF. INT.	.6339	1.0000	-.1399	1.0000	1.2002	1.4396	.3204	.0903	.5261	.6254	.1266	1.0558

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   14.2578
SEASONAL KENDALL  STATISTIC =   -2.7300  *
MODIFY SEA. KEN.  STATISTIC =   -1.4748
VAN BELLE (HOMO)  STATISTIC =    7.2426
VAN BELLE (TEND)  STATISTIC =    7.6636  *
KENDALL         COEFFICIENT =     .0330
SPEARMAN        COEFFICIENT =     .0226
SEASONAL LOWER   CONF. INT. =    -.6917
SEASONAL ESTIMATED OF SLOPE =    -.3889
SEASONAL UPPER   CONF. INT. =    -.1000
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* SIGNIFICANT AT 5 % LEVEL

P-TOT-DISS15103D (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.3000	-1.3472	.7699	* -2.2445	* -2.3540	-1.5281	-1.1657	-.7946	-.6022	-1.7146	* -2.8809	* -2.1473
SPEARMAN STAT.	-1.3589	-1.5121	.8257	* -2.2911	* -2.5105	-1.7452	-1.0567	-.9733	-.7071	-1.8320	* -3.9689	* -2.4644
KENDALL COEFFICIENT	-.3143	-.3077	.1209	-.4505	-.4725	-.3333	-.2821	-.1795	-.1209	-.3846	-.5810	-.4667
SPEARMAN COEFFICIENT	-.3527	-.4148	.2319	-.5516	-.5868	-.4657	-.3036	-.2816	-.2000	-.4835	-.7402	-.5643
SEN LOWER CONF. INT.	-.0125	-.0149	-.0089	-.0127	-.0149	-.0142	-.0164	-.0130	-.0186	-.0220	-.0126	-.0117
SEN ESTIMATED OF SLOPE	-.0055	-.0075	.0030	-.0079	-.0071	-.0073	-.0072	-.0029	-.0030	-.0103	-.0080	-.0055
SEN UPPER CONF. INT.	.0014	.0050	.0147	-.0012	-.0011	.0037	.0074	.0075	.0124	.0019	-.0022	.0000

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   18.2821
SEASONAL KENDALL  STATISTIC =   -5.0620  *
MODIFY SEA. KEN.  STATISTIC =   -2.7399  *
VAN BELLE (HOMO)  STATISTIC =   10.2478
VAN BELLE (TEND)  STATISTIC =   24.9676  *
KENDALL         COEFFICIENT =    -.0630
SPEARMAN        COEFFICIENT =    -.0486
SEASONAL LOWER   CONF. INT. =    -.0083
SEASONAL ESTIMATED OF SLOPE =    -.0057
SEASONAL UPPER   CONF. INT. =    -.0033
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* SIGNIFICANT AT 5 % LEVEL

P-TOT 15406L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.8401	-1.6002	.7138	-.0551	-.7189	-1.8371	* -2.2129	-.7946	-.9372	* -2.8169	* -2.7907	* -2.7907
SPEARMAN STAT.	-2.0718	-1.7716	.6427	-.1601	-.8257	-2.0296	* -2.5161	-.6935	-.8506	* -4.2515	* -3.1584	* -3.6059
KENDALL COEFFICIENT	-.3905	-.3846	.1209	-.0549	-.2088	-.4103	-.5128	-.1795	-.2308	-.6154	-.5810	-.5810
SPEARMAN COEFFICIENT	-.4982	-.4712	.1824	-.0462	-.2319	-.5220	-.6044	-.2047	-.2385	-.7885	-.6589	-.7071
SEN LOWER CONF. INT.	-.0112	-.0125	-.0073	-.0200	-.0115	-.0271	-.0249	-.0300	-.0172	-.0200	-.0200	-.0144
SEN ESTIMATED OF SLOPE	-.0067	-.0074	.0057	.0000	-.0027	-.0081	-.0076	-.0059	-.0048	-.0095	-.0100	-.0060
SEN UPPER CONF. INT.	.0002	.0050	.0200	.0061	.0058	.0006	.0000	.0125	.0129	-.0030	-.0028	-.0018

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	20.8758	
SEASONAL KENDALL STATISTIC =	-5.1206	*
MODIFY SEA. KEN. STATISTIC =	-2.9506	*
VAN BELLE (HOMO) STATISTIC =	14.2184	
VAN BELLE (TEND) STATISTIC =	26.0501	*
KENDALL COEFFICIENT =	-.0401	
SPEARMAN COEFFICIENT =	.0015	
SEASONAL LOWER CONF. INT. =	-.0086	
SEASONAL ESTIMATED OF SLOPE =	-.0060	
SEASONAL UPPER CONF. INT. =	-.0033	

* SIGNIFICANT AT 5 % LEVEL

SO4-DISS 16304L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.0000	-.9168	-.6022	-1.3159	1.1685	.9869	-.2449	-1.1094	-.6022	* -2.4404	-1.3362	1.4387
SPEARMAN STAT.	.0419	-.7718	-.5315	-1.0982	1.2688	1.1602	-.1734	-1.1202	-.6909	* -3.6682	-1.4104	1.4747
KENDALL COEFFICIENT	-.0095	-.2051	-.1209	-.2747	.2424	.1868	-.0769	-.3030	-.1209	-.5128	-.2571	.2571
SPEARMAN COEFFICIENT	.0116	-.2266	-.1516	-.3022	.3724	.3176	-.0522	-.3339	-.1956	-.7418	-.3643	.3786
SEN LOWER CONF. INT.	-8.1673	-6.3648	-24.1094	-10.8381	-4.4531	-4.7654	-5.0000	-7.1338	-8.6507	-8.5136	-8.2608	-1.8617
SEN ESTIMATED OF SLOPE	.0000	-2.2778	-7.0000	-5.2000	3.3810	2.5556	-.4356	-1.9375	-2.7143	-3.2429	-3.0000	3.4444
SEN UPPER CONF. INT.	9.5994	9.2583	10.1515	4.4576	10.5156	12.8120	6.2514	2.0382	5.1337	-1.4473	2.6112	9.5652

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	13.2154
SEASONAL KENDALL STATISTIC =	-1.3667
MODIFY SEA. KEN. STATISTIC =	-.8652
VAN BELLE (HOMO) STATISTIC =	14.6761
VAN BELLE (TEND) STATISTIC =	2.0616
KENDALL COEFFICIENT =	.0923
SPEARMAN COEFFICIENT =	.0815
SEASONAL LOWER CONF. INT. =	-3.0000
SEASONAL ESTIMATED OF SLOPE =	-1.5000
SEASONAL UPPER CONF. INT. =	.6667

* SIGNIFICANT AT 5 % LEVEL

CL-DISS 17206L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.0418	1.4697	-1.8641	-.3832	-.0611	-.4386	-.7321	1.3715	.6579	.9168	.4386	1.3873
SPEARMAN STAT.	.7772	1.5364	-2.0713	-.3443	-.0775	-.3250	-.6115	1.5215	.6708	.8313	.6950	1.8854
KENDALL COEFFICIENT	.1810	.2821	-.3846	-.0769	-.0256	-.0989	-.1538	.3030	.1209	.1795	.0769	.2571
SPEARMAN COEFFICIENT	.2107	.4203	-.5132	-.0989	-.0234	-.0934	-.1813	.4336	.1901	.2431	.1967	.4634
SEN LOWER CONF. INT.	-1.0000	-.3401	-6.5624	-3.2567	-1.6058	-1.4553	-4.3502	-.5969	-1.2708	-1.6684	-1.5791	-.5000
SEN ESTIMATED OF SLOPE	.6667	.7611	-2.7750	-.7800	-.0050	-.2375	-.6950	1.1339	.8556	.8056	.2000	.8111
SEN UPPER CONF. INT.	2.3148	3.7152	.3259	1.8129	3.0048	1.2685	1.6011	3.9597	2.7499	2.0083	1.4321	2.0310

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.3141	
SEASONAL KENDALL STATISTIC =	1.0762	
MODIFY SEA. KEN. STATISTIC =	.6634	
VAN BELLE (HOMO) STATISTIC =	11.6645	
VAN BELLE (TEND) STATISTIC =	1.2062	
KENDALL COEFFICIENT =	.1034	
SPEARMAN COEFFICIENT =	.1130	
SEASONAL LOWER CONF. INT. =	-.1934	
SEASONAL ESTIMATED OF SLOPE =	.2500	
SEASONAL UPPER CONF. INT. =	.8000	

* SIGNIFICANT AT 5 % LEVEL

A-BNC 18075L (THE 2 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.2019	-1.6285	.4025	* -2.5396	* -2.2384	-.6245	* -2.5671	* -2.3973	* -2.6342	-.9776	-1.8553	* -2.9784
SPEARMAN STAT.	-.5261	-1.4404	.4693	* -2.9406	* -2.7045	-.6139	* -3.1550	-2.0960	* -2.7595	-.8199	-1.6373	* -3.6934
KENDALL COEFFICIENT	-.6727	-.5641	-.0545	-.7818	-.5604	-.2121	-.7273	-.7455	-.6484	-.4182	-.6970	-.9111
SPEARMAN COEFFICIENT	-.1727	-.3984	.1545	-.7000	-.6154	-.1906	-.7063	-.5727	-.6231	-.2636	-.4598	-.7939
SEN LOWER CONF. INT.	-.0003	-.0003	-.0003	-.0005	-.0007	-.0005	-.0006	-.0006	-.0006	-.0007	-.0005	-.0008
SEN ESTIMATED OF SLOPE	.0000	-.0001	.0000	-.0002	-.0003	-.0001	-.0003	-.0004	-.0003	-.0001	-.0002	-.0005
SEN UPPER CONF. INT.	.0000	.0000	.0005	.0000	.0000	.0003	.0000	.0000	.0000	.0001	.0000	-.0001

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	18.1093	
SEASONAL KENDALL STATISTIC =	-6.1278	*
MODIFY SEA. KEN. STATISTIC =	-3.3929	*
VAN BELLE (HOMO) STATISTIC =	11.0574	
VAN BELLE (TEND) STATISTIC =	37.5963	*
KENDALL COEFFICIENT =	-.2073	
SPEARMAN COEFFICIENT =	.0025	
SEASONAL LOWER CONF. INT. =	-.0003	
SEASONAL ESTIMATED OF SLOPE =	-.0002	
SEASONAL UPPER CONF. INT. =	-.0001	

* SIGNIFICANT AT 5 % LEVEL

24D 18500L (THE 2 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.3846	.2238	.5522	1.1333	-.0556	.0614	.3707	.4250	.8067	.1431	1.2717	.1648
SPEARMAN STAT.	.2559	.1661	.4553	1.3388	.1066	-.1596	.6838	.5789	.8631	.2440	1.8117	.2119
KENDALL COEFFICIENT	-.1282	-.2424	.0769	.0909	-.0989	-.0256	.0000	-.0606	-.2308	-.1515	.0769	-.1636
SPEARMAN COEFFICIENT	.0769	.0524	.1360	.3899	.0308	-.0481	.2019	.1801	.2418	.0769	.4794	.0705
SEN LOWER CONF. INT.	-.0015	-.0009	-.0028	-.0014	-.0076	-.0110	-.0049	-.0016	.0000	-.0015	.0000	-.0044
SEN ESTIMATED OF SLOPE	.0000	.0000	.0021	.0015	.0000	.0000	.0005	.0000	.0000	.0000	.0015	.0000
SEN UPPER CONF. INT.	.0037	.0025	.0065	.0066	.0031	.0073	.0100	.0052	.0029	.0031	.0047	.0033

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	4.9978	
SEASONAL KENDALL STATISTIC =	1.5720	
MODIFY SEA. KEN. STATISTIC =	.7426	
VAN BELLE (HOMO) STATISTIC =	1.9238	
VAN BELLE (TEND) STATISTIC =	2.5040	
KENDALL COEFFICIENT =	-.2508	
SPEARMAN COEFFICIENT =	-.1035	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0013	

* SIGNIFICANT AT 5 % LEVEL

245T 18510L (THE 2 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.5355	1.0056	1.1721	1.8202	* 2.4240	* 2.6232	1.2031	* 2.3113	* 2.0479	.4133	* 2.0528	1.2081
SPEARMAN STAT.	* 3.9754	1.7013	1.9149	* 2.6575	* 3.5355	* 4.2127	1.7125	* 3.4923	* 2.8322	1.0549	* 2.9519	1.8285
KENDALL COEFFICIENT	-.2308	-.3939	-.4103	-.0606	-.0549	-.1026	-.1795	-.2121	-.0110	-.3636	-.1538	-.3091
SPEARMAN COEFFICIENT	.7679	.4738	.5000	.6434	.7143	.7857	.4588	.7413	.6330	.3164	.6648	.5205
SEN LOWER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0046	.0000	.0000	.0069	.0050	.0058	.0048	.0053	.0049	.0009	.0048	.0041

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	21.9235	
SEASONAL KENDALL STATISTIC =	6.0576	*
MODIFY SEA. KEN. STATISTIC =	2.3087	*
VAN BELLE (HOMO) STATISTIC =	5.5987	
VAN BELLE (TEND) STATISTIC =	36.1118	*
KENDALL COEFFICIENT =	-.4845	
SPEARMAN COEFFICIENT =	.2260	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

K-DISS 19103L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	*-2.5511	-1.4182	*-2.5220	-1.2680	*-2.0926	*-2.0897	*-2.6719	-1.9383	-1.0999	*-1.9695	*-2.1931	*-2.0629
SPEARMAN STAT.	*-2.7042	-1.0409	*-3.0112	-.9599	*-2.2685	*-2.8904	*-3.3718	-2.0768	-1.2232	*-2.5433	-2.1694	-1.6199
KENDALL COEFFICIENT	-.5429	-.3590	-.5165	-.2967	-.4872	-.4505	-.6410	-.4848	-.2527	-.4615	-.4505	-.4857
SPEARMAN COEFFICIENT	-.6000	-.2995	-.6560	-.2670	-.5646	-.6407	-.7129	-.5490	-.3330	-.6085	-.5308	-.4098
SEN LOWER CONF. INT.	-.9012	-.4946	-1.0583	-.7686	-.6656	-.5046	-.8029	-.4017	-.6080	-.4471	-.5500	-.4998
SEN ESTIMATED OF SLOPE	-.5000	-.1621	-.4667	-.1700	-.3333	-.2167	-.3722	-.1955	-.2000	-.1382	-.2429	-.2600
SEN UPPER CONF. INT.	-.0124	.1000	-.1615	.0949	.0000	.0000	-.0692	.0000	.2444	.0000	-.0621	.0000

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   16.7138
SEASONAL KENDALL  STATISTIC =   -6.8800  *
MODIFY SEA. KEN.  STATISTIC =   -3.0522  *
VAN BELLE (HOMO)  STATISTIC =    2.7735
VAN BELLE (TEND)  STATISTIC =   47.5102  *
KENDALL         COEFFICIENT =    -.0196
SPEARMAN        COEFFICIENT =     .0153
SEASONAL LOWER   CONF. INT. =    -.3418
SEASONAL ESTIMATED OF SLOPE =    -.2636
SEASONAL UPPER   CONF. INT. =    -.2000
```

* SIGNIFICANT AT 5 % LEVEL

CA-DISS 20101L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.1382	.9761	-1.2111	.8212	1.2836	*2.6825	-.6101	-1.2343	-1.0965	-.7321	-.7441	-.3464
SPEARMAN STAT.	1.1339	.9476	-1.2369	.9556	1.3877	*2.9500	-.3667	-1.2072	-.8923	-.4599	-.6611	-.2842
KENDALL COEFFICIENT	.2190	.2051	-.2747	.1648	.2564	.5385	-.1282	-.2727	-.2308	-.1538	-.1619	-.0667
SPEARMAN COEFFICIENT	.3000	.2747	-.3363	.2659	.3860	.6484	-.1099	-.3566	-.2495	-.1374	-.1804	-.0786
SEN LOWER CONF. INT.	-.5273	-1.4734	-2.5549	-1.7406	-1.0367	.4475	-1.5276	-3.4512	-2.7062	-.8019	-1.1117	-1.0192
SEN ESTIMATED OF SLOPE	.7000	.7966	-.3375	.8385	1.1643	2.0750	-.4200	-.8563	-1.0000	-.2083	-.4714	-.2778
SEN UPPER CONF. INT.	3.9516	3.0920	.7707	3.2415	3.9851	3.3563	1.1576	.9328	.4593	.6532	.5813	.8061

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   17.3020
SEASONAL KENDALL  STATISTIC =     .3228
MODIFY SEA. KEN.  STATISTIC =     .1920
VAN BELLE (HOMO)  STATISTIC =   17.4690
VAN BELLE (TEND)  STATISTIC =     .0716
KENDALL         COEFFICIENT =    -.1014
SPEARMAN        COEFFICIENT =    -.1635
SEASONAL LOWER   CONF. INT. =    -.3000
SEASONAL ESTIMATED OF SLOPE =     .0500
SEASONAL UPPER   CONF. INT. =     .4864
```

* SIGNIFICANT AT 5 % LEVEL

MN-DISS 25104D (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.9462	.7298	.9839	1.6994	1.6994	* 2.1864	-1.0640	.6290	.7006	1.3703	1.1957	1.7179
SPEARMAN STAT.	2.0470	.9354	.8018	1.8700	1.9917	* 2.3735	-1.0981	.5518	.5835	1.8594	1.5698	1.8952
KENDALL COEFFICIENT	.4545	.2222	.2444	.4222	.4222	.4909	-.3889	.1667	.1636	.3333	.1636	.3818
SPEARMAN COEFFICIENT	.5636	.3333	.2727	.5515	.5758	.6205	-.3833	.2042	.1909	.5750	.4636	.5341
SEN LOWER CONF. INT.	-.0039	-.0152	-.0189	-.0125	-.0319	.0044	-.0505	-.0118	-.0129	-.0098	-.0019	-.0030
SEN ESTIMATED OF SLOPE	.0138	.0052	.0077	.0167	.0320	.0380	-.0047	.0127	.0090	.0082	.0035	.0050
SEN UPPER CONF. INT.	.0743	.0377	.0232	.0446	.1238	.0757	.0119	.1631	.0480	.0594	.0148	.0251

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	[illegible].6400	
SEASONAL KENDALL STATISTIC =	4.1901	*
MODIFY SEA. KEN. STATISTIC =	2.3951	*
VAN BELLE (HOMO) STATISTIC =	8.6262	
VAN BELLE (TEND) STATISTIC =	16.3492	*
KENDALL COEFFICIENT =	-.1579	
SPEARMAN COEFFICIENT =	-.1950	
SEASONAL LOWER CONF. INT. =	.0046	
SEASONAL ESTIMATED OF SLOPE =	.0086	
SEASONAL UPPER CONF. INT. =	.0142	

* SIGNIFICANT AT 5 % LEVEL

FE-DISS 26104D (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.1848	* -2.0052	1.6333	-.3725	* -2.6444	-1.4566	* -2.5065	-.5013	* -2.4898	* -2.1475	-1.1884	* -2.8338
SPEARMAN STAT.	-1.9065	-1.3178	1.9917	-.1115	* -2.3902	-.6415	-1.8000	.0993	* -2.7277	-1.6320	-.7521	* -2.2634
KENDALL COEFFICIENT	-.8182	-.8889	.1556	-.2444	-.9111	-.6727	-1.0000	-.5556	-.8182	-.9444	-.6364	-.9636
SPEARMAN COEFFICIENT	-.5364	-.4458	.5758	-.0394	-.6455	-.2091	-.5625	.0375	-.6727	-.5250	-.2432	-.6023
SEN LOWER CONF. INT.	-.0026	-.0064	.0000	-.0148	-.0054	-.0037	-.0048	-.0054	-.0096	-.0029	-.0035	-.0042
SEN ESTIMATED OF SLOPE	-.0012	-.0027	.0004	.0000	-.0036	.0000	-.0031	.0000	-.0047	-.0012	.0000	-.0029
SEN UPPER CONF. INT.	.0000	.0000	.0043	.0014	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.9988	
SEASONAL KENDALL STATISTIC =	-5.3911	*
MODIFY SEA. KEN. STATISTIC =	-2.5220	*
VAN BELLE (HOMO) STATISTIC =	18.6458	
VAN BELLE (TEND) STATISTIC =	30.7195	*
KENDALL COEFFICIENT =	-.4763	
SPEARMAN COEFFICIENT =	-.0546	
SEASONAL LOWER CONF. INT. =	-.0025	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

CU-TOT 29005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.4636	-.3288	.0000	* -2.3349	-.0912	-1.1851	-1.1021	.6360	-.1862	-.7490	-1.0894	.0000
SPEARMAN STAT.	-.5592	.1022	.0441	* -2.8201	.0600	-1.0102	-.9752	.6469	.0600	-.8448	-1.0000	-.0086
KENDALL COEFFICIENT	-.2444	-.6429	-.0556	-.6000	-.1111	-.3778	-.5000	.1111	-.2000	-.3333	-.3333	-.1556
SPEARMAN COEFFICIENT	-.1939	.0417	.0167	-.7061	.0212	-.3364	-.3458	.2375	.0212	-.3062	-.3333	-.0030
SEN LOWER CONF. INT.	-.0004	.0000	-.0006	-.0017	-.0004	-.0003	-.0005	-.0003	-.0002	-.0005	-.0013	-.0007
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	-.0007	.0000	-.0002	-.0002	.0001	.0000	-.0001	-.0002	.0000
SEN UPPER CONF. INT.	.0003	.0000	.0028	-.0002	.0008	.0001	.0000	.0010	.0002	.0002	.0001	.0003

************** OVER ALL RESULTS *************

```
DIETS AND KILLEN  STATISTIC =     17.2843
SEASONAL KENDALL  STATISTIC =    -2.0639  *
MODIFY SEA. KEN.  STATISTIC =    -1.1089
VAN BELLE (HOMO)  STATISTIC =     7.1506
VAN BELLE (TEND)  STATISTIC =     4.1577  *
KENDALL         COEFFICIENT =     -.2309
SPEARMAN        COEFFICIENT =     -.1169
SEASONAL LOWER   CONF. INT. =     -.0002
SEASONAL ESTIMATED OF SLOPE =      .0000
SEASONAL UPPER   CONF. INT. =      .0000
```

* SIGNIFICANT AT 5 % LEVEL

ZN-TOT 30005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.9839	.2547	1.1468	* -2.3062	-.1816	* -2.3604	-1.7920	-.7298	-1.8935	-.2097	-1.5328	.1796
SPEARMAN STAT.	-.9594	.3536	1.2721	* -3.4773	-.3982	* -3.0509	-2.1653	-1.3960	* -2.4095	-.3673	-1.5425	-.0086
KENDALL COEFFICIENT	-.2444	.0000	.3333	-.6667	-.1111	-.6444	-.5556	-.2222	-.5111	-.1111	-.4222	.0222
SPEARMAN COEFFICIENT	-.3212	.1429	.4333	-.7958	-.1394	-.7333	-.6333	-.4667	-.6485	-.1375	-.4788	-.0030
SEN LOWER CONF. INT.	-.0016	-.0010	-.0004	-.0039	-.0013	-.0014	-.0020	-.0019	-.0009	-.0008	-.0030	-.0018
SEN ESTIMATED OF SLOPE	-.0004	.0000	.0010	-.0019	.0000	-.0007	-.0007	-.0004	-.0004	-.0001	-.0005	.0001
SEN UPPER CONF. INT.	.0005	.0012	.0020	-.0004	.0007	.0000	.0000	.0010	.0000	.0008	.0002	.0005

************** OVER ALL RESULTS *************

```
DIETS AND KILLEN  STATISTIC =    17.6043
SEASONAL KENDALL  STATISTIC =    -3.1329  *
MODIFY SEA. KEN.  STATISTIC =    -1.9925  *
VAN BELLE (HOMO)  STATISTIC =    15.1015
VAN BELLE (TEND)  STATISTIC =     9.3570  *
KENDALL         COEFFICIENT =     -.1568
SPEARMAN        COEFFICIENT =     -.1639
SEASONAL LOWER   CONF. INT. =     -.0006
SEASONAL ESTIMATED OF SLOPE =     -.0003
SEASONAL UPPER   CONF. INT. =     -.0001
```

* SIGNIFICANT AT 5 % LEVEL

T.COLI 36001F (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.4422	-1.0563	-1.7293	-.0821	.0790	-.7385	1.0776	.6857	.0611	.0687	.4491	-.1109
SPEARMAN STAT.	-1.7809	-.9119	-1.9841	.1913	.0341	-.9119	1.2233	.6549	.3435	-.2719	1.0204	-.1715
KENDALL COEFFICIENT	-.3143	-.3077	-.4242	-.2000	-.0545	-.2051	.2444	.1515	.0000	.0000	.0286	-.0989
SPEARMAN COEFFICIENT	-.4429	-.2651	-.5315	.0636	.0114	-.2651	.3970	.2028	.1030	-.0857	.2723	-.0495
SEN LOWER CONF. INT.	-3.7112	-4.6082	-4.0671	-3.5082	-1.6363	-4.9616	-10.7064	-5.0530	-6.4200	-12.3700	-2.0000	-.7088
SEN ESTIMATED OF SLOPE	-1.6000	-.3485	-1.4500	.0000	.0000	-1.1806	2.7273	2.1508	.0625	.3125	.1667	.0000
SEN UPPER CONF. INT.	.4206	.7543	.2224	.7621	1.1948	4.2436	16.0403	6.4114	3.0030	4.8780	1.1156	1.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	8.1324	
SEASONAL KENDALL STATISTIC =	-.9513	
MODIFY SEA. KEN. STATISTIC =	-.8051	
VAN BELLE (HOMO) STATISTIC =	7.9738	
VAN BELLE (TEND) STATISTIC =	.6248	
KENDALL COEFFICIENT =	.0079	
SPEARMAN COEFFICIENT =	.0891	
SEASONAL LOWER CONF. INT. =	-.8000	
SEASONAL ESTIMATED OF SLOPE =	-.1250	
SEASONAL UPPER CONF. INT. =	.1611	

* SIGNIFICANT AT 5 % LEVEL

F.COLI 36011F (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.2958	.6591	1.2038	-.9103	1.4721	.9168	* 2.0272	* 2.3838	.7707	.9835	.7201	1.1189
SPEARMAN STAT.	.2980	1.1534	1.6738	.0442	1.7452	1.1097	* 2.2767	* 3.3983	.9218	1.0725	.9701	1.4001
KENDALL COEFFICIENT	-.2088	-.3030	-.2564	-.6970	.0000	.1795	.3846	.4872	.1209	.1538	-.0286	-.0330
SPEARMAN COEFFICIENT	.0857	.3427	.4505	.0140	.4657	.3173	.5659	.7157	.2571	.3077	.2598	.3747
SEN LOWER CONF. INT.	-.1830	.0000	.0000	.0000	.0000	-1.0000	.0000	.6626	-1.4807	-1.6629	-.1851	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0769	.7738	5.3571	3.2750	.2308	1.1000	.0000	.0000
SEN UPPER CONF. INT.	.4064	.4472	.3854	.0000	1.2323	2.3737	13.1751	7.0111	2.0865	4.8302	.4233	.2000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.2114	
SEASONAL KENDALL STATISTIC =	3.4785	*
MODIFY SEA. KEN. STATISTIC =	2.6909	*
VAN BELLE (HOMO) STATISTIC =	7.6374	
VAN BELLE (TEND) STATISTIC =	11.2936	*
KENDALL COEFFICIENT =	-.0335	
SPEARMAN COEFFICIENT =	.2325	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.2500	

* SIGNIFICANT AT 5 % LEVEL

HG-TOT 80011P (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.1678	-.9682	-1.0083	* -2.3181	-.3672	* 2.1213	-1.7980	.1741	-.3511	-1.1246	-1.9197	* -2.6811
SPEARMAN STAT.	-1.9179	.3333	-.4070	-2.0470	.1639	* 3.1579	-1.4800	1.2123	.5547	-.6323	-1.1795	-1.9992
KENDALL COEFFICIENT	-.7818	-.9444	-.6889	-.7818	-.4909	-.3455	-.6444	-.7778	-.7091	-.6000	-.7818	-.9636
SPEARMAN COEFFICIENT	-.5386	.1250	-.1424	-.5636	.0545	.7250	-.4636	.3939	.1818	-.2182	-.3659	-.5545
SEN LOWER CONF. INT.	-.0028	.0000	-.0013	-.0074	-.0013	.0000	-.0042	.0000	.0000	-.0035	-.0037	-.0025
SEN ESTIMATED OF SLOPE	-.0013	.0000	.0000	-.0017	.0000	.0000	-.0025	.0000	.0000	.0000	.0000	-.0013
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.2235	
SEASONAL KENDALL STATISTIC =	-4.0118	*
MODIFY SEA. KEN. STATISTIC =	-2.4079	*
VAN BELLE (HOMO) STATISTIC =	19.3638	
VAN BELLE (TEND) STATISTIC =	13.2350	*
KENDALL COEFFICIENT =	-.4870	
SPEARMAN COEFFICIENT =	.1465	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

PB-TOT 82002P (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.7775	-1.6051	* -2.0331	* -3.0422	-1.6478	-1.9359	* -2.0167	-1.1771	* -2.3047	* -2.7170	* -2.3658	* -2.7775
SPEARMAN STAT.	* -4.0705	-1.9208	* -2.7516	* -4.6537	-2.0555	* -2.6583	-2.3140	-1.7235	* -2.7490	* -3.9886	* -2.7724	* -3.7320
KENDALL COEFFICIENT	-.8222	-.5556	-.6667	-.8667	-.5111	-.6000	-.7778	-.4444	-.6889	-.8889	-.7778	-.8222
SPEARMAN COEFFICIENT	-.8212	-.5875	-.7208	-.8545	-.5879	-.6848	-.6583	-.5458	-.6970	-.8333	-.7000	-.7970
SEN LOWER CONF. INT.	-.0006	-.3179	-.0008	-.0008	-.0007	-.0007	-.0008	-.0006	-.0005	-.0007	-.0006	-.0006
SEN ESTIMATED OF SLOPE	-.0002	-.0005	-.0003	-.0004	-.0003	-.0004	-.0004	-.0003	-.0004	-.0004	-.0003	-.0002
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0000	-.0001	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.2105	
SEASONAL KENDALL STATISTIC =	-7.7696	*
MODIFY SEA. KEN. STATISTIC =	-2.8920	*
VAN BELLE (HOMO) STATISTIC =	3.2419	
VAN BELLE (TEND) STATISTIC =	60.4891	*
KENDALL COEFFICIENT =	-.2650	
SPEARMAN COEFFICIENT =	-.0728	
SEASONAL LOWER CONF. INT. =	-.0005	
SEASONAL ESTIMATED OF SLOPE =	-.0004	
SEASONAL UPPER CONF. INT. =	-.0002	

* SIGNIFICANT AT 5 % LEVEL

Q-DM(M3/S)------ (THE 4 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.1371	-.7006	.5486	-.5486	-.8229	-1.3715	-1.0972	-.4114	-.5486	-.8229	-.1220	-.9761
SPEARMAN STAT.	-.2217	-.6707	.8717	-.7022	-.8717	-1.4323	-1.0743	-.4924	-.7022	-.7261	-.5353	-.7472
KENDALL COEFFICIENT	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051
SPEARMAN COEFFICIENT	-.0699	-.2182	.2657	-.2168	-.2657	-.4126	-.3217	-.1538	-.2168	-.2238	-.1593	-.2198
SEN LOWER CONF. INT.	-.7201	-.6051	-.6483	-11.8490	-6.6422	-4.6081	-1.4498	-1.1110	-.4497	-.8786	-.6332	-.5402
SEN ESTIMATED OF SLOPE	-.0156	-.1580	.0801	-.8587	-.9893	-.4383	-.1683	-.0467	-.0306	-.2419	-.0268	-.1506
SEN UPPER CONF. INT.	.3452	.2431	.7682	2.6059	.7410	.0731	.2300	.3397	.4583	.2614	.5788	.2517

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	13.6966	
SEASONAL KENDALL STATISTIC =	-2.0137	*
MODIFY SEA. KEN. STATISTIC =	-.8666	
VAN BELLE (HOMO) STATISTIC =	2.8930	
VAN BELLE (TEND) STATISTIC =	4.0954	*
KENDALL COEFFICIENT =	.0167	
SPEARMAN COEFFICIENT =	.0348	
SEASONAL LOWER CONF. INT. =	-.3010	
SEASONAL ESTIMATED OF SLOPE =	-.1410	
SEASONAL UPPER CONF. INT. =	-.0081	

* SIGNIFICANT AT 5 % LEVEL

Table A1.7

TDS* 00201L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.0000	.2440	-.2737	* 2.4312	* -2.2985	* -2.9775	-1.6208	-.8121	-1.6241	* -3.2482	-1.5308	-1.0805
SPEARMAN STAT.	-.0991	.0729	-.3907	* 2.3895	* -3.0248	* -3.6676	-1.7791	-.6882	-1.5974	* -4.0771	-1.5344	-1.0888
KENDALL COEFFICIENT	.0000	.0513	-.0549	.4500	-.4333	-.5667	-.3000	-.1667	-.3167	-.6167	-.2833	-.2000
SPEARMAN COEFFICIENT	-.0265	.0220	-.1121	.5382	-.6287	-.7000	-.4294	-.1809	-.3926	-.7368	-.3794	-.2794
SEN LOWER CONF. INT.	-15.8056	-13.0172	-16.2083	1.4307	-10.5695	-13.0803	-9.3650	-10.0686	-8.3614	-10.8992	-13.7848	-19.8834
SEN ESTIMATED OF SLOPE	-.3333	2.0667	-3.0000	6.6429	-3.1667	-8.2500	-5.3125	-3.1111	-4.7619	-7.2222	-6.1333	-5.4692
SEN UPPER CONF. INT.	11.2556	13.0271	19.2276	12.1334	-.4255	-3.5481	1.0760	3.2891	1.6057	-3.9661	2.4709	6.2945

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.4402	
SEASONAL KENDALL STATISTIC =	-3.8202	*
MODIFY SEA. KEN. STATISTIC =	-2.0401	*
VAN BELLE (HOMO) STATISTIC =	26.5458	*
VAN BELLE (TEND) STATISTIC =	13.6341	*
KENDALL COEFFICIENT =	-.1804	
SPEARMAN COEFFICIENT =	-.2829	
SEASONAL LOWER CONF. INT. =	-5.7500	
SEASONAL ESTIMATED OF SLOPE =	-4.2500	
SEASONAL UPPER CONF. INT. =	-2.0000	

* SIGNIFICANT AT 5 % LEVEL

COND (F) 02041F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.7204	.6579	-.5946	* 2.4788	-.7662	* -2.9197	* -2.2083	-.7423	-1.0366	-1.7109	-1.3534	-.9005
SPEARMAN STAT.	.5563	.5670	-.5971	* 2.8224	-.7784	* -3.4645	* -2.4973	-.6679	-.9934	-1.8394	-1.3382	-1.0394
KENDALL COEFFICIENT	.1333	.1209	-.1238	.4500	-.1500	-.5619	-.4167	-.1429	-.2000	-.3167	-.2667	-.1667
SPEARMAN COEFFICIENT	.1471	.1615	-.1634	.6022	-.2037	-.6929	-.5551	-.1821	-.2566	-.4412	-.3368	-.2676
SEN LOWER CONF. INT.	-8.4	-12.6	-20.0	3.7	-15.0	-26.9	-18.6	-29.1	-19.1	-13.6	-18.3	-46.7
SEN ESTIMATED OF SLOPE	5.2	3.2	-5.4	11.8	-2.7	-14.3	-10.4	-5.1	-6.8	-5.9	-5.6	-12.6
SEN UPPER CONF. INT.	16.7	19.7	18.1	21.7	3.6	-5.7	-1.3	5.4	2.6	1.4	4.5	10.6

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.5972	
SEASONAL KENDALL STATISTIC =	-2.4277	*
MODIFY SEA. KEN. STATISTIC =	-1.3372	
VAN BELLE (HOMO) STATISTIC =	22.7877	*
VAN BELLE (TEND) STATISTIC =	5.8456	*
KENDALL COEFFICIENT =	-.1857	
SPEARMAN COEFFICIENT =	-.3008	
SEASONAL LOWER CONF. INT. =	-7.7	
SEASONAL ESTIMATED OF SLOPE =	-4.8	
SEASONAL UPPER CONF. INT. =	-.9	

* SIGNIFICANT AT 5 % LEVEL

TEMP(F) 02061F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.8357	-.6923	-1.6787	.8663	.4056	-.9060	-1.6965	.8639	.1355	1.4466	-.5207	-.5382
SPEARMAN STAT.	.1211	.1562	-1.1937	.8819	.5591	-.7288	-1.8053	.9449	.4068	1.5067	-.3844	.3565
KENDALL COEFFICIENT	-.6667	-.6044	-.5810	.0833	.0667	-.2167	-.4000	.1000	.0000	.2333	-.3167	-.6333
SPEARMAN COEFFICIENT	.0324	.0451	-.3143	.2294	.1478	-.1912	-.4346	.2449	.1081	.3735	-.1022	.0949
SEN LOWER CONF. INT.	.0000	.0000	-.1000	-.2928	-.6560	-.6667	-.4000	-.2276	-.5000	-.1371	-.0459	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	-.0083	.1121	.0607	-.1652	-.1270	.1432	.0136	.2679	.0000	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	.6174	.5859	.2963	.0000	.5276	.3800	.5000	.0220	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	10.9033
SEASONAL KENDALL STATISTIC =	-.7102
MODIFY SEA. KEN. STATISTIC =	-.4750
VAN BELLE (HOMO) STATISTIC =	11.2009
VAN BELLE (TEND) STATISTIC =	.8269
KENDALL COEFFICIENT =	-.0145
SPEARMAN COEFFICIENT =	.1354
SEASONAL LOWER CONF. INT. =	.0000
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

TURB(F) 02073F (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.1043	.8660	.7298	-.9383	.1043	-.5213	.7184	.8660	.9839	-.3592	.2097	.2494
SPEARMAN STAT.	.2659	1.2425	1.0427	-.9885	.5872	.1768	1.1793	.9366	1.3021	-.0600	.1435	.6486
KENDALL COEFFICIENT	-.0556	.2857	.2222	-.2778	.0556	-.1667	.1556	.2857	.2444	-.1111	.0556	.0714
SPEARMAN COEFFICIENT	.1000	.4524	.3667	-.3500	.2167	.0667	.3848	.3571	.4182	-.0212	.0542	.2560
SEN LOWER CONF. INT.	-.3133	-.5770	-.7800	-10.0000	-1.9766	-4.5299	-1.1890	-.6461	-.3891	-.4748	-.3000	-.1000
SEN ESTIMATED OF SLOPE	-.0750	.1873	.3267	-5.8056	.0556	-.8667	.2000	.1650	.2714	-.0400	.0133	.1017
SEN UPPER CONF. INT.	.2827	.6831	2.0799	3.5000	1.8678	.5133	.7609	.6921	.8460	.3334	.4093	.6860

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	20.8575
SEASONAL KENDALL STATISTIC =	.8370
MODIFY SEA. KEN. STATISTIC =	.4676
VAN BELLE (HOMO) STATISTIC =	5.2309
VAN BELLE (TEND) STATISTIC =	.8411
KENDALL COEFFICIENT =	-.1509
SPEARMAN COEFFICIENT =	-.1842
SEASONAL LOWER CONF. INT. =	-.0821
SEASONAL ESTIMATED OF SLOPE =	.0556
SEASONAL UPPER CONF. INT. =	.1879

* SIGNIFICANT AT 5 % LEVEL

B-DISS 05105D

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.7348	.0000	.0783	-.5008	.2998	.6835	1.5036	-1.5086	.5072	.6121	.0000	-1.1776
SPEARMAN STAT.	-.6984	.0533	.0273	-.4530	.3232	.7032	1.3481	-1.3527	.2939	.4765	-.0182	-1.2850
KENDALL COEFFICIENT	-.1795	-.0549	-.0182	-.1868	-.0095	.0513	.2000	-.4066	-.0286	.0330	-.1026	-.3333
SPEARMAN COEFFICIENT	-.2060	.0154	.0091	-.1297	.0893	.2074	.3390	-.3637	.0813	.1363	-.0055	-.3613
SEN LOWER CONF. INT.	-.0100	-.0069	-.0150	-.0056	-.0034	-.0040	-.0001	-.0040	-.0020	-.0021	-.0045	-.0074
SEN ESTIMATED OF SLOPE	-.0010	.0000	.0000	-.0009	.0000	.0009	.0031	-.0020	.0000	.0017	.0000	-.0025
SEN UPPER CONF. INT.	.0029	.0064	.0200	.0058	.0042	.0071	.0082	.0000	.0033	.0048	.0067	.0009

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.4914	
SEASONAL KENDALL STATISTIC =	.0814	
MODIFY SEA. KEN. STATISTIC =	.0402	
VAN BELLE (HOMO) STATISTIC =	7.9045	
VAN BELLE (TEND) STATISTIC =	.0047	
KENDALL COEFFICIENT =	-.2069	
SPEARMAN COEFFICIENT =	-.2086	
SEASONAL LOWER CONF. INT. =	-.0008	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0011	

* SIGNIFICANT AT 5 % LEVEL

NO3+NO2 07106L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.2632	-.3300	-1.8355	-1.3507	* -2.5070	* -2.6088	-.6018	-.9550	-.9762	-.7593	-.9949	* -2.1182
SPEARMAN STAT.	-1.1013	-.3096	* -2.1929	-1.6330	-1.0764	-1.7568	.5819	.0385	1.2021	1.3054	-.1404	* -2.3576
KENDALL COEFFICIENT	-.2500	-.0989	-.3714	-.2500	-.9000	-.8000	-.7333	-.6833	-.9500	-.9333	-.6167	-.4000
SPEARMAN COEFFICIENT	-.2824	-.0890	-.5196	-.4000	-.2765	-.4250	.1537	.0103	.3059	.3294	-.0375	-.5331
SEN LOWER CONF. INT.	-.0159	-.0394	-.0400	-.1405	-.0013	-.0050	.0000	.0000	.0000	.0000	.0000	-.0126
SEN ESTIMATED OF SLOPE	-.0065	-.0014	-.0200	-.0320	.0000	-.0012	.0000	.0000	.0000	.0000	.0000	-.0060
SEN UPPER CONF. INT.	.0064	.0210	.0012	.0341	.0000	.0000	.0000	.0000	.0000	.0000	.0000	-.0009

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.6841	
SEASONAL KENDALL STATISTIC =	-4.8103	*
MODIFY SEA. KEN. STATISTIC =	-2.8848	*
VAN BELLE (HOMO) STATISTIC =	6.1269	
VAN BELLE (TEND) STATISTIC =	22.1422	*
KENDALL COEFFICIENT =	-.5613	
SPEARMAN COEFFICIENT =	-.4763	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

TN* 07602L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -3.2416	* -2.5730	* -2.5238	-1.0392	* -2.8047	* -3.2900	-1.3168	-1.9419	* -3.5604	* -3.6680	* -3.6505	* -3.6018
SPEARMAN STAT.	* -4.5240	* -3.5804	* -3.0260	-.9594	* -2.8881	* -4.5561	-1.5309	-2.0644	* -5.3871	* -6.2323	* -7.3209	* -6.3560
KENDALL COEFFICIENT	-.6000	-.5165	-.4857	-.2000	-.5500	-.6167	-.3000	-.3833	-.6667	-.7167	-.6833	-.6667
SPEARMAN COEFFICIENT	-.7706	-.7187	-.6429	-.2571	-.6110	-.7728	-.3787	-.4831	-.8213	-.8574	-.8904	-.8618
SEN LOWER CONF. INT.	-.0762	-.1042	-.0876	-.2754	-.0586	-.0990	-.0392	-.0250	-.0300	-.0316	-.0353	-.0922
SEN ESTIMATED OF SLOPE	-.0400	-.0533	-.0400	-.0911	-.0395	-.0500	-.0105	-.0119	-.0183	-.0212	-.0241	-.0492
SEN UPPER CONF. INT.	-.0231	-.0171	-.0204	.0720	-.0108	-.0244	.0054	.0000	-.0089	-.0136	-.0159	-.0242

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.8335	
SEASONAL KENDALL STATISTIC =	-9.6376	*
MODIFY SEA. KEN. STATISTIC =	-4.1511	*
VAN BELLE (HOMO) STATISTIC =	9.2847	
VAN BELLE (TEND) STATISTIC =	91.9184	*
KENDALL COEFFICIENT =	-.4698	
SPEARMAN COEFFICIENT =	-.6475	
SEASONAL LOWER CONF. INT. =	-.0340	
SEASONAL ESTIMATED OF SLOPE =	-.0291	
SEASONAL UPPER CONF. INT. =	-.0240	

* SIGNIFICANT AT 5 % LEVEL

DO 08101F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.7662	-.2193	-.0495	-.9910	-.7466	.2489	-.5871	-.6449	-.0452	-.7253	-1.8528	.7238
SPEARMAN STAT.	-.5762	-.1792	-.0258	-.8710	-.7875	.2939	-.5819	-.6476	-.1735	-.7317	-2.0767	.7901
KENDALL COEFFICIENT	-.1500	-.0549	-.0095	-.2000	-.1810	.0095	-.1333	-.1429	-.0333	-.1833	-.3667	.1000
SPEARMAN COEFFICIENT	-.1522	-.0516	-.0071	-.2348	-.2134	.0812	-.1537	-.1768	-.0463	-.1919	-.4853	.2066
SEN LOWER CONF. INT.	-.6435	-.4781	-.4415	-.2000	-.2000	-.0678	-.2500	-.2525	-.1500	-.1352	-.2749	-.0500
SEN ESTIMATED OF SLOPE	-.1056	-.0556	-.0125	-.0500	-.0500	.0111	-.0417	-.0273	.0000	-.0571	-.1000	.0600
SEN UPPER CONF. INT.	.3115	.6344	.3923	.0942	.0919	.1385	.1596	.1000	.1940	.0624	.0076	.2723

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.0705
SEASONAL KENDALL STATISTIC =	-1.6483
MODIFY SEA. KEN. STATISTIC =	-.9821
VAN BELLE (HOMO) STATISTIC =	4.8193
VAN BELLE (TEND) STATISTIC =	2.6650
KENDALL COEFFICIENT =	.1804
SPEARMAN COEFFICIENT =	.2931
SEASONAL LOWER CONF. INT. =	-.0750
SEASONAL ESTIMATED OF SLOPE =	-.0333
SEASONAL UPPER CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

ALK-TOT 10101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.4056	.5501	.3832	* 2.4312	.6316	-1.6274	-.8586	-.4502	-.8143	* -2.2083	-.8121	-.2253
SPEARMAN STAT.	.4292	.2513	.2366	* 2.9842	.6191	-1.9087	-.8819	-.1873	-.6277	* -2.6549	-.7579	-.1680
KENDALL COEFFICIENT	.0667	.1026	.0769	.4500	.1000	-.3333	-.1833	-.0833	-.1833	-.4167	-.1667	-.0500
SPEARMAN COEFFICIENT	.1140	.0755	.0681	.6235	.1632	-.4544	-.2294	-.0500	-.1654	-.5787	-.1985	-.0449
SEN LOWER CONF. INT.	-7.1206	-12.2415	-7.8637	1.0117	-2.0903	-3.6131	-3.4607	-2.8157	-3.6346	-5.3617	-4.8416	-11.2483
SEN ESTIMATED OF SLOPE	1.2833	1.6250	3.4000	3.4778	1.1409	-1.0500	-.9045	-1.0000	-1.0714	-3.0714	-1.4583	-1.5500
SEN UPPER CONF. INT.	9.2483	12.5722	19.2006	6.3986	3.2409	.6889	1.3677	2.7630	1.5493	-.4468	6.3614	7.6195

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	13.2974	
SEASONAL KENDALL STATISTIC =	-.8348	
MODIFY SEA. KEN. STATISTIC =	-.5126	
VAN BELLE (HOMO) STATISTIC =	16.2012	
VAN BELLE (TEND) STATISTIC =	.5610	
KENDALL COEFFICIENT =	-.0442	
SPEARMAN COEFFICIENT =	-.1427	
SEASONAL LOWER CONF. INT. =	-1.4444	
SEASONAL ESTIMATED OF SLOPE =	-.3846	
SEASONAL UPPER CONF. INT. =	.7578	

* SIGNIFICANT AT 5 % LEVEL

PH(F) 10301F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.7049	1.6148	1.2020	1.4566	-1.7770	* -2.2822	-1.5468	-1.9184	-1.1495	-1.9597	-.1369	.1365
SPEARMAN STAT.	1.5413	1.8685	1.2658	1.7866	-1.9518	* -2.2858	-1.5197	-1.9439	-1.0609	-1.9048	-.1101	.1129
KENDALL COEFFICIENT	.1833	.0989	.1619	.2000	-.4000	-.5000	-.3524	-.4500	-.3333	-.5167	-.1167	-.0500
SPEARMAN COEFFICIENT	.3809	.4747	.3313	.4309	-.4625	-.5213	-.3884	-.4610	-.2728	-.4537	-.0294	.0301
SEN LOWER CONF. INT.	.0000	.0000	-.0254	-.0102	-.0625	-.0612	-.0673	-.0500	-.0383	-.0500	-.0380	-.0356
SEN ESTIMATED OF SLOPE	.0167	.0143	.0250	.0303	-.0317	-.0345	-.0333	-.0200	-.0125	-.0183	.0000	.0000
SEN UPPER CONF. INT.	.0444	.0805	.0805	.0711	.0000	.0000	.0131	.0000	.0216	.0000	.0333	.0383

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	13.0883	
SEASONAL KENDALL STATISTIC =	-1.4709	
MODIFY SEA. KEN. STATISTIC =	-.9590	
VAN BELLE (HOMO) STATISTIC =	26.9120	*
VAN BELLE (TEND) STATISTIC =	1.8063	
KENDALL COEFFICIENT =	.2099	
SPEARMAN COEFFICIENT =	.4346	
SEASONAL LOWER CONF. INT. =	-.0154	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

NFR 10401L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.2184	-.1104	-.8970	* -2.6228	-.9934	-1.2443	-.7491	-.4536	-.0510	-.2097	-.2526	-1.5513
SPEARMAN STAT.	-.8187	-.2826	-.7497	* -3.3636	-1.1154	-1.2658	-.8745	-.2648	.0000	.1805	.2122	-1.3589
KENDALL COEFFICIENT	-.3524	-.0769	-.2190	-.5048	-.2190	-.2762	-.2000	-.1333	-.1619	-.2381	-.4000	-.4857
SPEARMAN COEFFICIENT	-.2214	-.0813	-.2036	-.6821	-.2955	-.3313	-.2357	-.0706	.0000	.0500	.0566	-.3527
SEN LOWER CONF. INT.	-.2857	-1.1243	-1.6222	-14.1010	-1.3333	-1.8920	-.8124	-.7661	-.1619	-.5000	-.1166	-.3863
SEN ESTIMATED OF SLOPE	-.1250	.0000	-.3000	-6.8000	-.5000	-.3000	-.1250	-.0871	.0000	.0000	.0000	-.0857
SEN UPPER CONF. INT.	.0164	.4712	.5761	-1.8020	.5864	.2042	.2433	.2000	.1381	.1332	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 14.9500
SEASONAL KENDALL STATISTIC = -3.0076 *
MODIFY SEA. KEN. STATISTIC = -1.8036
VAN BELLE (HOMO) STATISTIC = 6.0662
VAN BELLE (TEND) STATISTIC = 8.9332 *
KENDALL COEFFICIENT = -.3105
SPEARMAN COEFFICIENT = -.3101
SEASONAL LOWER CONF. INT. = -.2000
SEASONAL ESTIMATED OF SLOPE = -.0955
SEASONAL UPPER CONF. INT. = .0000

* SIGNIFICANT AT 5 % LEVEL

MA-DISS 11103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.4958	.3290	-.0549	* 2.4362	-1.0879	-1.7661	-1.3507	-.0451	-.9464	* -2.7492	-1.5774	-1.0827
SPEARMAN STAT.	-.6162	.2021	-.1371	* 2.5898	-1.0363	-1.8854	-1.4519	-.0358	-.8137	* -3.1446	-1.7605	-1.0702
KENDALL COEFFICIENT	-.1000	.0549	-.0330	.4333	-.2500	-.3667	-.2500	-.0167	-.1833	-.5167	-.3000	-.2167
SPEARMAN COEFFICIENT	-.1625	.0582	-.0396	.5691	-.2669	-.4500	-.3618	-.0096	-.2125	-.6434	-.4257	-.2750
SEN LOWER CONF. INT.	-.8433	-.5566	-.6464	.0586	-.4748	-.9000	-.6000	-.4312	-.6388	-.6943	-.9303	-1.0000
SEN ESTIMATED OF SLOPE	-.1375	.0400	.0000	.2577	-.0500	-.3267	-.2837	-.0083	-.1317	-.3000	-.3786	-.2267
SEN UPPER CONF. INT.	.4847	.9093	2.1347	.5361	.0993	.0183	.1706	.4875	.3430	-.1064	.1083	.2846

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 17.0326
SEASONAL KENDALL STATISTIC = -2.5042 *
MODIFY SEA. KEN. STATISTIC = -1.3904
VAN BELLE (HOMO) STATISTIC = 18.6675
VAN BELLE (TEND) STATISTIC = 5.8674 *
KENDALL COEFFICIENT = -.2040
SPEARMAN COEFFICIENT = -.3094
SEASONAL LOWER CONF. INT. = -.2422
SEASONAL ESTIMATED OF SLOPE = -.1414
SEASONAL UPPER CONF. INT. = -.0269

* SIGNIFICANT AT 5 % LEVEL

MG-DISS 12102L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.1801	.0547	-.2737	* 2.7971	-1.4436	* -2.8814	* -2.4788	-.1801	* -1.9810	* -2.6590	* -2.0752	-1.5308
SPEARMAN STAT.	-.2759	-.0381	-.3443	* 2.9613	-1.4792	* -3.6078	* -2.8009	-.1984	-2.0603	* -3.0015	-1.9558	-1.7642
KENDALL COEFFICIENT	-.0333	.0110	-.0549	.5000	-.2833	-.5333	-.4667	-.0333	-.3667	-.5000	-.4000	-.2833
SPEARMAN COEFFICIENT	-.0735	-.0110	-.0989	.6206	-.3676	-.6941	-.5993	-.0529	-.4824	-.6257	-.4632	-.4265
SEN LOWER CONF. INT.	-1.4405	-1.0634	-1.3372	.1345	-.8786	-1.2283	-.9661	-.8824	-.9902	-1.0149	-1.2545	-2.0050
SEN ESTIMATED OF SLOPE	-.0963	.1400	-.1385	.4809	-.2394	-.8889	-.6063	-.0817	-.3768	-.6639	-.6618	-.7117
SEN UPPER CONF. INT.	.8133	1.0760	.9792	.9532	.1977	-.3823	-.1135	.4570	.0492	-.1833	-.0069	.2088

************** OVER ALL RESULTS *************

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DIETZ AND KILLEN  STATISTIC =   18.1669
SEASONAL KENDALL  STATISTIC =   -3.7976  *
MODIFY SEA. KEN.  STATISTIC =   -2.1972  *
VAN BELLE (HOMO)  STATISTIC =   28.4205  *
VAN BELLE (TEND)  STATISTIC =   13.7216  *
KENDALL         COEFFICIENT =    -.1802
SPEARMAN        COEFFICIENT =    -.2833
SEASONAL LOWER    CONF. INT. =   -.5725
SEASONAL ESTIMATED OF SLOPE =    -.3690
SEASONAL UPPER    CONF. INT. =   -.1750
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* SIGNIFICANT AT 5 % LEVEL

P-TOT-DISS15103D (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.1043	-1.3523	* -2.4709	-.6022	* -2.0317	-.4924	-.2062	-.2200	.2782	.0620	-1.6000	* -2.4885
SPEARMAN STAT.	-1.3763	-1.5486	* -2.8159	-.4374	-1.9709	-.5400	-.4524	-.0876	.3366	.0137	-1.7587	* -2.6355
KENDALL COEFFICIENT	-.2747	-.3333	-.5165	-.1209	-.4286	-.1538	-.0606	-.0769	-.0330	-.0769	-.3714	-.5604
SPEARMAN COEFFICIENT	-.3692	-.4231	-.6308	-.1253	-.4945	-.1607	-.1416	-.0253	.0967	.0041	-.4384	-.6055
SEN LOWER CONF. INT.	-.0022	-.0032	-.0032	-.0077	-.0026	-.0033	-.0016	-.0007	-.0004	-.0004	-.0010	-.0010
SEN ESTIMATED OF SLOPE	-.0005	-.0015	-.0015	-.0016	-.0010	-.0002	-.0002	-.0001	.0000	.0000	-.0004	-.0007
SEN UPPER CONF. INT.	.0004	.0003	-.0006	.0034	.0000	.0010	.0020	.0012	.0006	.0003	.0001	-.0002

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   15.2362
SEASONAL KENDALL  STATISTIC =   -3.6301  *
MODIFY SEA. KEN.  STATISTIC =   -2.3412  *
VAN BELLE (HOMO)  STATISTIC =   10.3504
VAN BELLE (TEND)  STATISTIC =   12.4609  *
KENDALL         COEFFICIENT =    -.3035
SPEARMAN        COEFFICIENT =    -.3580
SEASONAL LOWER    CONF. INT. =   -.0007
SEASONAL ESTIMATED OF SLOPE =    -.0005
SEASONAL UPPER    CONF. INT. =   -.0002
```

* SIGNIFICANT AT 5 % LEVEL

P-TOT 15406L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.1182	-1.2629	* -2.3842	* -2.0281	-1.4436	.0000	-.5499	.9023	-.6372	-.3493	-1.2337	* -1.9945
SPEARMAN STAT.	* -2.3941	-1.4241	* -2.6854	* -2.5165	-1.3448	.0936	-.6068	.9238	-.7404	-.4642	-1.0455	* -2.3667
KENDALL COEFFICIENT	-.4000	-.2747	-.4857	-.3833	-.2833	-.0167	-.1429	.1500	-.1833	-.1238	-.3167	-.4167
SPEARMAN COEFFICIENT	-.5390	-.3802	-.5973	-.5581	-.3382	.0250	-.1725	.2397	-.1941	-.1277	-.2691	-.5346
SEN LOWER CONF. INT.	-.0040	-.0029	-.0043	-.0260	-.0030	-.0013	-.0077	-.0007	-.0006	-.0007	-.0008	-.0013
SEN ESTIMATED OF SLOPE	-.0016	-.0015	-.0024	-.0139	-.0014	.0000	-.0004	.0005	-.0001	-.0001	-.0003	-.0006
SEN UPPER CONF. INT.	-.0002	.0005	-.0006	-.0001	.0004	.0014	.0015	.0016	.0007	.0003	.0001	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	16.[illegible]034	
SEASONAL KENDALL STATISTIC =	-3.7778	,*
MODIFY SEA. KEN. STATISTIC =	-2.2364	*
VAN BELLE (HOMO) STATISTIC =	10.8084	
VAN BELLE (TEND) STATISTIC =	14.2994	*
KENDALL COEFFICIENT =	-.3989	
SPEARMAN COEFFICIENT =	-.5075	
SEASONAL LOWER CONF. INT. =	-.0009	
SEASONAL ESTIMATED OF SLOPE =	-.0005	
SEASONAL UPPER CONF. INT. =	-.0003	

* SIGNIFICANT AT 5 % LEVEL

SO4-DISS 16304L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.7677	-.7117	-.6022	* 2.1283	* -3.0678	* -3.2900	-1.7109	-1.1267	-1.2606	* -3.1516	* -2.6590	-1.5774
SPEARMAN STAT.	-.8492	-.9218	-.6427	* 2.1518	* -4.2049	* -3.8476	-1.8091	-1.0919	-1.3846	* -4.6104	* -3.0840	-1.7903
KENDALL COEFFICIENT	-.1667	-.1429	-.1209	.3500	-.5833	-.6167	-.3167	-.2167	-.2333	-.5833	-.5000	-.3000
SPEARMAN COEFFICIENT	-.2213	-.2571	-.1824	.4985	-.7471	-.7169	-.4353	-.2801	-.3471	-.7765	-.6360	-.4316
SEN LOWER CONF. INT.	-5.1853	-5.0963	-5.8126	.0000	-5.9979	-6.2731	-5.4833	-4.6515	-3.7486	-4.3845	-5.6497	-7.2483
SEN ESTIMATED OF SLOPE	-1.2200	-1.2667	-1.5125	2.4651	-2.7500	-3.3083	-2.7983	-1.5042	-1.8458	-2.6563	-2.9167	-2.5929
SEN UPPER CONF. INT.	2.6424	2.4519	3.0277	5.0458	-1.3398	-2.0518	.7561	1.4532	1.1534	-1.2191	-.6950	.6861

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	18.6359	
SEASONAL KENDALL STATISTIC =	-5.2181	*
MODIFY SEA. KEN. STATISTIC =	-2.3767	*
VAN BELLE (HOMO) STATISTIC =	25.1050	*
VAN BELLE (TEND) STATISTIC =	26.3950	*
KENDALL COEFFICIENT =	-.3107	
SPEARMAN COEFFICIENT =	-.4448	
SEASONAL LOWER CONF. INT. =	-2.7849	
SEASONAL ESTIMATED OF SLOPE =	-2.2361	
SEASONAL UPPER CONF. INT. =	-1.5063	

* SIGNIFICANT AT 5 % LEVEL

CL-DISS 17206L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.4067	-.3290	1.5876	.1355	-1.0415	-1.8948	-.0904	.4511	.4968	-1.8516	-1.9000	-1.4436
SPEARMAN STAT.	-.3426	-.3636	1.4823	.2011	-1.2534	-2.0850	-.0715	.3649	.3398	-1.9915	-2.0399	-1.5974
KENDALL COEFFICIENT	-.1000	-.0769	.3187	.0000	-.2333	-.3667	-.0500	.0667	.0667	-.3667	-.3833	-.2833
SPEARMAN COEFFICIENT	-.0912	-.1044	.3934	.0537	-.3176	-.4868	-.0191	.0971	.0904	-.4699	-.4787	-.3926
SEN LOWER CONF. INT.	-.4139	-.4281	-.0616	-.1000	-.1600	-.3345	-.1482	-.1167	-.1529	-.2000	-.3000	-.3168
SEN ESTIMATED OF SLOPE	-.0388	-.1000	.2091	.0083	-.0571	-.1611	.0000	.0292	.0417	-.0708	-.1250	-.0800
SEN UPPER CONF. INT.	.1592	.3911	.8000	.1363	.0522	.0090	.1408	.1600	.1957	.0140	.0000	.0908

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	14.7275	
SEASONAL KENDALL STATISTIC =	-1.9300	
MODIFY SEA. KEN. STATISTIC =	-1.1863	
VAN BELLE (HOMO) STATISTIC =	13.7747	
VAN BELLE (TEND) STATISTIC =	3.2934	
KENDALL COEFFICIENT =	-.2934	
SPEARMAN COEFFICIENT =	-.4102	
SEASONAL LOWER CONF. INT. =	-.0833	
SEASONAL ESTIMATED OF SLOPE =	-.0400	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

A-BHC 18075L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.5038	-1.2768	-.3725	* -2.1043	* -2.4649	-1.7685	* -2.8900	-1.6766	* -2.6360	* -3.0039	* -2.4620	* -2.1848
SPEARMAN STAT.	-.0111	.2375	-.2322	-2.2235	* -2.7136	-1.4926	* -3.2340	-1.2348	* -2.8935	* -4.2320	* -2.7844	-.9970
KENDALL COEFFICIENT	-.9091	-.8718	-.2444	-.6364	-.6667	-.6727	-.7802	-.6154	-.6762	-.7436	-.7879	-.9091
SPEARMAN COEFFICIENT	-.0035	.0714	-.0818	-.5955	-.6332	-.4455	-.6824	-.3489	-.6259	-.7871	-.6608	-.3007
SEN LOWER CONF. INT.	.0000	.0000	-.0004	-.0006	-.0005	-.0003	-.0003	-.0004	-.0004	-.0005	-.0003	-.0002
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	-.0004	-.0003	-.0001	-.0002	-.0002	-.0002	-.0003	-.0002	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0007	.0000	.0000	.0000	.0000	.0000	.0000	-.0001	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.6758	
SEASONAL KENDALL STATISTIC =	-7.2542	*
MODIFY SEA. KEN. STATISTIC =	-3.6680	*
VAN BELLE (HOMO) STATISTIC =	6.2453	
VAN BELLE (TEND) STATISTIC =	49.3863	*
KENDALL COEFFICIENT =	-.2723	
SPEARMAN COEFFICIENT =	.0965	
SEASONAL LOWER CONF. INT. =	-.0002	
SEASONAL ESTIMATED OF SLOPE =	-.0001	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

24D 18500L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.5690	.2263	1.1721	.6397	1.2579	1.4326	1.2579	* 2.2929	1.7441	1.4335	1.8999	1.1873
SPEARMAN STAT.	* 3.9744	.9837	1.9149	.6829	1.8078	1.8797	1.5652	* 3.0331	* 2.6055	* 2.2821	* 2.2780	1.5768
KENDALL COEFFICIENT	-.2747	-.4359	-.4103	-.1209	-.1048	-.0330	-.1048	-.1238	-.2952	-.4476	-.1429	-.3407
SPEARMAN COEFFICIENT	.7538	.2843	.5000	.1934	.4482	.4769	.3982	.6438	.5857	.5348	.5495	.4143
SEN LOWER CONF. INT.	.0000	.0000	.0000	-.0009	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0017	.0000	.0000	.0024	.0022	.0037	.0024	.0026	.0012	.0000	.0021	.0000

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   23.2477
SEASONAL KENDALL  STATISTIC =    4.8860  *
MODIFY SEA. KEN.  STATISTIC =    1.9011
VAN BELLE (HOMO)  STATISTIC =    4.6192
VAN BELLE (TEND)  STATISTIC =   24.4049  *
KENDALL          COEFFICIENT =   -.4646
SPEARMAN         COEFFICIENT =    .1523
SEASONAL LOWER    CONF. INT. =    .0000
SEASONAL ESTIMATED OF SLOPE =     .0000
SEASONAL UPPER    CONF. INT. =    .0000
```

* SIGNIFICANT AT 5 % LEVEL

245T 18510L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.5690	.6790	* 2.1712	* 2.1619	1.9308	* 2.6870	* 2.1316	* 2.2929	* 2.1316	* 2.2079	* 2.5690	1.7461
SPEARMAN STAT.	* 3.9744	1.3075	* 3.2187	* 3.1292	* 2.8398	* 4.2747	* 3.0840	* 3.3227	* 3.0840	* 3.2906	* 3.9744	* 2.5759
KENDALL COEFFICIENT	-.2747	-.3590	-.4359	-.0989	-.1810	-.1429	-.2381	-.1238	-.2381	-.5048	-.2747	-.2527
SPEARMAN COEFFICIENT	.7538	.3668	.6964	.6703	.6188	.7769	.6500	.6777	.6500	.6741	.7538	.5967
SEN LOWER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0032	.0000	.0000	.0046	.0043	.0048	.0008	.0040	.0017	.0000	.0032	.0036

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   23.4160
SEASONAL KENDALL  STATISTIC =    7.2259  *
MODIFY SEA. KEN.  STATISTIC =    2.5232  *
VAN BELLE (HOMO)  STATISTIC =    3.0168
VAN BELLE (TEND)  STATISTIC =   53.2492  *
KENDALL          COEFFICIENT =   -.5730
SPEARMAN         COEFFICIENT =    .2280
SEASONAL LOWER    CONF. INT. =    .0000
SEASONAL ESTIMATED OF SLOPE =     .0000
SEASONAL UPPER    CONF. INT. =    .0000
```

* SIGNIFICANT AT 5 % LEVEL

K-DISS 19103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.9925	-.3832	-1.3159	-.2253	-1.9419	* -2.3412	-1.5381	-.1801	-1.3105	* -2.3412	-1.3070	-1.5308
SPEARMAN STAT.	-1.1013	-.8381	-1.4193	.0468	* -2.4312	* -2.8278	-1.4758	-.3203	-1.1013	* -2.5602	-1.5170	-1.6907
KENDALL COEFFICIENT	-.2000	-.0769	-.2747	-.0500	-.3833	-.4333	-.3167	-.0333	-.2667	-.4333	-.2500	-.2833
SPEARMAN COEFFICIENT	-.2824	-.2352	-.3791	.0125	-.5449	-.6029	-.3669	-.0853	-.2824	-.5647	-.3757	-.4118
SEN LOWER CONF. INT.	-.2643	-.2514	-.3000	-.1618	-.2898	-.4097	-.2423	-.2328	-.2345	-.1674	-.2149	-.3865
SEN ESTIMATED OF SLOPE	-.0950	-.0429	-.1500	-.0102	-.1046	-.2000	-.1482	-.0242	-.0654	-.1010	-.0592	-.1146
SEN UPPER CONF. INT.	.0809	.1407	.0562	.1532	.0000	-.0539	.0481	.1383	.0469	-.0164	.0419	.0250

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	14.2624	
SEASONAL KENDALL STATISTIC =	-4.4829	*
MODIFY SEA. KEN. STATISTIC =	-2.2630	*
VAN BELLE (HOMO) STATISTIC =	6.0315	
VAN BELLE (TEND) STATISTIC =	19.7827	*
KENDALL COEFFICIENT =	-.4005	
SPEARMAN COEFFICIENT =	-.5762	
SEASONAL LOWER CONF. INT. =	-.1333	
SEASONAL ESTIMATED OF SLOPE =	-.0916	
SEASONAL UPPER CONF. INT. =	-.0500	

* SIGNIFICANT AT 5 % LEVEL

CA-DISS 20101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.1267	.9307	-1.0402	1.8909	* -2.1611	* -3.4217	* -2.3459	-1.7577	* -2.7014	* -2.8393	-1.7109	-1.2606
SPEARMAN STAT.	-1.1546	.9218	-1.0415	1.5904	* -3.0073	* -4.9889	* -2.6096	-1.7016	* -3.1507	* -3.3093	-1.4114	-1.4114
KENDALL COEFFICIENT	-.2167	.1868	-.2088	.3500	-.4000	-.6333	-.4500	-.3333	-.5000	-.5333	-.3167	-.2333
SPEARMAN COEFFICIENT	-.2949	.2571	-.2879	.3912	-.6265	-.8000	-.5721	-.4140	-.6441	-.6625	-.3529	-.3529
SEN LOWER CONF. INT.	-3.7898	-1.0901	-3.3134	-.0300	-1.6319	-2.1192	-1.8361	-1.8885	-1.3977	-2.0149	-1.9611	-3.4356
SEN ESTIMATED OF SLOPE	-1.1667	1.6200	-1.3800	.7036	-.6809	-1.5411	-.9900	-.8136	-.9556	-1.3536	-1.3304	-1.1400
SEN UPPER CONF. INT.	1.6589	4.5016	3.0050	2.0800	-.1093	-.8329	-.1166	.1872	-.3915	-.4496	.6959	.6314

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.7820	
SEASONAL KENDALL STATISTIC =	-5.2002	*
MODIFY SEA. KEN. STATISTIC =	-2.7149	*
VAN BELLE (HOMO) STATISTIC =	25.9908	*
VAN BELLE (TEND) STATISTIC =	25.6486	*
KENDALL COEFFICIENT =	-.1503	
SPEARMAN COEFFICIENT =	-.2426	
SEASONAL LOWER CONF. INT. =	-1.1951	
SEASONAL ESTIMATED OF SLOPE =	-.9091	
SEASONAL UPPER CONF. INT. =	-.6308	

* SIGNIFICANT AT 5 % LEVEL

MN-DISS 25104D (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.1851	-1.8558	-.4193	-.3592	-1.2572	-.4508	-.9918	-.0912	-1.4899	-.5791	-.6453	-.8204
SPEARMAN STAT.	-1.4313	* -2.8814	-.3673	-.3717	-1.1147	-.5230	-1.0412	-.0257	-1.2907	-.5501	-.4336	-.8895
KENDALL COEFFICIENT	-.3778	-.5714	-.1667	-.1111	-.3333	-.1556	-.2889	-.1111	-.5111	-.3778	-.2889	-.2889
SPEARMAN COEFFICIENT	-.4515	-.7619	-.1375	-.1303	-.3667	-.1818	-.3455	-.0091	-.4152	-.1909	-.1515	-.3000
SEN LOWER CONF. INT.	-.0108	-.3806	-.0135	-.0101	-.0067	-.0043	-.0090	-.0050	-.0050	-.0025	-.0025	-.0066
SEN ESTIMATED OF SLOPE	-.0015	-.0092	-.0020	-.0005	-.0023	-.0008	-.0018	.0000	-.0013	.0000	-.0003	-.0003
SEN UPPER CONF. INT.	.0022	.0010	.0032	.0067	.0021	.0041	.0017	.0026	.0000	.0012	.0010	.0015

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	11.4592	
SEASONAL KENDALL	STATISTIC =	-2.8832	*
MODIFY SEA. KEN.	STATISTIC =	-1.4401	
VAN BELLE (HOMO)	STATISTIC =	3.1792	
VAN BELLE (TEND)	STATISTIC =	8.9679	*
KENDALL	COEFFICIENT =	-.3475	
SPEARMAN	COEFFICIENT =	-.3794	
SEASONAL LOWER	CONF. INT. =	-.0020	
SEASONAL ESTIMATED OF SLOPE	=	-.0010	
SEASONAL UPPER	CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

FE-DISS 26104D (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -1.9757	* -1.9948	* -2.1894	-1.2572	-.3592	.0000	-.2705	-.0961	-1.2572	-1.5328	-1.8783	-.2683
SPEARMAN STAT.	* -2.3902	* -2.7278	* -3.3341	-.8895	-.3717	.3629	-.3104	.1201	-1.3136	-2.0881	-2.1895	-.3279
KENDALL COEFFICIENT	-.5111	-.6429	-.6111	-.3333	-.1111	-.0667	-.1111	-.2444	-.3333	-.4222	-.4667	-.0667
SPEARMAN COEFFICIENT	-.6455	-.7440	-.7833	-.3000	-.1303	.1273	-.1091	.0424	-.4212	-.5939	-.6121	-.1152
SEN LOWER CONF. INT.	-.0135	-.2113	-.0224	-.0148	-.0109	-.0123	-.0072	-.0041	-.0104	-.0102	-.0170	-.0130
SEN ESTIMATED OF SLOPE	-.0075	-.0073	-.0068	-.0090	-.0006	.0000	-.0009	.0000	-.0034	-.0038	-.0087	-.0010
SEN UPPER CONF. INT.	.0007	-.0001	-.0007	.0086	.0099	.0067	.0024	.0029	.0023	.0024	.0016	.0046

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	12.4665	
SEASONAL KENDALL	STATISTIC =	-3.6906	*
MODIFY SEA. KEN.	STATISTIC =	-2.0363	*
VAN BELLE (HOMO)	STATISTIC =	8.2189	
VAN BELLE (TEND)	STATISTIC =	14.7597	*
KENDALL	COEFFICIENT =	-.0578	
SPEARMAN	COEFFICIENT =	-.0150	
SEASONAL LOWER	CONF. INT. =	-.0053	
SEASONAL ESTIMATED OF SLOPE	=	-.0034	
SEASONAL UPPER	CONF. INT. =	-.0012	

* SIGNIFICANT AT 5 % LEVEL

CU-TOT 29005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.0912	-.4987	-.2097	* -2.1553	-.5432	* -2.1776	-1.3513	-1.1174	-1.7374	* -2.0485	-.6490	-.2034
SPEARMAN STAT.	-.1631	-.4907	-.0331	-2.0717	-.6787	-1.5552	-1.1361	-1.0308	-1.5552	-1.7975	-.5410	.3191
KENDALL COEFFICIENT	-.1111	-.2143	-.1111	-.5556	-.2000	-.8667	-.5556	-.4222	-.6444	-.6444	-.2889	-.3778
SPEARMAN COEFFICIENT	-.0576	-.1964	-.0125	-.5909	-.2333	-.4818	-.3727	-.3424	-.4818	-.5364	-.1879	.1121
SEN LOWER CONF. INT.	-.0006	-.0030	-.0008	-.0012	-.0005	-.0002	-.0003	-.0002	-.0001	-.0003	-.0002	-.0007
SEN ESTIMATED OF SLOPE	.0000	-.0002	-.0002	-.0005	-.0001	.0000	-.0001	.0000	.0000	-.0001	.0000	.0000
SEN UPPER CONF. INT.	.0004	.0010	.0005	.0000	.0004	.0000	.0000	.0002	.0000	.0000	.0003	.0004

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	18.2486	
SEASONAL KENDALL STATISTIC =	-3.7557	*
MODIFY SEA. KEN. STATISTIC =	-1.9038	
VAN BELLE (HOMO) STATISTIC =	6.8206	
VAN BELLE (TEND) STATISTIC =	14.1098	*
KENDALL COEFFICIENT =	-.3613	
SPEARMAN COEFFICIENT =	-.2598	
SEASONAL LOWER CONF. INT. =	-.0001	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

ZN-TOT 30005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.6490	-1.1135	.3128	-.7641	-.1862	-1.0864	-1.5497	-1.6164	* -2.6437	* -2.4210	.4636	.0000
SPEARMAN STAT.	-.6139	-1.6031	.5401	-.7303	.0086	-.9493	-1.5552	-1.8553	* -3.7320	* -2.9707	.3279	-.1459
KENDALL COEFFICIENT	-.2889	-.3571	.1111	-.3571	-.2000	-.3333	-.4667	-.4222	-.7333	-.7333	-.0222	-.0222
SPEARMAN COEFFICIENT	-.2121	-.5476	.2000	-.2857	.0030	-.3182	-.4818	-.5485	-.7970	-.7242	.1152	-.0515
SEN LOWER CONF. INT.	-.0013	-.0043	-.0030	-.0014	-.0005	-.0010	-.0010	-.0015	-.0010	-.0003	-.0001	-.0011
SEN ESTIMATED OF SLOPE	-.0002	-.0007	.0004	-.0003	.0000	-.0003	-.0002	-.0005	-.0004	-.0001	.0000	.0000
SEN UPPER CONF. INT.	.0002	.0023	.0032	.0002	.0004	.0002	.0000	.0001	-.0001	.0000	.0005	.0006

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	10.1046	
SEASONAL KENDALL STATISTIC =	-3.2816	*
MODIFY SEA. KEN. STATISTIC =	-2.6141	*
VAN BELLE (HOMO) STATISTIC =	11.3841	
VAN BELLE (TEND) STATISTIC =	10.8309	*
KENDALL COEFFICIENT =	-.3144	
SPEARMAN COEFFICIENT =	-.3446	
SEASONAL LOWER CONF. INT. =	-.0003	
SEASONAL ESTIMATED OF SLOPE =	-.0002	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

T.COLI 36001F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.5997	* -2.7470	-1.7365	* -1.9706	* -2.7285	-.8321	-.3859	.0547	.1485	-.7167	-1.3186	* -2.0033
SPEARMAN STAT.	* -3.1020	* -3.0469	-2.1194	-1.8716	* -3.7178	-.9556	-.2711	.1295	.1676	-.7436	-1.3481	-1.9180
KENDALL COEFFICIENT	-.6000	-.6923	-.4359	-.4667	-.5429	-.2308	-.1209	.0110	.0286	-.1868	-.3000	-.5238
SPEARMAN COEFFICIENT	-.6382	-.6604	-.5385	-.4607	-.7179	-.2659	-.0780	.0374	.0464	-.2099	-.3390	-.4696
SEN LOWER CONF. INT.	-6.0366	-25.4452	-6.8020	-12.5965	-31.5394	-11.8486	-4.2205	-7.0005	-9.4042	-3.3189	-4.0359	-28.0441
SEN ESTIMATED OF SLOPE	-2.9199	-8.5000	-3.2381	-2.5714	-8.0000	-2.0000	-.4545	.2727	.3333	-.9091	-1.7179	-1.6000
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0000	-1.1491	2.9167	8.2450	5.1824	2.6516	.9094	.3564	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.8461	
SEASONAL KENDALL STATISTIC =	-4.8912	*
MODIFY SEA. KEN. STATISTIC =	-2.3824	*
VAN BELLE (HOMO) STATISTIC =	12.1597	
VAN BELLE (TEND) STATISTIC =	23.6201	*
KENDALL COEFFICIENT =	-.0835	
SPEARMAN COEFFICIENT =	-.0082	
SEASONAL LOWER CONF. INT. =	-3.2000	
SEASONAL ESTIMATED OF SLOPE =	-2.0000	
SEASONAL UPPER CONF. INT. =	-1.0000	

* SIGNIFICANT AT 5 % LEVEL

F.COLI 36011F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.4489	* -2.6250	* -2.5877	-1.7770	* -2.5717	-.2624	-.7923	.3005	-.2285	-.4112	-1.1938	* -2.3100
SPEARMAN STAT.	-1.9048	* -2.2911	* -2.9073	-1.2735	* -2.6482	.0354	-.5563	.1967	.0826	-.2648	-.2260	-.8051
KENDALL COEFFICIENT	-.7667	-.7802	-.6264	-.6484	-.6381	-.2571	-.3000	-.0095	-.1333	-.1667	-.7167	-.9341
SPEARMAN COEFFICIENT	-.4537	-.5516	-.6429	-.3451	-.5920	.0098	-.1471	.0545	.0221	-.0706	-.0603	-.2264
SEN LOWER CONF. INT.	-1.5488	-6.7661	-5.7763	-2.7763	-2.5139	-1.3619	-1.8053	-2.3795	-1.7625	-.9387	.0000	-4.2153
SEN ESTIMATED OF SLOPE	-.1326	-1.5000	-2.0000	.0000	-1.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0000	.0000	-.0226	.0000	.0000	1.4096	.1119	3.6114	1.2283	.2785	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	18.0681	
SEASONAL KENDALL STATISTIC =	-4.5377	*
MODIFY SEA. KEN. STATISTIC =	-2.5321	*
VAN BELLE (HOMO) STATISTIC =	13.3014	
VAN BELLE (TEND) STATISTIC =	23.8236	*
KENDALL COEFFICIENT =	-.2534	
SPEARMAN COEFFICIENT =	.0231	
SEASONAL LOWER CONF. INT. =	-.5000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

HG-TOT 80011F (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.4495	-1.1369	* -2.0889	-1.2852	* -2.1213	* -2.1213	* -2.1213	* -2.4162	* -2.1213	* -2.0135	* -2.0135	* -2.4495
SPEARMAN STAT.	-1.3093	-.7075	-.6601	-.5979	-.5332	-.5332	-.5332	-1.2307	-.5332	-.9356	-.9356	-1.3093
KENDALL COEFFICIENT	-1.0000	-.7222	-1.0000	-.6727	-1.0000	-1.0000	-1.0000	-.9636	-1.0000	-.8909	-.8909	-1.0000
SPEARMAN COEFFICIENT	-.4000	-.2583	-.2273	-.1955	-.1750	-.1750	-.1750	-.3795	-.1750	-.2977	-.2977	-.4000
SEN LOWER CONF. INT.	-.0014	-.0016	-.0013	-.0035	.0000	.0000	.0000	-.0020	.0000	-.0015	-.0015	-.0014
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	16.3403	
SEASONAL KENDALL STATISTIC =	-6.9961	*
MODIFY SEA. KEN. STATISTIC =	-2.5067	*
VAN BELLE (HOMO) STATISTIC =	1.6802	
VAN BELLE (TEND) STATISTIC =	49.8768	*
KENDALL COEFFICIENT =	-.6466	
SPEARMAN COEFFICIENT =	.1459	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

PB-TOT 82002F (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.0368	-1.3822	-1.7633	* -3.1659	* -2.9336	* -3.1608	* -3.1608	* -2.2478	* -2.8098	* -2.9693	* -2.8098	* -3.1124
SPEARMAN STAT.	* -2.4687	-1.5540	-1.8000	* -4.9837	* -4.1650	* -4.3154	* -4.3154	* -2.3333	* -4.0249	* -3.6934	* -4.0249	* -5.5482
KENDALL COEFFICIENT	-.6444	-.5000	-.6667	-.9111	-.9111	-1.0000	-1.0000	-.7333	-.8667	-.9556	-.8667	-.8667
SPEARMAN COEFFICIENT	-.6576	-.5357	-.5625	-.8697	-.8273	-.8364	-.8364	-.6364	-.8182	-.7939	-.8182	-.8909
SEN LOWER CONF. INT.	-.0006	-.0009	-.0013	-.0006	-.0007	-.0006	-.0006	-.0006	-.0006	-.0006	-.0006	-.0006
SEN ESTIMATED OF SLOPE	-.0003	-.0002	-.0004	-.0004	-.0004	-.0004	-.0004	-.0002	-.0002	-.0003	-.0002	-.0004
SEN UPPER CONF. INT.	.0000	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	18.2828	
SEASONAL KENDALL STATISTIC =	-9.2322	*
MODIFY SEA. KEN. STATISTIC =	-3.1801	*
VAN BELLE (HOMO) STATISTIC =	3.6804	
VAN BELLE (TEND) STATISTIC =	84.2085	*
KENDALL COEFFICIENT =	-.3770	
SPEARMAN COEFFICIENT =	-.1554	
SEASONAL LOWER CONF. INT. =	-.0004	
SEASONAL ESTIMATED OF SLOPE =	-.0004	
SEASONAL UPPER CONF. INT. =	-.0002	

* SIGNIFICANT AT 5 % LEVEL

Q-DM(M3/S)------ (THE 3 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.4114	-.4881	.7321	-1.5876	-.9307	-.0547	1.3686	-.8212	-1.5876	-.7117	-.0547	-.3832
SPEARMAN STAT.	.1106	-.5924	.6307	-1.5218	-1.0588	-.1753	1.8132	-.7396	-1.8352	-.8051	.1601	-.2826
KENDALL COEFFICIENT	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769
SPEARMAN COEFFICIENT	.0350	-.1758	.1868	-.4022	-.2923	-.0505	.4637	-.2088	-.4681	-.2264	.0462	-.0813
SEN LOWER CONF. INT.	-.1152	-.1648	-.0969	-20.3985	-12.0169	-5.1320	-1.0180	-1.2116	-1.4724	-1.0329	-.3653	-.1828
SEN ESTIMATED OF SLOPE	.0247	-.0278	.0477	-7.1500	-1.8582	-.2867	.3900	-.1691	-.4000	-.3017	-.0210	-.0267
SEN UPPER CONF. INT.	.1231	.1030	.1928	3.8541	2.7276	4.1240	1.1131	.3552	.0743	.5290	.3057	.1279

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	11.1439
SEASONAL KENDALL STATISTIC =	-1.2569
MODIFY SEA. KEN. STATISTIC =	-.8110
VAN BELLE (HOMO) STATISTIC =	8.6515
VAN BELLE (TEND) STATISTIC =	1.4058
KENDALL COEFFICIENT =	.0009
SPEARMAN COEFFICIENT =	.1165
SEASONAL LOWER CONF. INT. =	-.1619
SEASONAL ESTIMATED OF SLOPE =	-.0500
SEASONAL UPPER CONF. INT. =	.0365

* SIGNIFICANT AT 5 % LEVEL

Table A1.8

TDS* 00201L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.1485	1.3507	-.7423	1.4642	-.2701	-.8104	-1.3507	-.9403	-.8104	-.2701	-.1485	.1801
SPEARMAN STAT.	.0386	1.4249	-.7223	1.5000	-.0991	-.9419	-1.5205	-1.2239	-.9782	-.8225	-.3885	-.1542
KENDALL COEFFICIENT	.0286	.2500	-.1429	.3077	-.0500	-.1500	-.2500	-.1810	-.1500	-.0500	-.0286	.0333
SPEARMAN COEFFICIENT	.0107	.3559	-.1964	.4121	-.0265	-.2441	-.3765	-.3214	-.2529	-.2147	-.1071	-.0412
SEN LOWER CONF. INT.	-18.8	-8.6	-24.5	-4.7	-16.9	-17.5	-25.5	-23.7	-31.5	-20.5	-18.6	-27.7
SEN ESTIMATED OF SLOPE	4.0	7.5	-8.1	10.9	-2.2	-5.5	-7.9	-7.5	-7.9	-2.6	-.3	4.8
SEN UPPER CONF. INT.	25.3	26.6	24.7	25.5	16.1	7.0	4.6	7.9	19.3	20.3	25.9	38.8

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	14.5175
SEASONAL KENDALL STATISTIC =	-.7379
MODIFY SEA. KEN. STATISTIC =	-.3162
VAN BELLE (HOMO) STATISTIC =	8.3606
VAN BELLE (TEND) STATISTIC =	.4031
KENDALL COEFFICIENT =	.0166
SPEARMAN COEFFICIENT =	-.0011
SEASONAL LOWER CONF. INT. =	-6.2
SEASONAL ESTIMATED OF SLOPE =	-2.0
SEASONAL UPPER CONF. INT. =	3.6

* SIGNIFICANT AT 5 % LEVEL

COND (F) 02041F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.4351	1.4351	-.1485	.9761	1.5341	-.5444	-.3674	-.4955	-.4927	.6022	-.0900	-.3602
SPEARMAN STAT.	1.4585	1.4263	-.1676	.8463	1.6755	-.3232	-.1368	-.4049	-.5631	.0228	-.2648	-.5677
KENDALL COEFFICIENT	.2762	.2762	-.0286	.2051	.2952	-.1048	-.1026	-.1048	-.0989	.1209	-.0167	-.0667
SPEARMAN COEFFICIENT	.3750	.3679	-.0464	.2473	.4214	-.0893	-.0412	-.1116	-.1604	.0066	-.0706	-.1500
SEN LOWER CONF. INT.	-14.9	-10.8	-35.1	-14.1	-13.1	-18.5	-32.7	-34.4	-51.0	-33.7	-25.4	-53.8
SEN ESTIMATED OF SLOPE	22.9	21.2	-.6	9.5	17.3	-3.9	-2.3	-6.5	-10.6	21.1	-3.9	-6.5
SEN UPPER CONF. INT.	58.9	48.9	52.5	36.4	40.1	16.2	10.0	21.6	34.8	54.8	29.8	42.2

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	14.0029
SEASONAL KENDALL STATISTIC =	.9838
MODIFY SEA. KEN. STATISTIC =	.4660
VAN BELLE (HOMO) STATISTIC =	7.8561
VAN BELLE (TEND) STATISTIC =	1.0115
KENDALL COEFFICIENT =	.0594
SPEARMAN COEFFICIENT =	.0571
SEASONAL LOWER CONF. INT. =	-4.0
SEASONAL ESTIMATED OF SLOPE =	4.2
SEASONAL UPPER CONF. INT. =	13.8

* SIGNIFICANT AT 5 % LEVEL

TN* 07602L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.8941	-1.7143	-1.5924	-1.1706	-1.5774	-1.4873	-.5414	-.9952	.2714	-1.1891	-1.8046	* -2.9775
SPEARMAN STAT.	-.9773	* -2.2375	-1.5718	-1.0640	-1.6581	-1.3947	-.6363	-1.0363	.3175	-1.1376	-1.5974	* -3.6375
KENDALL COEFFICIENT	-.2000	-.3333	-.3407	-.2167	-.3000	-.2833	-.1167	-.2167	.0167	-.2381	-.3500	-.5667
SPEARMAN COEFFICIENT	-.2616	-.5132	-.4132	-.2735	-.4051	-.3493	-.1676	-.2669	.0846	-.3009	-.3926	-.6971
SEN LOWER CONF. INT.	-.0444	-.0580	-.0730	-.1688	-.1094	-.0428	-.0800	-.0412	-.0263	-.0884	-.0766	-.0605
SEN ESTIMATED OF SLOPE	-.0144	-.0196	-.0300	-.0738	-.0485	-.0185	-.0148	-.0108	.0045	-.0250	-.0360	-.0350
SEN UPPER CONF. INT.	.0216	.0045	.0029	.0596	.0186	.0070	.0372	.0237	.0617	.0203	.0044	-.0161

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	14.6958	
SEASONAL KENDALL	STATISTIC =	-4.5175	*
MODIFY SEA. KEN.	STATISTIC =	-2.4531	*
VAN BELLE (HOMO)	STATISTIC =	[illegible].7690	
VAN BELLE (TEND)	STATISTIC =	20.4687	*
KENDALL	COEFFICIENT =	-.2757	
SPEARMAN	COEFFICIENT =	-.3979	
SEASONAL LOWER	CONF. INT. =	-.0319	
SEASONAL ESTIMATED OF	SLOPE =	-.0225	
SEASONAL UPPER	CONF. INT. =	-.0124	

* SIGNIFICANT AT 5 % LEVEL

DO 08101F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.6846	-1.3096	.2737	-1.2372	-.9464	1.3873	-.4092	-.0994	-1.2692	1.0927	-1.2666	-.6303
SPEARMAN STAT.	-1.8762	-1.5658	.1448	-1.4104	-1.0301	1.3984	-.3621	-.2582	-1.2373	.9345	-1.2373	-.4208
KENDALL COEFFICIENT	-.3333	-.2667	.0549	-.2381	-.1833	.2571	-.1333	-.0476	-.2833	.1810	-.2667	-.1167
SPEARMAN COEFFICIENT	-.4616	-.3860	.0418	-.3643	-.2654	.3616	-.0963	-.0714	-.3140	.2509	-.3140	-.1118
SEN LOWER CONF. INT.	-.1928	-.2532	-.6163	-.2429	-.1853	-.0360	-.2000	-.1574	-.1500	-.0308	-.2832	-.4322
SEN ESTIMATED OF SLOPE	-.0917	-.0675	.0600	-.0750	-.0542	.0800	-.0136	.0000	-.0519	.0667	-.0646	-.1226
SEN UPPER CONF. INT.	.0460	.0500	1.0045	.1714	.0915	.1895	.1819	.2036	.0236	.1566	.0537	.2668

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	15.6464
SEASONAL KENDALL	STATISTIC =	-1.8541
MODIFY SEA. KEN.	STATISTIC =	-1.1785
VAN BELLE (HOMO)	STATISTIC =	10.8634
VAN BELLE (TEND)	STATISTIC =	3.0997
KENDALL	COEFFICIENT =	.3844
SPEARMAN	COEFFICIENT =	.5488
SEASONAL LOWER	CONF. INT. =	-.0667
SEASONAL ESTIMATED OF	SLOPE =	-.0333
SEASONAL UPPER	CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

ALK-TOT 10101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.2474	.9005	-.2737	* 2.4249	.7204	-.3602	-.9005	-.7441	-.5859	-.2253	.6760	.4958
SPEARMAN STAT.	.2712	1.1767	-.2980	* 3.3309	.6708	-.3649	-.6019	-.8956	-.5762	-.5138	.6795	.3621
KENDALL COEFFICIENT	.0476	.1667	-.0549	.4667	.1333	-.0667	-.1667	-.1619	-.1167	-.0500	.1167	.0833
SPEARMAN COEFFICIENT	.0750	.3000	-.0857	.6786	.1765	-.0971	-.1588	-.2411	-.1522	-.1360	.1787	.0963
SEN LOWER CONF. INT.	-8.8258	-4.5796	-16.3842	2.4435	-5.0779	-6.8601	-11.2584	-9.7841	-10.9894	-6.9149	-7.7959	-11.3568
SEN ESTIMATED OF SLOPE	2.2000	3.7917	-1.1429	9.2857	4.8831	-1.1667	-3.7386	-1.1000	-2.3571	-.6538	1.4103	4.6385
SEN UPPER CONF. INT.	16.9084	14.8368	15.7102	14.8721	14.0590	5.6278	3.9534	4.9666	8.8086	7.8979	13.5745	24.9635

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.4670	
SEASONAL KENDALL STATISTIC =	.5742	
MODIFY SEA. KEN. STATISTIC =	.3249	
VAN BELLE (HOMO) STATISTIC =	9.4668	
VAN BELLE (TEND) STATISTIC =	.4701	
KENDALL COEFFICIENT =	.0456	
SPEARMAN COEFFICIENT =	.0114	
SEASONAL LOWER CONF. INT. =	-1.5000	
SEASONAL ESTIMATED OF SLOPE =	1.0000	
SEASONAL UPPER CONF. INT. =	3.7230	

* SIGNIFICANT AT 5 % LEVEL

PH(F) 10301F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.0630	1.2807	.8926	1.9091	* 2.2499	1.9264	-.2998	.0000	-.1513	.2764	1.5402	1.8411
SPEARMAN STAT.	-2.1077	1.1672	.9302	2.1434	* 2.4783	2.0278	.0000	.0676	-.0934	.3398	1.5904	2.0399
KENDALL COEFFICIENT	-.5165	.1333	.0769	.2833	.2833	.2333	-.1238	-.0857	-.1429	-.0833	.2333	.2167
SPEARMAN COEFFICIENT	-.5198	.2978	.2593	.4971	.5522	.4765	.0000	.0187	-.0259	.0904	.3912	.4787
SEN LOWER CONF. INT.	-.0505	-.0105	-.0143	.0000	.0000	.0000	-.0750	-.0500	-.0250	-.0182	-.0167	.0000
SEN ESTIMATED OF SLOPE	-.0250	.0200	.0182	.0333	.0250	.0226	.0000	.0000	.0000	.0000	.0333	.0250
SEN UPPER CONF. INT.	.0000	.0346	.1000	.0648	.0437	.0500	.0400	.0375	.0198	.0250	.0651	.0529

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.7558	
SEASONAL KENDALL STATISTIC =	2.9325	*
MODIFY SEA. KEN. STATISTIC =	1.6548	
VAN BELLE (HOMO) STATISTIC =	17.6946	
VAN BELLE (TEND) STATISTIC =	7.3668	*
KENDALL COEFFICIENT =	.1975	
SPEARMAN COEFFICIENT =	.3925	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0125	
SEASONAL UPPER CONF. INT. =	.0214	

* SIGNIFICANT AT 5 % LEVEL

NFR 10401L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.0927	.5475	.2745	-.8563	-.2474	-.4064	.4958	.6977	1.4038	.0452	.6449	1.1921
SPEARMAN STAT.	1.3198	.6510	.2059	-.6622	-.3755	-.2897	.6219	.8465	1.7568	.4799	.6005	1.4064
KENDALL COEFFICIENT	.1810	.0667	.0330	-.1667	-.0476	-.1000	.0833	.0857	.2167	-.0167	.1048	.2000
SPEARMAN COEFFICIENT	.3438	.1777	.0593	-.1743	-.1036	-.0772	.1640	.2286	.4250	.1272	.1643	.3634
SEN LOWER CONF. INT.	-.5838	-1.0271	-1.3333	-39.6172	-15.2628	-5.6253	-4.4104	-1.2197	-.3035	-1.4850	-.6713	-.5281
SEN ESTIMATED OF SLOPE	.2500	.1250	.1667	-8.0664	-.7500	-.4143	.6288	.3333	.3917	.0000	.1818	.3333
SEN UPPER CONF. INT.	1.4359	.6779	1.9837	14.6173	7.1010	2.1752	2.7872	2.6110	2.2854	1.3102	.7815	.7173

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	9.0565
SEASONAL KENDALL STATISTIC =	1.3707
MODIFY SEA. KEN. STATISTIC =	.9056
VAN BELLE (HOMO) STATISTIC =	5.0832
VAN BELLE (TEND) STATISTIC =	1.9878
KENDALL COEFFICIENT =	-.0739
SPEARMAN COEFFICIENT =	-.0527
SEASONAL LOWER CONF. INT. =	-.0654
SEASONAL ESTIMATED OF SLOPE =	.1667
SEASONAL UPPER CONF. INT. =	.5000

* SIGNIFICANT AT 5 % LEVEL

MA-DISS 11103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.1485	.0000	-.3290	1.6846	-.2701	-.1352	-.6303	-.5403	-.5859	-.0451	.1485	.0900
SPEARMAN STAT.	.1289	.1928	-.5354	1.6199	-.1763	-.1680	-.7171	-.5109	-.8019	-.3844	-.0129	-.2205
KENDALL COEFFICIENT	-.0286	-.0500	-.0769	.3143	-.0500	-.0333	-.1167	-.1000	-.1167	-.0167	.0286	.0167
SPEARMAN COEFFICIENT	.0357	.0515	-.1527	.4098	-.0471	-.0449	-.1882	-.1353	-.2096	-.1022	-.0036	-.0588
SEN LOWER CONF. INT.	-5.9129	-3.4435	-6.8922	-.5898	-4.9101	-3.8094	-5.9611	-7.5232	-8.0586	-6.5695	-6.3005	-7.3168
SEN ESTIMATED OF SLOPE	-.6250	.0000	-1.1667	2.3750	-.9607	-.2917	-1.4143	-2.0125	-1.4167	-.1615	.4000	.3111
SEN UPPER CONF. INT.	5.0000	4.6201	6.2267	6.0000	2.7967	2.4630	2.6667	3.7178	5.3319	6.4719	7.2358	7.3991

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	13.0181
SEASONAL KENDALL STATISTIC =	-.2564
MODIFY SEA. KEN. STATISTIC =	-.1020
VAN BELLE (HOMO) STATISTIC =	4.0758
VAN BELLE (TEND) STATISTIC =	.0483
KENDALL COEFFICIENT =	.0648
SPEARMAN COEFFICIENT =	.0999
SEASONAL LOWER CONF. INT. =	-1.4962
SEASONAL ESTIMATED OF SLOPE =	-.2000
SEASONAL UPPER CONF. INT. =	1.0096

* SIGNIFICANT AT 5 % LEVEL

P-TOT-DISS15103D (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.0617	1.9411	.8573	-.9798	-1.5460	-.8573	.0614	.5529	-1.3769	-.4399	-1.1382	-.7460
SPEARMAN STAT.	.2008	* 2.1878	.6789	-1.0831	-1.3105	-.9682	-.0684	.4599	-1.3199	-.4257	-1.3315	-1.0531
KENDALL COEFFICIENT	-.0513	.3333	.1538	-.2308	-.3626	-.2051	-.0256	.0769	-.3187	-.1209	-.2190	-.1810
SPEARMAN COEFFICIENT	.0604	.5188	.2005	-.3104	-.3538	-.2802	-.0206	.1374	-.3560	-.1220	-.3464	-.2804
SEN LOWER CONF. INT.	-.0010	.0000	-.0038	-.0138	-.0022	-.0020	-.0019	-.0017	-.0014	-.0018	-.0031	-.0020
SEN ESTIMATED OF SLOPE	.0000	.0011	.0016	-.0029	-.0007	-.0007	.0000	.0003	-.0006	-.0004	-.0010	-.0004
SEN UPPER CONF. INT.	.0013	.0021	.0050	.0019	.0002	.0014	.0036	.0030	.0005	.0012	.0009	.0005

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.8686	
SEASONAL KENDALL STATISTIC =	-1.0547	
MODIFY SEA. KEN. STATISTIC =	-.7429	
VAN BELLE (HOMO) STATISTIC =	11.7569	
VAN BELLE (TEND) STATISTIC =	1.0859	
KENDALL COEFFICIENT =	-.1014	
SPEARMAN COEFFICIENT =	-.0950	
SEASONAL LOWER CONF. INT. =	-.0006	
SEASONAL ESTIMATED OF SLOPE =	-.0002	
SEASONAL UPPER CONF. INT. =	.0002	

* SIGNIFICANT AT 5 % LEVEL

SO4-DISS 16304L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.3464	.9005	-.3290	.5444	-.8121	-1.6675	* -2.1182	-1.5774	-.9905	-.6303	-.4056	.0451
SPEARMAN STAT.	.5871	1.0394	-.5750	.4279	-.8048	-2.1140	* -2.5456	-1.9676	-1.1514	-1.0026	-.5478	-.0688
KENDALL COEFFICIENT	.0667	.1667	-.0769	.1048	-.1667	-.3167	-.4000	-.3000	-.1833	-.1167	-.0833	.0000
SPEARMAN COEFFICIENT	.1607	.2676	-.1637	.1179	-.2103	-.4919	-.5625	-.4654	-.2941	-.2588	-.1449	-.0184
SEN LOWER CONF. INT.	-5.9004	-3.9001	-8.2921	-4.1245	-7.8048	-5.9802	-8.4043	-8.3386	-9.2945	-9.0806	-7.9362	-6.8086
SEN ESTIMATED OF SLOPE	1.0000	2.0955	-1.6000	1.7692	-1.7458	-2.8750	-4.4949	-4.0417	-3.3929	-2.4796	-1.1417	.1667
SEN UPPER CONF. INT.	6.0758	6.8204	7.1177	7.2343	2.6449	.4872	-.4078	1.6915	4.8897	4.8834	7.4267	7.2648

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	10.6261	
SEASONAL KENDALL STATISTIC =	-1.9942	*
MODIFY SEA. KEN. STATISTIC =	-.8232	
VAN BELLE (HOMO) STATISTIC =	9.5609	
VAN BELLE (TEND) STATISTIC =	3.7344	
KENDALL COEFFICIENT =	.0049	
SPEARMAN COEFFICIENT =	.0099	
SEASONAL LOWER CONF. INT. =	-3.2446	
SEASONAL ESTIMATED OF SLOPE =	-1.6923	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

CL-DISS 17206L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.1488	1.1267	-.9869	* 2.8738	* 1.9850	1.3105	.4064	-.1801	-.7204	.2707	-.0900	.1352
SPEARMAN STAT.	.0129	1.1735	-1.0982	* 3.6150	2.1434	1.6045	.4968	-.3203	-.7872	.0660	-.0330	-.1570
KENDALL COEFFICIENT	-.0476	.2000	-.2088	.5429	.3500	.2167	.0500	-.0333	-.1333	.0333	-.0167	.0167
SPEARMAN COEFFICIENT	.0036	.2993	-.3022	.7080	.4971	.3941	.1316	-.0853	-.2059	.0176	-.0088	-.0419
SEN LOWER CONF. INT.	-1.5000	-.3977	-1.2749	.2237	.0000	-.3670	-.5500	-1.6362	-2.3581	-1.1630	-1.3525	-1.5000
SEN ESTIMATED OF SLOPE	-.1111	.3600	-.5000	.6778	.5750	.3475	.1944	-.0792	-.4703	.2386	-.1000	.1773
SEN UPPER CONF. INT.	1.2845	1.3333	.9249	1.1056	1.1217	1.0000	.9940	1.4050	1.1460	1.7270	.9867	1.9260

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.1375	
SEASONAL KENDALL STATISTIC =	1.7547	
MODIFY SEA. KEN. STATISTIC =	.7688	
VAN BELLE (HOMO) STATISTIC =	14.0160	
VAN BELLE (TEND) STATISTIC =	2.9822	
KENDALL COEFFICIENT =	.0812	
SPEARMAN COEFFICIENT =	.1349	
SEASONAL LOWER CONF. INT. =	-.0111	
SEASONAL ESTIMATED OF SLOPE =	.2600	
SEASONAL UPPER CONF. INT. =	.5111	

* SIGNIFICANT AT 5 % LEVEL

A-BHC 18075L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.8762	* -1.9718	.1831	-.5185	* -3.2457	-1.8766	-1.7213	* -2.0941	-1.3044	* -2.3506	-1.6722	* -3.2667
SPEARMAN STAT.	* -4.0318	-1.7943	.0857	-.1976	* -3.9477	-2.0768	-1.9363	-1.9149	-1.2239	* -2.4804	-1.7339	* -5.6912
KENDALL COEFFICIENT	-.7818	-.6762	-.0667	-.5111	-.7582	-.4848	-.4286	-.5897	-.3333	-.5641	-.4545	-.7879
SPEARMAN COEFFICIENT	-.8023	-.4455	.0303	-.0697	-.7516	-.5490	-.4879	-.5000	-.3214	-.5989	-.4808	-.8741
SEN LOWER CONF. INT.	-.0006	-.0002	-.0010	-.0002	-.0005	-.0009	-.0006	-.0008	-.0007	-.0012	-.0010	-.0008
SEN ESTIMATED OF SLOPE	-.0003	-.0001	.0000	.0000	-.0004	-.0005	-.0003	-.0005	-.0002	-.0005	-.0003	-.0005
SEN UPPER CONF. INT.	-.0002	.0000	.0010	.0000	-.0002	.0000	.0000	.0000	.0001	.0000	.0000	-.0004

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.1083	
SEASONAL KENDALL STATISTIC =	-6.6977	*
MODIFY SEA. KEN. STATISTIC =	-3.2126	*
VAN BELLE (HOMO) STATISTIC =	11.5640	
VAN BELLE (TEND) STATISTIC =	42.9975	*
KENDALL COEFFICIENT =	-.0573	
SPEARMAN COEFFICIENT =	.1464	
SEASONAL LOWER CONF. INT. =	-.0004	
SEASONAL ESTIMATED OF SLOPE =	-.0003	
SEASONAL UPPER CONF. INT. =	-.0002	

* SIGNIFICANT AT 5 % LEVEL

24D 18500L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.0416	* 2.4681	1.2469	.6146	* 2.3212	.3212	.7107	1.8484	* 2.3214	* 1.9640	.9227	.8078
SPEARMAN STAT.	1.1202	* 3.0365	1.7094	.6467	* 3.0476	.5211	.9168	2.0916	* 3.2703	* 2.4644	1.2369	1.1151
KENDALL COEFFICIENT	-.0606	.1833	-.1212	.0110	.1810	-.1538	.0095	.1619	-.1167	-.1238	-.0330	-.1538
SPEARMAN COEFFICIENT	.3339	.6301	.4755	.1835	.6455	.1552	.2464	.5018	.6581	.5643	.3363	.3187
SEN LOWER CONF. INT.	.0000	.0000	.0000	-.0041	.0000	-.0008	-.0010	.0000	.0000	.0000	-.0002	.0000
SEN ESTIMATED OF SLOPE	.0000	.0009	.0000	.0009	.0019	.0000	.0005	.0011	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0030	.0030	.0036	.0037	.0043	.0041	.0032	.0025	.0009	.0017	.0022	.0025

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	16.2581	
SEASONAL KENDALL STATISTIC =	4.9050	*
MODIFY SEA. KEN. STATISTIC =	2.4607	*
VAN BELLE (HOMO) STATISTIC =	6.3398	
VAN BELLE (TEND) STATISTIC =	22.9315	*
KENDALL COEFFICIENT =	-.3114	
SPEARMAN COEFFICIENT =	-.0028	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0010	

* SIGNIFICANT AT 5 % LEVEL

245T 18510L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.8227	* 2.6234	* 2.1483	* 2.5690	* 3.1376	* 2.1974	* 2.3094	* 2.3094	* 2.2229	1.0030	.8601	1.3270
SPEARMAN STAT.	1.2827	* 3.9896	* 3.1864	* 3.9744	* 5.4675	* 3.2187	* 3.4135	* 3.4135	* 3.3290	1.7903	1.5694	1.7536
KENDALL COEFFICIENT	-.4242	-.3500	-.3939	-.2747	.0095	-.2821	-.3524	-.3524	-.5333	-.5333	-.5238	-.3187
SPEARMAN COEFFICIENT	.3759	.7294	.7098	.7538	.8348	.6964	.6875	.6875	.6647	.4316	.3991	.4516
SEN LOWER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0004	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0032	.0044	.0033	.0000	.0000	.0000	.0000	.0000	.0017

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	16.7768	
SEASONAL KENDALL STATISTIC =	6.8003	*
MODIFY SEA. KEN. STATISTIC =	2.4301	*
VAN BELLE (HOMO) STATISTIC =	6.4227	
VAN BELLE (TEND) STATISTIC =	46.1396	*
KENDALL COEFFICIENT =	-.6294	
SPEARMAN COEFFICIENT =	.2771	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

K-DISS 19103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.1410	* 2.3032	1.0433	* 2.4249	.9925	-1.4873	-.2253	-1.1298	-1.0387	-.1814	-1.0827	-.5414
SPEARMAN STAT.	1.0024	* 2.8551	1.1026	* 3.2043	.9359	-1.6653	-.0193	-.9540	-1.1989	-.3649	-1.1894	-.5279
KENDALL COEFFICIENT	.2000	.4000	.1868	.4667	.1667	-.2833	-.0500	-.2333	-.2167	-.0833	-.2167	-.1167
SPEARMAN COEFFICIENT	.2679	.6066	.3033	.6643	.2426	-.4066	-.0051	-.2471	-.3051	-.0971	-.3029	-.1397
SEN LOWER CONF. INT.	-.1553	.0568	-.0927	.0757	-.0822	-.2500	-.1500	-.1000	-.1500	-.1346	-.2236	-.1965
SEN ESTIMATED OF SLOPE	.1500	.2375	.1667	.2833	.0741	-.0922	-.0169	-.0550	-.0500	.0000	-.0840	-.0408
SEN UPPER CONF. INT.	.4407	.3413	.3230	.4626	.2243	.0325	.1223	.0755	.0667	.0500	.0340	.0606

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	13.4070	
SEASONAL KENDALL STATISTIC =	.5096	
MODIFY SEA. KEN. STATISTIC =	.3638	
VAN BELLE (HOMO) STATISTIC =	20.2662	*
VAN BELLE (TEND) STATISTIC =	.4100	
KENDALL COEFFICIENT =	-.0563	
SPEARMAN COEFFICIENT =	-.0388	
SEASONAL LOWER CONF. INT. =	-.0333	
SEASONAL ESTIMATED OF SLOPE =	.0107	
SEASONAL UPPER CONF. INT. =	.0487	

* SIGNIFICANT AT 5 % LEVEL

CA-DISS 20101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.2737	1.5774	-.2737	* 2.1279	.1352	* -2.5213	-1.5339	-1.8009	-.9005	-.6433	-.9403	1.6331
SPEARMAN STAT.	-.0533	2.0809	-.0990	* 2.6791	.1956	* -3.0780	-1.3251	-1.7052	-.9058	-.6274	-1.1339	1.7988
KENDALL COEFFICIENT	-.0549	.2833	-.0549	.4095	.0167	-.4667	-.3000	-.3333	-.1667	-.1238	-.1810	.3143
SPEARMAN COEFFICIENT	-.0154	.4860	-.0286	.5964	.0522	-.6353	-.3338	-.4147	-.2353	-.1714	-.3000	.4464
SEN LOWER CONF. INT.	-2.5805	-.3559	-3.0435	.1000	-1.2457	-2.3712	-2.2686	-2.0423	-1.9329	-1.6489	-2.5189	-.2420
SEN ESTIMATED OF SLOPE	-.1000	1.3054	-.5250	1.0385	.0458	-1.3402	-.8500	-.8633	-.6900	-.4600	-.6000	1.6400
SEN UPPER CONF. INT.	2.4368	3.4643	2.5950	2.4227	1.3489	-.5362	.2238	.0903	.5460	.9157	.7391	2.7705

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	14.0285	
SEASONAL KENDALL STATISTIC =	-1.0758	
MODIFY SEA. KEN. STATISTIC =	-.8277	
VAN BELLE (HOMO) STATISTIC =	22.9417	*
VAN BELLE (TEND) STATISTIC =	.9712	
KENDALL COEFFICIENT =	-.0456	
SPEARMAN COEFFICIENT =	-.1065	
SEASONAL LOWER CONF. INT. =	-.6500	
SEASONAL ESTIMATED OF SLOPE =	-.2423	
SEASONAL UPPER CONF. INT. =	.1376	

* SIGNIFICANT AT 5 % LEVEL

MN-DISS 25104D (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 1.9809	1.1628	.7481	-1.2768	-1.3513	-1.3036	-.8204	-1.2816	-.2735	.4508	.2705	1.4368
SPEARMAN STAT.	* 2.5934	1.3954	1.1034	-1.2127	-1.3600	-1.5048	-1.2456	-1.3954	.0429	.5592	.7445	1.7692
KENDALL COEFFICIENT	.5556	.2889	.2143	-.4444	-.5556	-.4667	-.2889	-.4222	-.1556	.0667	.0222	.3333
SPEARMAN COEFFICIENT	.7000	.4424	.4107	-.4167	-.4333	-.4697	-.4030	-.4424	.0152	.1939	.2545	.5303
SEN LOWER CONF. INT.	.0006	* -.0247	-.0352	-.0077	-.0019	-.0050	-.0062	-.0041	-.0023	-.0037	-.0115	-.0049
SEN ESTIMATED OF SLOPE	.1064	.0760	.0091	-.0029	-.0007	-.0009	-.0009	-.0010	.0000	.0003	.0006	.0033
SEN UPPER CONF. INT.	.2640	.1526	.2039	.0004	.0000	.0010	.0020	.0005	.0025	.0029	.0055	.0112

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	11.7996	
SEASONAL KENDALL STATISTIC =	-.0550	
MODIFY SEA. KEN. STATISTIC =	-.0344	
VAN BELLE (HOMO) STATISTIC =	16.6300	
VAN BELLE (TEND) STATISTIC =	.0015	
KENDALL COEFFICIENT =	-.2312	
SPEARMAN COEFFICIENT =	-.2696	
SEASONAL LOWER CONF. INT. =	-.0007	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0007	

* SIGNIFICANT AT 5 % LEVEL

FE-DISS 26104D (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.0000	.8050	.4987	-1.2579	-1.4412	-1.4412	-1.2572	-1.7616	* -2.6444	-1.2490	-1.7616	* -2.6148
SPEARMAN STAT.	.0331	1.0000	.7804	-1.1691	-.8405	-1.5425	-1.9452	-1.4678	* -2.4687	-.8018	-2.0555	* -3.7712
KENDALL COEFFICIENT	-.0556	.2000	.1429	-.3889	-.5556	-.5556	-.3333	-.5556	-.9111	-.5111	-.5556	-.6889
SPEARMAN COEFFICIENT	.0125	.3333	.3036	-.4042	-.2848	-.4788	-.5667	-.4606	-.6576	-.2727	-.5879	-.8000
SEN LOWER CONF. INT.	-.0186	-.0178	-.0101	-.0221	-.0040	-.0052	-.0251	-.0155	-.0049	-.0040	-.0052	-.0096
SEN ESTIMATED OF SLOPE	-.0010	.0241	.0095	-.0035	-.0012	-.0013	-.0035	-.0017	-.0031	-.0008	-.0018	-.0057
SEN UPPER CONF. INT.	.0949	.0973	.0763	.0079	.0000	.0000	.0261	.0000	.0000	.0000	.0000	-.0015

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.2590	
SEASONAL KENDALL STATISTIC =	-4.1767	*
MODIFY SEA. KEN. STATISTIC =	-2.1850	*
VAN BELLE (HOMO) STATISTIC =	13.4085	
VAN BELLE (TEND) STATISTIC =	16.8275	*
KENDALL COEFFICIENT =	-.3916	
SPEARMAN COEFFICIENT =	-.4056	
SEASONAL LOWER CONF. INT. =	-.0032	
SEASONAL ESTIMATED OF SLOPE =	-.0020	
SEASONAL UPPER CONF. INT. =	-.0007	

* SIGNIFICANT AT 5 % LEVEL

CU-TOT 29005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.0000	-1.1851	-.2547	.0000	-.2705	-.9918	-.9839	.8386	-1.3036	-1.3525	-.9918	* -2.1553
SPEARMAN STAT.	-.0882	-1.3600	-.1168	.0000	-.4513	-.9594	-1.4434	1.1691	-1.1793	-1.4678	-1.0000	* -2.7724
KENDALL COEFFICIENT	-.0556	-.3778	-.2143	.0000	-.1111	-.2889	-.2444	.2222	-.4667	-.3778	-.2889	-.5556
SPEARMAN COEFFICIENT	-.0333	-.4333	-.0476	.0000	-.1576	-.3212	-.4545	.4042	-.3848	-.4606	-.3333	-.7000
SEN LOWER CONF. INT.	-.0006	-.0005	-.0004	-.0014	-.0025	-.0008	-.0049	-.0006	-.0004	-.0005	-.0007	-.0008
SEN ESTIMATED OF SLOPE	.0000	-.0002	.0000	-.0002	-.0001	-.0002	-.0009	.0002	-.0002	-.0003	-.0002	-.0003
SEN UPPER CONF. INT.	.0010	.0002	.0003	.0011	.0015	.0007	.0007	.0014	.0003	.0002	.0003	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 11.5109
SEASONAL KENDALL STATISTIC = -2.6234 *
MODIFY SEA. KEN. STATISTIC = -1.3328
VAN BELLE (HOMO) STATISTIC = 7.3544
VAN BELLE (TEND) STATISTIC = 6.2685 *
KENDALL COEFFICIENT = -.0456
SPEARMAN COEFFICIENT = .0358
SEASONAL LOWER CONF. INT. = -.0003
SEASONAL ESTIMATED OF SLOPE = -.0002
SEASONAL UPPER CONF. INT. = .0000

* SIGNIFICANT AT 5 % LEVEL

ZN-TOT 30005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.0640	-.2705	* 1.9748	.0000	* -2.1894	-.8980	-.1796	-1.1468	* -1.9973	-.9918	-.9918	.8204
SPEARMAN STAT.	1.1547	-.0514	* 3.3321	-.2343	* -2.5934	-.8698	-.2669	-1.1547	-1.7000	-.8018	-1.0412	.5865
KENDALL COEFFICIENT	.2222	-.1111	.6190	.0000	-.6111	-.2444	-.0667	-.3333	-.5556	-.2889	-.2889	.1111
SPEARMAN COEFFICIENT	.4000	-.0182	.8304	-.0952	-.7000	-.2939	-.0939	-.4000	-.5152	-.2727	-.3455	.2030
SEN LOWER CONF. INT.	-.0009	-.0007	.0000	-.0087	-.0079	-.0017	-.0071	-.0009	-.0013	-.0008	-.0009	-.0004
SEN ESTIMATED OF SLOPE	.0002	-.0001	.0005	-.0002	-.0017	-.0005	-.0001	-.0002	-.0006	-.0003	-.0002	.0000
SEN UPPER CONF. INT.	.0011	.0006	.0026	.0035	-.0001	.0006	.0010	.0005	.0000	.0002	.0003	.0004

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 12.4449
SEASONAL KENDALL STATISTIC = -1.6473
MODIFY SEA. KEN. STATISTIC = -1.1638
VAN BELLE (HOMO) STATISTIC = 18.3753
VAN BELLE (TEND) STATISTIC = 1.8851
KENDALL COEFFICIENT = -.2181
SPEARMAN COEFFICIENT = -.2519
SEASONAL LOWER CONF. INT. = -.0004
SEASONAL ESTIMATED OF SLOPE = -.0002
SEASONAL UPPER CONF. INT. = .0000

* SIGNIFICANT AT 5 % LEVEL

T.COLI 36001F (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.6749	-.3459	-.5714	-1.4837	-.4295	-.6101	-.6579	.8992	.0894	-1.2494	-.9798	-1.3184
SPEARMAN STAT.	-.4272	-.2663	-.3786	-1.3317	-.3992	-.5353	-.6950	.9970	-.2235	-1.2829	-1.3474	-1.1736
KENDALL COEFFICIENT	-.1795	-.1212	-.2727	-.4545	-.1282	-.1282	-.1429	.1515	.0222	-.3091	-.2308	-.4286
SPEARMAN COEFFICIENT	-.1277	-.0839	-.1189	-.3881	-.1195	-.1593	-.1967	.3007	-.0788	-.3932	-.3764	-.3209
SEN LOWER CONF. INT.	-4.5	-7.7	-1.5	-41.9	-9.7	-48.3	-22.1	-5.0	-17.3	-40.7	-12.0	-2.1
SEN ESTIMATED OF SLOPE	-.8	-1.3	.0	-8.4	-1.2	-9.0	-6.0	2.0	.8	-13.2	-2.6	-.5
SEN UPPER CONF. INT.	1.3	2.7	.7	.0	5.2	10.9	6.7	18.7	38.0	4.1	1.8	.0

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	8.5930	
SEASONAL KENDALL STATISTIC =	-2.1706	*
MODIFY SEA. KEN. STATISTIC =	-1.3796	
VAN BELLE (HOMO) STATISTIC =	4.6881	
VAN BELLE (TEND) STATISTIC =	4.4802	*
KENDALL COEFFICIENT =	.0189	
SPEARMAN COEFFICIENT =	.1086	
SEASONAL LOWER CONF. INT. =	-2.5	
SEASONAL ESTIMATED OF SLOPE =	-.8	
SEASONAL UPPER CONF. INT. =	.0	

* SIGNIFICANT AT 5 % LEVEL

F.COLI 36011F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.0675	1.8214	1.3509	.0000	-.8604	1.8046	-1.6331	1.0418	1.0901	-.1225	.3043	-.3863
SPEARMAN STAT.	1.1599	2.0180	1.7482	.0419	-.8581	1.8167	-1.4424	1.0458	1.1080	.0182	.3330	.3426
KENDALL COEFFICIENT	.0667	.2381	-.1648	-.1868	-.2000	.3167	-.3143	.1810	.2000	-.0513	-.0667	-.5167
SPEARMAN COEFFICIENT	.3063	.4884	.4505	.0121	-.2235	.4368	-.3714	.2786	.2938	.0055	.0920	.0912
SEN LOWER CONF. INT.	-.2439	.0000	.0000	-1.5710	-5.1063	-.3584	-8.0000	-2.1455	-2.0000	-5.6694	-1.2734	.0000
SEN ESTIMATED OF SLOPE	.5000	.9167	.0000	.0000	-1.0000	4.0000	-5.0000	1.2500	2.6667	-.2000	.0000	.0000
SEN UPPER CONF. INT.	1.2778	2.7045	.7420	1.8273	1.2855	11.7920	1.5354	3.7967	8.1456	2.1547	.7760	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	11.7037
SEASONAL KENDALL STATISTIC =	1.5789
MODIFY SEA. KEN. STATISTIC =	1.2462
VAN BELLE (HOMO) STATISTIC =	12.9749
VAN BELLE (TEND) STATISTIC =	2.5009
KENDALL COEFFICIENT =	-.0137
SPEARMAN COEFFICIENT =	.1196
SEASONAL LOWER CONF. INT. =	.0000
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.4227

* SIGNIFICANT AT 5 % LEVEL

HG-TOT 80011P (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.3555	* -2.3932	-1.9030	* -2.5560	-1.2875	* -2.1213	-.9444	-1.6108	-1.6108	* -2.0889	-1.1018	* -2.4495
SPEARMAN STAT.	.1325	-1.4434	-.7942	-1.9917	.0000	-.5332	-.7746	-.6634	-.6634	-.6601	-.2463	-1.3093
KENDALL COEFFICIENT	-1.0000	-1.0000	-1.0000	-.9111	-.8545	-1.0000	-.4909	-.8182	-.8182	-1.0000	-.7091	-1.0000
SPEARMAN COEFFICIENT	.0500	-.4545	-.2875	-.5758	.0000	-.1750	-.2500	-.2159	-.2159	-.2273	-.0818	-.4000
SEN LOWER CONF. INT.	.0000	-.0017	-.0014	-.0050	.0000	.0000	-.0025	-.0013	-.0013	-.0011	-.0014	-.0014
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	-.0017	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETS AND KILLEN STATISTIC =	18.0690	
SEASONAL KENDALL STATISTIC =	-6.0745	*
MODIFY SEA. KEN. STATISTIC =	-2.2075	*
VAN BELLE (HOMO) STATISTIC =	3.2086	
VAN BELLE (TEND) STATISTIC =	39.4680	*
KENDALL COEFFICIENT =	-.5855	
SPEARMAN COEFFICIENT =	.1859	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

PB-TOT 82002P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.2822	* -2.2611	-1.6335	-.6384	-1.7321	* -2.8742	-1.5497	* -2.0368	-1.2961	* -3.1478	* -2.8498	* -2.5551
SPEARMAN STAT.	* -2.8538	-2.2244	-2.2629	-.9885	-2.2781	* -3.9367	-1.7137	-2.2781	-1.0308	* -5.1310	* -4.5934	* -2.9192
KENDALL COEFFICIENT	-.7778	-.7333	-.5714	-.2778	-.5111	-.8222	-.4667	-.6444	-.4667	-.9111	-.8222	-.8222
SPEARMAN COEFFICIENT	-.7333	-.6182	-.6786	-.3500	-.6273	-.8121	-.5182	-.6273	-.3424	-.8758	-.8515	-.7182
SEN LOWER CONF. INT.	-.0008	-.0006	-.0008	-.0008	-.0011	-.0006	-.0014	-.0006	-.0007	-.0006	-.0006	-.0006
SEN ESTIMATED OF SLOPE	-.0003	-.0003	-.0004	-.0001	-.0004	-.0004	-.0004	-.0003	-.0001	-.0004	-.0004	-.0002
SEN UPPER CONF. INT.	.0000	.0000	.0002	.0004	.0000	-.0002	.0002	.0000	.0001	-.0001	.0000	.0000

************** OVER ALL RESULTS *************

DIETS AND KILLEN STATISTIC =	16.9345	
SEASONAL KENDALL STATISTIC =	-7.2781	*
MODIFY SEA. KEN. STATISTIC =	-2.7820	*
VAN BELLE (HOMO) STATISTIC =	5.6181	
VAN BELLE (TEND) STATISTIC =	52.9094	*
KENDALL COEFFICIENT =	-.3094	
SPEARMAN COEFFICIENT =	-.1778	
SEASONAL LOWER CONF. INT. =	-.0004	
SEASONAL ESTIMATED OF SLOPE =	-.0003	
SEASONAL UPPER CONF. INT. =	-.0001	

* SIGNIFICANT AT 5 % LEVEL

Q-DM(M3/S)------ (THE 2 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.1642	.1220	.4114	.0547	-.2193	-1.0402	-.3832	.6022	.2737	.2737	-.0547	.1220
SPEARMAN STAT.	.1753	.3481	.5615	-.0381	-.2251	-1.1468	-.4063	.5157	.2366	.3134	.0228	.4225
KENDALL COEFFICIENT	.0330	.0256	.0909	.0110	-.0549	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256
SPEARMAN COEFFICIENT	.0505	.1044	.1748	-.0110	-.0648	-.3163	-.1165	.1473	.0681	.0901	.0066	.1264
SEN LOWER CONF. INT.	-.0753	-.1381	-.1336	-4.6134	-1.8004	-1.4512	-1.2528	-.8772	-.3427	-.4890	-.3360	-.1881
SEN ESTIMATED OF SLOPE	.0091	.0155	.0311	.0333	-.1846	-.3455	-.0300	.0483	.0203	.0425	-.0056	.0309
SEN UPPER CONF. INT.	.0851	.0941	.6114	2.7809	.9706	.2840	.9257	.7695	.6193	.3838	.2790	.2099

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	9.6384
SEASONAL KENDALL STATISTIC =	.0653
MODIFY [illegible] STATISTIC =	.0301
VAN BELLE (HOMO) STATISTIC =	2.0125
VAN BELLE (TEND) STATISTIC =	.0089
KENDALL COEFFICIENT =	-.0449
SPEARMAN COEFFICIENT =	.0082
SEASONAL LOWER CONF. INT. =	-.0700
SEASONAL ESTIMATED OF SLOPE =	.0050
SEASONAL UPPER CONF. INT. =	.0598

* SIGNIFICANT AT 5 % LEVEL

Table A1.9

TDS* 00201L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.1410	.9005	.6022	-.1982	.1982	-.8772	-.0451	.7204	1.6208	1.0849	.4511	.6303
SPEARMAN STAT.	1.6327	1.0271	1.0242	-.1967	.1902	-.8589	-.0688	.9540	1.6907	1.3382	.2426	.5791
KENDALL COEFFICIENT	.2000	.1667	.1209	-.0476	.0286	-.1868	-.0167	.1333	.3000	.1667	.0667	.1167
SPEARMAN COEFFICIENT	.4125	.2647	.2835	-.0545	.0527	-.2407	-.0184	.2471	.4118	.3368	.0647	.1529
SEN LOWER CONF. INT.	-2.8136	-3.1623	-3.3002	-6.2596	-5.1987	-7.2304	-5.1662	-2.3834	-1.4069	-2.4302	-3.2161	-4.1917
SEN ESTIMATED OF SLOPE	2.4000	2.3667	2.2308	-.3000	.5455	-1.3750	-.1000	.7922	3.6458	2.0167	1.7500	2.0000
SEN UPPER CONF. INT.	9.7515	6.9611	8.6605	2.3418	5.8159	2.1248	4.7372	4.0000	7.2980	6.2663	10.3265	9.9417

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =          8.2236
SEASONAL KENDALL  STATISTIC =          1.8759
MODIFY SEA. KEN.  STATISTIC =          1.5205
VAN BELLE (HOMO)  STATISTIC =          [illegible].0161
VAN BELLE (TEND)  STATISTIC =          3.2333
KENDALL           COEFFICIENT =        -.0076
SPEARMAN          COEFFICIENT =        -.0979
SEASONAL LOWER    CONF. INT. =          .0000
SEASONAL ESTIMATED OF SLOPE =          1.2500
SEASONAL UPPER    CONF. INT. =         2.3768
```

* SIGNIFICANT AT 5 % LEVEL

COND(F) 02041F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.2591	1.2372	.8563	.5457	.9403	-.8919	-.6579	1.1531	.7946	.6101	1.3362	1.3534
SPEARMAN STAT.	1.4823	1.3628	.8504	.6274	.8605	-.6713	-.7927	1.6329	.6259	.8263	1.3005	1.1958
KENDALL COEFFICIENT	.2527	.2381	.2000	.0857	.1810	-.1810	-.1429	.2088	.1538	.1282	.2571	.2333
SPEARMAN COEFFICIENT	.3934	.3536	.2727	.1714	.2321	-.1830	-.2231	.4264	.1854	.2418	.3393	.3044
SEN LOWER CONF. INT.	-2.8134	-2.6003	-6.5148	-5.2576	-7.0220	-10.4263	-14.3896	-3.7100	-5.9200	-14.5190	-4.4849	-3.6545
SEN ESTIMATED OF SLOPE	7.4444	5.6000	2.2500	1.8000	4.2308	-3.3333	-1.8571	4.0000	8.4167	4.3990	5.5000	9.3750
SEN UPPER CONF. INT.	20.5813	14.6516	14.8386	6.6886	16.1034	5.1673	6.8491	10.7872	18.8926	21.3755	19.2152	17.1144

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =         14.8360
SEASONAL KENDALL  STATISTIC =          2.4603  *
MODIFY SEA. KEN.  STATISTIC =          1.9823  *
VAN BELLE (HOMO)  STATISTIC =          6.1376
VAN BELLE (TEND)  STATISTIC =          6.0722  *
KENDALL           COEFFICIENT =        -.0040
SPEARMAN          COEFFICIENT =        -.0766
SEASONAL LOWER    CONF. INT. =          .3845
SEASONAL ESTIMATED OF SLOPE =          3.2500
SEASONAL UPPER    CONF. INT. =         5.7659
```

* SIGNIFICANT AT 5 % LEVEL

TEMP(F) 02061F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.2122	-1.3107	.1859	1.4476	1.2632	.0000	-.0905	.7466	-1.5849	-1.6743	.0000	* -2.3728
SPEARMAN STAT.	.0451	-.8581	.1048	1.8816	1.4998	-.0605	-.2675	.8430	-1.4929	-1.4350	.2260	-1.5658
KENDALL COEFFICIENT	-.2952	-.4833	-.0513	.2333	.2167	-.0333	-.0500	.1048	-.3333	-.3500	-.2833	-.8000
SPEARMAN COEFFICIENT	.0125	-.2235	.0316	.4493	.3721	-.0162	-.0713	.2277	-.3706	-.3581	.0603	-.3860
SEN LOWER CONF. INT.	-.0769	-.0393	-.0784	-.2000	-.2269	-.2411	-.3832	-.2500	-.4265	-.4371	-.0200	-.0695
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.3000	.2697	.0000	.0000	.1250	-.2542	-.2000	.0000	.0000
SEN UPPER CONF. INT.	.0166	.0000	.0853	.6888	.6972	.2954	.3610	.3910	.0543	.0314	.0402	.0000

************** OVER ALL RESULTS *************

DIETS AND KILLEN	STATISTIC =	18.8495
SEASONAL KENDALL	STATISTIC =	-1.0026
MODIFY SEA. KEN.	STATISTIC =	-.6224
VAN BELLE (HOMO)	STATISTIC =	15.9186
VAN BELLE (TEND)	STATISTIC =	1.0813
KENDALL	COEFFICIENT =	-.0168
SPEARMAN	COEFFICIENT =	.0719
SEASONAL LOWER	CONF. INT. =	-.0143
SEASONAL ESTIMATED	OF SLOPE =	.0000
SEASONAL UPPER	CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

TURB(F) 02073F (THE 4 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.1628	* 1.9809	.0000	-.1796	-1.1468	-.1562	-.3892	.0778	.5449	.4685	1.3525	1.1677
SPEARMAN STAT.	1.0830	* 3.3341	.2196	-.2669	-1.0981	-.0614	-.4129	-.1092	.7596	.2946	1.6198	1.2741
KENDALL COEFFICIENT	.2889	.5556	-.0714	-.0667	-.3333	-.0545	-.0909	.0182	.1273	.0909	.2889	.2727
SPEARMAN COEFFICIENT	.3576	.7833	.0893	-.0939	-.3833	-.0205	-.1364	-.0364	.2455	.0977	.4970	.3909
SEN LOWER CONF. INT.	-.2674	-.0399	-2.7075	-7.8612	-1.6400	-.9100	-1.2369	-1.2635	-.3392	-.3910	-.3000	-.3632
SEN ESTIMATED OF SLOPE	.3833	.6583	-.1357	-.1429	-.4375	-.1111	-.2000	.0833	.0833	.1000	.1625	.2000
SEN UPPER CONF. INT.	.8442	1.7057	1.6011	2.5945	.6400	2.0211	1.0272	1.1961	.3929	.9538	.7092	.7219

************** OVER ALL RESULTS *************

DIETS AND KILLEN	STATISTIC =	13.9514
SEASONAL KENDALL	STATISTIC =	1.3465
MODIFY SEA. KEN.	STATISTIC =	.9848
VAN BELLE (HOMO)	STATISTIC =	9.3171
VAN BELLE (TEND)	STATISTIC =	1.8871
KENDALL	COEFFICIENT =	-.1779
SPEARMAN	COEFFICIENT =	-.2684
SEASONAL LOWER	CONF. INT. =	-.0711
SEASONAL ESTIMATED	OF SLOPE =	.1167
SEASONAL UPPER	CONF. INT. =	.2634

* SIGNIFICANT AT 5 % LEVEL

B-DISS 05105D

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.2062	.4995	.0000	* -2.0399	-.6994	-.1240	.4017	-1.7741	-.1841	.8381	* 2.5709	1.2294
SPEARMAN STAT.	.3956	.6679	-.0546	-2.0235	-.7497	-.1459	.4972	-1.7322	-.1570	.6788	* 3.4118	1.1258
KENDALL COEFFICIENT	.0303	.0333	-.0545	-.4505	-.2000	-.1026	-.0095	-.4286	-.1500	.0549	.3846	.2051
SPEARMAN COEFFICIENT	.1241	.1757	-.0182	-.5044	-.2036	-.0440	.1366	-.4473	-.0419	.1923	.7170	.3214
SEN LOWER CONF. INT.	-.0076	-.0027	-.0100	-.0133	-.0033	-.0061	-.0046	-.0067	-.0035	-.0013	.0000	-.0033
SEN ESTIMATED OF SLOPE	.0010	.0008	.0000	-.0067	-.0005	.0000	.0000	-.0025	.0000	.0013	.0033	.0033
SEN UPPER CONF. INT.	.0076	.0039	.0060	.0000	.0020	.0064	.0060	.0000	.0035	.0050	.0066	.0067

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	[illegible]	
SEASONAL KENDALL STATISTIC =	.1445	
MODIFY SEA. KEN. STATISTIC =	.1043	
VAN BELLE (HOMO) STATISTIC =	17.0524	
VAN BELLE (TEND) STATISTIC =	.0712	
KENDALL COEFFICIENT =	-.1898	
SPEARMAN COEFFICIENT =	-.2170	
SEASONAL LOWER CONF. INT. =	-.0007	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0013	

* SIGNIFICANT AT 5 % LEVEL

NO3+NO2 07106L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.4387	* -2.9775	-1.7598	* -2.8028	-.5832	-.4860	.4355	-1.3027	.4542	.4533	-.3170	-.3616
SPEARMAN STAT.	-1.4424	* -4.1311	-2.1446	* -3.9051	-.2786	-.1073	.6277	-1.0087	.5762	.2786	-.2205	-.3537
KENDALL COEFFICIENT	-.2952	-.5667	-.3846	-.5500	-.3667	-.3500	-.1667	-.3833	.0167	.0333	-.1000	-.1000
SPEARMAN COEFFICIENT	-.3714	-.7412	-.5264	-.7221	-.0743	-.0287	.1654	-.2603	.1522	.0743	-.0588	-.0941
SEN LOWER CONF. INT.	-.0147	-.0295	-.0182	-.0384	-.0022	-.0018	-.0008	-.0040	-.0027	-.0025	-.0067	-.0057
SEN ESTIMATED OF SLOPE	-.0058	-.0148	-.0090	-.0226	.0000	.0000	.0000	-.0017	.0006	.0006	-.0001	-.0005
SEN UPPER CONF. INT.	.0041	-.0057	.0014	-.0082	.0000	.0002	.0019	.0000	.0039	.0067	.0063	.0071

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.4928	
SEASONAL KENDALL STATISTIC =	-3.0614	*
MODIFY SEA. KEN. STATISTIC =	-2.1165	*
VAN BELLE (HOMO) STATISTIC =	15.4776	
VAN BELLE (TEND) STATISTIC =	9.5163	*
KENDALL COEFFICIENT =	-.1022	
SPEARMAN COEFFICIENT =	-.1495	
SEASONAL LOWER CONF. INT. =	-.0025	
SEASONAL ESTIMATED OF SLOPE =	-.0013	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

TN* 07602L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.6825	* -2.6166	-1.4255	* -2.7914	* -2.5213	* -2.4312	* -3.2416	* -2.1182	-1.0366	* -2.4838	* -3.1516	* -2.7914
SPEARMAN STAT.	* -3.4915	* -3.3823	-1.7429	* -3.5209	* -3.7287	* -2.2991	* -3.8558	* -2.3758	-.9752	* -2.3576	* -4.6548	* -3.7599
KENDALL COEFFICIENT	-.5385	-.5000	-.2967	-.5167	-.4667	-.4500	-.6000	-.4000	-.2000	-.4833	-.5833	-.5167
SPEARMAN COEFFICIENT	-.7099	-.6706	-.4495	-.6853	-.7059	-.5235	-.7176	-.5360	-.2522	-.5331	-.7794	-.7088
SEN LOWER CONF. INT.	-.0751	-.0914	-.0878	-.1259	-.0638	-.0663	-.0614	-.0540	-.0382	-.0370	-.0591	-.0795
SEN ESTIMATED OF SLOPE	-.0400	-.0517	-.0331	-.0817	-.0352	-.0395	-.0450	-.0283	-.0121	-.0273	-.0437	-.0524
SEN UPPER CONF. INT.	-.0112	-.0150	.0073	-.0217	-.0124	-.0131	-.0183	-.0039	.0179	-.0086	-.0278	-.0204

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.3247	
SEASONAL KENDALL STATISTIC =	-8.4777	*
MODIFY SEA. KEN. STATISTIC =	-3.5131	*
VAN BELLE (HOMO) STATISTIC =	4.5969	
VAN BELLE (TEND) STATISTIC =	71.5001	*
KENDALL COEFFICIENT =	-.2742	
SPEARMAN COEFFICIENT =	-.3954	
SEASONAL LOWER CONF. INT. =	-.0445	
SEASONAL ESTIMATED OF SLOPE =	-.0369	
SEASONAL UPPER CONF. INT. =	-.0300	

* SIGNIFICANT AT 5 % LEVEL

DO 08101F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.5384	* -2.1225	-.0547	1.0879	-1.4000	.1808	-.2480	-1.1290	.7698	.4465	.4511	-1.3971
SPEARMAN STAT.	* -3.2906	* -3.0720	-.0685	1.1483	-1.6653	-.0385	-.3493	-1.1672	.5279	.0580	.5109	-1.6010
KENDALL COEFFICIENT	-.5238	-.4167	-.0110	.1500	-.2833	.0000	-.0667	-.2333	.1000	.0667	.0667	-.2667
SPEARMAN COEFFICIENT	-.6741	-.6346	-.0198	.2934	-.4066	-.0103	-.0964	-.2978	.1397	.0161	.1353	-.3934
SEN LOWER CONF. INT.	-.2346	-.3850	-.4400	-.0686	-.2235	-.1395	-.1644	-.2500	-.0764	-.1000	-.3921	-.6872
SEN ESTIMATED OF SLOPE	-.1308	-.1000	-.0333	.0598	-.0800	.0042	-.0167	-.0700	.0292	.0333	.0211	-.2511
SEN UPPER CONF. INT.	-.0454	-.0037	.4100	.2083	.0250	.1197	.1425	.0946	.1387	.2042	.1250	.1362

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.6159
SEASONAL KENDALL STATISTIC =	-1.7174
MODIFY SEA. KEN. STATISTIC =	-1.3309
VAN BELLE (HOMO) STATISTIC =	15.4575
VAN BELLE (TEND) STATISTIC =	2.9538
KENDALL COEFFICIENT =	.3080
SPEARMAN COEFFICIENT =	.4437
SEASONAL LOWER CONF. INT. =	-.0833
SEASONAL ESTIMATED OF SLOPE =	-.0400
SEASONAL UPPER CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

ALK-TOT 10101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.7321	1.6208	1.6448	1.2168	.3602	-.2737	.5403	1.5308	1.5339	.7204	1.2202	1.0805
SPEARMAN STAT.	* 2.2662	1.4249	1.8629	1.4621	.3092	-.1906	.3537	1.8091	1.4384	.7872	.9178	.9298
KENDALL COEFFICIENT	.3333	.3000	.3187	.2167	.0667	-.0549	.1000	.2833	.2667	.1333	.2000	.2000
SPEARMAN COEFFICIENT	.5321	.3559	.4736	.3640	.0824	-.0549	.0941	.4353	.3588	.2059	.2382	.2412
SEN LOWER CONF. INT.	-1.0000	-1.7052	-1.5308	-1.0979	-4.3767	-5.8531	-3.8571	-.8759	-.9307	-2.6718	-1.3429	-4.3410
SEN ESTIMATED OF SLOPE	4.7500	4.5750	3.8750	2.0625	1.5500	-.5000	1.3778	1.7846	4.0000	1.9000	2.6000	3.4308
SEN UPPER CONF. INT.	8.4055	8.4283	8.4760	4.3450	5.6710	2.7951	6.1917	5.0000	7.1205	5.7883	11.5910	11.5011

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.2471	
SEASONAL KENDALL STATISTIC =	3.7458	*
MODIFY SEA. KEN. STATISTIC =	2.4765	*
VAN BELLE (HOMO) STATISTIC =	4.2555	
VAN BELLE (TEND) STATISTIC =	13.9255	*
KENDALL COEFFICIENT =	.0126	
SPEARMAN COEFFICIENT =	-.0600	
SEASONAL LOWER CONF. INT. =	1.5000	
SEASONAL ESTIMATED OF SLOPE =	2.3333	
SEASONAL UPPER CONF. INT. =	3.5000	

* SIGNIFICANT AT 5 % LEVEL

PH(F) 10301F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.5572	.6574	.6325	* 1.9647	-.2752	.7757	-.9066	.0000	-.7018	1.2131	1.2388	.8645
SPEARMAN STAT.	.5337	.6005	.6789	* 2.4359	-.2814	.8938	-.9329	.0952	-.8921	1.3021	1.3087	.9208
KENDALL COEFFICIENT	-.0095	.0095	-.0256	.2667	-.1667	.0500	-.2167	-.2308	-.2190	.0500	.1167	.0833
SPEARMAN COEFFICIENT	.1464	.1643	.2005	.5456	-.0750	.2324	-.2419	.0275	-.2402	.3287	.3301	.2390
SEN LOWER CONF. INT.	-.0195	-.0270	-.0250	.0000	-.0333	-.0333	-.0678	-.0182	-.0505	.0000	-.0111	-.0333
SEN ESTIMATED OF SLOPE	.0000	.0100	.0000	.0360	.0000	.0118	-.0225	.0000	-.0091	.0111	.0155	.0143
SEN UPPER CONF. INT.	.0390	.0333	.0500	.0833	.0333	.0476	.0315	.0182	.0250	.0364	.0667	.0415

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	8.4581
SEASONAL KENDALL STATISTIC =	1.7701
MODIFY SEA. KEN. STATISTIC =	.9460
VAN BELLE (HOMO) STATISTIC =	7.7280
VAN BELLE (TEND) STATISTIC =	3.0205
KENDALL COEFFICIENT =	.1395
SPEARMAN COEFFICIENT =	.2994
SEASONAL LOWER CONF. INT. =	.0000
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0167

* SIGNIFICANT AT 5 % LEVEL

MFR 10401L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.4518	.3190	-.9401	-1.1921	-1.7837	-1.4873	-1.4873	-1.1410	-1.5817	-1.6507	-.3013	.3043
SPEARMAN STAT.	1.5074	.2953	-.8923	-1.1599	-2.0083	-1.4282	-1.2761	-1.0677	-1.9479	-1.8808	-.2939	.2939
KENDALL COEFFICIENT	.2000	-.0167	-.2527	-.2571	-.3524	-.2833	-.2833	-.2381	-.3167	* -.3714	-.1429	-.0667
SPEARMAN COEFFICIENT	.3857	.0787	-.2495	-.3063	-.4866	-.3566	-.3228	-.2839	-.4618	-.4625	-.0812	.0813
SEN LOWER CONF. INT.	-.1166	-.2845	-.7111	-8.2691	-2.0398	-2.6798	-3.5000	-1.7834	-1.2000	-.8083	-.2860	-.1967
SEN ESTIMATED OF SLOPE	.2500	.0000	-.1429	-1.0000	-.8750	-1.3111	-1.5889	-.5000	-.5774	-.4000	.0000	.0000
SEN UPPER CONF. INT.	.5568	.4754	.2500	1.6138	.1895	.6383	.6016	.3851	.1895	.0455	.2500	.2686

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	14.7860	
SEASONAL KENDALL	STATISTIC =	-2.7764	*
MODIFY SEA. KEN.	STATISTIC =	-2.4808	*
VAN BELLE (HOMO)	STATISTIC =	11.3267	
VAN BELLE (TEND)	STATISTIC =	7.5049	*
KENDALL	COEFFICIENT =	-.2070	
SPEARMAN	COEFFICIENT =	-.2374	
SEASONAL LOWER	CONF. INT. =	-.4000	
SEASONAL ESTIMATED OF SLOPE	=	-.2000	
SEASONAL UPPER	CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

NA-DISS 11103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.5855	1.8528	1.9161	-.2253	.0000	-.2253	.4524	1.0857	.6760	.9510	* 2.1182	.8121
SPEARMAN STAT.	* 2.4587	1.7642	* 2.4820	-.1901	-.1321	-.1129	.3900	1.4621	.7375	1.0579	* 2.2770	.7404
KENDALL COEFFICIENT	.2952	.3167	.3846	-.0500	.0000	-.0500	.0500	.1667	.1167	.1333	.3833	.1333
SPEARMAN COEFFICIENT	.5634	.4265	.5824	-.0507	-.0353	-.0301	.1037	.3640	.1934	.2721	.5199	.1941
SEN LOWER CONF. INT.	-.4159	-.0229	-.1202	-1.0044	-.6329	-.6389	-.6000	-.2916	-.4949	-.3035	.0110	-.4918
SEN ESTIMATED OF SLOPE	.5000	.5667	.6667	-.0452	.0042	-.0750	.1056	.2929	.3175	.3467	.5607	.3500
SEN UPPER CONF. INT.	1.5698	1.4843	1.4115	.3800	.6383	.3723	.6763	.7476	1.1883	.9281	1.2247	1.1842

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	11.8704	
SEASONAL KENDALL	STATISTIC =	3.0999	*
MODIFY SEA. KEN.	STATISTIC =	2.1006	*
VAN BELLE (HOMO)	STATISTIC =	7.5291	
VAN BELLE (TEND)	STATISTIC =	10.0816	*
KENDALL	COEFFICIENT =	-.0278	
SPEARMAN	COEFFICIENT =	-.0960	
SEASONAL LOWER	CONF. INT. =	.1000	
SEASONAL ESTIMATED OF SLOPE	=	.2763	
SEASONAL UPPER	CONF. INT. =	.4353	

* SIGNIFICANT AT 5 % LEVEL

MG-DISS 12102L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.2480	-1.5308	-.6579	-.6433	-.9905	* -2.3951	-.4958	-.0451	.2707	-.4056	-.4502	-.4511
SPEARMAN STAT.	.1095	-1.6045	-.7031	-.4807	-1.2277	* -2.9385	-.5081	.0633	.3984	-.3064	-.4658	-.4770
KENDALL COEFFICIENT	.0286	-.2833	-.1429	-.1238	-.1833	-.4667	-.1000	-.0167	.0333	-.0833	-.0833	-.1000
SPEARMAN COEFFICIENT	.0304	-.3941	-.1989	-.1321	-.3118	-.6176	-.1346	.0169	.1059	-.0816	-.1235	-.1265
SEN LOWER CONF. INT.	-.2333	-.6153	-.5791	-.3869	-.5353	-.5930	-.5372	-.2250	-.2000	-.3796	-.5881	-.6454
SEN ESTIMATED OF SLOPE	.0714	-.2063	-.1222	-.1000	-.1857	-.2887	-.1350	-.0125	.0558	-.0550	-.1000	-.1250
SEN UPPER CONF. INT.	.5226	.1077	.2658	.2312	.2000	-.0647	.2701	.1830	.5000	.2299	.3342	.4241

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	12.2653	
SEASONAL KENDALL	STATISTIC =	-2.1961	*
MODIFY SEA. KEN.	STATISTIC =	-1.5813	
VAN BELLE (HOMO)	STATISTIC =	6.1149	
VAN BELLE (TEND)	STATISTIC =	4.7461	*
KENDALL	COEFFICIENT =	-.0181	
SPEARMAN	COEFFICIENT =	-.0853	
SEASONAL LOWER	CONF. INT. =	-.2000	
SEASONAL ESTIMATED OF SLOPE =		-.1125	
SEASONAL UPPER	CONF. INT. =	-.0129	

* SIGNIFICANT AT 5 % LEVEL

P-TOT-DISS 15103D (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.3686	-1.7022	-.3674	* -3.1800	.1109	1.5862	.2745	.0000	-.3290	-.7730	-.7947	.4983
SPEARMAN STAT.	-1.5218	-1.2460	-.1185	* -4.8987	-.1028	1.7255	.1753	-.0114	-.2711	-.6909	-.9132	.4675
KENDALL COEFFICIENT	-.2747	-.3626	-.1026	-.6484	-.0549	.3333	.0330	-.0110	-.0769	-.2088	-.1810	.0476
SPEARMAN COEFFICIENT	-.4022	-.3385	-.0357	-.8165	-.0297	.4615	.0505	-.0033	-.0780	-.1956	-.2455	.1286
SEN LOWER CONF. INT.	-.0031	-.0020	-.0070	-.0147	-.0014	-.0007	-.0013	-.0015	-.0017	-.0031	-.0041	-.0014
SEN ESTIMATED OF SLOPE	-.0015	-.0010	-.0004	-.0094	.0000	.0014	.0003	.0000	-.0003	-.0006	-.0007	.0002
SEN UPPER CONF. INT.	.0015	.0004	.0010	-.0054	.0015	.0066	.0020	.0021	.0016	.0010	.0011	.0010

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	16.5990
SEASONAL KENDALL	STATISTIC =	-1.7886
MODIFY SEA. KEN.	STATISTIC =	-1.4941
VAN BELLE (HOMO)	STATISTIC =	16.1623
VAN BELLE (TEND)	STATISTIC =	3.0451
KENDALL	COEFFICIENT =	-.0211
SPEARMAN	COEFFICIENT =	.0069
SEASONAL LOWER	CONF. INT. =	-.0010
SEASONAL ESTIMATED OF SLOPE =		-.0005
SEASONAL UPPER	CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

P-TOT 15406L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	*3.1711	1.3534	1.3727	*-2.1240	-1.8948	.5875	-1.1730	-.2701	-1.6709	.2253	1.5774	-.5403
SPEARMAN STAT.	*3.9062	1.2729	1.5020	*-2.3530	-1.6762	.4096	-1.1514	-.2870	-1.5240	.1129	1.4758	-.2981
KENDALL COEFFICIENT	.6000	.2333	.2527	-.4167	-.3667	.0833	-.2333	-.0500	-.3333	.0333	.2833	-.1000
SPEARMAN COEFFICIENT	.7368	.3221	.3978	-.5324	-.4088	.1088	-.2941	-.0765	-.3772	.0301	.3669	-.0794
SEN LOWER CONF. INT.	.0013	-.0009	-.0014	-.0247	-.0060	-.0053	-.0099	-.0039	-.0057	-.0027	-.0005	-.0022
SEN ESTIMATED OF SLOPE	.0038	.0021	.0013	-.0100	-.0031	.0024	-.0023	-.0004	-.0018	.0005	.0021	-.0003
SEN UPPER CONF. INT.	.0050	.0052	.0061	-.0006	.0001	.0148	.0024	.0022	.0005	.0025	.0044	.0020

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.3811	
SEASONAL KENDALL STATISTIC =	.0266	
MODIFY SEA. KEN. STATISTIC =	.0214	
VAN BELLE (HOMO) STATISTIC =	29.2586	*
VAN BELLE (TEND) STATISTIC =	.0315	
KENDALL COEFFICIENT =	-.2585	
SPEARMAN COEFFICIENT =	-.3894	
SEASONAL LOWER CONF. INT. =	-.0010	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0008	

* SIGNIFICANT AT 5 % LEVEL

SO4-DISS 16304L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.3873	-1.2168	-1.4255	*-3.4703	*-2.8873	-1.9552	-1.6675	.0904	1.2168	.8580	-1.8566	-.4524
SPEARMAN STAT.	-1.3511	-1.0609	-1.6691	*-4.9012	*-4.1311	*-2.1901	-1.7903	.0275	1.4081	.8019	-1.9637	-.2067
KENDALL COEFFICIENT	-.2762	-.2333	-.2967	-.6500	-.5500	-.4167	-.3167	-.0167	.2167	.1333	-.3833	-.1167
SPEARMAN COEFFICIENT	-.3509	-.2728	-.4341	-.7949	-.7412	-.5051	-.4316	.0074	.3522	.2096	-.4647	-.0551
SEN LOWER CONF. INT.	-1.1454	-1.2528	-1.5499	-1.6077	-1.2667	-.6564	-.7457	-.4379	-.3749	-.3500	-1.0692	-1.0133
SEN ESTIMATED OF SLOPE	-.4000	-.4714	-.6250	-.9944	-.7216	-.3550	-.3100	.0000	.1765	.2361	-.5091	-.2649
SEN UPPER CONF. INT.	.3488	.5559	.3333	-.5596	-.3910	.0000	.0661	.4500	1.0819	1.0411	.0000	.8553

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	18.9272	
SEASONAL KENDALL STATISTIC =	-4.0611	*
MODIFY SEA. KEN. STATISTIC =	-2.8161	*
VAN BELLE (HOMO) STATISTIC =	21.6031	*
VAN BELLE (TEND) STATISTIC =	16.6939	*
KENDALL COEFFICIENT =	-.1139	
SPEARMAN COEFFICIENT =	-.1586	
SEASONAL LOWER CONF. INT. =	-.5364	
SEASONAL ESTIMATED OF SLOPE =	-.3600	
SEASONAL UPPER CONF. INT. =	-.2083	

* SIGNIFICANT AT 5 % LEVEL

CL-DISS 17206L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.9967	1.1706	.4386	* -2.1283	-.3964	-.5871	.8159	1.8948	1.4407	1.8046	1.4903	1.6274
SPEARMAN STAT.	1.6327	1.1388	.5354	* -2.9613	-.6849	-.5194	.8670	* 2.3987	1.3185	* 2.3349	1.6081	1.7493
KENDALL COEFFICIENT	.1429	.2167	.0769	-.4333	-.0857	-.1333	.1000	.3333	.2667	.3167	.2500	.2667
SPEARMAN COEFFICIENT	.4125	.2912	.1527	-.6206	-.1866	-.1375	.2257	.5397	.3324	.5294	.3949	.4235
SEN LOWER CONF. INT.	-.0722	-.0600	-.5249	-.2000	-.1690	-.1323	-.0641	-.0103	-.0477	-.0188	-.0319	-.0531
SEN ESTIMATED OF SLOPE	.1000	.1000	.0571	-.1174	-.0250	-.0148	.0275	.1258	.1519	.1000	.1000	.1450
SEN UPPER CONF. INT.	.2840	.3256	.5417	.0000	.1214	.1000	.1333	.2776	.3605	.2000	.2500	.3000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	10.3542	
SEASONAL KENDALL STATISTIC =	2.5087	*
MODIFY SEA. KEN. STATISTIC =	1.9357	
VAN BELLE (HOMO) STATISTIC =	15.9278	
VAN BELLE (TEND) STATISTIC =	6.1173	*
KENDALL COEFFICIENT =	-.0577	
SPEARMAN COEFFICIENT =	-.0981	
SEASONAL LOWER CONF. INT. =	.0083	
SEASONAL ESTIMATED OF SLOPE =	.0500	
SEASONAL UPPER CONF. INT. =	.1000	

* SIGNIFICANT AT 5 % LEVEL

A-BBC 18075L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.8121	* -2.3224	-.1936	-.9012	* -2.7151	-.7440	* -3.0176	* -2.6927	* -2.5789	* -2.3833	* -2.0875	-1.3036
SPEARMAN STAT.	-.7972	-1.6455	.0429	-.7746	* -2.9157	-.1605	* -2.3643	* -2.3763	* -2.5636	-1.9573	* -2.2849	.6314
KENDALL COEFFICIENT	-.8545	-.7714	-.3333	-.4182	-.7582	-.5758	-.8901	-.8205	-.6952	-.7949	-.6364	-.9697
SPEARMAN COEFFICIENT	-.2568	-.4152	.0152	-.2500	-.6440	-.0507	-.5637	-.5824	-.5795	-.5082	-.5857	.1958
SEN LOWER CONF. INT.	-.0003	-.0002	-.0004	-.0004	-.0003	-.0002	-.0003	-.0005	-.0004	-.0003	-.0005	.0000
SEN ESTIMATED OF SLOPE	.0000	-.0001	.0000	.0000	-.0002	.0000	-.0002	-.0002	-.0002	-.0002	-.0002	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0003	.0002	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.8354	
SEASONAL KENDALL STATISTIC =	-6.9002	*
MODIFY SEA. KEN. STATISTIC =	-3.3301	*
VAN BELLE (HOMO) STATISTIC =	9.0589	
VAN BELLE (TEND) STATISTIC =	43.1379	*
KENDALL COEFFICIENT =	-.3930	
SPEARMAN COEFFICIENT =	.0107	
SEASONAL LOWER CONF. INT. =	-.0002	
SEASONAL ESTIMATED OF SLOPE =	-.0001	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

24D 18500L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.5355	* 2.3900	1.8981	.7427	* 2.3094	.9024	* 2.2423	1.4878	* 2.2229	* 2.1909	1.1584	* 2.1483
SPEARMAN STAT.	* 3.9754	* 3.4645	* 2.3678	1.0458	* 3.4135	1.3906	* 3.0403	2.0325	* 3.3290	* 3.2536	1.9651	* 3.1864
KENDALL COEFFICIENT	-.2308	-.2000	-.0256	-.1238	-.3524	-.2527	.0667	-.2000	-.5333	-.4725	-.4505	-.3939
SPEARMAN COEFFICIENT	.7679	.6929	.5810	.2786	.6875	.3725	.6446	.4911	.6647	.6846	.4934	.7098
SEN LOWER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0021	.0019	.0026	.0026	.0000	.0023	.0024	.0019	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETS AND KILLEN STATISTIC =	16.4934	
SEASONAL KENDALL STATISTIC =	6.1160	*
MODIFY SEA. KEN. STATISTIC =	2.4938	*
VAN BELLE (HOMO) STATISTIC =	4.2063	
VAN BELLE (TEND) STATISTIC =	41.1768	*
KENDALL COEFFICIENT =	-.5872	
SPEARMAN COEFFICIENT =	.1164	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

245T 18510L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.7520	* 2.5981	* 2.1712	* 3.1376	* 2.3094	* 2.2576	* 2.7417	* 2.3094	1.5379	* 2.1909	1.1584	* 2.1483
SPEARMAN STAT.	* 2.5377	* 3.9795	* 3.2187	* 5.4675	* 3.4135	* 3.3235	* 4.3217	* 3.4135	* 2.4406	* 3.2536	1.9651	* 3.1864
KENDALL COEFFICIENT	-.1515	-.3143	-.4359	.0095	-.3524	-.3187	-.1810	-.3524	-.4667	-.4725	-.4505	-.3939
SPEARMAN COEFFICIENT	.6259	.7411	.6964	.8348	.6875	.6923	.7679	.6875	.5463	.6846	.4934	.7098
SEN LOWER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0002	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0046	.0000	.0000	.0043	.0000	.0000	.0042	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETS AND KILLEN STATISTIC =	13.6347	
SEASONAL KENDALL STATISTIC =	7.6036	*
MODIFY SEA. KEN. STATISTIC =	2.6875	*
VAN BELLE (HOMO) STATISTIC =	3.0852	
VAN BELLE (TEND) STATISTIC =	57.6965	*
KENDALL COEFFICIENT =	-.6564	
SPEARMAN COEFFICIENT =	.2304	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

K-DISS 19103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.8277	* -3.5118	* -2.2445	* -3.4217	* -2.4099	* -2.7548	-1.9419	-1.2218	-1.7577	* -2.8393	* -2.5741	* -3.5676
SPEARMAN STAT.	* -3.5341	* -5.6191	* -2.7835	* -5.6191	* -3.4996	* -3.4576	* -2.3036	-1.2891	-2.0318	* -3.1941	* -2.8224	* -5.7012
KENDALL COEFFICIENT	-.5619	-.6500	-.4505	-.6333	-.5000	-.5333	-.3833	-.2667	-.3333	-.5333	-.5000	-.6833
SPEARMAN COEFFICIENT	-.7000	-.8324	-.6264	-.8324	-.6831	-.6787	-.5243	-.3257	-.4772	-.6493	-.6022	-.8360
SEN LOWER CONF. INT.	-.2688	-.3266	-.3480	-.5733	-.2574	-.1978	-.1823	-.1500	-.1968	-.1517	-.2530	-.3000
SEN ESTIMATED OF SLOPE	-.1567	-.2082	-.1800	-.4611	-.1396	-.1292	-.0715	-.0367	-.0618	-.1000	-.1586	-.2146
SEN UPPER CONF. INT.	-.0512	-.1500	-.0351	-.2419	-.0207	-.0485	.0000	.0200	.0240	-.0314	-.0390	-.1285

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	18.4846	
SEASONAL KENDALL STATISTIC =	-8.9710	*
MODIFY SEA. KEN. STATISTIC =	-3.7636	*
VAN BELLE (HOMO) STATISTIC =	5.7798	
VAN BELLE (TEND) STATISTIC =	80.4600	*
KENDALL COEFFICIENT =	-.2581	
SPEARMAN COEFFICIENT =	-.3637	
SEASONAL LOWER CONF. INT. =	-.1720	
SEASONAL ESTIMATED OF SLOPE =	-.1500	
SEASONAL UPPER CONF. INT. =	-.1143	

* SIGNIFICANT AT 5 % LEVEL

CA-DISS 20101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.7423	1.2606	1.4781	1.2168	.2253	-.9005	-.3155	.3155	1.4873	1.6675	-.0451	.3155
SPEARMAN STAT.	.8605	.9782	1.3858	1.3680	.2786	-.7872	-.2177	.4348	1.8509	* 2.3215	-.1570	.1901
KENDALL COEFFICIENT	.1429	.2333	.2967	.2167	.0333	-.1667	-.0667	.0500	.2667	.3000	-.0167	.0500
SPEARMAN COEFFICIENT	.2321	.2529	.3714	.3434	.0743	-.2059	-.0581	.1154	.4434	.5272	-.0419	.0507
SEN LOWER CONF. INT.	-.7091	-.3135	-.2068	-.2551	-.9964	-1.1375	-1.0245	-.4691	-.2106	-.1593	-.4482	-.7479
SEN ESTIMATED OF SLOPE	.3444	.3875	.3571	.3177	.1786	-.3278	-.1000	.0367	.4500	.4944	-.0056	.1917
SEN UPPER CONF. INT.	1.8810	1.1873	1.3137	.8248	1.2723	.3827	.6686	.4602	1.0068	1.1541	1.5223	1.6747

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	11.5128	
SEASONAL KENDALL STATISTIC =	2.0988	*
MODIFY SEA. KEN. STATISTIC =	1.5752	
VAN BELLE (HOMO) STATISTIC =	7.3378	
VAN BELLE (TEND) STATISTIC =	4.6227	*
KENDALL COEFFICIENT =	.0368	
SPEARMAN COEFFICIENT =	-.0419	
SEASONAL LOWER CONF. INT. =	.0085	
SEASONAL ESTIMATED OF SLOPE =	.2000	
SEASONAL UPPER CONF. INT. =	.4133	

* SIGNIFICANT AT 5 % LEVEL

MN-DISS 25104D (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.9918	.2335	.0894	-2.6437 *	-1.2572	-1.1851	-1.8107	-.2415	-.9054	-1.1846	.3143	.6261
SPEARMAN STAT.	1.0000	.2463	-.0514	-3.6557 *	-1.3367	-1.2680	-2.0717	-.0682	-1.0102	-1.2307	.3084	.6880
KENDALL COEFFICIENT	.2000	.0545	.0222	-.7333	-.3333	-.3778	-.5111	-.2000	-.2889	-.3455	.0182	.1556
SPEARMAN COEFFICIENT	.3333	.0818	-.0182	-.7909	-.4273	-.4091	-.5909	-.0227	-.3364	-.3795	.1023	.2364
SEN LOWER CONF. INT.	-.0968	-.2573	-.2098	-.0163	-.0091	-.0048	-.0050	-.0034	-.0077	-.0064	-.0087	-.0554
SEN ESTIMATED OF SLOPE	.1400	.0187	.0075	-.0030	-.0015	-.0010	-.0025	.0000	-.0014	-.0015	.0004	.0050
SEN UPPER CONF. INT.	.3870	.3322	.1651	-.0014	.0009	.0013	.0002	.0038	.0043	.0008	.0100	.0273

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	15.9778
SEASONAL KENDALL	STATISTIC =	-1.9359
MODIFY SEA. KEN.	STATISTIC =	-1.2437
VAN BELLE (HOMO)	STATISTIC =	13.0192
VAN BELLE (TEND)	STATISTIC =	4.0519 *
KENDALL	COEFFICIENT =	-.2234
SPEARMAN	COEFFICIENT =	-.3394
SEASONAL LOWER	CONF. INT. =	-.0023
SEASONAL ESTIMATED OF SLOPE	=	-.0011
SEASONAL UPPER	CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

FE-DISS 26104D (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.0894	-.4685	-.8050	1.2572	.0902	.3592	.3631	-.7873	-.0902	-1.1677	-1.4056	-.6261
SPEARMAN STAT.	.3279	-.6780	-1.0000	1.1576	.1545	.3717	.5774	-.6415	-.1373	-1.3093	-1.4643	-.6508
KENDALL COEFFICIENT	.0222	-.1273	-.2000	.2889	-.0222	.0667	.0222	-.2364	-.0667	-.2727	-.3455	-.1556
SPEARMAN COEFFICIENT	.1152	-.2205	-.3333	.3788	.0545	.1303	.2000	-.2091	-.0485	-.4000	-.4386	-.2242
SEN LOWER CONF. INT.	-.0464	-.0270	-.0242	-.0213	-.0100	-.0087	-.0113	-.0159	-.0179	-.0334	-.0391	-.0384
SEN ESTIMATED OF SLOPE	.0027	-.0048	-.0078	.0125	.0000	.0003	.0026	-.0033	.0000	-.0131	-.0160	-.0097
SEN UPPER CONF. INT.	.0885	.0258	.0112	.0342	.0126	.0100	.0286	.0084	.0087	.0085	.0042	.0233

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	13.1331
SEASONAL KENDALL	STATISTIC =	-1.0356
MODIFY SEA. KEN.	STATISTIC =	-.6665
VAN BELLE (HOMO)	STATISTIC =	6.2358
VAN BELLE (TEND)	STATISTIC =	.8486
KENDALL	COEFFICIENT =	-.0897
SPEARMAN	COEFFICIENT =	-.1184
SEASONAL LOWER	CONF. INT. =	-.0059
SEASONAL ESTIMATED OF SLOPE	=	-.0017
SEASONAL UPPER	CONF. INT. =	.0024

* SIGNIFICANT AT 5 % LEVEL

CU-TOT 29005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.6238	-.4804	-1.2197	-.9839	-.3286	-1.1984	-1.3674	.0000	-.8137	-.3725	* -2.0176	-.0912
SPEARMAN STAT.	* 3.1181	-.3982	-1.1835	-1.0830	-.4014	-.8796	-1.3136	.2149	-.4424	-.1631	-1.9300	-.0257
KENDALL COEFFICIENT	.1111	-.3333	-.5556	-.2444	-.2778	-.4222	-.4222	-.2444	-.5111	-.2444	-.6889	-.1111
SPEARMAN COEFFICIENT	.7625	-.1394	-.4083	-.3576	-.1500	-.2970	-.4212	.0758	-.1545	-.0576	-.5636	-.0091
SEN LOWER CONF. INT.	.0000	-.0001	-.0006	-.0021	-.0004	-.0005	-.0018	-.0002	-.0001	-.0003	-.0004	-.0003
SEN ESTIMATED OF SLOPE	.0000	.0000	-.0002	-.0003	.0000	-.0002	-.0001	.0000	.0000	.0000	-.0001	.0000
SEN UPPER CONF. INT.	.0003	.0000	.0000	.0015	.0005	.0007	.0006	.0002	.0000	.0003	.0000	.0003

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	14.1779	
SEASONAL KENDALL STATISTIC =	-[illegible].1989	*
MODIFY SEA. KEN. STATISTIC =	-1.4008	
VAN BELLE (HOMO) STATISTIC =	9.8673	
VAN BELLE (TEND) STATISTIC =	4.5068	*
KENDALL COEFFICIENT =	-.2573	
SPEARMAN COEFFICIENT =	-.0708	
SEASONAL LOWER CONF. INT. =	-.0001	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

ZN-TOT 30005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.0640	.8980	-1.1135	-1.3609	-.6283	.0000	-1.3416	-1.1595	* -2.6379	-.7243	-.6312	1.0028
SPEARMAN STAT.	1.1547	.6416	-1.2425	-1.7056	-.8315	.5774	-1.7000	-1.5275	* -3.0509	-.6416	-.5774	1.0725
KENDALL COEFFICIENT	.2222	.2000	-.3571	-.4286	-.2857	-.0667	-.3333	-.3889	-.8222	-.2444	-.2000	.1556
SPEARMAN COEFFICIENT	.4000	.2212	-.4524	-.5714	-.3214	.2000	-.5152	-.5000	-.7333	-.2212	-.2000	.3545
SEN LOWER CONF. INT.	-.0002	-.0010	-.0010	-.0015	-.0012	-.0009	-.0014	-.0004	-.0010	-.0007	-.0008	-.0008
SEN ESTIMATED OF SLOPE	.0003	.0003	-.0004	-.0007	-.0004	.0000	-.0005	-.0002	-.0003	-.0002	-.0002	.0001
SEN UPPER CONF. INT.	.0011	.0010	.0002	.0004	.0002	.0011	.0004	.0001	.0000	.0003	.0007	.0010

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	16.4612	
SEASONAL KENDALL STATISTIC =	-1.8604	
MODIFY SEA. KEN. STATISTIC =	-1.3021	
VAN BELLE (HOMO) STATISTIC =	14.6779	
VAN BELLE (TEND) STATISTIC =	4.0885	*
KENDALL COEFFICIENT =	-.2024	
SPEARMAN COEFFICIENT =	-.2046	
SEASONAL LOWER CONF. INT. =	-.0003	
SEASONAL ESTIMATED OF SLOPE =	-.0002	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

T. COLI 36001F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.6954	* -2.3852	-1.6876	* -2.8728	-1.1649	-.0687	-1.7726	* -2.8625	* -2.1323	* -2.0303	* -2.8712	* -2.7778
SPEARMAN STAT.	-.7326	* -3.0379	-1.8407	* -4.7044	-1.1291	-.2831	-1.9932	* -3.6728	-1.7638	* -2.2903	* -3.7690	* -3.7084
KENDALL COEFFICIENT	-.1619	-.5385	-.4505	-.6154	-.2967	-.0303	-.3846	-.6044	-.5636	-.4909	-.6264	-.6264
SPEARMAN COEFFICIENT	-.1991	-.6593	-.4692	-.8173	-.3099	-.0892	-.5151	-.7275	-.5068	-.6068	-.7363	-.7308
SEN LOWER CONF. INT.	-3.6	-6.8	-37.8	-77.0	-12.0	-25.6	-20.0	-10.3	-9.2	-14.1	-11.5	-20.5
SEN ESTIMATED OF SLOPE	-.5	-2.4	-8.7	-39.9	-2.5	-.1	-10.6	-5.0	-3.7	-3.7	-3.7	-4.3
SEN UPPER CONF. INT.	7.1	-.3	.0	-6.6	1.3	11.7	1.6	-1.9	.0	.0	-.7	-.9

*************** OVER ALL RESULTS **************

DIETZ AND KILLEN STATISTIC =	1[illegible].9965	
SEASONAL KENDALL STATISTIC =	-6.6985	*
MODIFY SEA. KEN. STATISTIC =	-3.2252	*
VAN BELLE (HOMO) STATISTIC =	9.2766	
VAN BELLE (TEND) STATISTIC =	45.3233	*
KENDALL COEFFICIENT =	-.1080	
SPEARMAN COEFFICIENT =	-.0782	
SEASONAL LOWER CONF. INT. =	-6.0	
SEASONAL ESTIMATED OF SLOPE =	-4.0	
SEASONAL UPPER CONF. INT. =	-2.4	

* SIGNIFICANT AT 5 % LEVEL

F.COLI 36011F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.3492	-.3684	-.7339	* -2.1004	-1.3558	.3883	-1.4000	1.5894	-.1504	-.6250	-1.6013	-1.1860
SPEARMAN STAT.	1.6972	-.0483	-.3096	* -2.9194	-1.0938	.3288	-1.3349	1.9227	.2452	-.4787	-1.0394	-.9329
KENDALL COEFFICIENT	.0476	-.2952	-.4505	-.5455	-.4066	.0110	-.2833	.2762	-.1048	-.2564	-.5833	-.4167
SPEARMAN COEFFICIENT	.4259	-.0134	-.0890	-.6783	-.3011	.0945	-.3360	.4705	.0679	-.1429	-.2676	-.2419
SEN LOWER CONF. INT.	.0000	-.4000	-.4523	-2.9991	-2.8854	-.9167	-5.4655	-.5714	-1.7607	-1.0000	-.7778	-1.9315
SEN ESTIMATED OF SLOPE	.2500	.0000	.0000	-1.1429	-.2500	.2000	-.9286	2.0000	.0000	-.0714	.0000	-.1000
SEN UPPER CONF. INT.	1.1648	.3413	.0000	.0000	.0000	3.0418	.9728	4.0000	2.4114	.6279	.0000	.0000

*************** OVER ALL RESULTS **************

DIETZ AND KILLEN STATISTIC =	16.9693
SEASONAL KENDALL STATISTIC =	-1.6749
MODIFY SEA. KEN. STATISTIC =	-1.4043
VAN BELLE (HOMO) STATISTIC =	14.5685
VAN BELLE (TEND) STATISTIC =	3.1975
KENDALL COEFFICIENT =	-.0734
SPEARMAN COEFFICIENT =	.0956
SEASONAL LOWER CONF. INT. =	-.2222
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

HG-TOT 80011F (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.3932	* -2.6811	-1.9046	-1.7556	-1.8121	-.9015	* -2.1213	* -2.1213	* -2.1213	* -2.0889	-1.5667	* -2.4495
SPEARMAN STAT.	-1.4434	-1.9992	-1.0102	-.2739	-.7972	-.1502	-.5332	-.5332	-.5332	-.6601	.2582	-1.3093
KENDALL COEFFICIENT	-1.0000	-.9636	-.8667	-.9273	-.8545	-.6727	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
SPEARMAN COEFFICIENT	-.4545	-.5545	-.3364	-.0909	-.2568	-.0500	-.1750	-.1750	-.1750	-.2273	.0909	-.4000
SEN LOWER CONF. INT.	-.0017	-.0025	-.0021	.0000	-.0013	-.0011	.0000	.0000	.0000	-.0011	.0000	-.0014
SEN ESTIMATED OF SLOPE	.0000	-.0013	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

*************** OVER ALL RESULTS **************

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DIETZ AND KILLEN  STATISTIC =   [illegible].6972
SEASONAL KENDALL  STATISTIC =   -6.8830  *
MODIFY SEA. KEN.  STATISTIC =   -2.5016  *
VAN BELLE (HOMO)  STATISTIC =    2.3705
VAN BELLE (TEND)  STATISTIC =   47.6693  *
KENDALL         COEFFICIENT =    -.6590
SPEARMAN        COEFFICIENT =     .1703
SEASONAL LOWER   CONF. INT. =     .0000
SEASONAL ESTIMATED OF SLOPE =     .0000
SEASONAL UPPER   CONF. INT. =     .0000
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* SIGNIFICANT AT 5 % LEVEL

PB-TOT 82002F (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.1200	-1.7516	* -2.3320	* -2.8992	* -2.8187	* -2.7121	* -3.0984	* -2.8098	* -3.3717	* -3.1608	* -3.1844	* -2.4554
SPEARMAN STAT.	* -2.8892	-1.8700	* -3.6875	* -4.1172	* -3.6875	* -3.3453	* -3.8940	* -4.0249	* -5.5482	* -4.3154	* -4.9135	* -2.3902
KENDALL COEFFICIENT	-.6667	-.5556	-.7222	-.8667	-1.0000	-.8222	-1.0000	-.8667	-1.0000	-1.0000	-.9556	-.8667
SPEARMAN COEFFICIENT	-.7375	-.5515	-.8125	-.8242	-.8125	-.7636	-.8091	-.8182	-.8909	-.8364	-.8667	-.6455
SEN LOWER CONF. INT.	-.0007	-.0007	-.0007	-.0006	-.0007	-.0007	-.0006	-.0006	-.0006	-.0006	-.0006	-.0006
SEN ESTIMATED OF SLOPE	-.0003	-.0002	-.0005	-.0004	-.0004	-.0004	-.0004	-.0003	-.0002	-.0002	-.0002	-.0003
SEN UPPER CONF. INT.	.0000	.0000	.0000	-.0001	.0000	.0000	.0000	.0000	-.0001	.0000	.0000	.0000

*************** OVER ALL RESULTS **************

```
DIETZ AND KILLEN  STATISTIC =   19.0535
SEASONAL KENDALL  STATISTIC =   -9.5057  *
MODIFY SEA. KEN.  STATISTIC =   -3.2169  *
VAN BELLE (HOMO)  STATISTIC =    2.3810
VAN BELLE (TEND)  STATISTIC =   90.9633  *
KENDALL         COEFFICIENT =    -.3784
SPEARMAN        COEFFICIENT =    -.1621
SEASONAL LOWER   CONF. INT. =    -.0004
SEASONAL ESTIMATED OF SLOPE =    -.0004
SEASONAL UPPER   CONF. INT. =    -.0002
```

* SIGNIFICANT AT 5 % LEVEL

Q-DM(M3/S)------ (THE 3 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -3.1543	* -2.6844	-1.5086	-.6022	-1.6971	-1.5876	-1.5352	* -2.4635	* -2.9015	* -2.2445	* -3.2299	* -2.9015
SPEARMAN STAT.	* -5.8921	* -4.5434	-1.7752	-.7396	-1.7482	-1.7697	-1.4677	* -3.2438	* -4.4487	* -3.1292	* -5.0412	* -3.9744
KENDALL COEFFICIENT	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3187	-.4945	-.5824	-.4505	-.6484	-.5824
SPEARMAN COEFFICIENT	-.8811	-.8077	-.4895	-.2088	-.4505	-.4549	-.3901	-.6835	-.7890	-.6703	-.8242	-.7538
SEN LOWER CONF. INT.	-.5440	-.5756	-.5723	-11.4947	-9.0670	-7.0025	-5.8173	-2.6400	-3.4548	-2.4283	-1.1011	-.7078
SEN ESTIMATED OF SLOPE	-.4098	-.4071	-.3094	-2.3000	-2.8000	-2.0000	-2.8667	-1.4080	-2.1636	-1.3250	-.7231	-.3775
SEN UPPER CONF. INT.	-.2406	-.2020	.2063	1.7465	.8129	.3867	.4239	-.2079	-.8125	-.1255	-.2951	-.2380

*************** OVER ALL RESULTS **************

DIETZ AND KILLEN STATISTIC =	15.5070	
SEASONAL KENDALL STATISTIC =	-7.5533	*
MODIFY SEA. KEN. STATISTIC =	-3.2684	*
VAN BELLE (HOMO) STATISTIC =	7.3617	
VAN BELLE (TEND) STATISTIC =	58.5665	*
KENDALL COEFFICIENT =	-.0520	
SPEARMAN COEFFICIENT =	-.0212	
SEASONAL LOWER CONF. INT. =	-.9246	
SEASONAL ESTIMATED OF SLOPE =	-.6800	
SEASONAL UPPER CONF. INT. =	-.5194	

* SIGNIFICANT AT 5 % LEVEL

Table A1.10

TDS* 00201L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.1801	-.3056	-.3832	* 2.4249	.2474	1.1706	-.6433	-.8413	-.9005	.8104	-.2737	-.3602
SPEARMAN STAT.	.1873	-.2421	-.3443	* 2.9140	.2842	1.1388	-.7360	-.8605	-.8938	.7638	-.1295	-.4320
KENDALL COEFFICIENT	.0333	-.0769	-.0769	.4667	.0476	.2167	-.1238	-.1619	-.1667	.1500	-.0549	-.0667
SPEARMAN COEFFICIENT	.0500	-.0728	-.0989	.6286	.0786	.2912	-.2000	-.2321	-.2324	.2000	-.0374	-.1147
SEN LOWER CONF. INT.	-20.3	-15.4	-33.9	3.2	-11.7	-1.5	-12.2	-14.1	-20.4	-10.6	-20.9	-14.6
SEN ESTIMATED OF SLOPE	.8	-.6	-2.9	12.1	1.0	2.4	-2.2	-3.3	-4.8	14.3	-5.5	-1.0
SEN UPPER CONF. INT.	19.4	12.7	17.3	23.3	14.4	11.4	9.7	9.6	6.9	54.4	6.9	7.6

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	10.9178
SEASONAL KENDALL	STATISTIC =	.3805
MODIFY SEA. KEN.	STATISTIC =	.2385
VAN BELLE (HOMO)	STATISTIC =	10.2725
VAN BELLE (TEND)	STATISTIC =	.1056
KENDALL	COEFFICIENT =	.0830
SPEARMAN	COEFFICIENT =	.0331
SEASONAL LOWER	CONF. INT. =	-2.2
SEASONAL ESTIMATED	OF SLOPE =	.6
SEASONAL UPPER	CONF. INT. =	4.3

* SIGNIFICANT AT 5 % LEVEL

COND (F) 02041F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.1352	.6022	.6433	* 2.9715	1.4407	.9905	-.4502	-.5946	-.6303	1.3507	.1352	.1485
SPEARMAN STAT.	.2786	.3598	.5604	* 3.9896	1.4114	1.2021	-.4320	-.7531	-.6478	1.4384	.1129	.1160
KENDALL COEFFICIENT	.0167	.1209	.1238	.5500	.2667	.1833	-.0833	-.1238	-.1167	.2500	.0167	.0286
SPEARMAN COEFFICIENT	.0743	.1033	.1536	.7294	.3529	.3059	-.1147	-.2045	-.1706	.3588	.0301	.0321
SEN LOWER CONF. INT.	-18.9	-17.8	-16.3	7.2	-3.9	-5.6	-25.4	-21.7	-36.1	-16.5	-14.3	-16.7
SEN ESTIMATED OF SLOPE	1.7	3.0	4.0	19.0	10.5	5.1	-3.7	-4.7	-4.5	38.3	1.2	3.0
SEN UPPER CONF. INT.	19.0	25.4	18.7	29.0	26.4	20.2	14.2	17.3	14.8	81.4	16.5	17.0

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	16.8573	
SEASONAL KENDALL	STATISTIC =	1.9817	*
MODIFY SEA. KEN.	STATISTIC =	1.2149	
VAN BELLE (HOMO)	STATISTIC =	11.7108	
VAN BELLE (TEND)	STATISTIC =	3.7886	
KENDALL	COEFFICIENT =	.0510	
SPEARMAN	COEFFICIENT =	-.0079	
SEASONAL LOWER	CONF. INT. =	.0	
SEASONAL ESTIMATED	OF SLOPE =	5.0	
SEASONAL UPPER	CONF. INT. =	9.4	

* SIGNIFICANT AT 5 % LEVEL

TEMP(F) 02061F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.1361	-.1930	-1.2389	.5871	-.2258	-.7012	-.1368	1.4470	-.5462	* 2.8509	.2330	.3330
SPEARMAN STAT.	-.1349	.3288	-.6307	.3788	-.1956	-.5904	-.3426	1.5197	-.5620	* 3.4026	.4827	.9782
KENDALL COEFFICIENT	-.7167	-.4286	-.5619	.0833	-.0667	-.2000	-.1000	.2190	-.1667	.4833	-.1167	-.4333
SPEARMAN COEFFICIENT	-.0360	.0945	-.1723	.1007	-.0522	-.1616	-.0912	.3884	-.1485	.6728	.1279	.2529
SEN LOWER CONF. INT.	.0000	.0000	-.0493	-.3477	-.5350	-.5000	-.1818	-.0870	-.3333	.1250	-.0334	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.1352	-.0460	-.0909	.0000	.2167	-.0533	.3333	.0000	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	.5654	.3917	.1701	.1708	.6035	.2544	.5000	.0557	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	16.2265
SEASONAL KENDALL	STATISTIC =	.5454
MODIFY SEA. KEN.	STATISTIC =	.4527
VAN BELLE (HOMO)	STATISTIC =	14.3189
VAN BELLE (TEND)	STATISTIC =	.1350
KENDALL	COEFFICIENT =	.0013
SPEARMAN	COEFFICIENT =	.1418
SEASONAL LOWER	CONF. INT. =	.0000
SEASONAL ESTIMATED OF SLOPE	=	.0000
SEASONAL UPPER	CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

TURB(F) 02073F (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.1628	.6186	.3128	-1.3553	.5213	1.5639	1.7961	.2494	.6261	.9839	-.6283	-.5213
SPEARMAN STAT.	1.0000	.5374	.0882	-1.2721	.7817	1.8196	* 2.3148	.7138	.6880	1.0000	-.7303	-.3108
KENDALL COEFFICIENT	.2889	.2143	.1111	-.3889	.1667	.4444	.4222	.0714	.1556	.2444	-.2857	-.1667
SPEARMAN COEFFICIENT	.3333	.2143	.0333	-.4333	.2833	.5667	.6333	.2798	.2364	.3333	-.2857	-.1167
SEN LOWER CONF. INT.	-.5093	-1.1658	-.7839	-17.1329	-4.3999	-1.0666	-.2206	-2.4721	-1.3714	-.4457	-.5759	-.9013
SEN ESTIMATED OF SLOPE	.4000	.2905	.3875	-3.0833	1.1563	2.5833	1.8000	.3178	.3000	.2750	-.1475	-.2833
SEN UPPER CONF. INT.	1.7311	1.7556	2.2679	2.7486	4.6933	4.6000	3.0661	2.7589	1.1146	1.7120	.6985	.8257

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	9.9659
SEASONAL KENDALL	STATISTIC =	1.7383
MODIFY SEA. KEN.	STATISTIC =	.9857
VAN BELLE (HOMO)	STATISTIC =	10.4936
VAN BELLE (TEND)	STATISTIC =	2.5731
KENDALL	COEFFICIENT =	-.1291
SPEARMAN	COEFFICIENT =	-.1594
SEASONAL LOWER	CONF. INT. =	-.0609
SEASONAL ESTIMATED OF SLOPE	=	.3221
SEASONAL UPPER	CONF. INT. =	.7429

* SIGNIFICANT AT 5 % LEVEL

B-DISS 05105D

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.5522	.8871	1.3122	-.3300	.9512	.5681	1.1552	-1.3049	.7509	* 2.7608	.3083	.0000
SPEARMAN STAT.	-.6451	.9855	1.4840	-.3173	.9594	.6935	1.3813	-1.1419	.8815	* 3.3438	.4787	.0091
KENDALL COEFFICIENT	-.1538	.0989	.2424	-.0989	.1048	-.0256	.0667	-.3590	.0667	.4945	.0000	-.0256
SPEARMAN COEFFICIENT	-.1909	.2736	.4248	-.0912	.2571	.2047	.3463	-.3255	.2375	.6945	.1429	.0027
SEN LOWER CONF. INT.	-.0135	-.0044	-.0027	-.0050	-.0016	-.0025	-.0009	-.0097	-.0030	.0031	-.0042	-.0050
SEN ESTIMATED OF SLOPE	-.0016	.0014	.0039	-.0009	.0014	.0000	.0011	-.0039	.0011	.0050	.0006	.0000
SEN UPPER CONF. INT.	.0050	.0050	.0100	.0076	.0051	.0062	.0033	.0016	.0050	.0088	.0068	.0055

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.3489	
SEASONAL KENDALL STATISTIC =	1.9882	*
MODIFY SEA. KEN. STATISTIC =	1.0857	
VAN BELLE (HOMO) STATISTIC =	11.9399	
VAN BELLE (TEND) STATISTIC =	3.5281	
KENDALL COEFFICIENT =	-.0455	
SPEARMAN COEFFICIENT =	.0540	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0010	
SEASONAL UPPER CONF. INT. =	.0020	

* SIGNIFICANT AT 5 % LEVEL

NO3+NO2 07106L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.3971	-1.0965	-1.7837	* -1.9850	-.8496	-1.1339	-.5323	* -2.8207	* -2.2491	-.4326	-1.2321	-1.0478
SPEARMAN STAT.	-1.4963	-.9769	-1.7587	* -2.1602	-.5421	-.9028	-.1956	-1.5238	-1.5728	-.1256	-1.0271	-.9487
KENDALL COEFFICIENT	-.2667	-.2308	-.3524	-.3833	-.4500	-.3833	-.3333	-.9429	-.6833	-.3524	-.4167	-.2571
SPEARMAN COEFFICIENT	-.3713	-.2714	-.4384	-.5000	-.1434	-.2346	-.0522	-.3893	-.3875	-.0348	-.2647	-.2545
SEN LOWER CONF. INT.	-.0182	-.0377	-.0356	-.1763	-.0042	-.0100	-.0047	-.0059	-.0075	-.0060	-.0047	-.0069
SEN ESTIMATED OF SLOPE	-.0069	-.0120	-.0200	-.0699	.0000	-.0017	.0000	.0000	-.0017	.0000	-.0007	-.0014
SEN UPPER CONF. INT.	.0048	.0156	.0019	.0000	.0000	.0000	.0011	.0000	.0000	.0005	.0000	.0015

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.0486	
SEASONAL KENDALL STATISTIC =	-4.7043	*
MODIFY SEA. KEN. STATISTIC =	-2.2489	*
VAN BELLE (HOMO) STATISTIC =	5.5307	
VAN BELLE (TEND) STATISTIC =	22.8541	*
KENDALL COEFFICIENT =	-.4478	
SPEARMAN COEFFICIENT =	-.5161	
SEASONAL LOWER CONF. INT. =	-.0049	
SEASONAL ESTIMATED OF SLOPE =	-.0020	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

TW* 07602L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.5689	-1.4255	-1.9300	* -2.2511	-.7662	-1.8948	* -2.3316	* -2.2792	* -3.6505	-.4465	* -3.1998	* -2.4774
SPEARMAN STAT.	* -2.8333	-1.5267	* -2.2450	* -2.7425	-.9631	-2.1099	* -2.8332	* -2.7105	* -5.8030	-.4213	* -4.7809	* -2.7105
KENDALL COEFFICIENT	-.4833	-.2967	-.3714	-.4167	-.1500	-.3667	-.4667	-.4476	-.6833	-.1048	-.6000	-.4857
SPEARMAN COEFFICIENT	-.6037	-.4033	-.5286	-.5912	-.2493	-.4912	-.6179	-.6009	-.8404	-.1161	-.7875	-.6009
SEN LOWER CONF. INT.	-.1406	-.1740	-.2140	-.2510	-.0525	-.0610	-.0681	-.0838	-.1167	-.0893	-.0687	-.0956
SEN ESTIMATED OF SLOPE	-.0578	-.0429	-.0700	-.1263	-.0200	-.0300	-.0300	-.0367	-.0765	-.0170	-.0363	-.0325
SEN UPPER CONF. INT.	-.0167	.0436	.0041	-.0198	.0496	.0021	-.0012	-.0043	-.0409	.0739	-.0193	-.0094

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	23.3041	
SEASONAL KENDALL STATISTIC =	-7.3334	*
MODIFY SEA. KEN. STATISTIC =	-3.5132	*
VAN BELLE (HOMO) STATISTIC =	9.1238	
VAN BELLE (TEND) STATISTIC =	53.0105	*
KENDALL COEFFICIENT =	-.3069	
SPEARMAN COEFFICIENT =	-.4284	
SEASONAL LOWER CONF. INT. =	-.0545	
SEASONAL ESTIMATED OF SLOPE =	-.0425	
SEASONAL UPPER CONF. INT. =	-.0314	

* SIGNIFICANT AT 5 % LEVEL

DO 08101F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.6316	.6040	.8919	.2707	-1.4387	.0000	-.0902	.1987	-.2707	-1.2666	-1.6241	.6316
SPEARMAN STAT.	-.7346	.4218	.7669	.2703	-1.5736	.0676	-.0826	.1902	-.0771	-1.2438	-2.1266	.6939
KENDALL COEFFICIENT	-.1333	.0989	.1619	.0333	-.2952	-.0667	-.0333	.0095	-.0667	-.2667	-.3167	.1000
SPEARMAN COEFFICIENT	-.1926	.1209	.2080	.0721	-.4000	.0187	-.0221	.0527	-.0206	-.3154	-.4941	.1824
SEN LOWER CONF. INT.	-.3391	-.2500	-.1856	-.1310	-.1804	-.0803	-.1365	-.1250	-.1000	-.3269	-.3222	-.2660
SEN ESTIMATED OF SLOPE	-.1367	.0571	.1000	.0365	-.0692	.0000	-.0071	.0111	-.0139	-.0955	-.1345	.0839
SEN UPPER CONF. INT.	.1858	.2674	.3584	.1411	.1000	.1302	.1610	.0904	.0854	.0832	.0216	.3894

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.8512
SEASONAL KENDALL STATISTIC =	-.8448
MODIFY SEA. KEN. STATISTIC =	-.6075
VAN BELLE (HOMO) STATISTIC =	7.8452
VAN BELLE (TEND) STATISTIC =	.6188
KENDALL COEFFICIENT =	.3215
SPEARMAN COEFFICIENT =	.4757
SEASONAL LOWER CONF. INT. =	-.0600
SEASONAL ESTIMATED OF SLOPE =	-.0167
SEASONAL UPPER CONF. INT. =	.0286

* SIGNIFICANT AT 5 % LEVEL

ALK-TOT 10101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.4056	.4881	.1642	* 2.7914	1.4351	.3609	.9023	1.3362	* 2.2557	1.0366	-.0900	-.4502
SPEARMAN STAT.	-.5990	.5353	.2519	* 3.8886	1.6072	.4545	.6248	1.4585	* 2.5021	1.0424	.0110	-.2759
KENDALL COEFFICIENT	-.0833	.1026	.0330	.5167	.2762	.0500	.1500	.2571	.4000	.1833	-.0167	-.0833
SPEARMAN COEFFICIENT	-.1581	.1593	.0725	.7206	.4071	.1206	.1647	.3750	.5559	.2684	.0029	-.0735
SEN LOWER CONF. INT.	-14.3287	-10.2871	-14.2861	2.5318	-1.0233	-2.7445	-1.5511	-1.6018	.7036	-2.4138	-6.3834	-8.6278
SEN ESTIMATED OF SLOPE	-2.0000	.9444	2.1429	6.0000	2.0000	.2750	.9167	1.3636	3.0000	2.8712	-.2429	-2.0333
SEN UPPER CONF. INT.	5.4965	8.0422	10.5448	11.3139	5.6667	3.6078	4.2409	6.0758	5.3905	6.5339	6.2556	6.2306

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.6238	
SEASONAL KENDALL STATISTIC =	2.8553	*
MODIFY SEA. KEN. STATISTIC =	1.9945	*
VAN BELLE (HOMO) STATISTIC =	11.3408	
VAN BELLE (TEND) STATISTIC =	8.0435	*
KENDALL COEFFICIENT =	.1139	
SPEARMAN COEFFICIENT =	.0200	
SEASONAL LOWER CONF. INT. =	.3942	
SEASONAL ESTIMATED OF SLOPE =	1.6667	
SEASONAL UPPER CONF. INT. =	2.9091	

* SIGNIFICANT AT 5 % LEVEL

PH(F) 10301F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.7273	1.8793	.4506	1.9341	-.0459	-1.1503	-1.0025	.5696	.0950	-.3722	-.5481	-.3219
SPEARMAN STAT.	* 2.9957	* 2.5833	.6341	2.0521	-.0275	-.8879	-1.0494	.6476	.2648	-.1377	-.3398	-.2870
KENDALL COEFFICIENT	.4333	.1868	.0095	.2190	-.1333	-.3333	-.2762	-.1048	-.2000	-.2167	-.2000	-.1667
SPEARMAN COEFFICIENT	.6250	.5978	.1732	.4946	-.0074	-.2309	-.2795	.1768	.0706	-.0368	-.0904	-.0765
SEN LOWER CONF. INT.	.0200	.0000	-.0500	.0000	-.0250	-.0420	-.0500	-.0100	-.0158	-.0430	-.0500	-.0390
SEN ESTIMATED OF SLOPE	.0500	.0200	.0125	.0333	.0000	-.0125	-.0125	.0000	.0000	.0000	-.0033	.0000
SEN UPPER CONF. INT.	.0800	.0400	.0750	.0625	.0188	.0115	.0201	.0250	.0136	.0200	.0250	.0290

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.4212
SEASONAL KENDALL STATISTIC =	1.1146
MODIFY SEA. KEN. STATISTIC =	.7328
VAN BELLE (HOMO) STATISTIC =	16.6397
VAN BELLE (TEND) STATISTIC =	1.4805
KENDALL COEFFICIENT =	.2608
SPEARMAN COEFFICIENT =	.5025
SEASONAL LOWER CONF. INT. =	.0000
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0100

* SIGNIFICANT AT 5 % LEVEL

NFR 10401L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.2227	.7802	-1.2402	-1.7321	-.6449	.0991	1.3534	-1.0927	-1.1438	-1.9419	-.4981	-1.5838
SPEARMAN STAT.	-1.2021	.8175	-1.3005	* -2.4644	-.6611	-.0547	1.2989	-.9416	-1.4263	* -2.3125	-.4940	-1.4895
KENDALL COEFFICIENT	-.2667	.0549	-.2571	-.3333	-.1429	.0095	.2333	-.2381	-.2571	-.3833	-.1333	-.3333
SPEARMAN COEFFICIENT	-.3059	.2297	-.3393	-.5643	-.1804	-.0152	.3279	-.2527	-.3679	-.5257	-.1309	-.3699
SEN LOWER CONF. INT.	-1.2557	-.4177	-2.2073	-9.6202	-4.3900	-3.7457	-.5417	-2.0000	-1.2671	-1.3333	-.5000	-1.0000
SEN ESTIMATED OF SLOPE	-.2217	.1111	-.6571	-4.4000	-.5833	.2000	1.0000	-.5000	-.4500	-.5581	-.1292	-.4689
SEN UPPER CONF. INT.	.2400	.7714	.7773	.8258	2.1739	2.7038	1.7500	.7171	.2694	.0000	.2709	.1111

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   13.1934
SEASONAL KENDALL  STATISTIC =   -2.6058  *
MODIFY SEA. KEN.  STATISTIC =   -1.9980  *
VAN BELLE (HOMO)  STATISTIC =   11.3764
VAN BELLE (TEND)  STATISTIC =    6.5527  *
KENDALL         COEFFICIENT =    -.2066
SPEARMAN        COEFFICIENT =    -.2383
SEASONAL LOWER   CONF. INT. =    -.5511
SEASONAL ESTIMATED OF SLOPE =    -.2857
SEASONAL UPPER   CONF. INT. =    -.0377
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* SIGNIFICANT AT 5 % LEVEL

NA-DISS 11103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.7238	-.9307	-1.1531	* 2.3886	1.5855	1.8909	-.3602	-.2474	-.7662	1.5774	-.6937	-.2701
SPEARMAN STAT.	-.8196	-.9218	-1.2735	* 3.1446	1.7943	* 2.5021	-.1984	-.1805	-.6910	1.7754	-.5237	-.5563
KENDALL COEFFICIENT	-.1667	-.1868	-.2527	.4333	.2952	.3500	-.0667	-.0476	-.1500	.2833	-.1429	-.0500
SPEARMAN COEFFICIENT	-.2140	-.2571	-.3451	.6434	.4455	.5559	-.0529	-.0500	-.1816	.4287	-.1438	-.1471
SEN LOWER CONF. INT.	-1.6410	-3.4151	-5.4144	.1190	-.4736	-.0721	-1.1637	-2.2710	-2.2241	-.9745	-2.1394	-1.0900
SEN ESTIMATED OF SLOPE	-.1436	-.7400	-1.4200	.6000	.8400	.7500	-.1542	-.3700	-.4018	4.5400	-.6333	-.0733
SEN UPPER CONF. INT.	1.8655	1.4401	1.4347	1.2217	2.3052	1.3240	1.1889	1.1921	.8977	11.8724	1.3759	.8000

************** OVER ALL RESULTS *************

```
DIETZ AND KILLEN  STATISTIC =   13.1661
SEASONAL KENDALL  STATISTIC =     .7941
MODIFY SEA. KEN.  STATISTIC =     .5773
VAN BELLE (HOMO)  STATISTIC =   17.8952
VAN BELLE (TEND)  STATISTIC =     .4398
KENDALL         COEFFICIENT =     .1561
SPEARMAN        COEFFICIENT =     .1807
SEASONAL LOWER   CONF. INT. =    -.1667
SEASONAL ESTIMATED OF SLOPE =     .1500
SEASONAL UPPER   CONF. INT. =     .5245
```

* SIGNIFICANT AT 5 % LEVEL

MG-DISS 12102L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.3070	.3290	.0000	* 2.2511	.6937	.5403	-.9023	-.2474	-.8563	.4502	-.9905	-1.5308
SPEARMAN STAT.	-1.2567	.2788	.0800	* 2.4080	.8710	.4770	-.8403	-.5071	-.8019	.4208	-.8225	-1.6617
KENDALL COEFFICIENT	-.2500	.0549	-.0110	.4167	.1238	.1000	-.1833	-.0476	-.1667	.0833	-.1833	-.2833
SPEARMAN COEFFICIENT	-.3184	.0802	.0231	.5412	.2348	.1265	-.2191	-.1393	-.2096	.1118	-.2147	-.4059
SEN LOWER CONF. INT.	-2.2025	-1.1749	-1.7915	.1658	-1.2945	-.6500	-1.4827	-1.6468	-2.4428	-1.6183	-2.0653	-2.2729
SEN ESTIMATED OF SLOPE	-.6050	.5600	.0000	.9333	.2286	.1711	-.5900	-.0667	-.3857	1.2417	-.4188	-.7050
SEN UPPER CONF. INT.	.3190	3.2434	1.8032	1.8130	1.6000	1.7192	1.1440	1.4480	.6599	4.9487	.7296	.3657

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 20.4536
SEASONAL KENDALL STATISTIC = -.5024
MODIFY SEA. KEN. STATISTIC = -.2872
VAN BELLE (HOMO) STATISTIC = 12.5872
VAN BELLE (TEND) STATISTIC = .2054
KENDALL COEFFICIENT = .0456
SPEARMAN COEFFICIENT = .0062
SEASONAL LOWER CONF. INT. = -.3720
SEASONAL ESTIMATED OF SLOPE = -.0667
SEASONAL UPPER CONF. INT. = .2598

* SIGNIFICANT AT 5 % LEVEL

P-TOT-DISS15103D (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.9363	-1.1613	.3859	* -2.2513	.4404	-.3290	.4942	.0000	-.6579	1.5922	-.7423	* -1.9868
SPEARMAN STAT.	-.9133	-1.1636	.2098	* -2.8159	.5789	-.0876	.4765	.1277	-.4961	1.8050	-1.2543	-2.0570
KENDALL COEFFICIENT	-.2308	-.2564	.0330	-.4725	.0549	-.0769	.0769	.0000	-.1429	.3077	-.1429	-.4095
SPEARMAN COEFFICIENT	-.2549	-.3310	.0604	-.6308	.1648	-.0253	.1363	.0385	-.1418	.4780	-.3286	-.4955
SEN LOWER CONF. INT.	-.0111	-.0103	-.0086	-.0132	-.0044	-.0037	-.0052	-.0120	-.0113	-.0077	-.0058	-.0071
SEN ESTIMATED OF SLOPE	-.0010	-.0013	.0007	-.0076	.0016	-.0003	.0006	.0000	-.0022	.0103	-.0016	-.0020
SEN UPPER CONF. INT.	.0004	.0005	.0053	-.0008	.0078	.0030	.0058	.0099	.0030	.0547	.0020	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 12.6408
SEASONAL KENDALL STATISTIC = -1.5943
MODIFY SEA. KEN. STATISTIC = -1.0743
VAN BELLE (HOMO) STATISTIC = 13.2431
VAN BELLE (TEND) STATISTIC = 2.2121
KENDALL COEFFICIENT = .0667
SPEARMAN COEFFICIENT = .1253
SEASONAL LOWER CONF. INT. = -.0021
SEASONAL ESTIMATED OF SLOPE = -.0007
SEASONAL UPPER CONF. INT. = .0001

* SIGNIFICANT AT 5 % LEVEL

P-TOT 15406L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.8104	-.9869	-.1485	-1.7143	1.2227	.4968	.9925	-.0498	-.2714	1.0901	-.8586	* -2.0336
SPEARMAN STAT.	-1.0888	-1.3621	-.4807	-1.9876	1.2599	.6277	1.0702	.1192	-.2953	.9416	-.9904	* -2.2288
KENDALL COEFFICIENT	-.1500	-.2088	-.0286	-.3333	.1833	.0667	.1667	-.0476	-.0833	.2000	-.1833	-.4000
SPEARMAN COEFFICIENT	-.2794	-.3659	-.1321	-.4691	.3191	.1654	.2750	.0330	-.0787	.2527	-.2559	-.5118
SEN LOWER CONF. INT.	-.0120	-.0158	-.0148	-.0209	-.0030	-.0036	-.0049	-.0101	-.0070	-.0055	-.0054	-.0077
SEN ESTIMATED OF SLOPE	-.0024	-.0038	-.0010	-.0096	.0032	.0018	.0029	.0000	-.0007	.0114	-.0023	-.0020
SEN UPPER CONF. INT.	.0028	.0020	.0054	.0025	.0100	.0087	.0090	.0097	.0047	.0458	.0013	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.0000
SEASONAL KENDALL STATISTIC =	-.8921
MODIFY SEA. KEN. STATISTIC =	-.6192
VAN BELLE (HOMO) STATISTIC =	12.6693
VAN BELLE (TEND) STATISTIC =	.7862
KENDALL COEFFICIENT =	-.0553
SPEARMAN COEFFICIENT =	-.0336
SEASONAL LOWER CONF. INT. =	-.0025
SEASONAL ESTIMATED OF SLOPE =	-.0005
SEASONAL UPPER CONF. INT. =	.0006

* SIGNIFICANT AT 5 % LEVEL

SO4-DISS 16304L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.0000	.2737	.2193	* 2.6590	-.4454	.5414	-1.0805	-.7423	-1.7109	.8104	-.0451	-.2707
SPEARMAN STAT.	-.0220	.3752	.1868	* 3.3093	-.4807	.5222	-1.0764	-1.0313	-1.9009	.6824	-.0853	-.2592
KENDALL COEFFICIENT	.0000	.0549	.0330	.4833	-.0857	.0833	-.2000	-.1429	-.3167	.1500	-.0167	-.0667
SPEARMAN COEFFICIENT	-.0059	.1077	.0538	.6625	-.1321	.1382	-.2765	-.2750	-.4529	.1794	-.0228	-.0691
SEN LOWER CONF. INT.	-6.9417	-6.4172	-12.3926	1.5489	-9.1062	-3.1445	-7.3068	-9.8238	-11.9417	-8.1278	-7.9660	-5.7008
SEN ESTIMATED OF SLOPE	.2619	.6250	.3571	4.6410	-2.0000	1.2500	-1.9000	-2.5714	-4.4000	7.0357	-.1071	-.4625
SEN UPPER CONF. INT.	9.9068	7.7844	7.1248	9.1146	7.5644	6.3634	4.5113	2.3340	2.4611	23.6278	3.6485	3.5054

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	13.1020
SEASONAL KENDALL STATISTIC =	.0679
MODIFY SEA. KEN. STATISTIC =	.0381
VAN BELLE (HOMO) STATISTIC =	13.0589
VAN BELLE (TEND) STATISTIC =	.0036
KENDALL COEFFICIENT =	.0882
SPEARMAN COEFFICIENT =	.1132
SEASONAL LOWER CONF. INT. =	-1.7548
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	1.7017

* SIGNIFICANT AT 5 % LEVEL

CL-DISS 17206L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.4056	-1.1496	.2193	1.6675	* 2.1279	* 2.2557	.6433	-.3964	-1.1267	1.6241	-.8413	-.6760
SPEARMAN STAT.	-.4742	-1.2187	-.1639	1.7016	* 2.5340	* 3.0661	.7087	-.0676	-1.1294	1.6259	-1.0604	-.7433
KENDALL COEFFICIENT	-.0833	-.2308	.0330	.3000	.4095	.4000	.1238	-.0857	-.2167	.2833	-.1619	-.1333
SPEARMAN COEFFICIENT	-.1257	-.3319	-.0473	.4140	.5750	.6338	.1929	-.0187	-.2890	.3985	-.2821	-.1949
SEN LOWER CONF. INT.	-1.2451	-2.5303	-1.6202	-.0532	.1276	.0639	-.8222	-2.6956	-2.1660	-.6901	-1.5031	-1.2095
SEN ESTIMATED OF SLOPE	-.2496	-.5500	.3625	.2056	.7200	.8125	.2300	-.3000	-.3606	4.6500	-.5000	-.2631
SEN UPPER CONF. INT.	1.5802	1.2954	1.7825	.5553	1.6203	1.2560	1.0949	.8189	.4299	8.4719	1.0152	.5279

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.2424	
SEASONAL KENDALL STATISTIC =	1.2144	
MODIFY SEA. KEN. STATISTIC =	.7824	
VAN BELLE (HOMO) STATISTIC =	18.2791	
VAN BELLE (TEND) STATISTIC =	1.2951	
KENDALL COEFFICIENT =	.0826	
SPEARMAN COEFFICIENT =	.1154	
SEASONAL LOWER CONF. INT. =	-.0700	
SEASONAL ESTIMATED OF SLOPE =	.1431	
SEASONAL UPPER CONF. INT. =	.4167	

* SIGNIFICANT AT 5 % LEVEL

A-BHC 18075L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.0667	-1.5281	1.2632	-1.3744	* -2.5463	-1.1221	-1.2824	* -2.9122	* -2.8117	* -2.8713	* -2.2975	* -2.3689
SPEARMAN STAT.	-1.9065	-1.5918	1.4177	-1.2654	* -3.4165	-1.2208	-1.2506	* -3.8715	* -3.0331	* -3.7450	* -2.8643	* -3.4740
KENDALL COEFFICIENT	-.6727	-.5128	-.0182	-.4909	-.6484	-.3636	-.3626	-.6970	-.6190	-.7179	-.6667	-.6061
SPEARMAN COEFFICIENT	-.5364	-.4327	.4273	-.3886	-.7022	-.3601	-.3396	-.7745	-.6438	-.7486	-.6713	-.7395
SEN LOWER CONF. INT.	-.0006	-.0003	.0000	-.0005	-.0007	-.0007	-.0005	-.0012	-.0011	-.0010	-.0006	-.0010
SEN ESTIMATED OF SLOPE	-.0003	-.0001	.0000	-.0002	-.0004	-.0002	-.0002	-.0007	-.0008	-.0003	-.0003	-.0005
SEN UPPER CONF. INT.	.0000	.0000	.0003	.0000	.0000	.0002	.0001	-.0004	-.0002	-.0002	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.1491	
SEASONAL KENDALL STATISTIC =	-6.5366	*
MODIFY SEA. KEN. STATISTIC =	-3.1863	*
VAN BELLE (HOMO) STATISTIC =	14.9648	
VAN BELLE (TEND) STATISTIC =	40.0339	*
KENDALL COEFFICIENT =	.0019	
SPEARMAN COEFFICIENT =	.2113	
SEASONAL LOWER CONF. INT. =	-.0003	
SEASONAL ESTIMATED OF SLOPE =	-.0003	
SEASONAL UPPER CONF. INT. =	-.0002	

* SIGNIFICANT AT 5 % LEVEL

24D 18500L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.6338	.3944	1.1446	.0000	.8303	1.0126	.0502	1.3877	1.1024	* 2.1070	1.6425	.6482
SPEARMAN STAT.	* 3.4801	.2596	1.1781	-.0800	1.3043	.9344	-.1192	1.4404	1.2277	* 2.4644	1.5303	1.0415
KENDALL COEFFICIENT	.3077	-.0549	.0549	-.1429	-.0476	.0769	-.0857	.1282	.0833	.3143	.0513	-.3187
SPEARMAN COEFFICIENT	.7239	.0747	.3220	-.0231	.3402	.2604	-.0330	.3984	.3118	.5643	.4190	.2879
SEN LOWER CONF. INT.	.0000	-.0029	-.0002	-.0040	-.0003	-.0062	-.0033	.0000	-.0008	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0019	.0000	.0004	.0000	.0000	.0015	.0000	.0018	.0008	.0075	.0005	.0000
SEN UPPER CONF. INT.	.0037	.0016	.0030	.0043	.0030	.0059	.0056	.0042	.0025	.0200	.0029	.0020

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	22.4691	
SEASONAL KENDALL STATISTIC =	3.6404	*
MODIFY SEA. KEN. STATISTIC =	2.1042	*
VAN BELLE (HOMO) STATISTIC =	6.8350	
VAN BELLE (TEND) STATISTIC =	13.9831	*
KENDALL COEFFICIENT =	-.1603	
SPEARMAN COEFFICIENT =	.0510	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0005	
SEASONAL UPPER CONF. INT. =	.0015	

* SIGNIFICANT AT 5 % LEVEL

245T 18510L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.5355	* 2.1909	1.0040	* 2.1619	* 2.7756	* 2.6870	* 2.0515	* 2.3664	* 2.2673	* 2.0024	* 2.5355	1.8858
SPEARMAN STAT.	* 3.9754	* 3.2536	1.8297	* 3.1292	* 4.2139	* 4.2747	* 2.9904	* 3.5649	* 3.0601	* 2.9140	* 3.9754	* 2.7437
KENDALL COEFFICIENT	-.2308	-.4725	-.4725	-.0989	-.0476	-.1429	-.1619	-.2564	-.0667	-.2571	-.2308	-.2308
SPEARMAN COEFFICIENT	.7679	.6846	.4670	.6703	.7598	.7769	.6384	.7321	.6331	.6286	.7679	.6209
SEN LOWER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0039	.0000	.0000	.0046	.0044	.0048	.0043	.0037	.0039	.0023	.0039	.0034

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	20.8242	
SEASONAL KENDALL STATISTIC =	7.5486	*
MODIFY SEA. KEN. STATISTIC =	2.6279	*
VAN BELLE (HOMO) STATISTIC =	2.4173	
VAN BELLE (TEND) STATISTIC =	58.3609	*
KENDALL COEFFICIENT =	-.5234	
SPEARMAN COEFFICIENT =	.2717	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

K-DISS 19103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.1359	-.0549	.8270	1.6721	1.2882	1.3534	-.7662	-.9942	-.9005	.4511	-.9023	-.5440
SPEARMAN STAT.	-.2537	.0685	.5118	1.7941	1.0640	1.5205	-.7084	-.9309	-.8225	.6824	-.9118	-.5534
KENDALL COEFFICIENT	-.0667	-.0330	.1209	.2833	.2381	.2333	-.1500	-.2190	-.1667	.0667	-.1833	-.1500
SPEARMAN COEFFICIENT	-.0676	.0198	.1462	.4324	.2830	.3765	-.1860	-.2500	-.2147	.1794	-.2368	-.1463
SEN LOWER CONF. INT.	-.4257	-.4040	-.2345	-.0159	-.1232	-.0502	-.4133	-.5058	-.6018	-.4000	-.4965	-.3618
SEN ESTIMATED OF SLOPE	.0000	.0000	.1500	.1296	.1000	.1225	-.1088	-.1333	-.1568	.0468	-.1361	-.0728
SEN UPPER CONF. INT.	.2910	.3616	.4276	.3333	.3003	.3875	.1429	.1869	.1426	.4936	.0894	.1375

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	10.7961
SEASONAL KENDALL	STATISTIC =	.3403
MODIFY SEA. KEN.	STATISTIC =	.1676
VAN BELLE (HOMO)	STATISTIC =	10.5527
VAN BELLE (TEND)	STATISTIC =	.1395
KENDALL	COEFFICIENT =	-.0217
SPEARMAN	COEFFICIENT =	-.0030
SEASONAL LOWER	CONF. INT. =	-.0600
SEASONAL ESTIMATED OF SLOPE	=	.0000
SEASONAL UPPER	CONF. INT. =	.0750

* SIGNIFICANT AT 5 % LEVEL

CA-DISS 20101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.1706	-.5483	-.1642	* 2.3412	-.4955	-1.5774	-.8104	-.2474	-.3602	.2253	.0902	.0451
SPEARMAN STAT.	-1.1263	-.2788	-.1143	* 2.5997	-.6916	-1.6437	-.8344	-.1805	-.1211	.1294	.2205	.2232
KENDALL COEFFICIENT	-.2167	-.1209	-.0330	.4333	-.1048	-.3000	-.1500	-.0476	-.0667	.0333	.0000	.0000
SPEARMAN COEFFICIENT	-.2882	-.0802	-.0330	.5706	-.1884	-.4022	-.2176	-.0500	-.0324	.0346	.0588	* .0596
SEN LOWER CONF. INT.	-5.8713	-5.7451	-6.9165	.4539	-1.4910	-1.5661	-1.2546	-1.9103	-1.1942	-3.0852	-2.0340	-1.5900
SEN ESTIMATED OF SLOPE	-1.5571	-.7000	-1.0000	1.5378	-.3333	-.6909	-.4606	-.2833	-.1800	.1956	.0125	.0833
SEN UPPER CONF. INT.	1.9275	2.8957	3.4178	2.7461	.6456	.2662	.6000	1.1861	.9145	2.0677	1.5328	2.1146

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	16.0098
SEASONAL KENDALL	STATISTIC =	-.7468
MODIFY SEA. KEN.	STATISTIC =	-.6828
VAN BELLE (HOMO)	STATISTIC =	10.2262
VAN BELLE (TEND)	STATISTIC =	.5950
KENDALL	COEFFICIENT =	.1189
SPEARMAN	COEFFICIENT =	.0633
SEASONAL LOWER	CONF. INT. =	-.6500
SEASONAL ESTIMATED OF SLOPE	=	-.1962
SEASONAL UPPER	CONF. INT. =	.2780

* SIGNIFICANT AT 5 % LEVEL

MN-DISS 25104D (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.6261	-1.3609	.1043	.4472	-.5388	-.1562	1.4368	.5213	-.1043	-.9839	1.0776	1.6164
SPEARMAN STAT.	-.5050	-1.6031	.3108	.2235	-.4602	.2256	1.6068	.7320	-.1325	-1.1254	.8308	1.6864
KENDALL COEFFICIENT	-.1556	-.4286	.0556	.1111	-.1556	-.0545	.3333	.1667	-.0556	-.2444	.2444	.3778
SPEARMAN COEFFICIENT	-.1758	-.5476	.1167	.0788	-.1606	.0750	.4939	.2667	-.0500	-.3697	.2818	.5121
SEN LOWER CONF. INT.	-.0961	-.3561	-.1266	-.0089	-.0211	-.0258	-.0103	-.0540	-.0828	-.0451	-.0088	-.0055
SEN ESTIMATED OF SLOPE	-.0050	-.0938	.0021	.0021	-.0043	-.0015	.0115	.0034	-.0023	-.0130	.0068	.0120
SEN UPPER CONF. INT.	.0358	.0636	.0682	.0261	.0128	.0382	.0333	.0357	.0775	.0164	.0243	.0328

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 9.5145
SEASONAL KENDALL STATISTIC = .4852
MODIFY SEA. KEN. STATISTIC = .4159
VAN BELLE (HOMO) STATISTIC = 10.2291
VAN BELLE (TEND) STATISTIC = .1666
KENDALL COEFFICIENT = -.1316
SPEARMAN COEFFICIENT = -.1897
SEASONAL LOWER CONF. INT. = -.0047
SEASONAL ESTIMATED OF SLOPE = .0014
SEASONAL UPPER CONF. INT. = .0080

* SIGNIFICANT AT 5 % LEVEL

FE-DISS 26104D (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.8647	-1.7828	.3162	.8050	-.8647	-1.3712	* -2.2098	-1.9586	* -3.0887	-.8647	* -2.3179	-1.2710
SPEARMAN STAT.	-.4692	-2.1909	.4703	.8405	-.6508	-.6196	* -2.4095	-1.9001	* -3.6557	-1.0412	* -2.8939	-1.1685
KENDALL COEFFICIENT	-.4222	-.6429	.0556	.2000	-.4222	-.6727	-.7333	-.7778	-.9556	-.4222	-.6889	-.3778
SPEARMAN COEFFICIENT	-.1636	-.6667	.1750	.2848	-.2242	-.2023	-.6485	-.5833	-.7909	-.3455	-.7152	-.3818
SEN LOWER CONF. INT.	-.0052	-.0090	-.0043	-.0102	-.0005	-.0028	-.0054	-.0072	-.0060	-.0029	-.0091	-.0127
SEN ESTIMATED OF SLOPE	.0000	-.0019	.0004	.0020	.0000	.0000	-.0030	-.0031	-.0043	.0000	-.0035	-.0030
SEN UPPER CONF. INT.	.0017	.0000	.0096	.0095	.0021	.0000	.0000	.0000	-.0006	.0022	.0000	.0025

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 16.7616
SEASONAL KENDALL STATISTIC = -4.3841 *
MODIFY SEA. KEN. STATISTIC = -2.2329 *
VAN BELLE (HOMO) STATISTIC = 14.0039
VAN BELLE (TEND) STATISTIC = 20.3061 *
KENDALL COEFFICIENT = -.3490
SPEARMAN COEFFICIENT = -.2019
SEASONAL LOWER CONF. INT. = -.0025
SEASONAL ESTIMATED OF SLOPE = -.0012
SEASONAL UPPER CONF. INT. = .0000

* SIGNIFICANT AT 5 % LEVEL

PB-TOT 82002P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.9144	-1.7455	-1.6432	* -2.4093	* -2.4093	-1.6958	* -2.7121	* -2.0649	* -2.9626	* -3.1608	* -2.8098	-1.3828
SPEARMAN STAT.	-2.1381	-2.0885	-1.5618	* -2.7490	* -2.7490	-1.8407	* -4.0249	* -2.5934	* -4.2640	* -4.3154	* -4.0249	-1.5938
KENDALL COEFFICIENT	-.5556	-.5714	-.6111	-.8222	-.8222	-.6000	-.8222	-.7222	-.8667	-1.0000	-.8667	-.4667
SPEARMAN COEFFICIENT	-.6030	-.6488	-.5083	-.6970	-.6970	-.5455	-.8182	-.7000	-.8333	-.8364	-.8182	-.4909
SEN LOWER CONF. INT.	-.0007	-.0008	-.0011	-.0006	-.0006	-.0005	-.0006	-.0008	-.0007	-.0006	-.0006	-.0006
SEN ESTIMATED OF SLOPE	-.0003	-.0005	-.0004	-.0004	-.0004	-.0004	-.0004	-.0004	-.0004	-.0002	-.0003	-.0001
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	-.0001	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	65.6705	*
SEASONAL KENDALL STATISTIC =	-7.8557	*
MODIFY SEA. KEN. STATISTIC =	-2.8120	*
VAN BELLE (HOMO) STATISTIC =	3.4790	
VAN BELLE (TEND) STATISTIC =	61.8959	*
KENDALL COEFFICIENT =	-.3607	
SPEARMAN COEFFICIENT =	-.1964	
SEASONAL LOWER CONF. INT. =	-.0004	
SEASONAL ESTIMATED OF SLOPE =	-.0004	
SEASONAL UPPER CONF. INT. =	-.0002	

* SIGNIFICANT AT 5 % LEVEL

Q-DM(M3/S)------ (THE 3 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.7321	-.2743	-.2440	-.8212	-.8772	-.4386	.3832	-.1642	* -2.1351	-1.6971	-1.2591	-.5483
SPEARMAN STAT.	-.6693	-.3335	-.5164	-.9556	-.9514	-.8756	.5315	-.4063	* -2.2392	-1.7914	-1.3105	-.3869
KENDALL COEFFICIENT	-.1538	-.0606	-.0513	-.1648	-.1868	-.0989	.0769	-.0330	-.4286	-.3407	-.2527	-.1209
SPEARMAN COEFFICIENT	-.1978	-.1049	-.1538	-.2659	-.2648	-.2451	.1516	-.1165	-.5429	-.4593	-.3538	-.1110
SEN LOWER CONF. INT.	-.0410	-.0485	-.0371	-14.8898	-4.8426	-1.4544	-.2935	-.1446	-.1125	-.1186	-.1341	-.0660
SEN ESTIMATED OF SLOPE	-.0061	-.0053	-.0011	-4.2175	-1.1000	-.0756	.0433	-.0200	-.0307	-.0453	-.0354	-.0070
SEN UPPER CONF. INT.	.0237	.0234	.0284	4.2821	.8404	.4444	.4299	.0431	-.0023	.0104	.0149	.0135

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	9.8765	
SEASONAL KENDALL STATISTIC =	-2.5801	*
MODIFY SEA. KEN. STATISTIC =	-1.2909	
VAN BELLE (HOMO) STATISTIC =	5.3403	
VAN BELLE (TEND) STATISTIC =	6.4651	*
KENDALL COEFFICIENT =	-.0929	
SPEARMAN COEFFICIENT =	-.0968	
SEASONAL LOWER CONF. INT. =	-.0427	
SEASONAL ESTIMATED OF SLOPE =	-.0213	
SEASONAL UPPER CONF. INT. =	-.0037	

* SIGNIFICANT AT 5 % LEVEL

Table A1.11

TDS* 00201L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.1706	-1.0402	* -2.3259	-.1097	-.2701	.6022	-.6303	.4502	-.2701	.3602	.4927	-.7662
SPEARMAN STAT.	-.9904	-1.2006	-1.8350	-.1792	-.0991	.3598	-.4883	.6363	.0220	.1984	.5157	-.9148
KENDALL COEFFICIENT	-.2167	-.2088	-.4476	-.0330	-.0500	.1209	-.1167	.0833	-.0500	.0667	.0989	-.1500
SPEARMAN COEFFICIENT	-.2559	-.3275	-.4536	-.0516	-.0265	.1033	-.1294	.1676	.0059	.0529	.1473	-.2375
SEN LOWER CONF. INT.	-75.0	-88.7	-68.7	-9.8	-15.8	-11.5	-25.0	-14.6	-29.7	-18.3	-41.0	-40.8
SEN ESTIMATED OF SLOPE	-21.0	-29.3	-38.0	-.4	-2.2	4.0	-4.4	6.0	-3.0	1.0	9.0	-9.0
SEN UPPER CONF. INT.	18.5	19.9	-4.0	7.9	10.7	22.0	11.5	30.5	16.0	13.8	59.9	25.6

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	26.0916
SEASONAL KENDALL	STATISTIC =	-1.3736
MODIFY SEA. KEN.	STATISTIC =	-.7580
VAN BELLE (HOMO)	STATISTIC =	8.1186
VAN BELLE (TEND)	STATISTIC =	1.8234
KENDALL	COEFFICIENT =	-.0429
SPEARMAN	COEFFICIENT =	-.1846
SEASONAL LOWER	CONF. INT. =	-9.8
SEASONAL ESTIMATED OF SLOPE	=	-3.5
SEASONAL UPPER	CONF. INT. =	1.6

* SIGNIFICANT AT 5 % LEVEL

COND (F) 02041F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.0451	-.6022	* -2.0256	.0000	.3464	.6433	-.4502	.7204	.3602	.2701	1.0392	-.3602
SPEARMAN STAT.	.1570	-.6909	-1.9709	-.0114	.4279	.5737	-.2759	.7404	.5109	.3314	1.1191	-.4208
KENDALL COEFFICIENT	.0000	-.1209	-.4066	-.0110	.0667	.1238	-.0833	.1333	.0667	.0500	.2000	-.0667
SPEARMAN COEFFICIENT	.0419	-.1956	-.4945	-.0033	.1179	.1571	-.0735	.1941	.1353	.0882	.2964	-.1118
SEN LOWER CONF. INT.	-94.6	-137.6	-123.5	-11.6	-24.2	-18.4	-42.3	-31.3	-41.4	-29.1	-60.9	-76.4
SEN ESTIMATED OF SLOPE	.2	-21.0	-89.2	.0	4.2	6.3	-3.4	12.3	7.1	10.2	16.2	-15.3
SEN UPPER CONF. INT.	70.9	111.0	.9	13.7	26.1	54.3	36.6	60.7	40.0	42.3	102.4	62.7

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	14.8002
SEASONAL KENDALL	STATISTIC =	.0833
MODIFY SEA. KEN.	STATISTIC =	.0473
VAN BELLE (HOMO)	STATISTIC =	7.1355
VAN BELLE (TEND)	STATISTIC =	.0000
KENDALL	COEFFICIENT =	-.0411
SPEARMAN	COEFFICIENT =	-.1785
SEASONAL LOWER	CONF. INT. =	-8.0
SEASONAL ESTIMATED OF SLOPE	=	.5
SEASONAL UPPER	CONF. INT. =	11.2

* SIGNIFICANT AT 5 % LEVEL

TEMP(F) 02061F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.3753	-.7633	-.9297	1.3727	.8143	-1.5429	-.6346	.9490	.2278	.9945	.3078	.1567
SPEARMAN STAT.	-.3287	-.0762	-.7018	1.2920	.8078	-1.2812	-.6564	1.1263	.3733	.9238	.2355	.4968
KENDALL COEFFICIENT	-.7500	-.6264	-.4857	.2527	.1167	-.3333	-.1667	.1500	-.0333	.1500	-.1238	-.3667
SPEARMAN COEFFICIENT	-.0875	-.0220	-.1911	.3495	.2110	-.3348	-.1728	.2882	.0993	.2397	.0652	.1316
SEN LOWER CONF. INT.	.0000	.0000	-.0523	-.1985	-.3889	-.7500	-.1863	-.1895	-.4824	-.1378	-.0467	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.3125	.1667	-.3333	-.0400	.1802	.0000	.1583	.0000	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	.6522	.5830	.1563	.1197	.5664	.2615	.4383	.0427	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	16.9872
SEASONAL KENDALL	STATISTIC =	.0581
MODIFY SEA. KEN.	STATISTIC =	.0543
VAN BELLE (HOMO)	STATISTIC =	10.7155
VAN BELLE (TEND)	STATISTIC =	.0149
KENDALL	COEFFICIENT =	.0096
SPEARMAN	COEFFICIENT =	.1598
SEASONAL LOWER	CONF. INT. =	.0000
SEASONAL ESTIMATED OF	SLOPE =	.0000
SEASONAL UPPER	CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

TURB(F) 02073F (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.3128	-1.6083	.9383	-.6186	1.6083 *	-.1043	-.6261	-.4987	1.1722	1.1628	-.2097	-.3852
SPEARMAN STAT.	-.0441	-1.7056	1.0427	-.6647	2.5000	.2659	-.6139	-.6486	1.6462	1.4434	-.3673	-.4907
KENDALL COEFFICIENT	-.1111	-.5000	.2778	-.2143	.5000	-.0556	-.1556	-.2143	.2444	.2889	-.1111	-.2857
SPEARMAN COEFFICIENT	-.0167	-.5714	.3667	-.2619	.7143	.1000	-.2121	-.2560	.5030	.4545	-.1375	-.1964
SEN LOWER CONF. INT.	-1.2500	-4.9852	-1.2350	-87.5031	-1.8622	-19.9398	-5.0946	-7.3020	-1.1721	-1.2284	-1.8914	-1.4832
SEN ESTIMATED OF SLOPE	-.2292	-2.6875	.6333	-7.9167	1.6000	-.8938	-.4250	-.9500	.3571	1.1286	-.2125	-.1000
SEN UPPER CONF. INT.	.8100	1.3817	1.7233	9.7772	4.1975	9.1748	2.0143	2.5935	2.7024	2.1123	.9457	.4389

************** OVER ALL RESULTS *************

DIETZ AND KILLEN	STATISTIC =	13.1098
SEASONAL KENDALL	STATISTIC =	.1228
MODIFY SEA. KEN.	STATISTIC =	.0684
VAN BELLE (HOMO)	STATISTIC =	11.7242
VAN BELLE (TEND)	STATISTIC =	.0004
KENDALL	COEFFICIENT =	-.0872
SPEARMAN	COEFFICIENT =	-.1070
SEASONAL LOWER	CONF. INT. =	-.5211
SEASONAL ESTIMATED OF	SLOPE =	.0000
SEASONAL UPPER	CONF. INT. =	.4084

* SIGNIFICANT AT 5 % LEVEL

B-DISS 05105D

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.7385	-1.0965	-.4811	1.7184	.4030	1.2356	-1.5519	-1.1448	-.3493	.6083	.6890	-.1231
SPEARMAN STAT.	-.4928	-1.1158	-.5096	1.8172	.6274	1.1853	-1.1169	-.7463	-.1385	.6869	1.2619	-.2237
KENDALL COEFFICIENT	-.2051	-.2308	-.1212	.3636	-.0286	.1795	-.3667	-.2571	-.1238	.0549	.1212	-.0769
SPEARMAN COEFFICIENT	-.1470	-.3066	-.1591	.4983	.1714	.3365	-.2860	-.2027	-.0384	.1945	.3706	-.0673
SEN LOWER CONF. INT.	-.0200	-.0140	-.0243	-.0027	-.0033	-.0016	-.0050	-.0094	-.0062	-.0022	-.0081	-.0083
SEN ESTIMATED OF SLOPE	-.0040	-.0048	-.0021	.0075	.0000	.0050	-.0020	-.0050	-.0002	.0022	.0070	.0000
SEN UPPER CONF. INT.	.0088	.0066	.0159	.0205	.0033	.0080	.0004	.0028	.0027	.0068	.0174	.0080

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	17.1650	
SEASONAL KENDALL STATISTIC =	-.5054	
MODIFY SEA. KEN. STATISTIC =	-.2174	
VAN BELLE (HOMO) STATISTIC =	11.2644	
VAN BELLE (TEND) STATISTIC =	.0575	
KENDALL COEFFICIENT =	-.2438	
SPEARMAN COEFFICIENT =	-.3260	
SEASONAL LOWER CONF. INT. =	-.0020	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0014	

* SIGNIFICANT AT 5 % LEVEL

NO3+NO2 07106L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.9739	-.3313	-1.2989	-.1642	* -2.6014	* -2.3652	-.9195	-1.6525	* -2.6763	-1.6577	-.3546	-.3546
SPEARMAN STAT.	-.8551	-.3598	-1.4183	-.1601	* -3.0542	-1.7234	-.5648	-1.3087	* -2.6906	-1.2891	-.3820	-.1870
KENDALL COEFFICIENT	-.3000	-.1209	-.3143	-.0330	-.6500	-.7524	-.4000	-.5500	-.7333	-.5833	-.1810	-.1810
SPEARMAN COEFFICIENT	-.2228	-.1033	-.3661	-.0462	-.6324	-.4313	-.1493	-.3301	-.5838	-.3257	-.1054	-.0518
SEN LOWER CONF. INT.	-.0100	-.0157	-.0200	-.0757	-.0067	-.0050	-.0027	-.0025	-.0029	-.0030	-.0025	-.0050
SEN ESTIMATED OF SLOPE	-.0007	-.0008	-.0050	-.0050	-.0037	-.0018	.0000	-.0011	-.0014	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0025	.0069	.0030	.0876	.0000	.0000	.0000	.0000	.0000	.0000	.0025	.0029

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.1935	
SEASONAL KENDALL STATISTIC =	-4.4776	*
MODIFY SEA. KEN. STATISTIC =	-2.5576	*
VAN BELLE (HOMO) STATISTIC =	9.2365	
VAN BELLE (TEND) STATISTIC =	19.6354	*
KENDALL COEFFICIENT =	-.2377	
SPEARMAN COEFFICIENT =	-.1954	
SEASONAL LOWER CONF. INT. =	-.0020	
SEASONAL ESTIMATED OF SLOPE =	-.0010	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

TN* 07602L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.5264	-.7117	-1.5341	-.6022	* -3.3238	* -3.1711	-1.3534	* -2.9715	* -2.8393	* -3.6091	* -2.8738	* -3.0187
SPEARMAN STAT.	* -3.4506	-1.0588	-1.8350	-.5315	* -5.0911	* -4.2374	-1.3448	* -3.1507	* -3.2703	* -4.3995	* -4.0552	* -4.0883
KENDALL COEFFICIENT	-.4833	-.1429	-.2952	-.1209	-.6571	-.6190	-.2667	-.5500	-.5333	-.6833	-.5619	-.5810
SPEARMAN COEFFICIENT	-.6779	-.2923	-.4536	-.1516	-.8161	-.7616	-.3382	-.6441	-.6581	-.7618	-.7473	-.7500
SEN LOWER CONF. INT.	-.0732	-.0703	-.0811	-.1693	-.0565	-.0571	-.0557	-.0556	-.0396	-.0400	-.0400	-.0817
SEN ESTIMATED OF SLOPE	-.0425	-.0256	-.0286	-.0323	-.0363	-.0320	-.0256	-.0300	-.0243	-.0300	-.0210	-.0493
SEN UPPER CONF. INT.	-.0100	.0570	.0067	.1163	-.0196	-.0157	.0065	-.0135	-.0069	-.0200	-.0097	-.0173

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.5738	
SEASONAL KENDALL STATISTIC =	-8.3489	*
MODIFY SEA. KEN. STATISTIC =	-3.7948	*
VAN BELLE (HOMO) STATISTIC =	11.9745	
VAN BELLE (TEND) STATISTIC =	67.8541	*
KENDALL COEFFICIENT =	-.3190	
SPEARMAN COEFFICIENT =	-.4481	
SEASONAL LOWER CONF. INT. =	-.0367	
SEASONAL ESTIMATED OF SLOPE =	-.0300	
SEASONAL UPPER CONF. INT. =	-.0250	

* SIGNIFICANT AT 5 % LEVEL

DO 08101F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.3523	-1.3825	-1.1891	* -2.0317	.9600	-1.0430	.6774	.5859	1.4067	-.4511	-.6040	.9905
SPEARMAN STAT.	* -2.8551	-1.1961	-1.2201	* -2.3442	.7022	-1.3761	.7550	.6795	1.2341	-.1156	-.7968	1.0517
KENDALL COEFFICIENT	-.4667	-.3407	-.2381	-.4286	.2121	-.2564	.1000	.1000	.2000	-.1000	-.1429	.1833
SPEARMAN COEFFICIENT	-.6066	-.3264	-.3205	-.5604	.2168	-.3832	.1978	.1787	.3132	-.0309	-.2242	.2706
SEN LOWER CONF. INT.	-.3066	-.1444	-.3260	-.4837	-.1439	-.2495	-.1533	-.1000	-.0216	-.1648	-.6000	-.2000
SEN ESTIMATED OF SLOPE	-.1303	-.0400	-.1200	-.2377	.1056	-.0633	.0333	.0333	.0400	-.0417	-.1143	.1575
SEN UPPER CONF. INT.	-.0217	.0268	.0880	.0000	.2549	.0570	.2117	.1500	.0868	.1861	.3739	.4489

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.5493
SEASONAL KENDALL STATISTIC =	-1.1670
MODIFY SEA. KEN. STATISTIC =	-.7412
VAN BELLE (HOMO) STATISTIC =	17.6884
VAN BELLE (TEND) STATISTIC =	1.6378
KENDALL COEFFICIENT =	.3497
SPEARMAN COEFFICIENT =	.4986
SEASONAL LOWER CONF. INT. =	-.0667
SEASONAL ESTIMATED OF SLOPE =	-.0250
SEASONAL UPPER CONF. INT. =	.0143

* SIGNIFICANT AT 5 % LEVEL

ALK-TOT 10101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.8104	-.7117	-.3464	.0000	.4958	.8433	-.7218	-.7218	.1801	-.7662	1.4351	-.8563
SPEARMAN STAT.	-.7521	-.8216	-.4543	.3250	.3788	.7087	-.6191	-.5962	.3314	-.7433	1.5074	-.9510
KENDALL COEFFICIENT	-.1500	-.1429	-.0667	-.0110	.0833	.1429	-.1500	-.1500	.0333	-.1500	.2762	-.1667
SPEARMAN COEFFICIENT	-.1971	-.2308	-.1250	.0934	.1007	.1929	-.1632	-.1574	.0882	-.1949	.3857	-.2463
SEN LOWER CONF. INT.	-8.7301	-11.2465	-7.8902	-2.3489	-2.1127	-2.1752	-4.0000	-2.1668	-5.4135	-4.2947	-1.1010	-7.1632
SEN ESTIMATED OF SLOPE	-1.7949	-1.9231	-1.7500	.0000	1.3738	1.3750	-.9750	-.3667	.3095	-1.5139	3.0000	-.7786
SEN UPPER CONF. INT.	3.8127	5.3511	4.8258	3.8749	4.1241	5.1752	1.9653	2.0903	4.8964	1.5745	11.2694	4.6654

************** OVER ALL RESULTS *************

DIETS AND KILLEN	STATISTIC =	10.9857
SEASONAL KENDALL	STATISTIC =	-.6161
MODIFY SEA. KEN.	STATISTIC =	-.4431
VAN BELLE (HOMO)	STATISTIC =	6.3678
VAN BELLE (TEND)	STATISTIC =	.3268
KENDALL	COEFFICIENT =	-.0156
SPEARMAN	COEFFICIENT =	-.1548
SEASONAL LOWER	CONF. INT. =	-1.1676
SEASONAL ESTIMATED OF SLOPE	=	-.2500
SEASONAL UPPER	CONF. INT. =	.8762

* SIGNIFICANT AT 5 % LEVEL

PH(F) 10301F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.5489	.7754	.9560	-.0554	-.4528	-1.1198	-.4991	.1831	.1373	-1.4931	.0000	* 1.9774
SPEARMAN STAT.	-.4012	.9641	1.0933	-.1143	-.1967	-1.0458	-.4096	.1211	.3956	-1.4081	.1611	* 2.7808
KENDALL COEFFICIENT	-.2000	.0769	.0857	-.0769	-.1810	-.3524	-.1500	-.0667	-.0833	-.4333	-.1048	.2381
SPEARMAN COEFFICIENT	-.1066	.2681	.2902	-.0330	-.0545	-.2786	-.1088	.0324	.1051	-.3522	.0446	.6107
SEN LOWER CONF. INT.	-.0333	-.0266	-.0250	-.0500	-.0500	-.0375	-.0500	-.0189	-.0333	-.0500	-.0500	.0000
SEN ESTIMATED OF SLOPE	-.0021	.0125	.0167	.0000	.0000	-.0143	-.0183	.0000	.0000	-.0101	.0000	.0200
SEN UPPER CONF. INT.	.0209	.0406	.0544	.0464	.0399	.0122	.0333	.0379	.0250	.0000	.0529	.0425

************** OVER ALL RESULTS *************

DIETS AND KILLEN	STATISTIC =	15.4862
SEASONAL KENDALL	STATISTIC =	-.1133
MODIFY SEA. KEN.	STATISTIC =	-.0673
VAN BELLE (HOMO)	STATISTIC =	9.7176
VAN BELLE (TEND)	STATISTIC =	.0016
KENDALL	COEFFICIENT =	.1283
SPEARMAN	COEFFICIENT =	.3018
SEASONAL LOWER	CONF. INT. =	-.0070
SEASONAL ESTIMATED OF SLOPE	=	.0000
SEASONAL UPPER	CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

NFR 10401L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.9973	-.5008	-.6954	-1.0402	-.2474	-.2474	-1.1448	* -2.0852	-.9945	-1.3971	.4476	-.4521
SPEARMAN STAT.	-.6795	-.3366	-.5570	-1.1468	-.1289	.0515	-1.1376	-2.0562	-.7990	-1.5032	.3297	-.1928
KENDALL COEFFICIENT	-.2333	-.1068	-.1619	-.2088	-.0476	-.0476	-.2571	-.4333	-.2167	-.2667	.0476	-.1167
SPEARMAN COEFFICIENT	-.1787	-.0967	-.1527	-.3143	-.0357	.0143	-.3009	-.4816	-.2088	-.3728	.0911	-.0515
SEN LOWER CONF. INT.	-.8481	-.5154	-1.0000	-19.0432	-4.0560	-11.2480	-3.0095	-3.2765	-1.5416	-2.7069	-.4191	-.8407
SEN ESTIMATED OF SLOPE	-.2045	-.0909	-.5000	-9.5455	-.5000	-.6250	-.8857	-1.4727	-.2404	-.8417	.1000	-.1750
SEN UPPER CONF. INT.	.2848	.4113	.5000	8.8827	3.0117	6.0000	.8842	.0000	.9678	.5000	.6667	.3559

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.6390	
SEASONAL KENDALL STATISTIC =	-2.7502	*
MODIFY SEA. KEN. STATISTIC =	-2.1089	*
VAN BELLE (HOMO) STATISTIC =	4.6451	
VAN BELLE (TEND) STATISTIC =	7.2922	*
KENDALL COEFFICIENT =	-.1326	
SPEARMAN COEFFICIENT =	-.1320	
SEASONAL LOWER CONF. INT. =	-.6667	
SEASONAL ESTIMATED OF SLOPE =	-.3231	
SEASONAL UPPER CONF. INT. =	-.0724	

* SIGNIFICANT AT 5 % LEVEL

MA-DISS 11103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.9005	-1.2062	-1.2882	-.7138	.7206	1.5341	.1801	.9905	.0900	.5414	.6022	-.3602
SPEARMAN STAT.	-.8581	-1.0026	-.8780	-.7233	.6019	1.5569	.3761	1.1013	.2648	.4940	.5315	-.4996
KENDALL COEFFICIENT	-.1667	-.2527	-.2571	-.1648	.1333	.2952	.0333	.1833	.0167	.0833	.1209	-.0667
SPEARMAN COEFFICIENT	-.2235	-.2780	-.2366	-.2044	.1588	.3964	.1000	.2824	.0706	.1309	.1516	-.1324
SEN LOWER CONF. INT.	-24.4611	-27.7327	-24.2284	-2.9763	-1.9677	-1.3042	-4.0123	-4.7404	-5.9223	-5.0297	-9.5350	-13.5890
SEN ESTIMATED OF SLOPE	-6.2000	-11.0000	-12.0000	-.5000	.7118	2.7778	.4314	3.6083	.6474	1.5250	4.4778	-1.9444
SEN UPPER CONF. INT.	7.3845	11.4527	6.0000	.8463	3.4703	9.3546	5.8638	12.3508	5.2307	6.6168	17.6565	9.7239

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.6733
SEASONAL KENDALL STATISTIC =	.1240
MODIFY SEA. KEN. STATISTIC =	.0707
VAN BELLE (HOMO) STATISTIC =	9.1113
VAN BELLE (TEND) STATISTIC =	.0030
KENDALL COEFFICIENT =	-.0377
SPEARMAN COEFFICIENT =	-.1738
SEASONAL LOWER CONF. INT. =	-1.5000
SEASONAL ESTIMATED OF SLOPE =	.0500
SEASONAL UPPER CONF. INT. =	1.3855

* SIGNIFICANT AT 5 % LEVEL

SO4-DISS 16304L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.1611	* -2.3027	* -2.7747	-1.2062	-1.3070	-1.0392	* -2.5689	-1.7109	-1.7143	-1.5339	-.7954	* -2.3412
SPEARMAN STAT.	* -2.3349	* -2.3375	* -2.5636	-1.4971	-1.5378	-1.1488	* -3.4026	-1.5205	-1.7791	-1.4316	-.8326	* -2.4453
KENDALL COEFFICIENT	-.4000	-.4725	-.5429	-.2527	-.2500	-.2000	-.4833	-.3167	-.3333	-.3000	-.1810	-.4333
SPEARMAN COEFFICIENT	-.5294	-.5593	-.5795	-.3967	-.3801	-.3036	-.6728	-.3765	-.4294	-.3574	-.2250	-.5471
SEN LOWER CONF. INT.	-7.3106	-6.6839	-7.6744	-3.9009	-3.0000	-6.2538	-6.7738	-4.7120	-3.0310	-3.1586	-3.1688	-6.9155
SEN ESTIMATED OF SLOPE	-3.8810	-3.5083	-5.4182	-1.3333	-1.1750	-1.5000	-2.9056	-2.1833	-1.1610	-1.0038	-.4800	-2.7813
SEN UPPER CONF. INT.	-.3955	-.7501	-1.6202	1.8613	.5121	1.8771	-1.0757	.5505	.1810	.3762	2.6996	-.9527

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	14.5043	
SEASONAL KENDALL STATISTIC =	-6.2032	*
MODIFY SEA. KEN. STATISTIC =	-3.1612	*
VAN BELLE (HOMO) STATISTIC =	4.4853	
VAN BELLE (TEND) STATISTIC =	38.3612	*
KENDALL COEFFICIENT =	-.2806	
SPEARMAN COEFFICIENT =	-.4064	
SEASONAL LOWER CONF. INT. =	-2.8751	
SEASONAL ESTIMATED OF SLOPE =	-2.0500	
SEASONAL UPPER CONF. INT. =	-1.4372	

* SIGNIFICANT AT 5 % LEVEL

CL-DISS 17206L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.8104	-.8212	-1.3873	.7117	.7204	1.1496	.3602	1.2606	.2701	.7204	.3832	-.3155
SPEARMAN STAT.	-.7055	-.8216	-1.0132	.7396	.6593	1.1826	.4770	1.4384	.4433	.7872	.4686	-.4180
KENDALL COEFFICIENT	-.1500	-.1648	-.2762	.1429	.1333	.2308	.0667	.2333	.0500	.1333	.0769	-.0667
SPEARMAN COEFFICIENT	-.1853	-.2308	-.2705	.2088	.1735	.3231	.1265	.3588	.1176	.2059	.1341	-.1110
SEN LOWER CONF. INT.	-35.8256	-37.9644	-32.5673	-3.0879	-2.7907	-2.4962	-6.9980	-5.1462	-9.9650	-6.1232	-21.5015	-26.5391
SEN ESTIMATED OF SLOPE	-8.7611	-18.2000	-15.2857	.6714	.9591	2.8182	1.4050	5.1375	1.2071	3.5000	2.1429	-4.2423
SEN UPPER CONF. INT.	16.5802	16.7666	10.5063	3.4602	5.2081	11.5419	9.1753	18.3075	8.5280	12.9143	26.5148	14.0852

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	14.3117
SEASONAL KENDALL STATISTIC =	.6521
MODIFY SEA. KEN. STATISTIC =	.3421
VAN BELLE (HOMO) STATISTIC =	7.7413
VAN BELLE (TEND) STATISTIC =	.4188
KENDALL COEFFICIENT =	-.0373
SPEARMAN COEFFICIENT =	-.1748
SEASONAL LOWER CONF. INT. =	-1.8620
SEASONAL ESTIMATED OF SLOPE =	.6667
SEASONAL UPPER CONF. INT. =	2.7661

* SIGNIFICANT AT 5 % LEVEL

A-BHC 18075L (THE 1 YEAR MISSING DATA HAS BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.8156	-1.0804	-.1826	-1.4647	-1.8693	* -2.3672	* -2.6268	-1.4654	* -2.6535	-1.8785	* -2.5485	* -2.2699
SPEARMAN STAT.	-.1605	.3481	.2256	-1.5425	-1.6691	* -2.6948	* -2.8736	-1.6483	* -2.2982	-1.7190	* -2.3268	-1.9659
KENDALL COEFFICIENT	-.9394	-.8462	-.4909	-.4667	-.5385	-.6970	-.7143	-.4872	-.7524	-.5897	-.8788	-.7879
SPEARMAN COEFFICIENT	-.0507	.1044	.0750	-.4788	-.4341	-.6486	-.6385	-.4451	-.5375	-.4602	-.5927	-.5280
SEN LOWER CONF. INT.	.0000	.0000	.0000	-.0008	-.0004	-.0006	-.0003	-.0003	-.0004	-.0005	-.0002	-.0003
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	-.0003	-.0003	-.0003	-.0002	-.0001	-.0002	-.0002	-.0001	-.0001
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETS AND KILLEN	STATISTIC =	17.5798	
SEASONAL KENDALL	STATISTIC =	-6.5573	*
MODIFY SEA. KEN.	STATISTIC =	-3.1815	*
VAN BELLE (HOMO)	STATISTIC =	5.8522	
VAN BELLE (TEND)	STATISTIC =	41.1530	*
KENDALL	COEFFICIENT =	-.2542	
SPEARMAN	COEFFICIENT =	.1212	
SEASONAL LOWER	CONF. INT. =	-.0001	
SEASONAL ESTIMATED OF SLOPE	=	-.0001	
SEASONAL UPPER	CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

24D 18500L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.5690	1.6036	1.0409	.5845	1.4426	1.0920	1.1073	* 2.7417	* 2.5981	1.8537	* 2.4962	* 2.5690
SPEARMAN STAT.	* 3.9744	* 2.5342	1.5617	.7261	1.6432	1.4820	1.4143	* 4.3217	* 3.9795	* 2.5636	* 3.9835	* 3.9744
KENDALL COEFFICIENT	-.2747	-.6923	-.3407	-.1212	.0549	.0000	-.0667	-.1810	-.3143	-.1619	-.1818	-.2747
SPEARMAN COEFFICIENT	.7538	.6071	.4110	.2238	.4286	.4080	.3652	.7679	.7411	.5795	.7832	.7538
SEN LOWER CONF. INT.	.0000	.0000	.0000	-.0071	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0013	.0001	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0017	.0000	.0000	.0039	.0029	.0020	.0020	.0022	.0000	.0019	.0026	.0017

************** OVER ALL RESULTS *************

DIETS AND KILLEN	STATISTIC =	17.4825	
SEASONAL KENDALL	STATISTIC =	5.9920	*
MODIFY SEA. KEN.	STATISTIC =	2.5028	*
VAN BELLE (HOMO)	STATISTIC =	6.3944	
VAN BELLE (TEND)	STATISTIC =	39.2359	*
KENDALL	COEFFICIENT =	-.4819	
SPEARMAN	COEFFICIENT =	.1320	
SEASONAL LOWER	CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE	=	.0000	
SEASONAL UPPER	CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

245T 18510L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* 2.5690	1.0804	* 2.1909	* 2.4568	* 2.6870	* 2.6232	* 2.7417	* 2.2929	* 2.6234	1.8732	1.7520	1.8858
SPEARMAN STAT.	* 3.9744	1.9149	* 3.2536	* 4.0000	* 4.2747	* 4.2127	* 4.3217	* 3.3227	* 3.9896	* 2.7550	* 2.5377	* 2.7437
KENDALL COEFFICIENT	-.2747	-.5641	-.4725	-.0182	-.1429	-.1026	-.1810	-.1238	-.3500	-.2762	-.1515	-.2308
SPEARMAN COEFFICIENT	.7538	.5000	.6846	.8000	.7769	.7857	.7679	.6777	.7294	.6071	.6259	.6209
SEN LOWER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
SEN UPPER CONF. INT.	.0032	.0000	.0000	.0067	.0044	.0048	.0042	.0041	.0000	.0004	.0052	.0038

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 13.0454
SEASONAL KENDALL STATISTIC = 7.7402 *
MODIFY SEA. KEN. STATISTIC = 2.6963 *
VAN BELLE (HOMO) STATISTIC = 2.7478
VAN BELLE (TEND) STATISTIC = 59.7475 *
KENDALL COEFFICIENT = -.5442
SPEARMAN COEFFICIENT = .2926
SEASONAL LOWER CONF. INT. = .0000
SEASONAL ESTIMATED OF SLOPE = .0000
SEASONAL UPPER CONF. INT. = .0000

* SIGNIFICANT AT 5 % LEVEL

K-DISS 19103L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.6760	-1.0965	-1.4950	1.3686	* -2.5689	-.3977	-1.0805	.0452	-.6760	.3155	1.3873	.5403
SPEARMAN STAT.	-.5534	-.9429	-1.3005	1.1826	* -3.1816	-.1934	-.9904	.2675	-.6162	.2842	1.3511	.4883
KENDALL COEFFICIENT	-.1333	-.2308	-.3333	.2747	-.4833	-.1048	-.2000	-.0167	-.1333	.0500	.2571	.1000
SPEARMAN COEFFICIENT	-.1463	-.2626	-.3393	.3231	-.6478	-.0536	-.2559	.0713	-.1625	.0757	.3509	.1294
SEN LOWER CONF. INT.	-.5593	-.6989	-.6146	-.1000	-.3587	-.2258	-.3210	-.2338	-.3093	-.1608	-.1438	-.2232
SEN ESTIMATED OF SLOPE	-.1161	-.2125	-.2800	.2278	-.1993	-.0143	-.1050	.0000	-.0428	.0274	.1136	.0573
SEN UPPER CONF. INT.	.2500	.1173	.1861	.5333	-.0543	.1030	.0863	.2400	.1388	.1707	.4556	.3961

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 15.6780
SEASONAL KENDALL STATISTIC = -1.3153
MODIFY SEA. KEN. STATISTIC = -.8809
VAN BELLE (HOMO) STATISTIC = 14.9025
VAN BELLE (TEND) STATISTIC = 1.5652
KENDALL COEFFICIENT = -.2968
SPEARMAN COEFFICIENT = -.4339
SEASONAL LOWER CONF. INT. = -.1133
SEASONAL ESTIMATED OF SLOPE = -.0475
SEASONAL UPPER CONF. INT. = .0245

* SIGNIFICANT AT 5 % LEVEL

CA-DISS 20101L

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.6675	* -2.5730	-1.7507	-.2737	-.9905	-.6937	-1.6208	-1.6208	-1.1706	-1.1706	.6937	-.7204
SPEARMAN STAT.	-1.9676	* -3.5355	-1.6072	-.4374	-.8819	-.8152	-1.6762	-1.3713	-1.0271	-1.1514	.7053	-.9904
KENDALL COEFFICIENT	-.3167	-.5165	-.3905	-.0549	-.1833	-.1429	-.3000	-.3000	-.2167	-.2167	.1238	-.1333
SPEARMAN COEFFICIENT	-.4654	-.7143	-.4071	-.1253	-.2294	-.2205	-.4088	-.3441	-.2647	-.2941	.1920	-.2559
SEN LOWER CONF. INT.	-4.0737	-5.6301	-2.9535	-1.3100	-1.7854	-1.7913	-2.2578	-1.5967	-1.8153	-2.0001	-1.3450	-3.0935
SEN ESTIMATED OF SLOPE	-1.4955	-2.8333	-1.3000	-.1000	-.4767	-.3500	-1.0598	-.7861	-.5194	-.8111	.3889	-.8786
SEN UPPER CONF. INT.	.6851	-.6998	.0184	1.2267	.9410	1.0015	.1915	.3825	.5979	.7256	3.2262	1.3528

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 17.9480
SEASONAL KENDALL STATISTIC = -3.9160 *
MODIFY SEA. KEN. STATISTIC = -2.2865 *
VAN BELLE (HOMO) STATISTIC = 7.6782
VAN BELLE (TEND) STATISTIC = 15.3197 *
KENDALL COEFFICIENT = -.0602
SPEARMAN COEFFICIENT = -.1831
SEASONAL LOWER CONF. INT. = -1.1434
SEASONAL ESTIMATED OF SLOPE = -.7625
SEASONAL UPPER CONF. INT. = -.3597

* SIGNIFICANT AT 5 % LEVEL

MN-DISS 25104D (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.6261	-.8660	-.9383	.1043	.4508	.0000	-.2705	-1.2572	* -2.0572	1.7961	.3592	.0000
SPEARMAN STAT.	-.3982	-.9366	-.9354	.3108	.5050	-.2322	-.0857	-1.5552	-1.5938	1.8553	.3542	-.0257
KENDALL COEFFICIENT	-.1556	-.2857	-.2778	.0556	.0667	-.0222	-.1111	-.3333	-.5111	.4222	.0667	-.0222
SPEARMAN COEFFICIENT	-.1394	-.3571	-.3333	.1167	.1758	-.0818	-.0303	-.4818	-.4909	.5485	.1242	-.0091
SEN LOWER CONF. INT.	-.1962	-.3366	-.1550	-.0233	-.0100	-.0094	-.0137	-.0321	-.0227	-.0053	-.0608	-.0739
SEN ESTIMATED OF SLOPE	-.0425	-.1033	-.0333	.0005	.0012	.0000	-.0011	-.0020	-.0158	.0068	.0086	.0000
SEN UPPER CONF. INT.	.2153	.3620	.1483	.0235	.0092	.0121	.0057	.0059	-.0004	.0112	.0746	.1025

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC = 12.6148
SEASONAL KENDALL STATISTIC = -.8931
MODIFY SEA. KEN. STATISTIC = -.9307
VAN BELLE (HOMO) STATISTIC = 10.9663
VAN BELLE (TEND) STATISTIC = .9797
KENDALL COEFFICIENT = -.1688
SPEARMAN COEFFICIENT = -.2820
SEASONAL LOWER CONF. INT. = -.0062
SEASONAL ESTIMATED OF SLOPE = -.0016
SEASONAL UPPER CONF. INT. = .0018

* SIGNIFICANT AT 5 % LEVEL

FE-DISS 26104D (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	.6261	.8660	1.0483	1.1468	-.4472	-1.0776	-.6261	-.7184	-.1796	1.0894	-.3592	-1.4368
SPEARMAN STAT.	.6139	.7973	.9223	1.2721	-.5410	-1.0725	-.5410	-.9493	.2495	.8405	-.3893	-1.6330
KENDALL COEFFICIENT	.1556	.2857	.2778	.3333	-.1111	-.2889	-.1556	-.2000	-.0667	.2000	-.1111	-.3778
SPEARMAN COEFFICIENT	.2121	.3095	.3292	.4333	-.1879	-.3545	-.1879	-.3182	.0879	.2848	-.1364	-.5000
SEN LOWER CONF. INT.	-.3434	-1.1357	-.1039	-.0114	-.0144	-.0175	-.0213	-.0289	-.0097	-.0057	-.0154	-.0288
SEN ESTIMATED OF SLOPE	.0460	.1079	.0226	.0100	-.0026	-.0055	-.0040	-.0023	-.0010	.0050	-.0030	-.0047
SEN UPPER CONF. INT.	.5640	1.0855	.1934	.0380	.0109	.0056	.0224	.0145	.0067	.0112	.0127	.0063

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	13.4991
SEASONAL KENDALL STATISTIC =	-.0812
MODIFY SEA. KEN. STATISTIC =	-.0603
VAN BELLE (HOMO) STATISTIC =	9.9427
VAN BELLE (TEND) STATISTIC =	.0058
KENDALL COEFFICIENT =	-.2024
SPEARMAN COEFFICIENT =	-.2895
SEASONAL LOWER CONF. INT. =	-.0038
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0038

* SIGNIFICANT AT 5 % LEVEL

CU-TOT 29005F (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.0864	-.3852	-.7668	-1.0483	-.8204	-.0902	-.1862	-.1831	.5587	-.8204	.6381	-.7184
SPEARMAN STAT.	-1.1147	-.4293	-.7320	-1.0565	-.6231	.0343	.0086	-.0514	.4070	-.2149	.9093	-.6601
KENDALL COEFFICIENT	-.3333	-.2857	-.3889	-.3333	-.2889	-.0667	-.2000	-.1556	-.0222	-.2889	.0667	-.2000
SPEARMAN COEFFICIENT	-.3667	-.1726	-.2667	-.3708	-.2152	.0121	.0030	-.0182	.1424	-.0758	.3061	-.2273
SEN LOWER CONF. INT.	-.0010	-.0006	-.0005	-.0041	-.0004	-.0008	-.0004	-.0003	-.0004	-.0003	-.0004	-.0008
SEN ESTIMATED OF SLOPE	-.0003	.0000	.0000	-.0010	-.0001	.0000	.0000	.0000	.0000	-.0001	.0000	-.0002
SEN UPPER CONF. INT.	.0001	.0007	.0001	.0008	.0005	.0006	.0002	.0004	.0002	.0001	.0005	.0007

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	7.7180
SEASONAL KENDALL STATISTIC =	-1.4340
MODIFY SEA. KEN. STATISTIC =	-.9914
VAN BELLE (HOMO) STATISTIC =	3.9017
VAN BELLE (TEND) STATISTIC =	2.2981
KENDALL COEFFICIENT =	-.1610
SPEARMAN COEFFICIENT =	-.0672
SEASONAL LOWER CONF. INT. =	-.0001
SEASONAL ESTIMATED OF SLOPE =	.0000
SEASONAL UPPER CONF. INT. =	.0000

* SIGNIFICANT AT 5 % LEVEL

SN-TOT 30005P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-.2735	* -2.9922	1.7024	-1.8558	-.3592	-.8050	* -2.2790	-1.0894	-.9918	-.7184	-1.6341	-.4472
SPEARMAN STAT.	-.5865	* -8.2178	1.8196	* -2.8814	-.0772	-.4336	* -2.9192	-1.1254	-1.0620	-.6787	-1.5938	-.4336
KENDALL COEFFICIENT	-.1556	-.9286	.3889	-.5714	-.1111	-.2000	-.6444	-.3333	-.2889	-.2000	-.4667	-.1111
SPEARMAN COEFFICIENT	-.2030	-.9583	.5667	-.7619	-.0273	-.1515	-.7182	-.3697	-.3515	-.2333	-.4909	-.1515
SEN LOWER CONF. INT.	-.0014	-.0007	.0000	-.0066	-.0008	-.0017	-.0010	-.0014	-.0012	-.0005	-.0007	-.0008
SEN ESTIMATED OF SLOPE	.0000	-.0006	.0004	-.0018	-.0003	-.0005	-.0006	-.0001	-.0002	-.0001	-.0002	-.0002
SEN UPPER CONF. INT.	.0003	-.0004	.0013	.0003	.0006	.0009	.0000	.0003	.0004	.0002	.0001	.0006

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	25.5761	*
SEASONAL KENDALL STATISTIC =	-3.2450	*
MODIFY SEA. KEN. STATISTIC =	-2.5267	*
VAN BELLE (HOMO) STATISTIC =	16.7362	
VAN BELLE (TEND) STATISTIC =	11.7717	*
KENDALL COEFFICIENT =	-.1524	
SPEARMAN COEFFICIENT =	-.1482	
SEASONAL LOWER CONF. INT. =	-.0005	
SEASONAL ESTIMATED OF SLOPE =	-.0003	
SEASONAL UPPER CONF. INT. =	-.0001	

* SIGNIFICANT AT 5 % LEVEL

T.COLI 36001F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.2537	-1.8916	-1.4021	-1.8027	* -1.9878	-.7348	-1.1566	* -2.1393	-1.2925	-1.0014	-.7699	-1.3255
SPEARMAN STAT.	1.1043	-1.9135	-1.3588	-1.7752	* -2.2650	-.8064	-1.3199	* -2.6174	-1.1637	-1.1640	-.9344	-1.2850
KENDALL COEFFICIENT	.1619	-.5385	-.5385	-.5758	-.4505	-.1795	-.2747	-.4615	-.2762	-.2500	-.1868	-.4103
SPEARMAN COEFFICIENT	.2929	-.4835	-.3791	-.4895	-.5473	-.2363	-.3560	-.6195	-.3071	-.2971	-.2604	-.3613
SEN LOWER CONF. INT.	-.3865	-2.7462	-1.0969	-9.2177	-4.7495	-7.0942	-17.8957	-15.4365	-12.6845	-4.4530	-2.4321	-3.2631
SEN ESTIMATED OF SLOPE	.3333	-.6667	-.0769	-1.0714	-1.7273	-.4773	-2.0000	-6.2818	-2.2500	-1.2500	-.3846	-.8782
SEN UPPER CONF. INT.	1.3362	.0000	.0000	.0000	.0000	1.0004	.5629	-.3867	1.1587	.3993	1.8285	.1754

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	10.8717	
SEASONAL KENDALL STATISTIC =	-3.9200	*
MODIFY SEA. KEN. STATISTIC =	-2.0562	*
VAN BELLE (HOMO) STATISTIC =	8.8708	
VAN BELLE (TEND) STATISTIC =	16.9230	*
KENDALL COEFFICIENT =	.0104	
SPEARMAN COEFFICIENT =	.1445	
SEASONAL LOWER CONF. INT. =	-1.5000	
SEASONAL ESTIMATED OF SLOPE =	-.8167	
SEASONAL UPPER CONF. INT. =	-.2000	

* SIGNIFICANT AT 5 % LEVEL

F.COLI 36011F

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.3066	-1.1603	-.9024	* -2.1794	* -2.1377	.3375	-.7884	-.6839	-1.2666	-.5800	.3936	1.3499
SPEARMAN STAT.	1.4621	-.4179	-.3482	-1.3531	* -2.1946	.4257	-.6968	-.6882	-1.2696	-.2703	.6274	1.5736
KENDALL COEFFICIENT	-.0167	-.6044	-.5604	-.7692	-.5385	-.0549	-.2667	-.2000	-.2667	-.3333	-.2762	-.0286
SPEARMAN COEFFICIENT	.3640	-.1198	-.1000	-.3777	-.5352	.1220	-.1831	-.1809	-.3213	-.0721	.1714	.4000
SEN LOWER CONF. INT.	.0000	-.2418	-.1667	-1.6000	-2.5789	-1.3333	-5.3333	-2.5493	-3.1888	-1.3171	.0000	.0000
SEN ESTIMATED OF SLOPE	.0000	.0000	.0000	-.5357	-1.0000	.0000	-.3095	-.3810	-1.3095	.0000	.0000	.0000
SEN UPPER CONF. INT.	.6978	.0000	.0000	.0000	.0000	2.3947	.4739	.8374	.5000	.4391	.4930	.3100

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.5052	
SEASONAL KENDALL STATISTIC =	-1.6538	
MODIFY SEA. KEN. STATISTIC =	-1.0821	
VAN BELLE (HOMO) STATISTIC =	14.9890	
VAN BELLE (TEND) STATISTIC =	3.3192	
KENDALL COEFFICIENT =	-.1634	
SPEARMAN COEFFICIENT =	.1447	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

HG-TOT 80011P (THE 5 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	-1.7369	* -2.0052	-.8907	-1.8308	.1002	-.1741	-1.7556	-1.6108	* -2.1025	* -2.3973	-.7012	-1.8856
SPEARMAN STAT.	-1.1292	-1.4772	-.2235	-1.2907	.7149	1.0000	-.2739	-.6634	-1.4643	* -2.4454	.0546	-.3780
KENDALL COEFFICIENT	-.7455	-.8889	-.6444	-.7333	-.4909	-.8222	-.9273	-.8182	-.8182	-.7455	-.6364	-.9636
SPEARMAN COEFFICIENT	-.3523	-.4875	-.0788	-.4152	.2318	.3333	-.0909	-.2159	-.4386	-.6318	.0182	-.1250
SEN LOWER CONF. INT.	-.0025	-.0032	-.0015	-.0089	.0000	.0000	.0000	-.0013	-.0025	-.0045	-.0009	.0000
SEN ESTIMATED OF SLOPE	.0000	-.0013	.0000	-.0025	.0000	.0000	.0000	.0000	-.0010	-.0029	.0000	.0000
SEN UPPER CONF. INT.	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	15.0827	
SEASONAL KENDALL STATISTIC =	-5.0291	*
MODIFY SEA. KEN. STATISTIC =	-2.8576	*
VAN BELLE (HOMO) STATISTIC =	7.2205	
VAN BELLE (TEND) STATISTIC =	24.4127	*
KENDALL COEFFICIENT =	-.5676	
SPEARMAN COEFFICIENT =	.0829	
SEASONAL LOWER CONF. INT. =	.0000	
SEASONAL ESTIMATED OF SLOPE =	.0000	
SEASONAL UPPER CONF. INT. =	.0000	

* SIGNIFICANT AT 5 % LEVEL

PB-TOT 82002P (THE 6 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	* -2.5923	* -2.6238	* -3.1478	* -2.2611	* -2.2822	* -2.3658	* -3.1608	-1.5306	* -2.5923	* -2.8098	* -3.1608	* -3.1608
SPEARMAN STAT.	* -3.0238	* -4.0550	* -5.2888	* -2.5298	* -2.8538	* -2.6362	* -4.3154	-1.7614	* -3.0783	* -4.0249	* -4.3154	* -4.3154
KENDALL COEFFICIENT	-.7778	-.8889	-.9111	-.7333	-.7778	-.7778	-1.0000	-.6111	-.7778	-.8667	-1.0000	-1.0000
SPEARMAN COEFFICIENT	-.7303	-.8375	-.8818	-.6667	-.7333	-.6818	-.8364	-.5542	-.7364	-.8182	-.8364	-.8364
SEN LOWER CONF. INT.	-.0006	-.0007	-.0008	-.0004	-.0006	-.0007	-.0006	-.0006	-.0007	-.0006	-.0006	-.0006
SEN ESTIMATED OF SLOPE	-.0002	-.0003	-.0004	-.0003	-.0003	-.0003	-.0004	-.0002	-.0003	-.0003	-.0002	-.0002
SEN UPPER CONF. INT.	.0000	.0000	-.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	19.4949	
SEASONAL KENDALL STATISTIC =	-9.2417	*
MODIFY SEA. KEN. STATISTIC =	-3.0335	*
VAN BELLE (HOMO) STATISTIC =	2.3853	
VAN BELLE (TEND) STATISTIC =	85.4158	*
KENDALL COEFFICIENT =	-.3604	
SPEARMAN COEFFICIENT =	-.1384	
SEASONAL LOWER CONF. INT. =	-.0004	
SEASONAL ESTIMATED OF SLOPE =	-.0003	
SEASONAL UPPER CONF. INT. =	-.0002	

* SIGNIFICANT AT 5 % LEVEL

Q-DM(M3/S)------ (THE 3 YEARS MISSING DATA HAVE BEEN OMITTED)

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
MANN & KENDALL STAT.	1.0391	.0611	-1.8303	1.2202	-.7321	-.1642	.1642	.0000	-1.0402	1.7082	.2737	1.2591
SPEARMAN STAT.	.8513	-.0866	-1.8593	1.2237	-.6307	-.1601	.3752	-.1642	-1.0069	* 2.2125	.2980	1.1468
KENDALL COEFFICIENT	.2051	.0000	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527
SPEARMAN COEFFICIENT	.2486	-.0261	-.4890	.3462	-.1868	-.0462	.1077	-.0495	-.2791	.5549	.0857	.3143
SEN LOWER CONF. INT.	-.0697	-.1100	-6.0565	-5.4783	-13.3146	-4.0138	-1.2656	-1.5150	-2.1135	-.1154	-.7148	-.1083
SEN ESTIMATED OF SLOPE	.0723	.0020	-3.9499	3.9354	-3.5209	-.2111	.0133	.0288	-.4678	.8886	.0500	.1200
SEN UPPER CONF. INT.	.1744	.1340	.1177	8.0407	7.4490	3.0575	1.8639	1.6658	.3481	1.8358	.4453	.3006

************** OVER ALL RESULTS *************

DIETZ AND KILLEN STATISTIC =	12.8142
SEASONAL KENDALL STATISTIC =	.5541
MODIFY SEA. KEN. STATISTIC =	.3345
VAN BELLE (HOMO) STATISTIC =	11.8526
VAN BELLE (TEND) STATISTIC =	.3198
KENDALL COEFFICIENT =	-.0727
SPEARMAN COEFFICIENT =	-.0469
SEASONAL LOWER CONF. INT. =	-.0780
SEASONAL ESTIMATED OF SLOPE =	.0350
SEASONAL UPPER CONF. INT. =	.1335

* SIGNIFICANT AT 5 % LEVEL

Appendix A2

Summary Tables of Nonparametric Tests by Month for the Remaining Water Quality Variables at the Eleven Stations

Table	Water Quality Variable
A2.1	Lindane
A2.2	Dissolved Potassium
A2.3	Dissolved Calcium
A2.4	Dissolved Manganese
A2.5	Dissolved Iron
A2.6	Total Copper
A2.7	Total Zinc
A2.8	Total Coliform
A2.9	Fecal Coliform
A2.10	Total Mercury
A2.11	Flow

Table A2.1 Lindane.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test	K,S	K,S				K,S						K,S
	Low. Sen C.I.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Sen Slope	0.0000	0.0000	0.0002	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Upp. Sen C.I.	0.0002	0.0000	0.0008	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001
CK0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
KH0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
EA0003													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.1 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
LC0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
FE0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
AD0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.1 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
MD0002													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
KH0002													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.2 Dissolved Potassium.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test				K,S	K,S	K,S						
	Low. Sen C.I.	-0.013	-0.017	-0.033	-0.324	-0.150	-0.120	-0.075	-0.025	-0.046	-0.033	-0.045	-0.040
	Sen Slope	0.007	0.000	-0.002	-0.186	-0.072	-0.067	0.000	0.008	-0.013	-0.014	-0.018	-0.016
	Upp. Sen C.I.	0.026	0.025	0.100	-0.024	0.000	-0.007	0.059	0.035	0.016	0.015	0.007	0.023
CK0001													
	Trend Test	S	S										
	Low. Sen C.I.	-0.101	-0.107	-0.246	-0.272	-0.127	-0.061	-0.028	-0.039	-0.027	-0.033	-0.044	-0.100
	Sen Slope	-0.052	-0.044	-0.075	-0.046	-0.011	-0.008	0.033	0.015	0.000	0.000	-0.013	-0.044
	Upp. Sen C.I.	0.000	0.041	0.098	0.260	0.094	0.086	0.100	0.065	0.025	0.033	0.033	0.017
KH0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
EA0003													
	Trend Test	S											K,S
	Low. Sen C.I.	-0.933	-0.042	-0.620	--	-0.061	-0.509	-0.055	-0.087	-0.025	-0.157	--	-2.392
	Sen Slope	-0.073	-0.002	-0.024	--	-0.016	-0.025	-0.010	-0.020	0.000	-0.033	--	-0.965
	Upp. Sen C.I.	0.000	0.019	0.012	--	0.008	0.005	0.020	0.004	0.029	0.021	--	-0.002

Table A2.2 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test	K,S		K,S		K,S	K,S	K,S			K,S	K	K
	Low. Sen C.I.	-0.901	-0.495	-1.058	-0.769	-0.666	-0.505	-0.803	-0.402	-0.608	-0.447	-0.550	-0.500
	Sen Slope	-0.500	-0.162	-0.467	-0.170	-0.333	-0.217	-0.372	-0.196	-0.200	-0.138	-0.243	-0.260
	Upp. Sen C.I.	-0.012	0.100	-0.162	0.095	0.000	0.000	-0.069	0.000	0.244	0.000	-0.062	0.000
LC0001													
	Trend Test					S	K,S				K,S		
	Low. Sen C.I.	-0.264	-0.251	-0.300	-0.162	-0.290	-0.410	-0.242	-0.233	-0.235	-0.167	-0.215	-0.387
	Sen Slope	-0.095	-0.043	-0.150	-0.010	-0.105	-0.200	-0.148	-0.024	-0.065	-0.101	-0.059	-0.115
	Upp. Sen C.I.	0.081	0.141	0.056	0.153	0.000	-0.054	0.048	0.138	0.047	-0.016	0.042	0.025
FE0001													
	Trend Test		K,S		K,S								
	Low. Sen C.I.	-0.155	0.057	-0.093	0.076	-0.082	-0.250	-0.150	-0.100	-0.150	-0.135	-0.224	-0.197
	Sen Slope	0.150	0.238	0.167	0.283	0.074	-0.092	-0.017	-0.055	-0.050	0.000	-0.084	-0.041
	Upp. Sen C.I.	0.441	0.341	0.323	0.463	0.224	0.033	0.122	0.076	0.067	0.050	0.034	0.061
AD0001													
	Trend Test	K,S	K,S	K,S	K,S	K,S	K,S	S					K,S
	Low. Sen C.I.	-0.269	-0.327	-0.348	-0.573	-0.257	-0.198	-0.182	-0.150	-0.197	-0.152	-0.253	-0.300
	Sen Slope	-0.157	-0.208	-0.180	-0.461	-0.140	-0.129	-0.072	-0.037	-0.062	-0.100	-0.159	-0.215
	Upp. Sen C.I.	-0.051	-0.150	-0.035	-0.242	-0.021	-0.049	0.000	0.020	0.024	-0.031	-0.039	-0.129

Table A2.2 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test							K,S	K,S	S			
	Low. Sen C.I.	-0.041	-0.036	-0.191	-0.162	-0.082	-0.024	0.012	0.000	0.000	-0.044	-0.026	-0.062
	Sen Slope	0.017	0.014	0.000	-0.078	0.000	0.010	0.052	0.054	0.050	0.007	0.011	-0.021
	Upp. Sen C.I.	0.089	0.060	0.060	0.023	0.029	0.057	0.085	0.119	0.100	0.100	0.080	0.023
MD0002													
	Trend Test												
	Low. Sen C.I.	-0.426	-0.404	-0.235	-0.016	-0.123	-0.050	-0.413	-0.506	-0.602	-0.400	-0.497	-0.362
	Sen Slope	0.000	0.000	0.150	0.130	0.100	0.123	-0.109	-0.133	-0.157	0.047	-0.136	-0.073
	Upp. Sen C.I.	0.291	0.362	0.428	0.333	0.300	0.388	0.143	0.187	0.143	0.494	0.089	0.138
KH0002													
	Trend Test					K,S							
	Low. Sen C.I.	-0.559	-0.699	-0.615	-0.100	-0.359	-0.226	-0.321	-0.234	-0.309	-0.161	-0.144	-0.223
	Sen Slope	-0.116	-0.213	-0.280	0.228	-0.199	-0.014	-0.105	0.000	-0.043	0.027	0.114	0.057
	Upp. Sen C.I.	0.250	0.117	0.186	0.533	-0.054	0.103	0.086	0.240	0.139	0.171	0.456	0.396
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.3 Dissolved Calcium.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test						K,S						
	Low. Sen C.I.	-0.930	-0.346	-0.800	-0.316	-0.847	-0.740	-0.400	-0.772	-0.469	-0.389	-0.593	-0.400
	Sen Slope	-0.325	0.227	-0.296	0.450	-0.348	-0.425	-0.100	-0.225	-0.173	0.066	-0.133	-0.082
	Upp. Sen C.I.	0.185	0.700	0.476	1.082	0.185	-0.138	0.231	0.302	0.037	0.381	0.263	0.472
CK0001													
	Trend Test	K,S											
	Low. Sen C.I.	-2.487	-2.085	-3.955	-0.153	-0.275	-1.259	-0.694	-1.032	-0.847	-0.986	-1.126	-1.902
	Sen Slope	-1.670	-0.547	-1.400	0.767	0.319	-0.468	-0.267	-0.431	-0.233	-0.425	-0.235	-0.651
	Upp. Sen C.I.	-0.102	1.070	0.663	1.412	1.035	0.107	0.075	0.303	0.139	0.128	0.915	0.707
KH0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
EA0003													
	Trend Test												
	Low. Sen C.I.	-0.823	-0.468	-0.529	--	-0.500	-0.357	-0.286	-0.434	-0.411	-0.628	--	-1.200
	Sen Slope	-0.073	-0.100	0.057	--	-0.200	-0.063	-0.054	-0.129	-0.063	-0.115	--	-0.167
	Upp. Sen C.I.	0.354	0.056	0.367	--	0.061	0.200	0.156	0.118	0.330	0.074	--	0.233

Table A2.3 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test						K,S						
	Low. Sen C.I.	-0.527	-1.473	-2.555	-1.741	-1.037	0.448	-1.528	-3.451	-2.706	-0.802	-1.112	-1.019
	Sen Slope	0.700	0.797	-0.338	0.839	1.164	2.075	-0.420	-0.856	-1.000	-0.208	-0.471	-0.278
	Upp. Sen C.I.	3.952	3.092	0.771	3.242	3.985	3.356	1.158	0.933	0.459	0.653	0.581	0.806
LC0001													
	Trend Test					K,S	K,S	K,S		K,S	K,S		
	Low. Sen C.I.	-3.790	-1.090	-3.313	-0.030	-1.632	-2.119	-1.836	-1.889	-1.398	-2.015	-1.961	-3.436
	Sen Slope	-1.167	1.620	-1.380	0.704	-0.681	-1.541	-0.990	-0.814	-0.956	-1.354	-1.330	-1.140
	Upp. Sen C.I.	1.659	4.502	3.005	2.080	-0.109	-0.833	-0.117	0.187	-0.392	-0.450	0.696	0.631
FE0001													
	Trend Test				K,S		K,S						
	Low. Sen C.I.	-2.581	-0.356	-3.044	0.100	-1.246	-2.371	-2.269	-2.042	-1.933	-1.649	-2.519	-0.242
	Sen Slope	-0.100	1.305	-0.525	1.039	0.046	-1.340	-0.850	-0.863	-0.690	-0.460	-0.600	1.640
	Upp. Sen C.I.	2.437	3.464	2.595	2.423	1.349	-0.536	0.224	0.090	0.546	0.916	0.739	2.771
AD0001													
	Trend Test										S		
	Low. Sen C.I.	-0.709	-0.314	-0.207	-0.255	-0.996	-1.138	-1.025	-0.469	-0.211	-0.159	-0.448	-0.748
	Sen Slope	0.344	0.388	0.357	0.318	0.179	-0.328	-0.100	0.037	0.450	0.494	-0.006	0.192
	Upp. Sen C.I.	1.881	1.187	1.314	0.825	1.272	0.383	0.669	0.460	1.007	1.154	1.522	1.675

Table A2.3 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test												K,S
	Low. Sen C.I.	-2.024	-1.258	-1.396	-1.141	-0.893	-0.424	-0.842	-0.796	-0.342	-0.273	-0.506	-1.126
	Sen Slope	-0.775	-0.033	-0.525	-0.533	-0.336	-0.079	-0.395	-0.477	0.100	0.100	-0.100	-0.889
	Upp. Sen C.I.	0.900	1.056	0.228	0.148	0.046	0.354	0.162	0.178	0.621	0.500	0.974	-0.414
MD0002													
	Trend Test				K,S								
	Low. Sen C.I.	-5.871	-5.745	-6.917	0.454	-1.491	-1.566	-1.255	-1.910	-1.194	-3.085	-2.034	-1.590
	Sen Slope	-1.557	-0.700	-1.000	1.538	-0.333	-0.691	-0.461	-0.283	-0.180	0.196	0.013	0.083
	Upp. Sen C.I.	1.928	2.896	3.418	2.746	0.646	0.266	0.600	1.186	0.915	2.068	1.533	2.115
KH0002													
	Trend Test		K,S										
	Low. Sen C.I.	-4.074	-5.630	-2.954	-1.310	-1.785	-1.791	-2.258	-1.597	-1.815	-2.000	-1.345	-3.094
	Sen Slope	-1.496	-2.833	-1.300	-0.100	-0.477	-0.350	-1.060	-0.786	-0.519	-0.811	0.389	-0.879
	Upp. Sen C.I.	0.685	-0.700	0.018	1.227	0.941	1.002	0.192	0.383	0.598	0.726	3.226	1.353
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.4 Dissolved Manganese.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test												
	Low. Sen C.I.	-0.005	-0.003	-0.001	-0.005	-0.002	-0.005	-0.006	-0.005	-0.003	-0.005	-0.005	-0.003
	Sen Slope	-0.001	-0.001	-0.001	-0.000	-0.001	-0.001	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001
	Upp. Sen C.I.	0.000	0.001	0.000	0.005	0.000	0.001	0.000	0.001	0.000	0.000	0.001	0.000
CK0001													
	Trend Test							K		K			K
	Low. Sen C.I.	-0.004	-0.006	-0.004	-0.003	-0.002	-0.005	-0.006	-0.009	-0.005	-0.005	-0.004	-0.003
	Sen Slope	-0.001	-0.001	-0.001	-0.001	-0.000	0.000	-0.003	-0.001	-0.001	-0.001	-0.001	-0.001
	Upp. Sen C.I.	0.001	0.000	0.001	0.002	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000
KH0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
EA0003													
	Trend Test									K,S			
	Low. Sen C.I.	-0.005	-0.004	-0.003	--	-0.008	-0.005	-0.003	-0.002	-0.020	-0.014	--	-0.011
	Sen Slope	-0.001	-0.002	-0.001	--	-0.001	0.000	-0.000	-0.001	-0.003	-0.001	--	0.000
	Upp. Sen C.I.	0.002	0.001	0.000	--	0.000	0.002	0.000	0.000	0.000	0.002	--	0.003

Table A2.4 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test						K,S						
	Low. Sen C.I.	-0.004	-0.015	-0.019	-0.013	-0.032	0.004	-0.051	-0.012	-0.013	-0.010	-0.002	-0.003
	Sen Slope	0.014	0.005	0.008	0.017	0.032	0.038	-0.005	0.013	0.009	0.008	0.004	0.005
	Upp. Sen C.I.	0.074	0.038	0.023	0.045	0.124	0.076	0.012	0.163	0.048	0.059	0.015	0.025
LC0001													
	Trend Test		S										
	Low. Sen C.I.	-0.011	-0.381	-0.014	-0.010	-0.007	-0.004	-0.009	-0.005	-0.005	-0.003	-0.003	-0.007
	Sen Slope	-0.002	-0.009	-0.002	-0.001	-0.002	-0.001	-0.002	0.000	-0.001	0.000	-0.000	-0.000
	Upp. Sen C.I.	0.002	0.001	0.003	0.007	0.002	0.004	0.002	0.003	0.000	0.001	0.001	0.002
FE0001													
	Trend Test	K,S											
	Low. Sen C.I.	0.001	-0.025	-0.035	-0.008	-0.002	-0.005	-0.006	-0.004	-0.002	-0.004	-0.012	-0.005
	Sen Slope	0.106	0.076	0.009	-0.003	-0.001	-0.001	-0.001	-0.001	0.000	0.000	0.001	0.003
	Upp. Sen C.I.	0.264	0.153	0.204	0.000	0.000	0.001	0.002	0.001	0.003	0.003	0.006	0.011
AD0001													
	Trend Test				K,S								
	Low. Sen C.I.	-0.097	-0.257	-0.210	-0.016	-0.009	-0.005	-0.005	-0.003	-0.008	-0.006	-0.009	-0.055
	Sen Slope	0.140	0.019	0.008	-0.003	-0.002	-0.001	-0.003	0.000	-0.001	-0.002	0.000	0.005
	Upp. Sen C.I.	0.387	0.332	0.165	-0.001	0.001	0.001	0.000	0.004	0.004	0.001	0.010	0.027

Table A2.4 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test												
	Low. Sen C.I.	-0.002	-0.003	-0.003	-0.001	-0.002	-0.005	-0.005	-0.005	-0.006	-0.006	-0.006	-0.004
	Sen Slope	-0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	-0.001	-0.001	-0.001
	Upp. Sen C.I.	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.003	0.003	0.002
MD0002													
	Trend Test												
	Low. Sen C.I.	-0.096	-0.356	-0.127	-0.009	-0.021	-0.026	-0.010	-0.054	-0.083	-0.045	-0.009	-0.006
	Sen Slope	-0.005	-0.094	0.002	0.002	-0.004	-0.002	0.012	0.003	-0.002	-0.013	0.007	0.012
	Upp. Sen C.I.	0.036	0.064	0.068	0.026	0.013	0.038	0.033	0.036	0.078	0.016	0.024	0.033
KH0002													
	Trend Test									K			
	Low. Sen C.I.	-0.196	-0.337	-0.155	-0.023	-0.010	-0.009	-0.014	-0.032	-0.023	-0.005	-0.061	-0.074
	Sen Slope	-0.043	-0.103	-0.033	0.001	0.001	0.000	-0.001	-0.002	-0.016	0.007	0.009	0.000
	Upp. Sen C.I.	0.215	0.362	0.148	0.024	0.009	0.012	0.006	0.006	-0.000	0.011	0.075	0.103
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.5 Dissolved Iron.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test		K				K,S	S		K,S			K,S
	Low. Sen C.I.	-0.006	-0.006	-0.008	-0.012	-0.005	-0.007	-0.010	-0.004	-0.005	-0.006	-0.004	-0.006
	Sen Slope	-0.002	-0.003	-0.004	-0.002	0.000	-0.005	-0.005	-0.002	-0.004	-0.003	0.000	-0.003
	Upp. Sen C.I.	0.000	0.000	0.023	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CK0001													
	Trend Test	K	K	K							K,S		K,S
	Low. Sen C.I.	-0.005	-0.006	-0.025	-0.013	-0.009	-0.004	-0.010	-0.007	-0.007	-0.006	-0.005	-0.006
	Sen Slope	-0.002	-0.004	-0.005	-0.004	-0.004	0.000	-0.005	-0.005	-0.003	-0.004	0.000	-0.004
	Upp. Sen C.I.	0.000	0.000	0.000	0.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
KH0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
EA0003													
	Trend Test		K,S	K,S				K,S	K,S	K,S	K		
	Low. Sen C.I.	-0.009	-0.008	-0.007	--	-0.004	-0.005	-0.009	-0.005	-0.015	-0.016	--	-0.008
	Sen Slope	-0.004	-0.004	-0.004	--	0.000	-0.001	-0.004	-0.003	-0.007	-0.004	--	0.000
	Upp. Sen C.I.	0.000	0.000	0.000	--	0.006	0.000	0.000	0.000	0.000	0.000	--	0.000

Table A2.5 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test	K	K			K,S		K		K,S	K		K,S
	Low. Sen C.I.	-0.003	-0.006	0.000	-0.015	-0.005	-0.004	-0.005	-0.005	-0.010	-0.003	-0.004	-0.004
	Sen Slope	-0.001	-0.003	0.000	0.000	-0.004	0.000	-0.003	0.000	-0.005	-0.001	0.000	-0.003
	Upp. Sen C.I.	0.000	0.000	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LC0001													
	Trend Test	K,S	K,S	K,S									
	Low. Sen C.I.	-0.014	-0.211	-0.022	-0.015	-0.011	-0.012	-0.007	-0.004	-0.010	-0.010	-0.017	-0.013
	Sen Slope	-0.008	-0.007	-0.007	-0.009	-0.001	0.000	-0.001	0.000	-0.003	-0.004	-0.009	-0.001
	Upp. Sen C.I.	0.001	-0.000	-0.001	0.009	0.010	0.007	0.002	0.003	0.002	0.002	0.002	0.005
FE0001													
	Trend Test									K,S			K,S
	Low. Sen C.I.	-0.019	-0.018	-0.010	-0.022	-0.004	-0.005	-0.025	-0.016	-0.005	-0.004	-0.005	-0.010
	Sen Slope	-0.001	0.024	0.010	-0.004	-0.001	-0.001	-0.004	-0.002	-0.003	-0.001	-0.002	-0.006
	Upp. Sen C.I.	0.095	0.097	0.076	0.008	0.000	0.000	0.026	0.000	0.000	0.000	0.000	-0.002
AD0001													
	Trend Test												
	Low. Sen C.I.	-0.046	-0.027	-0.024	-0.021	-0.010	-0.009	-0.011	-0.016	-0.018	-0.033	-0.039	-0.038
	Sen Slope	0.003	-0.005	-0.008	0.013	0.000	0.000	0.003	-0.003	0.000	-0.013	-0.016	-0.010
	Upp. Sen C.I.	0.089	0.026	0.011	0.034	0.013	0.010	0.029	0.008	0.009	0.009	0.004	0.023

Table A2.5 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
MD0002													
	Trend Test							K,S		K,S		K,S	
	Low. Sen C.I.	-0.005	-0.009	-0.004	-0.010	-0.001	-0.003	-0.005	-0.007	-0.006	-0.003	-0.009	-0.013
	Sen Slope	0.000	-0.002	0.000	0.002	0.000	0.000	-0.003	-0.003	-0.004	0.000	-0.004	-0.003
	Upp. Sen C.I.	0.002	0.000	0.010	0.010	0.002	0.000	0.000	0.000	-0.001	0.002	0.000	0.003
KH0002													
	Trend Test												
	Low. Sen C.I.	-0.343	-1.136	-0.104	-0.011	-0.014	-0.018	-0.021	-0.029	-0.010	-0.006	-0.015	-0.029
	Sen Slope	0.046	0.108	0.023	0.010	-0.003	-0.006	-0.004	-0.002	-0.001	0.005	-0.003	-0.005
	Upp. Sen C.I.	0.564	1.086	0.193	0.038	0.011	0.006	0.022	0.015	0.007	0.011	0.013	0.006
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.6 Total Copper.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test						K,S						
	Low. Sen C.I.	-0.0006	-0.0005	-0.0015	-0.0011	-0.0006	-0.0014	-0.0036	0.0000	0.0000	-0.0003	0.0000	-0.0002
	Sen Slope	0.0000	-0.0001	-0.0002	0.0001	0.0000	-0.0005	-0.0008	0.0003	0.0001	0.0000	0.0000	0.0000
	Upp. Sen C.I.	0.0006	0.0001	0.0003	0.0008	0.0003	0.0000	0.0002	0.0005	0.0005	0.0001	0.0001	0.0001
CK0001													
	Trend Test							S			K	K,S	
	Low. Sen C.I.	0.0000	-0.0004	-0.0045	-0.0062	-0.0002	-0.0034	-0.0046	-0.0047	-0.0013	-0.0004	0.0000	-0.0001
	Sen Slope	0.0000	-0.0001	-0.0011	-0.0007	0.0005	-0.0007	-0.0023	0.0003	0.0000	-0.0002	0.0002	0.0001
	Upp. Sen C.I.	0.0002	0.0001	0.0018	0.0011	0.0024	0.0004	0.0002	0.0021	0.0007	0.0000	0.0004	0.0003
KH0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
EA0003													
	Trend Test						K						
	Low. Sen C.I.	-0.0008	-0.0056	-0.0003	--	-0.0004	-0.0002	-0.0001	-0.0001	-0.0002	-0.0004	--	0.0000
	Sen Slope	0.0000	-0.0006	0.0000	--	0.0000	0.0000	0.0000	0.0000	-0.0001	-0.0001	--	0.0002
	Upp. Sen C.I.	0.0006	0.0013	0.0002	--	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	--	0.0003

Table A2.6 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test				K,S								
	Low. Sen C.I.	-0.0004	0.0000	-0.0006	-0.0017	-0.0004	-0.0003	-0.0005	-0.0003	-0.0002	-0.0005	-0.0013	-0.0007
	Sen Slope	0.0000	0.0000	0.0000	-0.0007	0.0000	-0.0002	-0.0002	0.0001	0.0000	-0.0001	-0.0002	0.0000
	Upp. Sen C.I.	0.0003	0.0000	0.0028	-0.0002	0.0008	0.0001	0.0000	0.0010	0.0002	0.0002	0.0001	0.0003
LC0001													
	Trend Test				K		K				K		
	Low. Sen C.I.	-0.0006	-0.0030	-0.0008	-0.0012	-0.0005	-0.0002	-0.0003	-0.0002	-0.0001	-0.0003	-0.0002	-0.0007
	Sen Slope	0.0000	-0.0002	-0.0002	-0.0005	-0.0001	0.0000	-0.0001	0.0000	0.0000	-0.0001	0.0000	0.0000
	Upp. Sen C.I.	0.0004	0.0010	0.0005	0.0000	0.0004	0.0000	0.0000	0.0002	0.0000	0.0000	0.0003	0.0004
FE0001													
	Trend Test												K,S
	Low. Sen C.I.	-0.0006	-0.0005	-0.0004	-0.0014	-0.0025	-0.0008	-0.0049	-0.0006	-0.0004	-0.0005	-0.0007	-0.0008
	Sen Slope	0.0000	-0.0002	0.0000	-0.0002	-0.0001	-0.0002	-0.0009	0.0002	-0.0002	-0.0003	-0.0002	-0.0003
	Upp. Sen C.I.	0.0010	0.0002	0.0003	0.0011	0.0015	0.0007	0.0007	0.0014	0.0003	0.0002	0.0003	0.0000
AD0001													
	Trend Test	S										K	
	Low. Sen C.I.	0.0000	-0.0001	-0.0006	-0.0021	-0.0004	-0.0005	-0.0018	-0.0002	-0.0001	-0.0003	-0.0004	-0.0003
	Sen Slope	0.0000	0.0000	-0.0002	-0.0003	0.0000	-0.0002	-0.0001	0.0000	0.0000	0.0000	-0.0001	0.0000
	Upp. Sen C.I.	0.0003	0.0000	0.0000	0.0015	0.0005	0.0007	0.0006	0.0002	0.0000	0.0003	0.0000	0.0003

Table A2.6 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test	S	K,S				K,S		K,S	S			
	Low. Sen C.I.	0.0000	-0.0007	-0.0012	-0.0014	-0.0011	-0.0018	-0.0004	0.0000	0.0000	-0.0003	0.0000	0.0000
	Sen Slope	0.0001	-0.0003	0.0000	-0.0002	0.0004	-0.0007	-0.0001	0.0001	0.0003	-0.0002	0.0002	0.0000
	Upp. Sen C.I.	0.0002	0.0000	0.0015	0.0003	0.0017	0.0000	0.0001	0.0004	0.0008	0.0002	0.0005	0.0004
MD0002													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
KH0002													
	Trend Test												
	Low. Sen C.I.	-0.0010	-0.0006	-0.0005	-0.0041	-0.0004	-0.0008	-0.0004	-0.0003	-0.0004	-0.0003	-0.0004	-0.0008
	Sen Slope	-0.0003	0.0000	0.0000	-0.0010	-0.0001	0.0000	0.0000	0.0000	0.0000	-0.0001	0.0000	-0.0002
	Upp. Sen C.I.	0.0001	0.0007	0.0001	0.0008	0.0005	0.0006	0.0002	0.0004	0.0002	0.0001	0.0005	0.0007
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.7 Total Zinc.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test												
	Low. Sen C.I.	-0.0013	-0.0013	-0.0015	-0.0030	-0.0020	-0.0047	-0.0092	0.0000	-0.0010	-0.0004	-0.0008	-0.0005
	Sen Slope	-0.0004	-0.0003	-0.0007	0.0000	0.0003	-0.0006	-0.0020	0.0010	-0.0001	-0.0001	-0.0004	0.0001
	Upp. Sen C.I.	0.0003	0.0001	0.0000	0.0018	0.0029	0.0006	0.0005	0.0024	0.0008	0.0003	0.0002	0.0004
CK0001													
	Trend Test							S					
	Low. Sen C.I.	-0.0018	-0.0012	-0.0025	-0.1009	-0.0028	-0.0116	-0.0108	-0.0152	-0.0029	-0.0016	-0.0010	-0.0006
	Sen Slope	0.0000	0.0000	-0.0007	-0.0080	-0.0004	-0.0010	-0.0050	-0.0008	-0.0009	-0.0004	0.0000	0.0000
	Upp. Sen C.I.	0.0007	0.0005	0.0010	0.0037	0.0015	0.0005	0.0006	0.0076	0.0004	0.0006	0.0006	0.0006
KH0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
EA0003													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.7 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test				K,S		K,S			S			
	Low. Sen C.I.	-0.0016	-0.0010	-0.0004	-0.0039	-0.0013	-0.0014	-0.0020	-0.0019	-0.0009	-0.0008	-0.0030	-0.0018
	Sen Slope	-0.0004	0.0000	0.0010	-0.0019	0.0000	-0.0007	-0.0007	-0.0004	-0.0004	-0.0001	-0.0005	0.0001
	Upp. Sen C.I.	0.0005	0.0012	0.0020	-0.0004	0.0007	0.0000	0.0000	0.0010	0.0000	0.0008	0.0002	0.0005
LC0001													
	Trend Test									K,S	K,S		
	Low. Sen C.I.	-0.0013	-0.0043	-0.0030	-0.0014	-0.0005	-0.0010	-0.0010	-0.0015	-0.0010	-0.0003	-0.0001	-0.0011
	Sen Slope	-0.0002	-0.0007	0.0004	-0.0003	0.0000	-0.0003	-0.0002	-0.0005	-0.0004	-0.0001	0.0000	0.0000
	Upp. Sen C.I.	0.0002	0.0023	0.0032	0.0002	0.0004	0.0002	0.0000	0.0001	-0.0001	0.0000	0.0005	0.0006
FE0001													
	Trend Test			K,S		K,S				K			
	Low. Sen C.I.	-0.0009	-0.0007	0.0000	-0.0087	-0.0079	-0.0017	-0.0071	-0.0009	-0.0013	-0.0008	-0.0009	-0.0004
	Sen Slope	0.0002	-0.0001	0.0005	-0.0002	-0.0017	-0.0005	-0.0001	-0.0002	-0.0006	-0.0003	-0.0002	0.0000
	Upp. Sen C.I.	0.0011	0.0006	0.0026	0.0035	-0.0001	0.0006	0.0010	0.0005	0.0000	0.0002	0.0003	0.0004
AD0001													
	Trend Test									K,S			
	Low. Sen C.I.	-0.0002	-0.0010	-0.0010	-0.0015	-0.0012	-0.0009	-0.0014	-0.0004	-0.0010	-0.0007	-0.0008	-0.0008
	Sen Slope	0.0003	0.0003	-0.0004	-0.0007	-0.0004	0.0000	-0.0005	-0.0002	-0.0003	-0.0002	-0.0002	0.0001
	Upp. Sen C.I.	0.0011	0.0010	0.0002	0.0004	0.0002	0.0011	0.0004	0.0001	0.0000	0.0003	0.0007	0.0010

Table A2.7 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
MD0002													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
KH0002													
	Trend Test		K,S		S			K,S					
	Low. Sen C.I.	-0.0014	-0.0007	0.0000	-0.0066	-0.0008	-0.0017	-0.0010	-0.0014	-0.0012	-0.0005	-0.0007	-0.0008
	Sen Slope	0.0000	-0.0006	0.0004	-0.0018	-0.0003	-0.0005	-0.0006	-0.0001	-0.0002	-0.0001	-0.0002	-0.0002
	Upp. Sen C.I.	0.0003	-0.0004	0.0013	0.0003	0.0006	0.0009	0.0000	0.0003	0.0004	0.0002	0.0001	0.0006
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.8 Total Coliform.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test												K,S
	Low. Sen C.I.	-10.936	-33.134	-104.24	-37.143	-3.214	-9.503	-110.07	-0.409	-10.912	-0.875	-0.962	0.000
	Sen Slope	25.000	9.546	-6.182	-2.450	0.667	-0.667	-1.750	2.667	-0.450	2.357	3.243	4.111
	Upp. Sen C.I.	55.111	47.439	82.178	17.015	48.789	3.876	36.678	21.209	2.000	14.463	9.829	15.880
CK0001													
	Trend Test												
	Low. Sen C.I.	-10.259	-4.775	-2.196	-24.913	-62.804	-66.354	-157.54	-28.529	-24.674	-8.089	-1.152	0.000
	Sen Slope	-1.222	0.000	-0.889	-2.125	-6.250	-20.000	-32.000	-10.000	-1.455	-1.714	-0.286	0.000
	Upp. Sen C.I.	1.000	6.067	0.000	2.521	2.525	1.947	128.158	0.000	28.786	1.778	0.000	0.667
KH0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
EA0003													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.8 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test												
	Low. Sen C.I.	-3.711	-4.608	-4.067	-3.508	-1.636	-4.962	-10.706	-5.053	-6.420	-12.370	-2.000	-0.709
	Sen Slope	-1.600	-0.349	-1.450	0.000	0.000	-1.181	2.727	2.151	0.063	0.313	0.167	0.000
	Upp. Sen C.I.	0.421	0.754	0.222	0.762	1.195	4.244	16.040	6.411	3.003	4.878	1.116	1.000
LC0001													
	Trend Test	K,S	K,S		K	K,S							K
	Low. Sen C.I.	-6.037	-25.445	-6.802	-12.597	-31.539	-11.849	-4.221	-7.001	-9.404	-3.319	-4.036	-28.044
	Sen Slope	-2.920	-8.500	-3.238	-2.571	-8.000	-2.000	-0.455	0.273	0.333	-0.909	-1.718	-1.600
	Upp. Sen C.I.	0.000	0.000	0.000	0.000	-1.149	2.917	8.245	5.182	2.652	0.909	0.356	0.000
FE0001													
	Trend Test												
	Low. Sen C.I.	-4.500	-7.700	-1.500	-41.900	-9.700	-48.300	-22.100	-5.000	-17.300	-40.700	-12.000	-2.100
	Sen Slope	-0.800	-1.300	0.000	-8.400	-1.200	-9.000	-6.000	2.000	0.800	-13.200	-2.600	-0.500
	Upp. Sen C.I.	1.200	2.700	0.700	0.000	5.200	10.900	6.700	18.700	38.000	4.100	1.800	0.000
AD0001													
	Trend Test		K,S		K,S				K,S	K	K,S	K,S	K,S
	Low. Sen C.I.	-3.600	-6.800	-37.800	-77.000	-12.000	-25.600	-20.000	-10.300	-9.200	-14.100	-11.500	-20.500
	Sen Slope	-0.500	-2.400	-8.700	-39.900	-2.500	-0.100	-10.600	-5.000	-3.700	-3.700	-3.700	-4.300
	Upp. Sen C.I.	7.100	-0.300	0.000	-6.600	1.300	11.700	1.600	-1.900	0.000	0.000	-0.700	-0.900

Table A2.8 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test		K,S		K,S								
	Low. Sen C.I.	-27.241	9.842	-8.470	-54.684	-202.61	-134.82	-40.626	-9.177	-1.766	-1.957	-1.969	-2.042
	Sen Slope	-1.667	30.933	1.000	-6.125	-11.500	-79.167	-2.333	-3.000	0.000	0.000	4.000	0.000
	Upp. Sen C.I.	11.609	60.063	19.685	-1.357	0.127	4.044	4.447	2.367	4.139	2.581	33.141	2.042
MD0002													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
KH0002													
	Trend Test					K,S			K,S				
	Low. Sen C.I.	-0.387	-2.746	-1.097	-9.218	-4.750	-7.094	-17.896	-15.437	-12.685	-4.453	-2.432	-3.263
	Sen Slope	0.333	-0.667	-0.077	-1.071	-1.727	-0.477	-2.000	-6.282	-2.250	-1.250	-0.385	-0.878
	Upp. Sen C.I.	1.336	0.000	0.000	0.000	0.000	1.000	0.563	-0.387	1.159	0.399	1.829	0.175
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.9 Fecal Coliform.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test												
	Low. Sen C.I.	-13.376	-6.021	-4.458	-1.578	-1.109	-1.200	-7.334	-0.500	0.000	-0.566	-1.675	0.000
	Sen Slope	-0.077	0.667	0.000	-0.382	0.000	0.000	-0.800	0.400	0.310	0.000	0.000	0.000
	Upp. Sen C.I.	10.680	8.139	6.972	2.398	2.000	2.000	1.335	4.000	2.000	0.150	0.000	0.000
CK0001													
	Trend Test												K,S
	Low. Sen C.I.	0.000	-1.000	0.000	0.000	-1.377	-4.332	-13.840	-7.290	-9.033	-2.003	0.000	0.000
	Sen Slope	0.000	0.000	0.154	0.000	1.000	0.000	-3.832	1.111	-1.000	0.000	0.000	0.000
	Upp. Sen C.I.	0.279	0.667	0.667	0.000	4.006	3.333	6.939	19.599	4.066	1.250	0.000	0.218
KH0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
EA0003													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.9 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test							K,S	K,S				
	Low. Sen C.I.	-0.183	0.000	0.000	0.000	0.000	-1.000	0.000	0.663	-1.481	-1.663	-0.185	0.000
	Sen Slope	0.000	0.000	0.000	0.000	0.077	0.774	5.357	3.275	0.231	1.100	0.000	0.000
	Upp. Sen C.I.	0.406	0.447	0.385	0.000	1.232	2.374	13.175	7.011	2.087	4.830	0.423	0.200
LC0001													
	Trend Test	K	K,S	K,S		K,S							K
	Low. Sen C.I.	-1.549	-6.766	-5.776	-2.776	-2.514	-1.362	-1.805	-2.380	-1.763	-0.939	0.000	-4.215
	Sen Slope	-0.133	-1.500	-2.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Upp. Sen C.I.	0.000	0.000	-0.023	0.000	0.000	1.410	0.112	3.611	1.228	0.279	0.000	0.000
FE0001													
	Trend Test												
	Low. Sen C.I.	-0.244	0.000	0.000	-1.571	-5.106	-0.358	-8.000	-2.146	-2.000	-5.669	-1.273	0.000
	Sen Slope	0.500	0.917	0.000	0.000	-1.000	4.000	-5.000	1.250	2.667	-0.200	0.000	0.000
	Upp. Sen C.I.	1.278	2.705	0.742	1.827	1.286	11.792	1.535	3.797	8.146	2.155	0.776	0.000
AD0001													
	Trend Test		K,S										
	Low. Sen C.I.	0.000	-0.400	-0.452	-2.999	-2.885	-0.917	-5.466	-0.571	-1.761	-1.000	-0.778	-1.932
	Sen Slope	0.250	0.000	0.000	-1.143	-0.250	0.200	-0.929	2.000	0.000	-0.071	0.000	-0.100
	Upp. Sen C.I.	1.165	0.341	0.000	0.000	0.000	3.042	0.973	4.000	2.411	0.628	0.000	0.000

Table A2.9 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test									K,S			
	Low. Sen C.I.	-4.759	-2.000	-0.215	-1.208	-5.478	-18.088	-2.342	-1.000	0.000	-0.400	-0.200	0.000
	Sen Slope	0.000	1.250	0.000	0.000	-0.833	-4.000	0.000	0.000	1.286	0.148	0.000	0.000
	Upp. Sen C.I.	3.190	9.374	0.000	0.842	0.913	0.760	0.668	0.741	3.000	0.972	3.415	0.951
MD0002													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
KH0002													
	Trend Test				K	K,S							
	Low. Sen C.I.	0.000	-0.242	-0.167	-1.600	-2.579	-1.333	-5.333	-2.549	-3.189	-1.317	0.000	0.000
	Sen Slope	0.000	0.000	0.000	-0.536	-1.000	0.000	-0.310	-0.381	-1.310	0.000	0.000	0.000
	Upp. Sen C.I.	0.698	0.000	0.000	0.000	0.000	2.395	0.474	0.837	0.500	0.439	0.493	0.310
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.10 Total Mercury.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test	K	K		K	K	K				K		
	Low. Sen C.I.	0.0000	-0.0014	-0.0014	-0.0026	0.0000	-0.0020	-0.0011	0.0000	-0.0011	0.0000	0.0000	-0.0017
	Sen Slope	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Upp. Sen C.I.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CK0001													
	Trend Test	K			K,S						K,S	K	K
	Low. Sen C.I.	-0.0011	0.0000	-0.0021	-0.0120	0.0000	-0.0044	-0.0028	-0.0027	-0.0014	-0.0060	-0.0017	-0.0014
	Sen Slope	0.0000	0.0000	0.0000	-0.0025	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0025	0.0000	0.0000
	Upp. Sen C.I.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
KH0001													
	Trend Test	K		K		K	K		K	K	K		K
	Low. Sen C.I.	-0.0014	-0.0014	-0.0013	*******	0.0000	-0.0021	-0.0011	-0.0020	-0.0011	-0.0033	-0.0069	-0.0014
	Sen Slope	0.0000	0.0000	0.0000	-0.0033	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0020	0.0025	0.0000
	Upp. Sen C.I.	0.0000	0.0000	0.0000	*******	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0000
EA0003													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.10 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test	K			K		K,S						K
	Low. Sen C.I.	-0.0028	0.0000	-0.0013	-0.0074	-0.0013	0.0000	-0.0042	0.0000	0.0000	-0.0035	-0.0037	-0.0025
	Sen Slope	-0.0013	0.0000	0.0000	-0.0017	0.0000	0.0000	-0.0025	0.0000	0.0000	0.0000	0.0000	-0.0013
	Upp. Sen C.I.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
LC0001													
	Trend Test	K		K		K	K	K	K	K	K	K	K
	Low. Sen C.I.	-0.0014	-0.0016	-0.0013	-0.0035	0.0000	0.0000	0.0000	-0.0020	0.0000	-0.0015	-0.0015	-0.0014
	Sen Slope	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Upp. Sen C.I.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FE0001													
	Trend Test		K		K		K				K		K
	Low. Sen C.I.	0.0000	-0.0017	-0.0014	-0.0050	0.0000	0.0000	-0.0025	-0.0013	-0.0013	-0.0011	-0.0014	-0.0014
	Sen Slope	0.0000	0.0000	0.0000	-0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Upp. Sen C.I.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AD0001													
	Trend Test	K	K					K	K	K	K		K
	Low. Sen C.I.	-0.0017	-0.0025	-0.0021	0.0000	-0.0013	-0.0011	0.0000	0.0000	0.0000	-0.0011	0.0000	-0.0014
	Sen Slope	0.0000	-0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Upp. Sen C.I.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table A2.10 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
MD0002													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
KH0002													
	Trend Test		K							K	K,S		
	Low. Sen C.I.	-0.0025	-0.0032	-0.0015	-0.0089	0.0000	0.0000	0.0000	-0.0013	-0.0025	-0.0045	-0.0009	0.0000
	Sen Slope	0.0000	-0.0013	0.0000	-0.0025	0.0000	0.0000	0.0000	0.0000	-0.0010	-0.0029	0.0000	0.0000
	Upp. Sen C.I.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

Table A2.11 Flow.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
EF0001													
	Trend Test			K,S									
	Low. Sen C.I.	-1.800	-3.180	0.009	-36.032	-29.236	-32.580	-16.130	-21.464	-13.186	-3.798	-4.350	-5.094
	Sen Slope	0.071	1.485	4.000	2.556	-7.222	-5.000	7.333	-6.200	-7.000	1.500	1.125	1.143
	Upp. Sen C.I.	2.984	6.736	5.667	13.874	12.203	13.688	48.[illegible]37	8.121	6.301	9.304	6.052	7.237
CK0001													
	Trend Test	K,S	K,S	K,S								S	K,S
	Low. Sen C.I.	0.157	0.124	0.405	-24.508	-17.181	-10.058	-7.056	-6.337	-2.349	-1.826	-0.105	0.265
	Sen Slope	0.943	0.833	2.017	-4.800	-5.633	-1.740	1.120	-0.267	0.320	0.075	0.735	0.725
	Upp. Sen C.I.	1.489	1.653	4.435	3.120	1.630	5.313	20.634	3.731	3.040	2.982	1.581	0.934
KH0001													
	Trend Test												
	Low. Sen C.I.	-21.266	-29.230	-24.550	-221.23	-116.40	-74.430	-52.897	-38.111	-35.339	-19.855	-49.280	-12.421
	Sen Slope	-6.471	-13.000	-2.455	56.556	-36.500	-22.500	-23.000	-9.006	-9.063	-2.482	-6.625	-1.714
	Upp. Sen C.I.	5.688	7.571	14.361	157.071	46.583	30.758	21.401	24.806	6.033	21.688	17.899	10.161
EA0003													
	Trend Test		K,S	S				K,S	S	K,S	K,S		K,S
	Low. Sen C.I.	-20.767	-31.067	-34.370	--	-53.801	-64.045	-80.701	-95.674	-82.444	-58.089	--	-39.675
	Sen Slope	-8.300	-18.545	-10.143	--	-12.875	-27.500	-44.300	-49.375	-45.850	-33.317	--	-16.200
	Upp. Sen C.I.	19.066	-1.801	11.734	--	32.728	6.800	-9.920	7.190	-15.114	-16.249	--	-5.627

Table A2.11 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
JM0014													
	Trend Test												
	Low. Sen C.I.	-0.720	-0.605	-0.648	-11.849	-6.642	-4.608	-1.450	-1.111	-0.450	-0.879	-0.633	-0.540
	Sen Slope	-0.016	-0.158	0.080	-0.859	-0.989	-0.438	-0.168	-0.047	-0.031	-0.242	-0.027	-0.151
	Upp. Sen C.I.	0.345	0.243	0.768	2.606	0.741	0.073	0.230	0.340	0.458	0.261	0.579	0.252
LC0001													
	Trend Test												
	Low. Sen C.I.	-0.115	-0.165	-0.097	-20.399	-12.017	-5.132	-1.018	-1.212	-1.472	-1.033	-0.365	-0.183
	Sen Slope	0.025	-0.028	0.048	-7.150	-1.858	-0.287	0.390	-0.169	-0.400	-0.302	-0.021	-0.027
	Upp. Sen C.I.	0.123	0.103	0.193	3.854	2.728	4.124	1.113	0.355	0.074	0.529	0.306	0.128
FE0001													
	Trend Test												
	Low. Sen C.I.	-0.075	-0.138	-0.134	-4.613	-1.800	-1.451	-1.253	-0.877	-0.343	-0.489	-0.336	-0.188
	Sen Slope	0.009	0.016	0.031	0.033	-0.185	-0.346	-0.030	0.048	0.020	0.043	-0.006	0.031
	Upp. Sen C.I.	0.085	0.094	0.611	2.781	0.971	0.284	0.926	0.770	0.619	0.384	0.279	0.210
AD0001													
	Trend Test	K,S	K,S						K,S	K,S	K,S	K,S	K,S
	Low. Sen C.I.	-0.544	-0.576	-0.572	-11.495	-9.067	-7.003	-5.817	-2.640	-3.455	-2.428	-1.101	-0.708
	Sen Slope	-0.410	-0.407	-0.309	-2.300	-2.800	-2.000	-2.867	-1.408	-2.164	-1.325	-0.723	-0.378
	Upp. Sen C.I.	-0.241	-0.202	0.206	1.747	0.813	0.387	0.424	-0.208	-0.813	-0.126	-0.295	-0.238

Table A2.11 Continued.

Station		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
AK0001													
	Trend Test				K,S		K,S		S				
	Low. Sen C.I.	-7.208	-3.818	-4.672	-15.600	-51.850	-78.070	-46.000	-16.891	-10.389	-5.749	-3.085	-3.964
	Sen Slope	1.350	2.000	3.053	-7.000	-19.000	-43.700	-17.500	-5.200	-2.300	1.500	1.690	1.300
	Upp. Sen C.I.	6.117	3.654	12.181	-0.313	15.641	-2.918	5.234	0.188	6.741	8.434	8.392	8.025
MD0002													
	Trend Test									K,S			
	Low. Sen C.I.	-0.041	-0.049	-0.037	-14.890	-4.843	-1.454	-0.294	-0.145	-0.113	-0.119	-0.134	-0.066
	Sen Slope	-0.006	-0.005	-0.001	-4.218	-1.100	-0.076	0.043	-0.020	-0.031	-0.045	-0.035	-0.007
	Upp. Sen C.I.	0.024	0.023	0.028	4.282	0.840	0.444	0.430	0.043	-0.002	0.010	0.015	0.014
KH0002													
	Trend Test										S		
	Low. Sen C.I.	-0.070	-0.110	-6.057	-5.478	-13.315	-4.014	-1.266	-1.515	-2.114	-0.115	-0.715	-0.108
	Sen Slope	0.072	0.002	-3.950	3.935	-3.521	-0.211	0.013	0.029	-0.468	0.889	0.050	0.120
	Upp. Sen C.I.	0.174	0.134	0.118	8.041	7.449	3.058	1.864	1.666	0.348	1.836	0.445	0.301
JM0001													
	Trend Test	--	--	--	--	--	--	--	--	--	--	--	--
	Low. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--
	Sen Slope	--	--	--	--	--	--	--	--	--	--	--	--
	Upp. Sen C.I.	--	--	--	--	--	--	--	--	--	--	--	--

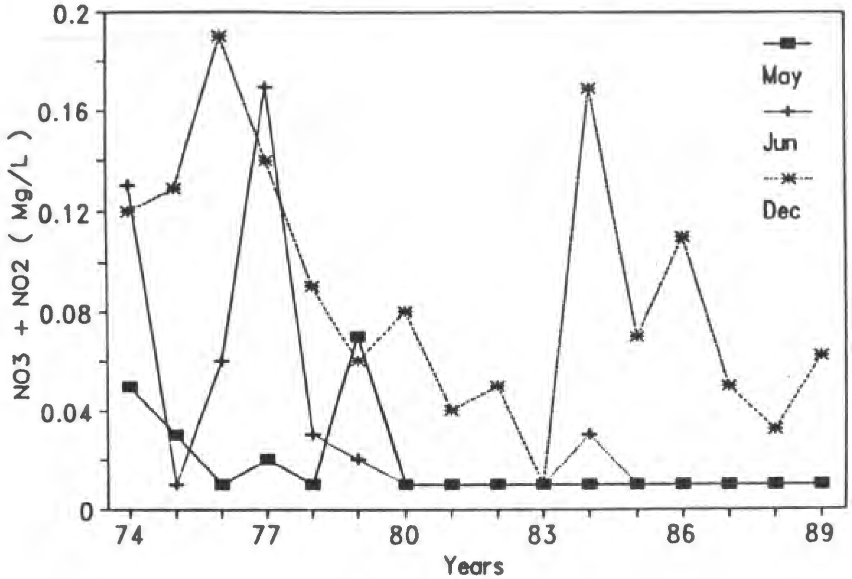
Appendix A3

Plots of Water Quality Variable versus Year for Some Examples with a Significant Change over Time

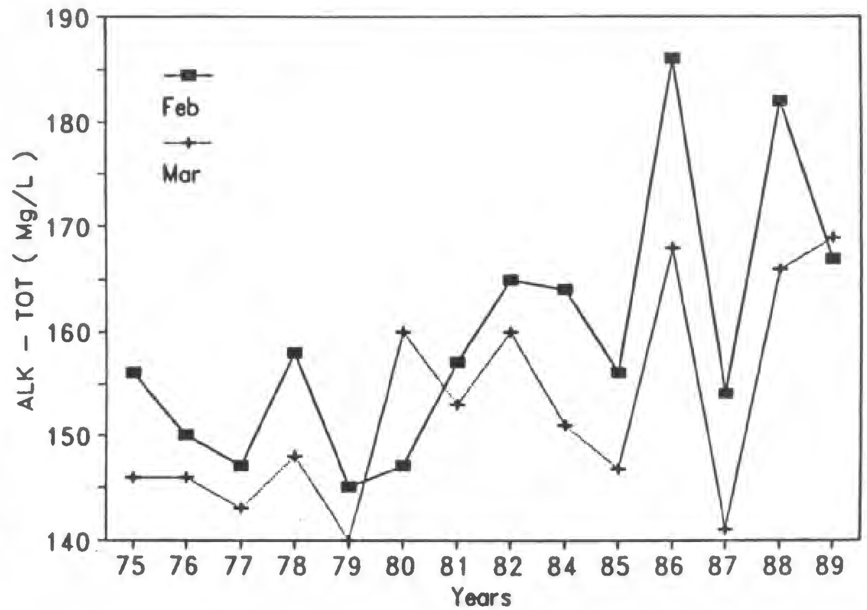
Water Quality Variable		Station Number
NO_3+NO_2	at	LC0001
Alk-Tot	at	KH0001 and LC0001
Mg(Diss)	at	EF0001 and LC0001
P-Tot (Diss)	at	EF0001 and LC0001
SO_4(Diss)	at	LC0001
Cl(Diss)	at	EF0001
Lindane	at	EF0001
2,4,D	at	LC0001
2,4,5T	at	EF0001 and LC0001
K(Diss)	at	EF0001 and LC0001
Ca(Diss)	at	LC0001
Fe(Diss)	at	EF0001 and LC0001
Cu-Tot	at	LC0001
Zn-Tot	at	LC0001
T.Coli	at	LC0001
F.Coli	at	LC0001
Hg-Tot	at	EF0001, KH0001 and LC0001
Pb-Tot	at	EF0001 and LC0001

Page 1

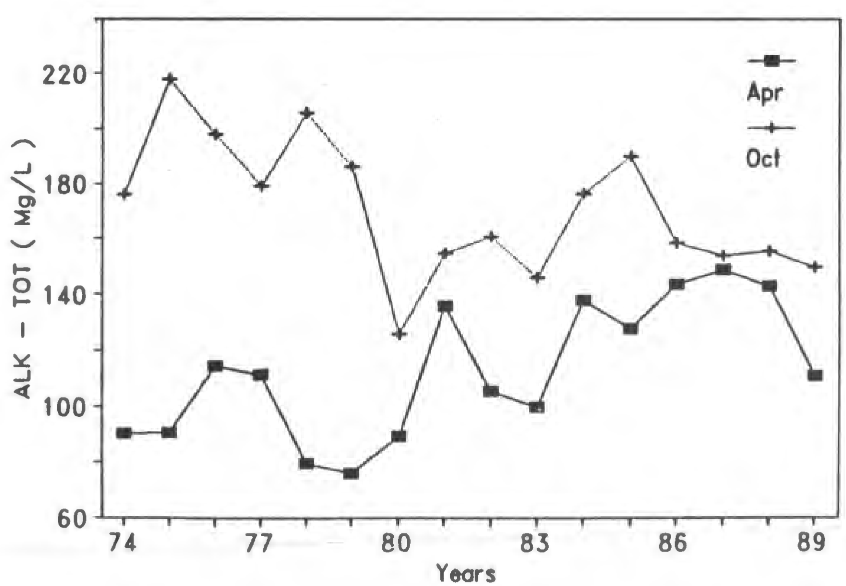
Red Deer River
at Erwood



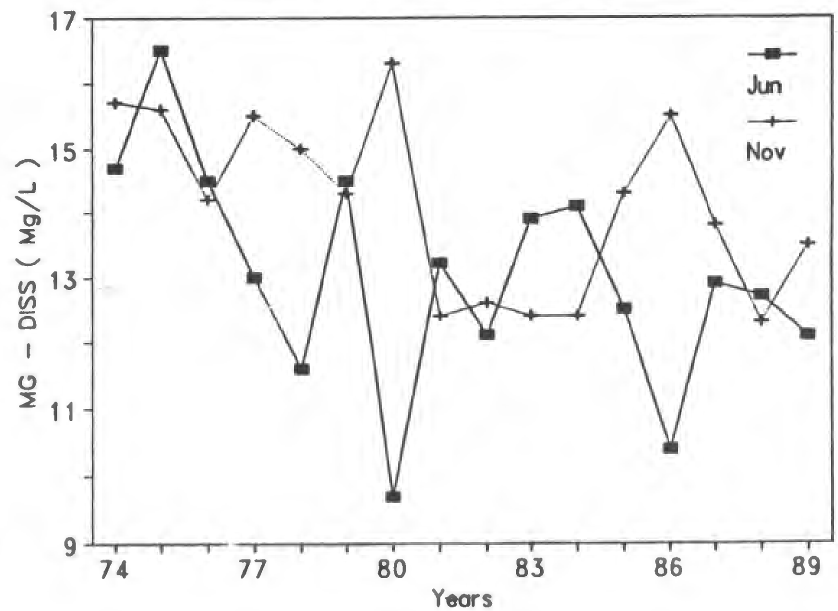
Saskatchewan River
near Manitoba Boundary



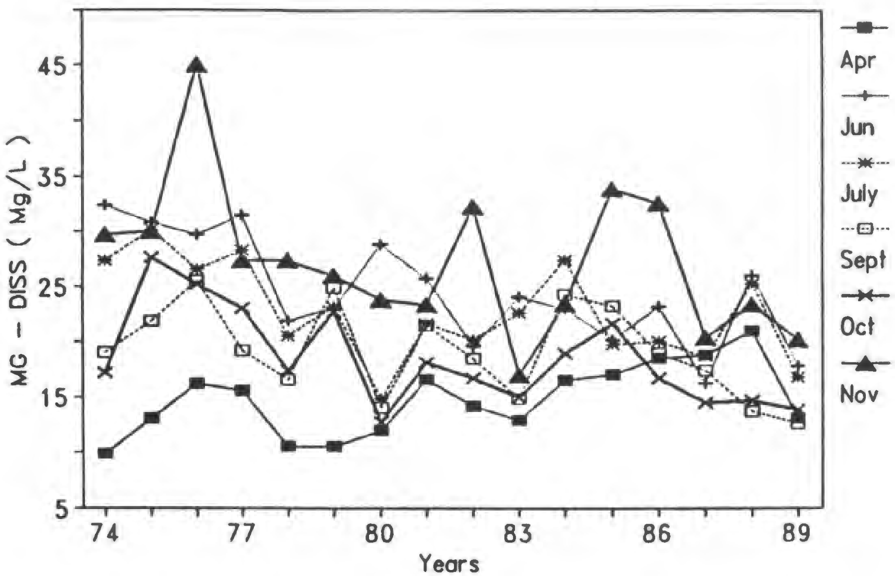
Red Deer River
at Erwood



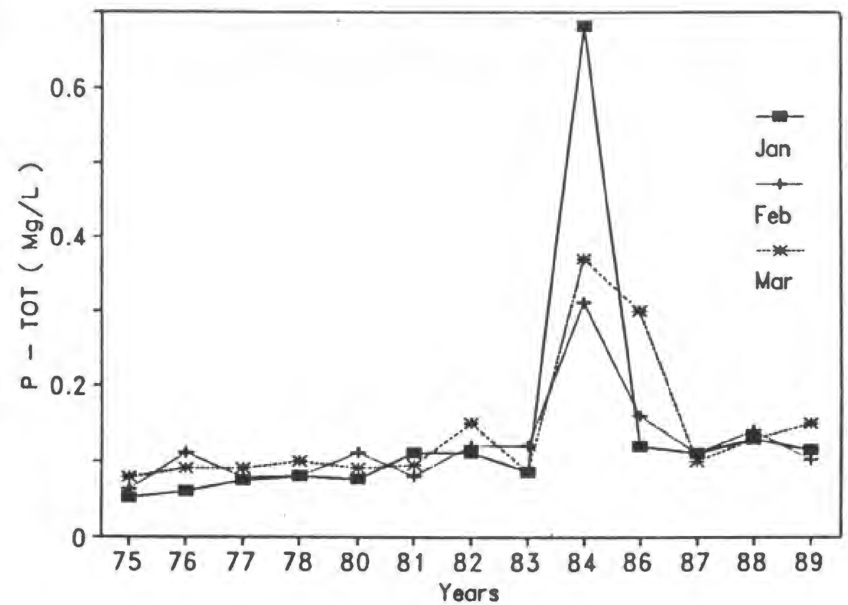
North Saskatchewan River
at Hwy#3 , Lea Park and Hwy#17



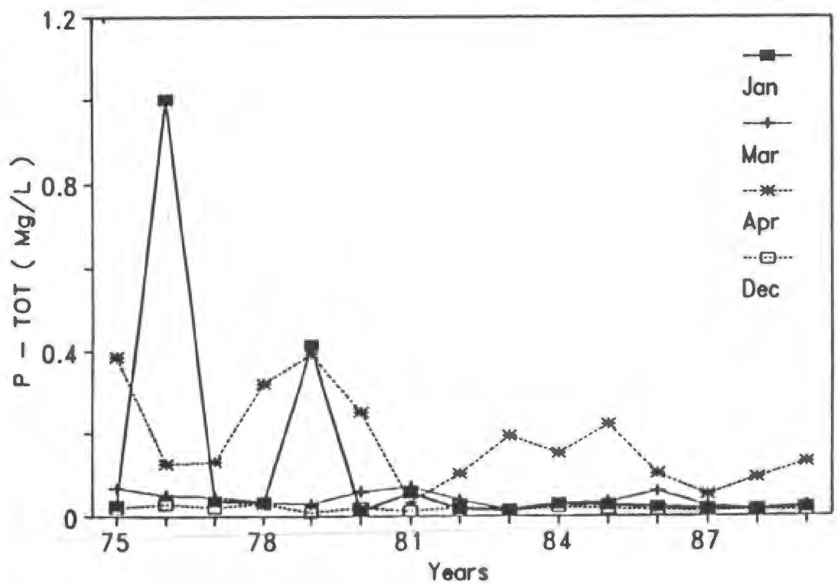
Red Deer River
at Erwood



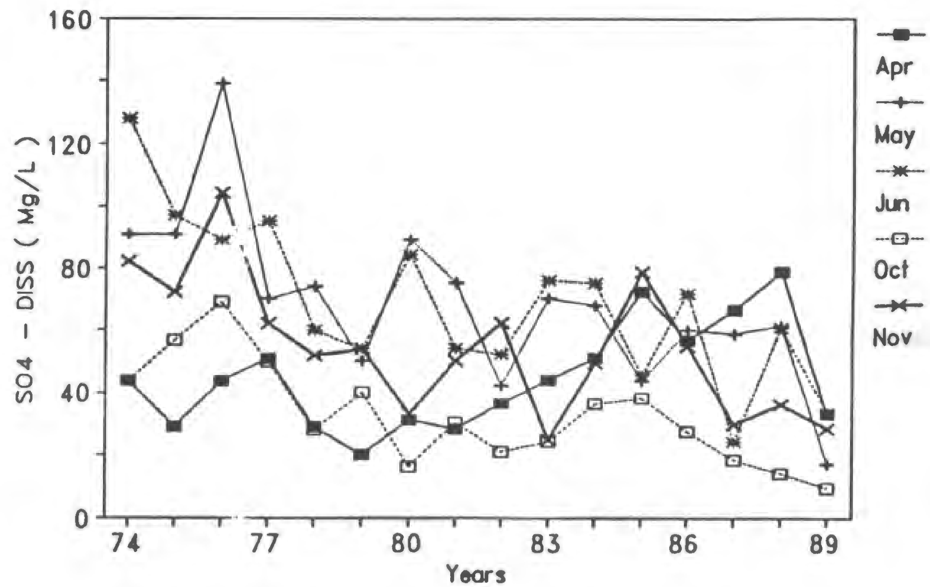
North Saskatchewan River
at Hwy#3 , Lea Park and Hwy#17



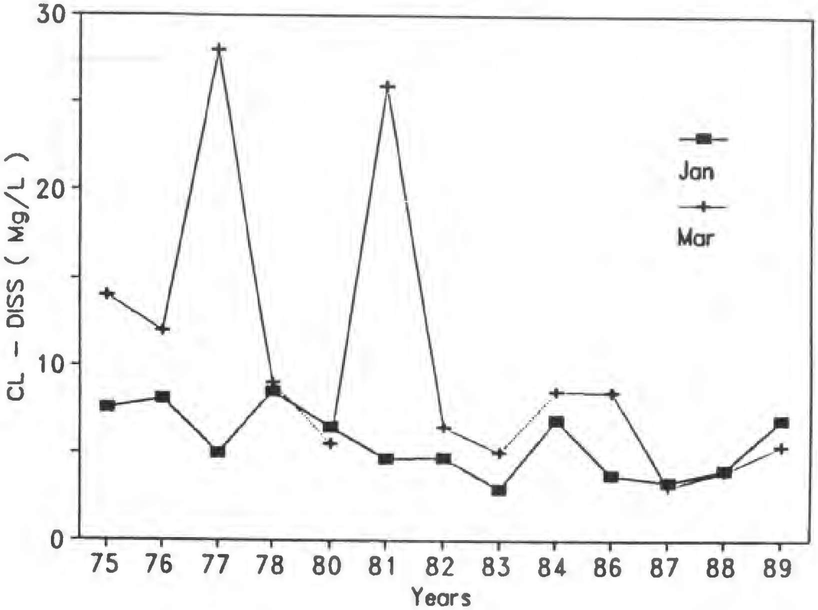
Red Deer River
at Erwood



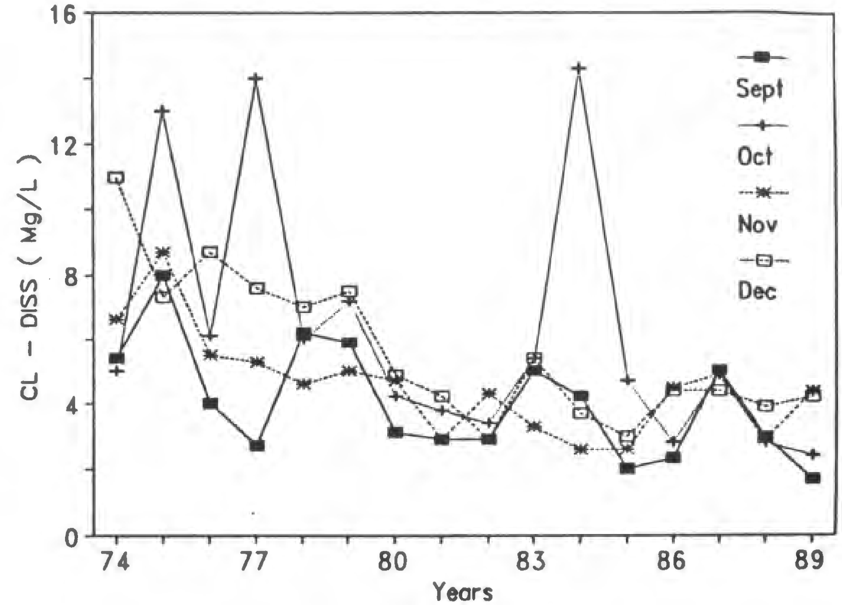
Red Deer River
at Erwood



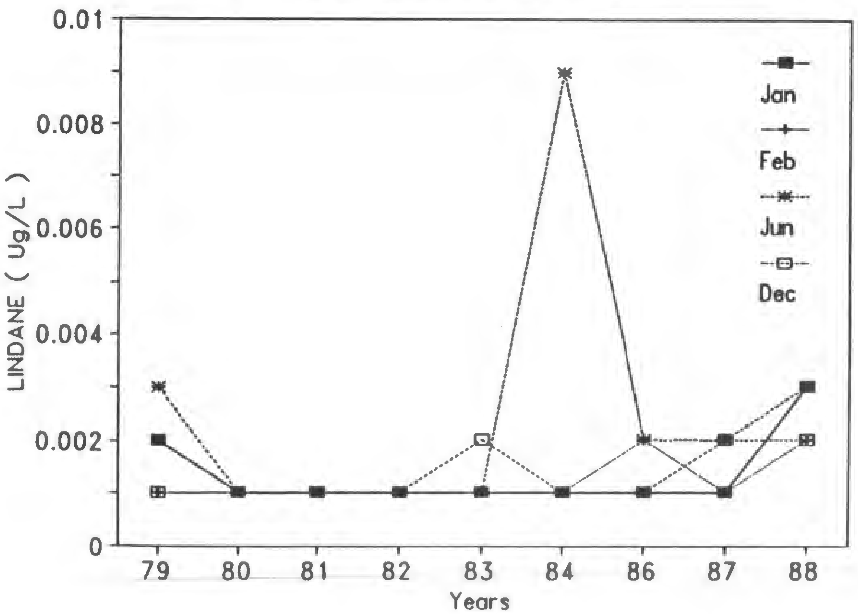
North Saskatchewan River
at Hwy#3 , Lea Park and Hwy#17



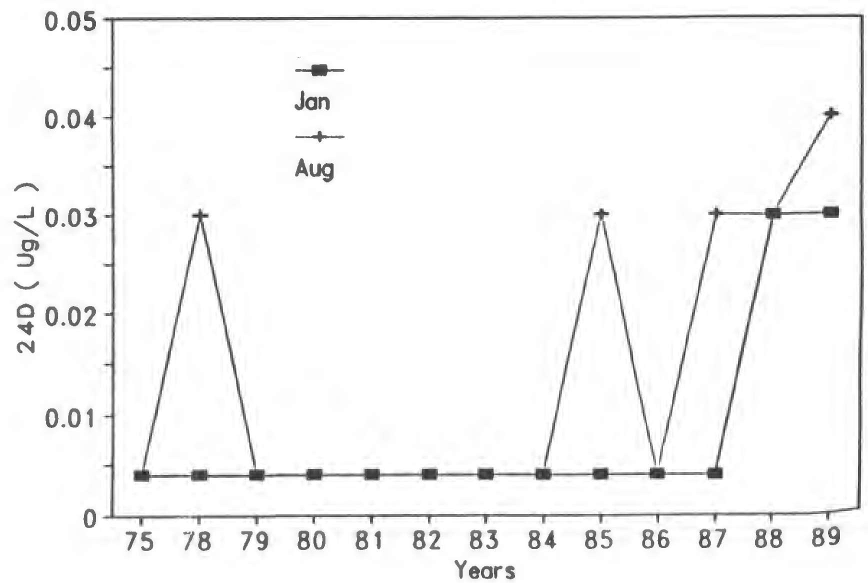
North Saskatchewan River
at Hwy#3 , Lea Park and Hwy#17

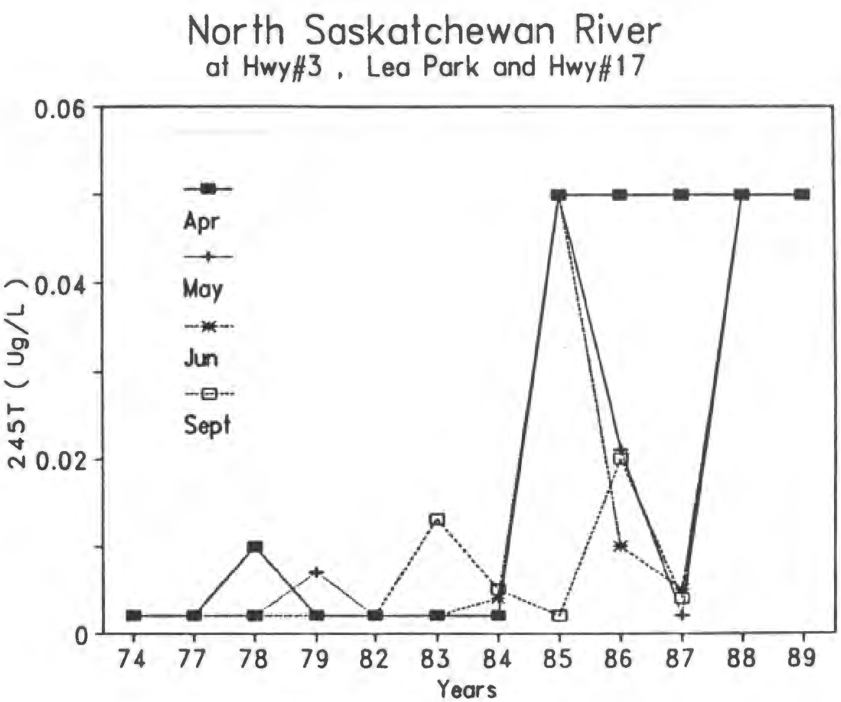


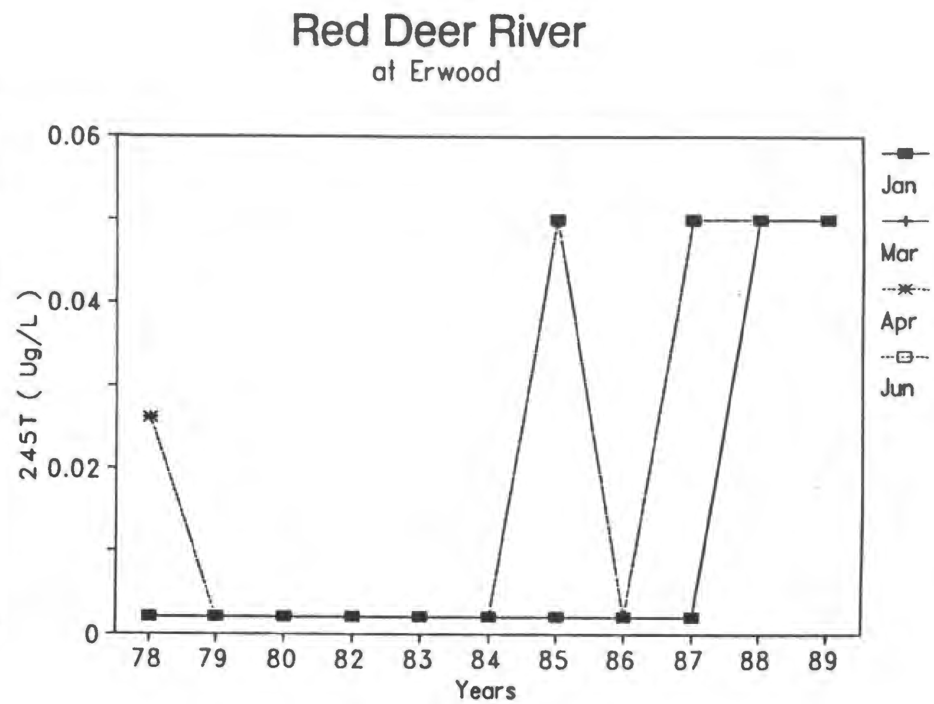
North Saskatchewan River
at Hwy#3 , Lea Park and Hwy#17

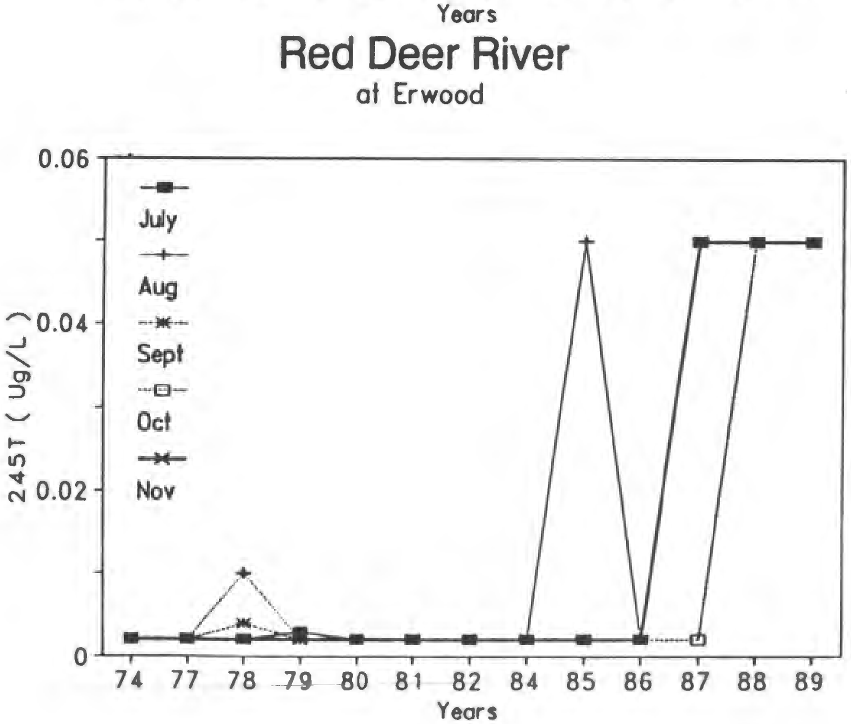


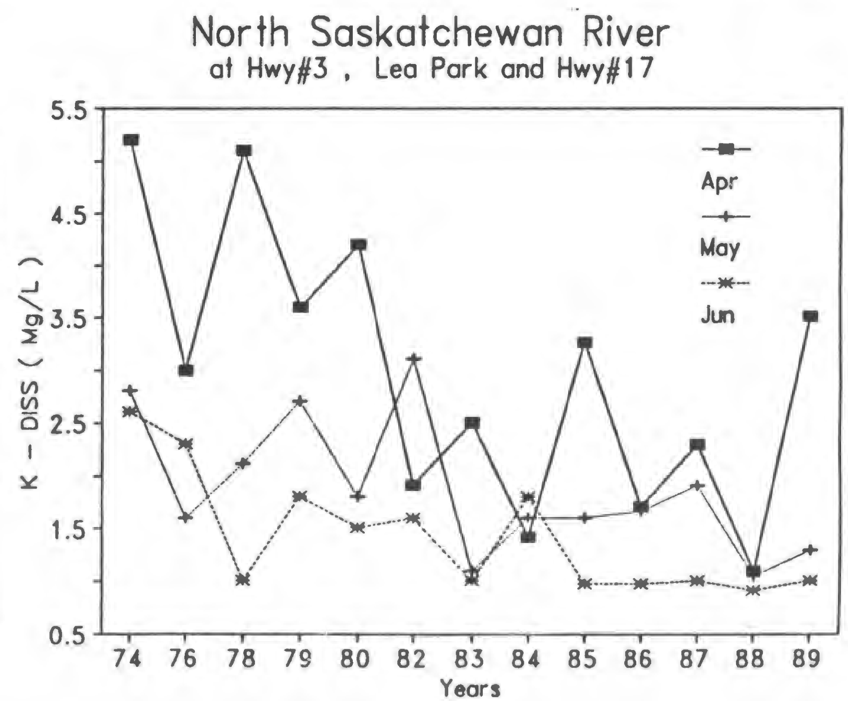
Red Deer River
at Erwood



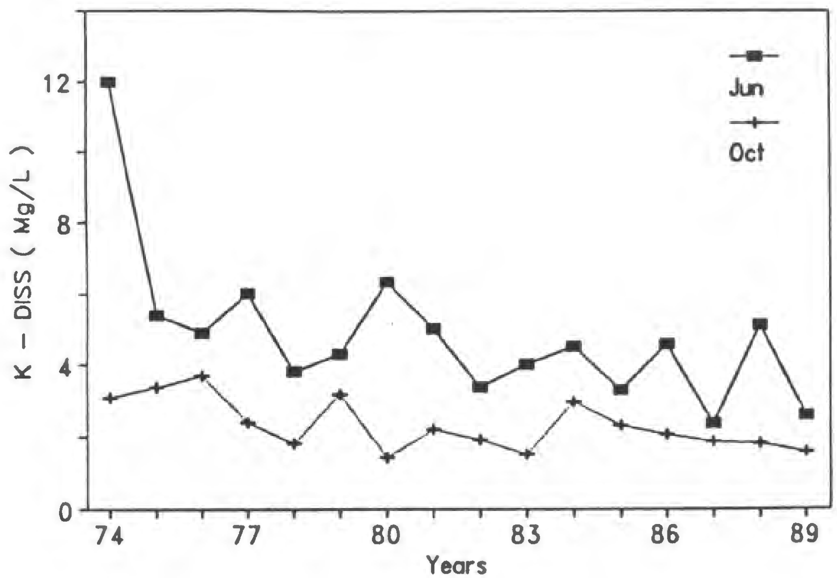

North Saskatchewan River
at Hwy#3 , Lea Park and Hwy#17
245T (Ug/L)
Apr
May
Jun
Sept
Years


Red Deer River
at Erwood
245T (Ug/L)
Jan
Mar
Apr
Jun
Years

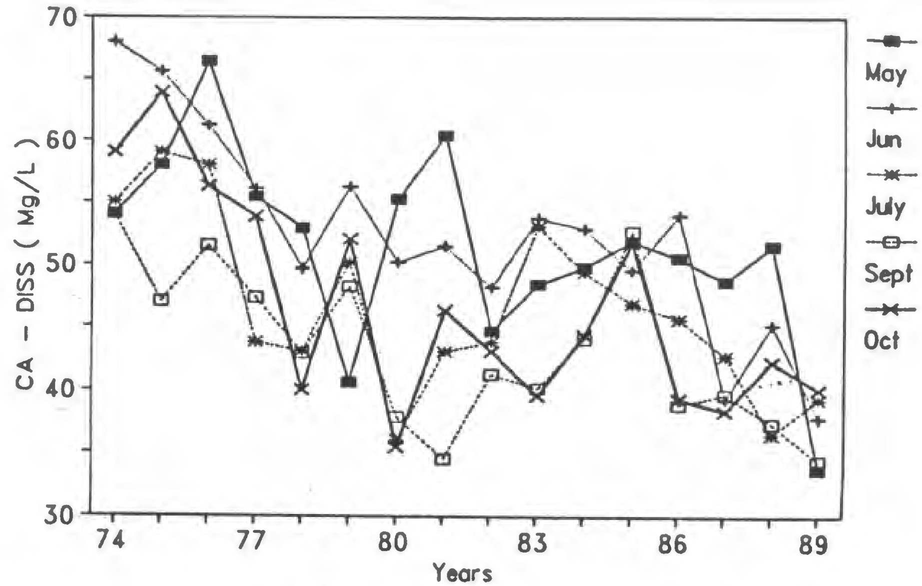

Red Deer River
at Erwood
245T (Ug/L)
July
Aug
Sept
Oct
Nov
Years


North Saskatchewan River
at Hwy#3 , Lea Park and Hwy#17
K - DISS (Mg/L)
Apr
May
Jun
Years

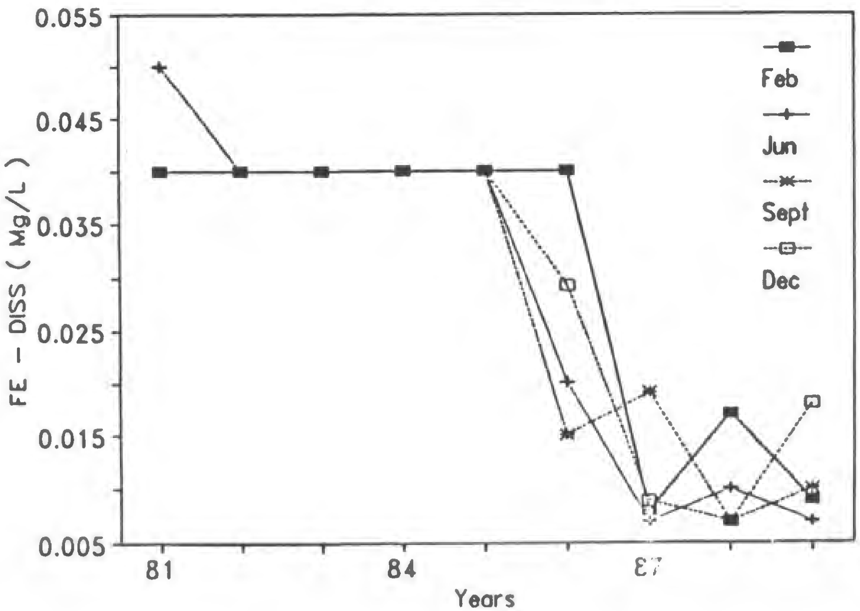
Red Deer River
at Erwood



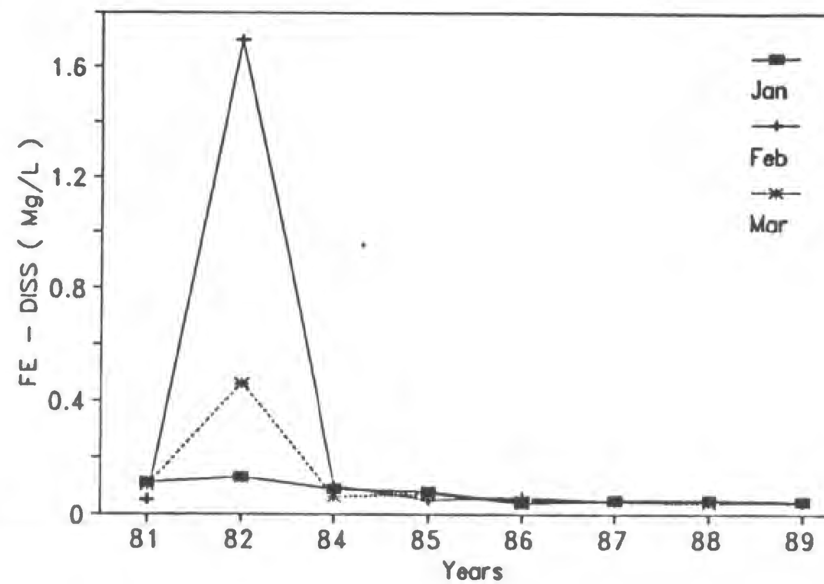
Red Deer River
at Erwood

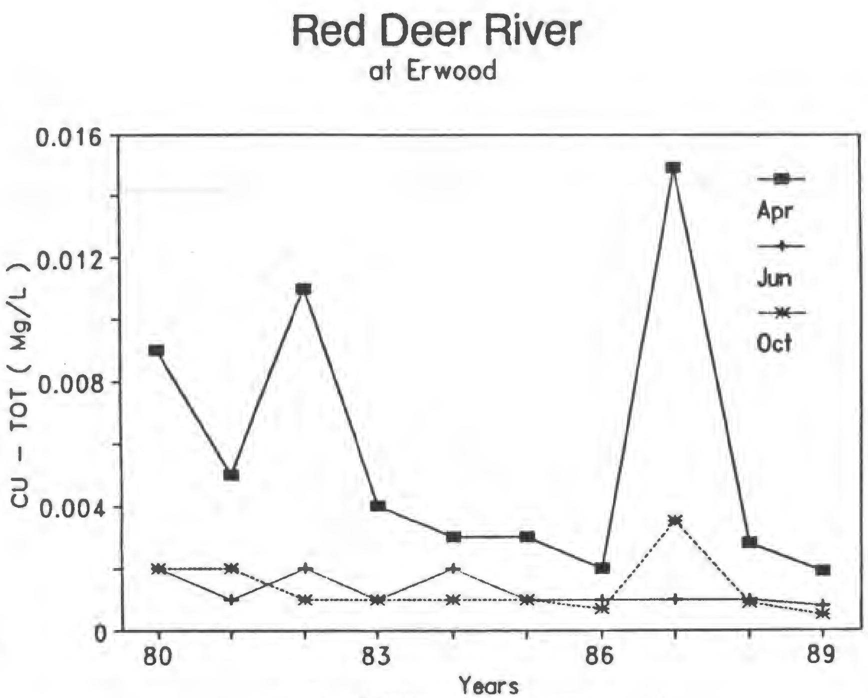


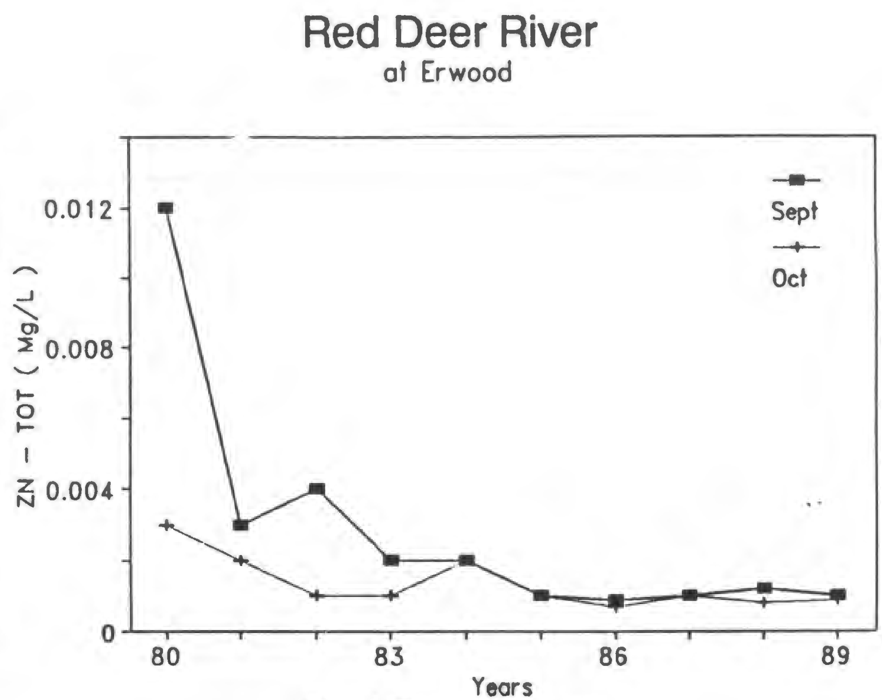
North Saskatchewan River
at Hwy#3 , Lea Park and Hwy#17

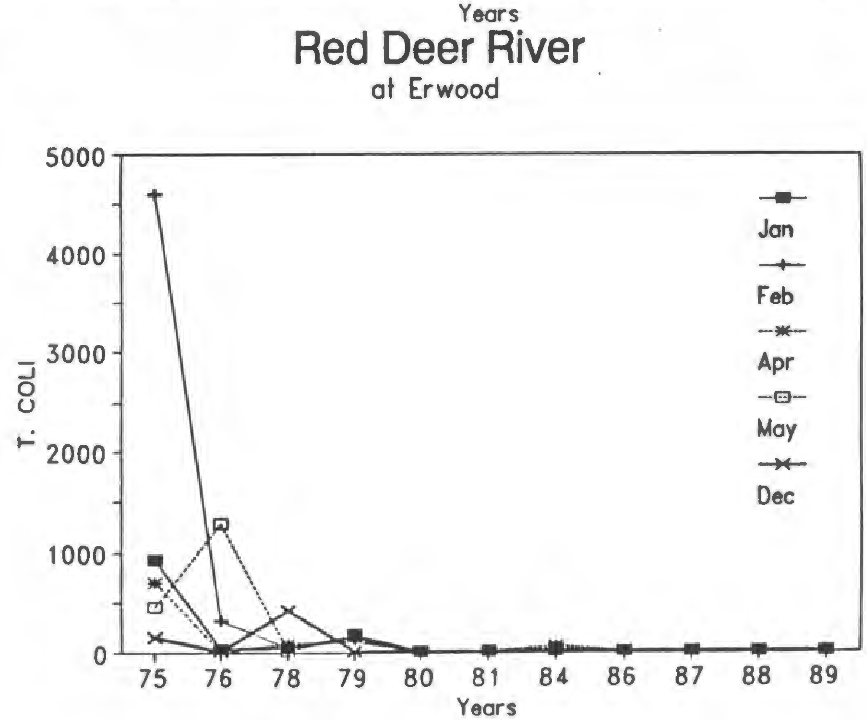


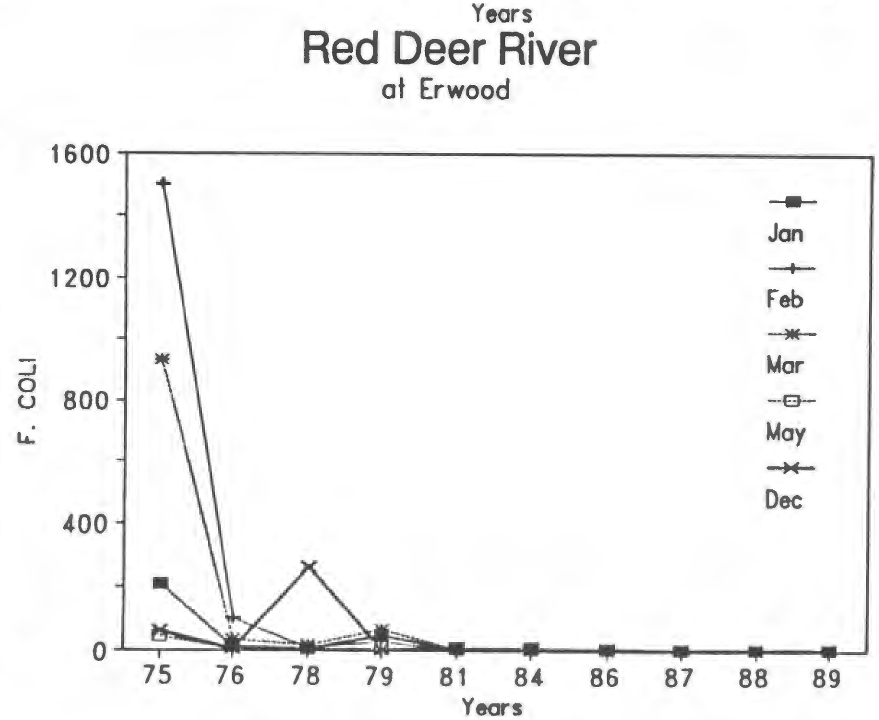
Red Deer River
at Erwood



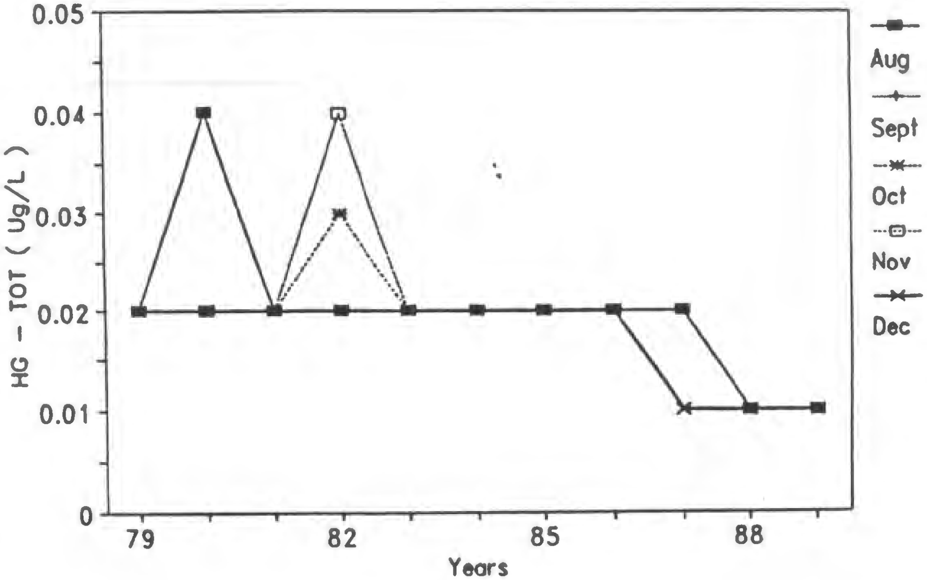

Red Deer River
at Erwood
CU - TOT (Mg/L)
0.016
0.012
0.008
0.004
0
80
83
86
89
Years
Apr
Jun
Oct


Red Deer River
at Erwood
ZN - TOT (Mg/L)
0.012
0.008
0.004
0
80
83
86
89
Years
Sept
Oct

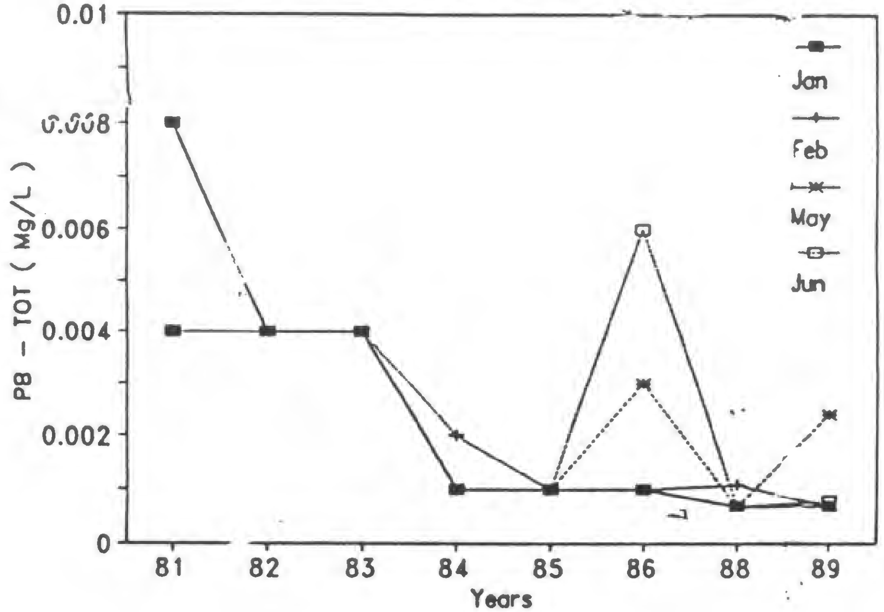

Red Deer River
at Erwood
T. COLI
5000
4000
3000
2000
1000
0
75
76
78
79
80
81
84
86
87
88
89
Years
Jan
Feb
Apr
May
Dec


Red Deer River
at Erwood
F. COLI
1600
1200
800
400
0
75
76
78
79
81
84
86
87
88
89
Years
Jan
Feb
Mar
May
Dec

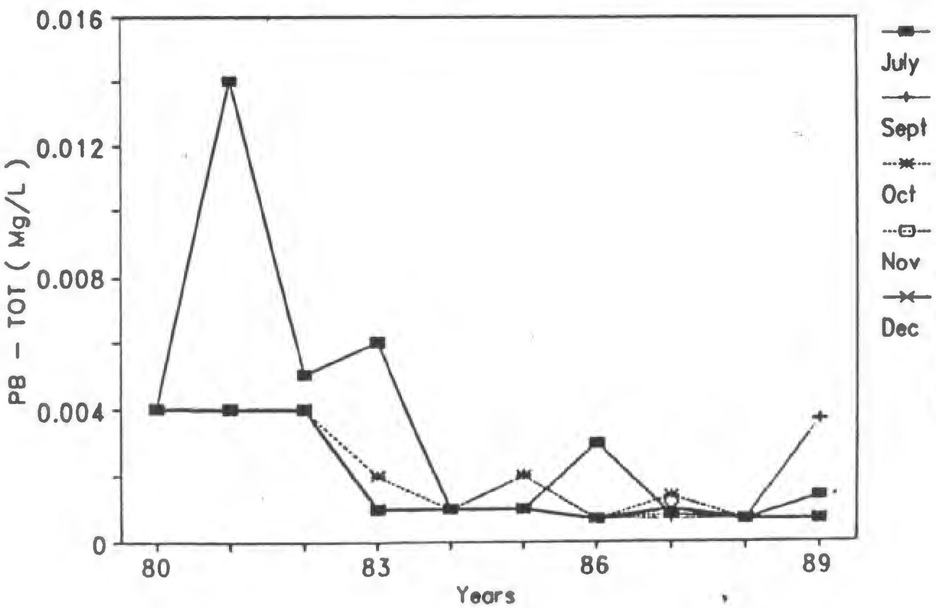
Red Deer River
at Erwood



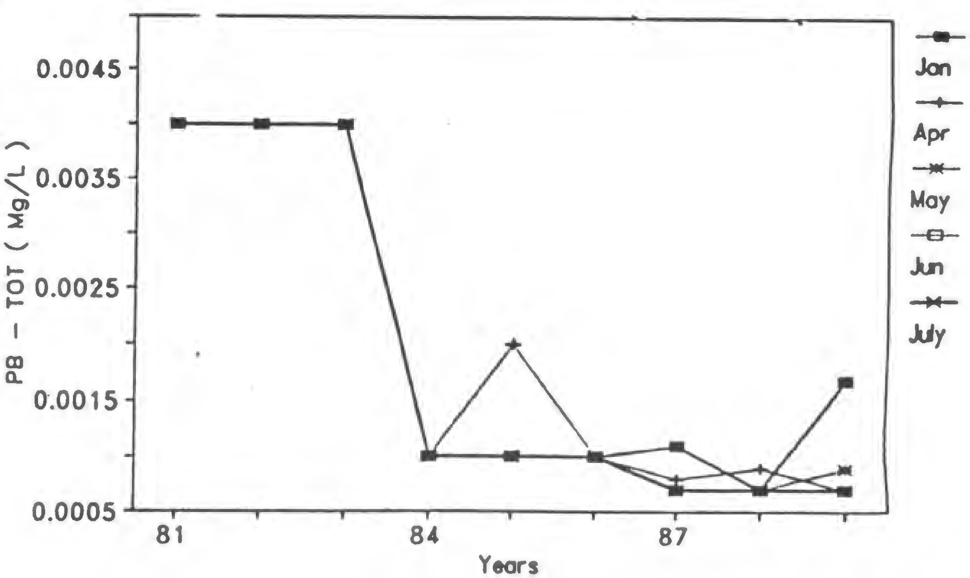
North Saskatchewan River
at Hwy#3 , Lea Park and Hwy#17

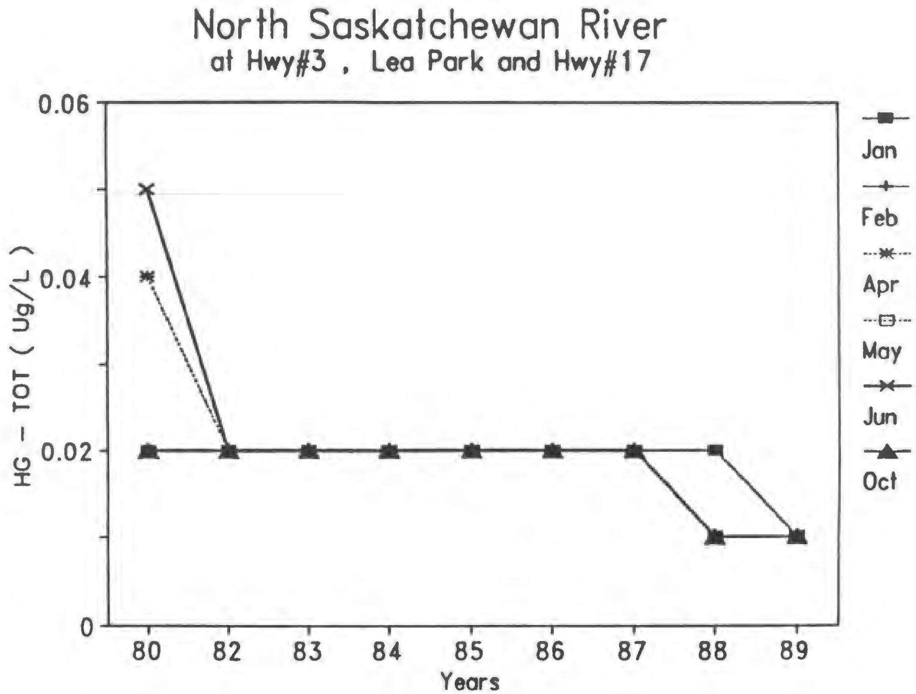


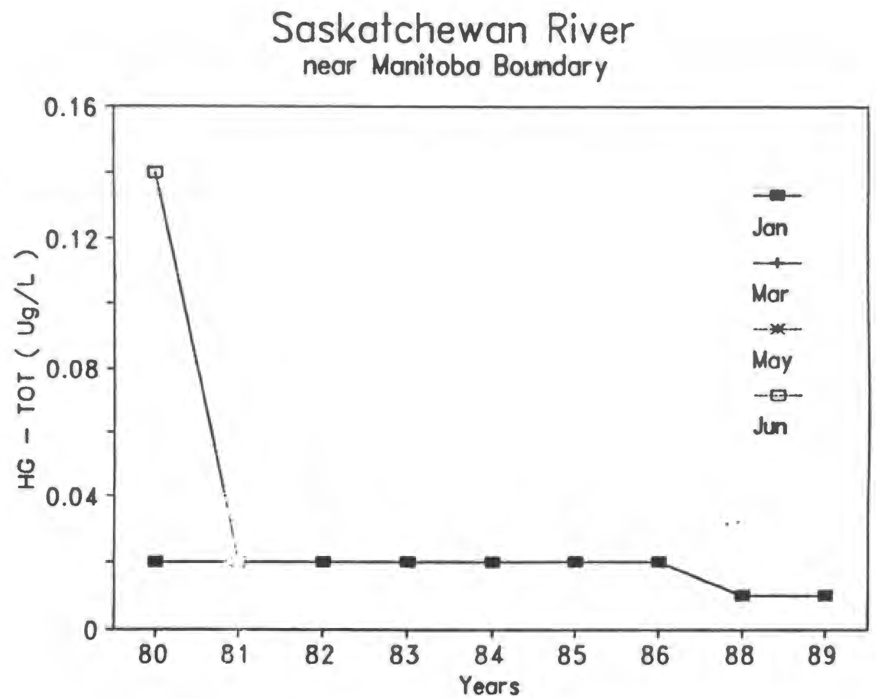
North Saskatchewan River
at Hwy#3 , Lea Park and Hwy#17

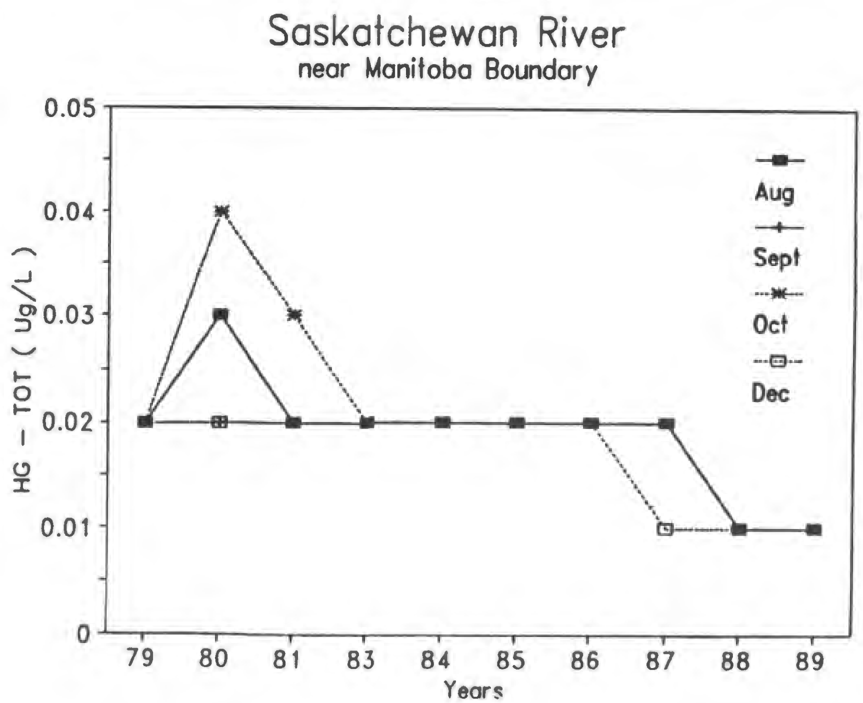


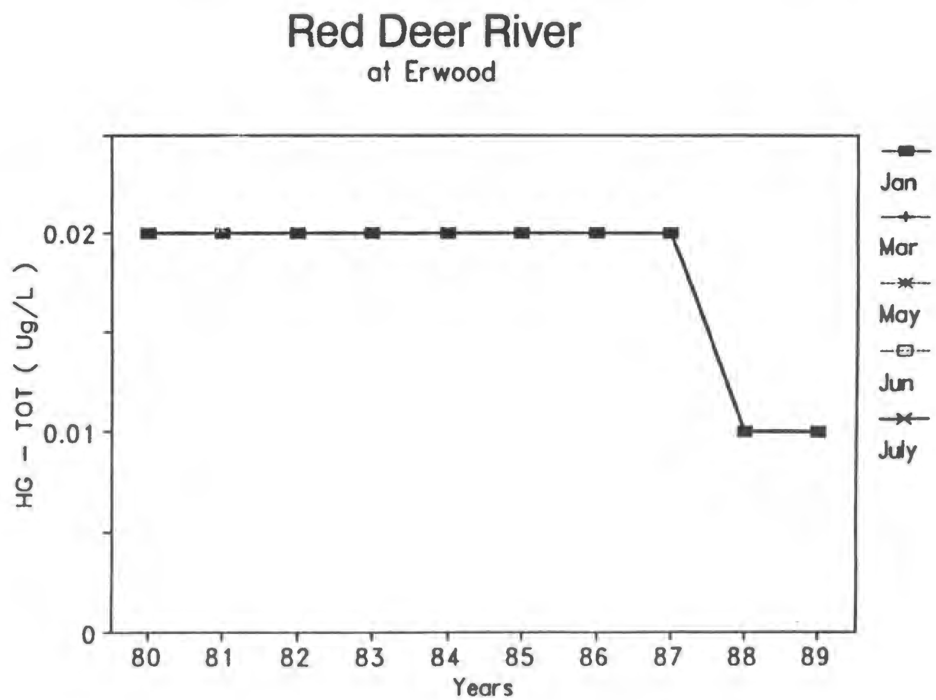
Red Deer River
at Erwood



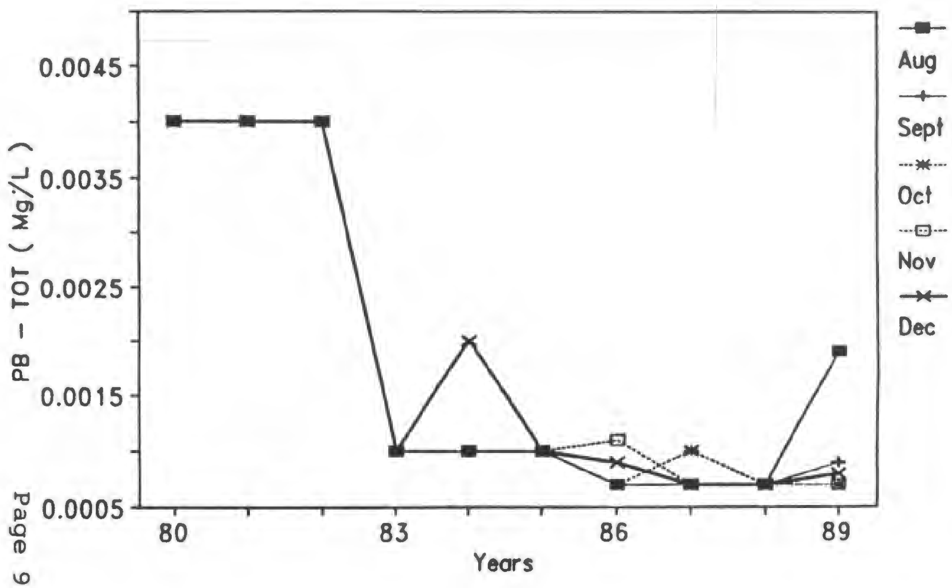

North Saskatchewan River
at Hwy#3 , Lea Park and Hwy#17
HG - TOT (Ug/L)
Years
Jan
Feb
Apr
May
Jun
Oct


Saskatchewan River
near Manitoba Boundary
HG - TOT (Ug/L)
Years
Jan
Mar
May
Jun


Saskatchewan River
near Manitoba Boundary
HG - TOT (Ug/L)
Years
Aug
Sept
Oct
Dec


Red Deer River
at Erwood
HG - TOT (Ug/L)
Years
Jan
Mar
May
Jun
July

Red Deer River
at Erwood



Appendix A4

Partial Kendall τ and Pairwise Kendall τ for Water Quality Variable, Flow and Time

Table	Station Number	Station Name
A4.1	EF0001	North Saskatchewan River at Hwy 3, Lea Park and Hwy 17
A4.2	CK0001	Red Deer River near Bindloss
A4.3	KH0001	Saskatchewan River near Manitoba Boundary
A4.4	EA0003	Churchill River at outlet Wasawakasik Lake
A4.5	JM0001	Qu'Appelle River near Welby
A4.6	LC0001	Red Deer River at Erwood
A4.7	FE0001	Battle River near Unwin
A4.8	AD0001	Beaver River at Beaver Crossing
A4.9	MD0002	Assiniboine River near Kamsack
A4.10	KH0002	Carrot River near Turberry

Table A4.1 Partial Kendall Tau and Pairwise Kendall Tau's for each Water Quality Variable , Flow and Time at location EF0001

NSKR EF0001 (PARTIAL RANK CORRELATION)
****

TDS* 00201L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TDS*	.0168	.2259	-.3269	.0256	-.2762	-.3967	-.2000	-.1975	-.2297	-.0928	-.2353	.0678	-.0910
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
TDS* VS Q-DM(M3/S)	-.4211	-.3484	-.4572	-.6727	-.2873	-.3799	-.4872	-.0915	-.0645	-.2360	-.1547	.0562	-.4533
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.4221	-.3766	-.3552	-.6781	-.3361	-.4806	-.4794	-.1333	-.1124	-.2259	-.1410	.0534	-.4564
TDS* AS CONSTANT	.0511	.1705	.4451	.1462	-.2175	-.3457	.0017	-.2099	-.2076	.1267	.0422	.0405	-.0609
Q-DM(M3/S) AS CONSTANT	.0368	.2704	-.1155	.1178	-.3270	-.4925	-.1747	-.2194	-.2466	-.0611	-.2268	.0655	-.1086

COND(F) 02041F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS COND(F)	.2594	.4100	.0909	.2210	.3636	.0084	.0191	.1209	.0330	.1282	-.0168	-.0168	.1273
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
COND(F) VS Q-DM(M3/S)	-.1316	-.1677	.2046	-.6565	-.5290	-.3536	-.2194	-.0909	-.2424	.0556	.2652	-.0223	-.3364
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1469	-.2192	.1850	-.6966	-.5246	-.3561	-.2224	-.0701	-.2406	.0377	.2673	-.0216	-.3375
COND(F) AS CONSTANT	.0766	.1621	.5180	.3208	.0905	-.1496	.1057	-.1779	-.1844	.1387	.0844	.0438	.0322
Q-DM(M3/S) AS CONSTANT	.2671	.4303	-.0194	.3736	.3558	-.0455	.0421	.1062	-.0129	.1216	-.0387	-.0158	.1306

TEMP(F) 02061F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TEMP(F)	-.2185	-.1818	-.3114	.5525	.2616	.0426	.1473	.3062	-.2052	-.0084	-.1927	-.3464	-.0335
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
TEMP(F) VS Q-DM(M3/S)	-.3172	-.2301	.1022	.1985	-.1341	-.1809	-.2547	-.0645	-.0569	.2712	-.2550	-.1662	.4205
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.3165	-.2204	.3276	.1786	-.1070	-.1768	-.2736	-.0078	-.0990	.2753	-.2455	-.1610	.4203
TEMP(F) AS CONSTANT	-.0325	.0367	.5875	-.0230	-.0897	-.1376	.1426	-.1759	-.2031	.1525	.0293	-.0144	.0014
Q-DM(M3/S) AS CONSTANT	-.2174	-.1691	-.4306	.5476	.2495	.0172	.1792	.3001	-.2200	-.0500	-.1796	-.3442	-.0310

TURB(F) 02073F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TURB(F)	.5683	.2889	.2143	.2778	.0556	-.3455	-.3303	.5111	.5138	.6889	.8228	.5872	.2062
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
TURB(F) VS Q-DM(M3/S)	-.0500	.3333	.2760	.5238	.6190	.6667	.5353	.2143	.0282	.1818	-.2031	.2535	.5298
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0879	.3259	.1969	.5211	.6314	.6646	.6047	.3669	.1473	.1148	-.4700	.2814	.5442
TURB(F) AS CONSTANT	.0823	-.0215	.4947	-.0667	-.1980	.1250	.3458	-.3530	-.2347	.0269	.4384	-.1337	-.1470
Q-DM(M3/S) AS CONSTANT	.5714	.2800	.0852	.2713	.1672	-.3392	-.4559	.5744	.5286	.6810	.8588	.5960	.2511

B-DISS 05105D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS B-DISS	.5413	.5632	.2955	-.1706	-.3006	-.3203	.1160	.3703	.2249	.5157	.6939	.5316	.2271
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
B-DISS VS Q-DM(M3/S)	.4255	-.0271	.0741	.3220	.3660	.2670	.2746	.2731	.0487	.0000	-.0963	-.1003	.0663
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.4812	-.0854	-.0991	.3440	.3482	.2359	.2662	.3751	.0948	-.0879	-.2085	-.1463	.0710
B-DISS AS CONSTANT	-.2512	.1116	.5266	.1563	-.0122	-.0628	.0702	-.3223	-.2032	.1686	.2006	.1157	-.0286
Q-DM(M3/S) AS CONSTANT	.5802	.5672	.3022	-.2120	-.2775	-.2958	.0928	.4459	.2385	.5212	.7067	.5393	.2285

Table A4.1 Continued

NO3+NO2	07106L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	NO3+NO2	.3460	.3291	.1961	-.3407	-.2951	.0267	-.0084	.3057	-.0624	-.0251	.2128	.3366	.0248
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
NO3+NO2 VS	Q-DM(M3/S)	-.4800	-.4156	-.1524	.0000	.2784	.5008	.2905	.3844	.2886	-.5363	-.1809	-.2484	-.2413
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.5265	-.4683	-.3053	.0331	.2559	.5101	.2928	.4720	.2825	-.5385	-.2025	-.2798	-.2411
NO3+NO2	AS CONSTANT	.2494	.2488	.5711	.0967	-.0422	-.1806	.1059	-.3462	-.1767	.1552	.1201	.1401	-.0070
Q-DM(M3/S)	AS CONSTANT	.4162	.3982	.3277	-.3421	-.2742	.1147	-.0390	.4163	-.0090	.0627	.2312	.3591	.0224

TN*	07602L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	TN*	.3500	.1008	-.0256	-.4945	-.2929	-.2871	-.1088	-.0591	-.1604	-.0848	-.0928	-.1340	-.0590
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
TN* VS	Q-DM(M3/S)	-.2484	-.0903	.0000	.2424	.2431	.6065	.3978	.2682	.1989	-.4693	-.2905	-.1677	-.0723
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2801	-.0989	.0158	.3320	.2188	.5964	.4130	.2622	.1742	-.4635	-.2855	-.1635	-.0732
TN*	AS CONSTANT	.1390	.0868	.5237	.2500	-.0536	.0410	.1559	-.1778	-.1602	.1190	.0524	.0222	-.0171
Q-DM(M3/S)	AS CONSTANT	.3717	.1086	-.0301	-.5346	-.2737	-.2547	-.1622	-.0095	-.1280	-.0194	-.0739	-.1285	-.0601

DO	08101F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	DO	.1277	-.2785	-.0779	.2710	-.2000	.1604	-.0422	-.3025	-.1266	.1356	-.4327	.1513	.0008
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
DO VS	Q-DM(M3/S)	-.0403	.3007	-.1321	.1468	-.3407	-.5967	-.4917	.0442	-.1326	-.1685	.0129	.2458	-.1412
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0457	.3364	-.1075	.1274	-.3751	-.5873	-.4904	-.0132	-.1603	-.1919	.0514	.2421	-.1412
DO	AS CONSTANT	.0448	.1754	.5194	.0537	-.2052	-.0596	.0898	-.1821	-.2071	.1713	.0915	.0073	-.0128
Q-DM(M3/S)	AS CONSTANT	.1295	-.3172	-.0104	.2615	-.2584	.0946	.0074	-.2998	-.1554	.1640	-.4350	.1450	-.0010

ALK-TOT	10101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	ALK-TOT	.1849	.4100	-.0779	.2527	-.2204	-.3349	.0766	.0258	.2279	.2954	-.0084	.1604	.0669
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
ALK-TOT VS	Q-DM(M3/S)	-.2517	-.3226	-.3586	-.4848	-.2458	-.1144	.0111	.1788	.2458	.2360	-.0670	.1341	-.2477
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2637	-.3894	-.3741	-.5270	-.2814	-.1739	.0036	.1870	.3015	.2045	-.0666	.1288	-.2474
ALK-TOT	AS CONSTANT	.0902	.2423	.5326	.2522	-.1852	-.1935	.0983	-.1946	-.2573	.0805	.0765	.0232	.0039
Q-DM(M3/S)	AS CONSTANT	.2014	.4608	.1381	.3408	-.2599	-.3572	.0759	.0612	.2875	.2717	-.0033	.1560	.0658

PH(F)	10301F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	PH(F)	.0270	.1611	.2724	-.0229	-.0173	.1197	.0255	-.2477	.1300	.1836	.4004	.3656	.0552
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
PH(F) VS	Q-DM(M3/S)	.4153	-.2049	-.0733	.3752	-.3889	-.6481	-.3617	-.3091	-.6481	.0345	.2084	.1495	.1572
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.4148	-.2208	-.2634	.3789	-.3939	-.6422	-.3662	-.3733	-.6404	.0082	.1944	.1434	.1581
PH(F)	AS CONSTANT	.0308	.1138	.5664	.1074	-.1385	-.0863	.1160	-.2858	-.1359	.1406	-.0073	-.0114	-.0217
Q-DM(M3/S)	AS CONSTANT	.0118	.1812	.3658	-.0617	-.0703	.0360	.0661	-.3269	.0119	.1806	.3941	.3634	.0580

NFR 10401L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NFR	-.2619	.2223	.0131	.2088	-.0095	-.1423	.1255	.1635	.0673	.4682	.2987	.3433	.0530
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
NFR VS Q-DM(M3/S)	-.0172	.4108	.2857	.7273	.6923	.6044	.5083	.3896	.4156	.1143	.1297	.1601	.5613
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0072	.4050	.3274	.7273	.6963	.5962	.5023	.4335	.4369	.0534	.1122	.1545	.5628
NFR AS CONSTANT	.0360	-.0162	.5425	-.0908	-.1584	-.0721	.0411	-.2757	-.2367	.1036	.0403	-.0116	-.0515
Q-DM(M3/S) AS CONSTANT	-.2614	.2098	-.1672	.2087	.1035	-.0709	.0878	.2611	.1622	.4595	.2920	.3409	.0727

NA-DISS 11103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NA-DISS	.0586	.0251	-.2564	-.4111	-.5022	-.3667	-.1000	-.2110	-.0753	-.1423	-.3025	-.2185	-.1875
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
NA-DISS VS Q-DM(M3/S)	-.2369	-.3484	-.1870	-.4000	-.1130	-.3626	-.3626	-.4111	-.3315	-.1788	-.2778	-.1341	-.2038
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2398	-.3515	-.0640	-.3995	-.2024	-.4507	-.3563	-.4692	-.3528	-.1615	-.2678	-.1276	-.2099
NA-DISS AS CONSTANT	.0547	.0914	.5009	-.0881	-.2068	-.3181	.0676	-.3070	-.2251	.1222	-.0078	.0154	-.0530
Q-DM(M3/S) AS CONSTANT	.0699	.0555	-.1894	-.4106	-.5231	-.4537	-.0692	-.3214	-.1481	-.1196	-.2936	-.2147	-.1942

MG-DISS 12102L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS MG-DISS	-.1513	.1026	-.0256	.0111	-.1008	-.3866	-.2204	-.3249	-.2017	-.0833	-.4341	-.0586	-.1290
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
MG-DISS VS Q-DM(M3/S)	-.2369	-.4212	-.1870	-.6870	-.4199	-.3978	-.6334	-.1251	-.2111	-.4778	-.1809	-.1889	-.4148
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2338	-.4326	-.2038	-.6910	-.4375	-.4963	-.6301	-.1999	-.2586	-.4723	-.1642	-.1868	-.4200
MG-DISS AS CONSTANT	.0035	.1332	.5283	.1356	-.1808	-.3506	-.0539	-.2424	-.2396	.1195	-.0018	.0338	-.0734
Q-DM(M3/S) AS CONSTANT	-.1462	.1493	.0863	.1017	-.1683	-.4883	-.2048	-.3573	-.2511	-.0165	-.4285	-.0512	-.1476

P-TOT-DISS 15103D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS P-TOT-DISS	.5096	.4556	.3512	-.3742	.0110	.0337	.2710	-.0663	.0341	-.1989	-.2871	.1989	.0246
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
P-TOT-DISSVS Q-DM(M3/S)	.0000	-.0909	-.0920	-.5505	.3939	.3877	.2202	.1515	.4570	-.3566	-.0903	.3030	-.2775
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0233	-.1419	-.3458	-.5592	.3982	.3968	.2019	.1419	.4720	-.3381	-.0715	.3005	-.2773
P-TOT-DISS AS CONSTANT	.0456	.1335	.5962	-.1486	-.1362	-.1693	.0418	-.1792	-.2277	.0803	.0535	-.0172	-.0062
Q-DM(M3/S) AS CONSTANT	.5100	.4659	.4707	-.3899	.0642	.0977	.2567	-.0391	.1368	-.1594	-.2821	.1948	.0219

P-TOT 15406L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS P-TOT	.5594	.4313	.5168	-.1686	-.1513	-.1667	.0000	.3264	.0418	.2594	-.0678	.3420	.0883
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
P-TOT VS Q-DM(M3/S)	.0267	-.0133	.2719	.2814	.5000	.3846	.4505	.3978	.0663	-.1788	.1011	.1011	.1705
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.0057	-.0516	.0017	.3023	.4910	.3697	.4528	.4940	.0755	-.2263	.1069	.0916	.1723
P-TOT AS CONSTANT	.0293	.0916	.4650	.1463	-.0528	-.0865	.1108	-.3651	-.1902	.2008	.0844	.0103	-.0283
Q-DM(M3/S) AS CONSTANT	.5590	.4336	.4568	-.2032	-.1056	-.1223	-.0502	.4445	.0553	.2930	-.0762	.3396	.0918

SO4-DISS 16304L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS SO4-DISS	.1865	-.0084	-.0387	.2652	-.0504	-.0667	-.1177	-.2469	-.0084	-.0504	-.1017	.0000	-.0234
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
SO4-DISS VS Q-DM(M3/S)	-.3490	-.1936	-.0189	-.4428	-.4556	-.4286	-.6334	-.5426	-.3536	-.5506	-.3352	-.2458	-.4211
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.3630	-.1935	.0016	-.4862	-.4657	-.4436	-.6292	-.6184	-.3615	-.5497	-.3301	-.2461	-.4215
SO4-DISS AS CONSTANT	.1133	.0768	.5233	.2410	-.1618	-.1902	.0317	-.3941	-.2029	.1400	.0457	.0456	-.0249
Q-DM(M3/S) AS CONSTANT	.2138	.0067	-.0338	.3421	-.1194	-.1430	-.0714	-.4220	-.0810	.0352	-.0808	.0112	-.0317

CL-DISS 17206L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS CL-DISS	-.3766	-.3291	-.5641	-.3445	-.3361	-.3000	-.1681	-.1667	-.4202	-.4770	-.5546	-.5883	-.3043
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
CL-DISS VS Q-DM(M3/S)	-.1177	-.3117	-.4114	-.5954	-.1989	-.4066	-.5746	-.4945	-.2778	-.3889	-.3536	-.1222	-.3889
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1112	-.3042	-.1649	-.6034	-.2562	-.4760	-.5688	-.5427	-.3997	-.3680	-.3748	-.1191	-.4124
CL-DISS AS CONSTANT	-.0055	-.0286	.3873	-.1514	-.2034	-.3039	.0029	-.3141	-.3482	-.0507	-.1531	-.0345	-.1494
Q-DM(M3/S) AS CONSTANT	-.3748	-.3221	-.4491	-.3629	-.3702	-.3960	-.1366	-.3034	-.5002	-.4616	-.5655	-.5878	-.3358

LINDANE 18070L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS LINDANE	.4674	.4705	.4602	.3814	.0895	.5100	.2277	.1454	.2777	.2473	.3006	.5658	.3147
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
LINDANE VS Q-DM(M3/S)	-.4629	-.3269	.4200	.2357	-.3997	-.5813	.3380	-.1856	-.4927	-.4756	-.0778	-.2222	-.1388
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.5448	-.4126	.2367	.2184	-.3933	-.5972	.3255	-.1630	-.4671	-.5333	-.1062	-.3001	-.1420
LINDANE AS CONSTANT	.3262	.2766	.4100	.0011	-.0932	.2194	.0239	-.1644	-.0598	.3074	.1055	.2114	.0329
Q-DM(M3/S) AS CONSTANT	.5483	.5260	.3108	.3719	.0452	.5301	.2074	.1147	.2172	.3630	.3085	.5909	.3160

A-BHC 18075L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS A-BHC	-.5451	-.4392	-.0609	-.2485	-.1120	-.0648	-.5689	-.4122	-.4975	-.3021	-.6788	-.3580	-.3883
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
A-BHC VS Q-DM(M3/S)	-.2511	.0000	.3254	.4029	.0517	-.5261	-.0845	-.2673	.1798	-.5966	.2561	-.1816	-.0933
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2742	.0377	.4201	.4411	.0387	-.5421	-.0345	-.3847	.1020	-.5862	.4211	-.1778	-.1067
A-BHC AS CONSTANT	-.1203	.0856	.5757	.2155	-.1160	-.2085	.0620	-.3383	-.1141	-.0467	.3533	-.0227	-.0534
Q-DM(M3/S) AS CONSTANT	-.5534	-.4405	-.2870	-.3128	-.1066	-.1663	-.5653	-.4882	-.4800	-.2719	-.7248	-.3562	-.3913

24D 18500L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS 24D	-.2939	-.1277	-.0556	-.4137	.1288	-.0796	-.2013	.0686	.2503	-.0781	-.0779	-.2590	-.0820
TIME VS Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
24D VS Q-DM(M3/S)	-.0189	-.1316	.1449	-.2557	.0562	-.0153	-.0267	-.0953	-.1723	-.0927	.4037	-.1477	-.1040
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0077	-.1232	.2046	-.2405	.0729	-.0270	-.0070	-.0842	-.1320	-.0826	.4122	-.1412	-.1054
24D AS CONSTANT	.0352	.0611	.5381	-.0169	-.1294	-.1445	.0955	-.1815	-.1507	.1382	.1188	.0062	-.0215
Q-DM(M3/S) AS CONSTANT	-.2934	-.1189	-.1559	-.4056	.1368	-.0826	-.1997	.0520	.2254	-.0656	-.1195	-.2555	-.0838

Table A4.1 Continued

245T	18510L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	245T	.3164	.3309	.4534	.5967	.4949	.7308	.3825	.3519	.6627	.2505	.2034	.1569	.3740
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
245T VS	Q-DM(M3/S)	-.0267	.1132	.0374	.2247	.0927	-.3195	-.5311	-.1597	-.3844	.0000	.4454	-.2872	-.1088
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0412	.0933	-.2633	.2133	.1769	-.3184	-.6188	-.1022	-.3542	-.0378	.4402	-.2981	-.1122
245T	AS CONSTANT	.0503	.0421	.5688	-.0552	-.1928	.1401	.3858	-.1413	.0982	.1492	-.0156	.0944	.0303
Q-DM(M3/S)	AS CONSTANT	.3178	.3252	.5096	.5938	.5120	.7305	.5160	.3321	.6516	.2532	.1895	.1773	.3748

K-DISS	19103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	K-DISS	.1473	.0355	-.0526	-.4615	-.3831	-.5675	.0085	.1026	-.2147	-.1915	-.2760	-.1898	-.1228
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
K-DISS VS	Q-DM(M3/S)	-.2898	-.2628	.1165	.2727	.1809	-.1281	.1130	-.3752	-.1373	-.0578	-.1036	.0463	.0961
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2991	-.2665	.1693	.3562	.1467	-.2567	.1128	-.3644	-.1848	-.0311	-.0859	.0557	.0953
K-DISS	AS CONSTANT	.0865	.0894	.5341	.2540	-.0568	-.2640	.0986	-.1609	-.2236	.1361	.0506	.0540	-.0010
Q-DM(M3/S)	AS CONSTANT	.1659	.0579	-.1343	-.5076	-.3700	-.5968	-.0027	.0357	-.2470	-.1854	-.2703	-.1922	-.1221

CA-DISS	20101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CA-DISS	-.2500	.1000	-.2194	.1868	-.2929	-.5105	-.1333	-.1590	-.2882	.0333	-.1635	-.0840	-.0864
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
CA-DISS VS	Q-DM(M3/S)	-.4315	-.5385	-.3208	-.5455	-.1768	-.1326	-.0989	.3757	.4608	-.0556	-.1161	-.1117	-.3767
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.4358	-.5505	-.2478	-.5749	-.2236	-.2415	-.0869	.3567	.4326	-.0610	-.1053	-.1085	-.3793
CA-DISS	AS CONSTANT	-.0786	.1560	.4904	.2342	-.1835	-.2470	.0869	-.1389	-.0636	.1466	.0591	.0352	-.0491
Q-DM(M3/S)	AS CONSTANT	-.2586	.1683	-.0637	.2832	-.3216	-.5397	-.1248	-.0975	-.2318	.0419	-.1561	-.0797	-.0985

MN-DISS	25104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	MN-DISS	-.5013	-.2902	-.5071	-.1179	-.4016	-.1935	-.4969	-.2828	-.4524	-.4837	-.3492	-.2418	-.3236
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
MN-DISS VS	Q-DM(M3/S)	-.5423	-.0563	.5000	.2503	-.2292	-.2887	-.0806	-.5401	-.2166	-.3086	-.3086	.2887	-.0936
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.6045	-.0357	1.0425	.2640	-.3055	-.3257	-.0364	-.6292	-.3437	-.2757	-.3016	.3088	-.1033
MN-DISS	AS CONSTANT	-.3200	.0634	1.0411	.1252	-.2388	-.2115	.0680	-.4206	-.3271	-.0058	-.0346	.1227	-.0457
Q-DM(M3/S)	AS CONSTANT	-.5718	-.2872	-1.0421	-.1458	-.4443	-.2477	-.4929	-.4641	-.5139	-.4665	-.3432	-.2662	-.3263

FE-DISS	26104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	FE-DISS	-.4788	-.5988	-.2057	-.1715	-.3810	-.7670	-.4423	-.4899	-.7675	-.4355	-.0544	-.7076	-.4487
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
FE-DISS VS	Q-DM(M3/S)	-.2697	-.5345	.7559	.3504	.2621	-.1782	.5401	-.2621	-.1818	.5766	.1572	-.0524	.1228
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2860	-.6117	1.0359	.3731	.2354	-.4531	.6542	-.4129	-.5165	.7179	.1622	-.0299	.1310
FE-DISS	AS CONSTANT	-.1063	-.3592	1.0600	.1637	-.0236	-.4427	.4475	-.3747	-.5178	.5377	.0867	.0101	.0477
Q-DM(M3/S)	AS CONSTANT	-.4866	-.6618	-1.0785	-.2180	-.3647	-.8136	-.5919	-.5684	-.8297	-.6416	-.0676	-.7070	-.4506

CU-TOT	29005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CU-TOT	-.0698	-.2760	-.2965	.0000	-.1826	-.6138	-.4045	.4837	.3478	-.2095	.3068	-.0967	-.0877
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
CU-TOT VS	Q-DM(M3/S)	-.2169	-.1029	.3571	.8095	.2817	.6671	.6910	.1612	.0434	-.3858	-.0891	-.3712	.1788
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2149	-.0852	.6297	.8129	.2660	.7416	.8033	.2925	.1176	-.3674	-.1187	-.3690	.1784
CU-TOT	AS CONSTANT	.0247	.0508	.7056	.1548	-.0736	.4534	.5725	-.3065	-.2155	.0705	.1100	.0090	.0030
Q-DM(M3/S)	AS CONSTANT	-.0629	-.2703	-.6076	-.1259	-.1559	-.7032	-.6574	.5299	.3627	-.1685	.3158	-.0866	-.0868

ZN-TOT	30005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	ZN-TOT	-.3596	-.2501	-.6172	.0282	.0714	-.3146	-.4222	.4260	-.2046	-.1886	-.3220	.0682	-.1289
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
ZN-TOT VS	Q-DM(M3/S)	.0500	-.1952	-.8819	.4880	.4667	.8571	.7143	.1690	.3706	.3086	.7181	-.5189	.3059
P. [illegible] CORRELATION														
TIME	AS CONSTANT	.0688	-.1823	-.8336	.4876	.4800	.8645	.8381	.2797	.3457	.3456	.7870	-.5236	.3068
ZN-TOT	AS CONSTANT	[illegible]	.0296	-.0560	.0884	-.1748	.2594	.6313	-.2903	-.1221	.2169	.4678	.0933	.0282
Q-DM(M3/S)	AS CONSTANT	-.3623	-.2404	-.3871	-.0186	.1456	-.3770	-.7077	.4726	-.1484	-.2477	-.5437	.1067	-.1313

T.COLI	36001F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	T.COLI	.1768	.2088	-.1101	-.1039	.1883	-.0288	-.0779	.3667	-.0654	.1583	.3159	.4212	.0792
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
T.COLI VS	Q-DM(M3/S)	.0313	.2000	.3430	.4771	.2553	.1889	.3896	.2462	.3269	.3493	.1496	.3965	.0609
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.0247	.1886	.4731	.4912	.2852	.1868	.4005	.3443	.3210	.3341	.1324	.4171	.0621
T.COLI	AS CONSTANT	.0343	.0367	.6012	.1607	-.1779	-.1400	.1408	-.3073	-.1754	.0964	.0316	-.1475	-.0177
Q-DM(M3/S)	AS CONSTANT	.1758	.1980	-.3620	-.1683	.2283	-.0019	-.1271	.4334	-.0046	.1163	.3088	.4401	.0801

F.COLI	36011F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	F.COLI	-.0168	.0191	-.0534	-.1763	.1009	.0208	-.1394	.2191	.2844	-.0605	-.1985	.0793	.0304
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
F.COLI VS	Q-DM(M3/S)	-.3269	.4733	.3208	.0682	.6493	.3892	.5791	.1227	.2086	-.2631	-.0617	.1706	.0549
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3265	.4733	.4099	.0859	.6698	.3963	.6017	.1707	.2779	-.2575	-.0475	.1677	.0553
F.COLI	AS CONSTANT	.0357	.0771	.5717	.1048	-.2464	-.1639	.2226	-.2207	-.2625	.1335	.0661	.0312	-.0145
Q-DM(M3/S)	AS CONSTANT	-.0042	-.0197	-.2743	-.1837	.2377	.0838	-.2425	.2483	.3366	-.0236	-.1947	.0729	.0312

PB-TOT	82002P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	PB-TOT	-.7738	-.5657	-.5401	-.1451	-.5880	-.6445	-.5394	-.0716	-.5320	-.7738	-.8447	-.8044	-.5173
TIME VS	Q-DM(M3/S)	.0392	.0769	.5236	.0909	-.1209	-.1429	.0989	-.1868	-.1868	.1445	.0769	.0442	-.0128
PB-TOT VS	Q-DM(M3/S)	.4339	-.5822	-.3858	.4115	.0000	.8058	.5455	.4029	.1182	-.0772	.5641	-.3035	.2052
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.7335	-.6552	-.1436	.4310	-.0885	.9432	.7147	.3975	.0226	.0553	1.1789	-.4515	.2320
PB-TOT	AS CONSTANT	.6571	-.3765	.4060	.1670	-.1494	.8316	.5571	-.1730	-.1474	.1342	1.2523	-.3533	.1115
Q-DM(M3/S)	AS CONSTANT	-.8785	-.6426	-.4301	-.2010	-.5924	-.9033	-.7114	.0041	-.5227	-.7731	-1.0788	-.8310	-.5259

Table A4.2 Partial Kendall Tau and Pairwise Kendall Tau's for each Water Quality Variable , Flow and Time at location CK0001

NRD CK0001 (PARTIAL RANK CORRELATION)
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TDS* 00201L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TDS*	-.4500	-.3933	-.4211	.3445	.0504	-.1008	-.0586	-.0084	-.1681	-.3942	-.3766	-.5272	-.0736
TIME VS Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
TDS* VS Q-DM(M3/S)	-.7179	-.7532	-.6839	-.2968	-.3445	-.4641	-.4862	.0663	.1000	.0260	-.3978	-.7363	-.6092
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.6395	-.7000	-.6044	-.2410	-.3455	-.4788	-.4854	.0660	.1071	.0330	-.3094	-.6264	-.6095
TDS* AS CONSTANT	.2640	.2996	.3011	-.1325	-.2979	-.1653	.0051	-.0437	.0507	.0231	.2246	.2996	-.0321
Q-DM(M3/S) AS CONSTANT	-.1649	-.0583	-.1379	.2995	-.0578	-.1665	-.0487	-.0055	-.1723	-.3947	-.2795	-.2044	-.0779

COND(F) 02041F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS COND(F)	-.4286	-.1547	-.2308	.3445	.0779	.0000	.0513	.2297	.2088	.1105	-.2190	-.6000	-.0177
TIME VS Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
COND(F) VS Q-DM(M3/S)	-.6667	-.6239	-.3091	-.2710	-.2778	-.3817	-.4909	.0129	-.0606	-.0909	.1282	-.5604	-.5977
PARTIAL RANK CORRE[illegible]													
TIME AS CONSTANT	-.5803	-.6336	-.2314	-.2128	-.2675	-.3836	-.4935	.0237	-.0690	-.0927	.2211	-.3383	-.5975
COND(F) AS CONSTANT	.2992	.4933	[illegible]	-.1413	-.2872	-.1070	.0668	-.0485	.0467	.0213	.3811	.3383	.0111
Q-DM(M3/S) AS CONSTANT	-.1594	.2085	-.0965	.3032	-.0049	-.0410	.0775	.2305	.2113	.1120	-.2818	-.4168	-.0076

TEMP(F) 02061F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TEMP(F)	-.1076	-.2584	-.3137	.2259	.3123	.0513	.0000	.2034	-.1604	-.1345	.1095	-.3465	-.0314
TIME VS Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
TEMP(F) VS Q-DM(M3/S)	.1233	.3474	-.0954	-.1444	.0447	.4069	.0333	-.3164	-.2458	.3000	.1617	-.3212	.5467
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.2023	.5545	.0692	-.0995	.1514	.4146	.0334	-.3143	-.2438	.3043	.1331	-.1635	.5477
TEMP(F) AS CONSTANT	.5072	.6261	.4838	-.1954	-.3273	-.1313	.0330	.0217	-.0067	.0543	.3292	.5056	.0438
Q-DM(M3/S) AS CONSTANT	-.1934	-.5148	-.3074	.2010	.3412	.1007	-.0011	.1999	-.1572	-.1444	.0587	-.2123	-.0502

TURB(F) 02073F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TURB(F)	.7191	.2222	-.3333	-.4182	.2222	.2626	-.2618	.2569	.1468	.0367	.6973	.3455	-.0153
TIME VS Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
TURB(F) VS Q-DM(M3/S)	.5855	.3333	.3333	1.0000	.5238	.4728	.4789	.5000	.0282	-.0845	.3662	.6111	.6573
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.3876	.2652	.6021	1.0245	.6334	.5195	.5054	.5296	.0236	-.0850	.1910	.5372	.6578
TURB(F) AS CONSTANT	.1173	.4388	.6731	R	-.4974	-.2623	.1869	-.2063	.0292	.0142	.1279	.4703	.0392
Q-DM(M3/S) AS CONSTANT	.6129	.0761	-.6021	-R	.4642	.3528	-.3164	.3225	.1460	.0378	.6544	.0045	-.0373

B-DISS 05105D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS B-DISS	.0131	.3490	-.1396	-.3094	.0996	-.3248	.3513	.0345	.0980	.0481	.3511	-.0409	.0420
TIME VS Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
B-DISS VS Q-DM(M3/S)	-.2300	-.0927	-.0227	.4615	.4771	.6097	.4373	.1763	.2137	.0862	.1248	-.0983	.1333
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2707	-.3150	.0523	.4239	.5332	.6137	.4550	.1781	.2116	.0858	.0059	-.0911	.1326
B-DISS AS CONSTANT	.5037	.5464	.4889	-.0927	-.3936	.1322	-.1433	-.0511	.0124	.0069	.3195	.5596	.0140
Q-DM(M3/S) AS CONSTANT	.1472	.4495	-.1472	-.2397	.2873	-.3353	.3748	.0430	.0932	.0473	.3308	.0173	.0398

Table A4.2 Continued

NO3+NO2 07106L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NO3+NO2	-.1681	-.2373	-.1635	-.4036	-.5548	-.1910	.0105	-.3662	.1925	-.1389	-.4070	-.2639	-.1399
TIME VS Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
NO3+NO2 VS Q-DM(M3/S)	-.4156	-.0263	.1039	.4520	.4382	.5059	.4887	.4568	.2968	-.3087	-.4073	.0452	-.1409
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.3877	.1019	.2130	.4066	.3443	.4986	.4886	.4739	.2962	-.3102	-.3128	.2417	-.1396
NO3+NO2 AS CONSTANT	.4655	.4852	.5138	-.0472	-.0717	-.0027	.0319	.1487	-.0258	-.0339	.2097	.5940	-.0003
Q-DM(M3/S) AS CONSTANT	.0433	-.2559	-.2465	-.3491	-.4949	-.1642	-.0064	-.3894	.1914	-.1425	-.3124	-.3496	-.1385

TN* 07602L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TN*	-.4874	-.2833	-.1868	-.4667	-.2167	-.0168	.1097	-.0418	.0193	-.1171	.0195	-.2981	-.1283
TIME VS Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
TN* VS Q-DM(M3/S)	-.7273	-.3484	.1818	.6188	.5385	.5083	.3667	.3222	.1039	.1579	.1579	.0645	.2840
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.6424	[illegible]	[illegible]	.5978	.5086	.5092	.3655	.3210	.1033	.1603	.1610	.2929	.2889
TN* AS CONSTANT	.2214	.4213	.5395	.0975	-.2189	-.1049	-.0079	-.0325	.0311	.0301	.3419	.6085	.0588
Q-DM(M3/S) AS CONSTANT	-.2220	-.1421	-.3207	-.4306	[illegible]	[illegible]	.1050	-.0292	.0160	-.1204	-.0369	-.4044	-.1396

DO 08101F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS DO	.2929	.0095	.1531	-.1651	-.1546	-.2204	-.1423	-.2521	-.0586	.0291	-.1457	.1238	-.0092
TIME VS Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
DO VS Q-DM(M3/S)	.3226	.3512	.3226	-.0397	.0520	-.4556	-.4286	-.0111	.1559	-.0915	-.1039	.1538	-.0465
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.2154	.3945	.2874	-.0792	.0064	-.4918	-.4285	-.0230	.1581	-.0919	-.0584	.1028	-.0464
DO AS CONSTANT	.4339	.5064	.4680	-.2309	-.2926	-.2295	-.0313	-.0486	.0427	.0137	.3308	.5522	.0190
Q-DM(M3/S) AS CONSTANT	.1642	-.1922	-.0049	-.1784	-.1460	-.2996	-.1419	-.2529	-.0645	.0303	-.1179	.0459	-.0083

ALK-TOT 10101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS ALK-TOT	-.4000	-.1333	-.2105	.5742	.1255	-.1167	.0753	.0753	.0422	-.0766	-.1590	-.2667	.0135
TIME VS Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
ALK-TOT VS Q-DM(M3/S)	-.7179	-.5290	-.5032	-.2710	-.1547	-.2527	.1105	.4862	.2210	.4615	-.1768	-.5385	-.5233
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.6535	-.5344	-.4693	-.1804	-.1240	-.2674	.1084	.4914	.2199	.4638	-.1321	-.4874	-.5237
ALK-TOT AS CONSTANT	.3135	.4838	.4513	-.0830	-.2829	-.1336	.0249	-.0927	.0243	.0524	.3216	.5133	.0311
Q-DM(M3/S) AS CONSTANT	-.0826	.1599	.0459	.5478	.0844	-.1471	.0722	.1109	.0358	-.0920	-.1067	.0503	.0278

PH(F) 10301F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS PH(F)	-.0780	.3498	.2843	.1544	.2305	.1324	.0089	-.0701	-.1138	.0278	.2635	.4216	.0952
TIME VS Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
PH(F) VS Q-DM(M3/S)	-.0915	.5819	.4886	-.1441	-.2578	-.3889	-.1899	-.1921	-.2107	.1462	.4922	.3704	.2174
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0615	.5040	.4181	-.1142	-.2039	-.3810	-.1903	-.1958	-.2084	.1460	.4438	.1786	.2166
PH(F) AS CONSTANT	.4835	.3595	.4164	-.2033	-.2524	-.0519	.0353	-.0589	.0093	.0070	.2512	.4800	-.0013
Q-DM(M3/S) AS CONSTANT	-.0384	.1007	.0607	.1270	.1669	.1024	.0155	-.0801	-.1094	.0265	.1171	.2782	.0932

Table A4.2 Continued

NFR	10401L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	NFR	.4261	.0780	-.1209	-.4500	-.3714	.1667	-.0167	.0857	.1667	-.1345	.1017	.2319	-.0492
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
NFR VS	Q-DM(M3/S)	.1616	.0800	.4545	.6851	.6410	.5824	.4066	.4000	.3407	.1326	.3259	.5099	.6659
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0582	.0489	.5923	.6724	.5987	.6104	.4074	.4057	.3401	.1353	.3114	.4716	.6678
NFR	AS CONSTANT	.4685	.4741	.6131	.1342	-.0822	-.2445	.0435	-.0860	-.0257	.0293	.3270	.5284	.0701
Q-DM(M3/S)	AS CONSTANT	.4030	.0454	-.4401	-.4203	-.2473	.2772	-.0329	.1129	.1654	-.1371	-.0105	-.0756	-.0834

NA-DISS	11103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	NA-DISS	-.4238	-.4341	-.4712	-.0580	-.2857	-.1026	.0586	.0504	-.0848	-.0294	-.5105	-.5333	-.1691
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
NA-DISS VS	Q-DM(M3/S)	-.5099	-.3047	-.1299	.4576	-.1222	-.3297	-.4420	-.1788	.0112	.0000	-.3094	-.4505	-.2904
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3836	-.1231	.1294	.4568	-.220[illegible]	-.343[illegible]	-.4449	-.1769	.0141	.0003	-.1676	-.2165	-.2914
NA-DISS	AS CONSTANT	.3479	.4023	.4871	-.2191	-.3487	-.1413	[illegible]	.0358	.0340	.0110	.2235	.4239	-.0315
Q-DM(M3/S)	AS CONSTANT	-.2334	-.3449	-.4711	.0498	-.3397	-.1439	.0816	.0433	-.0852	-.0294	-.4531	-.3798	-.1709

MG-DISS	12102L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	MG-DISS	-.5941	-.4167	-.3254	.2381	.0591	-.2333	-.3193	-.2185	-.1513	-.3636	-.4937	-.6000	-.0893
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
MG-DISS VS	Q-DM(M3/S)	-.7097	-.7097	-.6667	-.5385	-.4693	-.6044	-.5304	-.0894	-.3757	.1419	-.5304	-.6484	-.6640
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.5982	-.6394	-.6154	-.5129	-.4739	-.6485	-.5489	-.1016	-.3752	.1567	-.4430	-.4710	-.6650
MG-DISS	AS CONSTANT	.1156	.2837	.3835	-.1134	-.3051	-.3097	-.1698	-.0656	-.0260	.0679	.1069	.2815	-.0535
Q-DM(M3/S)	AS CONSTANT	-.4037	-.1257	-.0009	.1449	-.0951	-.3697	-.3563	-.2236	-.1499	-.3690	-.3928	-.3753	-.1022

P-TOT-DISS	15103D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	P-TOT-DISS	-.1583	-.1577	-.0442	-.5083	-.0769	.1177	-.0447	.0229	.0244	-.2388	.0307	-.2987	-.0830
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
P-TOT-DISSVS	Q-DM(M3/S)	-.0374	-.1563	.4242	.1985	.2424	.1297	.1985	.2724	.0335	.0158	.3902	-.1316	.2102
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.0460	-.0933	.5109	.1026	.2306	.1430	.2003	.2738	.0327	.0189	.4041	.0453	.2126
P-TOT-DISS	AS CONSTANT	.4877	.4642	.5592	-.1423	-.2875	-.1159	.0427	-.0524	.0322	.0152	.3572	.5509	.0379
Q-DM(M3/S)	AS CONSTANT	-.1605	-.0958	-.3172	-.4859	-.0054	.1323	-.0523	.0363	.0233	-.2390	-.1181	-.2739	-.0891

P-TOT	15406L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	P-TOT	.3390	.0760	.1058	-.4333	-.4770	.0251	-.0167	-.0504	-.0840	-.2092	.3167	.2885	-.0563
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
P-TOT VS	Q-DM(M3/S)	.3377	.0000	.5715	.6188	.7143	.4862	.3187	.3575	.3315	.1209	.4945	.4077	.6601
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.2100	-.0414	.5987	.5951	.6824	.4912	.3194	.3561	.3356	.1260	.4335	.3102	.6624
P-TOT	AS CONSTANT	.4209	.4788	.5229	.0666	.0715	-.1272	.0404	-.0281	.0647	.0374	.2233	.5065	.0755
Q-DM(M3/S)	AS CONSTANT	.2123	.0864	-.2409	-.3871	-.3966	.0842	-.0287	-.0371	-.1007	-.2121	.1814	.0794	-.0921

SO4-DISS	16304L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	SO4-DISS	-.4034	-.3933	-.6762	.2571	-.1088	-.0084	-.1000	-.0678	-.1500	-.4476	-.5167	-.5714	-.2057
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
SO4-DISS VS	Q-DM(M3/S)	-.7014	-.3896	-.3846	-.0769	-.1989	-.5083	-.8022	-.4972	-.1209	-.4872	-.3187	-.6556	-.5049
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.6318	-.2498	-.0858	-.0213	-.2435	-.5116	-.8034	-.5019	-.1173	-.5393	-.1772	-.4934	-.5119
SO4-DISS	AS CONSTANT	.3132	.3829	.3340	-.2088	-.3268	-.1198	-.0795	-.0900	.0151	-.2652	.2169	.2998	-.0999
Q-DM(M3/S)	AS CONSTANT	-.0991	-.2562	-.6064	.2470	-.1793	-.0684	-.1233	-.1036	-.1472	-.5065	-.4579	-.3262	-.2270

CL-DISS	17206L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CL-DISS	-.4333	-.5439	-.4519	.3672	.4268	.2882	.3933	.1925	.4171	.1667	-.4407	-.3933	-.0177
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
CL-DISS VS	Q-DM(M3/S)	-.7179	-.5549	-.4000	-.3530	-.3978	-.3576	-.4833	-.3667	-.4470	-.5002	-.2235	-.5967	-.5739
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.6440	-.4003	-.2305	-.2997	-.3140	-.3454	[illegible]	.2953	-.5072	-.5092	-.0869	-.4941	-.5737
CL-DISS	AS CONSTANT	.2807	.2516	.3748	-.1050	-.1530	.0046	.2771	.0289	.2699	.1105	.2768	.4415	.0113
Q-DM(M3/S)	AS CONSTANT	-.1375	-.3817	-.3212	.3169	.3524	.2720	.4677	.1896	.4830	[illegible]	-.3979	-.0886	-.0080

A-BHC	18075L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	A-BHC	-.0371	-.1851	-.0407	-.1764	-.3942	-.4438	-.3066	-.6329	-.4836	-.5684	-.3500	-.2562	-.3272
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
A-BHC VS	Q-DM(M3/S)	.2357	.1887	.2434	-.3546	.2961	.0994	.0389	.0953	-.1763	-.4488	-.1667	-.1384	.2340
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.2908	.3208	.3017	-.4100	.2041	.0622	.0515	.0871	-.1833	-.5379	-.0539	.0065	.2544
A-BHC	AS CONSTANT	.5107	.5309	.5129	-.3081	-.2050	-.0615	.0472	.0209	-.0607	-.3320	.3057	.5484	.1045
Q-DM(M3/S)	AS CONSTANT	-.1790	-.3189	-.1880	-.2794	-.3359	-.4383	-.3083	-.6322	-.4856	-.6306	-.3163	-.2178	-.3413

24D	18500L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	24D	.2839	.3104	.2925	.2089	.3745	.2084	.0107	.1499	.2928	.0947	.6554	.1417	.2394
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
24D VS	Q-DM(M3/S)	-.0704	-.3794	.3133	-.0511	-.3451	-.2083	-.5654	-.1466	-.1050	.2097	.2417	.5449	.1244
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2493	-.6316	.2046	-.0052	-.2643	-.1929	-.5661	-.1417	-.1200	.2096	.0260	.5679	.1233
24D	AS CONSTANT	.5302	.6767	.4356	-.2153	-.1924	-.0580	.0473	-.0227	.0670	-.0091	.2486	.5822	-.0107
Q-DM(M3/S)	AS CONSTANT	.3653	.6046	.1686	.2029	.3036	.1929	.0356	.1452	.2980	.0945	.6282	-.2358	.2389

K-DISS	19103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	K-DISS	-.3656	-.2712	-.2428	-.1148	-.0509	-.0504	.2447	.1266	-.0709	-.0591	-.1368	-.2639	-.0859
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
K-DISS VS	Q-DM(M3/S)	-.6407	-.4314	.1053	.0387	.1236	-.1445	.0670	-.0562	.2374	.0403	-.2843	-.4974	.0441
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.5691	-.3570	.2639	.0138	.1138	-.1504	.0609	-.0510	.2405	.0410	-.2552	-.4375	.0460
K-DISS	AS CONSTANT	.3540	.4151	.5315	-.2182	-.2930	-.1074	.0171	-.0374	.0514	.0134	.3177	.5129	.0234
Q-DM(M3/S)	AS CONSTANT	-.0797	-.0823	-.3386	-.1091	-.0150	-.0657	.2432	.1244	-.0811	-.0596	-.0443	.0207	-.0869

Table A4.2 Continued

CA-DISS	20101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CA-DISS	-.4100	-.2000	-.2571	.3524	.2594	-.2712	-.2929	-.2259	-.2594	-.3445	-.1000	-.1500	-.0494
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
CA-DISS VS	Q-DM(M3/S)	-.5807	-.7355	-.6154	-.5385	-.5604	-.3034	-.2210	.2778	-.0884	.3846	-.1868	.0549	-.5814
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.4782	-.7434	-.5807	-.5046	-.5242	-.3448	-.2212	.2752	-.0827	.4138	-.1633	.1698	-.5813
CA-DISS	AS CONSTANT	.3354	.4976	.4318	-.0396	-.1892	-.1976	-.0341	.0198	.0104	.1656	.3294	.5761	-.0114
Q-DM(M3/S)	AS CONSTANT	-.1788	.2539	.0620	.2840	.1178	-.3177	-.2930	-.2226	-.2577	-.3778	-.0394	-.2186	-.0469

MN-DISS	25104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	MN-DISS	-.3771	-.4535	-.3536	-.3043	-.3373	-.0735	-.5320	-.5040	-.5185	-.4058	-.3386	-.5292	-.3608
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
MN-DISS VS	Q-DM(M3/S)	-.2646	-.2646	.1029	.1690	-.1375	-.4536	-.0772	-.6172	-.3086	-.3086	-.2887	-.3563	-.1492
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.1000	-.0614	.3368	.1096	-.2643	-.4644	-.0704	-.7411	-.3411	-.3328	-.1959	[illegible]	-.1525
MN-DISS	AS CONSTANT	.4337	.4159	.5627	-.1806	-.3680	-.1488	-.0096	-.5227	-.1562	-.1314	.2697	.4691	-.0373
Q-DM(M3/S)	AS CONSTANT	-.2947	-.3861	-.4647	-.2777	-.3998	-.1335	-.5313	-.6758	-.5347	-.4231	-.2669	-.4257	-.3621

FE-DISS	26104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	FE-DISS	-.5988	-.6367	-.5880	-.1667	-.4284	-.2722	-.4535	-.4869	-.4602	-.7621	-.1938	-.6920	-.4658
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
FE-DISS VS	Q-DM(M3/S)	-.5345	-.5345	.1690	.7143	.2673	-.0524	.6447	-.5071	-.3563	-.0524	.0000	-.5766	.1584
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3472	-.3403	.6449	.7045	.1624	-.0829	.7405	-.6058	-.3845	-.0680	.0716	-.3156	.1893
FE-DISS	AS CONSTANT	.2469	.2104	.7358	-.1477	-.2093	-.1178	.4775	-.3866	-.1579	-.0448	.3472	.2737	.1067
Q-DM(M3/S)	AS CONSTANT	-.4584	-.5137	-.7788	-.0129	-.3793	-.2791	-.6214	-.5915	-.4802	-.7626	-.2061	-.5452	-.4750

CU-TOT	29005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CU-TOT	.3266	-.2858	-.3889	-.2535	.2955	-.3333	-.4667	.1348	.0000	-.5185	.5795	.1935	-.0745
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
CU-TOT VS	Q-DM(M3/S)	.5345	.0716	.1429	.4286	.3706	.4286	.5714	-.1091	.1091	.0394	-.0891	.3712	.5469
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.4548	.2471	.4130	.3949	.5024	.4217	.6639	-.1042	.1092	.0528	-.3739	.3233	.5500
CU-TOT	AS CONSTANT	.3913	.5209	.5952	-.1285	-.4578	.0516	.4128	-.0299	.0332	.0368	.4833	.5364	.0721
Q-DM(M3/S)	AS CONSTANT	.0897	-.3651	-.5304	-.1803	.4572	-.3236	-.5919	.1309	-.0036	-.5194	.6513	-.0189	-.1017

ZN-TOT	30005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	ZN-TOT	-.0239	-.0845	-.3571	-.2381	-.2535	-.4222	-.4667	-.0449	-.3333	-.1111	-.0233	-.0716	-.1843
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
ZN-TOT VS	Q-DM(M3/S)	-.2817	.2760	-.0667	.8000	.1952	.5714	.5000	.1091	.1429	.2143	.3402	-.2646	.4980
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3094	.3614	.1316	.7890	.1299	.5872	.5830	.1073	.1633	.2169	.3703	-.2717	.5104
ZN-TOT	AS CONSTANT	.5009	.5229	.4972	-.0524	-.2606	.1914	.3477	-.0396	.0864	.0358	.3708	.5629	.1305
Q-DM(M3/S)	AS CONSTANT	.1353	-.2561	-.3726	-.1048	-.2089	-.4478	-.5582	-.0404	-.3417	-.1162	-.1574	.0960	-.2237

Table A4.2 Continued

T.COLI	36001F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	T.COLI	-.2263	.0394	-.3184	-.1601	-.2202	-.4114	-.2202	-.4045	-.0845	-.1563	-.3184	.1780	-.2058
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
T.COLI VS	Q-DM(M3/S)	.0824	.1922	.0801	.2722	.2247	.2244	.3303	-.2333	-.0282	-.5002	-.0126	.2465	.3062
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.2265	.1974	.2842	.2460	.1711	.2025	.3462	-.2749	-.0255	-.5048	.1075	.1800	.3170
T.COLI	AS CONSTANT	.5211	.4791	.5426	-.1868	-.2601	-.0074	.1148	-.1558	.0307	-.0786	.3552	.5417	.0885
Q-DM(M3/S)	AS CONSTANT	-.3061	-.0607	-.4107	-.1065	-.1650	-.4013	-.2450	-.4270	-.0837	-.1742	-.3341	.0496	-.2225

F.COLI	36011F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	F.COLI	.0797	-.0216	.3358	.0000	.1936	-.0112	-.1681	.0574	-.1353	.0000	.1690	.5244	.0283
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
F.COLI VS	Q-DM(M3/S)	.2250	.0702	.4049	.7285	.0000	.2947	.3000	.2857	-.2338	-.5273	.1653	.2957	.4286
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.2138	.0916	.2934	.7470	.0613	.2950	.3101	.2890	-.2316	-.5273	[illegible]	[illegible]	.4283
F.COLI	AS CONSTANT	.4831	.4802	.4078	-.3226	-.3024	-.1000	.0887	-.0633	.0014	.0129	.3217	.4984	[illegible]
Q-DM(M3/S)	AS CONSTANT	-.0352	-.0628	.1735	.2410	.2027	.0188	-.1867	.0732	-.1313	.0068	.1216	.4534	.0221

PB-TOT	82002P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	PB-TOT	-.5963	-.7255	-.5512	-.5353	-.3869	-.5355	-.4319	-.0682	-.5013	-.6445	-.5013	-.5804	-.4157
TIME VS	Q-DM(M3/S)	.4872	.4774	.4872	-.2210	-.2967	-.0989	.0330	-.0442	.0330	.0110	.3407	.5604	.0194
PB-TOT VS	Q-DM(M3/S)	-.8452	-.6880	.0000	.7807	.3712	.4629	.3273	.2965	.0806	.3086	.4029	-.8864	.3277
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.7912	-.5650	.3686	.8041	.2911	.4878	.3789	.2945	.1123	.4129	.7052	-.8320	.3693
PB-TOT	AS CONSTANT	-.0391	-.0435	.5839	.3730	-.1788	.1990	.2046	-.0252	.0851	.2886	.6852	.1220	.1811
Q-DM(M3/S)	AS CONSTANT	-.3953	-.6226	-.6312	-.5952	-.3121	-.5552	-.4688	-.0577	-.5059	-.6812	-.7421	-.2181	-.4468

Table A4.3 Partial Kendall Tau and Pairwise Kendall Tau's for each Water Quality Variable , Flow and Time at location KH0001

NSK KH0001 (PARTIAL RANK CORRELATION)
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TDS* 00201L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TDS*	-.1266	.3484	.3942	.5238	.0760	-.2019	-.1914	-.1531	-.1058	-.0286	-.0282	-.2954	.0126
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
TDS* VS Q-DM(M3/S)	.2338	-.0775	-.0520	-.0667	-.1341	.2597	.3757	.1282	.3377	.2051	-.2535	-.0894	-.2087
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.2141	.0437	-.0236	-.1195	-.1249	.2296	.3424	.1182	.3225	.2036	-.2666	-.1248	-.2085
TDS* AS CONSTANT	-.1820	-.3278	-.0615	.1195	-.1343	-.1492	-.2230	-.0585	-.3065	-.0726	-.2372	-.1317	-.1001
Q-DM(M3/S) AS CONSTANT	-.0826	.3432	.3919	.5306	.0579	-.1601	-.0990	-.1449	.0035	-.0131	-.0896	-.3070	-.0086

COND(F) 02041F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS COND(F)	.0336	.2873	.3173	.3333	.2521	-.2404	.0476	.0193	-.0095	.4519	.1667	-.0957	.0807
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
COND(F) VS Q-DM(M3/S)	.2710	.1374	.1299	-.0667	-.2652	.2857	.2088	.1818	.1419	.0000	-.1667	-.0387	-.1695
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.2841	.2582	.1632	-.0945	-.2393	.2512	.2310	.1839	.1467	.0391	-.1348	-.0486	[illegible]
COND(F) AS CONSTANT	-.2227	-.3929	-.1256	.0945	-.0815	-.1342	-.2914	-.0818	-.3245	-.0862	-.2000	-.1032	-.0884
Q-DM(M3/S) AS CONSTANT	.0947	.3567	.3311	.3393	.2245	-.1969	.1116	.0340	.0387	.4533	.1348	-.1001	.0649

TEMP(F) 02061F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TEMP(F)	-.1495	-.1758	-.0835	.2381	.2110	-.1409	.2169	.1471	.1457	.2303	-.3667	.0108	-.0162
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
TEMP(F) VS Q-DM(M3/S)	.0000	.2132	.2864	.3333	-.2682	.2705	.1144	.3048	.0000	.1648	-.0333	.0144	.3514
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0317	.1666	.2818	.3276	-.2461	.2504	.1853	.3205	.0502	.1881	-.1266	.0155	.3516
TEMP(F) AS CONSTANT	-.2075	-.3076	-.0555	-.0139	-.0916	-.1631	-.3089	-.1293	-.3261	-.1197	-.2521	-.0991	-.1013
Q-DM(M3/S) AS CONSTANT	-.1528	-.1138	-.0643	.2295	.1811	-.0938	.2599	.1796	.1539	.2471	-.3839	.0123	.0206

TURB(F) 02073F	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS TURB(F)	.3889	.5714	.2535	-.4226	-.5669	.3333	-.2778	.1409	.2222	-.3333	.5189	.0721
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.0997
TURB(F) VS Q-DM(M3/S)	.4667	.6000	.4286	.0476	.2981	.0714	.2381	.3904	.6190	.3333	.2000	.3086
PARTIAL RANK CORRELATION												
TIME AS CONSTANT	.6060	1.0217	.4646	-.0142	.2331	.1798	.2263	.4650	.6544	.2820	.2954	.3182
TURB(F) AS CONSTANT	-.4745	-1.0300	-.2123	-.1356	-.0312	-.3175	-.0116	-.4142	-.2801	-.1250	-.2420	-.1285
Q-DM(M3/S) AS CONSTANT	.5598	1.0228	.3181	-.4206	-.5438	.3680	-.2679	.3061	.3446	-.2820	.5525	.1087

B-DISS 05105D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS B-DISS	.0790	-.0337	.5002	.6000	-.0883	-.0590	.0724	-.1334	.0354	.2668	.4140	.0541	.0849
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
B-DISS VS Q-DM(M3/S)	-.1840	.0465	-.6441	.3333	.4270	.3833	.1332	.0963	.1519	.0617	-.4140	-.4130	.0394
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1720	.0374	-.7015	.3675	.4203	.3797	.1596	.0871	.1727	.0856	-.3629	-.4103	.0484
B-DISS AS CONSTANT	-.1945	-.3323	.3703	-.1768	-.1168	-.1854	-.2877	-.0650	-.3320	-.0971	-.0613	-.0842	-.1044
Q-DM(M3/S) AS CONSTANT	.0429	-.0193	.5909	.6142	-.0305	.0168	.1144	-.1270	.0902	.2729	.3629	.0147	.0894

NO3+NO2	07106L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	NO3+NO2	-.3591	-.4111	-.1635	.0476	-.2584	-.2586	-.1992	-.1902	-.0921	.0100	.0870	.2263	-.0660
TIME VS	Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
NO3+NO2 VS	Q-DM(M3/S)	.3203	.1231	.3117	.3333	.3378	-.1949	.3241	.3248	.0000	-.1648	.3191	.1514	-.0108
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.2700	-.0162	.3041	.3313	.3147	-.2585	.2859	.3169	-.0315	-.1645	.3485	.1793	-.0176
NO3+NO2	AS CONSTANT	-.1019	-.3125	-.0277	.0539	-.0611	-.2575	-.2267	-.0163	-.3240	-.0763	-.2648	-.1383	-.1015
Q-DM(M3/S)	AS CONSTANT	-.3164	-.3956	-.1472	.0270	-.2255	-.3080	-.1211	-.1752	-.0973	-.0027	.1709	.2453	-.0674

TN*	07602L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	TN*	-.7731	-.5715	-.3593	-.1429	-.4770	-.4135	-.4019	-.2512	-.4176	-.0667	-.1111	-.4916	-.2755
TIME VS	Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
TN* VS	Q-DM(M3/S)	.2710	.5371	.0654	.4667	.6630	.3529	.2210	-.0129	.2632	.1026	-.2222	.2585	.3035
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.1810	.4480	.0406	.4822	.6838	.3055	.1256	-.0334	.1494	.0979	-.2548	[illegible]	[illegible]
TN*	AS CONSTANT	.0072	-.0381	-.0574	.1523	.2635	-.0559	-.2082	-.0828	-.2426	-.0706	-.2548	.0335	-.0185
Q-DM(M3/S)	AS CONSTANT	-.7616	-.4935	-.3561	-.1971	-.5159	-.3760	-.3639	-.2530	-.3643	-.0593	-.1688	-.4848	-.2584

DO	08101F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	DO	-.0087	-.0223	-.0193	-.3333	-.1438	-.1686	-.1933	.0580	.1864	-.0383	.2143	-.0170	.0263
TIME VS	Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
DO VS	Q-DM(M3/S)	.0000	-.1069	.1961	-.2000	-.0556	-.0938	.0556	-.2598	-.0397	-.1026	-.0714	-.0787	-.2520
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0018	-.1213	.1952	-.1890	-.0777	-.1307	.0026	-.2565	.0219	-.1059	-.0250	-.0808	-.2507
DO	AS CONSTANT	-.2051	-.3377	-.0746	.0000	-.1527	-.2133	-.2695	-.0642	-.3211	-.0813	-.2124	-.1006	-.0971
Q-DM(M3/S)	AS CONSTANT	-.0089	-.0618	-.0043	-.3273	-.1536	-.1912	-.1854	.0395	.1835	-.0466	.2040	-.0249	.0010

ALK-TOT	10101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	ALK-TOT	-.2279	.4111	.3942	.4286	.2882	.0000	-.0598	-.2319	-.0586	-.0486	.0282	-.2185	.0552
TIME VS	Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
ALK-TOT VS	Q-DM(M3/S)	.2598	-.1539	-.1818	.0667	-.3034	.2857	.4027	.2746	.5000	.2710	-.3099	.0000	-.2327
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.2235	-.0196	-.1653	.0423	-.2767	.2912	.4025	.2647	.5092	.2683	-.3115	-.0223	-.2287
ALK-TOT	AS CONSTANT	-.1552	-.2998	-.0058	.0423	-.0607	-.2020	-.2743	-.0142	-.3393	-.0663	-.2246	-.1013	-.0903
Q-DM(M3/S)	AS CONSTANT	-.1847	.3863	.3879	.4260	.2596	.0588	.0578	-.2199	.1254	-.0289	-.0439	-.2196	.0328

PH(F)	10301F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	PH(F)	-.1898	.2646	.1864	.0501	.2760	-.1992	-.2328	-.1972	.2060	-.0294	-.0282	.2789	.0478
TIME VS	Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
PH(F) VS	Q-DM(M3/S)	.3843	-.1734	.0928	.2148	-.5265	.1477	.0463	-.0267	.1316	.3843	.3662	.0000	.0778
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.3594	-.0937	.1093	.2122	-.5120	.1136	-.0189	-.0428	.2138	.3834	.3694	.0289	.0831
PH(F)	AS CONSTANT	-.1458	-.3027	-.0963	.0573	.0030	-.1693	-.2717	-.0839	-.3605	-.0711	-.2278	-.1030	-.1047
Q-DM(M3/S)	AS CONSTANT	-.1228	.2228	.1949	.0367	.2386	-.1758	-.2291	-.1999	.2648	.0002	.0587	.2803	.0561

Table A4.3 Continued

NFR 10401L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NFR	-.0766	.2035	-.1845	-.1429	-.1635	-.0476	-.2308	-.2747	-.0095	-.1810	-.7043	.3390	-.0074
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
NFR VS Q-DM(M3/S)	.3269	.2994	.5883	.7333	.0779	.0645	.3590	.4545	.4516	.1795	.1972	.1911	.3570
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.3188	.3979	.5859	.7522	.0559	.0564	.3159	.4521	.4739	.1688	.0588	.2399	.3581
NFR AS CONSTANT	-.1911	-.4221	.0398	.2548	-.1323	-.1911	-.2113	.0560	-.3568	-.0459	-.1197	-.1772	-.1048
Q-DM(M3/S) AS CONSTANT	-.0103	.3372	-.1727	-.2827	-.1544	-.0359	-.1473	-.2700	.1612	-.1704	-.6910	.3664	.0306

NA-DISS 11103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NA-DISS	-.2954	.1429	.0195	.3904	.0429	-.3445	-.1635	-.0874	.0096	.2126	-.2287	-.1865	-.0027
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
NA-DISS VS Q-DM(M3/S)	.0915	.1212	.2783	.1380	-.1373	.1419	.0778	-.0526	.0392	-.0131	.2287	-.3129	-.1216
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.0331	.1809	.2807	.1219	-.1326	.0817	.0347	-.0598	.0447	.0034	.1874	-.3389	-.1225
NA-DISS AS CONSTANT	-.1872	-.3569	-.0858	.0140	-.1384	-.1557	-.2664	-.0820	-.3232	-.0759	-.1793	-.1685	-.1016
Q-DM(M3/S) AS CONSTANT	-.2838	.1958	.0427	.3857	.0238	-.3264	-.1482	-.0918	.0235	.2122	-.1874	-.2300	-.0152

MG-DISS 12102L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS MG-DISS	-.3264	.2011	.1340	.2381	.1513	-.3445	-.2706	-.2871	-.2233	-.2105	-.2535	-.3766	-.0340
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
MG-DISS VS Q-DM(M3/S)	.0000	-.3077	-.1538	-.4667	-.2333	.3896	.2458	.0387	-.0654	-.1161	-.3099	-.1868	-.3040
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0724	-.2606	-.1453	-.4979	-.2164	.3506	.1853	.0174	-.1489	-.1358	-.3883	-.2431	-.3092
MG-DISS AS CONSTANT	-.2170	-.2912	-.0575	.2070	-.1119	-.0686	-.2231	-.0688	-.3467	-.1044	-.3271	-.1860	-.1165
Q-DM(M3/S) AS CONSTANT	-.3335	.1099	.1240	.3051	.1225	-.2978	-.2178	-.2852	-.2588	-.2216	-.3478	-.4041	-.0681

P-TOT-DISS 15103D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS P-TOT-DISS	.0996	-.0615	.3525	-.2928	-.3617	.0267	.0415	-.2436	.2135	-.0131	.1091	.1883	-.0163
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
P-TOT-DISSVS Q-DM(M3/S)	.1103	.0227	-.0625	-.3333	.0615	-.3049	.0166	.1322	-.2333	.0374	-.5455	.2369	-.0589
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.1343	.0024	-.0380	-.3289	.0107	-.3056	.0291	.1173	-.1778	.0365	-.5379	.2615	-.0608
P-TOT-DISS AS CONSTANT	-.2185	-.3327	-.0588	-.0343	-.1296	-.1948	-.2757	-.0465	-.2871	-.0765	-.1953	-.1504	-.1017
Q-DM(M3/S) AS CONSTANT	.1257	-.0573	.3494	-.2876	-.3573	-.0346	.0479	-.2362	.1502	-.0102	-.0148	.2190	-.0224

P-TOT 15406L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS P-TOT	.2373	.3752	.2039	.0000	-.3264	.0580	-.1619	-.1471	.0957	.0865	-.1179	.3150	.0354
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
P-TOT VS Q-DM(M3/S)	.0520	-.0788	.0520	.4667	.3315	.2237	.2967	.2746	.1558	.0387	-.0589	.2360	.3337
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.1058	.0529	.0693	.4677	.3045	.2399	.2658	.2669	.1982	.0457	-.0879	.2829	.3392
P-TOT AS CONSTANT	-.2242	-.3287	-.0895	.0754	-.0389	-.2122	-.2406	-.0384	-.3433	-.0806	-.2312	-.1878	-.1193
Q-DM(M3/S) AS CONSTANT	.2537	.3713	.2088	-.0353	-.2988	.1059	-.0876	-.1314	.1561	.0899	-.1345	.3499	.0735

SO4-DISS	16304L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	SO4-DISS	.1177	.1788	.2039	-.0476	-.2034	-.3981	-.1250	-.1160	-.0476	.0481	-.1715	-.0504	-.0068
TIME VS	Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
SO4-DISS VS	Q-DM(M3/S)	-.0520	.0155	-.0263	-.3333	-.0112	.3421	.3445	.0915	.1419	.0000	.1143	.0556	-.1813
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0286	.0810	-.0109	-.3313	-.0416	.2945	.3251	.0834	.1339	.0037	.0794	.0509	-.1829
SO4-DISS	AS CONSTANT	-.2007	-.3417	-.0731	.0539	-.1483	-.0665	-.2487	-.0670	-.3194	-.0770	-.2070	-.0964	-.1035
Q-DM(M3/S)	AS CONSTANT	.1095	.1951	.2026	-.0270	-.2072	-.3600	-.0336	-.1097	-.0020	.0482	-.1508	-.0452	-.0256

CL-DISS	17206L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CL-DISS	.0422	.2873	.3905	.5238	.2373	.0673	.2256	.0966	.1914	.2212	-.1972	-.2185	.1726
TIME VS	Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
CL-DISS VS	Q-DM(M3/S)	-.1936	-.2290	-.3333	.2000	-.5057	-.3791	-.5117	-.2598	-.4416	-.5195	-.0845	-.1667	-.3369
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.1891	-.1476	-.3304	.1942	-.4908	-.3740	-.4801	-.2543	-.4088	-.5168	-.1343	-.1939	-.3261
CL-DISS	AS CONSTANT	-.2009	-.2869	.0613	-.0456	-.0272	-.1820	-.1903	-.0539	-.2703	.0456	-.2445	-.1406	-.0457
Q-DM(M3/S)	AS CONSTANT	.0026	.2299	.3881	.5222	.1933	-.0067	.1029	.0796	.0576	.2127	-.2223	-.2395	.1481

A-BHC	18075L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS	A-BHC	-.7785	-.2543	-.0471	-.5030	-.3819	-.5196	-.7852	-.6639	-.5145	-.5521	-.6253	-.4616
TIME VS	Q-DM(M3/S)	-.2051	-.3333	-.0769	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.0997
A-BHC VS	Q-DM(M3/S)	.4158	-.5355	-.5089	.1896	.0628	.0670	.0233	.1441	-.1630	.2760	-.4045	-.0694
PARTIAL RANK CORRELATION													
TIME	AS CONSTANT	.4168	-.6802	-.5146	.1376	-.0123	-.0922	-.0601	-.0990	-.2369	.1886	-.6006	-.1308
A-BHC	AS CONSTANT	.2077	-.5748	-.1174	-.0560	-.1838	-.2814	-.0947	-.3066	-.1900	-.0871	-.4930	-.1489
Q-DM(M3/S)	AS CONSTANT	-.7788	-.5435	-.1005	-.4898	-.3776	-.5225	-.7860	-.6592	-.5358	-.5236	-.7311	-.4720

24D	18500L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	24D	-.2416	.1334	-.1144	-.3162	-.2703	-.0578	.2241	.1899	.0708	.2224	-.3586	.0000	.0188
TIME VS	Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
24D VS	Q-DM(M3/S)	-.1907	-.2504	.0636	-.6667	.2518	.2092	.2590	-.1467	-.2785	.2048	-.3586	-.0778	-.0011
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2530	-.2204	.0553	-.6820	.2237	.2021	.3421	-.1350	-.2707	.2283	-.4815	-.0782	.0008
24D	AS CONSTANT	-.2637	-.3126	-.0703	-.2039	-.0803	-.1859	-.3535	-.0505	-.3161	-.1283	-.4026	-.0992	-.1006
Q-DM(M3/S)	AS CONSTANT	-.2922	.0547	-.1100	-.3654	-.2447	-.0180	.3179	.1811	-.0209	.2440	-.4815	-.0078	.0188

K-DISS	19103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	K-DISS	-.3762	-.2288	-.0976	.3333	.0513	-.3479	-.0781	-.0781	-.0789	.2874	.0000	-.2469	-.0847
TIME VS	Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
K-DISS VS	Q-DM(M3/S)	.1601	.3178	.3843	.4667	.4662	.5264	.0904	.0133	.0811	.0403	.0572	.1356	.2316
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.0915	.2632	.3797	.4725	.4790	.4990	.0720	.0073	.0590	.0654	.0586	.1154	.2250
K-DISS	AS CONSTANT	-.1584	-.2824	-.0429	-.1066	-.1888	-.0131	-.2696	-.0761	-.3182	-.0925	-.2226	-.0681	-.0835
Q-DM(M3/S)	AS CONSTANT	-.3554	-.1374	-.0739	.3425	.1346	-.2949	-.0556	-.0773	-.0558	.2916	.0131	-.2368	-.0635

Table A4.3 Continued

CA-DISS 20101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS CA-DISS	-.3431	.2111	.0288	.3333	-.0500	-.3143	-.2871	-.3092	-.2952	-.0481	.0556	-.2929	-.0546
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
CA-DISS VS Q-DM(M3/S)	.2194	-.0923	-.1419	-.3333	-.0110	.2452	.4505	.1700	.4258	.0645	-.2778	-.0221	-.2112
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.1621	-.0238	-.1402	-.3780	-.0183	.1979	.4035	.1542	.3655	.0611	-.2727	-.0537	-.2182
CA-DISS AS CONSTANT	-.1417	-.3225	-.0736	.2000	-.1436	-.1266	-.1700	-.0260	-.2277	-.0741	-.2156	-.1102	-.1148
Q-DM(M3/S) AS CONSTANT	-.3122	.1921	.0182	.3780	-.0521	-.2805	-.1902	-.3014	-.1843	-.0433	-.0066	-.2966	-.0780

MN-DISS 25104D	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS MN-DISS	-.1764	-.4447	-.3000	-.3869	-.3404	-.2557	-.1143	-.2946	-.4932	.7071	-.2981	-.2820
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.0997
MN-DISS VS Q-DM(M3/S)	-.5071	-.7877	-.8165	.4536	-.1793	.3000	-.4506	.0000	.0501	.2357	.1237	-.0606
PARTIAL RANK CORRELATION												
TIME AS CONSTANT	-.5639	-1.1084	-.8827	.4365	-.2658	.2472	-.4638	-.1051	.0140	.5698	.0992	-.0929
MN-DISS AS CONSTANT	-.3472	-1.2391	-.5844	.0397	-.2752	-.2147	-.1448	-.3376	-.0601	-.5659	-.0655	-.1220
Q-DM(M3/S) AS CONSTANT	-.3324	-1.2179	-.6303	-.3652	-.3887	-.1889	-.1674	-.3113	-.4914	.8015	-.2895	-.2901

CU-TOT 29005P	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS CU-TOT	.0682	.3086	.1826	.1137	-.7071	-.4125	-.4490	-.2611	-.4226	.1826	.1164	-.0820
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.0997
CU-TOT VS Q-DM(M3/S)	-.6508	.7006	-.1690	.2965	-.2169	.5401	-.3086	.5798	.6831	.5477	.2315	.2536
PARTIAL RANK CORRELATION												
TIME AS CONSTANT	-.6522	.8960	-.1581	.3180	-.5100	.4872	-.3852	.5423	.7200	.6137	.2458	.2475
CU-TOT AS CONSTANT	-.2122	-.8097	-.0475	-.1861	-.5026	-.0678	-.2535	-.2177	.3199	-.3917	-.1302	-.0819
Q-DM(M3/S) AS CONSTANT	-.0879	.8059	.1726	.1651	-.7822	-.3264	-.4985	-.0961	-.5082	.3730	.1439	-.0589

T.COLI 36001F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS T.COLI	-.5249	-.2396	-.1779	.2582	-.3026	-.0909	-.2863	-.6406	-.2261	.0625	.2673	.3091	-.1418
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	.0667	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.1006
T.COLI VS Q-DM(M3/S)	.3720	.3711	.5398	.3586	.0813	-.2889	.1122	-.1636	-.1418	.1496	.0000	-.4045	.1659
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.3173	.3182	.5362	.3541	.0404	-.3137	.0364	-.2781	-.2329	.1552	.0632	-.3951	.1539
T.COLI AS CONSTANT	-.0125	-.2711	.0231	-.0287	-.1245	-.2306	-.2548	-.2399	-.3678	-.0874	-.2306	.0301	-.0789
Q-DM(M3/S) AS CONSTANT	-.4938	-.1324	-.1625	.2515	-.2950	-.1563	-.2673	-.6641	-.2901	.0751	.2741	.2957	-.1275

PB-TOT 82002P	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS PB-TOT	-.5804	-.1543	-.3043	-.6287	-.8819	-.7377	-.7118	-.4002	-.8414	-.7071	-.4472	-.5622
TIME VS Q-DM(M3/S)	-.2051	-.3333	-.0769	-.1429	-.1936	-.2747	-.0769	-.3226	-.0769	-.2222	-.0989	-.0997
PB-TOT VS Q-DM(M3/S)	.6198	.3892	.2646	-.0412	-.2390	.8238	.3705	.4104	.3504	-.2357	-.4769	.2018
PARTIAL RANK CORRELATION												
TIME AS CONSTANT	.6282	.3627	.2540	-.1703	-.8859	.9568	.4509	.3243	.5302	-.5698	-.5855	.1771
PB-TOT AS CONSTANT	.2419	-.3003	.0039	-.2172	-.8834	.8700	.2863	-.1895	.4305	-.5659	-.3971	.0170
Q-DM(M3/S) AS CONSTANT	-.5901	-.0283	-.2953	-.6418	-.9743	-.9382	-.7379	-.3102	-.8721	-.8015	-.5652	-.5563

Table A4.4 Partial Kendall Tau and Pairwise Kendall Tau's for each Water Quality Variable , Flow and Time at location EA0003

NCH EA0003 (PARTIAL RANK CORRELATION)
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TDS*	00201L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	TDS*	-.2424	-.1679	-.1374	-.4909	-.1925	-.0667	-.0667	.0111	.0989	-.3333	-.1565
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
TDS* VS	Q-DM(M3/S)	.3778	.5556	.6444	.3333	.1105	.0110	-.0513	-.3385	-.1026	.3333	.0261
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	.3386	.5640	.6531	.3220	.0651	-.0233	-.0808	-.3967	-.0513	.1890	-.0462
TDS*	AS CONSTANT	-.1702	-.5640	-.4405	.0639	-.2373	-.4729	-.3637	-.5757	-.6374	-.5000	-.4315
Q-DM(M3/S)	AS CONSTANT	-.1672	.2035	.1943	-.4844	-.1711	-.0698	-.0913	-.2200	.0434	-.1890	-.1610

COND(F)	02041F	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	COND(F)	-.2424	-.0775	-.3670	-.3817	-.0921	-.1255	-.1429	-.1299	.1000	-.1667	-.1554
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
COND(F) VS	Q-DM(M3/S)	.2000	.3430	.4444	-.3146	-.0110	-.2210	-.2051	.0734	-.1299	.1111	-.0243
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	[illegible]	.3618	.3433	-.3887	-.0356	-.3206	-.2776	.0031	-.0861	.0226	-.1022
COND(F)	AS CONSTANT	-.2061	-.5648	-.3110	-.2635	-.2549	-.5170	-.4008	-.5420	-.6366	-.5480	-.4394
Q-DM(M3/S)	AS CONSTANT	-.2037	.1447	-.2208	-.4417	-.0980	-.2675	-.2370	-.1075	.0220	-.1270	-.1838

TEMP(F)	02061F	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	TEMP(F)	.0000	-.1343	-.4654	.2595	-.1356	.3899	.1933	-.0345	-.2360	-.2485	.0011
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
TEMP(F) VS	Q-DM(M3/S)	.2531	.4714	.1938	.2444	.4023	.0000	-.1961	.2909	.1961	.1491	-.0340
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	.2610	.4816	-.0034	.2847	.3839	.2270	-.1384	.3248	.0601	.0137	-.0371
TEMP(F)	AS CONSTANT	-.2527	-.5633	-.3824	-.1864	-.2185	-.5131	-.3337	-.5600	-.6242	-.5414	-.4303
Q-DM(M3/S)	AS CONSTANT	.0659	.1740	-.4314	.2975	-.0383	.4424	.1342	.1548	-.1466	-.2015	-.0150

TURB(F)	02073F	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	TURB(F)	.2000	.4880	.3706	.5353	.4444	.1556	.4444	.2222	.0741	.0000	.1731
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
TURB(F) VS	Q-DM(M3/S)	.0000	.3333	-.0716	.5238	.3333	.2143	-.2381	-.1429	-.5855	.0000	-.1837
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	.0515	.8328	.1008	.6948	.5142	.3306	-.0939	-.0265	-.7029	.0000	-.1228
TURB(F)	AS CONSTANT	-.2495	-.8727	-.4271	-.5441	-.4747	-.5243	-.2910	-.5323	-.7393	-.5556	-.4114
Q-DM(M3/S)	AS CONSTANT	.2063	.8587	.3765	.7010	.5796	.2983	.3960	.1740	-.4841	.0000	.1060

B-DISS	05105D	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	B-DISS	.4576	-.0683	.5449	.4816	.2628	-.0445	-.1083	.0271	-.0166	.2333	.0905
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
B-DISS VS	Q-DM(M3/S)	-.1974	.0000	.0434	.0000	-.1590	-.1443	-.1770	-.0197	-.3181	.0000	-.1586
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	-.0992	-.0457	.3598	.0614	-.0992	-.1878	-.2327	-.0059	-.4284	.1603	-.1331
B-DISS	AS CONSTANT	-.1768	-.5569	-.5322	-.1268	-.2215	-.4845	-.3865	-.5452	-.6818	-.5713	-.4228
Q-DM(M3/S)	AS CONSTANT	.4306	-.0821	.6219	.4846	.2331	-.1293	-.1870	.0195	-.3030	.2806	.0250

Table A4.4 Continued

NO3+NO2 07106L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION											
TIME VS NO3+NO2	-.4903	-.5940	-.3365	.1101	-.3536	-.3450	-.5699	-.2617	-.2615	.0830	-.0976
TIME VS Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
NO3+NO2 VS Q-DM(M3/S)	.1491	.3536	.1451	-.1491	.3198	.1712	.5604	.4082	.1113	.0830	.1815
PARTIAL RANK CORRELATION											
TIME AS CONSTANT	.0346	.0352	.0035	-.1385	.2546	.0098	.4640	.3282	-.0760	.1559	.1553
NO3+NO2 AS CONSTANT	-.1988	-.4592	-.4008	-.0964	-.1576	-.4471	-.0581	-.4978	-.6379	-.5664	-.4214
Q-DM(M3/S) AS CONSTANT	-.4734	-.5112	-.3069	.0952	-.2975	-.3042	-.4770	-.0510	-.2493	.1559	-.0220

TN* 07602L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION											
TIME VS TN*	-.4122	-.2326	-.2501	-.3077	-.3560	-.3629	-.4327	-.4158	-.2338	-.3410	-.2914
TIME VS Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
TN* VS Q-DM(M3/S)	.3333	.0870	.4774	-.0899	.3799	.1667	.1818	.1563	.0615	.3865	.1367
PARTIAL RANK CORRELATION											
TIME AS CONSTANT	.2633	-.0522	.4236	-.1312	.3207	-.0058	.0315	-.0925	-.1183	.2521	.0132
TN* AS CONSTANT	-.1246	-.5525	-.3559	-.1464	-.1359	-.4485	-.3162	-.5349	-.6457	-.4888	-.4119
Q-DM(M3/S) AS CONSTANT	-.3618	-.2225	[illegible]	-.3210	-.2905	-.3270	-.4004	-.3993	-.2537	-.1647	-.2601

DO 08101F	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION											
TIME VS DO	-.3670	-.4616	-.2016	-.0845	-.4758	-.1526	-.3204	-.0447	-.0442	-.0449	-.0544
TIME VS Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
DO VS Q-DM(M3/S)	-.0556	.0572	.0899	-.0476	.3377	.2235	.5099	.0000	.1026	-.0899	.0949
PARTIAL RANK CORRELATION											
TIME AS CONSTANT	-.1610	-.2702	.0054	-.0576	.2555	.1738	.4466	-.0291	.0968	-.1383	.0793
DO AS CONSTANT	-.2851	-.5975	-.4142	-.1157	-.1112	-.4551	-.2400	-.5460	-.6405	-.5624	-.4275
Q-DM(M3/S) AS CONSTANT	-.3931	-.5178	-.1813	-.0905	-.4288	-.0547	-.1711	-.0533	.0282	-.1146	-.0151

ALK-TOT 10101L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION											
TIME VS ALK-TOT	-.2424	.0303	-.1985	-.5505	-.1925	-.0251	-.0574	.0769	.0442	-.1840	-.1268
TIME VS Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
ALK-TOT VS Q-DM(M3/S)	.3333	.2222	.6293	.3889	.1768	-.0221	.0129	-.4545	-.0903	.1840	.0120
PARTIAL RANK CORRELATION											
TIME AS CONSTANT	.2913	.2876	.6139	.3950	.1350	-.0385	-.0083	-.4937	-.0808	.1001	-.0475
ALK-TOT AS CONSTANT	-.1789	-.5770	-.3903	.1339	-.2265	-.4733	-.3589	-.5748	-.6403	-.5400	-.4321
Q-DM(M3/S) AS CONSTANT	-.1760	.1897	.0954	-.5540	-.1552	-.0403	-.0566	-.2291	-.0179	-.1001	-.1348

PH(F) 10301F	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION											
TIME VS PH(F)	.1846	.1086	.1706	.0308	-.1539	-.3020	.0874	.1478	.0345	.3771	.0332
TIME VS Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
PH(F) VS Q-DM(M3/S)	-.2697	-.1972	-.0920	.0449	.1130	.0000	-.2338	-.0625	-.1068	-.4243	-.0441
PARTIAL RANK CORRELATION											
TIME AS CONSTANT	-.2356	-.1656	-.0224	.0487	.0776	-.1698	-.2177	.0218	-.1103	-.2789	-.0330
PH(F) AS CONSTANT	-.2057	-.5481	-.4143	-.1127	-.2397	-.4957	-.3495	-.5432	-.6414	-.4716	-.4293
Q-DM(M3/S) AS CONSTANT	.1271	-.0012	.1459	.0360	-.1304	-.3426	.0038	.1359	-.0444	.1878	.0158

NFR	10401L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	NFR	.0529	.0591	-.4227	-.1895	-.1611	.0832	-.3516	.1266	-.2509	.4152	-.0236
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
NFR VS	Q-DM(M3/S)	.6236	-.2981	.4969	.2333	-.0134	-.1885	-.0647	-.3365	.0000	-.3045	-.1026
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	.6574	-.3196	.3876	.2175	-.0567	-.1698	-.2184	-.3217	-.2164	-.0976	-.1249
NFR	AS CONSTANT	-.3554	-.5645	-.2698	-.0701	-.2583	-.4668	-.4086	-.5383	-.6622	-.4952	-.4350
Q-DM(M3/S)	AS CONSTANT	.2709	-.1342	-.2706	-.1693	-.1700	-.0067	-.4024	-.0722	-.3269	.3107	-.0754

NA-DISS	11103L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	NA-DISS	-.3877	-.0647	-.1103	-.2961	-.1177	-.0422	.0387	.0556	.1496	-.2501	-.0969
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
NA-DISS VS	Q-DM(M3/S)	.2501	.4023	.6128	.2626	.1222	-.0223	-.1961	-.2462	-.2783	.2955	-.0167
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	.1737	.4416	.6265	.2420	.0963	-.0480	-.1954	-.2580	-.2404	.1945	-.0649
NA-DISS	AS CONSTANT	-.1653	-.5796	-.4515	-.0362	-.2418	-.4740	-.3586	-.5495	-.6312	-.5207	-.4338
Q-DM(M3/S)	AS CONSTANT	-.3478	.2087	.2072	-.2783	-.0903	-.0599	-.0347	-.0969	-.0391	-.1081	-.1152

MG-DISS	12102L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	MG-DISS	-.5118	-.2636	-.2901	-.6048	-.3221	-.1695	-.2899	.0556	.0796	-.5111	-.2597
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
MG-DISS VS	Q-DM(M3/S)	.3146	.7833	.7191	.2955	.1341	.0894	-.0520	-.3512	-.2106	.5111	.0559
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	.2275	.7941	.6878	.2885	.0575	.0107	-.1747	-.3834	-.2086	.3179	-.0641
MG-DISS	AS CONSTANT	-.1023	-.5821	-.3212	.0889	-.2234	-.4660	-.3913	-.5626	-.6406	-.3984	-.4311
Q-DM(M3/S)	AS CONSTANT	-.4725	.3319	.0215	-.6025	-.3006	-.1450	-.3310	-.1733	-.0738	-.3179	-.2615

P-TOT-DISS	15103D	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	P-TOT-DISS	-.2992	.2335	.0778	-.2670	.2352	-.1353	-.0323	-.3310	.0381	-.0589	-.0458
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
P-TOT-DISSVS	Q-DM(M3/S)	.0572	-.2646	-.1768	.0572	-.1626	-.1144	-.3771	.6441	.1886	.0589	-.0016
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	-.0173	-.1668	-.1592	.0287	-.1097	-.2043	-.4167	.5861	.2777	.0316	-.0237
P-TOT-DISS	AS CONSTANT	-.2386	-.5266	-.4163	-.0996	-.2237	-.4958	-.4010	-.4603	-.6605	-.5540	-.4307
Q-DM(M3/S)	AS CONSTANT	-.2946	.1080	.0036	-.2627	.2033	-.2163	-.1940	.0317	.2110	-.0316	-.0515

P-TOT	15406L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	P-TOT	.2947	.2049	-.1467	-.2994	.5147	-.0195	-.0297	.1373	.2241	-.0222	.0536
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
P-TOT VS	Q-DM(M3/S)	-.1591	-.3430	.0000	.0682	-.4576	-.1723	-.2284	-.1563	-.2746	.2000	-.1808
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	-.0940	-.2816	-.0691	.0368	-.3948	-.2060	-.2563	-.0981	-.1751	.2257	-.1750
P-TOT	AS CONSTANT	-.2094	-.5278	-.4268	-.0953	-.0226	-.4832	-.3759	-.5356	-.6184	-.5626	-.4281
Q-DM(M3/S)	AS CONSTANT	.2672	.0183	-.1619	-.2944	.4638	-.1163	-.1230	.0628	.0651	.1091	-.0272

Table A4.4 Continued

SO4-DISS	16304L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	SO4-DISS	.1706	.0153	-.0788	-.2189	-.2147	.0672	-.0673	-.1889	.1117	-.2247	-.0505
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
SO4-DISS VS	Q-DM(M3/S)	-.2955	-.0282	.3220	.1798	.0000	.0333	.0779	-.1231	-.2223	.1348	-.0078
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	-.2657	-.0237	.3195	.1603	-.0574	.0740	.0577	-.2747	-.1975	.0123	-.0328
SO4-DISS	AS CONSTANT	-.2061	-.5554	-.4205	-.0748	-.2588	-.4761	-.3556	-.5836	-.6360	-.5440	-.4311
Q-DM(M3/S)	AS CONSTANT	.1062	-.0005	.0666	-.2034	-.2219	.0942	-.0423	-.3078	-.0411	-.1818	-.0597

CL-DISS	17206L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	CL-DISS	-.1122	-.0158	-.1141	.4481	.0518	.0787	.0680	.1341	-.0116	.0460	.0208
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
CL-DISS VS	Q-DM(M3/S)	.2561	.4714	.4243	-.3581	-.0796	-.2059	-.1559	-.3817	-.0271	.1840	-.1059
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	.2373	.5565	.4176	-.3470	-.0686	-.1920	-.1412	-.3715	-.0450	.2523	-.1074
CL-DISS	AS CONSTANT	-.2246	-.6216	-.4155	.0591	-.2498	-.4678	-.3535	-.5396	-.6416	-.5744	-.4304
Q-DM(M3/S)	AS CONSTANT	-.0529	.3357	.0792	.4401	.0328	-.0216	.0130	-.0956	-.0378	.1814	-.0276

A-BHC	18075L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	A-BHC	-.3528	-.6127	.1840	-.4917	-.4137	-.3798	-.5095	-.5750	-.4472	-.3546	-.3655
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
A-BHC VS	Q-DM(M3/S)	-.0529	.4506	-.2546	.0000	.0416	.0647	.0603	.2081	.1023	.3546	.0851
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	-.1534	.1677	-.1985	-.0631	-.0715	-.1408	-.1527	-.1539	-.2686	.2027	-.0859
A-BHC	AS CONSTANT	-.2816	-.3961	-.3949	-.1276	-.2589	-.4853	-.3822	-.5321	-.6691	-.4916	-.4303
Q-DM(M3/S)	AS CONSTANT	-.3777	-.4882	.0873	-.4948	-.4171	-.3971	-.5237	-.5629	-.4999	-.2027	-.3657

K-DISS	19103L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	K-DISS	-.4377	-.0308	-.2724	-.2326	-.2736	-.1356	-.2957	.0000	-.2111	-.5394	-.2578
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
K-DISS VS	Q-DM(M3/S)	.6742	.3430	.6922	.4140	.2843	.1011	.2016	-.0775	.2078	.5394	.2032
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	.6506	.3921	.6618	.4016	.2311	.0425	.1070	-.0925	.0966	.3424	.1058
K-DISS	AS CONSTANT	.0763	-.5805	-.3365	-.0167	-.1897	-.4655	-.3199	-.5471	-.6246	-.3732	-.3993
Q-DM(M3/S)	AS CONSTANT	-.3811	.2046	.0303	-.2063	-.2175	-.1002	-.2444	-.0506	-.1038	-.3424	-.1928

CA-DISS	20101L	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	CA-DISS	-.1111	-.2778	.1111	-.3519	-.1559	-.1531	-.1936	-.1222	-.2569	-.1952	-.1873
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
CA-DISS VS	Q-DM(M3/S)	.7143	.8154	.5000	.1111	.3890	.1677	.0734	-.2770	.0449	.7807	.0478
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	.7130	.8276	.6071	.0774	.3658	.1095	.0043	-.4131	-.1614	.8244	-.0369
CA-DISS	AS CONSTANT	-.2373	-.5916	-.5551	-.0774	-.2111	-.4587	-.3524	-.6074	-.6520	-.6579	-.4293
Q-DM(M3/S)	AS CONSTANT	.0936	.3639	.4105	-.3438	-.0646	-.0850	-.1796	-.3393	-.2975	.4591	-.1849

Table A4.4 Continued

MN-DISS	25104D	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	MN-DISS	-.4364	-.4506	-.5361	-.5089	-.1764	-.3084	-.3745	-.6944	-.4158	-.1195	-.3762
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
MN-DISS VS	Q-DM(M3/S)	.2236	-.1826	-.4303	-.4763	-.2062	-.0333	-.5040	.1380	-.1502	-.1195	-.1613
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	.1340	-.5832	-.8582	-.6229	-.2633	-.2136	-.7377	-.3991	-.5970	-.2252	-.3864
MN-DISS	AS CONSTANT	-.1675	-.7267	-.8569	-.4670	-.3002	-.5078	-.6839	-.6308	-.7824	-.5781	-.5368
Q-DM(M3/S)	AS CONSTANT	-.4039	-.6752	-.8772	-.6429	-.2414	-.3681	-.6890	-.7458	-.6748	-.2252	-.5002

FE-DISS	26104D	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	FE-DISS	-.6198	-.7201	-.8058	.1451	-.4788	-.6822	-.6693	-.6944	-.6447	-.6325	-.4996
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
FE-DISS VS	Q-DM(M3/S)	-.3162	-.7071	-.6025	.2057	-.5345	-.0364	-.1818	.0000	-.0563	-.3162	-.0785
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	-.6147	-1.9190	[illegible]	[illegible]	-.7717	[illegible]	[illegible]	[illegible]	-.8003	-1.0365	-.3752
FE-DISS	AS CONSTANT	-.5916	-2.1700	-1.9205	-.1456	-.6855	-.6807	-.6580	-.7580	[illegible]	-1.0282	-.5435
Q-DM(M3/S)	AS CONSTANT	-.7578	-1.8929	-1.4653	.1727	-.7507	-.7941	-.8004	-.8285	-.8884	[illegible]	-.5927

CU-TOT	29005P	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	CU-TOT	.1029	-.3333	.0000	-.0412	-.6136	-.3266	-.4152	-.4835	-.5641	.7746	-.1943
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
CU-TOT VS	Q-DM(M3/S)	.5976	.0000	.2582	.1588	-.1782	-.2621	.0524	.7746	-.0563	.2582	.1918
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	.6457	-.2362	.2848	.1553	-.4362	-.4999	-.1138	.6963	-.6594	1.3093	.1223
CU-TOT	AS CONSTANT	-.3836	-.5893	-.4370	-.1060	-.4660	-.6119	-.3712	-.3088	-.8161	-1.2366	-.4081
Q-DM(M3/S)	AS CONSTANT	.3202	-.4009	.1245	-.0240	-.6918	-.5296	-.4253	-.1151	-.7832	1.1429	-.1261

ZN-TOT	30005P	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	ZN-TOT	-.2928	.5143	.4001	.0000	-.5229	-.2268	-.3492	-.6944	-.6944	.3162	-.1820
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
ZN-TOT VS	Q-DM(M3/S)	-.1054	-.5477	.1380	-.2817	-.2965	-.0891	.1543	.2335	-.0529	.3162	.0704
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	-.1909	-.3674	.3694	-.2835	-.5197	-.2286	.0331	-.2407	-.9017	.6236	-.0088
ZN-TOT	AS CONSTANT	-.2895	-.3817	-.5260	-.1158	-.5009	-.5079	-.3295	-.5478	-.9432	-.7284	-.4255
Q-DM(M3/S)	AS CONSTANT	-.3303	.3019	.5105	-.0328	-.6470	-.3063	-.3186	-.6957	-.9502	.6236	-.1684

PB-TOT	82002P	JAN	FEB	MAR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	PB-TOT	-.9258	-.2057	-.6172	-.6447	-.8563	-.8819	-.5963	-.8660	-.9449	-.7746	-.6949
TIME VS	Q-DM(M3/S)	-.2444	-.5556	-.4222	-.1111	-.2527	-.4725	-.3590	-.5455	-.6410	-.5556	-.4301
PB-TOT VS	Q-DM(M3/S)	-.6708	-.7071	-.4472	-.5071	-.7370	-.5636	-.2062	-.2148	.1502	-.2582	-.2354
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	-2.4478	-1.0095	-.9924	-.7617	-1.9084	-2.3597	-.5609	-1.6398	-1.8132	-1.3093	-.8231
PB-TOT	AS CONSTANT	-3.0877	-1.0131	-.9922	-.6648	-2.5327	-2.4900	-.6135	-1.4980	-1.5423	-1.2366	-.8495
Q-DM(M3/S)	AS CONSTANT	-1.5155	-1.0181	-.9941	-.8184	-1.5945	-1.5773	-.7339	-1.2011	-1.1184	-1.1429	-.9074

Table A4.5 Partial Kendall Tau and Pairwise Kendall Tau's for each Water Quality Variable , Flow and Time at location JM0014

NQUA JM0014 (PARTIAL RANK CORRELATION)
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TDS* 00201L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TDS*	-.0766	-.1538	-.3094	-.1648	.3030	.1429	-.1026	-.1515	.0769	-.2308	-.1547	.2381	-.0184
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
TDS* VS Q-DM(M3/S)	.0606	-.2000	.1069	-.6364	-.3455	-.1818	.1212	-.0909	.3030	.2121	-.1985	-.1795	-.0682
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.0585	-.2310	.1530	-.6704	-.3098	-.1469	.0998	-.1063	.3156	.1778	-.2050	-.1374	-.0710
TDS* AS CONSTANT	-.0258	-.2008	.1632	-.2972	-.0863	-.2847	-.2329	-.1063	-.1521	-.1397	-.0582	-.1700	-.1248
Q-DM(M3/S) AS CONSTANT	-.0749	-.1930	-.3266	-.3160	.2603	.0937	-.0760	-.1611	.1201	-.2000	-.1631	.2090	-.0271

COND(F) 02041F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS COND(F)	.2381	.0520	-.1209	-.1538	-.0330	.3407	-.4000	.1374	.2431	.2857	.1048	.4211	.0810
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
COND(F) VS Q-DM(M3/S)	-.2727	.0556	.0606	-.4848	-.3333	-.4848	.1069	-.0545	.0153	-.2154	-.3333	-.2710	-.1402
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2735	.0650	.0764	-.5133	-.3453	-.4259	.0111	-.0426	.0465	-.1735	-.3326	-.2079	-.1316
COND(F) AS CONSTANT	.0371	-.1670	.1297	-.2266	-.2046	-.1677	-.2191	-.0843	[illegible]	-.1285	.0099	-.1043	-.1134
Q-DM(M3/S) AS CONSTANT	.2390	.0620	-.1294	-.2449	-.1009	.2324	-.3878	.1332	.2468	.2568	.1021	.3879	.0649

TEMP(F) 02061F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TEMP(F)	-.2853	.0000	-.1424	.0111	.0787	-.0590	-.0790	.0915	-.1564	.2078	-.0506	.3490	-.0096
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
TEMP(F) VS Q-DM(M3/S)	.3195	.2335	-.0801	-.1846	-.0775	.0158	.1251	.2636	-.0153	-.2901	.1951	-.2957	-.0596
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.3245	.2367	-.0640	-.1847	-.0645	-.0022	.1095	.2742	-.0349	-.2623	.1941	-.2443	-.0613
TEMP(F) AS CONSTANT	.0670	-.1683	.1113	-.1213	-.1768	-.3027	-.2351	-.1198	-.1252	-.1298	-.0161	-.1139	-.1240
Q-DM(M3/S) AS CONSTANT	-.2910	.0398	-.1341	-.0116	.0659	-.0569	-.0505	.1202	-.1595	.1648	-.0465	.3084	-.0171

TURB(F) 02073F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TURB(F)	-.2247	-.1818	.2778	-.2222	.3889	.3099	.3889	.4728	-.1556	.5353	.1409	-.5229	.0031
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
TURB(F) VS Q-DM(M3/S)	.3904	.2000	.1429	.9048	.6190	.4880	.5714	.4880	.5714	-.1429	.0000	.4001	.0948
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.3938	.1755	.1145	.9070	.7614	.6422	.7448	.6050	.5635	-.0548	.0036	.3510	.0959
TURB(F) AS CONSTANT	.0640	-.1321	.0857	.1923	-.5840	-.5473	-.6146	-.4181	-.0399	-.1260	-.0259	.0052	-.1241
Q-DM(M3/S) AS CONSTANT	-.2314	-.1543	.2651	-.2662	.6493	.5503	.6624	.5949	-.1059	.5233	.1409	-.4914	.0149

B-DISS 05105D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS B-DISS	-.3077	.1579	-.1297	-.1231	.0223	-.0625	-.5071	.0734	.0670	-.1496	-.3625	-.1679	-.0744
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
B-DISS VS Q-DM(M3/S)	-.0845	.3149	-.1409	-.3410	-.2326	.1630	.2049	.3146	.5738	.2760	-.0943	-.0899	-.0088
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0987	.3498	-.1271	-.3613	-.2325	.1514	.0980	.3235	.5876	.2559	-.1112	-.1289	-.0182
B-DISS AS CONSTANT	-.0594	-.2277	.1049	-.1749	-.1816	-.2974	-.1642	-.1204	-.1954	-.1479	-.0645	-.2243	-.1242
Q-DM(M3/S) AS CONSTANT	-.3115	.2237	-.1146	-.1762	-.0209	-.0140	-.4817	.1079	.1680	-.1052	-.3667	-.1912	-.0761

NO3+NO2	07106L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	NO3+NO2	.0000	-.4475	-.2308	-.1830	-.1468	-.3983	-.4249	-.5716	-.1272	-.3397	-.1409	-.2256	-.1596
TIME VS	Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
NO3+NO2 VS	Q-DM(M3/S)	-.3877	-.0926	.0909	.5609	.4029	.0806	.1314	.2247	.5591	.3711	.1353	-.0263	.1363
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3879	-.1880	.1231	.5520	.3868	-.0459	.0323	.2114	.5522	.3345	.1331	-.0761	.1190
NO3+NO2	AS CONSTANT	-.0329	-.2303	.1467	-.0228	-.1355	-.2963	-.2079	.0470	-.0609	-.0638	-.0067	-.2167	-.1038
Q-DM(M3/S)	AS CONSTANT	-.0128	-.4710	-.2446	-.1400	-.0817	-.3937	-.4087	-.5680	-.0722	-.2981	-.1388	-.2361	-.1452

TN*	07602L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	TN*	-.4774	-.8092	-.2088	-.3315	-.1209	-.3978	-.1936	-.2051	-.1105	-.1985	-.4976	-.5481	-.3133
TIME VS	Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
TN* VS	Q-DM(M3/S)	-.2697	.0449	-.0303	.5344	.1818	.0458	.1679	.5455	.5954	.0000	-.1419	.0387	.1485
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3235	-.1509	-.0051	.5277	.1638	-.0855	.1271	.5405	.5900	-.0374	[illegible]	[illegible]	.1166
TN*	AS CONSTANT	-.1880	-.2168	.1175	.0701	-.1638	-.3108	-.2170	.0256	-.0694	-.1855	-.1121	-.2200	-.0817
Q-DM(M3/S)	AS CONSTANT	-.5045	-.8136	-.2067	-.3179	-.0908	-.4033	-.1598	-.1864	-.0481	-.2018	-.5065	-.5523	-.3006

DO	08101F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	DO	-.0667	-.0903	.3667	-.2235	.0779	.1418	.1299	.1818	.2210	-.3206	-.3750	.1058	.0414
TIME VS	Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
DO VS	Q-DM(M3/S)	.4545	.3670	.0308	-.2154	-.5138	-.7821	-.2770	.0923	-.0458	-.0367	-.0903	-.1161	.1459
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.4537	.3585	-.0148	-.2506	-.5096	-.7835	-.2552	.1112	-.0196	-.1020	-.1078	-.0970	.1523
DO	AS CONSTANT	.0000	-.1409	.1182	-.1779	-.1658	-.3114	-.2167	-.1100	-.1140	-.2045	-.0645	-.1953	-.1308
Q-DM(M3/S)	AS CONSTANT	-.0594	-.0330	.3658	-.2575	-.0184	-.1602	.0673	.1918	.2173	-.3331	-.3790	.0843	.0605

ALK-TOT	10101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	ALK-TOT	.2762	.1538	.0556	.0221	.2821	.5385	-.0645	-.0909	.0769	.0520	.0288	.0476	.1135
TIME VS	Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
ALK-TOT VS	Q-DM(M3/S)	-.3030	-.7091	-.0923	-.8092	-.8788	-.8182	-.1679	-.7818	-.6667	-.3077	-.1161	-.3590	-.4608
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3067	-.7016	-.0999	-.8127	-.8771	-.8157	-.1896	-.7967	-.6642	-.3037	-.1155	-.3572	-.4532
ALK-TOT	AS CONSTANT	.0583	-.0783	.1271	-.1759	.1443	.2839	-.2574	-.2609	-.0941	-.1745	-.0225	-.2017	-.0804
Q-DM(M3/S)	AS CONSTANT	.2803	.0544	.0675	-.1303	.2606	.5302	-.1100	-.2609	-.0053	-.0043	.0261	-.0285	.0644

PH(F)	10301F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	PH(F)	-.0686	.1193	.1956	.1533	.1061	-.0475	.0534	.1854	-.1327	-.2106	-.3052	-.1944	-.0021
TIME VS	Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
PH(F) VS	Q-DM(M3/S)	.1526	.1496	.1763	-.6030	-.3045	-.2860	-.1418	.1207	.0000	.1396	.0692	-.1951	-.0931
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.1509	.1727	.1567	-.5958	-.2917	-.3156	-.1331	.1405	-.0163	.1054	.0644	-.2448	-.0941
PH(F)	AS CONSTANT	-.0201	-.1849	.0898	-.0365	-.1578	-.3308	-.2376	-.1161	-.1223	-.1575	-.0048	-.2526	-.1240
Q-DM(M3/S)	AS CONSTANT	-.0648	.1474	.1783	.1013	.0542	-.1469	.0198	.1987	-.1337	-.1902	-.3043	-.2442	-.0137

Table A4.5 Continued

NFR	10401L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	NFR	-.1914	.1936	.2210	-.2747	.0769	-.2527	.0387	-.0513	-.1209	-.1538	.0486	-.2928	-.0508
TIME VS	Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
NFR VS	Q-DM(M3/S)	-.1374	.0734	.3206	.6061	.1212	.4242	.0763	.3939	.3333	.2424	.1053	.1700	.1786
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.1460	.1086	.3035	.6001	.1379	.3770	.0884	.3914	.3234	.2207	.1067	.1174	.1739
NFR	AS CONSTANT	-.0582	-.1818	.0545	.0592	-.1931	-.2235	-.2463	-.0770	-.0865	-.1508	-.0310	-.1649	-.1162
Q-DM(M3/S)	AS CONSTANT	-.1975	.2089	.1937	-.2549	.1014	-.1439	.0591	-.0169	-.0860	-.1151	.0516	-.2674	-.0295

NA-DISS	11103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	NA-DISS	-.1148	-.0129	-.3187	-.1564	.0513	-.1105	-.3077	.2121	.1429	-.1559	-.1105	.1262	-.0524
TIME VS	Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
NA-DISS VS	Q-DM(M3/S)	.3817	.3670	.1515	-.5231	-.0909	.0153	.3939	.4909	.3939	.2290	-.1679	.1053	.0753
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.3809	.3699	.2021	-.5529	-.0831	-.0192	.3459	.5242	.4186	.2066	-.1719	.1351	.0695
NA-DISS	AS CONSTANT	.0147	-.1708	.1809	-.2412	-.1781	-.3032	-.1386	-.2291	-.1951	-.1520	-.0451	-.2214	-.1198
Q-DM(M3/S)	AS CONSTANT	-.1118	.0514	-.3435	-.2599	.0355	-.1111	-.2380	.2959	.2089	-.1193	-.1165	.1519	-.0436

MG-DISS	12102L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	MG-DISS	-.1058	-.1282	-.4286	-.1648	-.0520	.2088	-.2710	-.3567	-.0778	-.1559	-.3062	-.1340	-.1347
TIME VS	Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
MG-DISS VS	Q-DM(M3/S)	-.3693	-.4182	-.0909	-.7576	-.4924	-.5455	-.2595	-.1870	-.0308	-.2154	-.2968	-.0129	-.2349
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3748	-.4489	-.0434	-.7942	-.5110	-.5174	-.3483	-.2358	-.0406	-.2509	-.3201	-.0416	-.2557
MG-DISS	AS CONSTANT	-.0751	-.2412	.0914	-.3822	-.2386	-.2308	-.3364	-.1717	-.1240	-.2233	-.1282	-.2088	-.1608
Q-DM(M3/S)	AS CONSTANT	-.1259	-.2194	-.4224	-.3961	-.1653	.0545	-.3564	-.3820	-.0822	-.2031	-.3287	-.1396	-.1696

P-TOT-DISS	15103D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	P-TOT-DISS	-.2563	-.2857	.1564	-.4505	-.4725	-.3226	-.2484	-.1677	-.1209	-.3637	-.5604	-.4218	-.2058
TIME VS	Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
P-TOT-DISSVS	Q-DM(M3/S)	.2860	.6853	.1706	.3333	.3636	.6606	.3693	.5152	.7576	.4616	.2484	.1579	.2816
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.2880	.6754	.1547	.3145	.3205	.6240	.3289	.5092	.7540	.4317	.2827	.0805	.2638
P-TOT-DISS	AS CONSTANT	.0464	.0461	.0971	.0344	-.0122	-.1266	-.1674	-.0053	-.0457	-.0169	.1416	-.1547	-.0695
Q-DM(M3/S)	AS CONSTANT	-.2586	-.2416	.1388	-.4383	-.4437	-.1711	-.1762	-.1417	-.0448	-.3207	-.5722	-.4029	-.1797

P-TOT	15406L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	P-TOT	-.3593	-.3422	.1445	-.0112	-.1478	-.3896	-.4738	-.1677	-.1911	-.5975	-.5465	-.5465	-.2426
TIME VS	Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
P-TOT VS	Q-DM(M3/S)	.2016	.6853	.1679	.5738	.1876	.3519	.5002	.5344	.5628	.2770	.2783	.1458	.3705
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.2045	.6789	.1532	.5767	.1653	.2664	.4511	.5288	.5538	.2135	.3157	.0411	.3537
P-TOT	AS CONSTANT	.0461	.1036	.0994	-.1401	-.1586	-.1925	-.0071	-.0015	-.0169	-.0212	.1572	-.1514	-.0370
Q-DM(M3/S)	AS CONSTANT	-.3608	-.3203	.1268	.0717	-.1177	-.3173	-.4197	-.1416	-.1497	-.5790	-.5617	-.5335	-.2137

Table A4.5 Continued

SO4-DISS 16304L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS SO4-DISS	.0000	-.1936	-.1209	-.2652	.2595	.1989	-.0520	-.2501	-.1209	-.5128	-.2571	.2789	-.0471
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
SO4-DISS VS Q-DM(M3/S)	.2595	.0734	.2121	-.5038	-.0734	-.1069	.1069	.2455	.3636	.2424	-.2821	-.1039	.0051
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.2597	.0431	.2301	-.5600	-.0276	-.0499	.0973	.2310	.3542	.1767	-.2988	-.0497	-.0007
SO4-DISS AS CONSTANT	-.0314	-.1527	.1514	-.3060	-.1690	-.2892	-.2386	-.0314	-.0835	-.0690	-.1059	-.1844	-.1231
Q-DM(M3/S) AS CONSTANT	.0081	-.1845	-.1511	-.3805	.2511	.1757	-.0270	-.2360	-.0831	-.4913	-.2757	.2646	-.0468

CL-DISS 17206L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS CL-DISS	.2019	.3117	-.3757	-.0769	-.0129	-.0884	-.1538	.3030	.1326	.1936	.0884	.2679	.0352
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
CL-DISS VS Q-DM(M3/S)	.1539	.2408	.0153	-.3030	-.0153	-.0458	.2727	.5636	.3817	.2290	.0458	.0129	.0909
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.1634	.3113	.0661	-.3156	-.0179	-.0765	.2456	.6229	.4043	.2739	.0483	.0720	.0960
CL-DISS AS CONSTANT	-.0634	-.2588	.1370	-.1521	-.1821	-.3086	-.2109	-.3325	-.1876	-.2368	-.0298	-.2165	-.1270
Q-DM(M3/S) AS CONSTANT	.2092	.3667	-.3804	-.1201	-.0159	-.1074	-.0940	.4307	.1950	.2457	.0897	.2765	.0469

A-BHC 18075L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS A-BHC	-.3148	-.3685	.0983	-.6374	-.4688	-.1418	-.6030	-.5963	-.5543	-.2439	-.4454	-.7811	-.3775
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
A-BHC VS Q-DM(M3/S)	.3902	.7035	.0589	.3528	.2586	-.1630	-.1809	.0735	.0647	.0252	-.1534	.0378	.0859
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.4012	.7014	.0476	.3603	.1996	-.2183	-.4226	.0242	-.0031	-.0201	-.1841	-.2004	.0428
A-BHC AS CONSTANT	.1059	.1448	.1162	.1438	-.0710	-.3339	-.4480	-.0588	-.1028	-.1812	-.1062	-.2815	-.0984
Q-DM(M3/S) AS CONSTANT	-.3292	-.3614	.0920	-.6403	-.4440	-.2034	-.6780	-.5937	-.5517	-.2435	-.4548	-.7907	-.3711

24D 18500L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS 24D	.0863	.0539	.1177	.2632	-.0115	.0131	.0801	.0987	.1805	.0335	.2831	.0407	.0742
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
24D VS Q-DM(M3/S)	-.1260	.2491	.2037	.1671	.2016	.4630	.3310	.3344	.1821	.3181	-.4729	-.3269	.1417
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1239	.2619	.1922	.2078	.2029	.4901	.3623	.3465	.2090	.3299	-.4857	-.3257	.1524
24D AS CONSTANT	-.0197	-.1831	.1000	-.1737	-.1833	-.3488	-.2859	-.1321	-.1593	-.2031	.1281	-.2032	-.1355
Q-DM(M3/S) AS CONSTANT	.0832	.0990	.0957	.2896	.0261	.1816	.1751	.1375	.2076	.0980	.3076	-.0285	.0934

K-DISS 19103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS K-DISS	-.5002	-.3048	-.5083	-.2585	-.4475	-.4246	-.5778	-.4377	-.2235	-.4212	-.4420	-.4105	-.3328
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
K-DISS VS Q-DM(M3/S)	.0953	.5236	-.1069	-.3127	-.0938	.0308	.3496	.2992	.4187	.2814	-.0458	.0682	.0652
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.0926	.5042	-.0529	-.3587	-.1992	-.1135	.2646	.2897	.4048	.2296	-.0637	-.0180	.0258
K-DISS AS CONSTANT	.0202	-.0050	.0781	-.2202	-.2514	-.3204	-.0529	.0467	-.0312	-.0727	-.0512	-.1947	-.1079
Q-DM(M3/S) AS CONSTANT	-.4998	-.2607	-.5019	-.3144	-.4745	-.4360	-.5425	-.4320	-.1916	-.3922	-.4438	-.4061	-.3279

Table A4.5 Continued

CA-DISS 20101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS CA-DISS	.2190	.2051	-.2458	.1648	.2710	.5385	-.1282	-.2727	-.2210	-.1538	-.1442	-.0667	.0273
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
CA-DISS VS Q-DM(M3/S)	-.5758	-.8182	-.2636	-.6667	-.7786	-.5152	-.4242	-.5636	-.3636	-.2727	-.3226	-.5128	-.4374
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.5836	-.8126	-.2430	-.6605	-.7706	-.4383	-.4732	-.6142	-.4033	-.3095	-.3298	-.5391	-.4375
CA-DISS AS CONSTANT	.1201	.0075	.0603	-.0154	.0483	-.0355	-.3305	-.3078	-.2219	-.2354	-.0771	-.2794	-.1238
Q-DM(M3/S) AS CONSTANT	.2467	.1256	-.2234	.1136	.2097	.4681	-.2630	-.3938	-.2867	-.2150	-.1612	-.2045	-.0299

MN-DISS 25104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS MN-DISS	.4545	.2222	.2444	.4222	.4222	.5138	-.3191	.1972	.1636	.4002	.2889	.4037	.2459
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
MN-DISS VS Q-DM(M3/S)	-.5000	-.4286	-.5000	-.5714	-.6429	-.5353	-.2646	-.4001	-.5000	-.2965	-.3651	-.3662	-.4020
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.5461	-.4078	-.5503	-.5782	-.6351	-.4643	-.3719	-.3914	-.4903	-.2483	-.3738	-.3165	-.3864
MN-DISS AS CONSTANT	.2553	-.0776	.2899	.1614	.1291	-.0387	-.3576	-.0134	-.0461	-.0722	.0896	-.0673	-.0274
Q-DM(M3/S) AS CONSTANT	.5076	.1706	.3549	.4333	.4054	.4368	-.4097	.1762	.1199	.3687	.3004	.3608	.2161

FE-DISS 26104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS FE-DISS	-.5550	-.6183	.4284	-.0967	-.7076	-.3700	-.7638	-.1818	-.6262	-.6708	-.3051	-.7277	-.3793
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
FE-DISS VS Q-DM(M3/S)	.0714	.4606	.2673	.2417	.0524	.1291	.1572	.2621	.3727	.1572	-.3873	.5594	.2127
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.0657	.4635	.2401	.2328	-.1097	.0192	-.0446	.2507	.3835	.0484	-.4150	.6110	.1808
FE-DISS AS CONSTANT	.0113	.1736	.0077	-.1013	-.2051	-.2771	-.1919	-.0456	.1550	-.1042	-.1638	.3552	-.0471
Q-DM(M3/S) AS CONSTANT	-.5545	-.6200	.4140	-.0700	-.7109	-.3501	-.7574	-.1644	-.6307	-.6613	-.3419	-.7555	-.3641

CU-TOT 29005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS CU-TOT	-.1194	-.1572	.0290	-.5843	-.0233	-.3027	-.3404	.2031	-.0484	-.2357	-.2760	.0000	-.1493
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
CU-TOT VS Q-DM(M3/S)	-.2817	-.1155	.0976	.1091	.1482	.1543	.4536	-.1890	.0772	.1543	-.1890	-.1543	.1552
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2875	-.1449	.0948	.0475	.1465	.0689	.4068	-.1749	.0719	.1166	-.2041	-.1577	.1394
CU-TOT AS CONSTANT	-.0671	-.1853	.1190	-.0712	-.1804	-.2722	-.1050	-.0546	-.1180	-.1515	-.0824	-.2076	-.1024
Q-DM(M3/S) AS CONSTANT	-.1333	-.1797	.0174	-.5788	.0038	-.2718	-.2666	.1901	-.0394	-.2137	-.2861	-.0327	-.1328

ZN-TOT 30005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS ZN-TOT	-.2444	.1134	.3333	-.6480	-.0460	-.5981	-.5145	-.2222	-.4774	-.0845	-.3865	.0449	-.2364
TIME VS Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
ZN-TOT VS Q-DM(M3/S)	-.9048	.2981	.2381	.4880	.2646	.0378	-.4447	-.2143	.0741	.1091	-.1482	.0364	.0118
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.9411	.3231	.2112	.5415	.2608	-.1878	-.6845	-.2415	.0186	.0957	-.1715	.0466	-.0179
ZN-TOT AS CONSTANT	-.6089	-.2082	.0457	.2932	-.1761	-.3501	-.6136	-.1455	-.0979	-.1743	-.0909	-.2071	-.1240
Q-DM(M3/S) AS CONSTANT	-.6386	.1722	.3158	-.6796	.0022	-.6160	-.7162	-.2485	-.4732	-.0662	-.3948	.0536	-.2367

Table A4.5 Continued

T.COLI	36001F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	T.COLI	-.2816	-.2284	-.3877	-.0201	.0189	-.1579	.2697	.1515	.0129	.0153	.0883	-.0229	-.0724
TIME VS	Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
T.COLI VS	Q-DM(M3/S)	-.2462	.0189	-.3670	.4869	.6482	.1297	.0899	-.2000	-.1468	-.0763	-.1316	-.2543	-.1010
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2656	-.0193	-.3497	.4881	.6628	.0869	.1662	-.1892	-.1463	-.0748	-.1299	-.2646	-.1110
T.COLI	AS CONSTANT	-.1071	-.1637	-.0246	-.1276	-.2549	-.2886	-.2781	-.0626	-.1206	-.1812	-.0142	-.2182	-.1315
Q-DM(M3/S)	AS CONSTANT	-.2984	-.2285	-.3717	.0449	.1826	-.1256	.3017	.1366	-.0050	.0014	.0857	-.0793	-.0859

F.COLI	36011F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	F.COLI	.0640	.1597	.2795	-.2247	.3329	.1936	.4315	.5032	.1564	.2106	.1456	.2398	.1370
TIME VS	Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
F.COLI VS	Q-DM(M3/S)	-.1248	-.1217	-.3373	.4260	-.1643	.1101	-.1706	-.1679	.0775	-.3439	-.3164	-.5222	-.1463
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.1232	-.0981	-.3895	.4123	-.1119	.1805	-.0754	-.1420	.0984	-.3179	-.3161	-.4978	-.1317
[illegible]	AS CONSTANT	-.0225	-.1472	.2384	-.0289	-.1367	-.3326	-.1899	-.0075	-.1354	-.1192	.0218	-.0965	-.1053
Q-DM(M3/S)	AS CONSTANT	.0608	.1428	.3429	-.1927	.3124	.2396	.4081	.4971	.1676	.1604	.1450	.1589	.1212

PB-TOT	82002P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	PB-TOT	-.7255	-.4714	-.5893	-.7877	-.4243	-.5013	-.6094	-.3536	-.5968	-.7912	-.6299	-.7255	-.5665
TIME VS	Q-DM(M3/S)	-.0303	-.1636	.1212	-.1212	-.1818	-.3030	-.2424	-.0909	-.1212	-.1818	-.0256	-.2051	-.1232
PB-TOT VS	Q-DM(M3/S)	-.0563	.1588	-.3705	.3223	.1543	.1612	.0434	-.3086	-.1612	.4029	-.3223	.0806	.0634
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.1139	.0938	-.3729	.3710	.0867	.0112	-.1357	-.3658	-.2932	.4308	-.4360	-.1013	-.0078
PB-TOT	AS CONSTANT	-.1036	-.1020	-.1294	.2276	-.1300	-.2602	-.2727	-.2248	-.2745	.2446	-.3111	-.2138	-.1062
Q-DM(M3/S)	AS CONSTANT	-.7287	-.4573	-.5904	-.7967	-.4078	-.4811	-.6179	-.4029	-.6291	-.7977	-.6744	-.7267	-.5641

Table A4.6 Partial Kendall Tau and Pairwise Kendall Tau's for each Water Quality Variable , Flow and Time at location LC0001

NRDSM LC0001 (PARTIAL RANK CORRELATION)
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TDS*	00201L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	TDS*	.0000	.0513	-.0549	.4500	-.4268	-.5546	-.3000	-.1513	-.3025	-.6051	-.2833	-.2000	-.0881
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
TDS* VS	Q-DM(M3/S)	-.1515	-.2364	-.1818	-.2088	-.3315	.1768	.0549	-.2556	-.3667	-.0663	-.2088	-.3846	-.4177
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.1521	-.2326	-.1757	-.0772	-.4629	.2052	.1498	-.2877	-.5126	-.1938	-.2210	-.4095	-.4243
TDS*	AS CONSTANT	.0920	-.0932	.1465	-.2573	-.3848	.1063	.3057	-.2129	-.4845	-.2303	-.0748	-.1701	-.0960
Q-DM(M3/S)	AS CONSTANT	.0140	.0280	-.0278	.4137	-.5273	-.5616	-.3282	-.2028	-.4756	-.6223	-.2921	-.2495	-.1202

COND(F)	02041F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	COND(F)	.1333	.1326	-.1148	.4603	-.1423	-.5619	-.4100	-.1429	-.1925	-.3167	-.2521	-.1667	-.0801
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
COND(F) VS	Q-DM(M3/S)	-.2424	-.3206	-.0903	-.2652	-.3978	.0769	.0442	-.2564	-.3536	-.2527	-.1667	-.4505	-.4251
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2579	-.3114	-.0740	-.1408	-.4364	.0855	.1789	-.2868	-.4461	-.3174	-.1751	-.4713	-.4310
COND(F)	AS CONSTANT	.1282	-.0640	.1450	-.2297	-.2680	.0391	.3214	-.2106	-.4213	-.2429	-.0556	-.1727	-.0932
Q-DM(M3/S)	AS CONSTANT	.1608	.1058	-.1026	.4111	-.2403	-.5628	-.4395	-.1942	-.3442	-.3684	-.2576	-.2262	-.1121

TEMP(F)	02061F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	TEMP(F)	-.1739	-.1546	-.3493	.1646	.0753	-.1710	-.3235	.1632	.0253	.2712	-.1041	-.1129	-.0332
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
TEMP(F) VS	Q-DM(M3/S)	-.2697	.5843	.2118	.0686	-.2431	-.2035	-.2110	-.3431	-.3129	-.1011	-.2506	.1398	.3620
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2589	.5784	.2868	.1295	-.2338	-.2084	-.1342	-.3250	-.3217	-.0655	-.2531	.1323	.3610
TEMP(F)	AS CONSTANT	.0464	-.0153	.2488	-.3353	-.1742	-.0475	.2232	-.1175	-.3273	-.1205	-.0385	-.0622	-.0409
Q-DM(M3/S)	AS CONSTANT	-.1558	-.1172	-.3955	.1972	.0314	-.1769	-.2825	.1151	-.0826	.2608	-.1104	-.1034	-.0162

TURB(F)	02073F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	TURB(F)	-.0556	.2857	.2222	-.2778	.0556	-.1667	.1798	.2857	.2444	-.0899	.0845	.1091	.0944
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
TURB(F) VS	Q-DM(M3/S)	.2000	-.6000	-.0476	.7143	.7143	.8095	.9092	.0667	-.2857	.5714	.4286	.4667	.3364
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.2062	-.5987	-.0849	.6872	.7388	.8192	.9091	.1204	-.2261	.5667	.4311	.4793	.3430
TURB(F)	AS CONSTANT	.1043	.0898	.1688	-.1789	-.3241	.2141	.2717	-.1923	-.2678	-.1119	-.0524	-.1454	-.0873
Q-DM(M3/S)	AS CONSTANT	-.0756	.2817	.2326	-.0756	.2749	-.2688	-.1749	.3015	.1689	-.0102	.0988	.1644	.1182

B-DISS	05105D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	B-DISS	-.1559	.0000	.0185	-.1036	.0591	.1478	.2859	-.3145	.1017	.1266	.0000	-.2553	-.0099
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
B-DISS VS	Q-DM(M3/S)	-.0845	-.0313	-.0282	.2364	.4703	.5060	.4167	.0658	.0702	-.0970	.0197	.0389	.0488
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0715	-.0314	-.0314	.2158	.4909	.5133	.3671	.0149	.1089	-.0804	.0197	.0200	.0484
B-DISS	AS CONSTANT	.0790	-.1026	.1545	-.3044	-.2436	-.1006	.1786	-.1522	-.3283	-.1323	-.0110	-.0693	-.0497
Q-DM(M3/S)	AS CONSTANT	-.1493	-.0032	.0231	-.0306	.1696	.1778	.1961	-.3085	.1313	.1144	.0002	-.2533	-.0075

Table A4.6 Continued

NO3+NO2 07106L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NO3+NO2	-.2353	-.0670	-.3558	-.2500	-.5217	-.5306	-.1283	-.1988	-.2121	-.1650	-.2054	-.3933	-.1059
TIME VS Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
NO3+NO2 VS Q-DM(M3/S)	.2290	-.0155	.0520	.4286	.4328	.1598	.0177	.1747	.2035	.3780	.0285	-.0663	-.2029
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.2587	-.0226	.1155	.3802	.4001	.1816	.0555	.1468	.1467	.3630	.0268	-.1053	-.2097
NO3+NO2 AS CONSTANT	.1530	-.1039	.1846	-.2418	.0507	.0882	.2794	-.1348	-.2880	-.0882	-.0052	-.1123	-.0735
Q-DM(M3/S) AS CONSTANT	-.2642	-.0690	-.3687	-.1324	-.4978	-.5358	-.1385	-.1750	-.1587	-.1211	-.2052	-.4005	-.1186

TN* 07602L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TN*	-.6000	-.5165	-.4857	-.2000	-.5255	-.6109	-.2490	-.3629	-.6611	-.6895	-.6778	-.6667	-.3045
TIME VS Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
TN* VS Q-DM(M3/S)	.1515	-.2121	-.2564	.5385	.3799	.3315	.2745	.0894	.2652	.1911	-.0884	-.1868	-.0559
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.2586	-.3112	-.2104	.5112	.3371	.4103	.3682	.0322	.0767	.1291	-.1304	-.3204	-.0748
TN* AS CONSTANT	[illegible]	[illegible]	.0347	-.2556	.0163	.2564	.3684	-.1426	-.1982	-.0156	-.0968	-.2751	-.0705
Q-DM(M3/S) AS CONSTANT	-.6235	-.5537	-.4673	-.0356	-.5002	-.6437	-.3509	-.3544	-.6309	-.6816	-.6815	-.6953	-.3082

DO 08101F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS DO	-.1423	-.0442	-.0095	-.1914	-.1457	.0486	-.1097	-.1250	-.0084	-.1368	-.3460	.1356	-.0356
TIME VS Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
DO VS Q-DM(M3/S)	.3512	.3206	.2821	.0387	.1039	-.1843	-.1788	-.0260	.2111	.1788	.0447	.4383	.0373
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.3694	.3181	.2869	-.0240	.0789	-.1840	-.1555	-.0476	.2199	.1624	.0436	.4543	.0355
DO AS CONSTANT	.1520	-.0934	.1632	-.3174	-.1745	-.0021	.2609	-.1695	-.3242	-.1215	.0048	-.1531	-.0488
Q-DM(M3/S) AS CONSTANT	-.1868	-.0120	-.0558	-.1890	-.1292	.0473	-.0641	-.1311	.0635	-.1142	-.3459	.1889	-.0338

ALK-TOT 10101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS ALK-TOT	.0753	.1161	.0769	.4500	.1177	-.3051	-.1604	-.0833	-.1526	-.4100	-.1513	-.0418	-.0067
TIME VS Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
ALK-TOT VS Q-DM(M3/S)	-.1985	-.2202	-.2424	-.3407	-.5525	.3034	.2235	-.1209	-.4778	.0663	-.2652	-.5525	-.4986
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2068	-.2108	-.2581	-.2330	-.5438	.3151	.2819	-.1370	-.5620	.0086	-.2700	-.5579	-.4996
ALK-TOT AS CONSTANT	.1083	-.0795	.1783	-.1970	-.1472	.0899	.3228	-.1768	-.4510	-.1271	-.0536	-.1201	-.0616
Q-DM(M3/S) AS CONSTANT	.0956	.0964	.1191	.3831	.0176	-.3167	-.2366	-.1055	-.3661	-.4056	-.1599	-.1015	-.0366

PH(F) 10301F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS PH(F)	.3296	.3459	.2366	.2760	-.3379	-.4352	-.3041	-.3689	-.2227	-.3834	-.0262	.0260	-.0435
TIME VS Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
PH(F) VS Q-DM(M3/S)	.4202	-.1366	.1438	-.3843	-.0805	-.2186	-.5265	.1514	.0582	.0475	-.1956	-.0915	.1431
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.4151	-.1083	.1119	-.3253	-.1554	-.2481	-.4836	.0988	-.0138	-.0080	-.1960	-.0898	.1413
PH(F) AS CONSTANT	-.0556	-.0595	.1246	-.2396	-.2281	-.1208	.1415	-.1186	-.3141	-.1351	-.0164	-.0749	-.0444
Q-DM(M3/S) AS CONSTANT	.3225	.3368	.2193	.1755	-.3605	-.4485	-.1950	-.3528	-.2158	-.3810	-.0289	.0191	-.0367

Table A4.6 Continued

NFR 10401L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NFR	-.2442	-.0226	-.1757	-.5048	-.1933	-.2428	-.1471	-.0855	-.0103	-.0426	-.0520	-.3194	-.1294
TIME VS Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
NFR VS Q-DM(M3/S)	.2033	-.2947	.1700	.6154	.5195	.7191	.1601	.3525	.3739	.4137	.2774	-.1015	.2475
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.2335	-.2986	.2025	.5555	.5015	.7386	.2109	.3443	.3910	.4122	.2772	-.1334	.2434
NFR AS CONSTANT	.1480	-.1143	.1894	-.0118	-.1031	.2427	.3055	-.1445	-.3394	-.1377	.0036	-.1160	-.0188
Q-DM(M3/S) AS CONSTANT	-.2694	-.0556	-.2073	-.4131	-.1146	-.3380	-.2014	-.0297	.1238	.0183	-.0510	-.3299	-.1209

NA-DISS 11103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NA-DISS	-.0921	.0663	-.0111	.4538	-.2052	-.3320	-.2500	-.0084	-.1757	-.5105	-.2929	-.2017	-.0598
TIME VS Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
NA-DISS VS Q-DM(M3/S)	.1679	-.3206	-.1679	-.1667	-.2810	.0452	.0330	-.3846	-.5746	-.0884	-.3315	-.3222	-.4114
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1609	-.3162	-.1682	-.0261	-.3321	.0441	.1092	-.3914	-.6758	-.1896	-.3501	-.3459	-.4157
NA-DISS AS CONSTANT	.0769	-.0860	.1542	-.2766	-.2603	.0043	.2924	-.1821	-.5209	-.2195	-.1198	-.1531	-.0821
Q-DM(M3/S) AS CONSTANT	-.0782	.0355	.0151	.4287	-.2733	-.3319	-.2696	-.0788	-.4626	-.5306	-.3143	-.2399	-.0883

MG-DISS 12102L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS MG-DISS	-.0333	.0110	-.0549	.5210	-.2689	-.5333	-.4603	-.0333	-.3667	-.4937	-.3866	-.2833	-.1069
TIME VS Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
MG-DISS VS Q-DM(M3/S)	-.3939	-.3030	-.0909	-.3094	-.4334	.0110	-.1768	-.4945	-.4286	-.1326	-.2652	-.3846	-.4686
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.3928	-.3035	-.0836	-.1772	-.5111	.0061	-.0590	-.5072	-.6185	-.2360	-.2922	-.4250	-.4773
MG-DISS AS CONSTANT	.0847	-.1041	.1497	-.1940	-.3495	-.0061	.2213	-.2087	-.5661	-.2417	-.1276	-.2100	-.1140
Q-DM(M3/S) AS CONSTANT	.0027	-.0212	-.0416	.4687	-.3952	-.5333	-.4350	-.1340	-.5876	-.5226	-.4040	-.3400	-.1478

P-TOT-DISS 15103D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS P-TOT-DISS	-.2261	-.2896	-.5000	-.1209	-.4111	-.1053	-.0458	-.0447	.0575	.0134	-.3155	-.5117	-.1940
TIME VS Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
P-TOT-DISSVS Q-DM(M3/S)	-.3146	-.1870	-.4428	.4545	.0763	.0926	.5394	-.1539	.0801	.5586	-.0534	-.2225	.1247
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.3031	-.2276	-.4275	.4421	-.0005	.0920	.5746	-.1636	.1040	.5664	-.0599	-.3057	.1174
P-TOT-DISS AS CONSTANT	.0214	-.1667	-.0870	-.2983	-.1710	-.0012	.3560	-.1740	-.3249	-.1813	-.0294	-.2277	-.0266
Q-DM(M3/S) AS CONSTANT	-.2089	-.3160	-.4875	.0284	-.4052	-.1047	-.2396	-.0719	.0879	.1136	-.3165	-.5440	-.1894

P-TOT 15406L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS P-TOT	-.3933	-.2556	-.4638	-.3766	-.2689	.0000	-.1117	.1681	-.1208	-.0687	-.2361	-.3762	-.1516
TIME VS Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
P-TOT VS Q-DM(M3/S)	.1818	-.2290	-.1700	.6188	.4556	.4199	.3257	.1445	-.3391	-.2783	.1496	-.0904	.1884
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.2376	-.2654	-.1126	.5680	.4284	.4199	.3730	.1771	-.4013	-.2918	.1513	-.1292	.1832
P-TOT AS CONSTANT	.1797	-.1712	.0859	-.1177	-.0750	-.0121	.3311	-.1939	-.3851	-.1690	.0253	-.1202	-.0222
Q-DM(M3/S) AS CONSTANT	-.4185	-.2882	-.4495	-.2409	-.2102	.0051	-.2213	.1966	-.2566	-.1140	-.2371	-.3859	-.1450

SO4-DISS	16304L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	SO4-DISS	-.1435	-.1429	-.1209	.4001	-.5714	-.6109	-.3167	-.2092	-.2333	-.5833	-.4937	-.2929	-.1742
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
SO4-DISS VS	Q-DM(M3/S)	-.1069	-.1212	.0909	-.1130	-.0778	.1326	-.0989	-.3094	-.3187	-.0549	-.1547	-.2652	-.2451
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0952	-.1380	.1116	.0166	-.2289	.1590	-.0131	-.3565	-.4264	-.1720	-.1841	-.3018	-.2581
SO4-DISS	AS CONSTANT	.0768	-.1220	.1667	-.3003	-.2827	.0892	.2579	-.2469	-.4264	-.2157	-.1017	-.1677	-.0972
Q-DM(M3/S)	AS CONSTANT	-.1351	-.1573	-.1371	.3866	-.5983	-.6149	-.3026	-.2774	-.3727	-.5982	-.5015	-.3259	-.1926

CL-DISS	17206L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CL-DISS	-.0760	-.0663	.3187	.0253	-.1958	-.3530	-.0170	.0840	.0928	-.3460	-.3560	-.2689	-.0684
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
CL-DISS VS	Q-DM(M3/S)	-.2901	-.1515	-.1212	.3889	-.3576	.0884	.0000	-.4199	-.6034	-.1889	-.0556	-.1768	-.3428
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2852	-.1595	-.1818	.4190	-.4092	.0903	.0048	-.4131	-.6080	-.2567	-.0636	-.2056	-.3475
CL-DISS	AS CONSTANT	.0722	-.1142	.2046	-.3567	-.2804	.0217	.2748	-.1432	-.3308	-.2260	-.0330	-.1313	-.0785
Q-DM(M3/S)	AS CONSTANT	-.0520	-.0832	.3439	.1709	-.2862	-.3534	-.0176	.0166	-.1316	-.3838	-.3572	-.2879	-.0912

A-BHC	18075L	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION												
TIME VS	A-BHC	-.0967	-.5169	-.5477	-.4534	-.6265	-.3817	-.5398	-.6591	-.5925	-.5394	-.4640
TIME VS	Q-DM(M3/S)	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0667
A-BHC VS	Q-DM(M3/S)	.1482	.1217	.0983	.1307	-.0683	-.0206	.2352	.0000	.1764	.5477	.1224
PARTIAL RANK CORRELATION												
TIME	AS CONSTANT	.1659	-.0530	-.0048	.1411	.1385	-.0916	.0791	-.1265	.2109	.6030	.1035
A-BHC	AS CONSTANT	.1709	-.3010	-.1597	.0547	.2983	-.1869	-.2343	-.1900	.1179	.3101	-.0112
Q-DM(M3/S)	AS CONSTANT	-.1223	-.5082	-.5415	-.4559	-.6335	-.3905	-.5046	-.6659	-.6000	-.5961	-.4604

K-DISS	19103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	K-DISS	-.1849	-.0769	-.2652	-.0418	-.3629	-.4333	-.2882	-.0333	-.2447	-.4333	-.2427	-.2833	-.1587
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
K-DISS VS	Q-DM(M3/S)	-.0763	-.1212	-.1374	.4199	.0000	-.0989	-.1236	-.4286	-.5140	-.1868	-.1547	-.4286	-.1502
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0608	-.1302	-.1014	.4293	-.0741	-.1150	-.0483	-.4403	-.6442	-.2788	-.1622	-.4710	-.1604
K-DISS	AS CONSTANT	.0784	-.1131	.1229	-.3321	-.2005	-.0600	.2516	-.1984	-.5344	-.2528	-.0506	-.2289	-.0757
Q-DM(M3/S)	AS CONSTANT	-.1792	-.0905	-.2494	.1069	-.3694	-.4366	-.2664	-.1167	-.5025	-.4731	-.2474	-.3511	-.1683

CA-DISS	20101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CA-DISS	-.2092	.1868	-.2088	.3500	-.4000	-.6333	-.4370	-.3264	-.5000	-.5272	-.3167	-.2333	-.1145
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
CA-DISS VS	Q-DM(M3/S)	-.1515	-.5152	-.2727	-.2527	-.1648	.2527	.1667	-.0221	.1209	-.0549	-.1209	-.3626	-.4016
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.1361	-.5076	-.2490	-.1590	-.2661	.3176	.3315	-.0814	-.0469	-.1549	-.1311	-.3926	-.4106
CA-DISS	AS CONSTANT	.0613	-.0075	.1030	-.2540	-.2796	.1991	.3919	-.1821	-.3004	-.2025	-.0523	-.1783	-.1056
Q-DM(M3/S)	AS CONSTANT	-.1985	.1571	-.1755	.2938	-.4446	-.6518	-.5092	-.3347	-.4905	-.5414	-.3204	-.2811	-.1472

MN-DISS	25104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	MN-DISS	-.3027	-.5714	-.1409	-.0899	-.3146	-.1137	-.2501	-.0233	-.3869	-.1534	-.1671	-.2095	-.1885
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
MN-DISS VS	Q-DM(M3/S)	-.3581	-.6000	-.4880	.1818	.1818	-.2224	.2224	-.2646	-.1612	.2315	.2417	-.4629	.0353
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3483	-.8068	-.4766	.1623	.1320	-.2251	.3127	-.2722	-.3255	.2142	.2433	-.4914	.0264
MN-DISS	AS CONSTANT	-.0196	-.6785	.0985	-.3087	-.1388	-.0374	.3499	-.1774	-.4187	-.1117	.0307	-.2007	-.0442
Q-DM(M3/S)	AS CONSTANT	-.2905	-.7954	-.0763	-.0343	-.2905	-.1191	-.3319	-.0703	-.4685	-.1250	-.1695	-.2774	-.1871

FE-DISS	26104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	FE-DISS	-.4944	-.6183	-.6111	-.3146	-.0899	.0000	-.0682	-.0252	-.3146	-.3865	-.4667	-.0667	-.2095
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
FE-DISS VS	Q-DM(M3/S)	-.4140	-.5521	-.5238	.4728	.7638	.4158	.3706	.3223	.4001	.1482	.1429	.4286	.1550
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.4264	-.7872	-.5495	.4141	.7634	.4158	.4059	.3227	.3332	.1019	.1557	.4256	.1479
FE-DISS	AS CONSTANT	-.1438	-.6773	-.2466	-.2032	-.1838	-.0121	.3238	-.1456	-.2216	-.0938	.0636	-.0536	-.0182
Q-DM(M3/S)	AS CONSTANT	-.5039	-.8137	-.6303	-.1963	.0832	.0050	-.1904	.0299	-.2154	-.3732	-.4699	-.0374	-.2045

CU-TOT	29005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CU-TOT	-.0233	-.1818	-.0845	-.5394	-.1380	-.6025	-.3579	-.2902	-.4602	-.5320	-.1671	-.0544	-.1984
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
CU-TOT VS	Q-DM(M3/S)	.5521	.5521	.2928	-.4728	-.1890	-.0488	.2062	.0412	.1782	.1237	-.1612	.1612	-.0244
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.5566	.5453	.3106	-.8077	-.2207	-.0694	.3392	-.0070	.0375	.0569	-.1653	.1577	-.0351
CU-TOT	AS CONSTANT	.1245	-.0027	.1874	-.7732	-.2189	-.0507	.3815	-.1599	-.2709	-.0917	-.0390	-.0692	-.0560
Q-DM(M3/S)	AS CONSTANT	-.0885	-.1510	-.1371	-.8262	-.1797	-.6038	-.4406	-.2876	-.4325	-.5237	-.1711	-.0427	-.1999

ZN-TOT	30005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	ZN-TOT	-.1671	-.3571	.1111	-.2646	-.0484	-.2760	-.3958	-.4045	-.6751	-.6287	.1194	.0000	-.1798
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
ZN-TOT VS	Q-DM(M3/S)	.1491	-.2000	-.1429	.3333	.1543	.0378	.1543	.1818	.3706	.1237	-.3223	-.2546	-.1408
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.1673	-.2547	-.1629	.2724	.1480	.0362	.2979	.1277	.2223	.0440	-.3233	-.2553	-.1525
ZN-TOT	AS CONSTANT	.1188	-.1901	.1725	-.2535	-.1817	-.0006	.3701	-.1015	-.0999	-.0843	.0292	-.0795	-.0774
Q-DM(M3/S)	AS CONSTANT	-.1834	-.3875	.1361	-.1772	-.0201	-.2758	-.4612	-.3862	-.6327	-.6222	.1223	-.0203	-.1890

T.COLI	36001F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	T.COLI	-.5013	-.5772	-.3736	-.3905	-.5289	-.1706	-.0787	.0110	.0286	-.1461	-.2490	-.4034	-.2873
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
T.COLI VS	Q-DM(M3/S)	.2501	.0987	-.1496	.4053	.2821	-.1271	.1843	-.2564	.1795	.2636	.3484	.2628	.1493
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.3432	.0486	-.1005	.3219	.2198	-.1309	.2148	-.2581	.1990	.2479	.3569	.2541	.1410
T.COLI	AS CONSTANT	.2582	-.0561	.1068	-.1906	-.0462	-.0334	.2952	-.1676	-.3293	-.1093	.0835	.0330	-.0076
Q-DM(M3/S)	AS CONSTANT	-.5435	-.5729	-.3589	-.3016	-.5052	-.1734	-.1368	-.0328	.0920	-.1136	-.2616	-.3984	-.2834

Table A4.6 Continued

F.COLI	36011F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	F.COLI	-.4954	-.5679	-.5391	-.3892	-.5202	-.0536	-.1544	.0591	-.0437	-.0787	-.2485	-.5241	-.2793
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
F.COLI VS	Q-DM(M3/S)	.2018	.2018	.0938	.4044	.3519	-.3329	.0859	-.3203	.5008	.1980	.1546	.2697	.0974
PARTIAL RANK CORRELATION														
TIME AS	CONSTANT	.2854	.1754	.2124	.3212	.3036	-.3340	.1351	-.3154	.5142	.1893	.1568	.2701	.0870
F.COLI AS	CONSTANT	.2244	.0150	.2438	-.1914	-.0047	-.0306	.2926	-.1543	-.3432	-.1302	.0286	.0786	-.0239
Q-DM(M3/S) AS	CONSTANT	-.5268	-.5617	-.5627	-.3003	-.4942	-.0607	-.1858	.0068	.1413	-.0520	-.2498	-.5243	-.2761

PB-TOT	82002P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	PB-TOT	-.5320	-.4447	-.5261	-.8222	-.7811	-.8563	-.8563	-.5963	-.7454	-.8044	-.7454	-.8014	-.6714
TIME VS	Q-DM(M3/S)	.0909	-.1026	.1538	-.3187	-.1868	-.0110	.2747	-.1648	-.3187	-.1429	-.0110	-.0769	-.0501
PB-TOT VS	Q-DM(M3/S)	-.3892	-.6445	-.2817	-.1237	.1301	-.2168	-.0434	.2887	.2887	-.0434	.0000	.2315	-.1020
PARTIAL RANK CORRELATION														
TIME AS	CONSTANT	-.4043	-.7746	-.2389	-.7150	-.0259	-.4380	.3865	.2405	.0809	-.2692	-.0123	.2847	-.1833
PB-TOT AS	CONSTANT	-.1490	-.5683	.0069	-.7443	-.1376	-.3900	.4605	.0095	-.1622	[illegible]	-.0155	.1866	-.1608
Q-DM(M3/S) AS	CONSTANT	-.5414	-.6717	-.5092	-.9161	-.7770	-.8797	-.8791	-.5810	-.7199	-.8198	-.7454	-.8078	-.6809

Table A4.7 Partial Kendall Tau and Pairwise Kendall Tau's for each Water Quality Variable , Flow and Time at location FE0001

NBAT FE0001 (PARTIAL RANK CORRELATION)
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TDS* 00201L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TDS*	.0286	.2500	-.1429	.3077	-.0500	-.1500	-.2500	-.1810	-.1500	-.0500	-.0286	.0333	-.0285
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
TDS* VS Q-DM(M3/S)	-.2747	-.5897	-.1212	-.4545	-.5967	-.4725	-.4725	-.6667	-.6923	-.6923	-.6154	-.7179	-.6640
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2759	-.6159	-.1098	-.4813	-.6002	-.5211	-.5094	-.6605	-.6929	-.6915	-.6160	-.7194	-.6647
TDS* AS CONSTANT	.0425	.2213	.0749	.1780	-.0924	-.3210	-.2286	.0003	-.0685	.0282	-.0363	.0713	-.0441
Q-DM(M3/S) AS CONSTANT	.0392	.3284	-.1334	.3511	-.0953	-.2885	-.3259	-.1357	-.1554	-.0166	-.0448	.0744	-.0506

COND(F) 02041F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS COND(F)	.2762	.2762	-.0286	.2051	.2952	-.1048	-.0779	-.0957	-.0989	.1209	-.0167	-.0667	.0306
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
COND(F) VS Q-DM(M3/S)	-.4725	-.6667	-.1515	-.2727	-.5807	-.7692	-.3303	-.7355	-.9394	-.7273	-.7802	-.4359	-.6957
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.5014	-.7012	-.1496	-.2810	-.5947	-.8134	-.3383	-.7326	-.9400	-.7405	-.7806	-.4353	-.6957
COND(F) AS CONSTANT	.1930	.2928	.0876	.0711	.1636	-.4554	-.1091	.0749	-.1113	.2097	-.0384	-.0038	.0102
Q-DM(M3/S) AS CONSTANT	.3312	.3936	-.0150	.2163	.3314	-.4247	-.1098	-.0101	-.1381	.2347	-.0404	-.0617	.0291

TEMP(F) 02061F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TEMP(F)	-.1094	-.4416	.0501	.3204	.4642	-.0962	.1681	.1526	-.1277	.0504	-.1662	-.2725	-.0132
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
TEMP(F) VS Q-DM(M3/S)	-.2097	.2446	.1645	.1579	-.2584	.3985	.0111	-.3034	.0000	.0333	-.4316	-.3817	.3344
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2074	.2853	.1608	.1630	-.2689	.3887	.0245	-.3281	.0071	.0307	-.4396	-.3896	.3343
TEMP(F) AS CONSTANT	.0103	.1536	.0839	-.0424	.0885	-.1867	-.0799	.1775	.0554	.0534	-.0930	-.0881	-.0102
Q-DM(M3/S) AS CONSTANT	-.1049	-.4620	.0357	.3228	.4691	-.0145	.1694	.2001	-.1279	.0487	-.1895	-.2843	-.0091

TURB(F) 02073F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TURB(F)	.3889	.6000	.1111	-.0845	-.1667	.1835	.2000	-.0367	.1348	.2727	.4816	.5138	.1632
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
TURB(F) VS Q-DM(M3/S)	.5714	.3333	.7333	.7143	.9048	.5353	.5556	.4789	.3273	.1111	-.0870	.4286	.5675
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.6067	.3976	.7308	.7178	.9110	.5966	.5844	.4873	.3234	.1001	-.0933	.4844	.5776
TURB(F) AS CONSTANT	-.2503	-.2312	.0140	.1023	.2538	-.3697	-.2308	.1578	.0115	.0258	.0354	-.2510	-.1312
Q-DM(M3/S) AS CONSTANT	.4512	.6275	.0656	-.1320	-.2977	.3574	.2928	-.1085	.1239	.2687	.4825	.5567	.2079

B-DISS 05105D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS B-DISS	.1985	.0170	-.0367	-.1461	-.2212	.1353	-.1827	-.1117	-.2616	.0787	.1818	-.0129	-.0376
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
B-DISS VS Q-DM(M3/S)	.2202	-.0779	.0282	-.1396	-.3791	-.5060	-.3637	-.4308	-.4917	-.5315	-.5371	-.4495	-.3874
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.2181	-.0784	.0317	-.1395	-.3991	-.4931	-.3853	-.4230	-.4953	-.5383	-.5442	-.4493	-.3882
B-DISS AS CONSTANT	-.0112	.0270	.0920	-.0096	-.1419	-.1642	-.1565	.0811	-.0877	.1146	.1045	.0222	-.0310
Q-DM(M3/S) AS CONSTANT	.1961	.0190	-.0394	-.1460	-.2574	.0352	-.2268	-.0666	-.2698	.1275	.2086	-.0015	-.0467

TN*	07602L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	TN*	-.1739	-.3193	-.3222	-.2167	-.2929	-.2762	-.1008	-.1865	.0509	-.2297	-.3361	-.5546	-.1802
TIME VS	Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
TN* VS	Q-DM(M3/S)	.1788	.0903	.0000	.5165	.7000	.3536	.6188	.5000	.3536	.5290	.3889	.2968	.3684
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.1875	.1040	.0311	.5315	.7193	.3149	.6160	.5358	.3518	.5574	.4090	.3739	.3720
TN*	AS CONSTANT	.0661	.0577	.0960	.1470	.2355	-.1236	-.0186	.2517	.0396	.2136	.1380	.2394	.0573
Q-DM(M3/S)	AS CONSTANT	-.1829	-.3231	-.3236	-.2597	-.3672	-.2212	-.0680	-.2872	.0336	-.3054	-.3603	-.5890	-.1883

DO	08101F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	DO	-.3254	-.2447	.0549	-.2381	-.1757	.2679	-.0773	-.0193	-.2394	.2126	-.2373	-.1167	-.0338
TIME VS	Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
DO VS	Q-DM(M3/S)	.2967	.0903	.3333	-.2308	-.1768	-.5290	-.3484	-.1700	-.2713	-.0387	-.0337	.3590	.2055
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.3253	.0997	.3302	-.2349	-.1877	-.5021	-.3565	-.1689	-.2663	-.0516	-.0374	.3646	.2052
DO	AS CONSTANT	.1434	.0494	.0771	-.0465	-.0777	-.0820	-.1111	.1194	-.0107	.0647	-.0196	.0728	-.0072
Q-DM(M3/S)	AS CONSTANT	-.3511	-.2482	.0262	-.2421	-.1867	.1898	-.1114	.0012	-.2336	.2152	-.2378	-.1349	-.0316

ALK-TOT	10101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	ALK-TOT	.0476	.1667	-.0549	.4667	.1333	-.0667	-.1667	-.1442	-.1088	-.0418	.1255	.0921	.0437
TIME VS	Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
ALK-TOT VS	Q-DM(M3/S)	-.2088	-.2821	-.2121	-.3590	-.6851	-.6264	-.5385	-.7097	-.6409	-.6264	-.3757	-.6581	-.6697
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2107	-.2905	-.2083	-.4117	-.6860	-.6562	-.5608	-.7047	-.6397	-.6256	-.3773	-.6635	-.6698
ALK-TOT	AS CONSTANT	.0439	.0768	.0812	.2162	.0653	-.3221	-.2006	.0266	-.0194	.0369	.0393	.1150	.0205
Q-DM(M3/S)	AS CONSTANT	.0558	.1813	-.0366	.5042	.1416	-.2590	-.2477	-.0836	-.0960	-.0095	.1310	.1447	.0462

PH(F)	10301F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	PH(F)	-.4310	.2460	.1852	.3623	.4365	.3724	-.0591	.0000	-.0304	.0537	.2907	.3547	.0756
TIME VS	Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
PH(F) VS	Q-DM(M3/S)	.2436	.3843	.1271	-.2160	-.0480	-.1297	-.2016	-.4972	-.0271	.2748	.4522	.4288	.2913
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.2859	.3901	.1127	-.2361	-.0320	-.0573	-.2071	-.5009	-.0254	.2726	.4759	.4491	.2933
PH(F)	AS CONSTANT	.1576	-.0770	.0691	.0981	-.0258	-.1744	-.0909	.1393	.0542	.0419	-.1669	-.1497	-.0378
Q-DM(M3/S)	AS CONSTANT	-.4529	.2558	.1758	.3735	.4353	.3561	-.0764	.0698	-.0289	.0402	.3315	.3805	.0833

NFR	10401L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	NFR	.2126	.1068	.0556	-.1590	-.0476	-.0760	.0921	.1366	.2639	.0084	.1250	.2319	.0537
TIME VS	Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
NFR VS	Q-DM(M3/S)	.0223	-.0313	-.0763	.7956	.7871	.5967	.5525	.5528	.5200	.3129	.3377	.5231	.5816
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.0157	-.0342	-.0819	.8077	.7867	.5956	.5636	.5454	.5249	.3129	.3418	.5319	.5832
NFR	AS CONSTANT	.0289	.0292	.0956	.2299	-.0109	-.2043	-.1540	.0549	-.0999	.0551	-.0570	-.1154	-.0557
Q-DM(M3/S)	AS CONSTANT	.2120	.1077	.0629	-.2769	-.0208	.0620	.1619	.0844	.2759	-.0092	.1368	.2565	.0761

Table A4.7 Continued

NA-DISS 11103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NA-DISS	-.0286	.0000	-.0663	.3254	-.0500	-.0251	-.1167	-.1000	-.1088	-.0084	.0286	.0167	-.0080
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
NA-DISS VS Q-DM(M3/S)	-.2088	-.4270	-.0763	-.4000	-.5525	-.4945	-.5824	-.6703	-.7143	-.7293	-.6667	-.7949	-.5946
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2080	-.4271	-.0708	-.4268	-.5559	-.5112	-.5972	-.6664	-.7136	-.7300	-.6667	-.7957	-.5947
NA-DISS AS CONSTANT	.0276	.0284	.0863	.1629	-.0863	-.2546	-.1794	.0729	-.0327	.0714	.0108	.0641	-.0233
Q-DM(M3/S) AS CONSTANT	-.0222	.0121	-.0598	.3598	-.0894	-.1510	-.1992	-.0258	-.0995	.0464	.0285	.0611	-.0203

MG-DISS 12102L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS MG-DISS	.1148	.0833	-.1429	.3536	.0000	-.1849	-.0504	-.3361	-.2259	-.0167	-.1500	.0333	-.0360
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
MG-DISS VS Q-DM(M3/S)	-.4199	-.7179	-.2424	-.5152	-.6188	-.5223	-.5525	-.7293	-.6188	-.5824	-.6484	-.5897	-.6924
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.4267	-.7228	-.2328	-.5549	-.6194	-.5836	-.5587	-.7366	-.6234	-.5825	-.6575	-.5911	-.6934
MG-DISS AS CONSTANT	.0900	.1232	.0586	.2409	-.0563	-.3643	-.1259	-.1928	-.1109	.0557	-.1438	.0561	-.0540
Q-DM(M3/S) AS CONSTANT	.1419	.1462	-.1251	.4192	-.0349	-.3524	-.1118	-.3651	-.2447	.0189	-.2064	.0600	-.0633

P-TOT-DISS 15103D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS P-TOT-DISS	.0133	.3787	.1818	-.2078	-.3165	-.1818	.0131	.1177	-.2810	-.0894	-.2190	-.1457	-.0406
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
P-TOT-DISSVS Q-DM(M3/S)	-.0775	.1679	.1835	-.0185	.0473	.3670	.3149	.4862	.2154	.0000	.1538	.0153	.3392
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0780	.1710	.1705	-.0166	.0351	.3421	.3168	.4788	.2409	.0049	.1552	.0192	.3390
P-TOT-DISS AS CONSTANT	.0341	-.0416	.0595	.0073	-.0309	-.1553	-.0854	.0734	.1232	.0552	.0236	.0282	-.0002
Q-DM(M3/S) AS CONSTANT	.0159	.3799	.1687	-.2077	-.3151	-.1157	.0394	.0679	-.3003	-.0895	-.2200	-.1461	-.0381

P-TOT .15406L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS P-TOT	.4519	.2333	.2088	-.3025	-.1500	-.0591	.0000	-.0333	.1435	-.0667	-.1590	-.1017	.0114
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
P-TOT VS Q-DM(M3/S)	.0556	-.0256	.1818	.5667	.8619	.4470	.6581	.5165	.5140	.4945	.4862	.5455	.6063
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.0456	-.0325	.1672	.5981	.8659	.4452	.6600	.5246	.5122	.5000	.4907	.5511	.6066
P-TOT AS CONSTANT	.0088	.0325	.0551	.2323	.1697	-.2042	-.1022	.1614	-.0222	.1014	.0769	.0973	-.0263
Q-DM(M3/S) AS CONSTANT	.4511	.2341	.1963	-.3748	-.2209	.0392	.0674	-.1127	.1345	-.1081	-.1758	-.1381	.0250

SO4-DISS 16304L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS SO4-DISS	.0667	.1667	-.0663	.1048	-.1513	-.3096	-.3933	-.2929	-.1833	-.1167	-.0753	.0084	-.0912
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
SO4-DISS VS Q-DM(M3/S)	-.2527	-.4359	-.1069	-.3846	-.4246	-.2431	-.2652	-.6484	-.6264	-.6703	-.4725	-.5641	-.4588
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2557	-.4466	-.1015	-.3879	-.4367	-.3309	-.3223	-.6458	-.6279	-.6695	-.4747	-.5645	-.4621
SO4-DISS AS CONSTANT	.0516	.1108	.0845	.0559	-.1211	-.3080	-.2044	-.0948	-.0782	-.0316	-.0530	.0368	-.0631
Q-DM(M3/S) AS CONSTANT	.0776	.1977	-.0571	.1181	-.1880	-.3799	-.4303	-.2838	-.1913	-.1077	-.0914	.0277	-.1098

CL-DISS 17206L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS CL-DISS	-.0288	.2092	-.1989	.5550	.3698	.2447	.0760	-.0333	-.1333	.0504	-.0167	.0251	.0782
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
CL-DISS VS Q-DM(M3/S)	-.1889	-.4516	-.1374	-.2710	-.7821	-.8269	-.7152	-.7363	-.6923	-.7445	-.6484	-.7871	-.6577
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1881	-.4675	-.1223	-.3331	-.8250	-.8182	-.7135	-.7381	-.6922	-.7493	-.6487	-.7883	-.6587
CL-DISS AS CONSTANT	.0280	.1377	.0655	.2016	.4232	-.0117	-.0324	.1424	-.0522	.1387	-.0286	.0736	.0498
Q-DM(M3/S) AS CONSTANT	-.0230	.2475	-.1890	.5797	.5385	.1311	.0301	.0829	-.1323	.1370	-.0313	.0734	.0916

A-BHC 18075L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS A-BHC	-.7006	-.4199	.0471	-.1434	-.6798	-.4255	-.3567	-.4635	-.2590	-.5071	-.3814	-.7407	-.3520
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
A-BHC VS Q-DM(M3/S)	-.0943	.0176	-.0378	-.3902	-.2818	-.2561	-.3625	-.2889	-.3469	-.3890	.3492	.0282	.0474
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0998	.0312	-.0423	-.3927	-.4256	-.3898	-.4186	-.2648	-.3450	-.4196	.3733	.0702	.0454
A-BHC AS CONSTANT	-.0466	.0364	.0929	-.0494	-.3350	-.3633	-.2369	-.0154	-.0385	-.1792	.1411	.0693	.0029
Q-DM(M3/S) AS CONSTANT	-.7010	-.4206	.0508	-.1511	-.7222	-.5067	-.4139	-.4509	-.2562	-.5280	-.4029	-.7420	-.3517

24D 18500L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS 24D	.2487	.4880	.3039	.1281	.4801	.0725	.1424	.3788	.4793	.4193	.1977	.1849	.2606
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
24D VS Q-DM(M3/S)	.1943	.0961	.7303	.1103	-.1229	.2262	.1922	-.1698	.1398	.2957	.4178	.2434	.2459
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.1923	.0958	.7406	.1098	-.1161	.2474	.2059	-.2347	.1294	.3007	.4284	.2430	.2585
24D AS CONSTANT	-.0162	-.0245	-.2013	-.0032	.0170	-.2318	-.1074	.2031	-.0139	-.0796	-.1051	-.0203	-.0835
Q-DM(M3/S) AS CONSTANT	.2472	.4880	.3491	.1277	.4787	.1257	.1607	.4083	.4770	.4225	.2226	.1843	.2725

K-DISS 19103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS K-DISS	.2212	.4304	.2111	.4667	.1849	-.2762	-.0418	-.2110	-.1941	-.0342	-.2017	-.1008	.0507
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
K-DISS VS Q-DM(M3/S)	.1889	.0392	.3385	-.0256	-.1564	.1326	.1768	.1117	.4693	.2615	.3000	-.1677	.2001
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.1863	.0312	.3280	-.0348	-.1510	.0797	.1742	.1414	.4901	.2639	.3041	-.1661	.2011
K-DISS AS CONSTANT	-.0092	.0097	.0211	.0260	-.0157	-.1807	-.0707	.1487	.1686	.0662	.0530	.0089	-.0247
Q-DM(M3/S) AS CONSTANT	.2190	.4299	.1925	.4671	.1804	-.2563	-.0288	-.2276	-.2494	-.0504	-.2080	-.0980	.0546

CA-DISS 20101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS CA-DISS	-.0549	.2929	-.0549	.4095	.0251	-.4667	-.2857	-.3333	-.1667	-.1238	-.1810	.3143	-.0247
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
CA-DISS VS Q-DM(M3/S)	.1795	-.2968	-.0606	-.3590	-.7889	-.1868	-.0778	.3187	.2967	.1026	-.4103	-.1818	-.3928
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.1817	-.3184	-.0559	-.3984	-.7888	-.3286	-.1044	.3836	.3107	.1104	-.4192	-.2001	-.3933
CA-DISS AS CONSTANT	.0436	.1233	.0879	.1856	-.0397	-.3406	-.1038	.2541	.1109	.0685	-.0950	.0887	-.0258
Q-DM(M3/S) AS CONSTANT	-.0619	.3148	-.0497	.4430	-.0159	-.5263	-.2935	-.3952	-.1919	-.1303	-.2034	.3245	-.0328

MN-DISS 25104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS MN-DISS	.5556	.2889	.2546	-.3772	-.3579	-.3386	-.2095	-.3300	-.0698	.1137	.0682	.3596	-.0026
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
MN-DISS VS Q-DM(M3/S)	-.5000	-.5238	-.5521	.1029	-.2292	.0412	.2315	-.3086	-.3086	-.6671	-.4001	-.8783	-.4630
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.6237	-.5551	-.5973	.1156	-.2626	-.0320	.2209	-.2868	-.3060	-.6788	-.4003	-.9515	-.4630
MN-DISS AS CONSTANT	.4315	.2170	.2870	.0540	-.1389	-.2072	-.0299	.0212	.0352	.1767	.0178	.7654	-.0172
Q-DM(M3/S) AS CONSTANT	.6609	.3550	.3670	-.3803	-.3785	-.3377	-.1977	-.3100	-.0557	.2021	.0696	.7995	-.0103

FE-DISS 26104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS FE-DISS	-.0282	.2000	.1818	-.3662	-.3780	-.3780	-.3146	-.4535	-.7076	-.3276	-.4535	-.6593	-.2597
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
FE-DISS VS Q-DM(M3/S)	-.1818	-.3333	.4140	.3904	.1782	.2673	.5455	.4029	.0524	.0000	-.0806	.3504	-.0123
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1811	-.3456	.4059	.4239	.1746	.2080	.5509	.5174	.1294	.0191	-.0960	.4887	-.0165
FE-DISS AS CONSTANT	.0283	.0999	.0174	.1797	.0254	-.1208	.1191	.3722	.1304	.0582	-.0535	.3645	-.0178
Q-DM(M3/S) AS CONSTANT	-.0226	.2213	.1591	-.4025	-.3765	-.3419	-.3263	-.5528	-.7126	-.3281	-.4559	-.7137	-.2599

CU-TOT 29005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS CU-TOT	.0000	-.3027	-.1134	.0000	-.0682	-.2501	-.2444	.2535	-.3386	-.3410	-.2501	-.5394	-.1715
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
CU-TOT VS Q-DM(M3/S)	.2965	.5507	.0000	.4286	.7638	.1482	.5000	.0976	.3223	.3706	.4447	-.1952	.4335
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.2967	.5861	.0104	.4286	.7633	.1014	.4977	.0697	.3629	.4148	.4565	-.2154	.4376
CU-TOT AS CONSTANT	.0345	.2417	.0915	.0122	.0122	-.1793	.0539	.0999	.1842	.2077	.1156	-.0964	.0680
Q-DM(M3/S) AS CONSTANT	-.0102	-.3796	-.1139	-.0052	-.0534	-.2266	-.2386	.2447	-.3769	-.3897	-.2738	-.5450	-.1836

ZN-TOT 30005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS ZN-TOT	.3191	-.0682	.6831	.0000	-.6111	-.2247	-.0449	-.3333	-.5060	-.2501	-.2501	.2095	-.0967
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
ZN-TOT VS Q-DM(M3/S)	.1134	.5507	.3162	.6000	.5238	.4728	.8365	.1429	.5669	.1482	.4001	-.1588	.4313
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.1086	.5539	.3494	.6000	.6282	.4469	.8364	.1957	.6906	.1676	.4104	-.1679	.4320
ZN-TOT AS CONSTANT	-.0034	.0759	-.1806	.0137	.4092	-.1194	-.0718	.1806	.4811	.0961	.1004	.0610	.0308
Q-DM(M3/S) AS CONSTANT	.3176	-.0987	.6926	-.0082	-.6909	-.1462	.0355	-.3569	-.6531	-.2615	-.2681	.2164	-.1005

T.COLI 36001F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS T.COLI	-.1438	-.0775	-.1316	-.3424	-.0915	-.1282	-.1326	.2016	.0222	-.2936	-.2078	-.2784	-.1515
TIME VS Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
T.COLI VS Q-DM(M3/S)	-.1396	-.1496	.1348	.4671	.1563	.2727	.2194	.5428	-.1556	-.0367	-.0260	-.4935	.2032
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1363	-.1481	.1487	.5012	.1530	.2536	.2116	.5332	-.1571	-.0215	-.0289	-.5065	.2034
T.COLI AS CONSTANT	.0132	.0142	.1106	.2057	-.0304	-.1822	-.0495	.0139	.0591	.0462	-.0168	-.1338	.0173
Q-DM(M3/S) AS CONSTANT	-.1407	-.0746	-.1458	-.3930	-.0858	-.0757	-.1190	.1631	.0312	-.2922	-.2082	-.3056	-.1518

Table A4.7 Continued

F.COLI	36011F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	F.COLI	.2148	.3624	.2968	.0000	-.1617	.3361	-.3143	.2019	.2105	-.0260	.0610	-.0793	.0515
TIME VS	Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
F.COLI VS	Q-DM(M3/S)	-.2748	-.6251	-.1198	.3685	.2809	.0111	.2051	.0111	-.0129	-.3693	-.0279	-.5940	.1729
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2887	-.6808	-.1544	.3685	.2777	.0883	.1912	-.0137	-.0251	-.3685	-.0273	-.5941	.1739
F.COLI	AS CONSTANT	.0980	.3466	.1334	.0118	.0013	-.2257	-.0134	.1211	.0590	.0488	-.0093	-.0267	-.0233
Q-DM(M3/S)	AS CONSTANT	.2330	.4849	.3112	-.0044	-.1557	.3461	-.3059	.2021	.2116	-.0061	.0608	-.0796	.0548

PB-TOT	82002P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	PB-TOT	-.6694	-.5963	-.5189	-.2031	-.4423	-.7400	-.3958	-.5320	-.3386	-.8222	-.7400	-.6803	-.5038
TIME VS	Q-DM(M3/S)	.0330	.0256	.0909	.0110	-.0442	-.2088	-.0769	.1209	.0549	.0549	-.0110	.0256	-.0140
PB-TOT VS	Q-DM(M3/S)	.5641	.5040	.1380	.3086	.3858	.1612	.5189	.2417	.4029	.2315	.3858	.3944	.3539
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.7895	.6470	.2175	.3175	.4087	.0101	.5334	.3641	.4486	.4867	.5615	.5621	.4016
PB-TOT	AS CONSTANT	.6694	.4704	.1920	.0791	.1528	-.1349	.1636	.3037	.2222	.4429	.4423	.4365	.2034
Q-DM(M3/S)	AS CONSTANT	-.8337	-.7056	-.5388	-.2171	-.4614	-.7318	-.4175	-.5827	-.3947	-.8595	-.7975	-.7516	-.5334

Table A4.8 Partial Kendall Tau and Pairwise Kendall Tau's for each Water Quality Variable , Flow and Time at location AD0001

NNBEAV AD0001 (PARTIAL RANK CORRELATION)
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TDS* 00201L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TDS*	.2212	.1667	.1209	-.0383	.0383	-.1768	-.0084	.1333	.3000	.2034	.0840	.1167	.0687
TIME VS Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
TDS* VS Q-DM(M3/S)	-.2290	-.4615	-.3636	-.2710	-.4359	-.4774	-.6333	-.6264	-.7363	-.5889	-.6111	-.7143	-.6787
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1071	-.4514	-.3455	-.2778	-.4501	-.5721	-.6688	-.6506	-.7241	-.5689	-.7338	-.8006	-.6938
TDS* AS CONSTANT	-.6808	-.5570	-.3129	-.1365	-.3602	-.4661	-.4067	-.5320	-.5601	-.4180	-.7569	-.7180	-.3656
Q-DM(M3/S) AS CONSTANT	.0882	-.1279	-.0004	-.0743	-.1303	-.3950	-.2776	-.2604	-.2342	-.0858	-.5181	-.5262	-.2076

COND(F) 02041F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS COND(F)	.2527	.2381	.2000	.1058	.1810	-.1723	-.1326	.2333	.1677	.1282	.2571	.2521	.0865
TIME VS Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
COND(F) VS Q-DM(M3/S)	-.4182	-.4848	-.2778	-.4416	-.6923	-.6154	-.5954	-.7786	-.6239	-.6727	-.6410	-.7223	-.7145
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.3488	-.4371	-.2285	-.4344	-.6820	-.7179	-.6753	-.7848	-.6566	-.6946	-.6447	-.7315	-.7267
COND(F) AS CONSTANT	-.6728	-.5282	-.2951	-.0831	-.3035	-.5470	-.4877	-.5127	-.6201	-.4965	-.6519	-.5982	-.3625
Q-DM(M3/S) AS CONSTANT	-.0594	-.0490	.1186	.0588	-.0809	-.4930	-.4147	-.2782	-.3079	-.2648	-.2712	-.2998	-.2081

TEMP(F) 02061F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TEMP(F)	-.0442	-.2613	.0403	.2712	.2353	.0000	-.0170	.1457	-.2979	-.3150	.0000	-.4945	-.0454
TIME VS Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
TEMP(F) VS Q-DM(M3/S)	.1284	-.0585	-.2725	.0778	-.0333	-.1686	.0226	-.1039	.5878	.5426	-.2359	.1527	.3957
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.1363	-.2583	-.2750	.1157	.0512	-.1779	.0183	-.0371	.5339	.4729	-.3098	-.1915	.4022
TEMP(F) AS CONSTANT	-.6977	-.6013	-.3353	-.1480	-.3426	-.3233	-.3091	-.4872	-.5274	-.3508	-.6672	-.5901	-.3232
Q-DM(M3/S) AS CONSTANT	.0637	-.3570	-.0557	.2836	.2383	-.0575	-.0105	.1091	.0675	-.0940	-.2067	-.5049	.0907

TURB(F) 02073F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TURB(F)	.2889	.5556	-.0364	-.0449	-.3333	-.0367	-.0909	.0182	.1273	.1101	.3410	.2727	.0740
TIME VS Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
TURB(F) VS Q-DM(M3/S)	-.3333	-.2000	.0667	.0364	.7143	.6480	.6667	.0000	.3333	.1409	-.5714	-.3889	.2501
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1923	.1652	.0579	.0312	.6777	.6717	.6743	.0103	.5054	.2146	-.4895	-.2942	.2888
TURB(F) AS CONSTANT	-.6655	-.5560	-.3319	-.1194	-.1554	-.3874	-.3352	-.4946	-.6682	-.4736	-.5878	-.5374	-.3449
Q-DM(M3/S) AS CONSTANT	.0837	.5472	-.0150	-.0409	-.1368	.2352	.1628	.0209	.4194	.1964	-.0472	.0617	.1661

B-DISS 05105D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS B-DISS	.0458	.0945	.0000	-.4158	-.1380	-.0267	.0797	-.3660	-.0355	.1747	.5672	.2632	.0598
TIME VS Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
B-DISS VS Q-DM(M3/S)	-.1409	-.0403	.2535	.1563	.0403	.5586	.3358	.4006	.4181	-.1645	-.4472	-.3965	-.1614
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1521	.0158	.2689	.1175	-.0072	.5806	.3802	.2715	.4893	-.0976	-.1268	-.3101	-.1505
B-DISS AS CONSTANT	-.6982	-.5633	-.3446	-.0622	-.3386	-.3664	-.3580	-.4080	-.6252	-.4343	-.5358	-.5398	-.3094
Q-DM(M3/S) AS CONSTANT	-.0738	.0869	.0927	-.4048	-.1323	.1925	.2049	-.2108	.2818	.1142	.4071	.0433	.0097

NO3+NO2	07106L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	NO3+NO2	-.2789	-.5546	-.3576	-.5255	-.1168	-.0973	.0861	-.2531	.0863	.0855	-.0596	-.0678	-.0451
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
NO3+NO2 VS	Q-DM(M3/S)	.4616	.6234	.1231	.0337	.1032	.2323	.3426	-.0475	-.0458	-.2843	-.0452	.2810	-.3120
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.3881	.4520	.0044	-.0353	.0679	.2133	.3898	-.2053	.0055	-.2763	-.1103	.2977	-.3439
NO3+NO2	AS CONSTANT	-.6670	-.3356	-.3122	-.1213	-.3326	-.3059	-.3621	-.5242	-.5812	-.4462	-.6529	-.5884	-.3462
Q-DM(M3/S)	AS CONSTANT	.0674	-.3144	-.3383	-.5256	-.0873	-.0253	.2151	-.3186	.0734	-.0497	-.1169	.1228	-.1588

TN*	07602L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	TN*	-.5385	-.4874	-.2873	-.5167	-.4667	-.4500	-.6000	-.3933	-.1925	-.4642	-.5833	-.5167	-.3202
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
TN* VS	Q-DM(M3/S)	.4545	.3377	.5038	.1868	.2967	.3846	.5083	.5525	.4641	.3129	.5165	.3187	.0260
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.1312	.0870	.4519	.1463	.1656	.2850	.4241	.4480	.4413	.1312	.2236	.0255	-.0830
TN*	AS CONSTANT	-.6025	-.4861	-.2279	-.0290	-.2394	-.1766	-.0064	-.3617	-.5673	-.3629	-.4990	-.5148	-.3233
Q-DM(M3/S)	AS CONSTANT	-.34[illegible]0	-.3820	-.1466	-.5067	-.4072	-.3742	-.5406	-.1658	.1081	-.3812	-.3811	-.4297	-.3288

DO	08101F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	DO	-.4952	-.3967	-.0110	.2052	-.2616	.0339	-.0481	-.2110	.1447	.0865	.0840	-.2594	-.0855
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
DO VS	Q-DM(M3/S)	.7693	.5715	.4848	-.1251	-.0111	-.3352	-.2745	.2111	-.2011	-.2968	.0333	.2873	.3099
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.6808	.4588	.5104	-.1032	-.1105	-.3425	-.3047	.1257	-.1453	-.2898	.1158	.1735	.2992
DO	AS CONSTANT	-.5693	-.4479	-.3751	-.0981	-.3560	-.3264	-.3359	-.4709	-.5709	-.4466	-.6538	-.5490	-.3040
Q-DM(M3/S)	AS CONSTANT	.0894	-.1096	.1827	.1930	-.2823	-.0817	-.1455	-.1255	.0346	-.0553	.1388	-.1183	.0133

ALK-TOT	10101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	ALK-TOT	.3333	.3000	.3315	.2259	.0667	-.0549	.1000	.2833	.2857	.1333	.2279	.2000	.1095
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
ALK-TOT VS	Q-DM(M3/S)	-.3939	-.5641	-.5649	-.3978	-.5824	-.5897	-.6851	-.7363	-.8334	-.5824	-.7599	-.7363	-.7190
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2390	-.5013	-.5109	-.3831	-.5966	-.6416	-.6914	-.7152	-.8562	-.5904	-.8258	-.7782	-.7255
ALK-TOT	AS CONSTANT	-.6528	-.5013	-.1876	-.0347	-.3721	-.4354	-.3323	-.4405	-.6500	-.4629	-.7508	-.6563	-.3413
Q-DM(M3/S)	AS CONSTANT	.0892	-.0267	.1841	.1953	-.1724	-.3173	-.1616	-.1373	-.4444	-.1779	-.5350	-.4160	-.1768

PH(F)	10301F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	PH(F)	.1113	.1316	.1394	.3760	-.0532	.1486	-.1710	.0000	-.1394	.2373	.2383	.1646	.0382
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
PH(F) VS	Q-DM(M3/S)	.1251	-.1122	.3114	-.2213	-.0349	.0115	-.1601	-.2198	.1068	-.1792	.0815	.0796	.2857
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.2844	-.0464	.3833	-.1912	-.0565	.0628	-.2273	-.2529	.0317	-.0833	.3192	.2188	.3138
PH(F)	AS CONSTANT	-.7210	-.5577	-.4004	-.0417	-.3432	-.3240	-.3463	-.5069	-.5764	-.4269	-.6899	-.6057	-.3398
Q-DM(M3/S)	AS CONSTANT	.2790	.0832	.2714	.3608	-.0693	.1607	-.2349	-.1282	-.0956	.1783	.3837	.2604	.1408

Table A4.8 Continued

NFR	10401L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	NFR	.2874	.0607	-.1933	-.2319	-.3445	-.2762	-.2762	-.2212	-.2954	-.3237	-.0598	.0610	-.1326
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
NFR VS	Q-DM(M3/S)	-.4886	-.2317	.5315	.5715	.8205	.6409	.4641	.4416	.3799	.4537	.0136	-.1826	.4446
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.4197	-.2396	.5049	.5628	.7967	.6069	.4143	.3919	.2677	.3645	-.0330	-.1812	.4282
NFR	AS CONSTANT	-.6660	-.5665	-.2775	.0146	-.1081	-.1921	-.2129	-.4535	-.5320	-.3602	-.6488	-.5821	-.2878
Q-DM(M3/S)	AS CONSTANT	-.0850	-.0872	-.0202	-.1999	-.1209	-.0988	-.1574	-.0036	-.0985	-.1499	-.0669	-.0567	.0084

NA-DISS	11103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	NA-DISS	.3062	.3460	.3846	-.0418	.0000	-.0418	.0848	.2034	.1255	.1788	.3933	.1513	.0875
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
NA-DISS VS	Q-DM(M3/S)	-.1818	-.6668	-.3030	-.3315	-.4945	-.6409	-.7233	-.5507	-.6851	-.7235	-.5525	-.7889	-.6799
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.0463	-.6088	-.2009	-.3393	-.5260	-.6908	-.7357	-.5289	-.7589	-.7319	-.4250	-.8722	-.6899
NA-DISS	AS CONSTANT	-.6851	-.4768	-.2464	.1430	-.3919	-.4505	-.3606	-.4680	-.6869	-.4729	-.5625	-.7624	-.3491
Q-DM(M3/S)	AS CONSTANT	.2546	-.0490	.3157	-.0875	-.2061	-.3382	-.2117	-.0950	-.4619	-.2388	.0553	-.6171	-.1815

MG-DISS	12102L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	MG-DISS	.0481	-.2833	-.1326	-.1238	-.1833	-.4473	-.0921	-.0084	.0504	-.0753	-.0833	-.0840	-.0444
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
MG-DISS VS	Q-DM(M3/S)	-.1985	.0513	-.1679	-.5128	-.3407	-.2210	-.5000	-.3978	-.3667	-.4420	-.2967	-.4111	-.5775
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2303	-.1371	-.2270	-.5358	-.4362	-.4288	-.5581	-.4624	-.4155	-.5346	-.4623	-.5680	-.6237
MG-DISS	AS CONSTANT	-.7022	-.5738	-.3639	-.2164	-.4362	-.4787	-.4122	-.5426	-.6069	-.5409	-.7073	-.6792	-.4170
Q-DM(M3/S)	AS CONSTANT	-.1284	-.3085	-.2029	-.2180	-.3387	-.5600	-.2996	-.2572	-.2157	-.3427	-.3792	-.4366	-.2916

P-TOT-DISS	15103D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	P-TOT-DISS	-.2747	-.3445	-.0779	-.6409	.0229	.3333	.0556	.0000	-.0663	-.1583	-.1546	.0976	-.1075
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
P-TOT-DISSVS	Q-DM(M3/S)	.4909	.4037	.1468	-.1679	-.2543	-.3091	.1846	.2595	.0606	-.2326	-.1299	-.2746	.0308
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.4343	.2701	.1285	-.3221	-.2622	-.2270	.2125	.2986	.0271	-.3448	-.3059	-.2691	-.0032
P-TOT-DISS	AS CONSTANT	-.6710	-.4949	-.3264	-.3020	-.3463	-.2405	-.3257	-.5121	-.5807	-.5075	-.6823	-.5806	-.3131
Q-DM(M3/S)	AS CONSTANT	.1079	-.1545	-.0311	-.6757	-.0701	.2605	.1206	.1529	-.0382	-.3030	-.3164	-.0797	-.1031

P-TOT	15406L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	P-TOT	.6124	.2521	.2778	-.3967	-.3530	.1097	-.2185	-.0500	-.3123	.0418	.2929	-.1000	-.0120
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
P-TOT VS	Q-DM(M3/S)	-.7786	-.3742	.0458	.2011	.3000	-.0894	.4469	.4945	.4023	-.0221	-.3626	-.4286	.1057
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.6206	-.2903	.1528	.1681	.2044	-.0578	.4088	.5412	.2854	-.0036	-.2373	-.6019	.1074
P-TOT	AS CONSTANT	-.4437	-.5235	-.3606	-.0457	-.2630	-.3120	-.2426	-.5412	-.5252	-.4501	-.6084	-.6955	-.3150
Q-DM(M3/S)	AS CONSTANT	.1550	.0536	.3112	-.3829	-.2796	.0860	-.0943	.2575	-.1048	.0357	.0814	-.4760	.0225

Table A4.8 Continued

SO4-DISS	16304L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	SO4-DISS	-.2679	-.2259	-.2873	-.6444	-.5378	-.3693	-.3096	.0170	.2259	.1604	-.3490	-.0848	-.1334
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
SO4-DISS VS	Q-DM(M3/S)	.0458	.3226	.1818	.1105	-.1222	.0915	-.1667	-.1236	-.3978	-.4470	.1130	-.1564	-.3283
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2040	.2426	.0953	.0430	-.3854	-.0297	-.2903	-.1326	-.3362	-.4253	-.1587	-.2541	-.3936
SO4-DISS	AS CONSTANT	-.7114	-.5327	-.2984	-.0654	-.4857	-.3079	-.3850	-.4963	-.5511	-.4291	-.6539	-.6053	-.3827
Q-DM(M3/S)	AS CONSTANT	-.3295	-.0563	-.2445	-.6396	-.6210	-.3603	-.3852	-.0512	-.0077	-.0514	-.3645	-.2191	-.2639

CL-DISS	17206L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CL-DISS	.1952	.2167	.0884	-.4001	-.0766	-.1097	.1539	.3530	.2667	.3361	.2785	.3051	.1170
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
CL-DISS VS	Q-DM(M3/S)	-.1396	-.4359	.1069	-.1117	-.3484	-.4246	-.6174	-.7000	-.6044	-.7000	-.4778	-.7755	-.6011
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0050	-.3891	.1452	-.1760	-.3995	[illegible]	-.6064	-.6462	-.5732	-.6525	-.4065	-.7722	-.5986
CL-DISS	AS CONSTANT	-.6896	-.5345	-.3461	-.1818	-.3930	-.4059	-.2758	-.3703	-.5486	-.3200	-.6107	-.5751	-.3076
Q-DM(M3/S)	AS CONSTANT	.1379	-.0393	.1323	-.4193	-.2215	-.2855	-.0496	.0109	-.1318	.0325	-.0468	-.2855	-.0949

A-BHC	18075L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	A-BHC	-.4760	-.4963	-.0527	-.2262	-.5931	-.1821	-.6687	-.6163	-.5313	-.5549	-.4903	-.3340	-.4367
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
A-BHC VS	Q-DM(M3/S)	.3208	.4489	-.0412	.6094	.3620	.0830	.3257	.2497	.2388	.2807	.3103	.1491	.2636
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0173	.2356	-.0625	.6020	.2112	.0268	.1680	-.0805	-.1027	.0413	-.0114	-.0593	.1478
A-BHC	AS CONSTANT	-.6534	-.4400	-.3363	.0220	-.1678	-.3098	-.1303	-.4467	-.5538	-.3692	-.5989	-.5715	-.2298
Q-DM(M3/S)	AS CONSTANT	-.3716	-.3294	-.0705	-.1938	-.5361	-.1648	-.6317	-.5856	-.4969	-.5000	-.3995	-.3075	-.3864

K-DISS	19103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	K-DISS	-.5481	-.6500	-.4505	-.6333	-.4551	-.5148	-.3629	-.2298	-.3264	-.5272	-.4811	-.6667	-.3382
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
K-DISS VS	Q-DM(M3/S)	.5649	.5641	.6970	.1648	.0458	.3352	-.0787	.0678	.0442	.1989	.3667	.4470	-.0243
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.3049	.3146	.6496	.1149	-.1306	.2107	-.2155	-.0542	-.1899	-.0509	.0821	.0969	-.1463
K-DISS	AS CONSTANT	-.5612	-.3146	-.0302	-.0216	-.3596	-.1809	-.3638	-.4932	-.6015	-.4151	-.5786	-.4266	-.3430
Q-DM(M3/S)	AS CONSTANT	-.2609	-.4866	-.3228	-.6265	-.4680	-.4569	-.4085	-.2264	-.3702	-.5001	-.3435	-.5589	-.3645

CA-DISS	20101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CA-DISS	.1429	.2333	.2967	.2259	.0418	-.1667	-.0586	.0586	.2762	.3096	-.0084	.0586	.0834
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
CA-DISS VS	Q-DM(M3/S)	-.1818	-.5641	-.5455	-.4862	-.5525	-.5824	-.6409	-.7072	-.6188	-.6851	-.4862	-.6484	-.6946
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.1159	-.5386	-.4960	-.4745	-.5730	-.6800	-.6942	-.7817	-.5862	-.6427	-.6458	-.7569	-.7065
CA-DISS	AS CONSTANT	-.6894	-.5386	-.2143	-.0130	-.3813	-.5187	-.4527	-.6419	-.5451	-.3442	-.7466	-.7163	-.3578
Q-DM(M3/S)	AS CONSTANT	.0229	-.1245	.1454	.1927	-.1868	-.4572	-.3519	-.4738	-.1319	.0015	-.4864	-.5155	-.1976

Table A4.8 Continued

MN-DISS	25104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	MN-DISS	.2501	.0545	.0222	-.6751	-.3146	-.3027	-.4600	-.0590	-.2300	-.2832	.0748	.1556	-.0854
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
MN-DISS VS	Q-DM(M3/S)	-.4286	-.7143	-.4286	.1890	-.1818	-.0772	-.1134	-.4023	-.3706	-.3772	-.4352	-.2857	-.4753
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3662	-.8290	-.4468	.1466	-.3239	-.1922	-.3029	-.4973	-.6378	-.5896	-.5093	-.2430	-.5310
MN-DISS	AS CONSTANT	-.6742	-.7515	-.3585	.0093	-.4263	-.3599	-.4099	-.5671	-.7387	-.6275	-.6859	-.5683	-.4051
Q-DM(M3/S)	AS CONSTANT	-.0751	-.6029	-.1416	-.6692	-.4073	-.3463	-.5241	-.3242	-.5906	-.5481	-.3025	-.0139	-.2813

FE-DISS	26104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	FE-DISS	.0222	-.1101	-.2000	.3146	.0227	.0899	.0920	-.1870	-.0227	-.2727	-.3303	-.1556	-.0718
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
FE-DISS VS	Q-DM(M3/S)	.0476	.0000	.3571	.2546	.1091	.2546	.7937	.5512	.0741	.6111	.6480	.9286	.1461
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.0880	-.0757	.3144	.3106	.1243	.3000	.8683	.5373	.0749	.5684	.6037	1.0436	.1305
FE-DISS	AS CONSTANT	-.6990	-.5676	-.2862	-.2189	-.3453	-.3546	-.6314	-.4776	-.5825	-.3728	-.6041	-1.1946	-.3081
Q-DM(M3/S)	AS CONSTANT	.0774	-.1333	-.0919	.3598	.0641	.1866	.5836	.1180	.0252	.0037	.1549	1.2769	-.0275

CU-TOT	29005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CU-TOT	.5000	-.1260	-.3780	-.2444	-.1217	-.3103	-.3492	.0000	-.2177	-.0967	-.5292	-.0233	-.1886
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
CU-TOT VS	Q-DM(M3/S)	.1155	.3290	.3086	.2143	-.6198	.4029	-.2315	.5361	.4717	-.0806	.0891	.0000	.1943
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.7471	.3149	.2092	.1919	-.7086	.3374	-.3810	.6168	.4347	-.1397	-.3932	-.0167	.1448
CU-TOT	AS CONSTANT	-.8773	-.5579	-.2461	-.0723	-.5342	-.2226	-.4281	-.5858	-.5574	-.4620	-.7114	-.5826	-.2884
Q-DM(M3/S)	AS CONSTANT	.8149	.0764	-.3068	-.2254	-.4511	-.2097	-.4549	.3613	.0795	-.1495	-.6216	-.0286	-.1369

ZN-TOT	30005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	ZN-TOT	.3191	.2247	-.3571	-.4286	-.2224	.0000	-.3333	-.3430	-.6957	-.1840	-.1591	.2561	-.1200
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
ZN-TOT VS	Q-DM(M3/S)	.2981	.9759	.6000	.4667	-.5013	.0378	-.0714	.0501	.3086	-.2646	.1482	-.0378	.1388
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.7660	1.3705	.5461	.4626	-.6295	.0399	-.1947	-.1464	-.1654	-.3960	.0600	.1417	.1073
ZN-TOT	AS CONSTANT	-.8757	-3.6843	-.1593	.0990	-.5359	-.3189	-.3543	-.5088	-.5382	-.5267	-.6399	-.5929	-.3029
Q-DM(M3/S)	AS CONSTANT	.7698	4.3025	-.2083	-.4239	-.4833	.0127	-.3747	-.3666	-.6673	-.3522	-.0837	.2882	-.0812

T.COLI	36001F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	T.COLI	-.1353	-.4889	-.3516	-.6065	-.2388	-.0153	-.3742	-.5811	-.5098	-.4771	-.5878	-.5719	-.3644
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
T.COLI VS	Q-DM(M3/S)	.3693	.3469	.5929	.0763	.1271	.0545	.1846	.3269	.5355	.4045	.5265	.5241	.2943
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.3870	.0988	.5390	.0038	.0502	.0524	.0781	.0559	.3411	.2416	.2361	.2864	.2033
T.COLI	AS CONSTANT	-.7027	-.4822	-.1656	-.0941	-.3222	-.3184	-.2637	-.3960	-.4259	-.3205	-.4927	-.4046	-.2329
Q-DM(M3/S)	AS CONSTANT	.1832	-.3786	-.2028	-.6034	-.2096	.0022	-.3393	-.5106	-.2883	-.3611	-.3807	-.3852	-.2996

Table A4.8 Continued

F.COLI	36011F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	F.COLI	.2768	-.0759	-.1598	-.4767	-.2849	.0796	-.2616	.3092	-.0297	-.1373	-.3226	-.2341	-.0959
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
F.COLI VS	Q-DM(M3/S)	.1651	.1934	.5222	-.2300	.0489	-.1396	-.0337	.0915	.2553	.0963	.0763	.1950	.2577
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.5197	.1829	.5039	-.3296	-.0534	-.1209	-.1249	.2957	.2929	.0390	-.1844	.0742	.2408
F.COLI	AS CONSTANT	-.7837	-.5616	-.2968	-.2695	-.3413	-.3116	-.3299	-.5521	-.5948	-.4436	-.6609	-.5629	-.3013
Q-DM(M3/S)	AS CONSTANT	.5542	.0410	.0178	-.5223	-.2856	.0374	-.2863	.4095	.1514	-.1057	-.3598	-.1512	-.0162

PB-TOT	82002P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	PB-TOT	-.6093	-.4535	-.6673	-.7597	-.8498	-.7107	-.8433	-.7454	-.8944	-.8563	-.8447	-.6693	-.6806
TIME VS	Q-DM(M3/S)	-.6970	-.5641	-.3333	-.1209	-.3407	-.3187	-.3094	-.4945	-.5824	-.4505	-.6484	-.5824	-.3145
PB-TOT VS	Q-DM(M3/S)	.2148	-.2817	-.0501	-.0412	.0000	-.2062	-.0945	.1612	.1612	.0412	.5641	.1301	.1373
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3690	-.7305	-.3881	-.2062	-.5842	-.6489	-.6953	-.3580	-.9896	-.7475	.0402	-.4301	-.1103
PB-TOT	AS CONSTANT	-.7309	-.8091	-.4930	-.2343	-.6464	-.6758	-.7271	-.5690	-.9930	-.8048	-.3889	-.6725	-.3046
Q-DM(M3/S)	AS CONSTANT	-.6561	-.7730	-.7264	-.7710	-.9039	-.8371	-.9217	-.7760	-.9979	-.9392	-.7620	-.7365	-.6779

Table A4.9 Partial Kendall Tau and Pairwise Kendall Tau's for each Water Quality Variable , Flow and Time at location MD0002

NAS MD0002 (PARTIAL RANK CORRELATION)
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TDS*	00201L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME	VS TDS*	.0333	-.0645	-.0769	.4667	.0476	.2167	-.1238	-.1619	-.1667	.1500	-.0549	-.0667	.0222
TIME	VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
TDS*	VS Q-DM(M3/S)	-.2821	-.0545	.1818	-.5128	-.2210	-.2652	-.1282	.2747	.1648	-.1648	-.2121	-.1105	-.3823
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2804	-.0587	.1786	-.4997	-.2162	-.2530	-.1200	.2731	.1048	-.1224	-.2339	-.1189	-.3823
TDS*	AS CONSTANT	-.1506	-.0644	-.0380	.0981	-.1707	-.0329	.0620	.0121	-.4124	-.3240	-.2710	-.1189	-.1103
Q-DM(M3/S)	AS CONSTANT	-.0106	-.0680	-.0688	.4513	.0089	.2012	-.1152	-.1591	-.1078	.1012	-.1148	-.0799	-.0217

COND(F)	02041F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME	VS COND(F)	.0251	.1209	.1238	.5500	.2667	.1833	-.0833	-.1148	-.1167	.2500	.0251	.0286	.0626
TIME	VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
COND(F)	VS Q-DM(M3/S)	-.4872	-.0303	.0513	-.4725	-.2873	-.1547	-.1209	.2431	.0549	-.1209	-.0221	-.2452	-.3752
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.4893	-.0232	.0582	-.4636	-.2532	-.1414	-.1152	.2410	.0055	-.0392	-.0163	-.2436	-.3713
COND(F)	AS CONSTANT	-.1622	-.0574	-.0582	.1291	-.1085	-.0618	.0676	-.0052	-.4257	-.3230	-.2523	-.1068	[illegible]
Q-DM(M3/S)	AS CONSTANT	-.0578	.1193	.1268	.5431	.2290	.1724	-.0748	-.1102	-.1032	.2237	.0202	.0015	.0230

TEMP(F)	02061F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME	VS TEMP(F)	-.2382	-.0424	-.2604	.1097	-.0422	-.1380	-.0260	.2844	-.1035	.5363	.0454	.0696	-.0295
TIME	VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
TEMP(F)	VS Q-DM(M3/S)	.1601	-.0799	.3843	-.0663	-.4607	-.1842	-.2516	.2261	.2035	-.2905	.2437	.4557	.1825
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.1287	-.0827	.3847	-.0492	-.4761	-.1991	-.2505	.2457	.1771	-.1359	.2640	.4674	.1804
TEMP(F)	AS CONSTANT	-.1207	-.0643	.0547	-.1589	-.2213	-.1169	.0727	-.1042	-.4185	-.2289	-.2723	-.1601	-.1069
Q-DM(M3/S)	AS CONSTANT	-.2190	-.0475	-.2610	.1004	-.1415	-.1576	-.0069	.2998	-.0184	.4861	.1140	.1355	-.0096

TURB(F)	02073F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME	VS TURB(F)	.2889	.2143	.1111	-.3889	.1667	.4444	.4495	.1091	.1556	.2444	-.2224	-.1667	.1223
TIME	VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
TURB(F)	VS Q-DM(M3/S)	-.1429	.3333	.7143	.4286	.6190	.1429	.4001	.5855	-.2143	-.5714	.1380	.5238	.4250
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.1040	.3552	.7254	.4011	.6682	.2041	.4104	.5930	-.1654	-.5355	.0867	.5157	.4445
TURB(F)	AS CONSTANT	-.1188	-.1434	-.1878	.0022	-.3615	-.1713	-.1257	-.1202	-.4096	-.2526	-.2300	-.0276	-.1807
Q-DM(M3/S)	AS CONSTANT	.2729	.2492	.2114	-.3571	.3572	.4636	.4582	.1585	.0722	.0645	-.1957	-.1285	.1881

B-DISS	05105D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME	VS B-DISS	-.1177	.1830	.2947	-.0670	.1883	.1245	.2249	-.2822	.1486	.5652	.0663	.0000	.1155
TIME	VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
B-DISS	VS Q-DM(M3/S)	-.2955	-.1763	.2760	-.1396	-.1226	.1641	-.0237	.4647	-.0812	-.3310	-.3814	-.1667	-.1254
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3196	-.1683	.3051	-.1531	-.0924	.1772	-.0422	.4750	-.0196	-.1785	-.3777	-.1677	-.1141
B-DISS	AS CONSTANT	-.1988	-.0293	-.1444	-.1763	-.1577	-.1112	.0844	.1156	-.4226	-.1973	-.2466	-.1121	-.0973
Q-DM(M3/S)	AS CONSTANT	-.1728	.1754	.3217	-.0922	.1705	.1415	.2274	-.3016	.1264	.5100	-.0337	-.0188	.1031

Table A4.9 Continued

NO3+NO2 07106L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NO3+NO2	-.2594	-.2210	-.3445	-.3698	-.1703	-.2213	-.1053	-.6073	-.4509	-.0896	-.2422	-.2060	-.1416
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
NO3+NO2 VS Q-DM(M3/S)	.1677	.1374	.2452	.2431	.2582	-.0365	.1893	.2782	.3660	.2588	.2086	.1068	.0323
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.1340	.1274	.2427	.1988	.2352	-.0577	.1991	.3251	.2142	.2438	.1570	.0864	.0170
NO3+NO2 AS CONSTANT	-.1159	-.0313	.0365	-.0832	-.1395	-.0990	.0992	.1782	-.3173	-.3300	-.2131	-.0910	-.1070
Q-DM(M3/S) AS CONSTANT	-.2398	-.2151	-.3428	-.3446	-.1311	-.2256	-.1224	-.6230	-.3497	-.0015	-.2003	-.1965	-.1390

TN* 07602L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS TN*	-.4770	-.2873	-.3714	-.4167	-.1423	-.3530	-.4519	-.4402	-.6778	-.0865	-.5941	-.4785	-.3383
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
TN* VS Q-DM(M3/S)	.0387	.1374	.3077	.1209	.1222	.2682	.3637	.3407	.4725	.2452	.4641	.2051	.2205
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0399	.1255	.3113	.0582	.0996	.2543	.4480	.3634	.2740	.2303	.4034	.1745	.1958
TN* AS CONSTANT	-.1541	-.0223	.0713	-.1269	-.1623	.0069	.2904	.1386	-.1671	-.3307	.0323	-.0144	-.0390
Q-DM(M3/S) AS CONSTANT	-.4771	-.2822	-.3743	-.4052	-.1235	-.3431	-.5167	-.4565	-.5969	-.0033	-.5564	-.4686	-.3238

DO 08101F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS DO	-.1177	.1222	.1723	.0504	-.2789	.0000	-.0168	.0387	-.0504	-.2373	-.3025	.1177	-.0201
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
DO VS Q-DM(M3/S)	.4359	.0308	-.0903	-.1547	.2597	-.1352	-.1768	.2235	-.2556	-.0111	.3667	.1222	.1300
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.4258	.0385	-.0828	-.1486	.2226	-.1358	-.1761	.2251	-.3072	-.1007	.3147	.1370	.1286
DO AS CONSTANT	-.1148	-.0649	-.0364	-.1592	-.1125	-.0892	.0751	-.0427	-.4572	-.3534	-.1599	-.1267	-.1087
Q-DM(M3/S) AS CONSTANT	-.0569	.1244	.1685	.0256	-.2451	-.0121	-.0033	.0472	-.1831	-.2565	-.2331	.1330	-.0058

ALK-TOT 10101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS ALK-TOT	-.0753	.1026	.0330	.5167	.2762	.0672	.1681	.2571	.4202	.1925	-.0167	-.0833	.0611
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
ALK-TOT VS Q-DM(M3/S)	-.4774	.0545	.0303	-.4286	-.4862	-.5000	-.1889	.1648	-.2778	-.3407	-.0110	.0221	-.4284
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.4963	.0612	.0321	-.4067	-.4623	-.4971	-.2054	.1794	-.1192	-.2982	-.0157	.0130	-.4250
ALK-TOT AS CONSTANT	-.2166	-.0667	-.0523	.0732	-.0506	-.0634	.1123	-.0791	-.3577	-.2982	-.2530	-.1091	-.0934
Q-DM(M3/S) AS CONSTANT	-.1713	.1062	.0346	.5005	.2212	.0267	.1865	.2664	.3469	.0865	-.0201	-.0814	.0154

PH(F) 10301F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS PH(F)	.5175	.3995	.0892	.3909	-.0089	-.2227	-.1992	.1178	.0188	-.0723	-.1054	-.0618	.0198
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
PH(F) VS Q-DM(M3/S)	-.1868	.0670	.3469	-.3963	.0234	.0712	-.3736	-.2331	-.1443	.0363	.2315	.0119	.0082
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1268	.0997	.3534	-.3656	.0222	.0530	-.3667	-.2310	-.1508	.0125	.2129	.0052	.0104
PH(F) AS CONSTANT	-.0680	-.0955	-.0880	-.0117	-.1766	-.0746	.0027	-.0057	-.4304	-.3391	-.2360	-.1100	-.1106
Q-DM(M3/S) AS CONSTANT	.5036	.4052	.1142	.3595	-.0048	-.2178	-.1843	.1133	-.0481	-.0638	-.0498	-.0608	.0208

Table A4.9 Continued

NFR 10401L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NFR	-.2298	.1621	-.2404	-.3333	-.1250	.0191	.2521	-.2126	-.2233	-.3629	-.0936	-.2979	-.0877
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
NFR VS Q-DM(M3/S)	-.2783	.1616	.1818	.3077	.0654	.1558	.2111	.0223	.1053	-.1667	.1236	.1011	.3326
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.3262	.1741	.1749	.2718	.0443	.1582	.1987	.0157	.0109	-.3314	.1038	.0719	.3262
NFR AS CONSTANT	-.2330	-.0891	-.0079	-.0694	-.1703	-.0925	.0251	-.0289	-.4179	-.4366	-.2441	-.0846	-.0865
Q-DM(M3/S) AS CONSTANT	-.2873	.1745	-.2353	-.3011	-.1155	.0335	.2420	-.2120	-.1984	-.4527	-.0650	-.2900	-.0543

NA-DISS 11103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NA-DISS	-.1356	-.1868	-.2333	.4435	.3062	.3500	-.0667	-.0476	-.1423	.2929	-.1340	-.0500	.0263
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
NA-DISS VS Q-DM(M3/S)	-.2338	.0303	.1374	-.4641	-.2111	-.3315	-.0769	.1868	-.0330	-.0884	-.0129	-.0663	-.3628
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2601	.0194	.1292	-.4423	-.1675	-.3221	-.0722	.1856	-.1050	.0127	-.0488	-.0724	-.3623
NA-DISS AS CONSTANT	-.1926	-.0560	-.0200	.0516	-.1205	.0313	.0722	-.0245	-.4380	-.3305	-.2568	-.1142	-.1083
Q-DM(M3/S) AS CONSTANT	-.1786	-.1854	-.2288	.4201	.2795	.3413	-.0611	-.0422	-.1732	.2806	-.1419	-.0578	-.0148

MG-DISS 12102L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS MG-DISS	-.2427	.0663	.0000	.4167	.1340	.1000	-.1681	-.0476	-.1590	.0833	-.1833	-.2833	.0022
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
MG-DISS VS Q-DM(M3/S)	-.4516	-.2290	.1985	-.4945	-.1667	.0221	.0556	.4286	.2652	-.0989	-.0769	-.3757	-.3335
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.5101	-.2259	.1987	-.4749	-.1466	.0312	.0697	.4277	.2209	-.0753	-.1296	-.4270	-.3353
MG-DISS AS CONSTANT	-.3044	-.0468	-.0523	.0522	-.1581	-.0911	.0876	-.0139	-.4059	-.3352	-.2723	-.2441	-.1163
Q-DM(M3/S) AS CONSTANT	-.3541	.0540	.0104	.3909	.1077	.1024	-.1731	-.0371	-.0520	.0531	-.2102	-.3527	-.0369

P-TOT-DISS 15103D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS P-TOT-DISS	-.1911	-.2452	.0787	-.4556	.0894	-.0663	.1000	.0000	-.1326	.3377	-.1429	-.3865	-.0889
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
P-TOT-DISSVS Q-DM(M3/S)	-.0734	.2364	.3439	.1539	.3750	.4000	.3817	.2424	.0303	.0556	.1538	.0915	.1542
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1060	.2289	.3495	.0897	.3987	.3966	.3770	.2426	-.0296	.1928	.1230	.0532	.1459
P-TOT-DISS AS CONSTANT	-.1715	-.0028	-.0837	-.1077	-.2278	-.0677	.0421	-.0340	-.4285	-.3824	-.2360	-.0818	-.0983
Q-DM(M3/S) AS CONSTANT	-.2053	-.2380	.1027	-.4414	.1707	-.0339	.0767	.0082	-.1324	.3799	-.1088	-.3803	-.0732

P-TOT 15406L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS P-TOT	-.1500	-.1989	-.0286	-.3193	.2298	.0928	.1849	-.0097	-.0509	.2105	-.1604	-.3798	-.0884
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
P-TOT VS Q-DM(M3/S)	.0256	.2901	.4359	.0556	-.0678	.1685	.4111	.2135	-.1667	-.1161	.2431	.1011	.2343
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.0026	.2842	.4352	.0031	-.0284	.1782	.4051	.2133	-.2089	-.0483	.2121	.0644	.2268
P-TOT AS CONSTANT	-.1518	-.0031	-.0432	-.1555	-.1660	-.1060	.0010	-.0316	-.4438	-.3257	-.2233	-.0783	-.0926
Q-DM(M3/S) AS CONSTANT	-.1479	-.1898	-.0069	-.3150	.2218	.1097	.1686	-.0027	-.1373	.1831	-.1054	-.3728	-.0647

SO4-DISS 16304L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS SO4-DISS	.0000	.0549	.0442	.4937	-.0857	.1008	-.2000	-.1429	-.3167	.1500	-.0084	-.0504	-.0108
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
SO4-DISS VS Q-DM(M3/S)	-.0769	-.0606	.2727	-.3757	-.0442	.1889	.0110	.3407	.3407	-.2088	-.0884	-.2011	-.2543
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0778	-.0575	.2756	-.3431	-.0605	.1996	.0270	.3396	.2391	-.1696	-.0936	-.2082	-.2571
SO4-DISS AS CONSTANT	-.1543	-.0575	-.0659	.0256	-.1814	-.1100	.0808	.0169	-.3596	-.3199	-.2545	-.1233	-.1170
Q-DM(M3/S) AS CONSTANT	-.0120	.0515	.0606	.4724	-.0951	.1202	-.2015	-.1401	-.2009	.0858	-.0319	-.0746	-.0404

CL-DISS 17206L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS CL-DISS	-.0753	-.2308	.0442	.3096	.4095	.4202	.1238	-.0766	-.2092	.3025	-.1619	-.1255	.0436
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
CL-DISS VS Q-DM(M3/S)	-.2051	.1818	.3206	-.4505	-.3315	-.4246	-.0769	.2431	-.0221	-.0778	.2051	.1889	-.2720
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2200	.1728	.3236	-.4260	-.2885	-.4286	-.0874	.2414	-.1265	.0282	.1720	.1775	-.2691
CL-DISS AS CONSTANT	-.1735	-.0195	-.0692	-.0298	-.0477	.1096	.0874	-.0148	-.4431	-.3337	-.2273	-.0891	-.1025
Q-DM(M3/S) AS CONSTANT	-.1105	-.2239	.0641	.2673	.3779	.4243	.1305	-.0707	-.2421	.2945	-.1162	-.1072	.0142

A-BHC 18075L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS A-BHC	-.5141	-.3451	.3239	-.3417	-.5376	-.2586	-.2679	-.6566	-.5578	-.6316	-.5360	-.5403	-.4096
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
A-BHC VS Q-DM(M3/S)	.3402	-.2613	.7191	.5880	.1338	-.1192	.0636	-.4630	.0000	.3114	-.1886	.0460	.0324
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.3080	-.3013	.7786	.5736	.0467	-.1476	.0876	-.6429	-.3188	.1320	-.3967	-.0164	-.0141
A-BHC AS CONSTANT	.0261	-.1664	-.4322	.0475	-.1255	-.1243	.0977	-.5041	-.5164	-.1954	-.4268	-.1019	-.1065
Q-DM(M3/S) AS CONSTANT	-.4969	-.3746	.5198	-.3068	-.5269	-.2721	-.2741	-.7584	-.6173	-.5882	-.6143	-.5391	-.4087

24D 18500L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS 24D	.5944	.0826	.2405	.0000	.1704	.2110	.0100	.3066	.2128	.4183	.3749	.1454	.1870
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
24D VS Q-DM(M3/S)	-.3373	.4481	.1551	.2446	.0724	-.2818	.1478	-.1141	.1852	.2045	.1080	.4944	.0930
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.3095	.4555	.1727	.2479	.1057	-.2702	.1475	-.1093	.3131	.4063	.2260	.5191	.1164
24D AS CONSTANT	.0616	-.1096	-.0924	-.1700	-.1924	-.0309	.0763	.0021	-.4874	-.4794	-.3182	-.2121	-.1307
Q-DM(M3/S) AS CONSTANT	.5832	.1230	.2518	.0422	.1866	.1947	-.0014	.3050	.3291	.5302	.4182	.2315	.1994

K-DISS 19103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS K-DISS	-.0255	-.0111	.1686	.3123	.2488	.2521	-.1423	-.1933	-.1667	.0840	-.1681	-.1026	.0173
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
K-DISS VS Q-DM(M3/S)	-.0133	.0153	.3077	-.1788	-.1222	-.0894	-.0221	.3799	.2088	.0556	.0111	-.3751	-.1396
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0174	.0146	.3214	-.1359	-.0821	-.0696	-.0113	.3810	.1542	.0899	-.0329	-.3909	-.1385
K-DISS AS CONSTANT	-.1542	-.0604	-.1100	-.1166	-.1523	-.0683	.0746	.0446	-.4084	-.3471	-.2545	-.1616	-.1091
Q-DM(M3/S) AS CONSTANT	-.0279	-.0102	.1940	.2914	.2326	.2462	-.1410	-.1955	-.0874	.1097	-.1708	-.1563	.0019

Table A4.9 Continued

CA-DISS 20101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS CA-DISS	-.2167	-.1105	-.0330	.4333	-.0957	-.2929	-.1500	-.0476	-.0667	.0418	.0168	.0084	-.0360
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
CA-DISS VS Q-DM(M3/S)	-.1795	.0458	.0909	-.5165	-.2778	-.3444	-.4505	.0549	.0330	-.0884	-.4556	-.0778	-.3695
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.2206	.0394	.0894	-.5007	-.3008	-.3888	-.4454	.0535	.0049	-.0789	-.4665	-.0773	-.3760
CA-DISS AS CONSTANT	-.2007	-.0559	-.0485	.0764	-.2127	-.2109	.0106	-.0304	-.4276	-.3386	-.2754	-.1102	-.1332
Q-DM(M3/S) AS CONSTANT	-.2513	-.1080	-.0285	.4123	-.1532	-.3458	-.1296	-.0459	-.0582	.0125	-.1142	-.0002	-.0832

MN-DISS 25104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS MN-DISS	-.1556	-.4286	.0556	.1111	-.1348	-.0367	.3596	.1667	-.0556	-.2444	.2697	.4045	.0477
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
MN-DISS VS Q-DM(M3/S)	-.1429	-.6000	-.0476	.0000	-.1091	-.1409	.6183	-.2143	.2381	-.1429	-.2546	-.3273	-.3131
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1709	-.6941	-.0449	.0187	-.1363	-.1448	.6348	-.2119	.2375	-.2480	-.2001	-.3109	-.3101
MN-DISS AS CONSTANT	-.1801	-.4396	-.0488	-.1659	-.1944	-.0946	-.1983	.0029	-.4283	-.3913	-.1977	.0254	-.1006
Q-DM(M3/S) AS CONSTANT	-.1815	-.5822	.0532	.1127	-.1575	-.0498	.3982	.1635	.0530	-.3150	.2195	.3922	.0139

FE-DISS 26104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS FE-DISS	-.2268	-.5669	.1143	.2000	-.2268	-.3521	-.5795	-.5883	-.8181	-.2268	-.5968	-.3220	-.2825
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
FE-DISS VS Q-DM(M3/S)	-.2817	-.1491	.1502	-.0714	.0000	.1355	-.0891	.1782	-.2673	-.1782	.3223	.2646	.1385
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.3290	-.2231	.1573	-.0398	-.0418	.1120	-.0548	.1965	-1.1892	-.2789	.2209	.2434	.1126
FE-DISS AS CONSTANT	-.2330	-.1782	-.0697	-.1540	-.1815	-.0439	.0312	.0903	-1.1679	-.3976	-.0795	-.0277	-.0750
Q-DM(M3/S) AS CONSTANT	-.2849	-.5836	.1236	.1913	-.2304	-.3446	-.5767	-.5923	-1.0712	-.3107	-.5626	-.3055	-.2715

CU-TOT 29005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS CU-TOT	-.2760	-.1890	.1768	-.3596	-.1194	-.4090	-.4602	.1307	-.3780	-.5820	-.0471	.0484	-.1804
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
CU-TOT VS Q-DM(M3/S)	.2057	.1491	.2503	-.3273	-.4629	.1867	-.5345	.3563	.2673	.1890	.0772	.2062	.2383
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.1719	.1404	.2639	-.4201	-.4953	.1656	-.5639	.3640	.1259	-.0122	.0675	.2131	.2234
CU-TOT AS CONSTANT	-.1032	-.0334	-.1003	-.3204	-.2637	-.0134	-.2253	-.0859	-.3672	-.2889	-.2501	-.1233	-.0706
Q-DM(M3/S) AS CONSTANT	-.2527	-.1823	.1961	-.4437	-.2306	-.4011	-.4973	.1526	-.3026	-.5607	-.0287	.0732	-.1596

ZN-TOT 30005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS ZN-TOT	-.1348	-.2857	.5000	-.5000	-.3865	-.5820	-.3027	-.5916	-.4140	-.2561	.1164	.0682	-.1706
TIME VS Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
ZN-TOT VS Q-DM(M3/S)	-.4880	-.0667	.0476	.4286	.3706	-.2750	-.3086	-.1091	-.4158	.0000	.1134	-.5930	.0342
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.5196	-.0878	.0847	.4052	.3330	-.4030	-.3003	-.1596	-.7213	-.0960	.1486	-.5904	.0157
ZN-TOT AS CONSTANT	-.2539	-.0833	-.0868	.0632	-.0392	-.3178	-.0182	-.1217	-.7256	-.3524	-.2695	-.0872	-.1062
Q-DM(M3/S) AS CONSTANT	-.2434	-.2909	.5037	-.4818	-.3511	-.6331	-.2941	-.5991	-.7207	-.2724	.1509	.0033	-.1680

Table A4.9 Continued

T.COLI	36001F	JAN	FEB	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS	T.COLI	-.3460	-.1788	-.0678	-.4519	-.4676	-.2088	-.0221	-.2706	-.3025	-.4916	-.5445	-.2946
TIME VS	Q-DM(M3/S)	-.1538	-.0606	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1179
T.COLI VS	Q-DM(M3/S)	.2484	.4187	-.0625	.2857	.1468	.3333	.4000	.4516	-.0442	.1222	.2769	.1019
PARTIAL RANK CORRELATION													
TIME	AS CONSTANT	.2105	.4153	-.0749	.2344	.1198	.3583	.3996	.3859	-.1643	-.0024	.2600	.0708
T.COLI	AS CONSTANT	-.0747	.0160	-.1698	-.0558	-.0226	.1589	-.0263	-.3567	-.3718	-.2229	.0500	-.0924
Q-DM(M3/S)	AS CONSTANT	-.3216	-.1693	-.0794	-.4256	-.4614	-.2494	-.0097	-.0955	-.3381	-.4798	-.5381	-.2860

F.COLI	36011F	JAN	FEB	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS	F.COLI	-.0709	-.0847	-.0307	-.1827	-.0773	-.2147	-.3352	-.3530	-.2353	-.3653	-.3256	-.2104
TIME VS	Q-DM(M3/S)	-.1538	-.0606	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1179
F.COLI VS	Q-DM(M3/S)	.1798	.4999	-.1499	.2222	.0520	.2160	.2857	.5083	-.0556	.0582	.3018	.0737
PARTIAL RANK CORRELATION													
TIME	AS CONSTANT	.1714	.4974	-.1572	.1963	.0454	.2388	.2917	.4223	-.1485	-.0378	.2829	.0503
F.COLI	AS CONSTANT	-.1438	-.0212	-.1715	-.1421	-.0848	.1293	.0696	-.3092	-.3645	-.2491	-.0136	-.1050
Q-DM(M3/S)	AS CONSTANT	-.0445	-.0630	-.0568	-.1494	-.0731	-.2376	-.3402	-.1736	-.2708	-.3629	-.3084	-.2037

PB-TOT	82002P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	PB-TOT	-.4889	-.5455	-.4869	-.6487	-.6487	-.4472	-.7107	-.6086	-.7738	-.8563	-.7454	-.3581	-.5496
TIME VS	Q-DM(M3/S)	-.1538	-.0606	-.0513	-.1648	-.1768	-.0884	.0769	-.0330	-.4286	-.3407	-.2527	-.1105	-.1104
PB-TOT VS	Q-DM(M3/S)	-.2646	-.2760	.0563	-.3035	-.3035	-.6181	-.3712	-.3223	-.2315	.4769	-.2417	-.4835	-.0631
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3943	-.3695	.0360	-.5468	-.5583	-.7382	-.4512	-.4317	-.9840	.3814	-.6669	-.5637	-.1491
PB-TOT	AS CONSTANT	-.3367	-.2622	-.0273	-.4989	-.5154	-.5189	-.2860	-.3050	-.9862	.1492	-.6693	-.3470	-.1740
Q-DM(M3/S)	AS CONSTANT	-.5558	-.5861	-.4854	-.7435	-.7490	-.6409	-.7368	-.6545	-.9932	-.8397	-.8590	-.4730	-.5611

Table A4.10 Partial Kendall Tau and Pairwise Kendall Tau's for each Water Quality Variable , Flow and Time at location KH0002

NCAR KH0002 (PARTIAL RANK CORRELATION)
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TDS*	00201L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	TDS*	-.2167	-.2088	-.4476	-.0221	-.0500	.1209	-.1167	.0833	-.0500	.0667	.0989	-.1423	.0091
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
TDS* VS	Q-DM(M3/S)	-.4258	.0606	.6410	-.2901	-.6154	-.4242	-.1429	-.4359	-.3626	-.4103	-.6667	-.3187	-.5334
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.3972	.0647	.5680	-.2943	-.6314	-.4236	-.1400	-.4374	-.3820	-.4662	-.6764	-.2952	-.5333
TDS*	AS CONSTANT	.1439	.0262	-.1423	.2613	-.2345	.0204	.0166	.0405	-.2438	.4246	.1630	.2211	-.0182
Q-DM(M3/S)	AS CONSTANT	-.1396	-.2100	-.2838	.0565	-.1858	.1181	-.1132	.0926	-.1379	.2513	.1821	-.0673	-.0020

COND(F)	02041F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	COND(F)	.0084	-.1209	-.4066	.0000	.0667	.1238	-.0833	.1333	.0667	.0500	.2000	-.0667	.0265
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
COND(F) VS	Q-DM(M3/S)	-.5455	-.0909	.7179	-.2727	-.7879	-.4615	-.1429	-.5128	-.4725	-.4615	-.5641	-.3187	-.5368
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.5610	-.0900	.6659	-.2822	-.7887	-.4613	-.1407	-.5174	-.4700	-.5144	-.5878	-.3127	-.5366
COND(F)	AS CONSTANT	.2672	.0019	-.1458	.2665	-.1649	.0275	.0214	.0804	-.2016	.4312	.2074	.2448	-.0071
Q-DM(M3/S)	AS CONSTANT	.1566	-.1202	-.2030	.0752	-.0896	.1225	-.0795	.1553	-.0371	.2605	.2802	.0151	.0186

TEMP(F)	02061F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	TEMP(F)	-.2884	-.1719	-.1969	.2778	.1526	-.3010	-.1197	.1772	.0433	.1865	.0631	.0321	-.0284
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
TEMP(F) VS	Q-DM(M3/S)	.0604	.0229	.2061	-.1846	-.4416	-.4738	-.2135	-.5622	-.3567	-.0392	-.1698	.1141	.3156
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.1324	.0255	.1441	-.2756	-.4282	-.5076	-.2112	-.5712	-.3558	-.1158	-.1739	.1096	.3152
TEMP(F)	AS CONSTANT	.2478	.0171	-.3586	.3259	-.0975	-.2091	.0076	.1224	-.2071	.3731	.0668	.2509	-.0119
Q-DM(M3/S)	AS CONSTANT	-.3098	-.1723	-.1302	.3423	.0955	-.3598	-.1154	.2143	-.0341	.2150	.0737	.0033	-.0232

TURB(F)	02073F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	TURB(F)	-.1111	-.5000	.2778	-.2143	.5000	-.0556	-.1556	-.1818	.2955	.2889	-.0845	-.1543	.0360
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
TURB(F) VS	Q-DM(M3/S)	.4667	-.2000	-.3333	.4667	.3333	.7143	.6429	.4000	.0364	.5714	.0476	-.2148	.3384
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.5064	-.2235	-.2554	.5525	.4794	.7139	.6563	.4068	.1050	.5234	.0525	-.1839	.3394
TURB(F)	AS CONSTANT	.3086	-.1026	-.3224	.4126	-.3925	.0096	.1757	.0807	-.2300	.2468	.0592	.2276	-.0344
Q-DM(M3/S)	AS CONSTANT	-.2474	-.5077	.1719	-.3906	.5918	-.0458	-.2309	-.1984	.3102	.1094	-.0874	-.1058	.0456

B-DISS	05105D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	B-DISS	-.1579	-.2210	-.1069	.3817	.0805	.2669	-.2959	-.2233	-.0687	.1251	.1539	-.0263	.0302
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
B-DISS VS	Q-DM(M3/S)	-.5229	-.0763	.2697	-.3146	-.1141	-.0193	.0582	-.0938	-.1068	-.4195	-.6138	-.3210	-.3999
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.5068	-.0754	.2490	-.4617	-.1033	-.0109	.0712	-.0962	-.1241	-.5015	-.6307	-.3250	-.3995
B-DISS	AS CONSTANT	.1625	-.0041	-.3716	.4291	-.1461	-.0289	.0526	-.0216	-.2179	.4568	.1915	.2580	-.0089
Q-DM(M3/S)	AS CONSTANT	-.0520	-.2207	-.0035	.5039	.0641	.2664	-.2985	-.2243	-.0935	.3254	.2380	.0598	.0241

Table A4.10 continued

NO3+NO2	07106L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	NO3+NO2	-.1871	-.0678	-.2563	-.0330	-.5098	-.4971	-.1818	-.3309	-.5383	-.3386	-.0708	-.0708	-.1895
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
NO3+NO2 VS	Q-DM(M3/S)	.3626	.0615	-.1868	.1818	.2509	.1513	.3155	.3390	.0910	.0156	-.2230	.1672	.0697
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.4212	.0626	-.3199	.1970	.2029	.1556	.3271	.3593	-.0259	.1561	-.2200	.1918	.0671
NO3+NO2	AS CONSTANT	.3137	.0171	-.4555	.2670	-.0312	.0492	.0968	.1264	-.1904	.3872	.0403	.2691	-.0071
Q-DM(M3/S)	AS CONSTANT	-.2932	-.0688	-.3619	-.0837	-.4926	-.4981	-.2027	-.3517	-.5332	-.3689	-.0602	-.1186	-.1886

TN*	07602L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	TN*	-.4706	-.1429	-.2952	-.1209	-.6443	-.6124	-.2521	-.5500	-.5272	-.6723	-.5550	-.5810	-.3494
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
TN* VS	Q-DM(M3/S)	-.0654	.1818	.3333	.1515	.2121	.1419	.1547	.0769	.2308	-.1559	-.1026	-.1795	.1007
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.0440	.1856	.2492	.1902	.1495	.1541	.1685	.0921	.1452	.1237	-.0868	-.0415	.1000
TN*	AS CONSTANT	.2142	.0399	-.3177	.2800	-.0230	.0690	.0753	.0508	-.1054	.3476	-.0024	.1854	.0161
Q-DM(M3/S)	AS CONSTANT	-.4687	-.1477	-.1919	-.1672	-.6334	-.6143	-.2605	-.5516	-.5034	-.6685	-.5531	-.5627	-.3492

DO	08101F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	DO	-.4407	-.2843	-.2297	-.4111	.2121	-.2223	.1266	.1088	.2662	-.0840	-.1222	.1833	-.0297
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
DO VS	Q-DM(M3/S)	-.1438	-.0473	-.0387	-.2462	.1667	-.0185	.0670	-.1161	.1023	-.1559	.1985	.2527	.2850
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0538	-.0455	-.1414	-.1598	.2064	-.0265	.0634	-.1168	.1675	-.1351	.2071	.2170	.2846
DO	AS CONSTANT	.1756	-.0006	-.4046	.1757	-.1964	-.0380	.0247	.0128	-.2462	.3514	.0814	.2170	-.0122
Q-DM(M3/S)	AS CONSTANT	-.4238	-.2840	-.2651	-.3715	.2440	-.2230	.1247	.1095	.2956	-.0305	-.1360	.1276	-.0250

ALK-TOT	10101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	ALK-TOT	-.1500	-.1429	-.0667	.0000	.0921	.1635	-.1345	-.1345	.0333	-.1423	.2762	-.1590	.0133
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
ALK-TOT VS	Q-DM(M3/S)	-.2194	.0000	.1538	-.1679	-.6065	-.3484	.0884	-.2452	-.4505	-.1677	-.4103	-.2210	-.5016
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.1933	.0019	.1392	-.1738	-.6020	-.3479	.0937	-.2474	-.4538	-.1263	-.4433	-.1893	-.5015
ALK-TOT	AS CONSTANT	.1933	.0130	-.3797	.2601	-.1238	.0259	.0454	-.0343	-.2172	.3434	.1920	.2260	-.0156
Q-DM(M3/S)	AS CONSTANT	-.1070	-.1429	-.0082	.0452	-.0016	.1622	-.1380	-.1387	-.0696	-.0892	.3281	-.1093	.0037

PH(F)	10301F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	PH(F)	-.1054	.1601	.1902	-.0114	-.0901	-.2263	-.0945	.0351	.0265	-.2921	.0000	.3990	.0189
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
PH(F) VS	Q-DM(M3/S)	.0415	.0473	-.1895	-.2189	-.2501	-.1083	-.0458	-.4668	.0463	-.1922	-.1373	.0968	.0865
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	.0666	.0458	-.1283	-.2234	-.2683	-.1189	-.0429	-.4671	.0530	-.0979	-.1375	-.0045	.0869
PH(F)	AS CONSTANT	.2252	.0054	-.3616	.2602	-.1829	-.0593	.0288	.0186	-.2103	.3226	.0555	.2346	-.0219
Q-DM(M3/S)	AS CONSTANT	-.1175	.1597	.1295	.0474	-.1344	-.2314	-.0931	.0397	.0370	-.2436	.0076	.3889	.0208

Table A4.10 continued

NFR 10401L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NFR	-.1881	-.1036	-.1353	-.2088	-.0476	-.0476	-.2233	-.3933	-.1865	-.2594	.0874	-.0848	-.0999
TIME VS Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
NFR VS Q-DM(M3/S)	-.1457	.2049	.2078	-.1212	.0909	.2564	.2369	.4373	.3034	.2564	-.2896	-.2360	.3215
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1090	.2074	.1703	-.0716	.0847	.2553	.2508	.4757	.2753	.3878	-.2960	-.2226	.3212
NFR AS CONSTANT	.1975	.0350	-.3678	.2381	-.1503	-.0215	.0907	.2080	-.1626	.4558	.0842	.2404	.0127
Q-DM(M3/S) AS CONSTANT	-.1618	-.1085	-.0613	-.1852	-.0342	-.0405	-.2381	-.4373	-.1321	-.3896	.1081	-.0267	-.0987

NA-DISS 11103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS NA-DISS	-.1667	-.2431	-.2488	-.1445	.1333	.2952	.0333	.1833	.0167	.1008	.1209	-.0667	.0423
TIME VS Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
NA-DISS VS Q-DM(M3/S)	-.5807	-.1985	.5032	-.3693	-.7179	-.5385	-.1429	-.5128	-.4066	-.3590	-.6364	-.3407	-.5495
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.5656	-.2014	.4558	-.3474	-.7122	-.5537	-.1441	-.5217	-.4123	-.4256	-.6487	-.3354	-.5492
NA-DISS AS CONSTANT	.1527	-.0372	-.3099	.2208	-.0842	.1565	.0381	.1114	-.2211	.4256	.1722	.2452	.0036
Q-DM(M3/S) AS CONSTANT	-.0495	-.2454	-.0693	-.0554	.0333	.3295	.0385	.2136	-.0764	.2637	.2023	.0214	.0373

MG-DISS 12102L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS MG-DISS	-.3933	-.3187	-.5096	-.0549	-.2833	-.1340	-.4100	-.2333	-.2017	-.2167	-.0857	-.3431	-.1105
TIME VS Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
MG-DISS VS Q-DM(M3/S)	-.1818	-.0606	.5715	-.2121	-.4615	-.3226	.0769	-.2051	-.3536	-.4103	-.6667	-.2652	-.4789
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.1065	-.0596	.4728	-.2052	-.5331	-.3302	.0992	-.2110	-.4131	-.3649	-.6654	-.1964	-.4842
MG-DISS AS CONSTANT	.1635	-.0068	-.1322	.2508	-.3345	-.0812	.0709	-.0503	-.3057	.3034	-.0030	.1786	-.0838
Q-DM(M3/S) AS CONSTANT	-.3684	-.3185	-.3826	-.0006	-.4042	-.1529	-.4140	-.2384	-.3012	-.0815	-.0660	-.2959	-.1369

P-TOT-DISS 15103D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS P-TOT-DISS	.0392	-.0313	.3739	-.0763	-.3094	-.3593	-.1039	-.1130	.0229	.0452	.0341	-.0686	-.0099
TIME VS Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
P-TOT-DISSVS Q-DM(M3/S)	-.5683	-.1380	-.0853	.6742	.3818	.3792	-.0367	-.3965	.4647	.1563	.1589	.2814	.3677
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.5918	-.1377	.0684	.7199	.3557	.3938	-.0335	-.3991	.4802	.1503	.1574	.3095	.3676
P-TOT-DISS AS CONSTANT	.2939	.0087	-.3817	.4181	-.0406	.1196	.0293	-.0491	-.2479	.3567	.0502	.2842	-.0178
Q-DM(M3/S) AS CONSTANT	.2042	-.0298	.3709	-.3491	-.2745	-.3750	-.1028	-.1231	.1385	-.0118	.0257	-.1505	-.0027

P-TOT 15406L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS P-TOT	.1619	.0903	.3714	-.4286	-.1590	-.1679	-.0833	-.3500	-.1681	-.4327	-.4023	-.1266	-.0822
TIME VS Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
P-TOT VS Q-DM(M3/S)	-.3206	-.0367	-.2564	.1212	.1795	.3146	.3846	.2564	-.0556	.1231	-.0308	-.1000	.2601
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.3699	-.0380	-.1325	.2646	.1589	.3137	.3889	.2737	-.0940	.3309	-.0095	-.0709	.2594
P-TOT AS CONSTANT	.2902	.0163	-.3225	.3438	-.1290	.0212	.0707	.0991	-.2216	.4608	.0465	.2433	.0012
Q-DM(M3/S) AS CONSTANT	.2513	.0909	.3058	-.4791	-.1352	-.1661	-.1041	-.3621	-.1840	-.5149	-.4014	-.1052	-.0797

Table A4.10 continued

SO4-DISS	16304L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	SO4-DISS	-.4000	-.4641	-.5359	-.2431	-.2427	-.2000	-.4770	-.3167	-.3193	-.2857	-.1546	-.4333	-.2104
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
SO4-DISS VS	Q-DM(M3/S)	-.2452	.0763	.4774	-.2290	.0387	.1538	.1989	.2051	-.2308	-.4156	-.6145	-.1648	-.2302
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.1761	.0929	.3481	-.1778	.0014	.1504	.2443	.2163	-.3210	-.3500	-.6143	-.0634	-.2398
SO4-DISS	AS CONSTANT	.1365	.0547	-.1736	.2126	-.1490	-.0023	.1484	.0700	-.3064	.2756	-.0514	.2040	-.0721
Q-DM(M3/S)	AS CONSTANT	-.3660	-.4665	-.4343	-.1960	-.2398	-.1974	-.4937	-.3235	-.3862	-.1608	-.1534	-.4104	-.2211

CL-DISS	17206L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CL-DISS	-.1500	-.1648	-.2679	.1429	.1333	.2308	.0667	.2333	.0500	.1333	.0769	-.0586	.0524
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
CL-DISS VS	Q-DM(M3/S)	-.5807	-.1515	.6323	-.1212	-.6667	-.5152	-.1209	-.6410	-.4505	-.4103	-.6364	-.3978	-.5536
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.5679	-.1515	.5951	-.1650	-.6598	[illegible]	-.1234	-.6592	-.4506	-.4953	-.6435	-.3965	-.5535
CL-DISS	AS CONSTANT	.1643	-.0124	-.2883	.2786	-.0879	.1030	.0414	.2004	-.2089	.4577	.1351	.2505	.0106
Q-DM(M3/S)	AS CONSTANT	-.0285	-.1648	-.0346	.1813	.0418	.2496	.0712	.3040	-.0505	.3297	.1453	.0473	.0495

A-BHC	18075L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	A-BHC	-.4566	-.2597	-.0492	-.3771	-.3995	-.5580	-.5683	-.3281	-.5522	-.4204	-.6344	-.5567	-.3798
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
A-BHC VS	Q-DM(M3/S)	-.3012	-.5259	.0745	.2965	.4623	-.4166	-.4097	-.0239	.0725	-.1770	.0830	-.3162	.2115
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.2316	-.5411	.0603	.4392	.4425	-.5245	-.4754	-.0253	-.0525	-.0308	.1528	-.2184	.2203
A-BHC	AS CONSTANT	.0964	-.1506	-.3825	.4163	.0379	-.3518	-.2662	-.0083	-.2030	.3186	.1397	.0973	.0665
Q-DM(M3/S)	AS CONSTANT	-.4198	-.2974	-.0223	-.4909	-.3747	-.6292	-.6085	-.3282	-.5506	-.3885	-.6421	-.5194	-.3843

K-DISS	19103L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	K-DISS	-.1255	-.2210	-.2928	.2747	-.4770	-.0773	-.2000	.0084	-.1255	.0586	.2679	.1000	-.0118
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
K-DISS VS	Q-DM(M3/S)	-.4675	-.0153	.6668	.1515	.1419	-.3269	.0330	-.2338	-.2652	-.3226	-.4872	-.0769	-.2791
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.4546	-.0127	.6279	.0872	.0789	-.3306	.0404	-.2338	-.3003	-.3688	-.5217	-.1062	-.2794
K-DISS	AS CONSTANT	.1832	.0098	-.2658	.2260	-.0990	-.0618	.0404	.0020	-.2531	.3999	.2205	.2625	-.0245
Q-DM(M3/S)	AS CONSTANT	-.0266	-.2208	-.0528	.2469	-.4654	-.0932	-.2013	.0087	-.1918	.1974	.3380	.1238	-.0182

CA-DISS	20101L	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION														
TIME VS	CA-DISS	-.3096	-.5165	-.3433	-.0549	-.1833	-.1340	-.3000	-.3000	-.2167	-.2167	.1340	-.1333	-.0642
TIME VS	Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
CA-DISS VS	Q-DM(M3/S)	-.1419	.1515	.3736	-.2121	-.6154	-.3484	.0330	-.2564	-.3626	-.3590	-.4774	-.2527	-.4996
PARTIAL RANK CORRELATION														
TIME	AS CONSTANT	-.0798	.1847	.2787	-.2052	-.6626	-.3562	.0450	-.2688	-.4272	-.3086	-.4899	-.2284	-.5021
CA-DISS	AS CONSTANT	.1864	.1077	-.2942	.2508	-.3441	-.0857	.0450	-.0834	-.3159	.3086	.1366	.2284	-.0605
Q-DM(M3/S)	AS CONSTANT	-.2884	-.5245	-.2331	-.0006	-.3569	-.1553	-.3014	-.3104	-.3208	-.1008	.1826	-.0742	-.0858

Table A4.10 continued

MN-DISS 25104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS MN-DISS	-.1556	-.2857	-.2778	.0556	.1137	.0000	-.0682	-.3146	-.5111	.4495	.0899	.0000	.0161
TIME VS Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
MN-DISS VS Q-DM(M3/S)	-.5238	-.2000	.4286	.5238	-.4880	-.1091	.3273	-.0976	.2857	.4001	-.4728	-.3273	-.3516
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.5081	-.2049	.3628	.5280	-.4792	-.1092	.3305	-.1028	.2129	.2863	-.4804	-.3383	-.3514
MN-DISS AS CONSTANT	.1639	-.0471	-.3060	.2673	-.1134	-.0332	.0587	-.0325	-.0762	.2188	.1110	.2675	-.0155
Q-DM(M3/S) AS CONSTANT	-.0489	-.2890	-.1354	-.0957	.0448	-.0036	-.0836	-.3161	-.4817	.3576	.1317	.0905	.0096

FE-DISS 26104D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS FE-DISS	.1556	.2857	.3099	.3333	-.1111	-.2697	-.1556	-.1798	-.0449	.2760	-.0899	-.3596	.0012
TIME VS Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
FE-DISS VS Q-DM(M3/S)	.0476	-.7333	.3904	.1429	.1429	.2546	.0714	-.0976	-.4728	.2646	.4001	.1818	-.1858
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.0140	-.7691	.5806	.0630	.1281	.2553	.0775	-.0992	-.4936	.1845	.4073	.3021	-.1858
FE-DISS AS CONSTANT	.2148	.3414	-.5776	.2238	-.1403	.0383	.0447	-.0179	-.2613	.3085	.0996	.3467	-.0203
Q-DM(M3/S) AS CONSTANT	.1489	.4342	.5413	.3101	-.0911	-.2703	-.1584	-.1806	-.1667	.2011	-.1223	-.4263	-.0026

CU-TOT 29005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS CU-TOT	-.2760	-.1543	-.2434	-.3099	-.2095	-.0227	-.0484	-.0471	.1451	-.2095	.1630	-.1798	-.0738
TIME VS Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
CU-TOT VS Q-DM(M3/S)	.1502	-.2335	.0563	-.2928	-.4115	.5189	.4536	.5507	.1612	.4629	.2315	.2546	.1567
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.2247	-.2344	-.0416	-.2321	-.4593	.5185	.4560	.5513	.1979	.5896	.2259	.3152	.1557
CU-TOT AS CONSTANT	.2745	-.0241	-.3830	.1822	-.2694	-.0248	.0617	.0311	-.2378	.5261	.0179	.3138	-.0088
Q-DM(M3/S) AS CONSTANT	-.3203	-.1556	-.2406	-.2541	-.3030	-.0066	-.0711	-.0565	.1852	-.4541	.1547	-.2609	-.0715

ZN-TOT 30005P	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS ZN-TOT	-.0698	-.9092	.4932	-.5714	-.0899	-.2000	-.5820	-.2760	-.2501	-.1798	-.4140	-.1111	-.1676
TIME VS Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
ZN-TOT VS Q-DM(M3/S)	-.0976	-.2760	-.3086	-.0667	-.0976	.5000	-.1543	.7807	.2546	.2546	-.1890	-.5000	.1155
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	-.0845	-.6350	-.1481	.1007	-.1132	.5039	-.1662	.8123	.2137	.3476	-.1829	-.4908	.1138
ZN-TOT AS CONSTANT	.2141	-.5950	-.2809	.2666	-.1641	.0790	-.0707	.3588	-.1550	.4255	-.0261	.2291	-.0009
Q-DM(M3/S) AS CONSTANT	-.0499	-.9424	.4266	-.5748	-.1067	-.2120	-.5842	-.4417	-.2082	-.3004	-.4117	.0182	-.1664

T.COLI 36001F	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL
KENDALL TAU CORRELATION													
TIME VS T.COLI	.2477	-.3995	-.3149	-.4227	-.4069	-.1559	-.2360	-.4516	-.2512	-.1898	-.1564	-.2905	-.2449
TIME VS Q-DM(M3/S)	.2194	.0129	-.3846	.2564	-.1538	-.0330	.0330	.0000	-.2088	.3590	.0549	.2527	-.0202
T.COLI VS Q-DM(M3/S)	.5813	.1316	.1005	-.0239	-.1496	.3693	-.0654	-.1835	-.2710	.1068	.0615	.1557	.1631
PARTIAL RANK CORRELATION													
TIME AS CONSTANT	.5575	.1492	-.0235	.0965	-.2351	.3688	-.0593	-.2057	-.3417	.1908	.0711	.2475	.1632
T.COLI AS CONSTANT	.0956	.0720	-.3738	.2719	-.2377	.0268	.0181	-.0945	-.2972	.3885	.0655	.3153	.0206
Q-DM(M3/S) AS CONSTANT	.1514	-.4047	-.3008	-.4311	-.4401	-.1547	-.2345	-.4594	-.3270	-.2458	-.1604	-.3451	-.2449

Appendix A5

Definitions of Statistical Terms

Definition Of Statistical Terms

Time Series : A sequence of values (observations or measurements) collected at equal or unequal time intervals over a period of time.
For data collected at intervals within the year ,e.g. weekly,monthly or quarterly, the observed variation in the series can be decomposed into systematic (seasonal and trend) and random (variation without systematic pattern).

Seasonal Variation : A regular and systematic variation that occurs within a year (usually cyclic). This could be attributed directly or indirectly to yearly climatic cycle.

Trend : A systematic variation that occurs over a time period longer than a year. There are several forms for the trend (a) monotonic (consistently increasing or decreasing) ; (b) non-monotonic such as step trend or cyclic trend.

Missing Data : A data point is missing when its value is not available. This may be due to logistical or analytical reasons.Missing values may or may not be ignored in the statistical analysis of the data.

Censored Data : A data point is censored if its value is known to be larger or smaller than a specific value which is known prior to the data collection. This is called type I censoring which occurs frequently in water quality studies. An example of this type of censoring is a value below the detection limit of the measuring instrument.

Parametric Methods : Methods in which the observations or error terms in a model constitute a random sample from a probability distribution that can be represented by some functional form involving a parameter, such as the normal or Poisson distributions. For nonparametric methods it assumed only that the observations constitute a random sample from some population.

Regression Methods : Statistical tools commonly used to build empirical models. The objectives of such models are to isolate, estimate and make inferences about systematic and random variations observed in the data.

Extreme values : A value is extreme when the probability of its occurrence is extremely small. This probability is measured on the bases of distributional assumptions. For example, when observation is considered to be an extreme under the assumption of a normal distribution, it may not be an extreme when another distribution is assumed.

Serial Dependence : Serial dependence may occur when the values are made sequential in time. This means that a value measured at a time point provides information on another observation made at another point in time.

Auto-dependence : Same meaning as serial dependence.

Serial or Auto-correlation Coefficient: A measure of serial dependence and is usually used as a tool for building and checking the adequacy of time series models.

Robust Methods : Methods which are not sensitive to deviations from the assumptions upon which the statistical analysis is based.

Significance Level :The probability of incorrectly rejecting the null hypothesis, H_O, when it is true .

Power Of The Test ;The probability of correctly rejecting H_O when the alternative hypothesis H_A is true. In testing for trend , H_O is the hypothesis of no trend and H_A ,for example,could be the hypothesis of a monotonic (increasing or decreasing)trend.

A Statistic : A quantity computed from a set of observations. Mean,median, and variance are examples of statistics.

Bias : An estimate of a quantity (parameter) is unbiased if the mean of the estimates obtained from all possible samples which are generated from the assumed population is identical with the parameter we want to estimate.