

MINISTRY OF ENVIRONMENT AND PARKS
WATER MANAGEMENT BRANCH
HYDROLOGY SECTION

GUIDE TO PEAK FLOW ESTIMATION FOR
UNGAUGED WATERSHEDS
IN THE OKANAGAN REGION (PENTICTON)

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1. INTRODUCTION

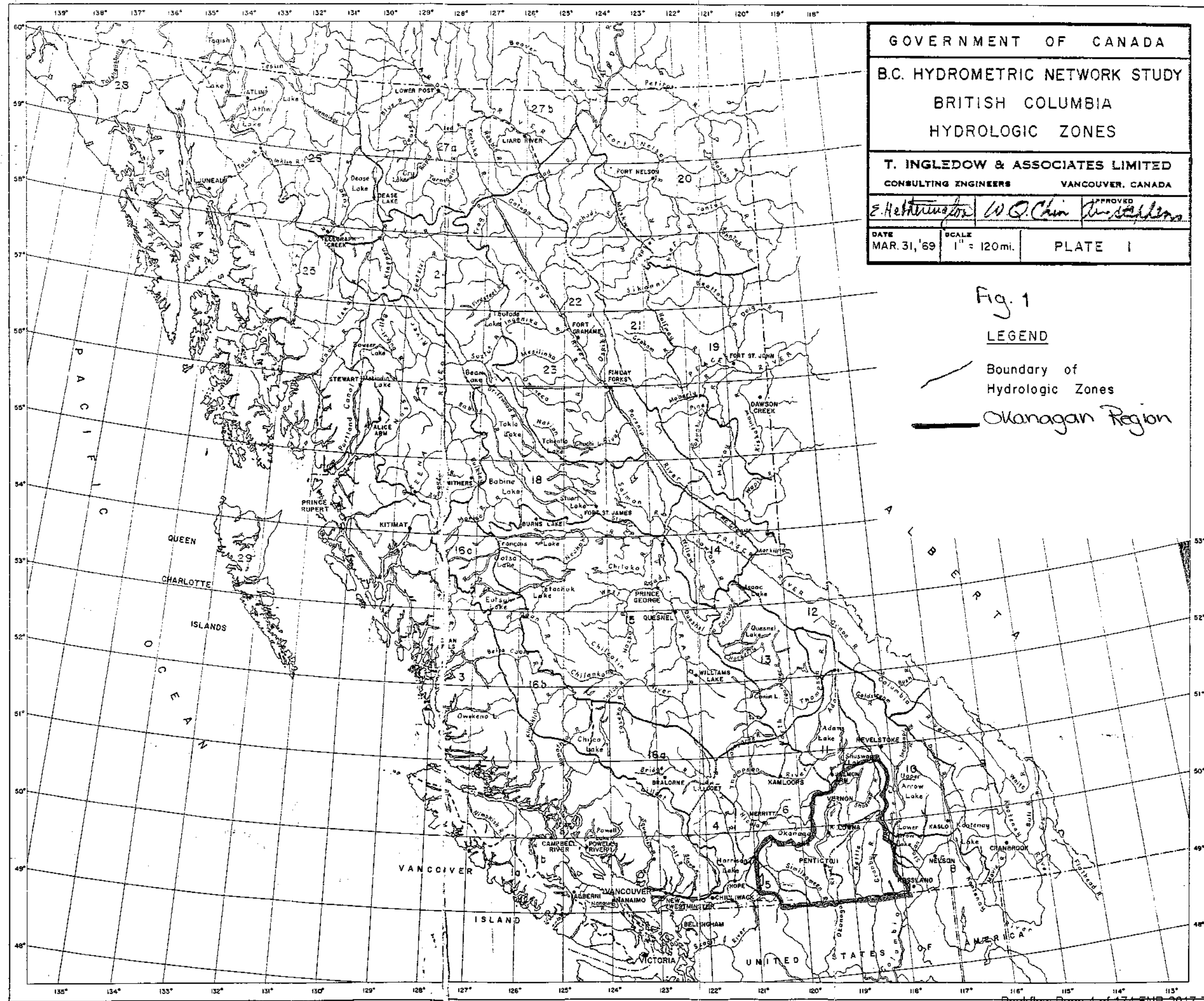
The purpose of this guide is to present the peak flow data available for the region in tables, maps and graphs, and to provide examples of estimating peak flows for ungauged basins using this information. A more detailed description of the criteria for selecting suitable data and statistical analysis involved is given in the general report "A Procedure for Regionalization of Peak Flows in B.C.," February 1987.

2. DATA BASE

The Okanagan Region includes all or portions of 4 "hydrologic zones" (Ingledow, 1969) (see Figure 1). Even though zones 5, 7 and 11 lie partially within the Region, data for the whole zone are included in the data base. In the case of zone 6, only those stations lying within the Region are included.

The number of stations falling within the zones, categorized by size and type of flow record are as follows:

Zone	(<1 500 km ²)		Large (>1 500 km ²)	
	Natural	Regulated	Natural	Regulated
5	5	1	0	0
60S	39	72	0	14
7	10	7	4	4
11	10	9	3	3
	64	88	7	21



Of these stations, the following are equipped with water-level recorders thus providing instantaneous peak flow data.

Zone	(<1 500 km ²)		Large (>1 500 km ²)	
	Natural	Regulated	Natural	Regulated
5	4	Not	0	Not
60S	20	included	9	included
7	6	in	2	in
11	0	analysis	0	analysis
	30		11	

No adjustment is made for the varying periods of record for stations in the data base. However, the potential effect of different periods of record is indicated by the analysis of annual maximum daily discharge for the long-term stations presented in Appendix 1.

3. FREQUENCY ANALYSIS DATA SUMMARIES

The results of the frequency analysis for each station included in the data base are summarized in Appendix 2 for annual maximum daily discharges and in Appendix 3 for annual maximum instantaneous discharges. Data up to 1985 are included.

4. MAPS

Peak flow information is noted on overlays using 1:250,000 scale base maps. Three map sheets cover the Region, and six overlays for each map sheet are used to display the following information:

1. Gauged watershed boundaries
2. Mean daily peak flow (L/s/km²)
3. Ratio of 25 yr. return period peak flow to the mean peak flow
4. Ratio of 50 yr. return period peak flow to the mean peak flow
5. Ratio of 100 yr. return period peak flow to the mean peak flow
6. Ratio of instantaneous to daily peak flow

Boundaries of the Region and Hydrologic Zones are shown on the base maps.

Peak flow characteristics are noted within the watershed boundary, or adjacent to it for very small watersheds. The values displayed are considered the best estimates based mainly on the frequency distribution with the lowest K-S statistic. (The Kolmogorov-Smirnov test indicates goodness of fit). Only data for "natural" flow stations are noted on the maps. If on some overlays there are no estimates given for a watershed it is because the frequency analysis results are considered unreliable. (See "Procedures" report for details).

5. GRAPHS

For each Hydrologic Zone and for the whole Region, graphs showing the variation in the following peak flow characteristics with drainage area are plotted (Appendix 5):

1. Mean daily peak flow (m^3/s)
2. Mean daily unit peak flow (L/s/km^2)
3. 50 yr. return period daily unit peak flow (L/s/km^2)
4. Maximum recorded daily unit peak flow (L/s/km^2)

No "regional curves" are drawn. The reason for this is explained in Section 9.3.

6. DATE OF PEAK FLOW

Because the date when the annual maximum daily discharge occurs during the year may be a consideration in some peak flow investigations, this information has been summarized in Appendix 6 for each zone. Only stations with 10 or more years of data are included. The tables list the number of times the annual maximum daily discharge occurred in a particular month, this frequency as a percentage, the average date of occurrence and the date when the maximum recorded peak flow occurred. The derivation of these data is described in Appendix 6.

7. PREVIOUS ESTIMATES

Appendix 7 includes information on peak flow estimates made to date for streams in the Okanagan Region. Reference to these will prevent duplication and will help to avoid inconsistencies in estimated peak flows. This Appendix should be added to each time an estimate is made, and a copy sent to the Hydrology Section, Victoria.

8. ESTIMATING PROCEDURE

As mentioned previously, no "regional curves" or "regional equations" are developed for estimating peak flows for ungauged watersheds, mainly due to the lack of suitable basin physiographic data, and for some zones the lack of peak flow data. Thus the procedure for estimating peak flow characteristics for an ungauged watershed involves much judgement, experience and understanding of hydrology.

Examples of the estimating procedure are given in the report "A Procedure for Regionalization of Peak Flows in B.C.," February 1987, but the general procedure is as follows:

1. Determine the Hydrologic Zone in which the ungauged basin is located (Figure 1) and the 1:250,000 scale map sheet which includes the basin. Measure the basin's drainage area on an appropriately scaled map (1:50,000 or 1:250,000) and note any basin characteristics which may be important as far as differences from the "norm" for the zone as defined by the gauged basins (e.g. large area of lakes or swamps, high degree of development through logging, etc.).

2. Estimate the mean annual maximum daily discharge (qmd) from the Mean Daily Peak Flow overlay and the appropriate graph, Appendix 5.
3. Estimate the ratio (Cr) of the return period daily peak flow to mean daily peak flow for the required return period(s) from the appropriate overlay.
4. If the instantaneous peak flow is required, estimate the instantaneous to daily peak flow ratio (I/D) from the Instantaneous/Daily overlay and Figure OS.5, Appendix 5.
5. Calculate the return period peak flow:

$$qrd = qmd \times Cr$$

$$qri = qmd \times Cr \times (I/D)$$

6. Record estimate(s) on "Peak Flow Estimate Data" form.

"A Procedure for Regionalization of Peak Flows in B.C.," February 1987 should be referred to for a more detailed description.

9. LIMITATIONS OF PROCEDURE

9.1 Data Base

The stations used have different periods of record and length of record.

If data from "regulated" stations were used, the potential effect of the regulation or water use on the annual maximum discharge data should be determined.

For stations with less than 8 years of data, no frequency analysis is carried out. However, these stations can still provide valuable information when assessed in conjunction with longer-term stations with concurrent periods of record.

There are some stations for which useful data may be available, but not published in the Historical Summary because it is not considered reliable enough for a number of reasons. If data are particularly sparse in an area, the Reference Index should be reviewed and a check made for stations which have operated for a few years but do not have annual maximum discharge data listed in the Historical Summary. If annual streamflow publications are referred to (also on microfiche) useable data may be extracted.

Other sources of peak flow data should be searched out to ensure that no information has been missed.

9.2 Frequency Analysis

Stations with coefficients of skew outside the range of ± 1.50 may give unreliable results.

The results used for regionalization are for the frequency distribution with the lowest Kolmogorov-Smirnov statistic; a standard frequency distribution has not been selected to be used for all stations.

The reliability of return period estimates is a function of the length of record. It is generally considered that extrapolation past twice the period of record should be avoided if possible. In this study, the following limits determined which return period ratios would be noted on the map overlays:

Length of Record (Years)	Return Periods (Years)
5 - 7	mean only
8 - 14	25
15 - 20	25, 50
21+	25,50,100

Thus, if a station had 17 years of data, the ratios of the 25 year and 50 year return periods peak flows would be noted, but no value would be indicated on the 100 year return period ratio map overlay.

9.3 Regionalization Maps and Graphs

The mapped data give a general idea of the range in peak flow characteristics for an area; the effect of watershed characteristics such as area, elevation, slope, land use, natural storage, etc. will not necessarily be apparent.

The relationships defined by the graphs should not be extended far past the range of the plotted data.

No regional or envelope curves have been drawn on the graphs. It is generally better to define a relationship based on gauged data relevant to the watershed requiring an estimate. If there are no such data, or too

little to define a curve, then it is recommended that the slope of the WSC envelope curves (e.g., Appendix 5, Figure 0S.4) be used with the location of the curve determined by gauged data and/or judgement.

Hydrologic Zone boundaries are not well-defined. Especially near the boundaries as given, stations in the adjacent zones should not be excluded from consideration.

Estimating peak flows for watersheds with a drainage area much smaller than the gauged watersheds in a particular zone is not recommended. In Zone 5, for example, there are no gauged watersheds less than 185 km² in size making it very difficult to estimate peak flows for small watersheds. The possibility of combining the data for these zones with the data of zones with a better data base should be investigated as a number of the zones may have similar peak flow vs drainage area relationships. Other techniques such as small watershed models and unit hydrograph analysis should also be considered. Results should be compared with the range indicated by the regional data plotted on the graphs.

A major shortcoming in this procedure is the lack of watershed characteristic data. The method relies heavily on the judgement and experience of the user in taking into consideration differences in watershed characteristics amongst the gauged basins in the area and the basin for which an estimate is required.

APPENDIX 1

Long-Term Trends in Annual Maximum Daily Discharge

An analysis of departures from the long-term mean peak flow for a station with a continuous period of record provides an indication of the relative magnitude of the peak flow for each year, and if accumulated departures are used, persistent trends to below or above average amounts. This information is useful in regionalization of runoff data when the data base is comprised of stations with different periods of record as it can indicate how the mean peak flow for short-term stations compares to the long-term mean.

There are no small gauged natural flow watersheds in the Okanagan Region with the 40 or 50 year period of record considered desirable for this type of analysis. The compromise solution selected was to use a small watershed with the longest period of record available, 8NM015 Vaseux Creek above Dutton Creek, 1959-82 (DA 255 km²) and a large, longer-term station 8NL007 Similkameen River at Princeton, 1945-85 (DA 1850 km²). Annual departures from the mean were calculated, and to illustrate persistent trends, accumulated departures. These data are plotted in Figures 1.1 to 1.4 with values tabulated in Tables 1.1 and 1.2.

The accumulated departure histogram for Similkameen River (Figure 1.2) indicates two periods of generally above average (1945-85) annual peak flows, 1948-56 (33.8% above) and 1971-75 (24.2% above). Generally below

average peak flows occurred from 1962-1970 (17.4% below) and 1976-1985 (20.3% below).

During the shorter 1959-82 period, Vaseux Creek data (Figure 1.4) indicate an above average period from 1967 - 1975 (27.9% above) and a below average peak flow period from 1976-1980 (25.0% below).

A comparison of accumulated departure from the mean for the concurrent period of record for both stations (1952-82) indicates fairly close agreement. Thus the long-term Similkameen River data could be used as an index for smaller watersheds in general in the Region.

For example, the mean annual peak flow for 8NM177 Deep Creek at Young Road for its period of record 1971-75 is 12.4 L/s/km². Similkameen River and Vaseux Creek data indicate this is an above average period for peak flows by about 25%. A mean of 15.5 L/s/km² probably reflects more accurately the long-term mean for Deep Creek.

In summary, the analysis of long-term trends in annual peak flows shows that there can be periods of a few years or more when peak flows are consistently above or below normal by significant amounts. The reader should be aware that this is a source of error in the regionalization of peak flows when stations have different periods of record.

SIMILKAMEEN R. DEPARTURE FROM MEAN (%) 1945-85 ANN. MAX. DAILY DIS. (08812877)

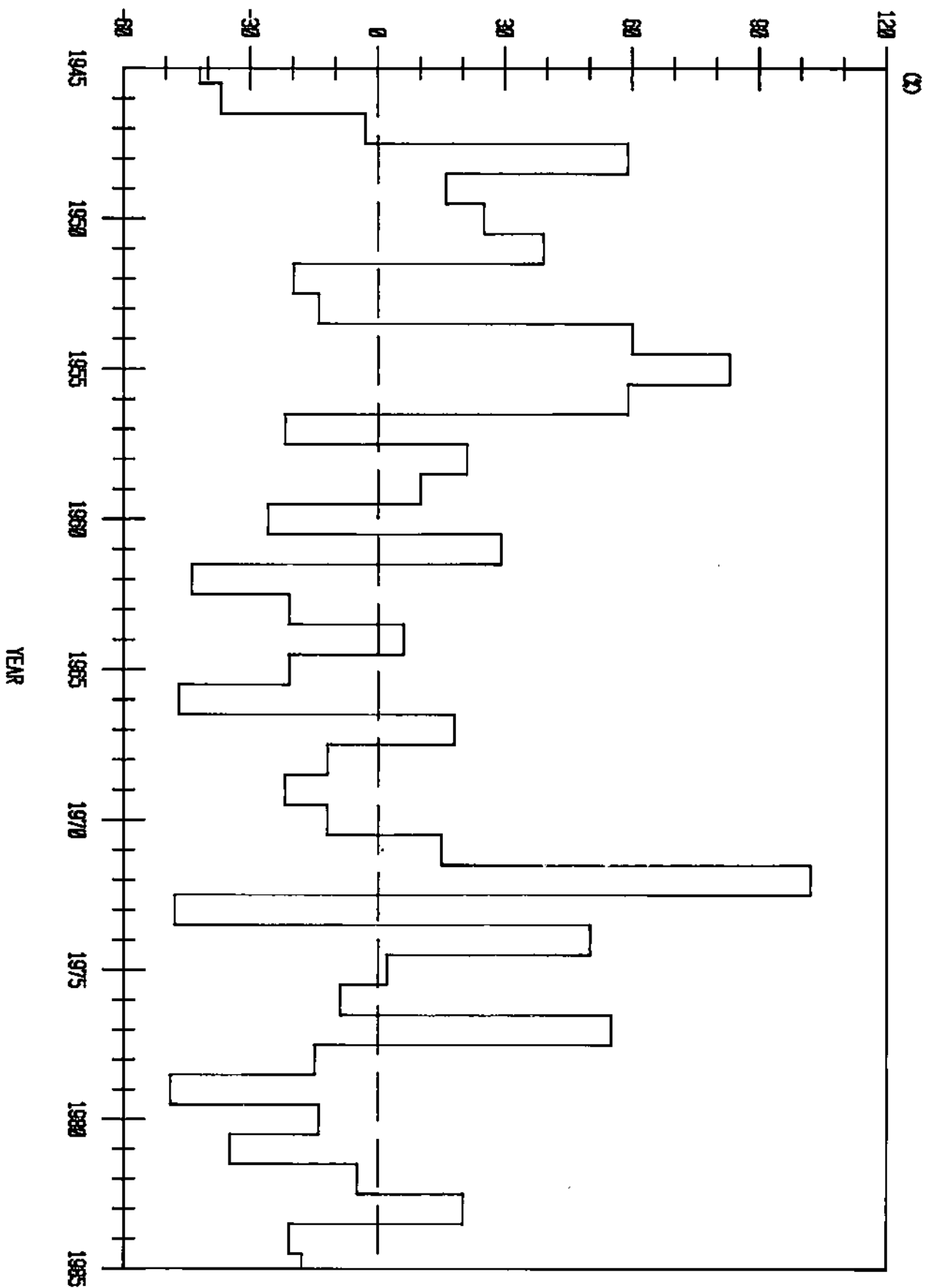


FIG 1.1

SIMILKAMEEN R. ACC. DEPART. FROM MEAN (%) 1945-85 ANNUAL MAX. DAILY DIS. (CONL2877)

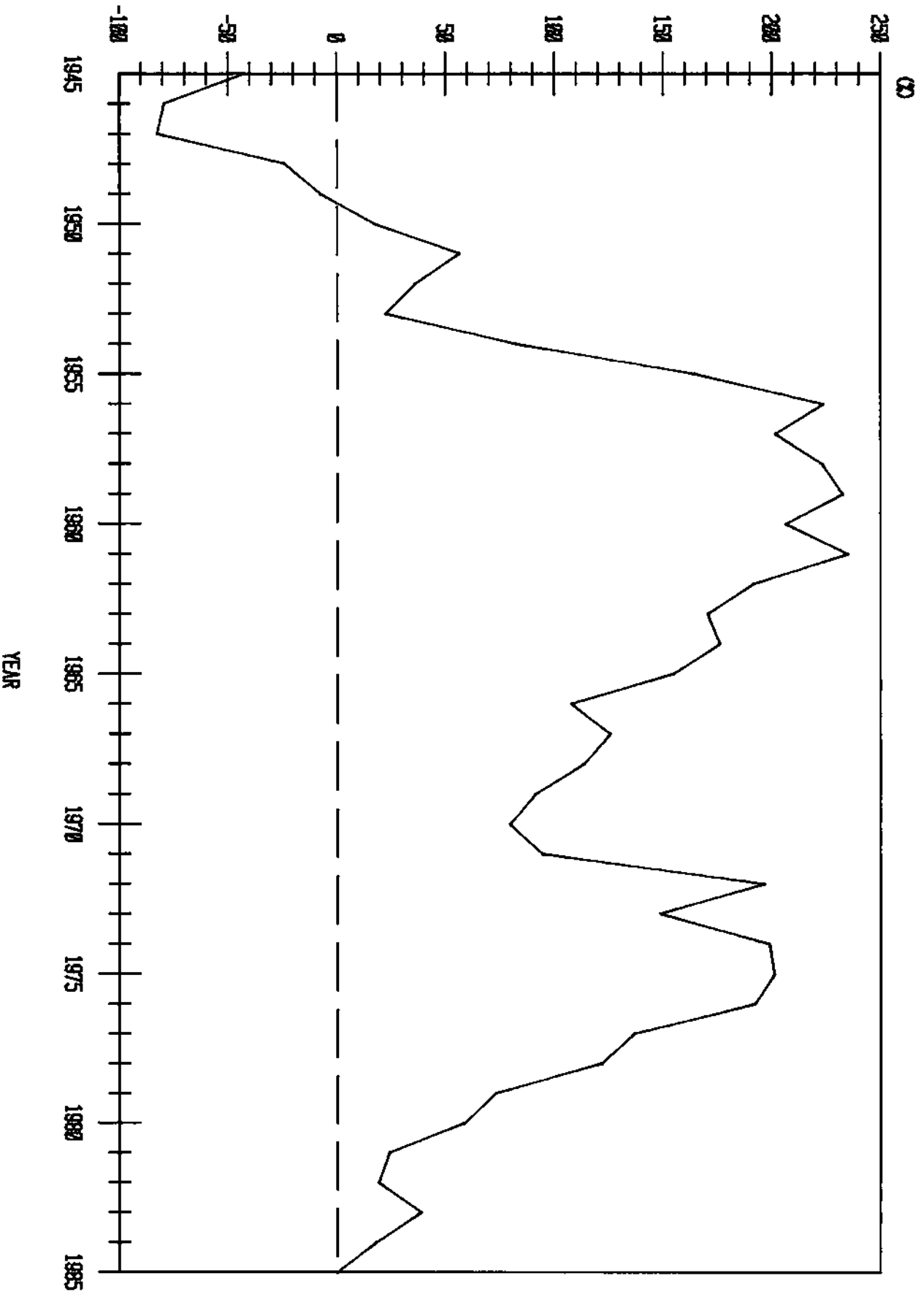


FIG. 1.2

VASEUX CREEK DEPARTURE FROM MEAN (%)

1959-82 ANNUAL MAX DAILY DTS. (08/04/81)

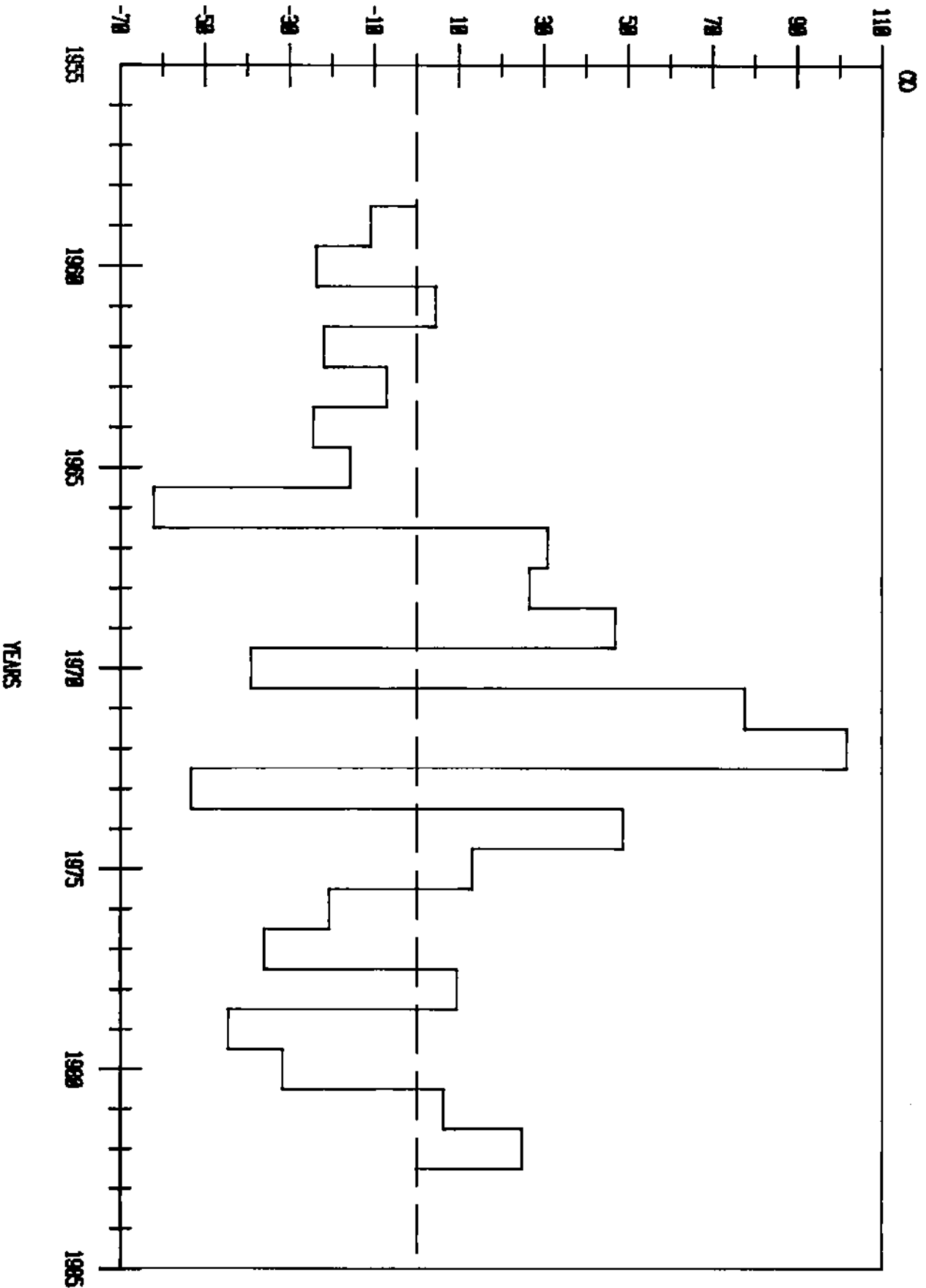


FIG.1.3

VASEUX CR. ACC. DEPARTURE FROM MEAN (%) 1959-82 ANNUAL MAX. DAILY DIS. (CENM015)

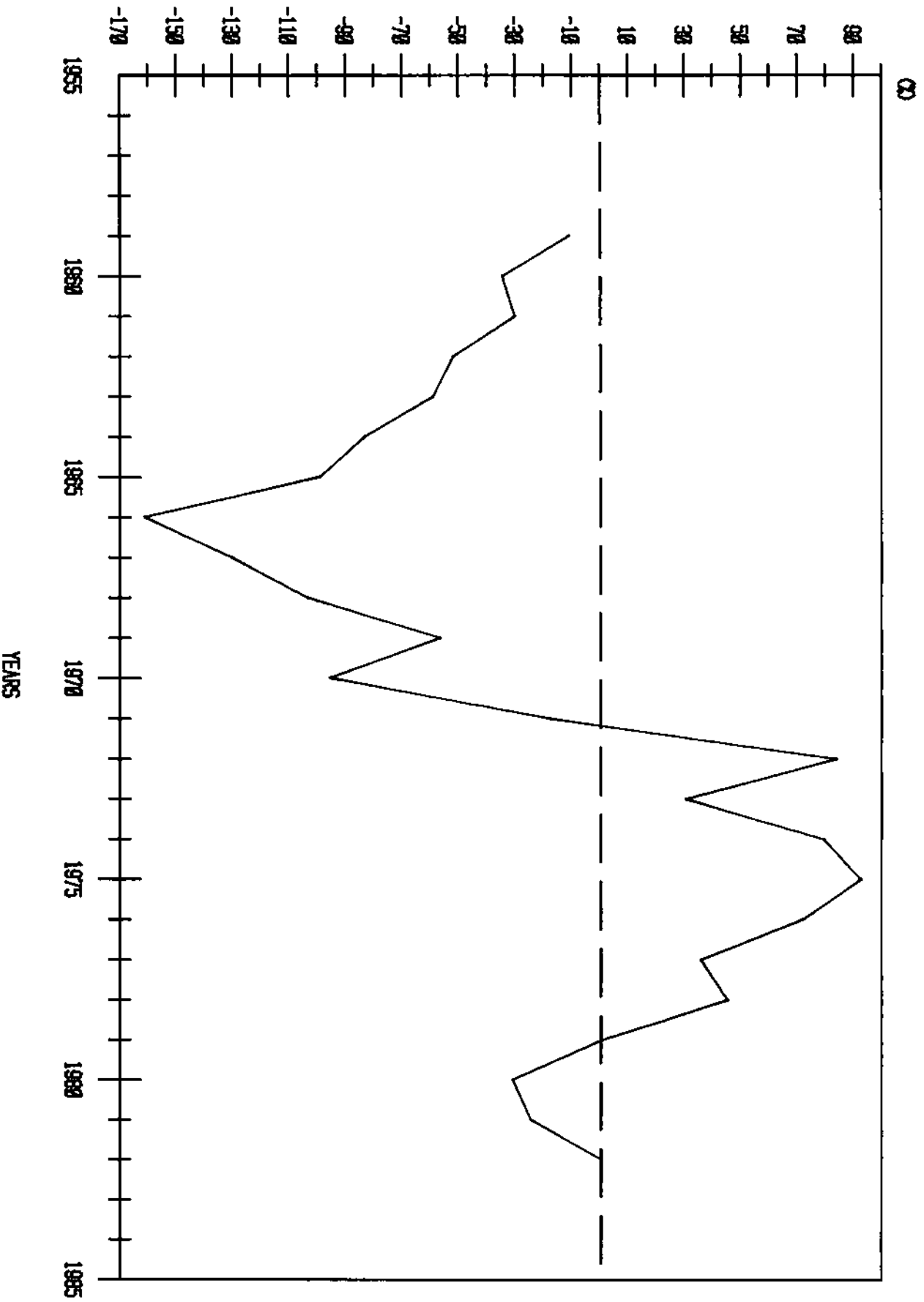


FIG. 1.4

TABLE 1.1

08NL007 SIMILKAMEEN RIVER AT PRINCETON

YEAR	ANNUAL MAXIMUM DAILY DIS. CMS	PERCENT. OF MEAN 1945-85	DEPART. FROM MEAN 1945-85	ACC. DEPART. FROM MEAN (%)

1945	136	57.72	-42.28	-42.28
1946	148	62.82	-37.18	-79.46
1947	228	96.77	-3.23	-82.69
1948	374	158.74	58.74	-23.96
1949	274	116.29	16.29	-7.66
1950	294	124.78	24.78	17.12
1951	328	139.21	39.21	56.33
1952	188	79.79	-20.21	36.13
1953	203	86.16	-13.84	22.29
1954	377	160.01	60.01	82.30
1955	430	182.51	82.51	164.80
1956	374	158.74	58.74	223.54
1957	184	78.10	-21.90	201.63
1958	286	121.39	21.39	223.02
1959	258	109.50	9.50	232.52
1960	174	73.85	-26.15	206.37
1961	303	128.60	28.60	234.98
1962	133	56.45	-43.55	191.43
1963	186	78.94	-21.06	170.37
1964	249	105.63	5.63	176.05
1965	185	79.52	-21.48	154.57
1966	125	53.05	-46.95	107.63
1967	278	117.99	17.99	125.62
1968	207	87.86	-12.14	113.48
1969	183	77.67	-22.33	91.15
1970	208	88.28	-11.72	79.43
1971	271	115.02	15.02	94.45
1972	476	202.03	102.03	196.46
1973	123	52.20	-47.80	148.68
1974	354	150.25	50.25	198.93
1975	241	102.29	2.29	201.22
1976	214	90.83	-9.17	192.05
1977	105	44.57	-55.43	136.61
1978	200	84.89	-15.11	121.50
1979	121	51.36	-48.64	72.85
1980	202	85.73	-14.27	58.59
1981	154	65.36	-34.64	23.95
1982	224	95.07	-4.93	19.02
1983	282	119.69	19.69	38.71
1984	187	79.37	-20.63	18.08
1985	193	81.92	-18.08	0.00
		ERR	ERR	ERR
MEAN	236			

TABLE 1.2

08NM015 VASEUX CREEK ABOVE DUTTON CREEK

08NM015 VASEUX CREEK ABOVE DUTTON CREEK				
YEAR	ANNUAL MAXIMUM DAILY DIS. CMS	PERCENT. OF MEAN 1959-82	DEPART. FROM MEAN 1959-82 (%)	ACC. DEPART. FROM MEAN (%)

1959	14.50	89.2	-10.8	-10.8
1960	12.40	76.3	-23.7	-34.6
1961	17.00	104.6	4.6	-30.0
1962	12.70	78.1	-21.9	-51.9
1963	15.10	92.9	-7.1	-59.0
1964	12.30	75.6	-24.4	-83.4
1965	13.70	84.3	-15.7	-99.1
1966	6.17	37.9	-62.1	-161.2
1967	21.30	131.0	31.0	-130.2
1968	20.60	126.7	26.7	-103.5
1969	23.90	147.0	47.0	-56.5
1970	9.91	60.9	-39.1	-95.6
1971	28.90	177.7	77.7	-17.8
1972	32.80	201.7	101.7	83.9
1973	7.59	46.7	-53.3	30.6
1974	24.20	148.8	48.8	79.4
1975	18.40	113.2	13.2	92.6
1976	12.90	79.3	-20.7	71.9
1977	10.40	64.0	-36.0	35.9
1978	17.80	109.5	9.5	45.3
1979	9.03	55.54	-44.46	0.87
1980	11.10	68.27	-31.73	-30.87
1981	17.30	106.40	6.40	-24.47
1982	20.30	124.85	24.85	0.37
MEAN	16.26			

APPENDIX 2

Frequency Analysis Data Summaries - Annual Maximum Daily Discharge

Frequency analysis results are included in the following order for Zones 5, 60S,7, and 11. For example, for Zone 60S:

60SN Natural flow stations, drainage area less than 1500 km².

60SR Regulated flow stations, drainage area less than 1500 km².

60SLDN Natural flow stations, drainage area greater than 1500 km² (LD = large drainage area)

60SLDR Regulated flow stations, drainage area greater than 1500 km².

Within each of these categories, stations are listed alphabetically.

SN

MAR 12, 1987

PASAYTEN RIVER ABOVE CALCITE CREEK OBNLO69 D.A. 562 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1975-85

MEAN (CU. M. /SEC) 69.3 MAXIMUM (CU. M. /SEC) 110. NO. OF YEARS 11
 MEAN (L/S/SQ. KM) 123. MAXIMUM (L/S/SQ. KM) 196. COEFF. OF SKEW 0.06

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN						K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR		GLOBAL	LOCAL
LOG NORMAL	181. (1.47)	204. (1.65)	218. (1.77)	232. (1.88)	244. (1.98)		0.08	0.08
GUMBEL	189. (1.54)	226. (1.83)	253. (2.05)	280. (2.27)	307. (2.49)		0.11	0.09
PEARSON TYPE III	181. (1.47)	202. (1.64)	216. (1.75)	229. (1.86)	241. (1.95)		0.08	0.08
LOG PEARSON III	186. (1.51)	211. (1.71)	227. (1.84)	241. (1.96)	254. (2.06)		0.09	0.07

MEAN 184. (1.49) 211. (1.71) 229. (1.85) 246. (1.99) 261. (2.12)

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

SIMILKAMEEN RIVER ABOVE GOODFELLOW CREEK OBNLO70 D.A. 407 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1974-85

MEAN (CU. M. /SEC) 74.0 MAXIMUM (CU. M. /SEC) 106. NO. OF YEARS 12
 MEAN (L/S/SQ. KM) 182. MAXIMUM (L/S/SQ. KM) 260. COEFF. OF SKEW -0.27

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN						K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR		GLOBAL	LOCAL
LOG NORMAL	244. (1.34)	264. (1.45)	276. (1.51)	286. (1.57)	295. (1.62)		0.12	0.12
GUMBEL	265. (1.45)	310. (1.71)	344. (1.89)	377. (2.07)	410. (2.26)		0.20	0.20
PEARSON TYPE III	245. (1.35)	265. (1.46)	278. (1.53)	289. (1.59)	299. (1.61)		0.12	0.12
LOG PEARSON III	249. (1.37)	270. (1.48)	291. (1.55)	291. (1.60)	299. (1.64)		0.14	0.14

MEAN 251. (1.38) 277. (1.52) 295. (1.62) 311. (1.71) 326. (1.79)

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

TULAMEEN RIVER BELOW VOICH CREEK OBNLO71 D.A. 256 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1974-85

MEAN (CU. M. /SEC) 60.4 MAXIMUM (CU. M. /SEC) 103. NO. OF YEARS 12
 MEAN (L/S/SQ. KM) 236. MAXIMUM (L/S/SQ. KM) 402. COEFF. OF SKEW 0.68

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN						K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR		GLOBAL	LOCAL
LOG NORMAL	337. (1.43)	386. (1.63)	420. (1.78)	453. (1.92)	485. (2.06)		0.10	0.10
GUMBEL	341. (1.45)	400. (1.70)	444. (1.88)	487. (2.06)	530. (2.25)		0.12	0.12
PEARSON TYPE III	337. (1.43)	384. (1.63)	417. (1.77)	448. (1.90)	478. (2.03)		0.11	0.11
LOG PEARSON III	338. (1.43)	385. (1.63)	418. (1.77)	448. (1.90)	477. (2.02)		0.10	0.10

MEAN 338. (1.43) 389. (1.65) 425. (1.80) 459. (1.95) 493. (2.09)

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 5N ***** MAR 12, 1987
 +-----+
 TULAMEEN RIVER NEAR TULAMEEN OBNLO67 D.A. 619 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1974-79

MEAN (CU. M. /SEC) 144. MAXIMUM (CU. M. /SEC) 208. NO. OF YEARS 6
 MEAN (L/S/SQ. KM) 232. MAXIMUM (L/S/SQ. KM) 336. COEFF. OF SKEW 0.37

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN										K-S TEST (UNBIASED)	
	10-YEAR		25-YEAR		50-YEAR		100-YEAR		200-YEAR		GLOBAL-LOCAL	
LOG NORMAL	356.	(1.53)	425.	(1.83)	477.	(2.06)	529.	(2.28)	582.	(2.51)	0.13	0.13
GUMBEL	339.	(1.46)	399.	(1.72)	445.	(1.92)	489.	(2.11)	534.	(2.30)	0.15	0.15
PEARSON TYPE III	346.	(1.49)	395.	(1.70)	427.	(1.84)	457.	(1.97)	486.	(2.09)	0.14	0.14
LOG PEARSON III	357.	(1.54)	429.	(1.85)	483.	(2.08)	538.	(2.32)	594.	(2.56)	0.13	0.13
MEAN	349.	(1.51)	412.	(1.78)	458.	(1.97)	504.	(2.17)	549.	(2.37)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE												

 WHIPSAN CREEK BELOW LAMONT CREEK OBNLO36 D.A. 185 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1965-85

MEAN (CU. M. /SEC) 8.77 MAXIMUM (CU. M. /SEC) 26.0 NO. OF YEARS 21
 MEAN (L/S/SQ. KM) 47.4 MAXIMUM (L/S/SQ. KM) 141. COEFF. OF SKEW 2.16

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	79.8 (1.68)	100. (2.11)	116. (2.44)	132. (2.78)	149. (3.13)	0.10	0.06
GUMBEL	75.9 (1.60)	92.4 (1.95)	105. (2.21)	117. (2.46)	129. (2.72)	0.09	0.04
PEARSON TYPE III	82.3 (1.74)	108. (2.28)	128. (2.69)	147. (3.11)	167. (3.53)	0.11	0.09
LOG PEARSON III	80.4 (1.70)	101. (2.13)	117. (2.47)	133. (2.81)	150. (3.15)	0.10	0.06
MEAN	79.6 (1.68)	100. (2.12)	116. (2.45)	132. (2.79)	149. (3.13)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							

*****3R*****MAR 12, 1987
 +-----+
 LITTLE MUDDY CREEK NEAR MANNING PARK 08NLO33 D. A. 25.9 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1960-64, 68-70

MEAN (CU. M. /SEC) 2.45 MAXIMUM (CU. M. /SEC) 3.48 NO. OF YEARS 8
 MEAN (L/S/SQ. KM) 94.7 MAXIMUM (L/S/SQ. KM) 134. COEFF. OF SKEW -0.11

DISTRIBUTION FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST
 () RATIO TO MEAN (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	134. (1.41)	147. (1.55)	154. (1.63)	161. (1.70)	167. (1.76)	0.10	0.05
GUMBEL	142. (1.50)	168. (1.77)	187. (1.98)	206. (2.18)	226. (2.38)	0.07	0.07
PEARSON TYPE III	135. (1.42)	149. (1.57)	158. (1.67)	166. (1.75)	173. (1.83)	0.09	0.05
LOG PEARSON III	139. (1.47)	156. (1.64)	166. (1.76)	176. (1.85)	184. (1.94)	0.07	0.05
MEAN	137. (1.45)	155. (1.63)	166. (1.76)	177. (1.87)	187. (1.98)		

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 60SN ***** AUG 26, 1987
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 ASHNOLA RIVER NEAR KEREMEOS OBNLO04 D.A. 1050 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN M3/SEC. 1915-18, 47-85

MEAN (CU. M. /SEC) 80.2 MAXIMUM (CU. M. /SEC) 181. NO. OF YEARS 43
 MEAN (L/S/SQ. KM) 76.4 MAXIMUM (L/S/SQ. KM) 172. COEFF. OF SKEW 0.89

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN										K-S TEST (UNBIASED)	
	10-YEAR		25-YEAR		50-YEAR		100-YEAR		200-YEAR		GLOBAL	LOCAL
LOG NORMAL	133.	(1.74)	176.	(2.30)	211.	(2.77)	250.	(3.27)	291.	(3.81)	0.08	0.04
GUMBEL	123.	(1.61)	151.	(1.97)	171.	(2.24)	191.	(2.50)	211.	(2.76)	0.10	0.04
PEARSON TYPE III	129.	(1.69)	156.	(2.04)	175.	(2.28)	193.	(2.52)	210.	(2.75)	0.09	0.06
LOG PEARSON III	130.	(1.70)	166.	(2.17)	195.	(2.55)	225.	(2.95)	257.	(3.37)	0.09	0.04
MEAN	129.	(1.69)	162.	(2.12)	188.	(2.46)	215.	(2.81)	242.	(3.17)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE												

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 ASP CREEK NEAR PRINCETON OBNLO15 D.A. 51.8 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN M3/SEC. 1960-69

MEAN (CU. M. /SEC) 4.29 MAXIMUM (CU. M. /SEC) 13.8 NO. OF YEARS 10
 MEAN (L/S/SQ. KM) 82.8 MAXIMUM (L/S/SQ. KM) 266. COEFF. OF SKEW 1.84

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN										K-S TEST (UNBIASED)	
	10-YEAR		25-YEAR		50-YEAR		100-YEAR		200-YEAR		GLOBAL	LOCAL
LOG NORMAL	158.	(1.91)	225.	(2.71)	282.	(3.40)	346.	(4.17)	417.	(5.03)	0.22	0.19
GUMBEL	143.	(1.73)	181.	(2.19)	210.	(2.53)	238.	(2.88)	266.	(3.22)	0.27	0.23
PEARSON TYPE III	192.	(2.32)	266.	(3.21)	321.	(3.87)	376.	(4.53)	430.	(5.19)	0.24	0.24
LOG PEARSON III	164.	(1.99)	301.	(3.63)	468.	(5.65)	723.	(8.73)	1110.	(13.4)	0.13	0.11
MEAN	164.	(1.99)	243.	(2.94)	320.	(3.87)	421.	(5.08)	556.	(6.71)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE												

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 BELLEVUE CREEK NEAR OKANAGAN MISSION OBNM035 D.A. 73.3 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN M3/SEC. 1921, 50-57, 68-85

MEAN (CU. M. /SEC) 5.51 MAXIMUM (CU. M. /SEC) 11.2 NO. OF YEARS 27
 MEAN (L/S/SQ. KM) 75.2 MAXIMUM (L/S/SQ. KM) 153. COEFF. OF SKEW 0.97

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN										K-S TEST (UNBIASED)	
	10-YEAR		25-YEAR		50-YEAR		100-YEAR		200-YEAR		GLOBAL	LOCAL
LOG NORMAL	119.	(1.58)	155.	(2.06)	186.	(2.47)	220.	(2.93)	258.	(3.43)	0.09	0.06
GUMBEL	109.	(1.46)	129.	(1.72)	144.	(1.91)	159.	(2.11)	173.	(2.30)	0.10	0.07
PEARSON TYPE III	114.	(1.51)	134.	(1.78)	148.	(1.97)	162.	(2.15)	175.	(2.33)	0.08	0.05
LOG PEARSON III	114.	(1.51)	138.	(1.84)	158.	(2.10)	179.	(2.38)	201.	(2.67)	0.09	0.06
MEAN	114.	(1.52)	139.	(1.85)	159.	(2.11)	180.	(2.39)	202.	(2.68)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE												

***** 605N ***** MAR 13, 1987
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 BULL CREEK NEAR CRUMP OBNM133 D.A. 46.9 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1965-66, 68-85

MEAN (CU. M./SEC) 1.32 MAXIMUM (CU. M./SEC) 4.36 NO. OF YEARS 20
 MEAN (L/S/SQ. KM) 28.1 MAXIMUM (L/S/SQ. KM) 93.0 COEFF. OF SKEW 1.82

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	55.3 (1.97)	76.4 (2.72)	93.9 (3.35)	113. (4.03)	134. (4.77)	0.08	0.08
GUMBEL	49.7 (1.77)	62.3 (2.22)	71.7 (2.56)	81.0 (2.89)	90.3 (3.22)	0.07	0.05
PEARSON TYPE III	55.6 (1.98)	74.0 (2.64)	87.8 (3.13)	102. (3.62)	115. (4.10)	0.10	0.10
LOG PEARSON III	55.3 (1.97)	74.7 (2.66)	90.2 (3.21)	106. (3.79)	123. (4.38)	0.08	0.08
MEAN	54.0 (1.92)	71.9 (2.56)	85.9 (3.06)	100. (3.58)	116. (4.12)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							
CAMP CREEK AT MOUTH NEAR THIRSK OBNM134 D.A. 33.9 SQ. KM.							
MAXIMUM DAILY DISCHARGE IN CMS. 1966-85							

MEAN (CU. M./SEC) 1.35 MAXIMUM (CU. M./SEC) 3.43 NO. OF YEARS 20
 MEAN (L/S/SQ. KM) 39.9 MAXIMUM (L/S/SQ. KM) 101. COEFF. OF SKEW 1.66

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	63.6 (1.59)	75.7 (1.90)	84.5 (2.12)	93.1 (2.33)	102. (2.54)	0.16	0.03
GUMBEL	64.2 (1.61)	77.8 (1.95)	87.1 (2.20)	97.8 (2.45)	108. (2.70)	0.16	0.04
PEARSON TYPE III	64.6 (1.62)	80.4 (2.01)	92.1 (2.30)	104. (2.59)	115. (2.88)	0.21	0.07
LOG PEARSON III	63.5 (1.59)	72.9 (1.83)	78.8 (1.97)	83.9 (2.10)	88.4 (2.21)	0.14	0.04
MEAN	64.0 (1.60)	76.7 (1.92)	85.8 (2.15)	94.6 (2.37)	103. (2.58)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							
CLARK CREEK NEAR WINFIELD OBNM146 D.A. 15.3 SQ. KM.							
MAXIMUM DAILY DISCHARGE IN CMS. 1968-82							

MEAN (CU. M./SEC) 0.990 MAXIMUM (CU. M./SEC) 1.81 NO. OF YEARS 15
 MEAN (L/S/SQ. KM) 64.7 MAXIMUM (L/S/SQ. KM) 118. COEFF. OF SKEW 0.03

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	102. (1.58)	116. (1.80)	126. (1.94)	134. (2.07)	141. (2.19)	0.08	0.08
GUMBEL	109. (1.69)	134. (2.07)	152. (2.36)	171. (2.64)	189. (2.92)	0.12	0.12
PEARSON TYPE III	102. (1.58)	116. (1.80)	125. (1.94)	133. (2.06)	141. (2.18)	0.08	0.08
LOG PEARSON III	108. (1.67)	125. (1.93)	136. (2.09)	144. (2.23)	152. (2.35)	0.11	0.11
MEAN	106. (1.63)	123. (1.90)	135. (2.08)	145. (2.25)	156. (2.41)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							

***** 60SN ***** MAR 13, 1987
 HAYES CREEK NEAR PRINCETON OBNLO20 D.A. 751 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1943-44.46-49

MEAN (CU. M./SEC) 32.5 MAXIMUM (CU. M./SEC) 53.8 NO. OF YEARS 6
 MEAN (L/S/SQ. KM) 43.3 MAXIMUM (L/S/SQ. KM) 71.6 COEFF. OF SKEW 0.43

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	72.7 (1.68)	89.0 (2.06)	101. (2.34)	113. (2.62)	126. (2.90)	0.13 0.13
GUMBEL	69.4 (1.60)	84.1 (1.94)	95.0 (2.19)	106. (2.44)	117. (2.69)	0.14 0.14
PEARSON TYPE III	70.2 (1.62)	81.9 (1.89)	89.8 (2.07)	97.2 (2.24)	104. (2.40)	0.16 0.16
LOG PEARSON III	73.1 (1.69)	88.2 (2.03)	98.8 (2.28)	109. (2.51)	118. (2.73)	0.14 0.14
MEAN	71.4 (1.65)	85.8 (1.98)	96.2 (2.22)	106. (2.45)	116. (2.68)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 HEDLEY CREEK NEAR THE MOUTH OBNLO50 D.A. 389 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1974-85

MEAN (CU. M./SEC) 27.5 MAXIMUM (CU. M./SEC) 57.2 NO. OF YEARS 12
 MEAN (L/S/SQ. KM) 70.8 MAXIMUM (L/S/SQ. KM) 147. COEFF. OF SKEW 1.13

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	111. (1.57)	132. (1.86)	146. (2.06)	160. (2.26)	174. (2.46)	0.12 0.07
GUMBEL	112. (1.58)	135. (1.91)	152. (2.15)	169. (2.39)	186. (2.63)	0.11 0.08
PEARSON TYPE III	112. (1.58)	135. (1.90)	151. (2.13)	166. (2.35)	182. (2.57)	0.11 0.10
LOG PEARSON III	111. (1.57)	128. (1.80)	138. (1.95)	147. (2.08)	155. (2.19)	0.14 0.07
MEAN	112. (1.58)	132. (1.87)	147. (2.07)	161. (2.27)	174. (2.46)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 HORN CREEK NEAR OLALLA OBNM147 D.A. 15.0 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1968-69.71-73

MEAN (CU. M./SEC) 0.275 MAXIMUM (CU. M./SEC) 0.850 NO. OF YEARS 5
 MEAN (L/S/SQ. KM) 18.3 MAXIMUM (L/S/SQ. KM) 56.7 COEFF. OF SKEW 1.99

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	56.9 (3.11)	107. (5.84)	161. (8.79)	232. (12.7)	325. (17.7)	0.20 0.20
GUMBEL	36.0 (1.97)	46.9 (2.56)	54.9 (3.00)	62.9 (3.43)	70.9 (3.87)	0.25 0.25
PEARSON TYPE III	46.9 (2.56)	66.9 (3.65)	82.0 (4.48)	97.2 (5.30)	112. (6.13)	0.18 0.18
LOG PEARSON III	51.1 (2.79)	78.1 (4.26)	99.4 (5.43)	121. (6.61)	143. (7.80)	0.17 0.17
MEAN	47.7 (2.61)	74.7 (4.08)	99.3 (5.42)	128. (7.01)	163. (8.88)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 60SN ***** MAR 13, 1987

 INKANEEP CREEK NEAR OLIVER (LOWER STATION) OBNM012 D. A. 164 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS 1920-29.42, 44-50

MEAN (CU. M./SEC) 3.87 MAXIMUM (CU. M./SEC) 15.9 NO. OF YEARS 18
 MEAN (L/S/SQ. KM) 23.6 MAXIMUM (L/S/SQ. KM) 97.0 COEFF. OF SKEW 2.50

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL	K-S TEST (UNBIASED)
LOG NORMAL	51.8 (2.20)	79.5 (3.37)	105. (4.45)	135. (5.72)	170. (7.20)	0.12	0.07
GUMBEL	43.2 (1.83)	54.9 (2.32)	63.5 (2.69)	72.1 (3.05)	80.6 (3.42)	0.07	0.07
PEARSON TYPE III	50.4 (2.13)	72.0 (3.05)	83.9 (3.77)	106. (4.47)	123. (5.22)	0.14	0.14
LOG PEARSON III	49.7 (2.10)	72.4 (3.07)	92.2 (3.91)	114. (4.85)	139. (5.90)	0.10	0.07
MEAN	48.8 (2.07)	69.7 (2.95)	87.4 (3.70)	107. (4.53)	128. (5.43)		

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 KEREMEOS CREEK ABOVE MARSEL CREEK OBNM014 D. A. 68.6 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS 1920-27

MEAN (CU. M./SEC) 1.12 MAXIMUM (CU. M./SEC) 2.04 NO. OF YEARS 8
 MEAN (L/S/SQ. KM) 16.4 MAXIMUM (L/S/SQ. KM) 29.7 COEFF. OF SKEW 0.78

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL	K-S TEST (UNBIASED)
LOG NORMAL	26.3 (1.61)	32.0 (1.95)	36.2 (2.21)	40.5 (2.47)	44.8 (2.74)	0.10	0.10
GUMBEL	25.3 (1.54)	30.3 (1.85)	34.1 (2.08)	37.8 (2.31)	41.5 (2.54)	0.11	0.11
PEARSON TYPE III	25.8 (1.58)	30.4 (1.86)	33.6 (2.05)	36.7 (2.24)	39.6 (2.42)	0.10	0.10
LOG PEARSON III	26.3 (1.60)	31.6 (1.93)	35.4 (2.16)	39.2 (2.40)	42.9 (2.62)	0.09	0.09
MEAN	25.9 (1.58)	31.1 (1.90)	34.8 (2.13)	38.5 (2.35)	42.2 (2.58)		

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 MCLEAN CREEK NEAR OKANAGAN FALLS OBNM005 D. A. 20.7
 MAXIMUM DAILY DISCHARGE IN CMS 1921-26

MEAN (CU. M./SEC) 1.000 MAXIMUM (CU. M./SEC) 1.36 NO. OF YEARS 6
 MEAN (L/S/SQ. KM) 48.3 MAXIMUM (L/S/SQ. KM) 65.7 COEFF. OF SKEW 1.18

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL	K-S TEST (UNBIASED)
LOG NORMAL	61.7 (1.28)	69.6 (1.44)	75.5 (1.56)	81.5 (1.69)	87.6 (1.81)	0.15	0.15
GUMBEL	59.8 (1.24)	66.9 (1.37)	71.2 (1.47)	76.0 (1.57)	80.8 (1.67)	0.13	0.13
PEARSON TYPE III	61.3 (1.27)	68.4 (1.42)	73.6 (1.52)	78.6 (1.63)	83.5 (1.73)	0.16	0.16
LOG PEARSON III	61.3 (1.27)	69.1 (1.43)	75.0 (1.55)	81.1 (1.68)	87.3 (1.81)	0.15	0.15
MEAN	61.0 (1.26)	68.4 (1.42)	73.8 (1.53)	79.3 (1.64)	84.8 (1.76)		

***** 60SN ***** MAR 13, 1987
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 OTTER CREEK BELOW SPEARING CREEK ORNL060 D. A. 409 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1975-82

MEAN (CU. M. / SEC) 11.6 MAXIMUM (CU. M. / SEC) 21.5 NO. OF YEARS 8
 MEAN (L/S/SQ. KM) 28.3 MAXIMUM (L/S/SQ. KM) 52.6 COEFF. OF SKEW 0.62

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	47.0 (1.73)	62.6 (2.21)	73.4 (2.57)	84.8 (2.99)	96.7 (3.41)	0.10 0.10
GUMBEL	45.4 (1.60)	59.2 (1.95)	62.4 (2.20)	69.6 (2.46)	76.7 (2.71)	0.11 0.11
PEARSON TYPE III	46.6 (1.64)	55.0 (1.94)	60.9 (2.15)	66.4 (2.34)	71.6 (2.53)	0.11 0.11
LOG PEARSON III	48.2 (1.70)	59.9 (2.11)	68.7 (2.42)	77.5 (2.74)	86.4 (3.05)	0.09 0.09
MEAN	47.3 (1.67)	58.2 (2.05)	66.3 (2.34)	74.6 (2.63)	82.9 (2.93)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 PEARSON CREEK NEAR THE MOUTH ORNL172 D. A. 73.6 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1971-85

MEAN (CU. M. / SEC) 8.93 MAXIMUM (CU. M. / SEC) 13.8 NO. OF YEARS 15
 MEAN (L/S/SQ. KM) 121 MAXIMUM (L/S/SQ. KM) 188 COEFF. OF SKEW 0.69

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	154. (1.27)	167. (1.38)	176. (1.45)	185. (1.52)	193. (1.59)	0.17 0.15
GUMBEL	153. (1.35)	186. (1.53)	203. (1.67)	219. (1.81)	236. (1.94)	0.18 0.18
PEARSON TYPE III	155. (1.28)	171. (1.41)	182. (1.50)	192. (1.58)	202. (1.67)	0.18 0.18
LOG PEARSON III	153. (1.26)	164. (1.35)	170. (1.40)	175. (1.45)	180. (1.49)	0.21 0.13
MEAN	156. (1.29)	172. (1.42)	183. (1.51)	193. (1.59)	203. (1.67)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 PENTICTON CREEK ABOVE DIVERSIONS ORNL076 D. A. ??? SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1937-41

MEAN (CU. M. / SEC) 7.73 MAXIMUM (CU. M. / SEC) 10.6 NO. OF YEARS 5
 MEAN (CU. M. / SEC) 7.73 MAXIMUM (CU. M. / SEC) 10.6 COEFF. OF SKEW 0.43

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN CU. M. / SEC
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	12.3 (1.59)	16.5 (2.13)	20.4 (2.61)	25.1 (3.24)	30.5 (3.94)	0.12 0.12
GUMBEL	10.5 (1.36)	12.1 (1.56)	13.2 (1.71)	14.4 (1.86)	15.6 (2.01)	0.16 0.16
PEARSON TYPE III	10.8 (1.40)	12.2 (1.57)	13.1 (1.69)	13.9 (1.80)	14.7 (1.90)	0.16 0.16
LOG PEARSON III	11.0 (1.43)	12.9 (1.67)	14.4 (1.86)	15.8 (2.04)	17.3 (2.24)	0.14 0.14
MEAN	11.2 (1.41)	13.4 (1.73)	15.3 (1.98)	17.3 (2.24)	19.5 (2.52)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 60SN ***** MAR 13, 1987
 POOLEY CREEK ABOVE POOLEY DITCH OBNM210 D.A. 18.1 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1974-76-79

MEAN (CU. M. / SEC) 2.70 MAXIMUM (CU. M. / SEC) 4.30 NO. OF YEARS 5
 MEAN (L/S/SQ. KM) 149 MAXIMUM (L/S/SQ. KM) 238 COEFF. OF SKEW 0.81

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	242. (1.63)	307. (2.07)	364. (2.44)	423. (2.84)	487. (3.27)	0.03 0.03
GUMBEL	218. (1.46)	257. (1.73)	286. (1.92)	316. (2.12)	344. (2.31)	0.05 0.05
PEARSON TYPE III	228. (1.53)	266. (1.79)	294. (1.97)	319. (2.14)	344. (2.31)	0.04 0.04
LOG PEARSON III	233. (1.56)	283. (1.90)	322. (2.16)	362. (2.43)	403. (2.71)	0.02 0.02
MEAN	230. (1.54)	279. (1.87)	317. (2.12)	355. (2.38)	395. (2.65)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
POWERS CREEK ABOVE WESTBANK DIVERSION OBNM033 D.A. 128 SQ. KM.						
MAXIMUM DAILY DISCHARGE IN CMS. 1920, 27, 67-68, 70-74						

MEAN (CU. M. / SEC) 7.60 MAXIMUM (CU. M. / SEC) 14.2 NO. OF YEARS 9
 MEAN (L/S/SQ. KM) 59.4 MAXIMUM (L/S/SQ. KM) 111 COEFF. OF SKEW 0.31

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	121. (2.04)	178. (2.99)	228. (3.84)	287. (4.84)	355. (5.98)	0.17 0.17
GUMBEL	102. (1.72)	126. (2.12)	144. (2.43)	162. (2.73)	180. (3.03)	0.19 0.19
PEARSON TYPE III	103. (1.74)	121. (2.04)	133. (2.25)	145. (2.44)	155. (2.61)	0.15 0.15
LOG PEARSON III	111. (1.86)	144. (2.43)	171. (2.87)	198. (3.33)	226. (3.80)	0.17 0.17
MEAN	109. (1.84)	142. (2.40)	169. (2.85)	198. (3.33)	229. (3.86)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
RIBBLEWORTH CREEK NEAR DYAMA OBNM235 D.A. ??? SQ. KM.						
MAXIMUM DAILY DISCHARGE IN CMS. 1973-79						

MEAN (CU. M. / SEC) 0.021 MAXIMUM (CU. M. / SEC) 0.026 NO. OF YEARS 7
 MEAN (L/S/SQ. KM) 0.021 MAXIMUM (L/S/SQ. KM) 0.026 COEFF. OF SKEW 0.07

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN CU. M. / SEC
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	0.026 (1.23)	0.028 (1.31)	0.029 (1.36)	0.030 (1.42)	0.031 (1.46)	0.11 0.11
GUMBEL	0.027 (1.25)	0.030 (1.38)	0.032 (1.48)	0.034 (1.58)	0.036 (1.68)	0.10 0.10
PEARSON TYPE III	0.026 (1.23)	0.028 (1.30)	0.029 (1.36)	0.030 (1.40)	0.031 (1.45)	0.12 0.12
LOG PEARSON III	0.026 (1.23)	0.028 (1.32)	0.029 (1.37)	0.031 (1.43)	0.032 (1.48)	0.11 0.11
MEAN	0.026 (1.23)	0.028 (1.33)	0.030 (1.37)	0.031 (1.46)	0.033 (1.52)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						

***** GOSN ***** MAR 13, 1987

 RICHTER CREEK NEAR OSOYDUS OBNLO40 D.A. 15.3 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1968-74

MEAN (CU. M./SEC) 0.057 MAXIMUM (CU. M./SEC) 0.161 NO. OF YEARS 7
 MEAN (L/S/SQ. KM) 3.73 MAXIMUM (L/S/SQ. KM) 10.5 COEFF. OF SKEN 1.08

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	10.2 (2.73)	18.3 (4.90)	24.7 (7.16)	37.6 (10.1)	51.4 (13.8)	0.08 0.08
GUMBEL	7.73 (2.07)	10.1 (2.71)	11.9 (3.18)	13.6 (3.65)	15.4 (4.12)	0.17 0.17
PEARSON TYPE III	9.02 (2.43)	12.0 (3.20)	14.0 (3.76)	16.0 (4.29)	18.0 (4.81)	0.13 0.13
LOG PEARSON III	10.3 (2.77)	19.2 (5.14)	28.8 (7.72)	41.7 (11.2)	58.6 (15.7)	0.09 0.09
MEAN	9.33 (2.50)	14.9 (3.99)	20.4 (5.45)	27.2 (7.29)	35.8 (9.60)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 SCOTTY CREEK NEAR RUTLAND OBNM036 D.A. 35.0 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1920, 22-23, 61-62, 64

MEAN (CU. M./SEC) 1.35 MAXIMUM (CU. M./SEC) 1.87 NO. OF YEARS 6
 MEAN (L/S/SQ. KM) 38.6 MAXIMUM (L/S/SQ. KM) 53.4 COEFF. OF SKEN -0.41

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	52.0 (1.35)	55.0 (1.42)	56.7 (1.47)	58.1 (1.50)	59.3 (1.53)	0.14 0.14
GUMBEL	59.9 (1.45)	55.4 (1.67)	72.5 (1.88)	79.6 (2.06)	86.6 (2.24)	0.24 0.24
PEARSON TYPE III	53.0 (1.37)	57.4 (1.49)	60.1 (1.55)	62.3 (1.61)	64.3 (1.66)	0.17 0.17
LOG PEARSON III	54.9 (1.42)	50.8 (1.57)	64.5 (1.67)	67.7 (1.75)	70.5 (1.82)	0.19 0.19
MEAN	53.9 (1.40)	59.7 (1.54)	63.4 (1.64)	66.9 (1.73)	70.2 (1.82)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 SHINGLE CREEK ABOVE KALEDEN DIVERSION OBNM038 D.A. 41.8 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1920-26, 30-31, 64, 68-71

MEAN (CU. M./SEC) 2.79 MAXIMUM (CU. M./SEC) 6.82 NO. OF YEARS 14
 MEAN (L/S/SQ. KM) 62.4 MAXIMUM (L/S/SQ. KM) 152 COEFF. OF SKEN 0.76

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	134 (2.15)	203 (3.26)	267 (4.29)	343 (5.49)	431 (6.91)	0.13 0.08
GUMBEL	111 (1.79)	140 (2.24)	161 (2.57)	181 (2.91)	202 (3.24)	0.13 0.13
PEARSON TYPE III	116 (1.85)	141 (2.27)	159 (2.56)	176 (2.83)	193 (3.09)	0.11 0.11
LOG PEARSON III	122 (1.96)	165 (2.65)	200 (3.21)	236 (3.79)	275 (4.41)	0.12 0.10
MEAN	121 (1.94)	162 (2.60)	197 (3.16)	234 (3.76)	275 (4.41)	

***** 60SN ***** MAR 13, 1987 *****

 SOKUP CREEK NEAR HEDLEY OBNLO35 D.A. 22.3 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1965-72, 74-79

MEAN (CU. M./SEC) 0.513 MAXIMUM (CU. M./SEC) 1.78 NO. OF YEARS 14
 MEAN (L/S/SQ. KM) 23.0 MAXIMUM (L/S/SQ. KM) 79.8 COEFF. OF SKEW 1.91

DISTRIBUTION
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	54.0 (2.35)	91.8 (3.99)	130. (5.65)	179. (7.79)	241. (10.5)	0.09 0.04
GUMBEL	41.6 (1.81)	52.8 (2.29)	61.1 (2.66)	69.4 (3.01)	77.6 (3.37)	0.12 0.12
PEARSON TYPE III	47.9 (2.17)	68.3 (2.97)	82.2 (3.57)	96.1 (4.17)	110. (4.77)	0.10 0.10
LOG PEARSON III	48.3 (2.10)	74.9 (3.25)	101. (4.37)	132. (5.75)	171. (7.44)	0.07 0.07
MEAN	48.4 (2.10)	72.0 (3.13)	93.6 (4.07)	119. (5.18)	150. (6.51)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 SUMMERS CREEK AT THE MOUTH OBNLO13 D.A. 345E SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1920, 61-62, 65-66

MEAN (CU. M./SEC) 3.66 MAXIMUM (CU. M./SEC) 5.72 NO. OF YEARS 5
 MEAN (L/S/SQ. KM) 10.6 MAXIMUM (L/S/SQ. KM) 16.6 COEFF. OF SKEW 0.60

DISTRIBUTION
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	16.3 (1.54)	19.3 (1.82)	21.5 (2.03)	23.7 (2.24)	25.9 (2.44)	0.09 0.09
GUMBEL	15.7 (1.48)	18.6 (1.75)	20.7 (1.95)	22.8 (2.15)	25.0 (2.35)	0.09 0.09
PEARSON TYPE III	16.0 (1.50)	18.4 (1.74)	20.1 (1.90)	21.7 (2.05)	23.2 (2.19)	0.08 0.08
LOG PEARSON III	16.3 (1.54)	19.1 (1.80)	21.1 (1.99)	23.0 (2.17)	24.8 (2.34)	0.08 0.08
MEAN	16.1 (1.52)	18.9 (1.78)	20.9 (1.97)	22.8 (2.15)	24.7 (2.33)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 SUMMERS CREEK NEAR PRINCETON OBNLO19 D.A. 238E SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1922, 24-27

MEAN (CU. M./SEC) 2.38 MAXIMUM (CU. M./SEC) 3.88 NO. OF YEARS 5
 MEAN (L/S/SQ. KM) 10.0 MAXIMUM (L/S/SQ. KM) 16.3 COEFF. OF SKEW -0.73

DISTRIBUTION
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	16.0 (1.57)	17.2 (1.72)	18.0 (1.79)	18.5 (1.85)	19.0 (1.90)	0.06 0.06
GUMBEL	15.5 (1.85)	23.2 (2.31)	26.6 (2.66)	30.0 (3.00)	33.4 (3.34)	0.12 0.12
PEARSON TYPE III	16.3 (1.63)	17.9 (1.79)	18.8 (1.88)	19.6 (1.96)	20.2 (2.02)	0.05 0.05
LOG PEARSON III	13.1 (1.81)	19.6 (1.96)	20.1 (2.01)	20.5 (2.04)	20.6 (2.06)	0.08 0.08
MEAN	17.2 (1.72)	19.5 (1.95)	20.9 (2.09)	22.1 (2.21)	23.3 (2.33)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 60SN ***** MAR 13, 1987
 TERRACE CREEK NEAR KELOWNA OBNM138 D.A. 31.3 SQ. KM. (REG 73)
 MAXIMUM DAILY DISCHARGE IN CMS. 1966-72

MEAN (CU. M./SEC) 3.96 MAXIMUM (CU. M./SEC) 6.26 NO. OF YEARS 7
 MEAN (L/S/SQ. KM) 127. MAXIMUM (L/S/SQ. KM) 200. COEFF. OF SKEW 1.23

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	228. (1.80)	370. (2.93)	531. (4.20)	752. (5.94)	1050. (8.30)	0.16	0.16
GUMBEL	168. (1.33)	193. (1.52)	211. (1.67)	229. (1.81)	247. (1.95)	0.10	0.10
PEARSON TYPE III	178. (1.41)	207. (1.63)	228. (1.80)	248. (1.96)	268. (2.12)	0.06	0.06
LOG PEARSON III	178. (1.41)	212. (1.68)	240. (1.90)	270. (2.13)	302. (2.38)	0.08	0.08
MEAN	188. (1.49)	246. (1.94)	302. (2.39)	375. (2.96)	466. (3.69)		

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 TESTALINDEN CREEK IN CANYON OBNM164 D.A. 13.0 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1970-81, 85

MEAN (CU. M./SEC) 0.221 MAXIMUM (CU. M./SEC) 0.623 NO. OF YEARS 13
 MEAN (L/S/SQ. KM) 17.0 MAXIMUM (L/S/SQ. KM) 47.9 COEFF. OF SKEW 1.19

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	55.1 (3.24)	116. (6.81)	188. (11.1)	292. (17.2)	438. (25.8)	0.16	0.12
GUMBEL	32.5 (1.91)	41.6 (2.45)	48.4 (2.85)	55.1 (3.24)	61.8 (3.64)	0.11	0.11
PEARSON TYPE III	36.8 (2.17)	47.9 (2.82)	55.8 (3.28)	63.5 (3.74)	71.1 (4.18)	0.11	0.11
LOG PEARSON III	38.7 (2.28)	59.2 (3.48)	77.8 (4.58)	99.3 (5.84)	124. (7.27)	0.11	0.09
MEAN	40.8 (2.40)	66.1 (3.89)	92.6 (5.45)	128. (7.51)	174. (10.2)		

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 TREHEARNE CREEK NEAR PRINCETON OBNL037 D.A. 16.1 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1965-68, 70-79

MEAN (CU. M./SEC) 0.658 MAXIMUM (CU. M./SEC) 2.19 NO. OF YEARS 14
 MEAN (L/S/SQ. KM) 40.9 MAXIMUM (L/S/SQ. KM) 136. COEFF. OF SKEW 1.25

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	111. (2.71)	207. (5.06)	310. (7.58)	446. (10.9)	621. (15.2)	0.11	0.11
GUMBEL	85.3 (2.08)	112. (2.74)	132. (3.22)	152. (3.70)	171. (4.18)	0.18	0.18
PEARSON TYPE III	103. (2.51)	138. (3.37)	163. (3.97)	188. (4.59)	212. (5.18)	0.16	0.16
LOG PEARSON III	111. (2.71)	206. (5.04)	308. (7.53)	442. (10.8)	614. (15.0)	0.11	0.11
MEAN	102. (2.50)	166. (4.05)	228. (5.58)	307. (7.50)	404. (9.89)		

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

*****60SN***** MAR 13, 1987

 VASEUX CREEK ABOVE DUTTON CREEK OBNM015 D.A. 255 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1920-22, 59-82

MEAN (CU. M./SEC) 16.2 MAXIMUM (CU. M./SEC) 32.8 NO. OF YEARS 27
 MEAN (L/S/SQ. KM) 63.4 MAXIMUM (L/S/SQ. KM) 129. COEFF. OF SKEW 0.63

DISTRIBUTION
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	98.8 (1.56)	118. (1.85)	131. (2.07)	149. (2.28)	158. (2.49)	0.07 0.03
GUMBEL	98.8 (1.56)	119. (1.88)	134. (2.11)	148. (2.34)	163. (2.57)	0.08 0.03
PEARSON TYPE III	98.0 (1.55)	114. (1.80)	125. (1.97)	136. (2.14)	146. (2.30)	0.03 0.02
LOG PEARSON III	99.4 (1.57)	118. (1.86)	131. (2.06)	143. (2.26)	155. (2.45)	0.07 0.03
MEAN	98.7 (1.56)	117. (1.85)	130. (2.05)	143. (2.26)	155. (2.45)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 VASEUX CREEK ABOVE SOLCO CREEK OBNM171 D.A. 117 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1971-85

MEAN (CU. M./SEC) 12.7 MAXIMUM (CU. M./SEC) 21.5 NO. OF YEARS 15
 MEAN (L/S/SQ. KM) 108. MAXIMUM (L/S/SQ. KM) 184. COEFF. OF SKEW -0.07

DISTRIBUTION
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	168. (1.95)	187. (1.72)	199. (1.84)	210. (1.93)	219. (2.02)	0.11 0.11
GUMBEL	179. (1.65)	218. (2.01)	247. (2.28)	276. (2.54)	305. (2.81)	0.16 0.13
PEARSON TYPE III	169. (1.56)	190. (1.75)	204. (1.88)	216. (1.99)	228. (2.10)	0.12 0.12
LOG PEARSON III	180. (1.66)	214. (1.97)	237. (2.18)	258. (2.38)	278. (2.56)	0.15 0.12
MEAN	174. (1.60)	202. (1.86)	222. (2.04)	240. (2.21)	257. (2.37)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 WHITEMAN CREEK ABOVE BOULEAU CREEK OBNM174 D.A. 112 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1971-85

MEAN (CU. M./SEC) 7.87 MAXIMUM (CU. M./SEC) 13.8 NO. OF YEARS 15
 MEAN (L/S/SQ. KM) 70.3 MAXIMUM (L/S/SQ. KM) 123. COEFF. OF SKEW 0.22

DISTRIBUTION
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	110. (1.56)	128. (1.82)	140. (2.00)	152. (2.17)	164. (2.33)	0.13 0.10
GUMBEL	112. (1.59)	135. (1.92)	152. (2.16)	169. (2.41)	186. (2.65)	0.15 0.10
PEARSON TYPE III	108. (1.54)	123. (1.76)	133. (1.90)	143. (2.03)	151. (2.15)	0.11 0.11
LOG PEARSON III	112. (1.59)	131. (1.87)	145. (2.05)	157. (2.23)	168. (2.39)	0.13 0.09
MEAN	110. (1.57)	129. (1.84)	143. (2.03)	155. (2.21)	167. (2.38)	

***** 605N ***** MAR 13, 1987

 WOLFE CREEK AT OUTLET OF ISSITZ LAKE OBNLO41 D. A. 215 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1968-81

MEAN (CU. M./SEC) 4.44 MAXIMUM (CU. M./SEC) 11.7 NO. OF YEARS 14
 MEAN (L/S/SQ. KM) 20.7 MAXIMUM (L/S/SQ. KM) 54.4 COEFF. OF SKEW 1.11

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	39.6 (1.92)	51.4 (2.49)	60.5 (2.93)	69.8 (3.38)	79.5 (3.85)	0.10 0.10
GUMBEL	37.3 (1.81)	46.9 (2.27)	54.0 (2.61)	61.0 (2.95)	68.0 (3.29)	0.09 0.08
PEARSON TYPE III	39.3 (1.90)	49.4 (2.39)	56.6 (2.74)	63.6 (3.08)	70.4 (3.41)	0.10 0.10
LOG PEARSON III	40.2 (1.95)	48.4 (2.34)	53.3 (2.58)	57.3 (2.77)	60.6 (2.93)	0.10 0.10
MEAN	39.1 (1.89)	49.0 (2.37)	56.1 (2.71)	62.9 (3.05)	69.6 (3.37)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
ESPERON CREEK NEAR KELOWNA OBNM137 D. A. 13.0 SQ. KM. (REF 73)						
MAXIMUM DAILY DISCHARGE IN CMS. 1966-73						

MEAN (CU. M./SEC) 2.43 MAXIMUM (CU. M./SEC) 3.28 NO. OF YEARS 8
 MEAN (L/S/SQ. KM) 187. MAXIMUM (L/S/SQ. KM) 252. COEFF. OF SKEW -0.21

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	242. (1.29)	257. (1.37)	266. (1.42)	273. (1.46)	280. (1.49)	0.12 0.12
GUMBEL	255. (1.36)	292. (1.56)	320. (1.71)	349. (1.86)	375. (2.01)	0.19 0.13
PEARSON TYPE III	245. (1.31)	264. (1.41)	276. (1.48)	287. (1.54)	297. (1.59)	0.13 0.13
LOG PEARSON III	250. (1.34)	275. (1.47)	291. (1.55)	305. (1.63)	318. (1.70)	0.15 0.15
MEAN	248. (1.33)	272. (1.45)	288. (1.54)	303. (1.62)	318. (1.70)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
TERRACE CREEK NEAR KELOWNA OBNM138 D. A. 31.3 SQ. KM. (REF 73)						
MAXIMUM DAILY DISCHARGE IN CMS. 1966-72						

MEAN (CU. M./SEC) 3.96 MAXIMUM (CU. M./SEC) 8.26 NO. OF YEARS 7
 MEAN (L/S/SQ. KM) 127. MAXIMUM (L/S/SQ. KM) 200. COEFF. OF SKEW 1.23

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	228. (1.80)	370. (2.93)	531. (4.20)	752. (5.94)	1050. (8.30)	0.16 0.16
GUMBEL	168. (1.33)	193. (1.52)	211. (1.67)	229. (1.81)	247. (1.95)	0.10 0.10
PEARSON TYPE III	178. (1.41)	207. (1.63)	228. (1.80)	248. (1.96)	268. (2.12)	0.06 0.06
LOG PEARSON III	178. (1.41)	212. (1.68)	240. (1.90)	270. (2.13)	302. (2.38)	0.08 0.08
MEAN	188. (1.49)	246. (1.94)	302. (2.37)	375. (2.96)	466. (3.69)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						

*****60SR***** MAR 13, 1987
 B. X. CREEK BELOW SWAN LAKE CONTROL DAM OBNM123 D. A. 120 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1959-66, 70, 72-77

DISTRIBUTION	MEAN (CU. M./SEC) MEAN (L/S/SQ. KM)		1.58 13.2	MAXIMUM (CU. M./SEC) MAXIMUM (L/S/SQ. KM)		2.94 24.5	NO. OF YEARS COEFF. OF SKEW		K-S TEST (UNBIASED)
	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. (, RATIO TO MEAN								
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL		
LOG NORMAL	23.0 (1.75)	27.6 (2.10)	30.9 (2.34)	34.0 (2.58)	37.0 (2.81)	0.16	0.08		
GUMBEL	23.3 (1.77)	29.0 (2.20)	33.2 (2.52)	37.4 (2.84)	41.6 (3.16)	0.17	0.08		
PEARSON TYPE III	22.4 (1.70)	25.9 (1.97)	28.2 (2.14)	30.3 (2.30)	32.2 (2.45)	0.15	0.08		
LOG PEARSON III	24.5 (1.86)	30.5 (2.32)	34.8 (2.64)	38.8 (2.94)	42.5 (3.23)	0.15	0.06		
MEAN	23.3 (1.77)	28.3 (2.15)	31.8 (2.41)	35.1 (2.67)	38.3 (2.91)				
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE									
+++++ +++++									

MEAN (CU. M./SEC) 3.68 MAXIMUM (CU. M./SEC) 6.29 NO. OF YEARS 10
 MEAN (L/S/SQ. KM) 52.1 MAXIMUM (L/S/SQ. KM) 89.0 COEFF. OF SKEW 0.81

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	
LOG NORMAL	97.8 (1.88)	155 (2.98)	216 (4.16)	276 (5.69)	400 (7.67)	0.17 0.17
GUMBEL	75.0 (1.44)	88.2 (1.69)	98.1 (1.88)	108 (2.07)	118 (2.26)	0.13 0.13
PEARSON TYPE III	77.8 (1.49)	90.5 (1.74)	99.4 (1.91)	108 (2.07)	116 (2.23)	0.09 0.09
LOG PEARSON III	78.5 (1.51)	75.1 (1.83)	108 (2.07)	121 (2.33)	136 (2.60)	0.11 0.11
MEAN	82.3 (1.58)	107 (2.06)	130 (2.51)	158 (3.04)	192 (3.69)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
BELGO CREEK NEAR THE MOUTH OBNM225 D.A. 190 SQ. KM.						
MAXIMUM DAILY DISCHARGE IN CMS. 1977-82						

MEAN (CU. M./SEC) 10.7 MAXIMUM (CU. M./SEC) 13.1 NO. OF YEARS 6
 MEAN (L/S/SQ. KM) 56.2 MAXIMUM (L/S/SQ. KM) 68.9 COEFF. OF SKEW 0.02

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	
LOG NORMAL	69.7 (1.24)	74.8 (1.33)	78.1 (1.39)	81.2 (1.45)	84.0 (1.50)	0.10 0.10
GUMBEL	70.7 (1.26)	78.7 (1.40)	84.8 (1.51)	90.7 (1.62)	96.7 (1.72)	0.11 0.11
PEARSON TYPE III	69.6 (1.24)	74.5 (1.33)	77.7 (1.38)	80.6 (1.44)	83.3 (1.48)	0.11 0.11
LOG PEARSON III	70.2 (1.25)	75.8 (1.35)	79.6 (1.42)	83.1 (1.48)	86.4 (1.54)	0.10 0.10
MEAN	70.0 (1.25)	76.0 (1.35)	80.1 (1.43)	83.9 (1.49)	87.6 (1.56)	
	RATIO OF INSTANTANEOUS TO DAILY DISCHARGE					

***** MAR 13, 1987 *****
 COLDSTREAM CREEK ABOVE KALAVISTA DIVERSION OBNM179 D.A. 207 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1971-82

MEAN (CU. M./SEC) 4.15 MAXIMUM (CU. M./SEC) 8.30 NO. OF YEARS 12
 MEAN (L/S/SQ. KM) 20.1 MAXIMUM (L/S/SQ. KM) 40.1 COEFF. OF SKEW 0.85

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	31.7 (1.58)	37.6 (1.87)	41.8 (2.08)	45.9 (2.29)	49.9 (2.49)	0.10 0.10
GUMBEL	31.8 (1.59)	38.5 (1.92)	43.4 (2.16)	48.2 (2.40)	53.1 (2.65)	0.12 0.12
PEARSON TYPE III	31.7 (1.58)	37.5 (1.87)	41.6 (2.07)	45.5 (2.27)	49.2 (2.45)	0.11 0.11
LOG PEARSON III	32.0 (1.60)	37.5 (1.87)	41.2 (2.05)	44.6 (2.22)	47.7 (2.38)	0.10 0.10
MEAN	31.8 (1.59)	37.8 (1.88)	42.0 (2.09)	46.0 (2.30)	50.0 (2.49)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
DEEP CREEK AT ARMSTRONG OBNM119 D.A. 135 SQ. KM.						
MAXIMUM DAILY DISCHARGE IN CMS. 1955, 57-61, 74-82						

MEAN (CU. M./SEC) 1.61 MAXIMUM (CU. M./SEC) 3.62 NO. OF YEARS 15
 MEAN (L/S/SQ. KM) 11.9 MAXIMUM (L/S/SQ. KM) 26.8 COEFF. OF SKEW 1.15

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	20.5 (1.73)	27.0 (2.27)	32.3 (2.71)	38.1 (3.20)	44.3 (3.73)	0.14 0.14
GUMBEL	18.9 (1.58)	22.9 (1.92)	25.8 (2.17)	28.8 (2.42)	31.7 (2.66)	0.09 0.09
PEARSON TYPE III	17.8 (1.66)	24.1 (2.03)	27.2 (2.29)	30.3 (2.54)	33.2 (2.79)	0.10 0.10
LOG PEARSON III	19.9 (1.67)	25.1 (2.11)	29.2 (2.46)	33.5 (2.82)	38.1 (3.20)	0.11 0.11
MEAN	19.8 (1.66)	24.8 (2.08)	28.7 (2.41)	32.7 (2.74)	36.8 (3.09)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
DEEP CREEK AT THE MOUTH OBNM153 D.A. 306 SQ. KM.						
MAXIMUM DAILY DISCHARGE IN CMS. 1970-75						

***** MAR 13, 1987 *****
 COLDSTREAM CREEK ABOVE KALAVISTA DIVERSION OBNM179 D.A. 207 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1971-82

MEAN (CU. M./SEC) 2.26 MAXIMUM (CU. M./SEC) 3.71 NO. OF YEARS 6
 MEAN (L/S/SQ. KM) 7.39 MAXIMUM (L/S/SQ. KM) 12.1 COEFF. OF SKEW 0.03

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	11.9 (1.61)	13.6 (1.84)	14.7 (1.99)	15.7 (2.13)	16.6 (2.25)	0.11 0.11
GUMBEL	12.3 (1.66)	15.0 (2.04)	17.1 (2.31)	19.1 (2.58)	21.1 (2.85)	0.08 0.08
PEARSON TYPE III	11.9 (1.61)	13.5 (1.83)	14.6 (1.98)	15.6 (2.11)	16.5 (2.23)	0.11 0.11
LOG PEARSON III	12.5 (1.69)	14.4 (1.95)	15.6 (2.11)	16.5 (2.24)	17.3 (2.35)	0.08 0.08
MEAN	12.1 (1.64)	14.1 (1.91)	15.5 (2.10)	16.7 (2.26)	17.9 (2.42)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						

***** 6DSR ***** MAR 13, 1987 *****
 DEEP CREEK NEAR VERNON (STATION NO. 3) OBNM075 D.A. 207 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1935-36, 38-40, 43-50

MEAN (CU. M. / SEC) 1.73 MAXIMUM (CU. M. / SEC) 3.14 NO. OF YEARS 13
 MEAN (L/S/SQ. KM) 8.37 MAXIMUM (L/S/SQ. KM) 15.2 COEFF. OF SKEW 0.81

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	15.0 (1.90)	25.1 (3.00)	34.6 (4.13)	46.7 (5.57)	62.0 (7.40)	0.18 0.07
GUMBEL	12.6 (1.50)	15.1 (1.80)	16.9 (2.01)	18.7 (2.23)	20.5 (2.41)	0.12 0.12
PEARSON TYPE III	13.2 (1.57)	15.6 (1.86)	17.2 (2.06)	18.8 (2.25)	20.3 (2.43)	0.10 0.10
LOG PEARSON III	13.3 (1.59)	16.6 (1.99)	19.3 (2.31)	22.1 (2.64)	25.2 (3.01)	0.12 0.10
MEAN	13.8 (1.64)	18.1 (2.16)	22.0 (2.63)	26.6 (3.17)	32.0 (3.82)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 ELLIS CREEK AT PENTICTON OBNM135 D.A. 158 SQ. KM. (REG 65)
 MAXIMUM DAILY DISCHARGE IN CMS. 1965-66, 68, 70-71, 73-75, 78-79

MEAN (CU. M. / SEC) 3.93 MAXIMUM (CU. M. / SEC) 7.02 NO. OF YEARS 10
 MEAN (L/S/SQ. KM) 24.9 MAXIMUM (L/S/SQ. KM) 44.4 COEFF. OF SKEW -0.08

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	38.8 (1.56)	43.7 (1.76)	46.8 (1.88)	49.6 (2.00)	52.2 (2.10)	0.07 0.07
GUMBEL	42.2 (1.70)	51.7 (2.08)	58.7 (2.36)	65.7 (2.64)	72.7 (2.92)	0.13 0.13
PEARSON TYPE III	38.8 (1.56)	43.8 (1.76)	45.9 (1.89)	49.7 (2.00)	52.3 (2.10)	0.07 0.07
LOG PEARSON III	40.8 (1.64)	45.6 (1.83)	48.2 (1.94)	50.1 (2.02)	51.6 (2.08)	0.10 0.09
MEAN	40.1 (1.61)	46.2 (1.86)	50.2 (2.02)	53.8 (2.16)	57.2 (2.30)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 ELLIS CREEK SOUTH MAIN DIVERSION OBNM056 D.A. ??? SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1923-66

MEAN (CU. M. / SEC) 0.331 MAXIMUM (CU. M. / SEC) 0.515 NO. OF YEARS 41
 MEAN (L/S/SQ. KM) 0.331 MAXIMUM (L/S/SQ. KM) 0.515 COEFF. OF SKEW -0.40

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN CU. M. / SEC
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	0.416 (1.26)	0.443 (1.34)	0.461 (1.39)	0.476 (1.44)	0.490 (1.48)	0.12 0.04
GUMBEL	0.459 (1.39)	0.528 (1.60)	0.579 (1.75)	0.630 (1.90)	0.680 (2.06)	0.16 0.05
PEARSON TYPE III	0.415 (1.25)	0.440 (1.33)	0.456 (1.38)	0.469 (1.42)	0.481 (1.45)	0.11 0.03
LOG PEARSON III	0.415 (1.25)	0.434 (1.31)	0.444 (1.34)	0.451 (1.36)	0.457 (1.38)	0.10 0.03
MEAN	0.426 (1.29)	0.461 (1.39)	0.485 (1.47)	0.507 (1.53)	0.527 (1.59)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 60SR ***** MAR 13, 1987

 EQUESIS CREEK NEAR THE MOUTH OBNM161 D.A. 179 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1970-72, 77-82

MEAN (CU. M./SEC) 5.60 MAXIMUM (CU. M./SEC) 11.1 NO. OF YEARS 9
 MEAN (L/S/SQ. KM) 28.1 MAXIMUM (L/S/SQ. KM) 55.8 COEFF. OF SKEW 0.45

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	56.9 (2.02)	80.2 (2.85)	100. (3.55)	122. (4.34)	146. (5.20)	0.21 0.21
GUMBEL	50.8 (1.80)	63.9 (2.27)	73.7 (2.62)	83.4 (2.97)	93.1 (3.31)	0.25 0.25
PEARSON TYPE III	53.7 (1.91)	64.9 (2.31)	72.5 (2.58)	79.6 (2.83)	86.3 (3.07)	0.24 0.24
LOG PEARSON III	57.9 (2.06)	85.4 (3.04)	111. (3.93)	140. (4.99)	175. (6.23)	0.20 0.20
MEAN	54.8 (1.95)	73.6 (2.62)	89.2 (3.17)	106. (3.78)	125. (4.45)	

 EQUESIS CREEK NEAR VERNON OBNM024 D.A. 179 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1921-26

MEAN (CU. M./SEC) 5.10 MAXIMUM (CU. M./SEC) 6.40 NO. OF YEARS 6
 MEAN (L/S/SQ. KM) 28.5 MAXIMUM (L/S/SQ. KM) 35.8 COEFF. OF SKEW -0.57

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	35.0 (1.23)	36.7 (1.29)	37.8 (1.33)	38.6 (1.36)	39.3 (1.38)	0.09 0.09
GUMBEL	37.6 (1.32)	42.6 (1.50)	46.3 (1.63)	49.9 (1.75)	53.6 (1.88)	0.18 0.18
PEARSON TYPE III	35.2 (1.24)	37.1 (1.30)	38.2 (1.34)	39.1 (1.37)	39.9 (1.40)	0.10 0.10
LOG PEARSON III	35.4 (1.24)	37.1 (1.30)	38.0 (1.34)	38.8 (1.36)	39.3 (1.38)	0.10 0.10
MEAN	35.8 (1.26)	38.4 (1.35)	40.1 (1.41)	41.6 (1.46)	43.0 (1.51)	

 ESPEKON CREEK NEAR KELOWNA OBNM139 D.A. 13.0 SQ. KM. (REG 73)
 MAXIMUM DAILY DISCHARGE IN CMS. 1973-81

MEAN (CU. M./SEC) 1.75 MAXIMUM (CU. M./SEC) 2.65 NO. OF YEARS 9
 MEAN (L/S/SQ. KM) 134. MAXIMUM (L/S/SQ. KM) 204. COEFF. OF SKEW -0.12

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	186. (1.37)	204. (1.52)	216. (1.61)	226. (1.68)	235. (1.75)	0.11 0.11
GUMBEL	201. (1.47)	237. (1.76)	254. (1.96)	290. (2.16)	317. (2.36)	0.17 0.17
PEARSON TYPE III	186. (1.37)	204. (1.52)	216. (1.61)	226. (1.68)	235. (1.75)	0.11 0.11
LOG PEARSON III	187. (1.40)	202. (1.50)	210. (1.56)	216. (1.60)	220. (1.64)	0.11 0.11
MEAN	190. (1.42)	212. (1.58)	226. (1.68)	239. (1.78)	252. (1.87)	

***** 60SR ***** MAR 13, 1987

 KELOWNA CREEK NEAR KELOWNA (LOWER STATION) OBNM053 D.A. 221 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1922, 50-61, 63-85

MEAN (CU. M./SEC) 3.80 MAXIMUM (CU. M./SEC) 14.6 NO. OF YEARS 36
 MEAN (L/S/SQ. KM) 17.2 MAXIMUM (L/S/SQ. KM) 66.1 COEFF. OF SKEN 2.48

DISTRIBUTION
 () RATIO TO MEAN
 K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	30.4 (1.77)	39.0 (2.27)	45.6 (2.65)	52.5 (3.06)	59.7 (3.47)	0.07 0.07
GUMBEL	28.8 (1.68)	35.6 (2.07)	40.6 (2.35)	45.6 (2.65)	50.5 (2.94)	0.09 0.05
PEARSON TYPE III	31.4 (1.83)	42.9 (2.49)	51.7 (3.01)	60.7 (3.53)	69.8 (4.06)	0.10 0.10
LOG PEARSON III	30.6 (1.78)	38.4 (2.23)	44.0 (2.56)	49.5 (2.88)	54.8 (3.19)	0.07 0.07
MEAN	30.3 (1.76)	39.0 (2.27)	45.5 (2.65)	52.1 (3.03)	58.7 (3.41)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 KELOWNA CREEK NEAR RUTLAND OBNM061 D.A. 77.7 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1924-26, 28-31

MEAN (CU. M./SEC) 2.00 MAXIMUM (CU. M./SEC) 6.09 NO. OF YEARS 7
 MEAN (L/S/SQ. KM) 25.8 MAXIMUM (L/S/SQ. KM) 78.4 COEFF. OF SKEN 2.50

DISTRIBUTION
 () RATIO TO MEAN
 K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	46.0 (1.70)	61.6 (2.39)	74.3 (2.88)	88.0 (3.42)	103. (3.99)	0.29 0.29
GUMBEL	40.2 (1.56)	49.6 (1.92)	56.6 (2.19)	63.5 (2.46)	70.4 (2.73)	0.33 0.33
PEARSON TYPE III	55.2 (2.14)	79.0 (3.06)	97.5 (3.78)	116. (4.51)	135. (5.25)	0.28 0.28
LOG PEARSON III	46.3 (1.80)	83.0 (3.22)	129. (5.02)	202. (7.84)	316. (12.3)	0.18 0.18
MEAN	46.9 (1.82)	68.3 (2.65)	89.5 (3.47)	117. (4.56)	156. (6.06)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 VEREMEOS CREEK BELOW WILIS INTAKE OBNL045 D.A. 183 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1971-85

MEAN (CU. M./SEC) 6.99 MAXIMUM (CU. M./SEC) 15.3 NO. OF YEARS 15
 MEAN (L/S/SQ. KM) 38.2 MAXIMUM (L/S/SQ. KM) 83.6 COEFF. OF SKEN 0.75

DISTRIBUTION
 () RATIO TO MEAN
 K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	71.9 (1.88)	93.7 (2.45)	111. (2.90)	128. (3.36)	147. (3.85)	0.06 0.05
GUMBEL	67.6 (1.77)	84.4 (2.21)	96.9 (2.54)	109. (2.86)	122. (3.19)	0.09 0.05
PEARSON TYPE III	69.6 (1.82)	84.8 (2.22)	95.4 (2.50)	105. (2.76)	115. (3.02)	0.10 0.03
LOG PEARSON III	73.0 (1.91)	92.8 (2.43)	107. (2.80)	121. (3.16)	134. (3.50)	0.07 0.06
MEAN	70.5 (1.85)	88.9 (2.33)	103. (2.69)	116. (3.04)	129. (3.39)	

KEREMEOS CREFK NEAR OLALLA OBNLO10 D.A. 183 SQ.KM.
MAXIMUM DAILY DISCHARGE IN CMS.. 1919-27, 48-70

60SR ***** MAR 13, 1987

MEAN (CU. M. / SEC.)	5.67	MAXIMUM (CU. M. / SEC.)	22.2	NO. OF YEARS	32
MEAN (L/S/SQ. KM)	31.1	MAXIMUM (L/S/SQ. KM)	121.	COEFF. OF SKEW	3.03

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN	K-S TEST (UNBIASED)
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	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	53.3 (1.72)	67.9 (2.19)	79.3 (2.55)	91.1 (2.93)	103 (3.33)	0.07 0.02
GUMBEL	50.8 (1.64)	62.2 (2.00)	70.7 (2.28)	79.1 (2.55)	87.5 (2.82)	0.07 0.02
PEARSON TYPE III	54.6 (1.76)	76.6 (2.47)	94.2 (3.03)	112 (3.62)	131 (4.21)	0.17 0.03
LOG PEARSON III	53.6 (1.73)	68.9 (2.22)	80.7 (2.60)	92.9 (2.99)	106 (3.40)	0.08 0.03
MEAN	53.1 (1.71)	68.9 (2.22)	81.2 (2.61)	93.9 (3.02)	107 (3.44)	

KLO CREEK AT MCCULLOCH ROAD OGNM226 D.A. 35.5E SQ. KM.
MAXIMUM DAILY DISCHARGE IN CMS. 1977-82

MEAN (CU. M./SEC.)	MAXIMUM (CU. M./SEC.)	NO. OF YEARS
MEAN (L/S/SQ. KM)	163.	13.0
		COEFF. OF SKEW
		0.79

DISTRIBUTION K-S TEST
FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. (UNBIASED)
() RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	465. (2. 86)	851. (5. 23)	1270. (7. 78)	1810. (11. 1)	2520. (15. 5)	0. 11	0. 11
GUMBEL	308. (1. 89)	372. (2. 41)	454. (2. 79)	516. (3. 17)	578. (3. 55)	0. 15	0. 15
PEARSON TYPE III	334. (2. 06)	418. (2. 57)	477. (2. 93)	533. (3. 28)	587. (3. 61)	0. 13	0. 13
LOG PEARSON III	375. (2. 30)	551. (3. 39)	703. (4. 32)	872. (5. 36)	1060. (6. 50)	0. 09	0. 09
MEAN	370. (2. 28)	553. (3. 40)	726. (4. 46)	933. (5. 74)	1180. (7. 29)		

KLO CREEK DIVERSION NEAR KELOWNA OBNM060 D. A. ??? SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1924-30. 68
 NOTE: ALL VALUES IN CMS
 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

	MEAN	(CU. M. / SEC)	MAXIMUM	(CU. M. / SEC)	NO. OF YEARS	COEFF. OF SKEW
MEAN	0.879		0.879		0.943	0.943
MEAN	0.879		0.879		0.943	-0.43

DISTRIBUTION

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	0.938 (1.07)	0.944 (1.07)	0.947 (1.07)	0.949 (1.08)	0.950 (1.08)	0.11	0.11
GUMBEL	0.965 (1.10)	1.01 (1.15)	1.05 (1.17)	1.08 (1.23)	1.12 (1.27)	0.12	0.12
PEARSON TYPE III	0.947 (1.08)	0.968 (1.10)	0.980 (1.11)	0.991 (1.14)	1.000 (1.14)	0.13	0.13
LOG PEARSON III	0.949 (1.08)	0.970 (1.10)	0.983 (1.12)	0.995 (1.13)	1.000 (1.14)	0.13	0.13

MEAN	0.950 (1.08)	0.974 (1.11)	0.990 (1.13)	1.00 (1.14)	1.02 (1.16)
	RATIO OF INSTANTANEOUS TO DAILY DISCHARGE				

***** 60SR ***** MAR 13, 1987
 LAMBLY CREEK ABOVE TERRACE CREEK OBNM165 D.A. 76.1 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1971-85

MEAN (CU. M./SEC) 6.99 MAXIMUM (CU. M./SEC) 10.9 NO. OF YEARS 15
 MEAN (L/S/SQ. KM) 91.8 MAXIMUM (L/S/SQ. KM) 143. COEFF. OF SKEW -0.28

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	128. (1.39)	139. (1.51)	146. (1.59)	152. (1.65)	157. (1.71)	0.12 0.01
GUMBEL	141. (1.54)	168. (1.83)	188. (2.05)	208. (2.27)	228. (2.48)	0.17 0.06
PEARSON TYPE III	129. (1.40)	141. (1.53)	148. (1.61)	154. (1.68)	160. (1.74)	0.13 0.04
LOG PEARSON III	131. (1.43)	141. (1.54)	147. (1.60)	151. (1.65)	154. (1.68)	0.12 0.02
MEAN	132. (1.44)	147. (1.60)	157. (1.71)	166. (1.81)	175. (1.90)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

LAMBLY CREEK, BELOW BALD RANGE CREEK OBNM166 D.A. 229 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1971-82

MEAN (CU. M./SEC) 17.8 MAXIMUM (CU. M./SEC) 29.5 NO. OF YEARS 12
 MEAN (L/S/SQ. KM) 77.9 MAXIMUM (L/S/SQ. KM) 129. COEFF. OF SKEW 0.01

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	134. (1.72)	169. (2.17)	197. (2.53)	226. (2.90)	256. (3.29)	0.15 0.07
GUMBEL	127. (1.63)	155. (1.99)	175. (2.25)	195. (2.51)	216. (2.77)	0.15 0.07
PEARSON TYPE III	121. (1.55)	136. (1.75)	146. (1.88)	156. (2.00)	164. (2.11)	0.11 0.10
LOG PEARSON III	126. (1.62)	145. (1.86)	157. (2.02)	167. (2.15)	176. (2.26)	0.12 0.07
MEAN	127. (1.63)	151. (1.94)	169. (2.17)	186. (2.39)	203. (2.61)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

LAMBLY CREEK DIVERSION TO ROSE VALLEY LAKE OBNM167 D.A. ??? SQ. KM. ***NOTE: ALL VALUES IN CMS***
 MAXIMUM DAILY DISCHARGE IN CMS. 1971-78

MEAN (CU. M./SEC) 0.952 MAXIMUM (CU. M./SEC) 0.810 NO. OF YEARS 8
 MEAN (CU. M./SEC) 0.552 MAXIMUM (CU. M./SEC) 0.810 COEFF. OF SKEW -0.30

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN CU. M./SEC
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	0.780 (1.41)	0.833 (1.51)	0.862 (1.55)	0.887 (1.61)	0.907 (1.64)	0.11 0.11
GUMBEL	0.853 (1.55)	1.02 (1.85)	1.14 (2.07)	1.27 (2.29)	1.39 (2.51)	0.11 0.11
PEARSON TYPE III	0.797 (1.42)	0.875 (1.59)	0.924 (1.68)	0.967 (1.75)	1.00 (1.82)	0.11 0.11
LOG PEARSON III	0.828 (1.50)	0.925 (1.68)	0.983 (1.78)	1.03 (1.87)	1.07 (1.95)	0.10 0.10
MEAN	0.815 (1.48)	0.913 (1.66)	0.978 (1.77)	1.04 (1.88)	1.07 (1.98)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 60SR ***** MAR 13, 1987

 LAMBLY CREEK NEAR THE MOUTH OBNM003 D.A. 272 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1920-21.66.70-74

MEAN (CU. M./SEC) 19.0 MAXIMUM (CU. M./SEC) 31.7 NO. OF YEARS 8
 MEAN (L/S/SQ. KM) 70.0 MAXIMUM (L/S/SQ. KM) 117. COEFF. OF SKEW -0.26

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	108. (1.54)	119. (1.70)	126. (1.79)	131. (1.87)	136. (1.95)	0.18 0.18
GUMBEL	118. (1.68)	144. (2.06)	164. (2.34)	183. (2.61)	202. (2.89)	0.24 0.24
PEARSON TYPE III	109. (1.56)	122. (1.74)	130. (1.85)	137. (1.96)	143. (2.04)	0.19 0.19
LOG PEARSON III	117. (1.67)	135. (1.93)	145. (2.08)	154. (2.20)	162. (2.31)	0.21 0.21
MEAN	113. (1.61)	130. (1.86)	141. (2.02)	151. (2.16)	161. (2.30)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 LOCH KATRINE AT OUTLET OF GRAYSTOKE LAKE OBNM229 D.A. 16.1 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1977-85

MEAN (CU. M./SEC) 4.09 MAXIMUM (CU. M./SEC) 5.63 NO. OF YEARS 9
 MEAN (L/S/SQ. KM) 254. MAXIMUM (L/S/SQ. KM) 350. COEFF. OF SKEW -0.18

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	336. (1.32)	362. (1.43)	379. (1.49)	394. (1.55)	407. (1.60)	0.12 0.12
GUMBEL	360. (1.42)	418. (1.65)	461. (1.82)	504. (1.98)	546. (2.15)	0.09 0.09
PEARSON TYPE III	337. (1.33)	365. (1.44)	383. (1.51)	398. (1.57)	412. (1.62)	0.11 0.11
LOG PEARSON III	340. (1.34)	365. (1.44)	380. (1.50)	393. (1.55)	403. (1.59)	0.11 0.11
MEAN	343. (1.35)	378. (1.49)	401. (1.58)	422. (1.66)	442. (1.74)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 MISSION CREEK ABOVE PEARSON CREEK OBNM233 D.A. 233 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1977-82

MEAN (CU. M./SEC) 33.7 MAXIMUM (CU. M./SEC) 37.7 NO. OF YEARS 6
 MEAN (L/S/SQ. KM) 145. MAXIMUM (L/S/SQ. KM) 162. COEFF. OF SKEW -0.07

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	161. (1.11)	167. (1.15)	170. (1.18)	173. (1.20)	176. (1.22)	0.09 0.09
GUMBEL	163. (1.13)	174. (1.20)	181. (1.25)	189. (1.31)	197. (1.36)	0.10 0.10
PEARSON TYPE III	161. (1.11)	167. (1.15)	171. (1.18)	174. (1.20)	177. (1.22)	0.08 0.08
LOG PEARSON III	161. (1.12)	168. (1.16)	172. (1.19)	175. (1.21)	178. (1.23)	0.08 0.08
MEAN	162. (1.12)	169. (1.17)	173. (1.20)	178. (1.23)	182. (1.26)	

***** GDSR ***** MAR 13, 1987

 MISSION CREEK NEAR EAST KELOWNA OBNM116 D.A. 811 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1949-61, 63-65, 67-85

MEAN (CU. M. / SEC) 51.4 MAXIMUM (CU. M. / SEC) 87.5 NO. OF YEARS 35
 MEAN (L/S/SQ. KM) 63.4 MAXIMUM (L/S/SQ. KM) 108. COEFF. OF SKEN 0.83

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	87.1 (1.37)	103. (1.62)	115. (1.81)	127. (2.01)	141. (2.22)	0.10 0.07
GUMBEL	84.6 (1.34)	96.8 (1.53)	106. (1.67)	115. (1.81)	124. (1.99)	0.07 0.07
PEARSON TYPE III	85.6 (1.32)	96.7 (1.53)	104. (1.65)	112. (1.77)	119. (1.88)	0.06 0.05
LOG PEARSON III	85.5 (1.35)	98.0 (1.55)	107. (1.69)	117. (1.84)	126. (1.99)	0.07 0.06
MEAN	85.7 (1.35)	98.5 (1.55)	108. (1.71)	118. (1.86)	127. (2.01)	

 MISSION CREEK NEAR RUTLAND OBNM016 D.A. 622 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1919-27, 37-46

MEAN (CU. M. / SEC) 55.6 MAXIMUM (CU. M. / SEC) 108. NO. OF YEARS 19
 MEAN (L/S/SQ. KM) 89.4 MAXIMUM (L/S/SQ. KM) 174. COEFF. OF SKEN 0.87

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	136. (1.52)	167. (1.87)	192. (2.15)	218. (2.44)	245. (2.74)	0.11 0.08
GUMBEL	130. (1.46)	154. (1.72)	171. (1.91)	188. (2.11)	206. (2.30)	0.10 0.08
PEARSON TYPE III	133. (1.48)	154. (1.72)	169. (1.87)	184. (2.06)	198. (2.21)	0.08 0.06
LOG PEARSON III	133. (1.49)	158. (1.77)	177. (1.98)	196. (2.19)	216. (2.41)	0.10 0.07
MEAN	133. (1.49)	158. (1.77)	177. (1.98)	197. (2.20)	216. (2.42)	

 MISSION CREEK RUTLAND DIVERSION OBNM057 D.A. ??? SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1923-24, 26, 28-30

MEAN (CU. M. / SEC) 0.378 MAXIMUM (CU. M. / SEC) 0.411 NO. OF YEARS 6
 MEAN (CU. M. / SEC) 0.378 MAXIMUM (CU. M. / SEC) 0.411 COEFF. OF SKEN -1.12

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN CU. M. / SEC
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	0.409 (1.08)	0.413 (1.09)	0.416 (1.10)	0.418 (1.10)	0.419 (1.11)	0.07 0.07
GUMBEL	0.430 (1.14)	0.458 (1.21)	0.479 (1.27)	0.500 (1.32)	0.520 (1.38)	0.20 0.20
PEARSON TYPE III	0.411 (1.09)	0.417 (1.10)	0.420 (1.11)	0.423 (1.12)	0.425 (1.12)	0.08 0.08
LOG PEARSON III	0.411 (1.09)	0.418 (1.10)	0.421 (1.11)	0.423 (1.12)	0.424 (1.12)	0.08 0.08
MEAN	0.415 (1.10)	0.427 (1.13)	0.434 (1.15)	0.441 (1.17)	0.447 (1.18)	

***** 60SR ***** MAR 13, 1987

 OTTER CREEK AT TULAMEEN OBNLO23 D.A. 673 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1948-84

MEAN (CU. M./SEC) 30.7 MAXIMUM (CU. M./SEC) 85.5 NO. OF YEARS 37
 MEAN (L/S/SQ. KM) 45.5 MAXIMUM (L/S/SQ. KM) 127. COEFF. OF SKEW 1.21

DISTRIBUTION
 () RATIO TO MEAN
 K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	80.5 (1.77)	106. (2.33)	127. (2.79)	150. (3.28)	174. (3.81)	0.07 0.03
GUMBEL	74.6 (1.64)	91.5 (2.01)	104. (2.29)	117. (2.56)	129. (2.83)	0.09 0.03
PEARSON TYPE III	80.1 (1.76)	97.4 (2.18)	113. (2.49)	127. (2.78)	140. (3.08)	0.08 0.06
LOG PEARSON III	79.6 (1.75)	104. (2.28)	124. (2.72)	145. (3.19)	168. (3.69)	0.07 0.03
MEAN	78.7 (1.73)	100. (2.20)	117. (2.57)	135. (2.95)	153. (3.35)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 OYAMA CREEK ABOVE WOOD LAKE IRRIGATION INTAKE OBNM048 D.A. 44.0 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1921, 23, 66-67, 71-85

MEAN (CU. M./SEC) 1.25 MAXIMUM (CU. M./SEC) 2.44 NO. OF YEARS 19
 MEAN (L/S/SQ. KM) 28.3 MAXIMUM (L/S/SQ. KM) 55.5 COEFF. OF SKEW 0.38

DISTRIBUTION
 () RATIO TO MEAN
 K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	57.7 (2.04)	86.5 (3.05)	113. (4.00)	145. (5.12)	183. (6.44)	0.13 0.08
GUMBEL	48.3 (1.71)	59.8 (2.11)	68.3 (2.41)	76.7 (2.71)	85.1 (3.00)	0.13 0.13
PEARSON TYPE III	48.6 (1.71)	57.1 (2.02)	62.9 (2.22)	68.3 (2.41)	73.4 (2.59)	0.12 0.11
LOG PEARSON III	51.2 (1.81)	66.3 (2.34)	78.1 (2.76)	90.3 (3.18)	103. (3.63)	0.11 0.11
MEAN	51.5 (1.82)	67.4 (2.38)	80.7 (2.85)	95.1 (3.36)	111. (3.92)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 OYAMA CREEK OYAMA DIVERSION OBNM028 D.A. ??? SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1920-21, 23-31

MEAN (CU. M./SEC) 0.419 MAXIMUM (CU. M./SEC) 0.575 NO. OF YEARS 11
 MEAN (L/S/SQ. KM) 0.419 MAXIMUM (L/S/SQ. KM) 0.575 COEFF. OF SKEW -0.23

DISTRIBUTION
 () RATIO TO MEAN
 K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	0.562 (1.34)	0.590 (1.41)	0.605 (1.44)	0.617 (1.47)	0.627 (1.49)	0.13 0.11
GUMBEL	0.605 (1.44)	0.708 (1.69)	0.785 (1.87)	0.861 (2.05)	0.937 (2.23)	0.19 0.19
PEARSON TYPE III	0.574 (1.37)	0.626 (1.49)	0.658 (1.57)	0.686 (1.64)	0.711 (1.70)	0.13 0.13
LOG PEARSON III	0.592 (1.41)	0.662 (1.58)	0.707 (1.69)	0.749 (1.78)	0.786 (1.87)	0.15 0.15
MEAN	0.583 (1.39)	0.646 (1.54)	0.689 (1.64)	0.728 (1.74)	0.765 (1.82)	

***** 6DSR ***** MAR 13, 1987

 PARK RILL CREEK NEAR OLIVER OBNM120 D.A. 160 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1952, 55-57, 63-64

MEAN (CU. M./SEC) 0.409 MAXIMUM (CU. M./SEC) 1.59 NO. OF YEARS 6
 MEAN (L/S/SQ. KM) 2.55 MAXIMUM (L/S/SQ. KM) 9.94 COEFF. OF SKEW 2.13

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	9.28 (3.63)	21.6 (8.45)	37.2 (14.6)	60.8 (23.8)	95.2 (37.3)	0.10 0.10
GUMBEL	5.34 (2.09)	7.09 (2.78)	8.38 (3.28)	9.67 (3.79)	10.9 (4.29)	0.22 0.22
PEARSON TYPE III	7.38 (2.89)	10.9 (4.27)	13.6 (5.32)	16.3 (6.37)	19.0 (7.43)	0.18 0.18
LOG PEARSON III	8.11 (3.18)	14.9 (5.84)	21.3 (8.36)	28.8 (11.3)	37.3 (14.6)	0.06 0.06
MEAN	7.53 (2.95)	13.6 (5.33)	20.1 (7.88)	28.9 (11.3)	40.6 (15.9)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 PEACHLAND CREEK ABOVE DIVERSION OBNM140 D.A. 122 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1966-69, 72-82

MEAN (CU. M./SEC) 2.45 MAXIMUM (CU. M./SEC) 9.91 NO. OF YEARS 15
 MEAN (L/S/SQ. KM) 20.1 MAXIMUM (L/S/SQ. KM) 81.2 COEFF. OF SKEW 2.19

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	42.6 (2.12)	64.8 (3.22)	84.9 (4.22)	108. (5.38)	135. (6.72)	0.10 0.07
GUMBEL	37.1 (1.85)	47.6 (2.37)	55.4 (2.75)	63.1 (3.14)	70.7 (3.52)	0.16 0.08
PEARSON TYPE III	47.2 (2.35)	67.2 (3.34)	82.6 (4.11)	98.0 (4.88)	114. (5.65)	0.15 0.15
LOG PEARSON III	43.9 (2.18)	72.1 (3.59)	101. (5.01)	137. (6.82)	183. (9.13)	0.08 0.08
MEAN	42.7 (2.12)	62.9 (3.13)	80.9 (4.02)	102. (5.05)	126. (6.25)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 PEACHLAND CREEK AT THE MOUTH OBNM159 D.A. 150 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1970-82

MEAN (CU. M./SEC) 2.71 MAXIMUM (CU. M./SEC) 9.26 NO. OF YEARS 13
 MEAN (L/S/SQ. KM) 18.1 MAXIMUM (L/S/SQ. KM) 61.7 COEFF. OF SKEW 1.58

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	44.9 (2.47)	81.6 (4.52)	121. (6.70)	173. (9.57)	240. (13.3)	0.07 0.07
GUMBEL	34.0 (1.88)	43.7 (2.42)	50.9 (2.82)	58.0 (3.21)	65.1 (3.60)	0.21 0.13
PEARSON TYPE III	41.6 (2.30)	56.3 (3.11)	67.1 (3.71)	77.8 (4.31)	88.4 (4.89)	0.16 0.15
LOG PEARSON III	40.0 (2.22)	67.6 (3.74)	96.5 (5.34)	135. (7.46)	185. (10.2)	0.09 0.04
MEAN	40.1 (2.22)	62.3 (3.45)	83.9 (4.64)	111. (6.14)	145. (8.01)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 60SR ***** MAR 13, 1987

 PENTICTON CREEK AT THE MOUTH OBNM118 D.A. 177 SQ.KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1950-55, 65-66, 70-71

MEAN (CU. M./SEC) 13.6 MAXIMUM (CU. M./SEC) 24.0 NO. OF YEARS 10
 MEAN (L/S/SQ. KM) 76.8 MAXIMUM (L/S/SQ. KM) 136. COEFF. OF SKEW 0.04

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	129. (1.67)	148. (1.93)	161. (2.10)	173. (2.25)	184. (2.40)	0.10 0.10
GUMBEL	135. (1.75)	167. (2.17)	191. (2.48)	215. (2.79)	238. (3.10)	0.19 0.15
PEARSON TYPE III	128. (1.67)	147. (1.92)	160. (2.08)	171. (2.22)	181. (2.36)	0.10 0.10
LOG PEARSON III	139. (1.81)	168. (2.19)	187. (2.41)	205. (2.66)	220. (2.86)	0.15 0.15
MEAN	133. (1.73)	158. (2.05)	175. (2.28)	191. (2.48)	206. (2.68)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 PENTICTON CREEK BELOW HARRIS CREEK OBNM170 D.A. 153 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1971-81

MEAN (CU. M./SEC) 11.3 MAXIMUM (CU. M./SEC) 18.0 NO. OF YEARS 11
 MEAN (L/S/SQ. KM) 73.5 MAXIMUM (L/S/SQ. KM) 118. COEFF. OF SKEW 0.09

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	104. (1.41)	116. (1.57)	123. (1.69)	130. (1.77)	137. (1.86)	0.07 0.07
GUMBEL	110. (1.50)	130. (1.77)	145. (1.97)	160. (2.17)	175. (2.37)	0.12 0.12
PEARSON TYPE III	104. (1.41)	115. (1.57)	123. (1.67)	130. (1.77)	136. (1.89)	0.07 0.07
LOG PEARSON III	105. (1.43)	116. (1.57)	122. (1.66)	127. (1.73)	132. (1.79)	0.07 0.07
MEAN	106. (1.44)	119. (1.62)	128. (1.74)	137. (1.86)	145. (1.97)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 PENTICTON CREEK LOT 19 DIVERSION OBNM063 D.A. ??? SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1928-54

MEAN (CU. M./SEC) 0.443 MAXIMUM (CU. M./SEC) 0.663 NO. OF YEARS 27
 MEAN (CU. M./SEC) 0.443 MAXIMUM (CU. M./SEC) 0.663 COEFF. OF SKEW 0.11

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN CU. M./SEC
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	0.551 (1.24)	0.591 (1.34)	0.618 (1.40)	0.642 (1.45)	0.664 (1.50)	0.13 0.06
GUMBEL	0.579 (1.31)	0.654 (1.48)	0.709 (1.60)	0.764 (1.73)	0.819 (1.85)	0.17 0.06
PEARSON TYPE III	0.551 (1.24)	0.592 (1.34)	0.619 (1.40)	0.643 (1.45)	0.666 (1.50)	0.13 0.06
LOG PEARSON III	0.552 (1.25)	0.591 (1.33)	0.616 (1.39)	0.638 (1.44)	0.657 (1.48)	0.12 0.06
MEAN	0.558 (1.26)	0.607 (1.37)	0.641 (1.45)	0.672 (1.52)	0.702 (1.58)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 60SR ***** MAR 13, 1987

 POWERS CREEK WESTBANK DIVERSION 08NMO34 D.A. ??? SQ. KM.

 MAXIMUM DAILY DISCHARGE IN CMS 1922, 24, 26, 28-31

 NOTE: ALL VALUES IN CMS

MEAN (CU. M. /SEC) 0.243 MAXIMUM (CU. M. /SEC) 0.286 NO. OF YEARS 7
 MEAN (CU. M. /SEC) 0.243 MAXIMUM (CU. M. /SEC) 0.286 COEFF. OF SKEW -2.21

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN CU. M. /SEC

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	0.285 (1.17)	0.286 (1.18)	0.286 (1.18)	0.287 (1.18)	0.287 (1.18)	0.13 0.13
GUMBEL	0.370 (1.52)	0.437 (1.80)	0.487 (2.01)	0.536 (2.21)	0.586 (2.41)	0.27 0.27
PEARSON TYPE III	0.294 (1.21)	0.296 (1.22)	0.297 (1.23)	0.297 (1.23)	0.298 (1.23)	0.15 0.09
LOG PEARSON III	0.304 (1.25)	0.307 (1.26)	0.307 (1.27)	0.308 (1.27)	0.308 (1.27)	0.23 0.14
MEAN	0.313 (1.29)	0.332 (1.37)	0.344 (1.42)	0.357 (1.47)	0.369 (1.52)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 SALMON RIVER NEAR FALKLAND 08LE064 D.A. 1120 SQ. KM.

 MAXIMUM DAILY DISCHARGE IN CMS. 1951-53, 75-78

MEAN (CU. M. /SEC) 20.7 MAXIMUM (CU. M. /SEC) 28.3 NO. OF YEARS 7
 MEAN (L/S/SQ. KM) 18.5 MAXIMUM (L/S/SQ. KM) 25.3 COEFF. OF SKEW -0.73

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	24.2 (1.31)	25.7 (1.39)	26.6 (1.44)	27.3 (1.48)	27.9 (1.51)	0.11 0.11
GUMBEL	27.1 (1.46)	31.7 (1.71)	35.1 (1.90)	38.5 (2.08)	41.9 (2.26)	0.20 0.20
PEARSON TYPE III	24.3 (1.31)	25.8 (1.39)	26.6 (1.44)	27.3 (1.47)	27.8 (1.50)	0.11 0.11
LOG PEARSON III	24.4 (1.32)	25.5 (1.38)	26.0 (1.40)	26.3 (1.42)	26.5 (1.43)	0.12 0.12
MEAN	25.0 (1.35)	27.2 (1.47)	28.6 (1.54)	29.9 (1.61)	31.0 (1.68)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 SHATFORD CREEK NEAR PENTICTON 08NMO37 D.A. 101 SQ. KM.

 MAXIMUM DAILY DISCHARGE IN CMS. 1919-27, 64-85

MEAN (CU. M. /SEC) 4.40 MAXIMUM (CU. M. /SEC) 10.1 NO. OF YEARS 31
 MEAN (L/S/SQ. KM) 43.5 MAXIMUM (L/S/SQ. KM) 100. COEFF. OF SKEW 0.88

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	68.5 (1.57)	80.4 (1.85)	88.8 (2.04)	96.8 (2.22)	105 (2.40)	0.11 0.06
GUMBEL	70.9 (1.63)	86.1 (1.98)	97.3 (2.24)	109 (2.49)	120 (2.75)	0.13 0.06
PEARSON TYPE III	69.0 (1.57)	81.9 (1.88)	90.9 (2.09)	99.6 (2.29)	108 (2.48)	0.13 0.07
LOG PEARSON III	69.0 (1.57)	78.5 (1.80)	84.3 (1.94)	89.1 (2.05)	93.2 (2.14)	0.12 0.06
MEAN	69.4 (1.59)	81.7 (1.88)	90.3 (2.08)	98.5 (2.26)	106 (2.44)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 60SR ***** MAR 13, 1987 *****
 SHINGLE CREEK AT THE MOUTH OBNM150 D.A. 308 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1970-71, 7B-80

MEAN (CU. M./SEC) 6.31 MAXIMUM (CU. M./SEC) 11.0 NO. OF YEARS 5
 MEAN (L/S/SQ. KM) 20.5 MAXIMUM (L/S/SQ. KM) 35.7 COEFF. OF SKEN 0.67

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	37.2 (1.82)	49.2 (2.40)	57.1 (2.88)	69.7 (3.41)	81.3 (3.97)	0.11 0.11
GUMBEL	32.8 (1.60)	39.8 (1.95)	45.1 (2.20)	50.2 (2.45)	55.4 (2.70)	0.10 0.10
PEARSON TYPE III	34.1 (1.67)	40.6 (1.98)	45.0 (2.20)	49.2 (2.40)	53.2 (2.60)	0.07 0.07
LOG PEARSON III	35.7 (1.74)	44.6 (2.18)	51.2 (2.50)	57.9 (2.83)	64.7 (3.16)	0.09 0.09
MEAN	34.9 (1.71)	43.5 (2.13)	50.1 (2.45)	56.8 (2.77)	63.7 (3.11)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 SHORTS CREEK AT THE MOUTH OBNM151 D.A. 185 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1970-82

MEAN (CU. M./SEC) 12.9 MAXIMUM (CU. M./SEC) 21.9 NO. OF YEARS 13
 MEAN (L/S/SQ. KM) 69.7 MAXIMUM (L/S/SQ. KM) 118. COEFF. OF SKEN 0.69

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	115. (1.66)	153. (2.19)	185. (2.66)	221. (3.17)	261. (3.74)	0.14 0.12
GUMBEL	104. (1.50)	124. (1.79)	139. (2.00)	154. (2.21)	169. (2.43)	0.20 0.17
PEARSON TYPE III	109. (1.57)	128. (1.83)	141. (2.02)	153. (2.20)	165. (2.36)	0.19 0.16
LOG PEARSON III	110. (1.59)	138. (1.98)	160. (2.30)	184. (2.64)	209. (3.00)	0.17 0.15
MEAN	110. (1.58)	136. (1.95)	156. (2.24)	178. (2.55)	201. (2.88)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 SHUTTLEWORTH CREEK NEAR OKANAGAN FALLS OBNM006 D.A. 85.2 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1921-26, 55-55, 58, 61-62, 64

MEAN (CU. M./SEC) 2.64 MAXIMUM (CU. M./SEC) 5.10 NO. OF YEARS 12
 MEAN (L/S/SQ. KM) 30.9 MAXIMUM (L/S/SQ. KM) 59.9 COEFF. OF SKEN 0.65

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	78.9 (2.55)	154. (4.98)	243. (7.86)	370. (12.0)	547. (17.7)	0.12 0.12
GUMBEL	52.2 (1.67)	64.6 (2.09)	73.8 (2.39)	83.0 (2.68)	92.1 (2.98)	0.17 0.12
PEARSON TYPE III	55.8 (1.80)	67.3 (2.18)	75.3 (2.43)	82.9 (2.68)	90.1 (2.91)	0.17 0.12
LOG PEARSON III	57.7 (1.86)	79.6 (2.57)	98.7 (3.19)	120. (3.89)	145. (4.68)	0.14 0.10
MEAN	61.1 (1.98)	91.4 (2.95)	123. (3.97)	164. (5.30)	218. (7.06)	

***** GOSR ***** MAR 13, 1987

 SIWASH CREEK NEAR PRINCETON OBNLO39 D.A. 257 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS 1967-72, 74-79

MEAN (CU. M./SEC) 21.4 MAXIMUM (CU. M./SEC) 51.8 NO. OF YEARS 12
 MEAN (L/S/SQ. KM) 83.2 MAXIMUM (L/S/SQ. KM) 202. COEFF. OF SKEW 1.02

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	151. (1.81)	189. (2.27)	217. (2.60)	245. (2.94)	273. (3.28)	0.15 0.15
GUMBEL	147. (1.77)	183. (2.20)	210. (2.52)	236. (2.84)	263. (3.16)	0.15 0.15
PEARSON TYPE III	150. (1.80)	185. (2.22)	210. (2.52)	234. (2.81)	257. (3.09)	0.16 0.16
LOG PEARSON III	156. (1.87)	190. (2.29)	213. (2.55)	234. (2.81)	253. (3.03)	0.16 0.16
MEAN	151. (1.81)	187. (2.24)	212. (2.55)	237. (2.85)	261. (3.14)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 SMITH CREEK NEAR HEDLEY OBNLO34 D.A. 127 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1965-85

MEAN (CU. M./SEC) 5.27 MAXIMUM (CU. M./SEC) 21.5 NO. OF YEARS 21
 MEAN (L/S/SQ. KM) 41.5 MAXIMUM (L/S/SQ. KM) 169. COEFF. OF SKEW 3.22

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	74.1 (1.78)	103. (2.49)	129. (3.10)	158. (3.80)	190. (4.58)	0.11 0.11
GUMBEL	66.3 (1.60)	81.3 (1.96)	92.5 (2.23)	104. (2.49)	119. (2.76)	0.12 0.07
PEARSON TYPE III	78.9 (1.90)	116. (2.79)	146. (3.51)	177. (4.25)	208. (5.01)	0.16 0.16
LOG PEARSON III	73.4 (1.77)	108. (2.59)	141. (3.40)	183. (4.42)	236. (5.68)	0.10 0.10
MEAN	73.2 (1.76)	102. (2.46)	127. (3.06)	155. (3.74)	187. (4.51)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 SUMMERS CREEK NEAR THE MOUTH OBNLO53 D.A. 277 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1973-76, 78-81, 84

MEAN (CU. M./SEC) 5.74 MAXIMUM (CU. M./SEC) 11.5 NO. OF YEARS 9
 MEAN (CU. M./SEC) 5.74 MAXIMUM (CU. M./SEC) 11.5 COEFF. OF SKEW 0.77

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN CU. M./SEC
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	13.3 (2.32)	23.0 (4.02)	33.5 (5.83)	47.2 (8.23)	65.0 (11.3)	0.10 0.09
GUMBEL	9.46 (1.65)	11.6 (2.03)	13.2 (2.31)	14.8 (2.58)	16.4 (2.86)	0.15 0.09
PEARSON TYPE III	10.1 (1.76)	12.2 (2.13)	13.7 (2.39)	15.1 (2.63)	16.4 (2.87)	0.11 0.11
LOG PEARSON III	10.4 (1.82)	13.9 (2.43)	16.9 (2.94)	20.1 (3.50)	23.6 (4.12)	0.12 0.06
MEAN	10.8 (1.89)	15.2 (2.65)	19.3 (3.37)	24.3 (4.24)	30.4 (5.30)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 6DSR ***** MAR 13, 1987

 TERRACE CREEK NEAR KELOWNA OBNM138 D.A. 31.3 SQ. KM. (REG 73)
 MAXIMUM DAILY DISCHARGE IN CMS. 1973-85

MEAN (CU. M./SEC) 3.44 MAXIMUM (CU. M./SEC) 5.01 NO. OF YEARS 13
 MEAN (L/S/SQ. KM) 110. MAXIMUM (L/S/SQ. KM) 130. COEFF. OF SKEW -0.14

DISTRIBUTION
 () FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	146. (1.32)	158. (1.43)	165. (1.50)	172. (1.56)	178. (1.62)	0.14 0.11
GUMBEL	156. (1.42)	182. (1.65)	201. (1.82)	219. (1.99)	238. (2.16)	0.17 0.08
PEARSON TYPE III	146. (1.33)	158. (1.44)	166. (1.51)	173. (1.57)	179. (1.63)	0.14 0.11
LOG PEARSON III	147. (1.34)	159. (1.45)	166. (1.51)	172. (1.57)	177. (1.61)	0.14 0.10
MEAN	149. (1.35)	164. (1.49)	175. (1.59)	184. (1.67)	193. (1.75)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
TREPANIER CREEK AT THE MOUTH OBNM155 D.A. 254 SQ. KM.						
MAXIMUM DAILY DISCHARGE IN CMS. 1970-81						

MEAN (CU. M./SEC) 12.5 MAXIMUM (CU. M./SEC) 31.4 NO. OF YEARS 12
 MEAN (L/S/SQ. KM) 49.1 MAXIMUM (L/S/SQ. KM) 124. COEFF. OF SKEW 1.33

DISTRIBUTION
 () FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	87.1 (1.82)	118. (2.40)	141. (2.88)	166. (3.39)	193. (3.93)	0.11 0.10
GUMBEL	81.9 (1.67)	101. (2.06)	116. (2.36)	130. (2.65)	144. (2.93)	0.12 0.12
PEARSON TYPE III	90.9 (1.85)	115. (2.35)	133. (2.71)	150. (3.06)	167. (3.40)	0.11 0.11
LOG PEARSON III	90.9 (1.85)	127. (2.59)	159. (3.24)	196. (3.99)	238. (4.86)	0.12 0.10
MEAN	88.2 (1.80)	115. (2.35)	137. (2.80)	161. (3.27)	186. (3.78)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
TREPANIER CREEK NEAR PEACHLAND OBNM041 D.A. 179 SQ. KM. (REG 69)						
MAXIMUM DAILY DISCHARGE IN CMS. 1969-80, 83-85						

MEAN (CU. M./SEC) 7.11 MAXIMUM (CU. M./SEC) 15.5 NO. OF YEARS 15
 MEAN (L/S/SQ. KM) 50.9 MAXIMUM (L/S/SQ. KM) 86.6 COEFF. OF SKEW -0.05

DISTRIBUTION
 () FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	74.0 (1.49)	84.9 (1.67)	90.5 (1.78)	95.6 (1.88)	100. (1.97)	0.08 0.08
GUMBEL	82.2 (1.62)	99.4 (1.95)	112. (2.21)	125. (2.45)	138. (2.70)	0.14 0.10
PEARSON TYPE III	76.0 (1.49)	85.1 (1.67)	90.9 (1.79)	96.0 (1.89)	101. (1.98)	0.08 0.08
LOG PEARSON III	78.0 (1.53)	86.2 (1.69)	90.7 (1.78)	94.1 (1.85)	96.8 (1.90)	0.09 0.07
MEAN	78.1 (1.53)	88.9 (1.75)	96.1 (1.87)	103. (2.02)	109. (2.14)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						

** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** 60SR ** ** ** MAR 13, 1987 ** ** **
 TROUT CREEK AT THE MOUTH OBNM158 D.A. 764 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS 1970-82

MEAN (CU. M. /SEC)	24.2	MAXIMUM (CU. M. /SEC)	71.6	NO. OF YEARS	13
MEAN (L/S/SQ. KM)	31.7	MAXIMUM (L/S/SQ. KM)	93.7	COEFF. OF SKEW	1.53

DISTRIBUTION

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	63.8 (2.01)	86.0 (2.71)	104. (3.28)	123. (3.87)	143. (4.51)	0.19 0.19
GUMBEI	58.6 (1.85)	74.0 (2.33)	85.4 (2.69)	96.7 (3.05)	108. (3.41)	0.17 0.17
PEARSON TYPE III	62.4 (1.97)	81.2 (2.56)	95.1 (3.00)	109. (3.43)	122. (3.86)	0.20 0.20
LOG PEARSON III	65.8 (2.07)	86.9 (2.74)	102. (3.23)	117. (3.70)	132. (4.16)	0.19 0.19
MEAN	62.5 (1.98)	82.0 (2.59)	96.7 (3.05)	111. (3.51)	126. (3.98)	

	MEAN	62.5 (1.98)	82.0 (2.59)	96.7 (3.05)	111. (3.51)	126. (3.98)
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						

TROUT CREEK NEAR FAULDER OBNM054 D. A. 704 SQ. KM.
MAXIMUM DAILY DISCHARGE IN CMS. 1942-27.35-54

	MEAN (CU M./SEC)	MAXIMUM (CU M./SEC)	NO. OF YEARS
	MEAN (L/S/SQ. KM)	MAXIMUM (L/S/SQ. KM)	COEFF. OF SKEW
1	19.5	49.6	26
2	27.7	70.5	1.20

DISIRIBUTION.....FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ.KM.
() RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	47.2 (1.77)	61.8 (2.23)	71.4 (2.57)	81.1 (2.92)	91.0 (3.28)	0.13	0.07
GUMBEL	47.7 (1.72)	59.1 (2.13)	67.6 (2.44)	76.0 (2.74)	84.3 (3.04)	0.12	0.08
PEARSON TYPE III	49.4 (1.78)	61.4 (2.21)	70.1 (2.53)	78.6 (2.83)	86.5 (3.13)	0.14	0.07
LOG PEARSON III	50.0 (1.80)	61.7 (2.22)	69.8 (2.52)	77.4 (2.79)	84.5 (3.05)	0.14	0.07

MEAN	49.1	(1.7/)	61.0	(2.20)	69.7	(2.51)	78.3	(2.82)	86.7	(3.12)
	RATIO OF INSTANTANEOUS TO DAILY DISCHARGE									

VERNON CREEK AT INLET TO WOOD LAKE 08NMO09 D.A. 151 SQ. KM.
MAXIMUM DAILY DISCHARGE IN CMS 1920-21, 70-85

MEAN (CU. M./SEC)	3.28	MAXIMUM (CU. M./SEC)	8.15	NO. OF YEARS	18
MEAN (L/S/SQ. KM)	21.7	MAXIMUM (L/S/SQ. KM)	54.0	COEFF. OF SKEW	0.54

DISTRIBUTION

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	43.3 (2.00)	56.1 (2.58)	65.7 (3.03)	75.5 (3.48)	85.5 (3.94)	0.14 0.07
GUMBEL	41.9 (1.93)	53.4 (2.46)	61.9 (2.85)	70.4 (3.24)	78.8 (3.63)	0.14 0.08
PEARSON TYPE III	41.8 (1.92)	50.8 (2.34)	56.9 (2.62)	62.7 (2.87)	68.2 (3.14)	0.10 0.07
LOG PEARSON III	47.3 (2.18)	59.3 (2.73)	66.6 (3.07)	72.7 (3.35)	77.7 (3.58)	0.13 0.09
MEAN	43.6 (2.01)	54.9 (2.53)	62.8 (2.89)	70.3 (3.24)	77.5 (3.57)	

	MEAN	43.6 (2.01)	54.9 (2.53)	62.8 (2.89)	70.3 (3.24)	77.5 (3.57)
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						

***** 60SR ***** MAR 13, 1987
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 VERNON CREPK AT OUTLET OF SWALWELL LAKE OBNM022 D.A. 62.4 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1921-23-26, 28-30, 45-46, 63-64, 67-85

MEAN (CU. M./SEC) 2.78 MAXIMUM (CU. M./SEC) 7.70 NO. OF YEARS 31
 MEAN (L/S/SQ. KM) 44.6 MAXIMUM (L/S/SQ. KM) 123 COEFF. OF SKEN 0.67

DISTRIBUTION
 () RATIO TO MEAN
 K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	140. (3.15)	304. (6.81)	506. (11.4)	807. (18.1)	1240. (27.8)	0.21 0.04
GUMBEL	83.1 (1.86)	105. (2.36)	122. (2.73)	138. (3.10)	154. (3.46)	0.18 0.09
PEARSON TYPE III	85.9 (1.93)	105. (2.36)	119. (2.65)	131. (2.95)	144. (3.29)	0.17 0.11
LOG PEARSON III	92.0 (2.06)	131. (2.93)	163. (3.66)	199. (4.46)	238. (5.34)	0.14 0.06
MEAN	100. (2.25)	161. (3.61)	227. (5.10)	319. (7.15)	444. (9.95)	

 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 VERNON CREPK AT OUTLET OF KALAMALKA LAKE OBNM065 D.A. 572 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1928, 30, 59-85

MEAN (CU. M./SEC) 3.22 MAXIMUM (CU. M./SEC) 7.82 NO. OF YEARS 29
 MEAN (L/S/SQ. KM) 5.64 MAXIMUM (L/S/SQ. KM) 13.7 COEFF. OF SKEN 0.59

DISTRIBUTION
 () RATIO TO MEAN
 K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	10.5 (1.85)	12.9 (2.30)	14.7 (2.61)	16.5 (2.93)	18.2 (3.23)	0.09 0.06
GUMBEL	10.5 (1.87)	13.3 (2.36)	15.3 (2.72)	17.4 (3.08)	19.4 (3.44)	0.10 0.07
PEARSON TYPE III	10.4 (1.84)	12.5 (2.22)	14.0 (2.49)	15.4 (2.73)	16.7 (2.97)	0.08 0.05
LOG PEARSON III	11.3 (2.01)	13.3 (2.37)	14.5 (2.56)	15.3 (2.71)	15.9 (2.82)	0.12 0.07
MEAN	10.7 (1.89)	13.0 (2.31)	14.6 (2.60)	16.1 (2.86)	17.6 (3.12)	

 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 VERNON CREPK AT VERNON OBNM021 D.A. 593 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1921-24, 30, 45-51

MEAN (CU. M./SEC) 2.67 MAXIMUM (CU. M./SEC) 6.60 NO. OF YEARS 12
 MEAN (L/S/SQ. KM) 4.51 MAXIMUM (L/S/SQ. KM) 11.1 COEFF. OF SKEN 0.59

DISTRIBUTION
 () RATIO TO MEAN
 K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	10.8 (2.40)	16.7 (3.70)	22.1 (4.89)	28.3 (6.28)	35.6 (7.90)	0.21 0.21
GUMBEL	8.80 (1.95)	11.2 (2.49)	13.1 (2.90)	14.9 (3.30)	16.7 (3.69)	0.15 0.15
PEARSON TYPE III	8.95 (1.99)	11.0 (2.44)	12.4 (2.75)	13.7 (3.04)	15.0 (3.32)	0.13 0.13
LOG PEARSON III	10.4 (2.30)	14.4 (3.20)	17.5 (3.89)	20.6 (4.57)	23.7 (5.25)	0.18 0.18
MEAN	9.74 (2.16)	13.3 (2.96)	16.3 (3.61)	19.4 (4.30)	22.7 (5.04)	

***** 60SR ***** MAR 13, 1987 *****
 ***** VERNON CREEK BELOW ARDA DAM OBNM175 D.A. 102 SQ. KM. *****
 ***** MAXIMUM DAILY DISCHARGE IN CMS. 1972-79 *****

MEAN (CU. M./SEC.)	3.23	MAXIMUM (CU. M./SEC.)	6.12	NO. OF YEARS	8
MEAN (L/S/SQ. KM)	31.7	MAXIMUM (L/S/SQ. KM)	60.0	COEFF. OF SKEW	0.14

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN	K-S TEST (UNBIASED)
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	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOGAL
LOG NORMAL	57.4 (1.81)	68.0 (2.14)	75.0 (2.37)	81.6 (2.57)	87.8 (2.77)	0.13 0.13
GUMBEL	57.4 (1.87)	74.9 (2.36)	86.4 (2.72)	97.7 (3.08)	109 (3.44)	0.17 0.17
PEARSON TYPE III	56.9 (1.77)	66.7 (2.10)	73.1 (2.30)	78.9 (2.49)	84.3 (2.66)	0.13 0.13
LOG PEARSON III	64.4 (2.03)	77.2 (2.43)	84.6 (2.67)	90.5 (2.85)	95.1 (3.00)	0.17 0.17
MEAN	57.5 (1.88)	71.7 (2.26)	79.8 (2.52)	87.2 (2.75)	94.1 (2.97)	

VERNON CREWK NEAR OKANAGAN CENTRE DIVERSION 08N1043 D. A. 90. 1 SQ. KM.
MAXIMUM DAILY DISCHARGE IN CMS. 1919. 21-22. 26-27

	MEAN (CU. M./SEC.)	MAXIMUM (CU. M./SEC.)	NO. OF YEARS
	MEAN (L/S/SQ. KM)	MAXIMUM (L/S/SQ. KM)	COEFF. OF SKEN
	4.26	9.63	0.42
	47.3	107.	

DISTRIBUTION. FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
() RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	197. (3.33)	304. (6.43)	466. (9.85)	683. (14.4)	969. (20.5)	0.16	0.16
GUMBEL	99.9 (2.11)	130. (2.75)	156. (3.22)	174. (3.69)	197. (4.16)	0.17	0.17
PEARSON TYPE III	104. (2.21)	129. (2.73)	146. (3.08)	161. (3.41)	176. (3.72)	0.13	0.13
LOG PEARSON III	146. (3.08)	244. (5.16)	334. (7.05)	436. (9.21)	550. (11.6)	0.15	0.15
MEAN	127. (2.68)	202. (4.27)	274. (5.80)	363. (7.69)	473. (****)		

VERNON CREEK NEAR THE MOUTH OBNI60 D. A. 751 SQ. KM.
MAXIMUM DAILY DISCHARGE IN CMS 1970-82

MEAN (CU. M./SEC.)	4.86	MAXIMUM (CU. M./SEC.)	8.41	NO. OF YEARS	13
MEAN (L/S/SQ. KM)	6.47	MAXIMUM (L/S/SQ. KM)	11.2	COEFF. OF SKEW	0.02

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
() RATIO TO MEAN

K-S TEST
(UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	10.5 (1.63)	12.1 (1.87)	13.1 (2.02)	14.0 (2.15)	14.8 (2.29)	0.11—0.11
GUMBEL	11.0 (1.70)	13.6 (2.10)	15.5 (2.37)	17.3 (2.68)	17.2 (2.67)	0.15—0.06
PEARSON TYPE III	10.5 (1.62)	12.0 (1.85)	13.0 (2.00)	13.8 (2.14)	14.6 (2.26)	0.11—0.11
LOG PEARSON III	11.3 (1.74)	13.5 (2.09)	15.0 (2.32)	16.4 (2.54)	17.7 (2.73)	0.13—0.06
MEAN	10.8 (1.67)	12.8 (1.98)	14.1 (2.18)	15.4 (2.38)	16.6 (2.56)	

MEAN (CU. M. /SEC)	0.645	MAXIMUM (CU. M. /SEC)	1.28	NO. OF YEARS	8
MEAN (CU. M. /SEC)	0.645	MAXIMUM (CU. M. /SEC)	1.28	COEFF. OF SKEN	2.59

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN CU. M. / SEC () RATIO TO MEAN	K-S TEST (UNBIASED)
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	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	0.973 (1.51)	1.50 (2.32)	2.10 (3.26)	2.74 (4.56)	4.09 (6.31)	0.16 0.16
GUMBEL	0.812 (1.26)	0.920 (1.43)	1.00 (1.55)	1.08 (1.67)	1.16 (1.80)	0.22 0.22
PEARSON TYPE III	0.970 (1.50)	1.24 (1.92)	1.45 (2.25)	1.66 (2.58)	1.88 (2.92)	0.22 0.22
LOG PEARSON III	0.912 (1.42)	1.24 (1.92)	1.57 (2.43)	1.99 (3.09)	2.53 (3.92)	0.15 0.15
MEAN	0.917 (1.42)	1.22 (1.90)	1.53 (2.37)	1.92 (2.98)	2.41 (3.75)	

VERNON IRRIGATION DISTRICT DIVERSION NEAR LAYINGTON OBLCOO7 D. A. ??? SQ. KM.
MAXIMUM DAILY DISCHARGE IN CMS 1919-21, 35, 45, 49-51, 64-65 ***NOTE: ALL VALUES IN CMS***

MEAN (CU. M. / SEC)	2.51	MAXIMUM (CU. M. / SEC)	2.97	NO. OF YEARS	10
MEAN (CU. M. / SEC)	2.51	MAXIMUM (CU. M. / SEC)	2.97	COEFF. OF SKEW	-1.00

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DISTRIBUTION .....
FREQUENCY ANALYSIS ESTIMATE IN CU. M. /SEC .....
{ } RATIO TO MEAN .....
K-S TEST .....
(UNBIASED) .....

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	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	3.91 (1.16)	3.96 (1.18)	3.99 (1.19)	3.91 (1.20)	3.93 (1.21)	0.12	0.12
GUMBEL	3.24 (1.29)	3.64 (1.45)	3.93 (1.57)	3.22 (1.68)	3.51 (1.80)	0.16	0.16
PEARSON TYPE III	2.96 (1.17)	3.05 (1.23)	3.11 (1.24)	3.14 (1.25)	3.17 (1.26)	0.15	0.15
LOG PEARSON TYPE III	2.96 (1.17)	3.08 (1.23)	3.13 (1.25)	3.16 (1.26)	3.18 (1.27)	0.14	0.14

MEAN	3.02 (1.21)	3.18 (1.27)	3.29 (1.31)	3.38 (1.35)	3.47 (1.38)
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE					
WHITEMAN CREEK NEAR VERNON	08N1046	D. A. 197	50. KM.		
MAXIMUM DAILY DISCHARGE IN CMS	1920-21, 49-57, 59-61	63-67			

MEAN (CU. M. /SEC.)	10. 0	MAXIMUM (CU. M. /SEC.)	23. 6	NO. OF YEARS	19
MEAN (L/S/SQ. KM)	50. 9	MAXIMUM (L/S/SQ. KM)	120.	COEFF. OF SKEN	0. 84

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN	K-S TEST (UNBIASED)
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	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LDCAL
LOG NORMAL	71.7 (1.80)	121. (2.37)	144. (2.83)	169. (3.31)	195. (3.83)	0.09 0.05
GUMBEL	85.5 (1.68)	105. (2.07)	120. (2.35)	135. (2.64)	149. (2.93)	0.11 0.08
PEARSON TYPE III	88.4 (1.73)	107. (2.10)	120. (2.35)	133. (2.60)	145. (2.84)	0.09 0.06
LOG PEARSON III	90.7 (1.78)	116. (2.28)	135. (2.65)	155. (3.05)	176. (3.45)	0.08 0.06

[illegible]

*****60SLDN ***** MAR 13, 1987
 SIMILKAMEEN RIVER AT PRINCETON OBNL007 D.A. 1850 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1914-17, 39-42, 45-85

MEAN (CU. M./SEC) 222. MAXIMUM (CU. M./SEC) 476. NO. OF YEARS 49
 MEAN (L/S/SQ. KM) 120. MAXIMUM (L/S/SQ. KM) 257. COEFF. OF SKEW 0.66

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	187. (1.56)	220. (1.84)	244. (2.04)	267. (2.23)	290. (2.42)	0.08 0.02
GUMBEL	190. (1.58)	222. (1.91)	258. (2.16)	287. (2.40)	316. (2.64)	0.09 0.02
PEARSON TYPE III	186. (1.56)	218. (1.82)	239. (2.00)	260. (2.17)	279. (2.33)	0.08 0.03
LOG PEARSON III	188. (1.57)	218. (1.82)	237. (1.98)	255. (2.13)	271. (2.26)	0.08 0.03
MEAN	108. (1.57)	221. (1.85)	245. (2.04)	267. (2.23)	289. (2.41)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 SIMILKAMEEN RIVER NEAR HEDLEY OBNL038 D.A. 5590 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1965-85

MEAN (CU. M./SEC) 411. MAXIMUM (CU. M./SEC) 929. NO. OF YEARS 21
 MEAN (L/S/SQ. KM) 73.6 MAXIMUM (L/S/SQ. KM) 166. COEFF. OF SKEW 1.78

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	109. (1.48)	129. (1.75)	143. (1.95)	158. (2.14)	172. (2.34)	0.16 0.15
GUMBEL	108. (1.46)	127. (1.73)	142. (1.92)	156. (2.12)	170. (2.31)	0.16 0.15
PEARSON TYPE III	111. (1.51)	136. (1.85)	154. (2.10)	173. (2.35)	191. (2.60)	0.21 0.21
LOG PEARSON III	110. (1.47)	131. (1.78)	147. (1.99)	163. (2.21)	179. (2.44)	0.16 0.16
MEAN	109. (1.49)	131. (1.78)	147. (1.99)	162. (2.21)	178. (2.42)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 SIMILKAMEEN RIVER NEAR KEREMEOS OBNL006 D.A. 5760 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1914-31

MEAN (CU. M./SEC) 457. MAXIMUM (CU. M./SEC) 671. NO. OF YEARS 18
 MEAN (L/S/SQ. KM) 76.7 MAXIMUM (L/S/SQ. KM) 113. COEFF. OF SKEW -0.53

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	107. (1.40)	111. (1.45)	113. (1.48)	115. (1.50)	116. (1.51)	0.13 0.13
GUMBEL	124. (1.63)	151. (1.95)	170. (2.22)	189. (2.47)	209. (2.72)	0.16 0.08
PEARSON TYPE III	111. (1.45)	121. (1.58)	127. (1.66)	132. (1.72)	136. (1.78)	0.14 0.13
LOG PEARSON III	118. (1.55)	133. (1.73)	141. (1.84)	147. (1.92)	153. (2.00)	0.14 0.09
MEAN	115. (1.50)	129. (1.68)	138. (1.80)	146. (1.90)	153. (2.00)	

***** 60SLDR ***** MAR 13, 1987
 OKANAGAN RIVER AT OKANAGAN FALLS OBNMO02 D.A. 68600 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1915-85

MEAN (CU. M./SEC) 36.5 MAXIMUM (CU. M./SEC) 75.9 NO. OF YEARS 71
 MEAN (L/S/SQ. KM) 5.32 MAXIMUM (L/S/SQ. KM) 11.1 COEFF. OF SKEW 0.59

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	8.71 (1.64)	10.4 (1.96)	11.6 (2.18)	12.8 (2.40)	13.9 (2.62)	0.07 0.02
GUMBEL	8.90 (1.67)	10.9 (2.05)	12.4 (2.33)	13.9 (2.61)	15.3 (2.88)	0.06 0.02
PEARSON TYPE III	8.69 (1.63)	10.2 (1.92)	11.3 (2.12)	12.3 (2.31)	13.3 (2.49)	0.08 0.01
LOG PEARSON III	8.74 (1.64)	9.96 (1.87)	10.7 (2.00)	11.2 (2.11)	11.7 (2.20)	0.10 0.01
MEAN	8.76 (1.65)	10.4 (1.95)	11.5 (2.16)	12.5 (2.36)	13.6 (2.55)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

OKANAGAN RIVER AT PENTICTON OBNMO50 D.A. 6090 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1922-85

MEAN (CU. M./SEC) 32.9 MAXIMUM (CU. M./SEC) 76.7 NO. OF YEARS 64
 MEAN (L/S/SQ. KM) 5.40 MAXIMUM (L/S/SQ. KM) 12.6 COEFF. OF SKEW 0.86

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	8.92 (1.65)	11.0 (2.04)	12.6 (2.33)	14.2 (2.63)	15.8 (2.93)	0.10 0.02
GUMBEL	8.70 (1.61)	10.6 (1.96)	12.0 (2.22)	13.4 (2.47)	14.8 (2.73)	0.11 0.01
PEARSON TYPE III	8.90 (1.65)	10.7 (1.97)	11.9 (2.20)	13.1 (2.42)	14.2 (2.63)	0.12 0.01
LOG PEARSON III	8.95 (1.66)	10.9 (2.02)	12.4 (2.29)	13.8 (2.55)	15.2 (2.81)	0.10 0.02
MEAN	8.87 (1.64)	10.8 (2.00)	12.2 (2.26)	13.6 (2.52)	15.0 (2.78)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

OKANAGAN RIVER NEAR OLIVER OBNMO85 D.A. 7590 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1945-48, 52-56, 58-85

MEAN (CU. M./SEC) 48.8 MAXIMUM (CU. M./SEC) 84.1 NO. OF YEARS 37
 MEAN (L/S/SQ. KM) 6.43 MAXIMUM (L/S/SQ. KM) 11.1 COEFF. OF SKEW -0.09

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	9.92 (1.54)	11.1 (1.72)	11.8 (1.83)	12.4 (1.93)	12.9 (2.01)	0.08 0.06
GUMBEL	10.8 (1.67)	13.2 (2.05)	15.0 (2.33)	16.7 (2.60)	18.5 (2.88)	0.10 0.08
PEARSON TYPE III	9.97 (1.55)	11.2 (1.75)	12.0 (1.87)	12.7 (1.98)	13.4 (2.08)	0.08 0.07
LOG PEARSON III	10.6 (1.65)	12.4 (1.93)	13.5 (2.10)	14.5 (2.26)	15.4 (2.40)	0.08 0.08
MEAN	10.3 (1.60)	12.0 (1.86)	13.1 (2.03)	14.1 (2.19)	15.1 (2.34)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 60SLDR ***** AUG 26, 1987
 +*****+
 SIMILKAMEEN RIVER NEAR NIGHTHAWK OBNLO22 D. A. 9190 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN M3/SEC. 1929-85

MEAN (CU. M./SEC) 487. MAXIMUM (CU. M./SEC) 1270. NO. OF YEARS 57
 MEAN (L/S/SQ. KM) 53.0 MAXIMUM (L/S/SQ. KM) 138. COEFF. OF SKEW 1.31

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	82.9 (1.56)	99.7 (1.88)	112. (2.12)	125. (2.35)	137. (2.59)	0.08 0.01
GUMBEL	82.1 (1.55)	98.7 (1.86)	111. (2.09)	123. (2.32)	135. (2.55)	0.08 0.01
PEARSON TYPE III	83.9 (1.58)	102. (1.92)	115. (2.16)	127. (2.40)	140. (2.63)	0.10 0.03
LOG PEARSON III	83.2 (1.57)	99.6 (1.88)	111. (2.10)	123. (2.32)	135. (2.54)	0.08 0.01
MEAN	83.0 (1.57)	99.9 (1.88)	112. (2.12)	125. (2.35)	137. (2.58)	

*****+
 TULAMEEN RIVER AT PRINCETON OBNLO24 1760 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN M3/SEC. 1951-85

MEAN (CU. M./SEC) 200. MAXIMUM (CU. M./SEC) 374. NO. OF YEARS 35
 MEAN (L/S/SQ. KM) 114. MAXIMUM (L/S/SQ. KM) 213. COEFF. OF SKEW 0.81

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	159. (1.40)	182. (1.60)	198. (1.75)	215. (1.89)	230. (2.03)	0.06 0.06
GUMBEL	160. (1.41)	186. (1.63)	205. (1.80)	224. (1.97)	243. (2.14)	0.06 0.06
PEARSON TYPE III	159. (1.40)	181. (1.60)	197. (1.73)	212. (1.86)	226. (1.99)	0.06 0.06
LOG PEARSON III	159. (1.40)	182. (1.60)	198. (1.74)	214. (1.88)	230. (2.02)	0.06 0.06
MEAN	159. (1.40)	183. (1.61)	200. (1.76)	216. (1.90)	232. (2.05)	

*****7N*****MAR 12, 1987
 ++++++BIG SHEEP CREEK NEAR ROSSLAND OBNE039 D.A. 347 SQ. KM.+++++
 MAXIMUM DAILY DISCHARGE IN CMS. 1930, 49-85

MEAN (CU. M./SEC) 48.8 MAXIMUM (CU. M./SEC) 74.2 NO. OF YEARS 38
 MEAN (L/S/SQ. KM) 141. MAXIMUM (L/S/SQ. KM) 214. COEFF. OF SKEW -0.44

DISTRIBUTION
 () FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST
 () RATIO TO MEAN (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	185 (1.32)	199 (1.41)	207 (1.47)	214 (1.52)	220 (1.57)	0.05 0.04
GUMBEL	210 (1.47)	248 (1.76)	275 (1.95)	303 (2.15)	330 (2.34)	0.11 0.10
PEARSON TYPE III	186 (1.32)	199 (1.41)	207 (1.47)	214 (1.52)	220 (1.56)	0.05 0.04
LOG PEARSON III	184 (1.30)	190 (1.39)	193 (1.37)	194 (1.38)	195 (1.39)	0.05 0.05
MEAN	171 (1.36)	209 (1.48)	221 (1.57)	231 (1.64)	241 (1.72)	

+++++RATIO OF INSTANTANEOUS TO DAILY DISCHARGE+++++
 BLUEBERRY CREEK NEAR BLUEBERRY CREEK OBNE073 D.A. 145 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1948-53, 55-56, 65-69

MEAN (CU. M./SEC) 14.8 MAXIMUM (CU. M./SEC) 29.2 NO. OF YEARS 13
 MEAN (L/S/SQ. KM) 102. MAXIMUM (L/S/SQ. KM) 174. COEFF. OF SKEW 0.48

DISTRIBUTION
 () FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST
 () RATIO TO MEAN (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	152 (1.49)	180 (1.76)	201 (1.97)	221 (2.17)	242 (2.37)	0.14 0.06
GUMBEL	150 (1.47)	177 (1.73)	197 (1.93)	217 (2.12)	236 (2.31)	0.15 0.06
PEARSON TYPE III	149 (1.45)	170 (1.67)	184 (1.80)	197 (1.93)	210 (2.06)	0.15 0.08
LOG PEARSON III	152 (1.48)	178 (1.74)	196 (1.92)	214 (2.10)	232 (2.28)	0.14 0.06
MEAN	151 (1.48)	176 (1.72)	195 (1.90)	213 (2.08)	230 (2.25)	

+++++RATIO OF INSTANTANEOUS TO DAILY DISCHARGE+++++
 SURRELL CREEK-ABOVE-GLOUCESTER CREEK OBNN023 D.A. 224 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1974-85

MEAN (CU. M./SEC) 40.4 MAXIMUM (CU. M./SEC) 50.9 NO. OF YEARS 12
 MEAN (L/S/SQ. KM) 180. MAXIMUM (L/S/SQ. KM) 227. COEFF. OF SKEW -0.03

DISTRIBUTION
 () FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST
 () RATIO TO MEAN (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	219 (1.27)	233 (1.29)	241 (1.34)	249 (1.38)	255 (1.42)	0.16 0.16
GUMBEL	276 (1.25)	251 (1.39)	269 (1.49)	288 (1.60)	306 (1.70)	0.16 0.16
PEARSON TYPE III	220 (1.22)	234 (1.30)	243 (1.35)	251 (1.39)	259 (1.43)	0.16 0.16
LOG PEARSON III	221 (1.23)	238 (1.32)	249 (1.38)	259 (1.44)	268 (1.49)	0.15 0.15
MEAN	221 (1.23)	239 (1.32)	251 (1.39)	262 (1.45)	272 (1.51)	

+++++RATIO OF INSTANTANEOUS TO DAILY DISCHARGE+++++

*****7N***** MAR 12, 1987
 DEER CREEK AT DEER PARK OBNE087 D.A. 80.5 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1959-85

MEAN (CU. M./SEC) 7.63 MAXIMUM (CU. M./SEC) 13.0 NO. OF YEARS 27
 MEAN (L/S/SQ. KM) 74.8 MAXIMUM (L/S/SQ. KM) 161. COEFF. OF SKEW 0.34

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.					K-S TEST	
	()	RATIO TO MEAN	10-YEAR	50-YEAR	100-YEAR	200-YEAR	(UNBIASED)
LOG NORMAL	137. (1.45)	160. (1.68)	176. (1.85)	191. (2.02)	207. (2.18)	223. (2.34)	0.11 0.04
GUMBEL	138. (1.45)	162. (1.71)	180. (1.90)	198. (2.09)	216. (2.28)	234. (2.47)	0.10 0.04
PEARSON TYPE III	135. (1.43)	152. (1.61)	164. (1.73)	174. (1.84)	184. (1.94)	194. (2.04)	0.13 0.04
LOG PEARSON III	137. (1.45)	159. (1.67)	174. (1.83)	188. (1.98)	202. (2.13)	216. (2.28)	0.11 0.04
MEAN	137. (1.44)	158. (1.67)	173. (1.83)	188. (1.98)	202. (2.13)	216. (2.28)	
*****RATIO OF INSTANTANEOUS TO DAILY DISCHARGE*****							
EDGREN CREEK NEAR GOLDEN OBNE108 D.A. 3.89 SQ. KM.							
MAXIMUM DAILY DISCHARGE IN CMS. 1970-74							

MEAN (CU. M./SEC) 0.325 MAXIMUM (CU. M./SEC) 0.547 NO. OF YEARS 5
 MEAN (L/S/SQ. KM) 83.5 MAXIMUM (L/S/SQ. KM) 141. COEFF. OF SKEW 0.54

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.					K-S TEST	
	()	RATIO TO MEAN	10-YEAR	50-YEAR	100-YEAR	200-YEAR	(UNBIASED)
LOG NORMAL	143. (1.71)	181. (2.16)	210. (2.51)	240. (2.87)	272. (3.25)	304. (3.63)	0.19 0.15
GUMBEL	131. (1.57)	159. (1.90)	179. (2.14)	199. (2.38)	219. (2.62)	239. (2.86)	0.18 0.18
PEARSON TYPE III	136. (1.63)	160. (1.92)	176. (2.11)	191. (2.29)	206. (2.46)	221. (2.64)	0.14 0.14
LOG PEARSON III	143. (1.71)	180. (2.15)	209. (2.50)	238. (2.85)	269. (3.22)	300. (3.59)	0.15 0.15
MEAN	138. (1.66)	170. (2.03)	193. (2.31)	217. (2.60)	241. (2.89)	265. (3.18)	
*****RATIO OF INSTANTANEOUS TO DAILY DISCHARGE*****							
MOODY CREEK NEAR CHRISTINA OBNE021 D.A. 13.5 SQ. KM.							
MAXIMUM DAILY DISCHARGE IN CMS. 1972-84							

MEAN (CU. M./SEC) 1.24 MAXIMUM (CU. M./SEC) 2.72 NO. OF YEARS 13
 MEAN (L/S/SQ. KM) 71.5 MAXIMUM (L/S/SQ. KM) 201. COEFF. OF SKEW 0.82

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.					K-S TEST	
	()	RATIO TO MEAN	10-YEAR	50-YEAR	100-YEAR	200-YEAR	(UNBIASED)
LOG NORMAL	154. (1.69)	185. (2.02)	207. (2.26)	227. (2.49)	248. (2.71)	268. (2.94)	0.11 0.11
GUMBEL	157. (1.71)	193. (2.11)	220. (2.40)	247. (2.70)	273. (2.99)	299. (3.28)	0.11 0.11
PEARSON TYPE III	154. (1.69)	186. (2.03)	208. (2.27)	228. (2.50)	249. (2.72)	269. (2.94)	0.11 0.11
LOG PEARSON III	156. (1.71)	177. (1.94)	199. (2.07)	219. (2.17)	239. (2.25)	259. (2.35)	0.12 0.11
MEAN	155. (1.70)	185. (2.02)	206. (2.25)	225. (2.46)	244. (2.67)	263. (2.88)	
*****RATIO OF INSTANTANEOUS TO DAILY DISCHARGE*****							

*****7N*****MAR 12, 1987

 TRAPPING CREEK AT THE 1220 M. CONTOUR OBNNO20 D. A. 22.8 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1971-81

MEAN (CU. M./SEC) 7.12 MAXIMUM (CU. M./SEC) 11.3 NO. OF YEARS 11
 MEAN (L/S/SQ. KM) 312. MAXIMUM (L/S/SQ. KM) 496. COEFF. OF SKEW 0.34

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.					K-S TEST (UNBIASED)	
	(	) RATIO TO MEAN					
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	451. (1.41)	519. (1.66)	567. (1.82)	614. (1.97)	659. (2.11)	0.06	0.06
GUMBEL	452. (1.45)	531. (1.70)	589. (1.89)	647. (2.07)	704. (2.26)	0.08	0.05
PEARSON TYPE III	445. (1.43)	501. (1.60)	538. (1.72)	573. (1.83)	606. (1.94)	0.08	0.08
LOG PEARSON III	452. (1.45)	519. (1.66)	566. (1.81)	611. (1.95)	653. (2.09)	0.06	0.06
MEAN	450. (1.44)	518. (1.66)	565. (1.81)	611. (1.96)	656. (2.10)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							
+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
TRAPPING CREEK NEAR THE MOUTH OBNNO19 D. A. 144 SQ. KM.							
MAXIMUM DAILY DISCHARGE IN CMS. 1966-85							

MEAN (CU. M./SEC) 14.3 MAXIMUM (CU. M./SEC) 19.3 NO. OF YEARS 20
 MEAN (L/S/SQ. KM) 99.0 MAXIMUM (L/S/SQ. KM) 134. COEFF. OF SKEW -0.53

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	125. (1.27)	132. (1.34)	137. (1.39)	140. (1.42)	143. (1.45)	0.12	0.12
GUMBEL	140. (1.41)	162. (1.64)	178. (1.80)	194. (1.96)	211. (2.13)	0.22	0.22
PEARSON TYPE III	126. (1.27)	133. (1.35)	138. (1.39)	142. (1.43)	149. (1.45)	0.13	0.13
LOG PEARSON III	126. (1.27)	132. (1.33)	135. (1.36)	137. (1.38)	139. (1.40)	0.13	0.13
MEAN	129. (1.31)	140. (1.41)	147. (1.48)	153. (1.55)	159. (1.61)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							
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MEAN (CU. M./SEC) 71.6 MAXIMUM (CU. M./SEC) 113. NO. OF YEARS 12
 MEAN (L/S/SQ. KM) 78.3 MAXIMUM (L/S/SQ. KM) 96.6 COEFF. OF SKEW 0.18

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	90.8 (1.16)	96.1 (1.23)	99.7 (1.27)	103 (1.32)	106 (1.36)	0.17	0.17
GUMBEL	91.9 (1.17)	99.5 (1.27)	105 (1.34)	111 (1.41)	116 (1.49)	0.20	0.20
PEARSON TYPE III	90.6 (1.16)	95.4 (1.22)	98.6 (1.26)	102 (1.30)	104 (1.33)	0.16	0.16
LOG PEARSON III	90.8 (1.16)	96.0 (1.23)	99.4 (1.27)	103 (1.31)	106 (1.35)	0.17	0.17
MEAN	91.0 (1.16)	96.8 (1.24)	101 (1.27)	104 (1.33)	108 (1.38)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							

 7N ***** MAR 12 1987
 WEST KETTLE RIVER NEAR MCCULLOCH OBNNO19 D.A. 230 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1965-73, 75-85

MEAN (CU. M./SEC) 36.8 MAXIMUM (CU. M./SEC) 48.1 NO. OF YEARS 20
 MEAN (L/S/SQ. KM) 160. MAXIMUM (L/S/SQ. KM) 209 COEFF. OF SKEW -0.03

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.				K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	205. (1.28)	221. (1.38)	231. (1.45)	240. (1.50)	248. (1.55)	0.12 0.08
GUMBEL	215. (1.34)	245. (1.53)	267. (1.67)	290. (1.81)	312. (1.95)	0.12 0.07
PEARSON TYPE III	205. (1.28)	222. (1.39)	232. (1.45)	242. (1.51)	251. (1.57)	0.12 0.08
LOG PEARSON III	208. (1.30)	227. (1.42)	239. (1.50)	250. (1.57)	261. (1.63)	0.12 0.07
MEAN	208. (1.30)	229. (1.43)	243. (1.52)	256. (1.60)	268. (1.68)	
	RATIO OF INSTANTANEOUS TO DAILY DISCHARGE					

BEAVER CREEK AT THE MOUTH OBNE106 D.A. 267 SQ. KM.
MAXIMUM DAILY DISCHARGE IN CMS. 1970-71

MEAN (CU. M./SEC)	24.3	MAXIMUM (CU. M./SEC)	39.6	NO. OF YEARS	8
MEAN (L/S/SQ. KM)	90.5	MAXIMUM (L/S/SQ. KM)	148.	COEFF. OF SKEN	0.40

DISTRIBUTION-----FREQUENCY-ANALYSIS ESTIMATE IN L/S/SQ.-MM-----K-S TEST-----
() RATIO TO MEAN (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	146 (1.61)	180 (1.99)	207 (2.28)	234 (2.58)	262 (2.89)	0 09
GUMBEL	139 (1.53)	146 (1.83)	186 (2.06)	206 (2.29)	226 (2.50)	0 09
PEARSON TYPE III	139 (1.54)	160 (1.77)	174 (1.92)	197 (2.07)	224 (2.20)	0 08
LOG-PEARSON III	144 (1.52)	172 (1.90)	193 (2.13)	214 (2.36)	234 (2.59)	0 07

MEAN	142.	(1.57)	170.	(1.87)	190.	(2.10)	210.	(2.32)	230.	(2.55)
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE										
+++++ +++++ +++++ +++++ +++++ +++++ +++++ +++++ +++++ +++++ +++++										
BOUNDARY CREEK AT GREENWOOD OBNNO01 D. A. 479 SQ. KM.										
MAXIMUM DAILY DISCHARGE IN CMS. 1914-18, 60, 62-69, 71-79										

MEAN (CU. M./SEC)	23.4	MAXIMUM (CU. M./SEC)	46.4	NO. OF YEARS	23
MEAN (L/S/SQ. KM)	48.9	MAXIMUM (L/S/SQ. KM)	96.9	COEFF. OF SKEW	1.11

DISTRIBUTION FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
() RATIO TO MEAN K-S TEST
(UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
EQ3-NORMAL	77.0 (1.58)	98.1 (2.01)	116 (2.37)	135 (2.76)	155 (3.18)	0.11	0.08
GUMBEL	71.5 (1.45)	84.7 (1.73)	94.5 (1.94)	104 (2.14)	114 (2.33)	0.16	0.06
PEARSON TYPE III	76.4 (1.55)	71.4 (1.87)	102 (2.09)	112 (2.30)	123 (2.51)	0.14	0.10
LOG PEARSON III	75.7 (1.55)	75.0 (1.94)	111 (2.27)	128 (2.63)	147 (3.01)	0.12	0.07
MEAN	75.1 (1.54)	72.3 (1.89)	106 (2.17)	120 (2.45)	135 (2.76)		

JULY-CREEK-NEAR-GRAND-FORKS-OBNO10 D.A. 45.6 SQ. KM.
MAXIMUM DAILY DISCHARGE IN CMS. 1967, 71-74

MEAN (CU. M./SEC)	2.06	MAXIMUM (CU. M./SEC)	4.59	NO. OF YEARS	5
MEAN (L/S/SQ. KM)	45.1	MAXIMUM (L/S/SQ. KM)	101.	COEFF. OF SKEW	1.02

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.

() RATIO TO MEAN

K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	106. (2.35)	161. (3.58)	212. (4.69)	270. (5.79)	338. (7.49)	0.04	0.04
GUMBEL	84.1 (1.86)	107. (2.37)	124. (2.74)	140. (3.11)	157. (3.48)	0.09	0.09
PEARSON TYPE III	93.5 (2.07)	117. (2.64)	137. (3.04)	155. (3.43)	172. (3.81)	0.05	0.05
LOG PEARSON III	104. (2.30)	152. (3.37)	193. (4.27)	238. (5.27)	287. (6.37)	0.04	0.04

MEAN	96.9	(2.15)	-135	(2.99)	166	(3.69)	201	(4.45)	238	(5.28)
	RATIO OF INSTANTANEOUS TO DAILY DISCHARGE									

*****7R***** MAR 12, 1987
 MYERS CREEK AT INTERNATIONAL BOUNDARY OBNNO10 D.A. 207 SQ. KM.
 MAXIMUM-DAILY-DISCHARGE IN CMS. 1923:26-29, 35, 37, 39, 43-50

MEAN (CU. M./SEC) 1.27 MAXIMUM (CU. M./SEC) 2.89 NO. OF YEARS 16
 MEAN (L/S/SQ. KM) 6.12 MAXIMUM (L/S/SQ. KM) 14.0 COEFF. OF SKEW 0.77

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	12.3 (2.00)	14.6 (2.71)	20.1 (3.27)	23.9 (3.91)	28.0 (4.57)	0.08 0.06
GUMBEL	11.2 (1.83)	14.1 (2.31)	16.3 (2.66)	18.4 (3.01)	20.6 (3.36)	0.09 0.07
PEARSON TYPE III	11.7 (1.91)	14.4 (2.35)	16.3 (2.65)	18.1 (3.95)	19.8 (3.23)	0.08 0.06
LOG PEARSON III	12.4 (2.03)	16.2 (2.65)	19.0 (3.10)	21.7 (3.54)	24.2 (3.96)	0.07 0.05
MEAN	11.9 (1.94)	15.3 (2.50)	17.9 (2.93)	20.5 (3.35)	23.1 (3.78)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 FENTITION CREEK ABOVE DENNIS CREEK OBNM168 D.A. 35.5 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1971-85

MEAN (CU. M./SEC) 1.69 MAXIMUM (CU. M./SEC) 3.31 NO. OF YEARS 19
 MEAN (L/S/SQ. KM) 47.7 MAXIMUM (L/S/SQ. KM) 93.2 COEFF. OF SKEW 1.11

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	81.1 (1.70)	114. (2.39)	144. (3.02)	179. (3.76)	221. (4.63)	0.08 0.07
GUMBEL	71.1 (1.49)	85.0 (1.78)	95.2 (2.00)	105. (2.21)	116. (2.42)	0.17 0.10
PEARSON TYPE III	77.7 (1.63)	94.0 (1.97)	106. (2.21)	117. (2.45)	128. (2.68)	0.15 0.10
LOG PEARSON III	77.0 (1.61)	100. (2.10)	120. (2.52)	143. (3.00)	169. (3.53)	0.12 0.07
MEAN	76.7 (1.61)	78.3 (2.06)	116. (2.41)	136. (2.85)	158. (3.32)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 ROCK CREEK NEAR ROCK CREEK OBNNO07 D.A. 280 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1921, 73, 75, 79-84

MEAN (CU. M./SEC) 2.06 MAXIMUM (CU. M./SEC) 17.0 NO. OF YEARS 9
 MEAN (L/S/SQ. KM) 32.4 MAXIMUM (L/S/SQ. KM) 60.7 COEFF. OF SKEW 0.82

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	51.9 (1.60)	62.7 (1.94)	70.8 (2.19)	78.8 (2.44)	86.9 (2.68)	0.05 0.05
GUMBEL	50.4 (1.56)	60.7 (1.87)	68.2 (2.11)	75.8 (2.34)	83.3 (2.57)	0.05 0.05
PEARSON TYPE III	51.2 (1.58)	60.5 (1.87)	67.0 (2.07)	73.2 (2.26)	79.2 (2.45)	0.05 0.05
LOG PEARSON III	52.0 (1.61)	62.3 (1.93)	69.7 (2.15)	76.8 (2.37)	83.8 (2.59)	0.05 0.05
MEAN	51.4 (1.59)	61.5 (1.90)	68.9 (2.13)	76.1 (2.35)	83.3 (2.57)	

 7R ***** MAR 12, 1987
 TRAIL CREEK AT FRENCH STREET, TRAIL 08NE118 D.A. 51.0 SQ. KM.
 MAXIMUM-DAILY-DISCHARGE IN CMS. 1975-77, 79-82

MEAN (CU. M./SEC) 4.76 MAXIMUM (CU. M./SEC) 7.39 NO. OF YEARS
 MEAN (L/S/SQ. KM) 73.3 MAXIMUM (L/S/SQ. KM) 145 COEFF. OF SKEW -0.51

DISTRIBUTION

	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.				K-S TEST (UNBIASED)
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	
LOG NORMAL	221. (2.37)	331. (3.55)	427. (4.60)	543. (5.81)	673. (7.21)
CUMBEL	175. (1.88)	221. (2.36)	254. (2.72)	288. (3.08)	321. (3.44)
PEARSON-TYPE III	159. (1.70)	177. (1.90)	188. (2.02)	198. (2.12)	206. (2.21)
LOG PEARSON III	137. (2.00)	221. (2.37)	241. (2.58)	256. (2.74)	267. (2.86)
MEAN	105. (1.99)	238. (2.54)	278. (2.98)	321. (3.44)	367. (3.93)
	RATIO OF INSTANTANEOUS TO DAILY DISCHARGE				
					GLOBAL LOGAL

*****7LDN*****MAR 12 1987
 KETTLE RIVER AT CARSON OBNNO05 D.A. 6730 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1914-21

MEAN (CU. M./SEC) 325. MAXIMUM (CU. M./SEC) 476. NO. OF YEARS 8
 MEAN (L/S/SQ. KM) 48.3 MAXIMUM (L/S/SQ. KM) 70.7 COEFF. OF SKEW 0.46

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST
 () RATIO TO MEAN (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	69.3 (1.44)	64.0 (1.74)	56.0 (1.99)	109. (2.25)	122. (2.54)	0.14 0.14
GUMBEL	65.1 (1.35)	74.7 (1.55)	81.9 (1.70)	89.0 (1.84)	96.0 (1.99)	0.14 0.14
PEARSON TYPE III	65.9 (1.36)	73.6 (1.52)	78.8 (1.63)	83.7 (1.73)	88.3 (1.83)	0.15 0.15
LOG PEARSON III	65.6 (1.38)	76.4 (1.58)	83.6 (1.73)	90.7 (1.88)	97.8 (2.03)	0.14 0.14
MEAN	66.7 (1.38)	77.2 (1.60)	85.1 (1.76)	93.0 (1.93)	101. (2.09)	

*****RATIO OF INSTANTANEOUS TO DAILY DISCHARGE*****
 KETTLE RIVER AT KETTLE VALLEY OBNNO04 D.A. 4560 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1914-21

MEAN (CU. M./SEC) 279. MAXIMUM (CU. M./SEC) 419. NO. OF YEARS 8
 MEAN (L/S/SQ. KM) 61.3 MAXIMUM (L/S/SQ. KM) 91.9 COEFF. OF SKEW 1.83

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST
 () RATIO TO MEAN (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	77.9 (1.27)	85.6 (1.40)	91.0 (1.49)	96.1 (1.57)	101. (1.65)	0.17 0.17
GUMBEL	73.8 (1.21)	81.4 (1.33)	87.0 (1.42)	92.5 (1.51)	98.1 (1.60)	0.15 0.15
PEARSON TYPE III	79.5 (1.30)	91.6 (1.50)	101. (1.64)	110. (1.79)	119. (1.94)	0.10 0.10
LOG PEARSON III	78.7 (1.28)	92.6 (1.51)	104. (1.70)	117. (1.91)	132. (2.15)	0.08 0.08
MEAN	77.5 (1.26)	87.8 (1.43)	95.8 (1.56)	104. (1.70)	112. (1.84)	

*****RATIO OF INSTANTANEOUS TO DAILY DISCHARGE*****
 KETTLE RIVER NEAR FERRY OBNNO13 D.A. 5700 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1929-85

MEAN (CU. M./SEC) 338. MAXIMUM (CU. M./SEC) 575. NO. OF YEARS 57
 MEAN (L/S/SQ. KM) 59.3 MAXIMUM (L/S/SQ. KM) 101. COEFF. OF SKEW 0.24

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST
 () RATIO TO MEAN (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	78.3 (1.32)	86.0 (1.45)	91.1 (1.54)	93.8 (1.62)	100. (1.69)	0.06 0.01
GUMBEL	82.5 (1.37)	95.2 (1.61)	105. (1.76)	114. (1.92)	123. (2.08)	0.08 0.02
PEARSON TYPE III	78.3 (1.32)	85.9 (1.45)	91.0 (1.53)	95.7 (1.61)	100. (1.69)	0.06 0.01
LOG PEARSON III	78.6 (1.32)	86.0 (1.45)	90.7 (1.53)	94.9 (1.60)	98.7 (1.66)	0.05 0.01
MEAN	79.4 (1.34)	88.3 (1.49)	94.4 (1.59)	100. (1.69)	106. (1.78)	

***** 7LDN ***** MAR 12, 1987
 KETTLE RIVER NEAR LAURIER OBNNO12 D.A. 9840 SQ. KM.
 MAXIMUM-DAILY-DISCHARGE IN GMS. 1930-85

MEAN (CU.M./SEC) 586. MAXIMUM (CU.M./SEC) 968. NO. OF YEARS 56
 MEAN (L/S/SQ. KM) 59.6 MAXIMUM (L/S/SQ. KM) 98.4 COEFF. OF SKEW 0.05

DISTRIBUTION FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	78.2 (1.31)	85.2 (1.43)	89.7 (1.50)	93.7 (1.57)	97.5 (1.64)	0.06 0.02
GUMBEL	84.8 (1.42)	78.4 (1.65)	109 (1.82)	119 (1.99)	129 (2.16)	0.10 0.02
PEARSON TYPE III	78.2 (1.31)	85.2 (1.43)	89.7 (1.51)	93.8 (1.57)	97.5 (1.64)	0.06 0.02
LOG PEARSON III	77.9 (1.31)	82.9 (1.39)	85.7 (1.44)	87.9 (1.48)	89.7 (1.51)	0.06 0.03
MEAN	79.8 (1.34)	87.9 (1.48)	93.4 (1.57)	98.5 (1.65)	103. (1.73)	
	RATIO OF INSTANTANEOUS TO DAILY DISCHARGE					

*****7LDR*****MTR 12,1987

 GRANBY RIVER AT GRAND FORKS OBNN002 D.A. 2050 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1914-15, 27-30, 67-85

MEAN (CU. M./SEC) 250. MAXIMUM (CU. M./SEC) 385. NO. OF YEARS 25
 MEAN (L/S/SQ. KM) 122. MAXIMUM (L/S/SQ. KM) 189. COEFF. OF SKEW -0.38

DISTRIBUTION
 () FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST
 () RATIO TO MEAN (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	160. (1.31)	173. (1.41)	180. (1.47)	187. (1.53)	193. (1.58)	0.08 0.03
GUMBEL	179. (1.47)	210. (1.72)	233. (1.91)	255. (2.09)	278. (2.27)	0.15 0.07
PEARSON TYPE III	160. (1.31)	172. (1.41)	179. (1.46)	185. (1.51)	190. (1.56)	0.08 0.03
LOG PEARSON III	160. (1.31)	167. (1.37)	171. (1.40)	173. (1.42)	175. (1.43)	0.09 0.04
MEAN	165. (1.35)	180. (1.48)	171. (1.56)	200. (1.64)	209. (1.71)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
KETTLE RIVER AT CASCADE OBNN006 D.A. 8960 SQ. KM.						
MAXIMUM DAILY DISCHARGE IN CMS. 1916-21, 23-34						

MEAN (CU. M./SEC) 523. MAXIMUM (CU. M./SEC) 830. NO. OF YEARS 18
 MEAN (L/S/SQ. KM) 58.3 MAXIMUM (L/S/SQ. KM) 92.6 COEFF. OF SKEW -0.02

DISTRIBUTION
 () FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST
 () RATIO TO MEAN (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	80.9 (1.39)	89.1 (1.53)	94.3 (1.62)	99.0 (1.70)	103. (1.77)	0.06 0.04
GUMBEL	86.9 (1.49)	103. (1.76)	114. (1.96)	126. (2.16)	137. (2.35)	0.09 0.08
PEARSON TYPE III	80.9 (1.39)	89.1 (1.53)	94.4 (1.62)	99.1 (1.70)	103. (1.77)	0.06 0.04
LOG PEARSON III	81.9 (1.40)	89.5 (1.53)	94.0 (1.61)	97.6 (1.67)	101. (1.73)	0.06 0.04
MEAN	82.7 (1.42)	92.6 (1.59)	99.2 (1.70)	105. (1.81)	111. (1.91)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
KETTLE RIVER NEAR WEST BRIDGE OBNN026 D.A. 2150 SQ. KM.						
MAXIMUM DAILY DISCHARGE IN CMS. 1979-85						

MEAN (CU. M./SEC) 242. MAXIMUM (CU. M./SEC) 273. NO. OF YEARS 7
 MEAN (L/S/SQ. KM) 112. MAXIMUM (L/S/SQ. KM) 127. COEFF. OF SKEW -0.73

DISTRIBUTION
 () FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST
 () RATIO TO MEAN (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	125. (1.11)	128. (1.14)	130. (1.15)	131. (1.17)	132. (1.18)	0.09 0.05
GUMBEL	131. (1.17)	142. (1.26)	149. (1.33)	157. (1.40)	165. (1.46)	0.12 0.12
PEARSON TYPE III	125. (1.12)	129. (1.15)	131. (1.16)	132. (1.18)	133. (1.19)	0.04 0.04
LOG PEARSON III	126. (1.12)	129. (1.15)	131. (1.16)	132. (1.17)	133. (1.18)	0.04 0.04
MEAN	127. (1.13)	132. (1.17)	135. (1.20)	138. (1.23)	141. (1.25)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						

***** 7LDR ***** MAR 12, 1987

 WEST KETILE RIVER AT WESTBRIDGE OBN003 D.A. 1870 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1917-19, 21, 79-85

MEAN (CU. M./SEC) 112. MAXIMUM (CU. M./SEC) 164. NO. OF YEARS 11
 MEAN (L/S/SQ. KM) 60.1 MAXIMUM (L/S/SQ. KM) 87.7 COEFF. OF SKEW -0.01

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.				K-S TEST (UNBIASED)
	() RATIO TO MEAN	50-YEAR	100-YEAR	200-YEAR	
LOG NORMAL	79.0 (1.32)	85.8 (1.43)	90.2 (1.50)	94.2 (1.57)	97.8 (1.63)
GUMBEL	83.9 (1.40)	97.0 (1.61)	107. (1.78)	116. (1.94)	126. (2.10)
PEARSON TYPE III	79.0 (1.32)	85.9 (1.43)	90.3 (1.50)	94.2 (1.57)	97.8 (1.63)
LOG PEARSON III	79.5 (1.32)	85.9 (1.43)	89.7 (1.49)	92.9 (1.55)	95.6 (1.59)
MEAN	80.4 (1.34)	88.6 (1.48)	94.2 (1.57)	99.4 (1.65)	104. (1.74)

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

MAR 13, 1987

11N *****

ELURTON CREEK NEAR MARA OBLCO25 D.A. 19.2 SQ. KM.
MAXIMUM DAILY DISCHARGE IN CMS. 1946-48, 51-53

ELURTON CREEK NEAR MARA OBLCO25 D A. 19 2 SQ. KM.
MAXIMUM DAILY DISCHARGE IN CMS. 1946-48, 51.53

MEAN	(CU. M. / SEC)	5.11	MAXIMUM	(CU. M. / SEC)	7.25	NO. OF YEARS	6
MEAN	(L/S/SQ. KM)	266.	MAXIMUM	(L/S/SQ. KM)	378.	COEFF. OF SKEW	0.62

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
() RATIO TO MEAN

**K-S TEST
(UNBIASED)**

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	367 (1.38)	418 (1.57)	455 (1.71)	491 (1.84)	526 (1.98)	0.19	0.19
GUMBEL	352 (1.33)	403 (1.51)	440 (1.65)	477 (1.79)	513 (1.93)	0.17	0.17
PEARSON TYPE III	366 (1.38)	413 (1.55)	445 (1.67)	475 (1.79)	504 (1.89)	0.14	0.14
LOG PEARSON III	371 (1.37)	434 (1.63)	492 (1.81)	532 (2.00)	584 (2.20)	0.14	0.14
MEAN	364 (1.37)	417 (1.57)	456 (1.71)	494 (1.86)	532 (2.00)		

***** MAR 13, 1987 *****
 ***** 11N *****
 CREEK NEAR LUMPY OBLCO33 D.A. 37.6 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1959-65

MEAN (CU. M./SEC) 2.17 MAXIMUM (CU. M./SEC) 3.94 NO. OF YEARS 7
 MEAN (L/S/SQ. KM) 57.7 MAXIMUM (L/S/SQ. KM) 105. COEFF. OF SKEW 1.54

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	92.1 (1.60)	120 (2.07)	143 (2.48)	169 (2.93)	198 (3.43)	0.11 0.11
GUMBEL	82.2 (1.42)	96.5 (1.67)	107 (1.86)	118 (2.04)	128 (2.22)	0.11 0.11
PEARSON TYPE III	89.7 (1.54)	108 (1.87)	122 (2.11)	136 (2.35)	149 (2.59)	0.11 0.11
LOG PEARSON III	88.5 (1.53)	111 (1.93)	130 (2.25)	151 (2.62)	174 (3.01)	0.10 0.10
MEAN	87.9 (1.52)	109 (1.88)	126 (2.18)	143 (2.48)	162 (2.81)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
FERRY CREEK NEAR LUMPY OBLCO34 D.A. 145 SQ. KM.						
MAXIMUM DAILY DISCHARGE IN CMS. 1959-75, 77						

MEAN (CU. M./SEC) 7.50 MAXIMUM (CU. M./SEC) 27.9 NO. OF YEARS 18
 MEAN (L/S/SQ. KM) 65.5 MAXIMUM (L/S/SQ. KM) 192. COEFF. OF SKEW 3.01

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	105 (1.60)	139 (2.12)	168 (2.56)	201 (3.06)	237 (3.62)	0.16 0.13
GUMBEL	95.2 (1.45)	113 (1.72)	126 (1.92)	139 (2.12)	152 (2.32)	0.13 0.08
PEARSON TYPE III	107 (1.63)	145 (2.22)	176 (2.68)	207 (3.16)	239 (3.66)	0.23 0.21
LOG PEARSON III	103 (1.57)	138 (2.11)	171 (2.61)	210 (3.21)	258 (3.93)	0.17 0.13
MEAN	102 (1.56)	134 (2.04)	160 (2.44)	189 (2.87)	222 (3.38)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
LARCH HILLS CREEK NEAR MARA OBLCO21 D.A. 13.0 SQ. KM.						
MAXIMUM DAILY DISCHARGE IN CMS. 1934, 45-47, 52-53						

MEAN (CU. M./SEC) 1.51 MAXIMUM (CU. M./SEC) 3.23 NO. OF YEARS 6
 MEAN (L/S/SQ. KM) 116. MAXIMUM (L/S/SQ. KM) 248. COEFF. OF SKEW 1.60

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	231 (1.97)	345 (2.97)	453 (3.89)	581 (5.00)	733 (6.30)	0.04 0.04
GUMBEL	185 (1.59)	226 (1.94)	256 (2.20)	286 (2.46)	316 (2.72)	0.07 0.07
PEARSON TYPE III	210 (1.81)	269 (2.32)	313 (2.69)	356 (3.06)	399 (3.43)	0.06 0.06
LOG PEARSON III	212 (1.82)	276 (2.54)	311 (3.19)	460 (3.96)	564 (4.85)	0.04 0.04
MEAN	210 (1.80)	284 (2.44)	348 (3.00)	421 (3.62)	503 (4.32)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						

***** 11N ***** MAR 13, 1987 *****
 ***** SHUSWAP RIVER AT OUTLET OF SUGAR LAKE RES. 03LC01B D.A. 1130 SQ. KM. (REG *****
 ***** MAXIMUM DAILY DISCHARGE IN CMS. 1927-35.39 *****

MEAN (CU. M./SEC.)	212.	MAXIMUM (CU. M./SEC.)	371.	NO. OF YEARS	10
MEAN (L/S/SQ. KM)	188.	MAXIMUM (L/S/SQ. KM)	328.	COEFF. OF SKEW	1.34

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
() RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	276. (1.47)	338. (1.80)	388. (2.07)	442. (2.36)	500. (2.66)	0.15 0.15
GUMBEL	258. (1.37)	298. (1.59)	328. (1.75)	358. (1.91)	388. (2.07)	0.13 0.12
PEARSON TYPE III	273. (1.45)	322. (1.72)	358. (1.91)	393. (2.10)	428. (2.28)	0.14 0.14
LOG PEARSON III	271. (1.45)	329. (1.75)	375. (2.00)	425. (2.27)	480. (2.56)	0.15 0.15
MEAN	269. (1.41)	322. (1.71)	363. (1.93)	405. (2.16)	449. (2.39)	

24

VANCE CREEK BELOW DEAFIER CREEK OBLCO40 D.A. 73.3 SQ. KM.
MAXIMUM DAILY DISCHARGE IN CMS. 1970-71, 79-B5

MEAN (CU. M./SEC)	3.10	MAXIMUM (CU. M./SEC)	5.60	NO. OF YEARS	15
MEAN (L/S/SQ. KM)	42.3	MAXIMUM (L/S/SQ. KM)	76.4	COEFF. OF SKEW	0.49

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
() RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	65.6 (1.95)	78.6 (1.86)	88.4 (2.07)	98.1 (2.32)	108. (2.55)	0.09 0.01
GUMBEL	64.4 (1.52)	76.8 (1.81)	86.1 (2.03)	95.2 (2.25)	104. (2.45)	0.09 0.05
PEARSON TYPE III	64.1 (1.51)	73.7 (1.74)	80.3 (1.90)	86.4 (2.04)	92.3 (2.18)	0.11 0.06
LOG PEARSON III	65.4 (1.54)	77.6 (1.83)	86.5 (2.04)	95.1 (2.25)	104. (2.45)	0.09 0.01
MEAN	64.8 (1.53)	76.7 (1.81)	85.3 (2.01)	93.7 (2.21)	102. (2.41)	

1/8.7 (1.81) 85.3 (2.01) 93.7 (2.21) 102.7 (2.31)

+++++ RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
+++++
+++++ VIOLET CREEK NEAR GRINDROD (UPPER STATION) 08LC020 D. A. 13.0 SQ. KM.
+++++ MAXIMUM DAILY DISCHARGE IN CMS. 1934, 45-49
+++++

MEAN (CU. M./SEC.)	0.487	MAXIMUM (CU. M./SEC.)	0.903	NO. OF YEARS	6
MEAN (L/S/SQ. KM)	37.4	MAXIMUM (L/S/SQ. KM)	69.5	COEFF. OF SKEW	1.39

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
() RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	74.2 (1.98)	121. (3.24)	172. (4.58)	238. (6.35)	324. (8.65)	0.09 0.09
GUMBEL	55.2 (1.47)	65.7 (1.76)	73.5 (1.96)	81.2 (2.17)	88.9 (2.38)	0.14 0.14
PEARSON TYPE III	61.2 (1.63)	75.2 (2.01)	85.5 (2.28)	95.5 (2.59)	105. (2.81)	0.08 0.08
LOG PEARSON III	61.5 (1.64)	81.3 (2.17)	98.7 (2.64)	119. (3.17)	142. (3.79)	0.09 0.09
MEAN	63.0 (1.68)	85.8 (2.29)	107. (2.87)	133. (3.56)	165. (4.41)	

MEAN

*****11R*****

BESSETTE CREEK ABOVE REAVERJACK CREEK OBLCO39 D.A. 603 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1970-72, 75-85

*****MAR-12, 1987*****

MEAN (CU. M./SEC) 28.1 MAXIMUM (CU. M./SEC) 50.4 NO. OF YEARS 14
 MEAN (L/S/SQ. KM) 46.6 MAXIMUM (L/S/SQ. KM) 83.6 COEFF. OF SKEW 1.40

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	64.0 (1.37)	73.0 (1.57)	79.6 (1.71)	86.0 (1.85)	92.3 (1.98)	0.14 0.11
GUMBEL	64.1 (1.38)	73.9 (1.59)	81.2 (1.74)	88.5 (1.90)	95.7 (2.05)	0.13 0.11
PEARSON TYPE III	64.5 (1.38)	75.1 (1.61)	82.9 (1.78)	90.4 (1.94)	97.9 (2.10)	0.14 0.14
LOG PEARSON III	64.1 (1.38)	73.6 (1.58)	80.5 (1.73)	87.4 (1.88)	94.4 (2.03)	0.13 0.11
MEAN	64.2 (1.38)	73.9 (1.59)	81.1 (1.74)	88.1 (1.89)	95.0 (2.04)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

BESSETTE CREEK ABOVE LUMBY LAGOON OUTFALL OBLCO42 D.A. 469 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1973-85

MEAN (CU. M./SEC) 26.3 MAXIMUM (CU. M./SEC) 33.7 NO. OF YEARS 13
 MEAN (L/S/SQ. KM) 56.0 MAXIMUM (L/S/SQ. KM) 71.9 COEFF. OF SKEW -0.30

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	70.6 (1.26)	71.7 (1.28)	72.1 (1.29)	72.4 (1.29)	72.6 (1.30)	0.18 0.15
GUMBEL	76.8 (1.37)	88.3 (1.58)	96.9 (1.73)	105. (1.88)	114. (2.03)	0.15 0.11
PEARSON TYPE III	72.5 (1.27)	77.7 (1.39)	81.0 (1.45)	83.8 (1.50)	86.3 (1.54)	0.16 0.08
LOG PEARSON III	73.8 (1.32)	80.2 (1.43)	84.2 (1.50)	87.7 (1.57)	90.8 (1.62)	0.15 0.08
MEAN	73.4 (1.31)	79.5 (1.42)	83.6 (1.49)	87.3 (1.56)	90.9 (1.62)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

BESSETTE CREEK NEAR LUMBY OBLCO05 D.A. 253 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1919, 43, 67-68, 79-83

MEAN (CU. M./SEC) 17.5 MAXIMUM (CU. M./SEC) 23.1 NO. OF YEARS 9
 MEAN (L/S/SQ. KM) 69.3 MAXIMUM (L/S/SQ. KM) 91.3 COEFF. OF SKEW 0.17

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	88.8 (1.20)	96.8 (1.40)	102. (1.48)	107. (1.55)	112. (1.61)	0.12 0.08
GUMBEL	91.0 (1.31)	103. (1.49)	112. (1.62)	121. (1.74)	130. (1.87)	0.12 0.12
PEARSON TYPE III	88.5 (1.20)	96.1 (1.39)	101. (1.46)	106. (1.53)	110. (1.59)	0.13 0.08
LOG PEARSON III	89.2 (1.29)	97.3 (1.41)	103. (1.48)	108. (1.56)	112. (1.62)	0.12 0.09
MEAN	89.4 (1.29)	98.3 (1.42)	104. (1.51)	110. (1.59)	116. (1.67)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 11R ***** MAR 12, 1987
 COLDSTREAM CREEK NEAR LAVINGTON OBN1124 D.A. 61.9 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1959, 61-62, 65-79

MEAN (CU. M./SEC) 2.12 MAXIMUM (CU. M./SEC) 3.91 NO. OF YEARS 18
 MEAN (L/S/SQ. KM) 34.2 MAXIMUM (L/S/SQ. KM) 63.2 COEFF. OF SKEN 0.35

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	57.4 (1.73)	72.8 (2.13)	82.7 (2.41)	92.4 (2.70)	102. (2.98)	0.08 0.06
GUMBEL	59.8 (1.72)	72.7 (2.12)	83.0 (2.42)	93.2 (2.72)	103. (3.02)	0.09 0.06
PEARSON TYPE III	57.8 (1.69)	67.8 (1.98)	74.4 (2.17)	80.6 (2.35)	86.4 (2.52)	0.10 0.06
LOG PEARSON III	60.8 (1.78)	73.7 (2.15)	82.3 (2.40)	90.1 (2.63)	97.3 (2.84)	0.08 0.08
MEAN	59.2 (1.73)	71.7 (2.09)	80.6 (2.35)	89.1 (2.60)	97.3 (2.84)	

 DUTEAU CREEK NEAR LAVINGTON OBLCO06 D.A. 180 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1972-85

MEAN (CU. M./SEC) 6.60 MAXIMUM (CU. M./SEC) 13.7 NO. OF YEARS 14
 MEAN (L/S/SQ. KM) 36.7 MAXIMUM (L/S/SQ. KM) 76.1 COEFF. OF SKEN 0.62

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	62.0 (1.69)	74.8 (2.04)	83.9 (2.27)	92.8 (2.53)	102. (2.77)	0.14 0.14
GUMBEL	62.2 (1.70)	76.6 (2.09)	87.2 (2.38)	97.8 (2.66)	108. (2.95)	0.16 0.16
PEARSON TYPE III	61.5 (1.68)	73.0 (1.99)	80.9 (2.21)	88.4 (2.41)	95.5 (2.60)	0.13 0.13
LOG PEARSON III	63.3 (1.73)	74.6 (2.03)	81.7 (2.23)	87.9 (2.40)	93.3 (2.54)	0.14 0.14
MEAN	62.3 (1.70)	74.7 (2.04)	83.4 (2.27)	91.7 (2.50)	99.7 (2.72)	

 FORTUNE CREEK AT STEPNEY OBLCO31 D.A. 132 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1951, 53-57, 60

MEAN (CU. M./SEC) 11.2 MAXIMUM (CU. M./SEC) 18.4 NO. OF YEARS 7
 MEAN (L/S/SQ. KM) 84.9 MAXIMUM (L/S/SQ. KM) 139. COEFF. OF SKEN 1.23

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	123. (1.45)	145. (1.71)	161. (1.90)	173. (2.10)	195. (2.30)	0.13 0.13
GUMBEL	118. (1.39)	137. (1.62)	151. (1.74)	165. (1.95)	179. (2.11)	0.12 0.12
PEARSON TYPE III	122. (1.44)	143. (1.69)	158. (1.86)	173. (2.04)	187. (2.21)	0.12 0.12
LOG PEARSON III	122. (1.44)	145. (1.70)	162. (1.90)	179. (2.11)	197. (2.32)	0.12 0.12
MEAN	121. (1.43)	142. (1.68)	158. (1.86)	174. (2.05)	190. (2.23)	

***** 11R ***** MAR 12, 1987
 FORTUNE CREEK NEAR ARMSTRONG OBLCO35 D.A. 41.2 SQ. KM.
 MAXIMUM-DAILY-DISCHARGE IN CMS. 1912, 59, 61-74, 78-84

MEAN (CU. M./SEC) 7.31 MAXIMUM (CU. M./SEC) 11.2 NO. OF YEARS 23
 MEAN (L/S/SQ. KM) 177 MAXIMUM (L/S/SQ. KM) 272 COEFF. OF SKEN 0.52

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	228 (1.29)	252 (1.42)	257 (1.52)	285 (1.61)	301 (1.70)	0.07 0.04
GUMBEL	232 (1.31)	262 (1.48)	285 (1.61)	307 (1.73)	329 (1.86)	0.08 0.05
PEARSON TYPE III	228 (1.29)	250 (1.41)	266 (1.50)	280 (1.58)	294 (1.66)	0.06 0.05
LOG PEARSON III	228 (1.29)	252 (1.42)	268 (1.51)	284 (1.60)	299 (1.69)	0.07 0.04
MEAN	229 (1.29)	254 (1.43)	272 (1.53)	289 (1.63)	306 (1.72)	

 JOHNSON CREEK NEAR MARA OBLCO26 D.A. 20.7 SQ. KM.
 MAXIMUM DAILY DISCHARGE IN CMS. 1946-48, 51-53

MEAN (CU. M./SEC) 4.18 MAXIMUM (CU. M./SEC) 5.97 NO. OF YEARS 6
 MEAN (L/S/SQ. KM) 202 MAXIMUM (L/S/SQ. KM) 288 COEFF. OF SKEN 0.23

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	260 (1.38)	314 (1.55)	338 (1.67)	360 (1.78)	381 (1.87)	0.06 0.06
GUMBEL	260 (1.38)	324 (1.61)	357 (1.77)	389 (1.93)	421 (2.09)	0.09 0.09
PEARSON TYPE III	277 (1.37)	307 (1.52)	327 (1.62)	346 (1.71)	363 (1.80)	0.05 0.05
LOG PEARSON III	281 (1.39)	316 (1.57)	340 (1.68)	362 (1.79)	383 (1.90)	0.06 0.06
MEAN	280 (1.38)	316 (1.56)	341 (1.69)	364 (1.80)	387 (1.92)	

 SHUSWAP RIVER AT OUTLET OF SUGAR LAKE RES. OBLCO18 D.A. 1130 SQ. KM. (REG)
 MAXIMUM DAILY DISCHARGE IN CMS. 1940, 70-79, 84-85

MEAN (CU. M./SEC) 192 MAXIMUM (CU. M./SEC) 286 NO. OF YEARS 13
 MEAN (L/S/SQ. KM) 170 MAXIMUM (L/S/SQ. KM) 253 COEFF. OF SKEN 0.04

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	241 (1.42)	269 (1.58)	287 (1.69)	304 (1.79)	320 (1.88)	0.08 0.08
GUMBEL	249 (1.45)	292 (1.72)	323 (1.91)	357 (2.10)	389 (2.29)	0.11 0.08
PEARSON TYPE III	240 (1.41)	265 (1.56)	283 (1.66)	298 (1.75)	312 (1.83)	0.08 0.08
LOG PEARSON III	246 (1.45)	281 (1.65)	305 (1.79)	327 (1.92)	348 (2.04)	0.08 0.07
MEAN	244 (1.43)	277 (1.63)	300 (1.76)	322 (1.89)	342 (2.01)	

***** 11LDN ***** MAY 20, 1987
 SHUSWAP RIVER AT OUTLET OF MABEL LAKE OBLCO19 D.A. 4040 SQ. KM. (REG 40)
 MAXIMUM DAILY DISCHARGE IN CMS. 1928-35

MEAN (CU. M./SEC) 335. MAXIMUM (CU. M./SEC) 552. NO. OF YEARS 8
 MEAN (L/S/SQ. KM) 82.9 MAXIMUM (L/S/SQ. KM) 137. COEFF. OF SKEW 1.41

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	121. (1.46)	151. (1.82)	177. (2.13)	205. (2.48)	237. (2.86)	0.06 0.06
GUMBEL	110. (1.33)	126. (1.52)	138. (1.67)	150. (1.81)	161. (1.95)	0.08 0.08
PEARSON TYPE III	117. (1.42)	138. (1.66)	153. (1.84)	167. (2.02)	182. (2.20)	0.07 0.07
LOG PEARSON III	117. (1.41)	141. (1.70)	161. (1.94)	182. (2.20)	206. (2.49)	0.06 0.06
MEAN	116. (1.40)	139. (1.68)	157. (1.90)	176. (2.13)	197. (2.37)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
SHUSWAP RIVER NEAR ENDERBY OBLCO02 D.A. 4690 SQ. KM. (REG 40)						
MAXIMUM DAILY DISCHARGE IN CMS. 1912-35						

MEAN (CU. M./SEC) 383. MAXIMUM (CU. M./SEC) 626. NO. OF YEARS 24
 MEAN (L/S/SQ. KM) 81.7 MAXIMUM (L/S/SQ. KM) 133. COEFF. OF SKEW 1.03

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	108. (1.33)	121. (1.49)	131. (1.60)	140. (1.71)	149. (1.82)	0.10 0.05
GUMBEL	110. (1.34)	125. (1.54)	137. (1.68)	149. (1.82)	160. (1.96)	0.09 0.05
PEARSON TYPE III	109. (1.33)	123. (1.51)	134. (1.64)	144. (1.76)	153. (1.88)	0.10 0.06
LOG PEARSON III	108. (1.33)	122. (1.49)	132. (1.61)	141. (1.73)	151. (1.85)	0.10 0.05
MEAN	109. (1.33)	123. (1.51)	133. (1.63)	143. (1.76)	153. (1.88)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						
SHUSWAP RIVER NEAR LUMBY OBLCO03 D.A. 2000 SQ. KM. (REG 40)						
MAXIMUM DAILY DISCHARGE IN CMS. 1913, 17-24, 26-35						

MEAN (CU. M./SEC) 266. MAXIMUM (CU. M./SEC) 552. NO. OF YEARS 19
 MEAN (L/S/SQ. KM) 133. MAXIMUM (L/S/SQ. KM) 276. COEFF. OF SKEW 1.68

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	192. (1.45)	227. (1.71)	253. (1.90)	279. (2.10)	306. (2.30)	0.13 0.08
GUMBEL	187. (1.41)	218. (1.64)	241. (1.82)	264. (1.99)	287. (2.16)	0.12 0.07
PEARSON TYPE III	195. (1.47)	235. (1.77)	265. (1.99)	294. (2.22)	324. (2.44)	0.10 0.10
LOG PEARSON III	193. (1.45)	231. (1.74)	262. (1.97)	294. (2.21)	328. (2.47)	0.11 0.09
MEAN	192. (1.44)	228. (1.72)	255. (1.92)	283. (2.13)	311. (2.34)	
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE						

*****11LDR*****
 SHUSWAP RIVER AT OUTLET OF MABEL LAKE OBLCO19 D.A. 4040 SQ. KM. (REG 40)
 MAXIMUM DAILY DISCHARGE IN CMS. 1952-62, 64-79

MEAN (CU. M./SEC) 341. MAXIMUM (CU. M./SEC) 532. NO. OF YEARS 27
 MEAN (L/S/SQ. KM) 84.4 MAXIMUM (L/S/SQ. KM) 132. COEFF. OF SKEW 0.76

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	110. (1.30)	124. (1.47)	134. (1.59)	144. (1.71)	154. (1.83)	0.09 0.05
GUMBEL	110. (1.30)	124. (1.47)	135. (1.60)	145. (1.72)	156. (1.85)	0.09 0.06
PEARSON TYPE III	110. (1.30)	122. (1.44)	131. (1.55)	139. (1.64)	146. (1.73)	0.08 0.05
LOG PEARSON III	110. (1.30)	123. (1.45)	132. (1.57)	142. (1.68)	151. (1.79)	0.08 0.05
MEAN	110. (1.30)	123. (1.46)	133. (1.57)	143. (1.69)	152. (1.80)	

 SHUSWAP RIVER NEAR ENDERBY OBLCO02 D.A. 4690 SQ. KM. (REG 40)
 MAXIMUM DAILY DISCHARGE IN CMS. 1961-85

MEAN (CU. M./SEC) 366. MAXIMUM (CU. M./SEC) 566. NO. OF YEARS 25
 MEAN (L/S/SQ. KM) 78.0 MAXIMUM (L/S/SQ. KM) 121. COEFF. OF SKEW 0.51

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	103. (1.32)	116. (1.49)	126. (1.61)	135. (1.73)	144. (1.85)	0.13 0.09
GUMBEL	103. (1.33)	118. (1.51)	128. (1.64)	139. (1.78)	149. (1.91)	0.13 0.10
PEARSON TYPE III	102. (1.31)	113. (1.45)	120. (1.54)	127. (1.63)	134. (1.72)	0.12 0.09
LOG PEARSON III	103. (1.31)	115. (1.47)	123. (1.58)	131. (1.68)	139. (1.79)	0.13 0.09
MEAN	103. (1.32)	115. (1.48)	124. (1.60)	133. (1.71)	142. (1.82)	

 SHUSWAP RIVER NEAR LUMBY OBLCO03 D.A. 2000 SQ. KM. (REG 40)
 MAXIMUM DAILY DISCHARGE IN CMS. 1946-73, 84-85

MEAN (CU. M./SEC) 250. MAXIMUM (CU. M./SEC) 396. NO. OF YEARS 30
 MEAN (L/S/SQ. KM) 125. MAXIMUM (L/S/SQ. KM) 198. COEFF. OF SKEW 0.68

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	173. (1.39)	208. (1.66)	235. (1.89)	265. (2.12)	297. (2.37)	0.08 0.03
GUMBEL	166. (1.33)	190. (1.52)	207. (1.66)	224. (1.79)	242. (1.93)	0.10 0.04
PEARSON TYPE III	169. (1.35)	189. (1.51)	203. (1.63)	217. (1.73)	230. (1.84)	0.10 0.04
LOG PEARSON III	169. (1.35)	194. (1.55)	212. (1.70)	231. (1.85)	251. (2.00)	0.09 0.03
MEAN	169. (1.35)	195. (1.56)	215. (1.72)	234. (1.87)	255. (2.04)	

APPENDIX 3

Frequency Analysis Data Summaries - Annual Maximum Instantaneous Discharge

Frequency analysis results are included in the same order as for annual maximum daily discharges (Appendix 2), but no analyses are carried out for regulated flow stations.

*****JN-I*****MAR 13, 1987
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 PASAYTEN RIVER ABOVE CALCITE CREEK OBNLO69 D.A. 562 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1975-79, 81-85

MEAN (CU. M./SEC) 73.0 MAXIMUM (CU. M./SEC) 124. NO. OF YEARS 10
 MEAN (L/S/SQ. KM) 130. MAXIMUM (L/S/SQ. KM) 221. COEFF. OF SKEW 0.39

DISTRIBUTION
 () RATIO TO MEAN
 K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	195. (1.50)	226. (1.74)	248. (1.91)	269. (2.07)	289. (2.22)	0.07 0.07
GUMBEL	197. (1.52)	235. (1.81)	262. (2.02)	290. (2.23)	318. (2.45)	0.09 0.08
PEARSON TYPE III	193. (1.49)	221. (1.70)	239. (1.84)	256. (1.97)	272. (2.09)	0.08 0.08
LOG PEARSON-III	197. (1.52)	229. (1.76)	250. (1.93)	270. (2.08)	289. (2.22)	0.07 0.07
MEAN	196. (1.51)	228. (1.75)	250. (1.92)	271. (2.09)	292. (2.25)	

 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 SIMILKAMEEN RIVER ABOVE GOODFELLOW CREEK OBNLO70 D.A. 407 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1974-79, 81-85

MEAN (CU. M./SEC) 82.1 MAXIMUM (CU. M./SEC) 121. NO. OF YEARS 11
 MEAN (L/S/SQ. KM) 202. MAXIMUM (L/S/SQ. KM) 297. COEFF. OF SKEW -0.24

DISTRIBUTION
 () RATIO TO MEAN
 K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	269. (1.34)	291. (1.44)	305. (1.51)	317. (1.57)	328. (1.62)	0.12 0.12
GUMBEL	290. (1.44)	338. (1.68)	374. (1.85)	410. (2.03)	445. (2.21)	0.20 0.20
PEARSON TYPE III	270. (1.34)	292. (1.45)	307. (1.52)	319. (1.58)	330. (1.63)	0.13 0.13
LOG PEARSON III	274. (1.36)	298. (1.48)	311. (1.54)	323. (1.60)	333. (1.65)	0.14 0.14
MEAN	276. (1.37)	305. (1.51)	324. (1.61)	342. (1.70)	359. (1.78)	

 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 TULAMEEN RIVER BELOW VUICH CREEK OBNLO71 D.A. 256 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1974-79, 82, 85

MEAN (CU. M./SEC) 67.1 MAXIMUM (CU. M./SEC) 95.7 NO. OF YEARS 8
 MEAN (L/S/SQ. KM) 262. MAXIMUM (L/S/SQ. KM) 374. COEFF. OF SKEW -0.55

DISTRIBUTION
 () RATIO TO MEAN
 K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	353. (1.35)	376. (1.44)	390. (1.49)	401. (1.53)	410. (1.57)	0.10 0.10
GUMBEL	389. (1.49)	459. (1.75)	511. (1.95)	562. (2.15)	614. (2.34)	0.18 0.18
PEARSON TYPE III	357. (1.36)	384. (1.47)	400. (1.53)	413. (1.58)	425. (1.62)	0.11 0.11
LOG PEARSON III	369. (1.41)	402. (1.53)	420. (1.60)	435. (1.66)	447. (1.71)	0.13 0.13
MEAN	367. (1.40)	405. (1.55)	430. (1.64)	453. (1.73)	474. (1.81)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 5N-1 ***** MAR 13, 1987

 WHIPSAN CREEK BELOW LAMONT CREEK OBNL036 D.A. 185 SQ. KM.
 MAXIMUM-INstantaneous DISCHARGE IN CMS. 1965-85

MEAN (CU. M. /SEC) 9.97 MAXIMUM (CU. M. /SEC) 28.1 NO. OF YEARS 21
 MEAN (L/S/SQ. KM) 53.9 MAXIMUM (L/S/SQ. KM) 152. COEFF. OF SKEW 1.99

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.				K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	89.7 (1.66)	111. (2.06)	128. (2.37)	141. (2.68)	162. (3.00)	0.08 0.05
GUMBEL	86.2 (1.60)	105. (1.94)	119. (2.20)	132. (2.45)	146. (2.71)	0.08 0.03
PEARSON TYPE III	91.9 (1.71)	119. (2.20)	139. (2.57)	159. (2.92)	179. (3.32)	0.10 0.07
LOG PEARSON III	90.2 (1.67)	111. (2.06)	127. (2.35)	142. (2.64)	158. (2.93)	0.09 0.05
MEAN	89.5 (1.66)	111. (2.07)	128. (2.37)	144. (2.68)	161. (2.99)	
	RATIO OF INSTANTANEOUS TO DAILY DISCHARGE					

***** 605N-1 ***** MAR 13, 1987
 ***** BELLEVUE CREEK NEAR OKANAGAN MISSION OBNM035 D.A. 73.3 SQ. KM. *****
 ***** MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1968-70, 73-85 *****

MEAN (CU. M./SEC) 6.59 MAXIMUM (CU. M./SEC) 12.7 NO. OF YEARS 16
 MEAN (L/S/SQ. KM) 89.9 MAXIMUM (L/S/SQ. KM) 173. COEFF. OF SKEW 1.32

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-8 TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	141. (1.57)	190. (2.11)	234. (2.61)	286. (3.18)	346. (3.84)	0.06 0.06
GUMBEL	126. (1.40)	148. (1.64)	163. (1.82)	179. (1.99)	195. (2.17)	0.11 0.06
PEARSON TYPE III	137. (1.52)	164. (1.82)	184. (2.04)	203. (2.26)	222. (2.47)	0.11 0.07
LOG PEARSON-III	135. (1.50)	169. (1.88)	198. (2.20)	230. (2.56)	265. (2.95)	0.08 0.04
MEAN	135. (1.50)	168. (1.86)	195. (2.17)	224. (2.50)	257. (2.86)	

***** RATIO OF INSTANTANEOUS TO DAILY DISCHARGE *****
 ***** BULL CREEK NEAR CRUMP OBNM133 D.A. 46.9 SQ. KM. *****
 ***** MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1965, 68-85 *****

MEAN (CU. M./SEC) 1.68 MAXIMUM (CU. M./SEC) 5.38 NO. OF YEARS 19
 MEAN (L/S/SQ. KM) 35.8 MAXIMUM (L/S/SQ. KM) 115. COEFF. OF SKEW 1.67

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-8 TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	70.1 (1.96)	95.1 (2.66)	115. (3.23)	137. (3.84)	161. (4.50)	0.06 0.09
GUMBEL	63.9 (1.78)	80.2 (2.24)	92.3 (2.58)	104. (2.91)	116. (3.25)	0.10 0.04
PEARSON TYPE III	70.1 (1.96)	92.1 (2.57)	108. (3.03)	125. (3.48)	141. (3.93)	0.06 0.06
LOG PEARSON III	70.6 (1.97)	92.9 (2.60)	110. (3.06)	126. (3.53)	143. (3.99)	0.07 0.05
MEAN	68.6 (1.92)	90.0 (2.52)	106. (2.97)	123. (3.44)	140. (3.92)	

***** RATIO OF INSTANTANEOUS TO DAILY DISCHARGE *****
 ***** CAMP CREEK-AT MOUTH-NEAR THIRSK OBNM134 D.A. 33.9 SQ. KM. *****
 ***** MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1966-85 *****

MEAN (CU. M./SEC) 1.54 MAXIMUM (CU. M./SEC) 3.96 NO. OF YEARS 20
 MEAN (L/S/SQ. KM) 45.5 MAXIMUM (L/S/SQ. KM) 117. COEFF. OF SKEW 1.60

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-8 TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	73.7 (1.62)	88.6 (1.95)	97.4 (2.19)	110. (2.42)	121. (2.65)	0.14 0.06
GUMBEL	73.7 (1.62)	89.6 (1.97)	101. (2.23)	113. (2.49)	123. (2.74)	0.15 0.04
PEARSON TYPE III	74.8 (1.64)	93.1 (2.05)	107. (2.35)	120. (2.64)	133. (2.93)	0.19 0.04
LOG PEARSON III	73.8 (1.62)	85.9 (1.89)	93.7 (2.06)	101. (2.21)	107. (2.35)	0.14 0.05
MEAN	74.0 (1.63)	89.3 (1.96)	100. (2.20)	111. (2.44)	121. (2.67)	

***** 60SN-I ***** MAR 13, 1987 *****
 CLARK CREEK NEAR WINFIELD OBNM146 D.A. 15.3 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1969-82

MEAN (CU. M./SEC) 1.15 MAXIMUM (CU. M./SEC) 2.22 NO. OF YEARS 14
 MEAN (L/S/SQ. KM) 75.4 MAXIMUM (L/S/SQ. KM) 143. COEFF. OF SKEW -0.03

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	120. (1.59)	136. (1.81)	146. (1.94)	156. (2.07)	164. (2.18)	0.11	0.11
GUMBEL	131. (1.73)	161. (2.14)	184. (2.44)	206. (2.73)	228. (3.03)	0.17	0.17
PEARSON TYPE III	120. (1.59)	136. (1.81)	147. (1.94)	156. (2.07)	164. (2.18)	0.11	0.11
LOG PEARSON III	128. (1.70)	147. (1.95)	158. (2.10)	167. (2.21)	174. (2.30)	0.15	0.15
MEAN	125. (1.66)	145. (1.93)	159. (2.10)	171. (2.27)	183. (2.42)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							
DAVES CREEK NEAR RUTLAND OBNM137 D.A. 31.1 SQ. KM.							
MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1966-68, 70-81, 85							

MEAN (CU. M./SEC) 1.38 MAXIMUM (CU. M./SEC) 3.14 NO. OF YEARS 16
 MEAN (L/S/SQ. KM) 44.5 MAXIMUM (L/S/SQ. KM) 101. COEFF. OF SKEW 0.67

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	76.2 (1.71)	92.1 (2.07)	104. (2.33)	115. (2.58)	126. (2.83)	0.15	0.19
GUMBEL	76.7 (1.72)	94.8 (2.13)	108. (2.43)	122. (2.73)	135. (3.03)	0.16	0.16
PEARSON TYPE III	75.6 (1.70)	90.2 (2.03)	100. (2.26)	110. (2.47)	119. (2.68)	0.14	0.14
LOG PEARSON III	78.8 (1.77)	94.9 (2.13)	106. (2.37)	115. (2.59)	124. (2.79)	0.16	0.16
MEAN	76.8 (1.73)	93.0 (2.09)	104. (2.35)	115. (2.59)	126. (2.83)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							
ESPERDN CREEK NEAR KELOWNA OBNM139 D.A. 13.0 SQ. KM. (REG 73)							
MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1966-68, 70-72							

MEAN (CU. M./SEC) 3.02 MAXIMUM (CU. M./SEC) 3.96 NO. OF YEARS 6
 MEAN (L/S/SQ. KM) 232. MAXIMUM (L/S/SQ. KM) 305. COEFF. OF SKEW -0.39

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	335. (1.44)	389. (1.68)	429. (1.85)	468. (2.01)	506. (2.18)	0.19	0.19
GUMBEL	331. (1.43)	386. (1.66)	427. (1.84)	468. (2.02)	508. (2.19)	0.20	0.20
PEARSON TYPE III	316. (1.36)	342. (1.47)	357. (1.54)	371. (1.60)	382. (1.65)	0.12	0.12
LOG PEARSON III	326. (1.41)	362. (1.56)	384. (1.69)	403. (1.74)	421. (1.81)	0.15	0.15
MEAN	327. (1.41)	370. (1.59)	399. (1.72)	427. (1.84)	454. (1.96)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							

***** GOSN-I ***** MAR 13, 1987

 EWER CREEK NEAR THE MOUTH OBNM176 D.A. 52.8 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1972-75, 77-80, 82, 85

MEAN (CU. M. / SEC) 4.53 MAXIMUM (CU. M. / SEC) 8.86 NO. OF YEARS 10
 MEAN (L/S/SQ. KM) 85.8 MAXIMUM (L/S/SQ. KM) 168. COEFF. OF SKEW 1.21

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	142. (1.69)	187. (2.18)	229. (2.63)	268. (3.13)	316. (3.69)	0.10 0.10
GUMBEL	127. (1.48)	151. (1.76)	169. (1.97)	187. (2.18)	205. (2.39)	0.15 0.15
PEARSON TYPE III	136. (1.59)	164. (1.92)	185. (2.15)	205. (2.39)	224. (2.61)	0.11 0.11
LOG PEARSON III	136. (1.59)	172. (2.01)	202. (2.35)	234. (2.73)	269. (3.14)	0.11 0.11
MEAN	135. (1.58)	169. (1.97)	195. (2.28)	223. (2.61)	253. (2.96)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 GREATA CREEK NEAR THE MOUTH OBNM173 D.A. 40.7 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1971-85

MEAN (CU. M. / SEC) 0.802 MAXIMUM (CU. M. / SEC) 2.37 NO. OF YEARS 15
 MEAN (L/S/SQ. KM) 19.7 MAXIMUM (L/S/SQ. KM) 58.2 COEFF. OF SKEW 1.07

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	46.2 (2.35)	71.7 (3.64)	95.2 (4.83)	123. (6.23)	159. (7.87)	0.12 0.10
GUMBEL	38.0 (1.93)	48.6 (2.47)	56.4 (2.86)	64.2 (3.26)	72.0 (3.66)	0.16 0.16
PEARSON TYPE III	40.9 (2.08)	52.3 (2.65)	60.4 (3.07)	68.2 (3.46)	75.8 (3.85)	0.13 0.13
LOG PEARSON III	44.5 (2.26)	63.6 (3.23)	79.0 (4.01)	95.2 (4.83)	112. (5.69)	0.11 0.11
MEAN	42.4 (2.15)	59.0 (3.00)	72.7 (3.69)	87.6 (4.45)	104. (5.27)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

 INKANEAP CREEK NEAR OLIVER (LOWER STATION) OBNM012 D.A. 164 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1923-25, 27, 44-50

MEAN (CU. M. / SEC) 4.51 MAXIMUM (CU. M. / SEC) 7.93 NO. OF YEARS 11
 MEAN (L/S/SQ. KM) 27.5 MAXIMUM (L/S/SQ. KM) 48.4 COEFF. OF SKEW 0.10

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	50.2 (1.83)	63.6 (2.31)	73.8 (2.69)	84.2 (3.06)	94.8 (3.45)	0.17 0.08
GUMBEL	48.2 (1.75)	59.9 (2.18)	68.6 (2.49)	77.2 (2.81)	85.8 (3.12)	0.18 0.10
PEARSON TYPE III	47.1 (1.71)	54.6 (1.99)	59.5 (2.16)	63.9 (2.33)	68.1 (2.49)	0.14 0.13
LOG PEARSON III	51.3 (1.87)	64.9 (2.36)	74.7 (2.72)	84.2 (3.06)	93.4 (3.40)	0.16 0.07
MEAN	49.2 (1.79)	60.7 (2.21)	69.1 (2.52)	77.4 (2.82)	85.5 (3.11)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 60SN-I ***** MAR 13, 1987

 OTTER CREEK BELOW SPEARING CREEK OBNLO60 D.A. 409 SQ. KM.

 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1975-82

MEAN (CU. M./SEC) 13.6 MAXIMUM (CU. M./SEC) 23.5 NO. OF YEARS 8
 MEAN (L/S/SQ. KM) 33.3 MAXIMUM (L/S/SQ. KM) 57.5 COEFF. OF SKEW 0.42

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	58.7 (1.76)	76.6 (2.30)	91.3 (2.74)	107. (3.21)	124. (3.71)	0.09	0.09
GUMBEL	53.5 (1.60)	65.0 (1.95)	73.5 (2.21)	82.0 (2.46)	90.5 (2.71)	0.12	0.12
PEARSON TYPE III	54.5 (1.63)	63.6 (1.91)	69.7 (2.09)	75.5 (2.27)	80.9 (2.43)	0.13	0.13
LOG PEARSON III	56.9 (1.71)	70.9 (2.13)	81.6 (2.45)	92.4 (2.77)	103. (3.10)	0.09	0.09
MEAN	55.9 (1.68)	69.0 (2.07)	79.0 (2.37)	89.2 (2.68)	99.6 (2.99)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							
PEARSON CREEK NEAR THE MOUTH OBNM172 D.A. 73.6 SQ. KM.							
MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1971-85							

MEAN (CU. M./SEC) 12.4 MAXIMUM (CU. M./SEC) 17.4 NO. OF YEARS 15
 MEAN (L/S/SQ. KM) 169. MAXIMUM (L/S/SQ. KM) 236. COEFF. OF SKEW -0.15

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	221. (1.31)	239. (1.42)	250. (1.48)	260. (1.54)	269. (1.59)	0.12	0.07
GUMBEL	240. (1.42)	279. (1.65)	307. (1.82)	336. (1.99)	364. (2.16)	0.10	0.10
PEARSON TYPE III	221. (1.31)	239. (1.42)	250. (1.49)	260. (1.55)	270. (1.60)	0.12	0.07
LOG PEARSON III	221. (1.31)	235. (1.39)	242. (1.44)	249. (1.47)	252. (1.50)	0.13	0.08
MEAN	226. (1.34)	248. (1.47)	262. (1.56)	276. (1.64)	289. (1.71)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							
SOUKUP CREEK NEAR HEDLEY OBNLO35 D.A. 22.3 SQ. KM.							
MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1974-79							

MEAN (CU. M./SEC) 0.530 MAXIMUM (CU. M./SEC) 0.804 NO. OF YEARS 6
 MEAN (L/S/SQ. KM) 23.8 MAXIMUM (L/S/SQ. KM) 36.1 COEFF. OF SKEW -0.32

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	44.1 (1.86)	57.8 (2.43)	68.9 (2.90)	80.6 (3.39)	93.1 (3.92)	0.17	0.17
GUMBEL	40.1 (1.69)	49.2 (2.07)	56.0 (2.36)	62.7 (2.64)	69.3 (2.92)	0.15	0.15
PEARSON TYPE III	37.8 (1.59)	42.2 (1.78)	44.9 (1.89)	47.3 (1.99)	49.4 (2.08)	0.10	0.10
LOG PEARSON III	41.0 (1.72)	47.8 (2.01)	52.0 (2.19)	55.7 (2.34)	58.8 (2.47)	0.12	0.12
MEAN	40.7 (1.71)	49.3 (2.07)	55.5 (2.33)	61.6 (2.59)	67.7 (2.85)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							

***** 60SN-I ***** MAR 13, 1987
 TERRACE CREEK NEAR KELOWNA OBNM138 D.A. 31.3 SQ. KM. (REG 73)
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1966-72

MEAN (CU. M./SEC) 4.39 MAXIMUM (CU. M./SEC) 6.82 NO. OF YEARS 7
 MEAN (L/S/SQ. KM) 140. MAXIMUM (L/S/SQ. KM) 218. COEFF. OF SKEW 0.79

DISTRIBUTION FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	214. (1.53)	273. (1.94)	323. (2.30)	379. (2.71)	442. (3.15)	0.15 0.15
GUMBEL	173. (1.38)	224. (1.60)	246. (1.76)	269. (1.92)	291. (2.08)	0.12 0.12
PEARSON TYPE III	199. (1.42)	227. (1.62)	247. (1.76)	266. (1.90)	284. (2.03)	0.08 0.08
LOG PEARSON III	200. (1.43)	235. (1.68)	261. (1.86)	287. (2.05)	314. (2.24)	0.10 0.10
MEAN	202. (1.44)	240. (1.71)	269. (1.92)	300. (2.14)	333. (2.37)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 TESTALINDEN CREEK IN CANYON OBNM164 D.A. 13.0 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1971-73, 75-79, 81, 85

MEAN (CU. M./SEC) 0.305 MAXIMUM (CU. M./SEC) 0.906 NO. OF YEARS 10
 MEAN (L/S/SQ. KM) 23.5 MAXIMUM (L/S/SQ. KM) 69.7 COEFF. OF SKEW 1.71

DISTRIBUTION FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	90.1 (2.13)	71.8 (3.06)	90.9 (3.86)	111. (4.75)	135. (5.73)	0.11 0.11
GUMBEL	43.0 (1.83)	54.4 (2.32)	62.9 (2.68)	71.3 (3.04)	79.7 (3.40)	0.09 0.09
PEARSON TYPE III	48.6 (2.07)	64.8 (2.76)	76.9 (3.28)	88.9 (3.79)	101. (4.30)	0.10 0.10
LOG PEARSON III	49.9 (2.13)	68.5 (2.92)	83.0 (3.54)	97.8 (4.17)	113. (4.81)	0.10 0.10
MEAN	47.9 (2.04)	64.9 (2.77)	78.4 (3.34)	92.4 (3.94)	107. (4.56)	

 RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 VASEUX CREEK ABOVE DUTTON CREEK OBNM015 D.A. 259 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1959-69, 71-82

MEAN (CU. M./SEC) 20.0 MAXIMUM (CU. M./SEC) 40.2 NO. OF YEARS 23
 MEAN (L/S/SQ. KM) 78.9 MAXIMUM (L/S/SQ. KM) 198. COEFF. OF SKEW 0.77

DISTRIBUTION FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	123. (1.57)	149. (1.90)	168. (2.14)	187. (2.38)	206. (2.62)	0.07 0.04
GUMBEL	121. (1.55)	146. (1.86)	164. (2.09)	182. (2.31)	199. (2.54)	0.08 0.03
PEARSON TYPE III	122. (1.56)	144. (1.83)	159. (2.02)	173. (2.20)	187. (2.38)	0.08 0.04
LOG PEARSON III	123. (1.57)	148. (1.88)	166. (2.11)	183. (2.33)	200. (2.55)	0.07 0.04
MEAN	123. (1.56)	147. (1.87)	164. (2.09)	181. (2.31)	198. (2.52)	

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 VASEUX CREEK ABOVE SOLCO CREEK OBNM171 D.A. 117 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1971-72, 74-85

MEAN (CU. M./SEC) 17.3 MAXIMUM (CU. M./SEC) 26.1 NO. OF YEARS 14
 MEAN (L/S/SQ. KM) 148. MAXIMUM (L/S/SQ. KM) 223. COEFF. OF SKEW -0.15

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	215. (1.45)	236. (1.59)	248. (1.67)	258. (1.74)	268. (1.81)	0.09	0.05
GUMBEL	233. (1.57)	280. (1.89)	315. (2.13)	350. (2.36)	384. (2.59)	0.11	0.11
PEARSON TYPE III	217. (1.47)	241. (1.63)	256. (1.73)	270. (1.82)	282. (1.90)	0.09	0.05
LOG PEARSON III	226. (1.52)	255. (1.72)	273. (1.84)	288. (1.95)	302. (2.04)	0.08	0.08
MEAN	223. (1.50)	253. (1.71)	273. (1.84)	292. (1.97)	309. (2.08)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							
*****	*****	*****	*****	*****	*****	*****	*****
WHITEMAN CREEK ABOVE BOULEAU CREEK OBNM174 D.A. 112 SQ. KM.							
MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1971-78, 80-85							

MEAN (CU. M./SEC) 9.25 MAXIMUM (CU. M./SEC) 15.0 NO. OF YEARS 14
 MEAN (L/S/SQ. KM) 82.6 MAXIMUM (L/S/SQ. KM) 134. COEFF. OF SKEW 0.17

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	127. (1.54)	146. (1.77)	159. (1.92)	171. (2.07)	182. (2.20)	0.09	0.03
GUMBEL	132. (1.60)	160. (1.94)	181. (2.19)	201. (2.43)	221. (2.68)	0.11	0.03
PEARSON TYPE III	126. (1.53)	144. (1.74)	159. (1.89)	165. (2.00)	175. (2.12)	0.09	0.06
LOG PEARSON III	130. (1.58)	149. (1.80)	161. (1.95)	171. (2.07)	180. (2.18)	0.08	0.04
MEAN	129. (1.56)	150. (1.81)	164. (1.98)	177. (2.14)	189. (2.29)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							
*****	*****	*****	*****	*****	*****	*****	*****
WOLFE CREEK AT OUTLET OF ISSITZ LAKE OBNLO41 D.A. 215 SQ. KM.							
MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1968-81							

MEAN (CU. M./SEC) 4.68 MAXIMUM (CU. M./SEC) 12.0 NO. OF YEARS 14
 MEAN (L/S/SQ. KM) 21.8 MAXIMUM (L/S/SQ. KM) 55.8 COEFF. OF SKEW 0.96

DISTRIBUTION	FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. () RATIO TO MEAN					K-S TEST (UNBIASED)	
	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL	LOCAL
LOG NORMAL	42.0 (1.93)	54.7 (2.51)	64.5 (2.96)	74.6 (3.43)	85.0 (3.91)	0.08	0.08
GUMBEL	39.6 (1.82)	49.8 (2.29)	57.4 (2.64)	64.9 (2.98)	72.4 (3.33)	0.10	0.06
PEARSON TYPE III	41.4 (1.90)	51.5 (2.37)	58.7 (2.70)	65.6 (3.02)	72.3 (3.32)	0.11	0.07
LOG PEARSON III	42.8 (1.97)	51.8 (2.38)	57.1 (2.62)	61.5 (2.83)	65.1 (2.99)	0.10	0.09
MEAN	41.5 (1.90)	51.9 (2.39)	59.4 (2.73)	66.7 (3.06)	73.7 (3.39)		
RATIO OF INSTANTANEOUS TO DAILY DISCHARGE							

*****60SLDN *****MAR 13, 1987
 SIMILKAMEEN RIVER AT PRINCETON OBN007 D.A. 1850 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1976-83, 85

MEAN (CU. M./SEC) 205. MAXIMUM (CU. M./SEC) 307. NO. OF YEARS
 MEAN (L/S/SQ. KM) 111. MAXIMUM (L/S/SQ. KM) 166. COEFF. OF SKEW 9
 -0.17

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	152. (1.37)	165. (1.49)	174. (1.57)	182. (1.64)	188. (1.70)	0.16 0.16
GUMBEL	162. (1.46)	190. (1.71)	211. (1.90)	231. (2.09)	252. (2.27)	0.22 0.22
PEARSON TYPE III	152. (1.37)	166. (1.50)	175. (1.58)	183. (1.65)	190. (1.71)	0.16 0.16
LOG PEARSON III	155. (1.40)	170. (1.53)	179. (1.62)	187. (1.68)	193. (1.74)	0.17 0.17
MEAN	159. (1.40)	173. (1.56)	185. (1.67)	196. (1.77)	206. (1.86)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

*****SIMILKAMEEN RIVER NEAR HEDLEY OBN038 D.A. 5590 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1965-83, 85

MEAN (CU. M./SEC) 456. MAXIMUM (CU. M./SEC) 971. NO. OF YEARS
 MEAN (L/S/SQ. KM) 81.5 MAXIMUM (L/S/SQ. KM) 175. COEFF. OF SKEW 20
 1.52

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	121. (1.48)	142. (1.75)	158. (1.94)	174. (2.14)	190. (2.33)	0.12 0.10
GUMBEL	119. (1.46)	141. (1.73)	157. (1.92)	172. (2.11)	188. (2.31)	0.12 0.10
PEARSON TYPE III	122. (1.50)	147. (1.81)	166. (2.03)	184. (2.25)	201. (2.47)	0.16 0.14
LOG PEARSON III	121. (1.48)	143. (1.76)	160. (1.97)	177. (2.17)	194. (2.38)	0.13 0.11
MEAN	121. (1.48)	143. (1.76)	160. (1.96)	177. (2.17)	193. (2.37)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

*****OKANAGAN RIVER AT OKANAGAN FALLS OBN002 D.A. 68600 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1936-53, 56-66, 68-78, 80-85

MEAN (CU. M./SEC) 40.9 MAXIMUM (CU. M./SEC) 79.0 NO. OF YEARS
 MEAN (L/S/SQ. KM) 5.96 MAXIMUM (L/S/SQ. KM) 11.5 COEFF. OF SKEW 46
 0.36

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	9.47 (1.59)	11.1 (1.86)	12.3 (2.06)	13.4 (2.24)	14.4 (2.42)	0.03 0.03
GUMBEL	9.77 (1.64)	11.9 (1.99)	13.5 (2.26)	15.0 (2.52)	16.6 (2.78)	0.07 0.04
PEARSON TYPE III	9.40 (1.58)	10.8 (1.82)	11.8 (1.98)	12.7 (2.13)	13.6 (2.28)	0.05 0.02
LOG PEARSON III	9.64 (1.62)	11.2 (1.87)	12.2 (2.04)	13.0 (2.18)	13.8 (2.31)	0.06 0.03
MEAN	9.57 (1.60)	11.3 (1.89)	12.4 (2.08)	13.5 (2.27)	14.6 (2.45)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

***** 60SLDN ***** MAR 13, 1987

 OKANAGAN RIVER AT PENTITION OBNM050 D.A. 6090 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS: 1969-85

MEAN (CU. M./SEC) 49.3 MAXIMUM (CU. M./SEC) 77.6 NO. OF YEARS 17
 MEAN (L/S/SQ. KM) 8.09 MAXIMUM (L/S/SQ. KM) 12.7 COEFF. OF SKEW -0.47

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	11.2 (1.38)	12.0 (1.49)	12.6 (1.55)	13.0 (1.61)	13.4 (1.66)	0.13 0.06
GUMBEL	12.6 (1.55)	13.0 (1.85)	16.8 (2.07)	18.6 (2.29)	20.3 (2.51)	0.13 0.14
PEARSON TYPE III	11.2 (1.38)	12.1 (1.50)	12.7 (1.57)	13.1 (1.62)	13.3 (1.67)	0.13 0.06
LOG PEARSON III	11.5 (1.42)	12.3 (1.52)	12.7 (1.58)	13.1 (1.61)	13.3 (1.64)	0.12 0.08
MEAN	11.6 (1.43)	12.9 (1.59)	13.7 (1.69)	14.4 (1.79)	15.1 (1.87)	

 OKANAGAN RIVER NEAR OLIVER OBNM085 D.A. 7590 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS: 1953, 56, 58-85

MEAN (CU. M./SEC) 52.4 MAXIMUM (CU. M./SEC) 88.6 NO. OF YEARS 30
 MEAN (L/S/SQ. KM) 6.90 MAXIMUM (L/S/SQ. KM) 11.7 COEFF. OF SKEW -0.08

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	10.6 (1.54)	11.8 (1.70)	12.5 (1.81)	13.1 (1.90)	13.6 (1.97)	0.14 0.06
GUMBEL	11.4 (1.66)	13.9 (2.02)	15.8 (2.29)	17.7 (2.56)	19.5 (2.83)	0.12 0.07
PEARSON TYPE III	10.7 (1.55)	12.1 (1.75)	12.9 (1.87)	13.7 (1.99)	14.4 (2.09)	0.14 0.06
LOG PEARSON III	11.4 (1.65)	13.5 (1.96)	15.0 (2.17)	16.3 (2.36)	17.5 (2.54)	0.11 0.07
MEAN	11.0 (1.60)	12.8 (1.86)	14.0 (2.04)	15.2 (2.20)	16.3 (2.36)	

 OKANAGAN RIVER AT DROVILLE OBNM127 D.A. 8310 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS: 1943-46, 48-62, 64-74, 76-78, 80-85

MEAN (CU. M./SEC) 56.0 MAXIMUM (CU. M./SEC) 106. NO. OF YEARS 39
 MEAN (L/S/SQ. KM) 6.74 MAXIMUM (L/S/SQ. KM) 12.8 COEFF. OF SKEW 0.07

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	10.2 (1.51)	11.5 (1.71)	12.4 (1.84)	13.2 (1.96)	13.7 (2.06)	0.08 0.04
GUMBEL	10.9 (1.62)	13.3 (1.96)	15.0 (2.22)	16.7 (2.47)	18.4 (2.73)	0.12 0.05
PEARSON TYPE III	10.2 (1.51)	11.5 (1.70)	12.3 (1.83)	13.1 (1.94)	13.8 (2.05)	0.08 0.03
LOG PEARSON III	10.5 (1.56)	12.0 (1.77)	12.8 (1.90)	13.6 (2.01)	14.2 (2.11)	0.09 0.04
MEAN	10.5 (1.55)	12.1 (1.79)	13.1 (1.95)	14.1 (2.10)	15.1 (2.24)	

***** 60SLDN ***** MAR 13, 1987 *****
 OKANDOGAN RIVER NEAR TONASKET OBNM072 D. A. 18900 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1931, 33, 36-65

MEAN (CU. M./SEC) 510. MAXIMUM (CU. M./SEC) 1160. NO. OF YEARS 32
 MEAN (L/S/SQ. KM) 27.0 MAXIMUM (L/S/SQ. KM) 61.4 COEFF. OF SKEN 0.91

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	41.5 (1.54)	48.8 (1.81)	54.0 (2.00)	59.0 (2.19)	63.9 (2.37)	0.04 0.02
GUMBEL	42.2 (1.56)	50.7 (1.88)	56.9 (2.11)	63.2 (2.34)	69.4 (2.57)	0.04 0.02
PEARSON TYPE III	41.7 (1.54)	49.2 (1.82)	54.4 (2.02)	59.5 (2.20)	64.4 (2.38)	0.04 0.03
LOG PEARSON III	41.7 (1.54)	48.3 (1.79)	52.6 (1.95)	56.6 (2.10)	60.3 (2.23)	0.04 0.03
MEAN	41.8 (1.55)	49.2 (1.82)	54.5 (2.02)	59.6 (2.21)	64.5 (2.39)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 SIMILKAMEEN RIVER NEAR NIGHTHAWK OBNL022 D. A. 9190 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1930-38, 40-74, 77-85

MEAN (CU. M./SEC) 509. MAXIMUM (CU. M./SEC) 1300. NO. OF YEARS 53
 MEAN (L/S/SQ. KM) 55.3 MAXIMUM (L/S/SQ. KM) 141. COEFF. OF SKEN 1.30

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	86.0 (1.55)	103. (1.86)	115. (2.08)	127. (2.30)	139. (2.52)	0.08 0.01
GUMBEL	85.6 (1.55)	103. (1.86)	115. (2.09)	128. (2.31)	141. (2.54)	0.08 0.01
PEARSON TYPE III	87.0 (1.57)	105. (1.90)	118. (2.14)	131. (2.37)	144. (2.60)	0.10 0.03
LOG PEARSON III	86.2 (1.56)	102. (1.85)	114. (2.06)	125. (2.25)	135. (2.45)	0.08 0.01
MEAN	86.2 (1.56)	103. (1.87)	116. (2.09)	128. (2.31)	140. (2.53)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 TULAMEEN RIVER AT PRINCETON OBNL024 1760 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1974-83, 85

MEAN (CU. M./SEC) 210. MAXIMUM (CU. M./SEC) 343. NO. OF YEARS 11
 MEAN (L/S/SQ. KM) 119. MAXIMUM (L/S/SQ. KM) 195. COEFF. OF SKEN 0.57

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	178. (1.49)	210. (1.75)	233. (1.95)	257. (2.15)	281. (2.35)	0.11 0.11
GUMBEL	174. (1.46)	205. (1.72)	228. (1.91)	251. (2.10)	273. (2.29)	0.11 0.11
PEARSON TYPE III	174. (1.46)	199. (1.67)	217. (1.81)	233. (1.95)	248. (2.08)	0.09 0.09
LOG PEARSON III	177. (1.49)	207. (1.73)	228. (1.91)	250. (2.09)	271. (2.26)	0.10 0.10
MEAN	176. (1.47)	205. (1.72)	227. (1.90)	248. (2.07)	268. (2.25)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

*****7N-I*****MAR 13, 1987
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 BIG SHEEP CREEK NEAR ROSSLAND OBNE039 D.A. 347 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1949-62, 64-85

MEAN (CU. M./SEC) 53.7 MAXIMUM (CU. M./SEC) 84.1 NO. OF YEARS 36
 MEAN (L/S/SQ. KM) 155. MAXIMUM (L/S/SQ. KM) 242. COEFF. OF SKEW 0.10

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	203. (1.31)	222. (1.44)	234. (1.52)	246. (1.59)	256. (1.65)	0.08 0.03
GUMBEL	215. (1.39)	248. (1.61)	273. (1.76)	297. (1.92)	322. (2.08)	0.09 0.03
PEARSON TYPE III	203. (1.31)	222. (1.43)	234. (1.51)	245. (1.58)	259. (1.65)	0.08 0.03
LOG PEARSON III	205. (1.32)	223. (1.44)	235. (1.52)	245. (1.58)	254. (1.64)	0.07 0.03
MEAN	207. (1.34)	229. (1.48)	244. (1.58)	258. (1.67)	272. (1.76)	

 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 EDGREN CREEK NEAR GOLDEN OBNE108 D.A. 3.89 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1970-74

MEAN (CU. M./SEC) 0.366 MAXIMUM (CU. M./SEC) 0.657 NO. OF YEARS 3
 MEAN (L/S/SQ. KM) 94.2 MAXIMUM (L/S/SQ. KM) 169. COEFF. OF SKEW 0.62

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	173. (1.84)	226. (2.40)	269. (2.86)	315. (3.34)	363. (3.86)	0.19 0.15
GUMBEL	195. (1.64)	190. (2.01)	215. (2.29)	241. (2.56)	267. (2.83)	0.17 0.17
PEARSON TYPE III	163. (1.73)	194. (2.06)	216. (2.27)	237. (2.51)	256. (2.72)	0.13 0.13
LOG PEARSON III	173. (1.83)	225. (2.39)	267. (2.84)	312. (3.31)	359. (3.81)	0.15 0.15
MEAN	166. (1.76)	209. (2.22)	242. (2.57)	276. (2.93)	311. (3.30)	

 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 TRAPPING CREEK AT THE-1220 M. CONTOUR OBNN020 D.A. 22.8 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1971-81

MEAN (CU. M./SEC) 12.7 MAXIMUM (CU. M./SEC) 19.9 NO. OF YEARS 11
 MEAN (L/S/SQ. KM) 556. MAXIMUM (L/S/SQ. KM) 873. COEFF. OF SKEW 0.32

DISTRIBUTION
 () RATIO TO MEAN
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM. K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	858. (1.55)	1030. (1.85)	1160. (2.08)	1290. (2.32)	1420. (2.55)	0.09 0.09
GUMBEL	837. (1.51)	996. (1.79)	1110. (2.01)	1230. (2.22)	1350. (2.43)	0.10 0.10
PEARSON TYPE III	831. (1.50)	946. (1.70)	1020. (1.84)	1090. (1.97)	1160. (2.09)	0.13 0.13
LOG PEARSON III	853. (1.54)	1010. (1.82)	1120. (2.02)	1230. (2.22)	1340. (2.41)	0.10 0.10
MEAN	845. (1.52)	996. (1.79)	1100. (1.99)	1210. (2.18)	1310. (2.37)	

*****7N-I***** MAR 13, 1987

 TRAPPING CREEK NEAR THE MOUTH OBNNO19 D.A. 144 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1966-85

MEAN (CU. M./SEC) 17.1 MAXIMUM (CU. M./SEC) 24.2 NO. OF YEARS 20
 MEAN (L/S/SQ. KM) 119. MAXIMUM (L/S/SQ. KM) 168. COEFF. OF SKEW -0.37

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	155. (1.30)	166. (1.40)	173. (1.45)	179. (1.50)	184. (1.55)	0.09 0.07
GUMBEL	172. (1.45)	201. (1.69)	222. (1.87)	243. (2.05)	264. (2.22)	0.15 0.15
PEARSON TYPE III	155. (1.31)	167. (1.40)	173. (1.46)	179. (1.51)	185. (1.55)	0.09 0.07
LOG PEARSON III	156. (1.31)	164. (1.38)	168. (1.42)	171. (1.44)	174. (1.46)	0.11 0.07
MEAN	160. (1.34)	174. (1.47)	184. (1.55)	193. (1.63)	202. (1.70)	

 WEST KETTLE RIVER BELOW CARMICREEK OBNNO22 D.A. 1170 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1975-81, 83-85

MEAN (CU. M./SEC) 108. MAXIMUM (CU. M./SEC) 150. NO. OF YEARS 10
 MEAN (L/S/SQ. KM) 92.5 MAXIMUM (L/S/SQ. KM) 128. COEFF. OF SKEW 1.14

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	114. (1.24)	128. (1.38)	138. (1.50)	149. (1.61)	160. (1.73)	0.17 0.17
GUMBEL	112. (1.21)	123. (1.33)	131. (1.42)	139. (1.50)	147. (1.59)	0.16 0.16
PEARSON TYPE III	114. (1.23)	125. (1.35)	133. (1.41)	142. (1.53)	149. (1.62)	0.16 0.16
LOG PEARSON III	113. (1.23)	125. (1.36)	135. (1.46)	144. (1.55)	153. (1.66)	0.16 0.16
MEAN	113. (1.23)	125. (1.36)	134. (1.45)	143. (1.55)	152. (1.65)	

 WEST KETTLE RIVER NEAR MCCULLOCH OBNNO15 D.A. 230 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1965-85

MEAN (CU. M./SEC) 45.5 MAXIMUM (CU. M./SEC) 63.1 NO. OF YEARS 21
 MEAN (L/S/SQ. KM) 198. MAXIMUM (L/S/SQ. KM) 274. COEFF. OF SKEW -0.12

DISTRIBUTION

FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN

K-S TEST
 (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	261. (1.32)	280. (1.42)	292. (1.48)	302. (1.53)	311. (1.57)	0.11 0.04
GUMBEL	279. (1.41)	324. (1.64)	357. (1.80)	390. (1.97)	422. (2.14)	0.11 0.04
PEARSON TYPE III	263. (1.33)	285. (1.44)	300. (1.52)	312. (1.58)	324. (1.64)	0.10 0.04
LOG PEARSON III	267. (1.35)	293. (1.48)	309. (1.56)	324. (1.64)	337. (1.70)	0.10 0.03
MEAN	267. (1.35)	296. (1.49)	315. (1.59)	332. (1.68)	349. (1.76)	

*****7LDN-I*****MAR-13-1987
 KETTLE RIVER NEAR FERRY OBNNO13 D.A. 5700 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1931-35, 37, 39-85

MEAN (CU. M./SEC) 360. MAXIMUM (CU. M./SEC) 600. NO. OF YEARS 53
 MEAN (L/S/SQ. KM) 63.1 MAXIMUM (L/S/SQ. KM) 105. COEFF. OF SKEW 0.39

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	82.0 (1.30)	70.9 (1.43)	76.3 (1.53)	102. (1.61)	107. (1.70)	0.08 0.02
GUMBEL	84.1 (1.33)	75.8 (1.52)	105. (1.66)	113. (1.79)	122. (1.93)	0.11 0.03
PEARSON TYPE III	81.8 (1.30)	89.8 (1.42)	95.1 (1.51)	100. (1.59)	105. (1.66)	0.08 0.02
LOG PEARSON III	82.1 (1.30)	90.5 (1.43)	96.4 (1.53)	102. (1.61)	107. (1.69)	0.08 0.02
MEAN	82.5 (1.31)	91.7 (1.45)	98.1 (1.55)	104. (1.65)	110. (1.75)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE
 KETTLE RIVER NEAR LAURIER OBNNO12 D.A. 9840 SQ. KM.
 MAXIMUM INSTANTANEOUS DISCHARGE IN CMS. 1932-38, 40-46, 49-85

MEAN (CU. M./SEC) 615. MAXIMUM (CU. M./SEC) 898. NO. OF YEARS 91
 MEAN (L/S/SQ. KM) 62.5 MAXIMUM (L/S/SQ. KM) 91.3 COEFF. OF SKEW 0.02

DISTRIBUTION
 FREQUENCY ANALYSIS ESTIMATE IN L/S/SQ. KM.
 () RATIO TO MEAN K-S TEST (UNBIASED)

	10-YEAR	25-YEAR	50-YEAR	100-YEAR	200-YEAR	GLOBAL LOCAL
LOG NORMAL	79.0 (1.26)	85.2 (1.36)	89.2 (1.43)	92.7 (1.48)	96.0 (1.54)	0.06 0.03
GUMBEL	83.0 (1.33)	94.3 (1.51)	103. (1.64)	111. (1.78)	119. (1.91)	0.11 0.03
PEARSON TYPE III	79.0 (1.26)	85.1 (1.36)	89.1 (1.42)	92.6 (1.48)	95.9 (1.53)	0.06 0.02
LOG PEARSON III	79.6 (1.27)	86.1 (1.38)	90.4 (1.45)	94.2 (1.51)	97.7 (1.56)	0.07 0.03
MEAN	80.2 (1.28)	87.7 (1.40)	92.8 (1.48)	97.7 (1.56)	102. (1.63)	

RATIO OF INSTANTANEOUS TO DAILY DISCHARGE

APPENDIX 4

Peak Flow Characteristic Maps and Overlays

Accompanying this report are the following 1:250,000 scale map sheets: Hope 92H, Penticton 82E and Vernon 82L. These base maps have the Ministry of Environment and Parks Region boundaries and the Hydrologic Zone boundaries outlined on them.

For each base map sheet there are 6 overlays labelled as follows:

1. "Gauged Watersheds" - boundaries of gauged watersheds used in the regionalization.
2. "Daily Mean ($L/s/km^2$)" - mean daily unit peak flow or mean annual maximum daily discharge in $L/s/km^2$. (qmd)
3. "Ratio - 25 yr. r.p." - ratio of the 25 year return period daily peak flow to the mean peak flow. (C25)
4. "Ratio - 50 yr. r.p." - same as above for the 50 year return period. (C50)
5. "Ratio - 100 yr. r.p." - same as above for the 100 year return period. (C100)
6. "Inst./Daily Ratio" - the multiplication factor to be used to estimate instantaneous peak flows once the daily peak flow is derived. (I/D)

The map sheet number to which the overlay applies is also noted.

APPENDIX 5

Relationship Between Peak Flow Characteristics and Drainage Area

The following graphs illustrate on a regional (all zones) and zone basis the relationship with drainage area of mean daily peak flow, the 50 year return period daily peak flow, the maximum recorded daily peak flow and the ratio of instantaneous to daily peak flow. Graphs of the 50 year return period amounts are not plotted for each zone because there are relatively few stations with more than 15 years of data. (This is the minimum period required for estimating 50 year return period values.) Only one graph for the whole region is plotted for I/D ratio because there are relatively few stations equipped with water-level recorders.

The graphs included in this Appendix are summarized below:

PEAK FLOW GRAPH INDEX FIGURE NUMBER					
	MEAN		50 YEAR RETURN PERIOD	MAXIMUM RECORDED	INSTANTANEOUS
	L/s/km ²	m ³ /s	L/s/km ²	L/s/km ²	DAILY
REGION	OS.1	OS.2	OS.3	OS.4	OS.5
Zone 5	5.1	5.2	--	5.3	--
Zone 60S	60S.1	60S.2	--	60S.3	--
Zone 7	7.2	7.2	--	7.3	--
Zone 11	11.1	11.2	--	11.3	--

Zones 5, 6, 7, 11

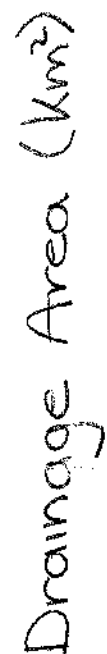
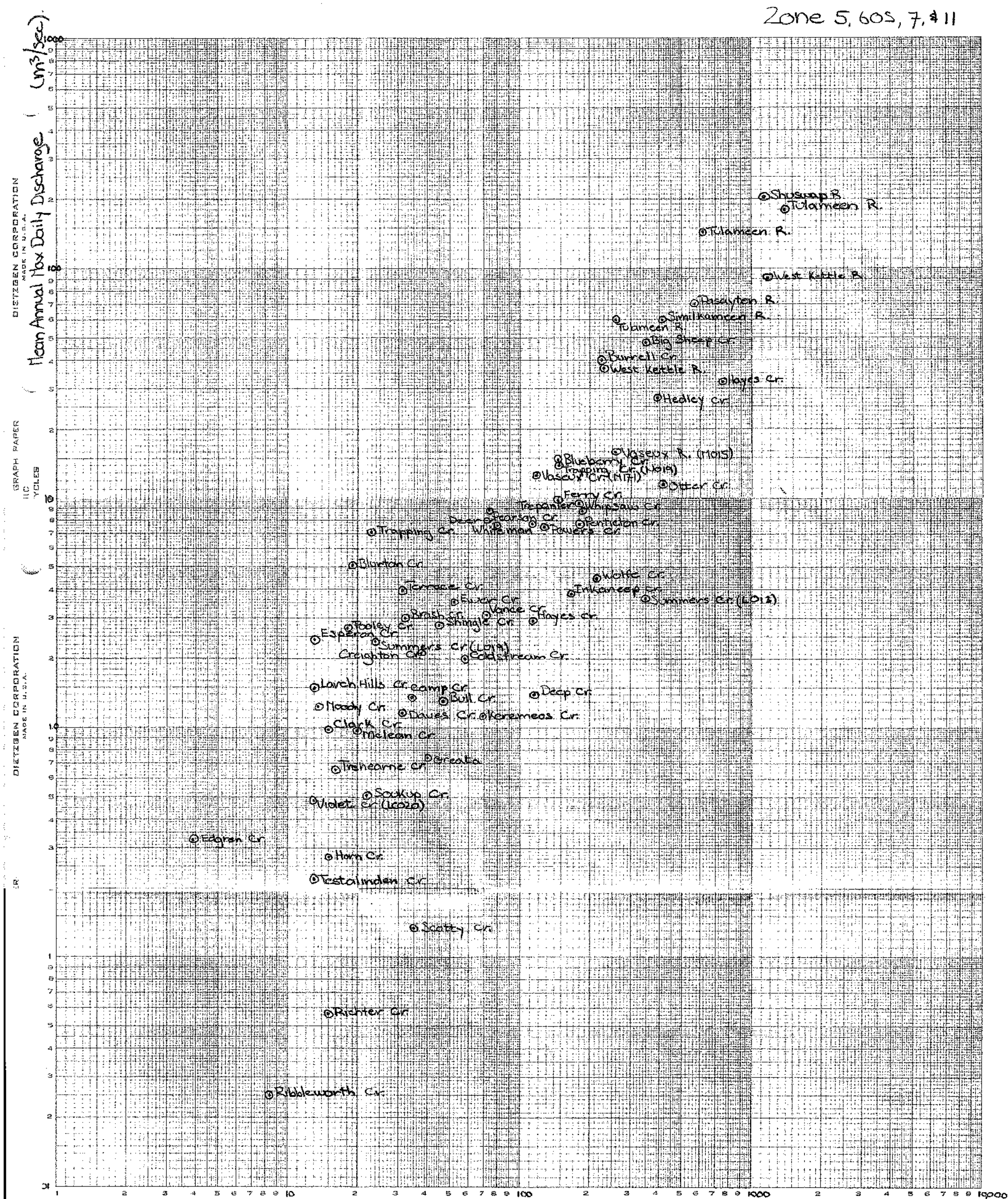


Fig. 02.1

Okanagan Region

Zone 5, 60S, 7, 11

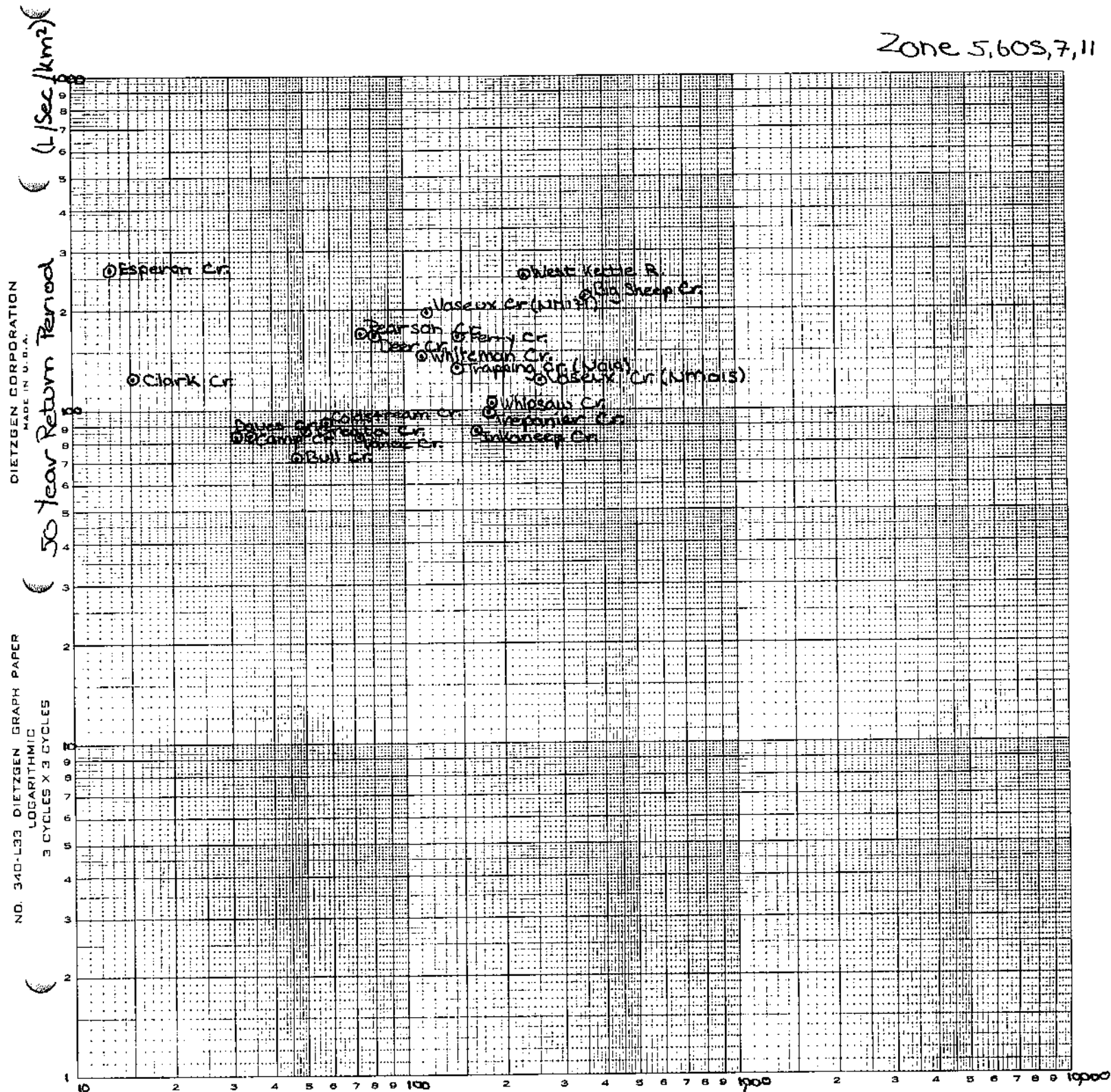


Drainage Area (km²)

Fig 05.2

Okanagan Region

Zone 5, 6, 8, 7, 11

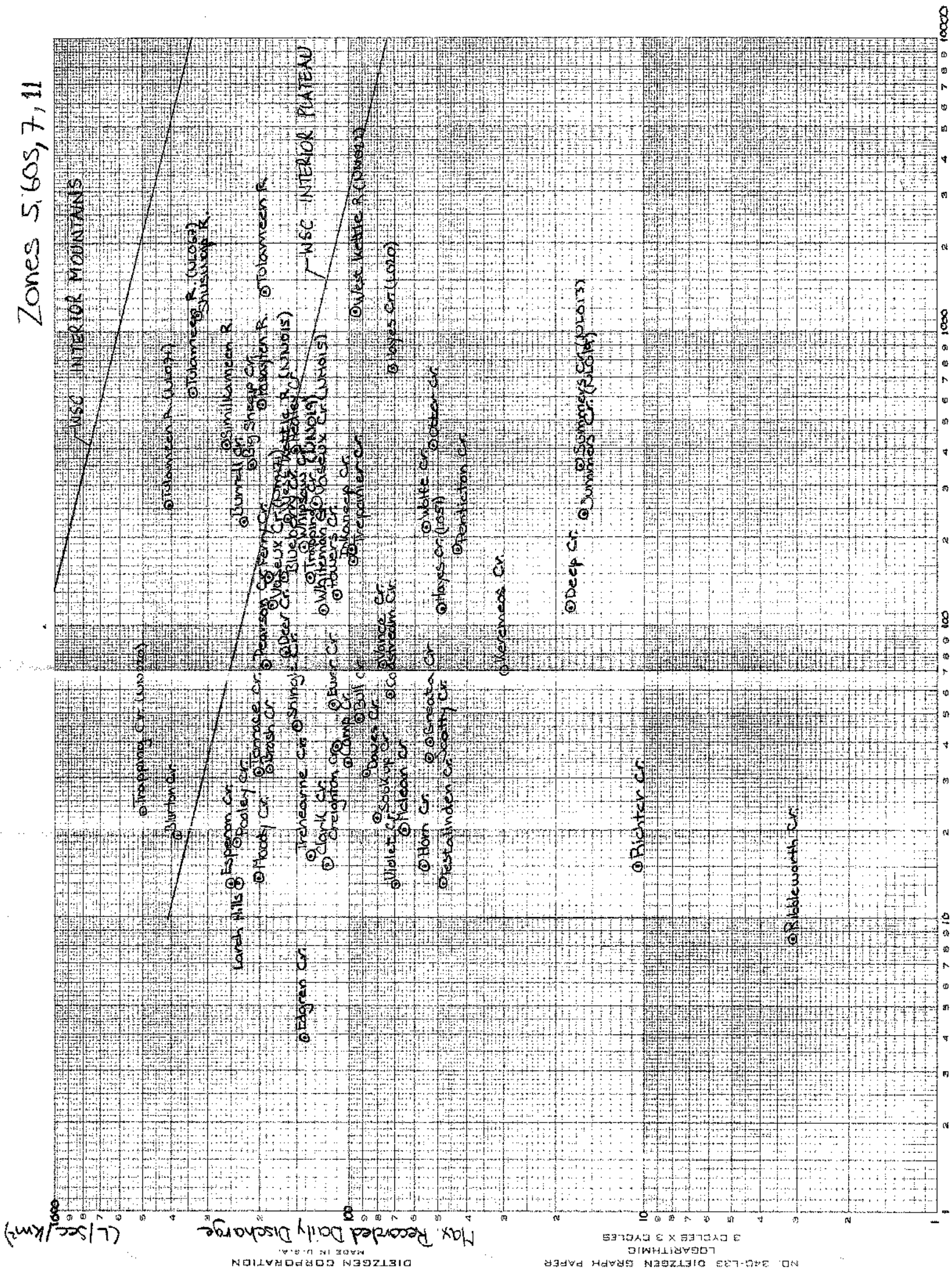


Drainage Area (km²)

Fig. OS.3

Okanagan Region

Zones 5, 6, 7, 11



Drainage Area (km²)

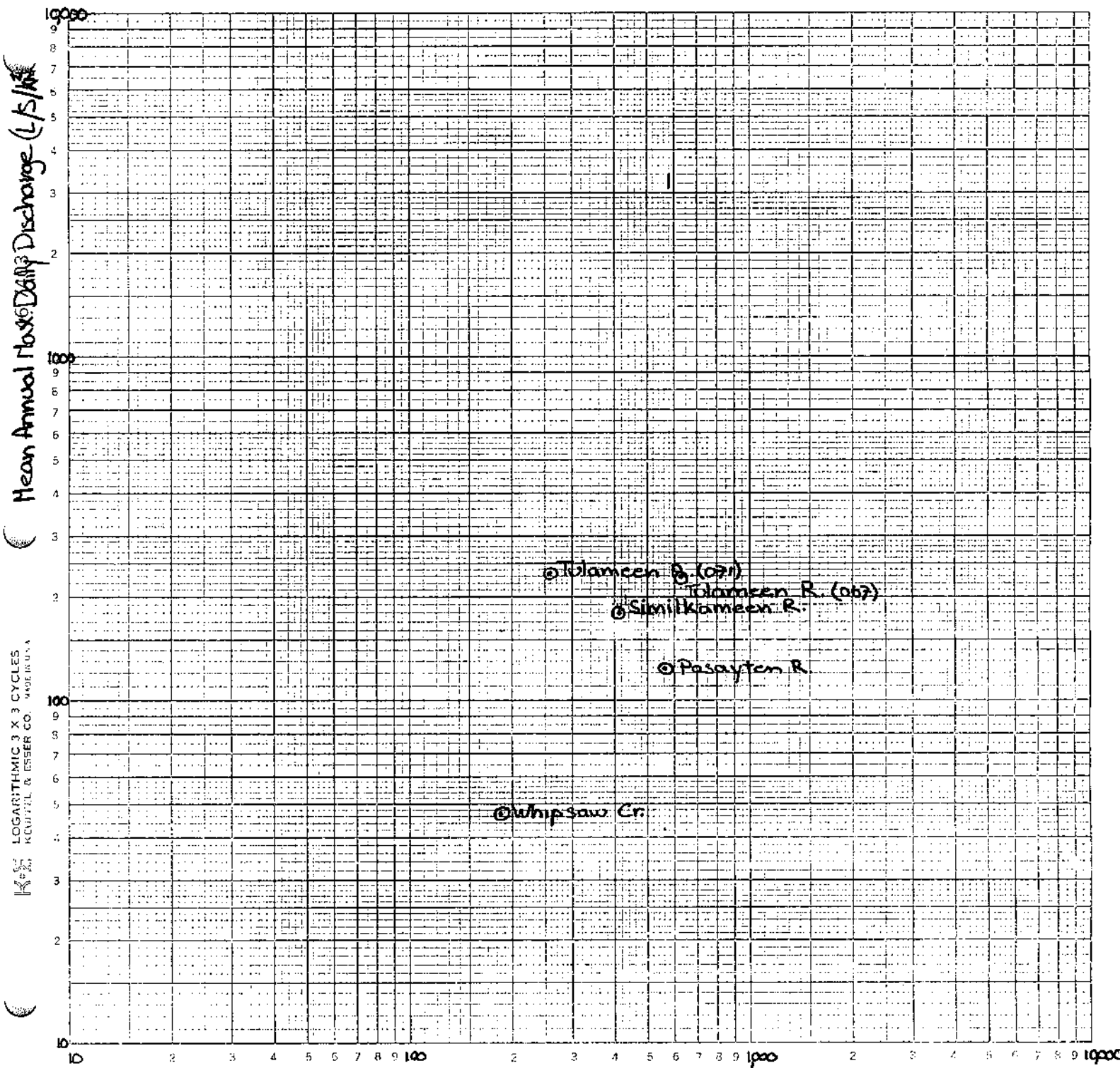
Fig. 05.4

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1 1/2 1/4 1/8 1/16 1/32 1/64 1/128 1/256 1/512 1/1024 1/2048 1/4096 1/8192 1/16384 1/32768 1/65536 1/131072 1/262144 1/524288 1/1048576 1/2097152 1/4194304 1/8388608 1/16777216 1/33554432 1/67108864 1/134217728 1/268435456 1/536870912 1/1073741824 1/2147483648 1/4294967296 1/8589934592 1/17179869184 1/34359738368 1/68719476736 1/137438953472 1/274877906944 1/549755813888 1/1099511627776 1/2199023255552 1/4398046511104 1/8796093022208 1/17592186044416 1/35184372088832 1/70368744177664 1/140737488355328 1/281474976710656 1/562949953421312 1/1125899906842624 1/2251799813685248 1/4503599627370496 1/9007199254740992 1/18014398509481984 1/36028797018963968 1/72057594037927936 1/144115188075855872 1/288230376151711744 1/576460752303423488 1/1152921504606846976 1/2305843009213693952 1/4611686018427387904 1/9223372036854775808 1/18446744073709551616 1/36893488147419103232 1/73786976294838206464 1/147573952589676412928 1/295147905179352825856 1/590295810358705651712 1/1180591620717411303424 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Okanagan Region

Zones

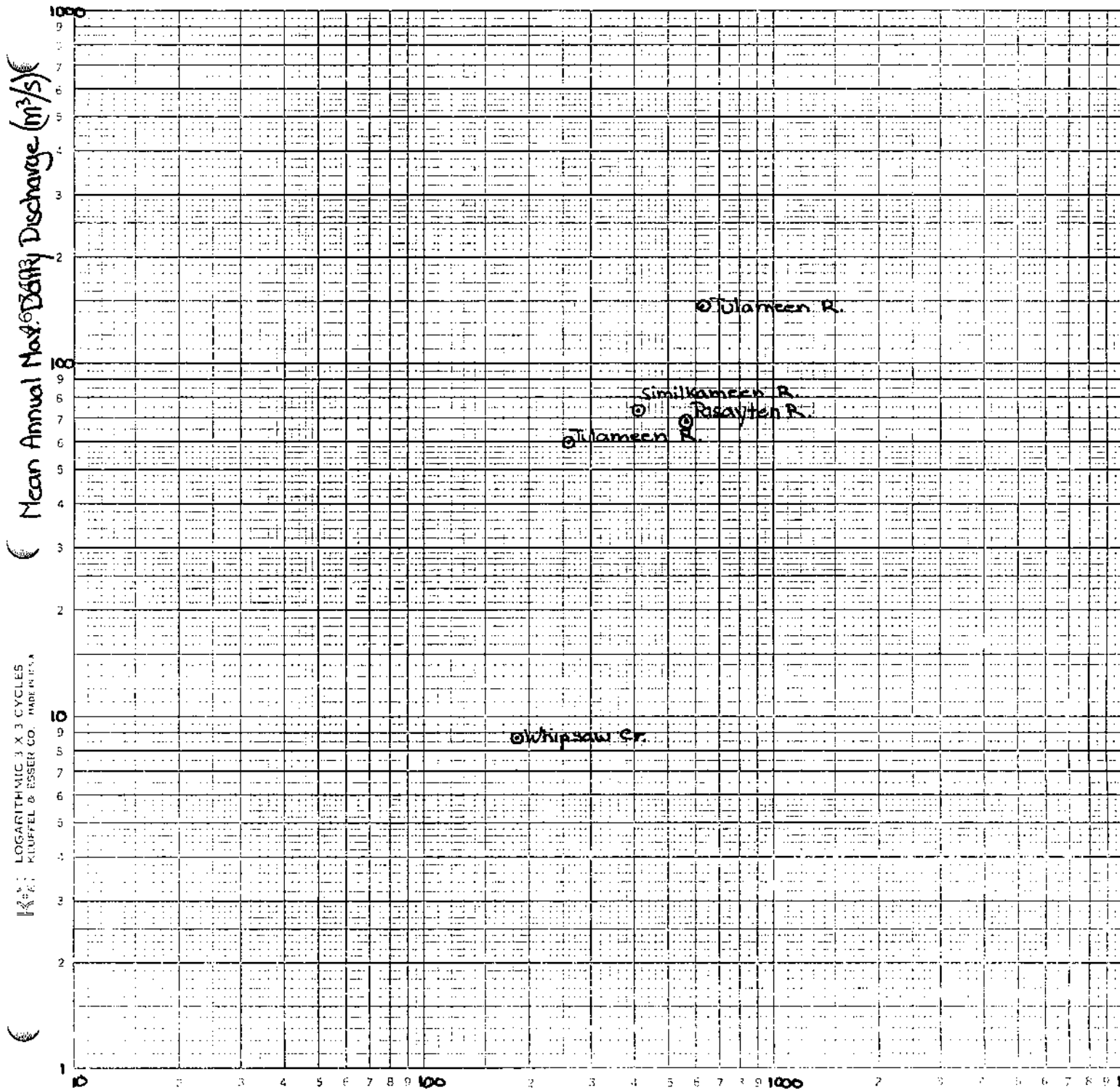


Drainage Area (km²)

Fig. 5.1

Okanagan Region

Zone 5

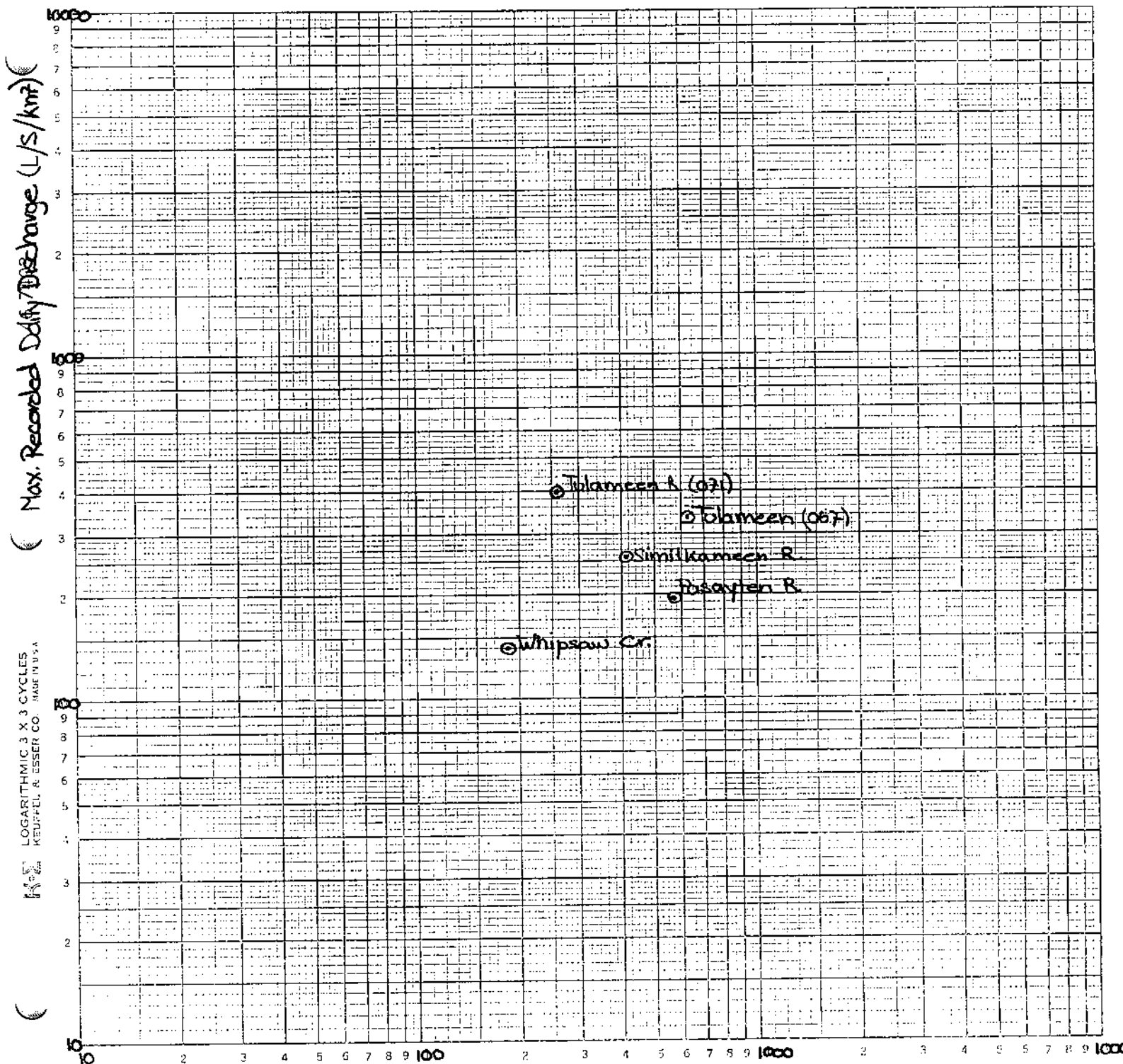


Drainage Area (km²)

Fig. 5.2

Okanagan Region

Zone 5

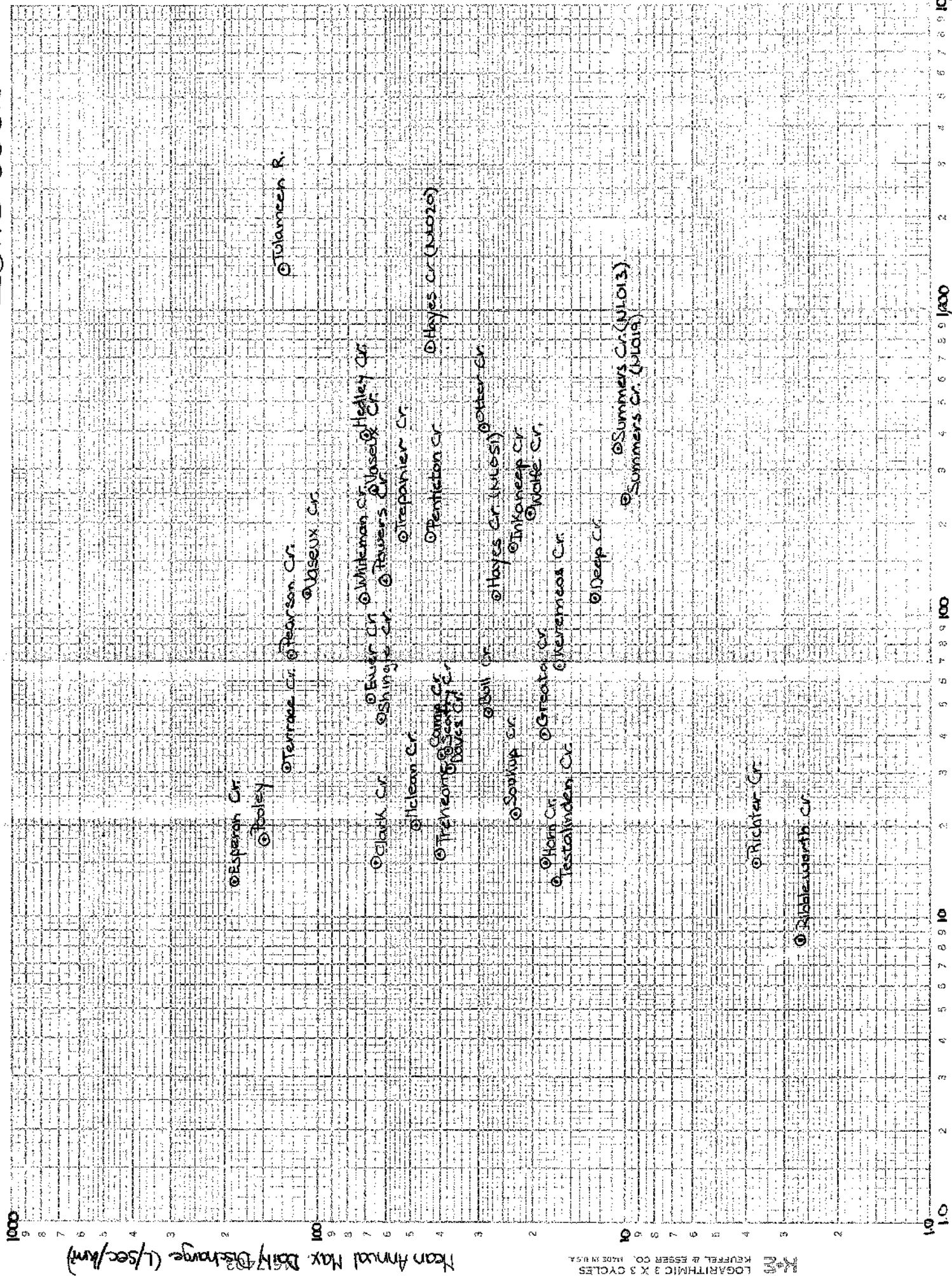


Drainage Area (km²)

Fig. 5.3

Okanagan Region

Zone 60SN

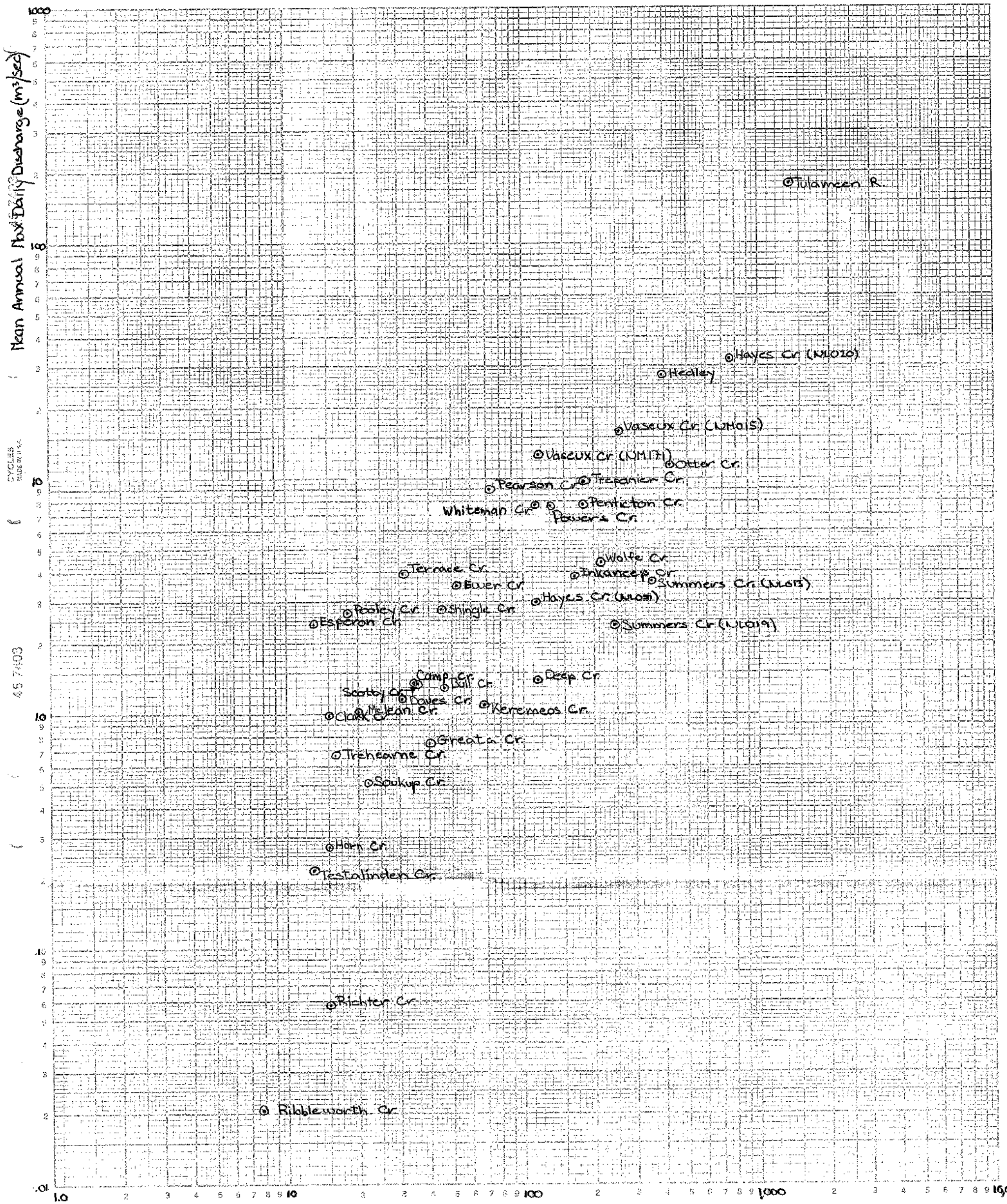


Drainage Area (km²)

Fig. 60S.1

Okanagan Region

Zone 60SN

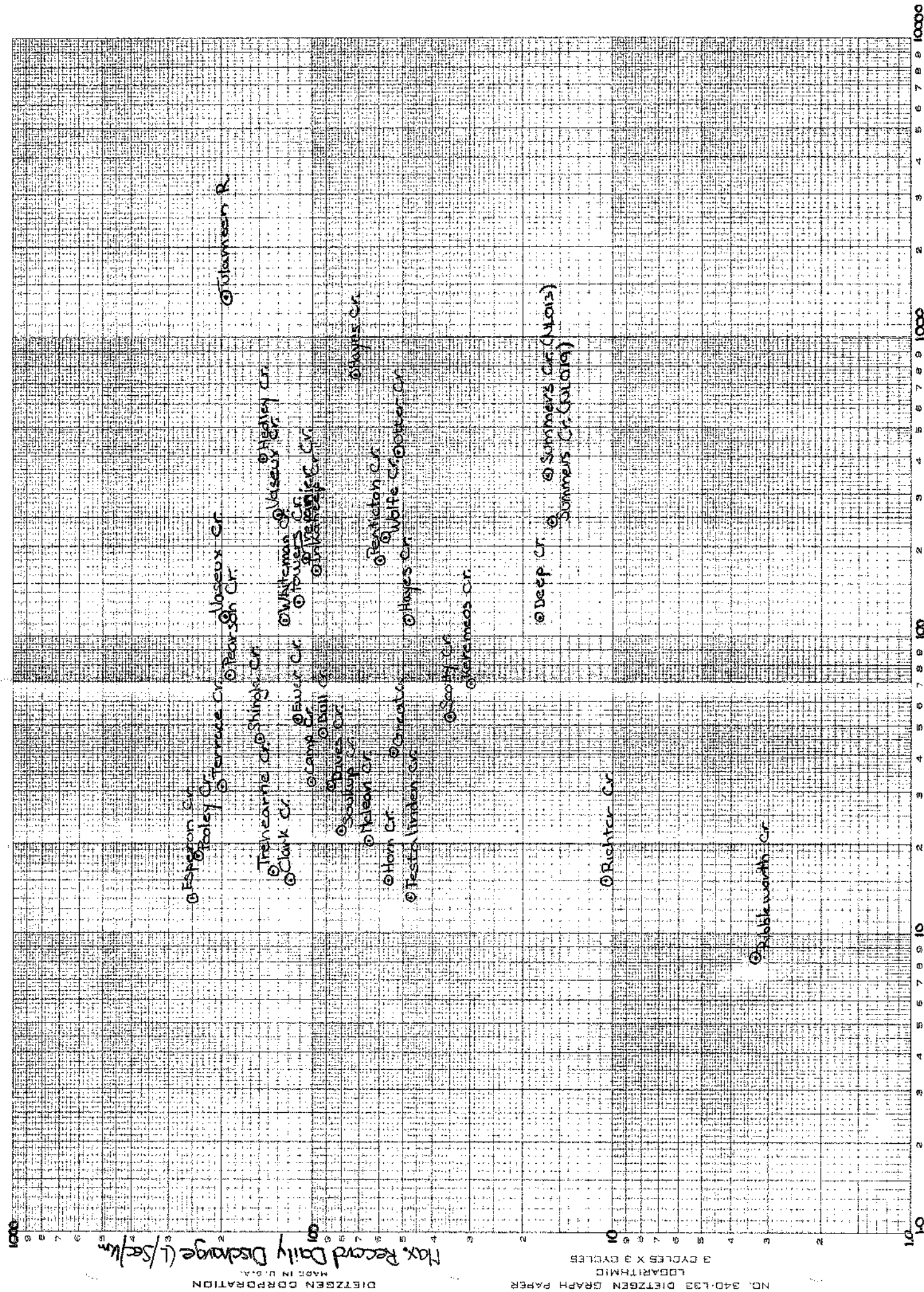


Drainage Area (km²)

Fig. 60S. 2

Okangqan Region

Zone 602N

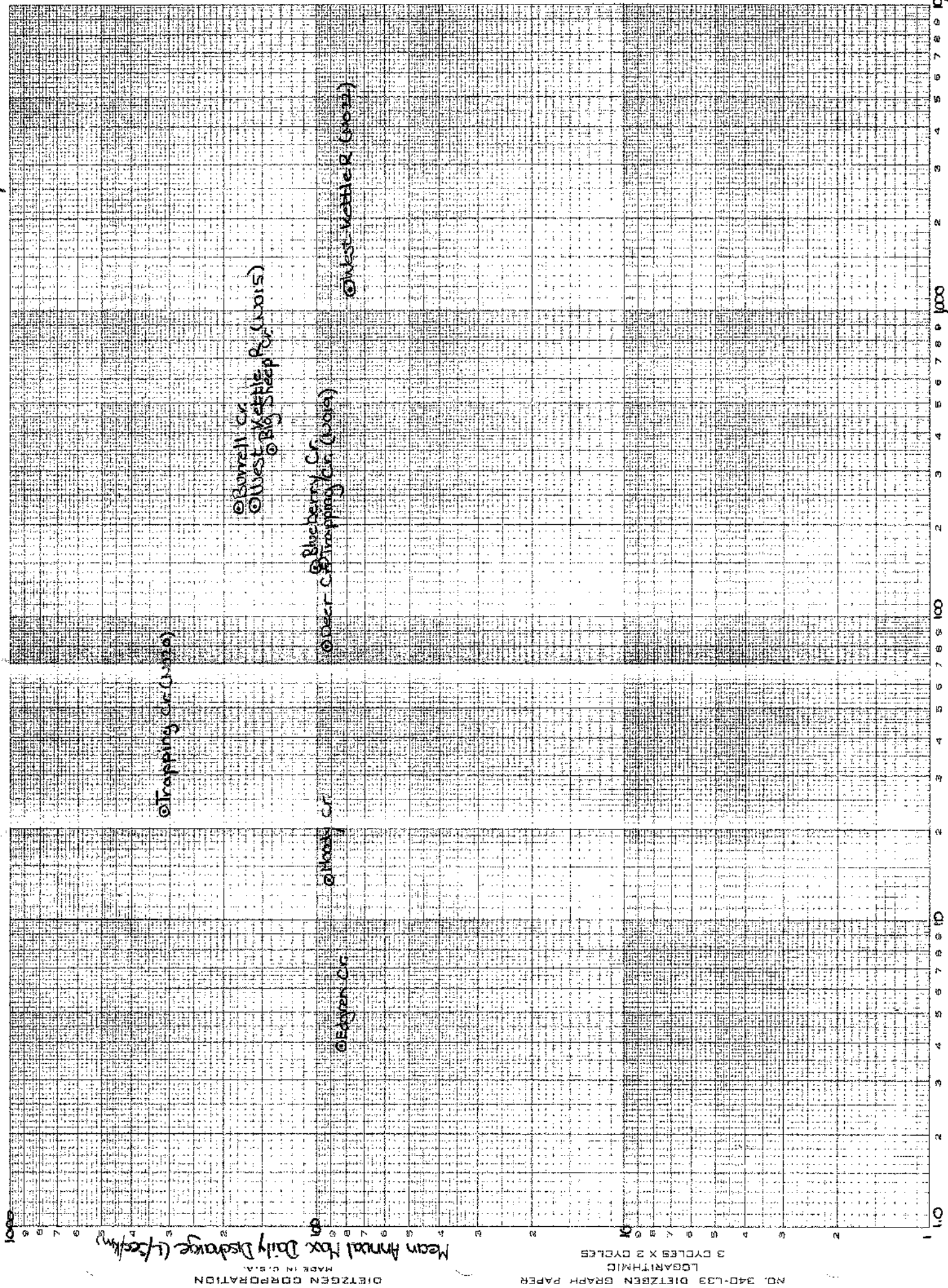


Drainage Area (km^2)

Fig. 605.3

Okonogan Region

Zone 7N

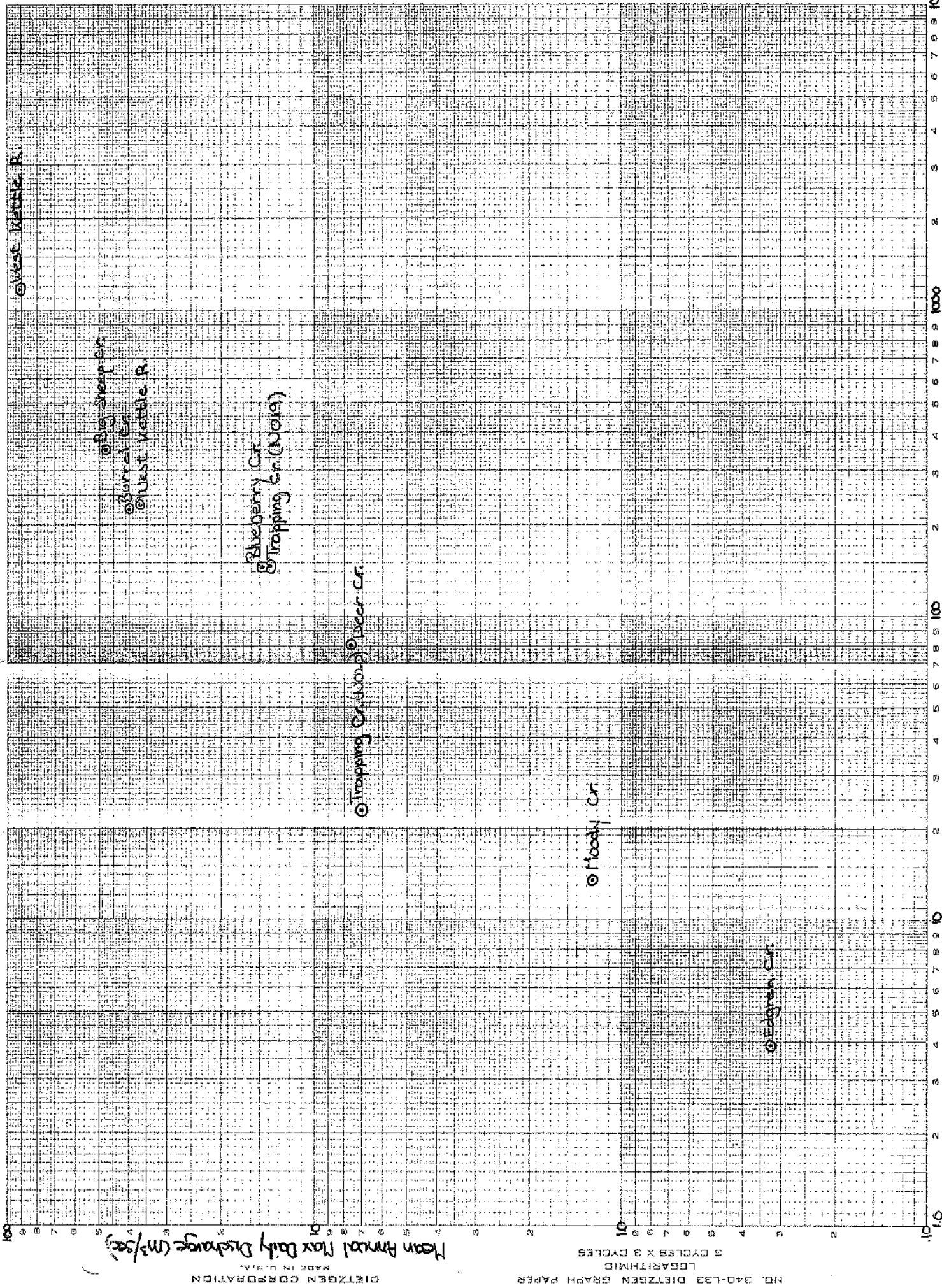


Drainage Area (km²)

Fig 7.1

Okanagan Region

Zone 7N

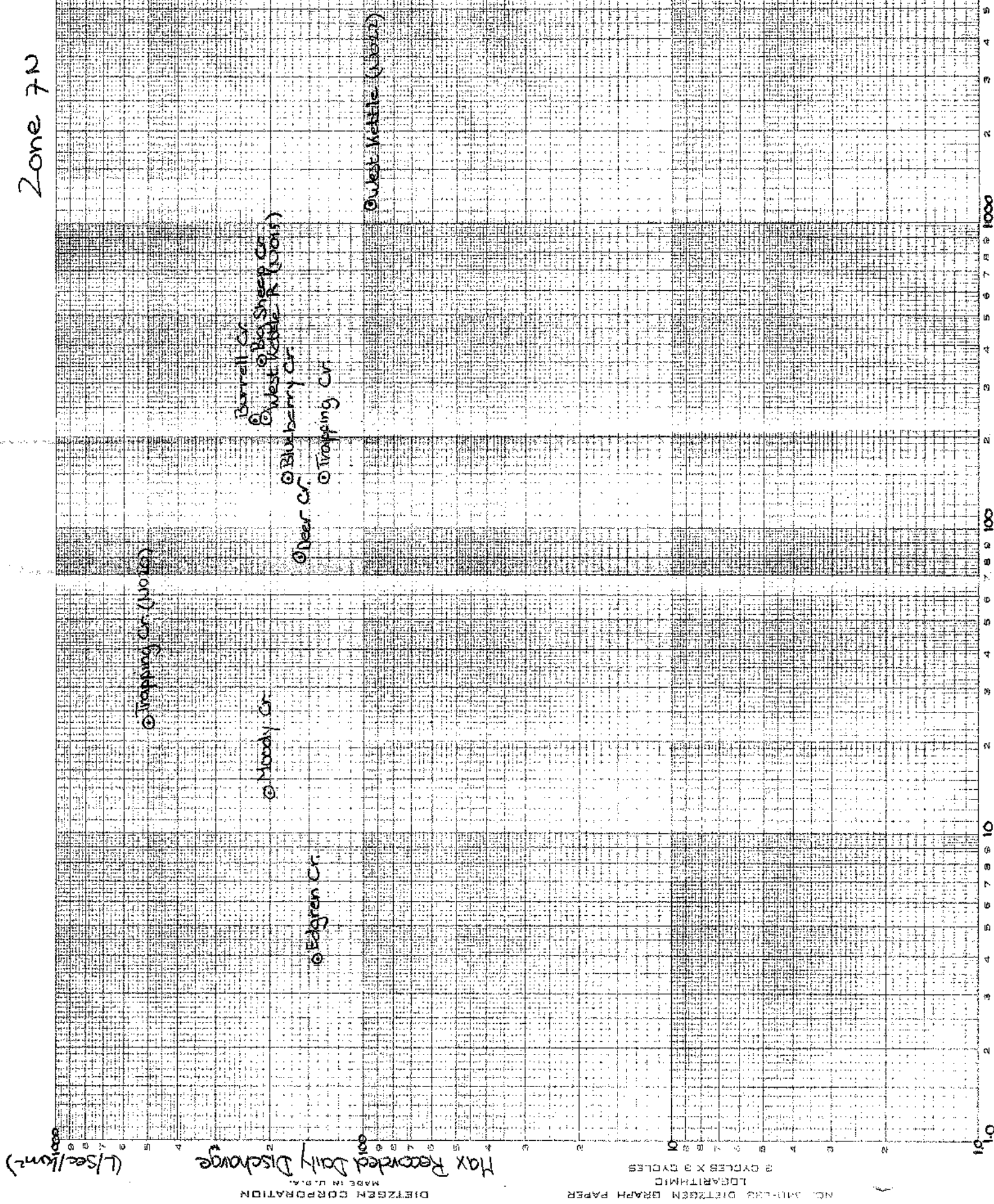


Drainage Area (km²)

Fig. 7.2

Okanagan Region

Zone 7N

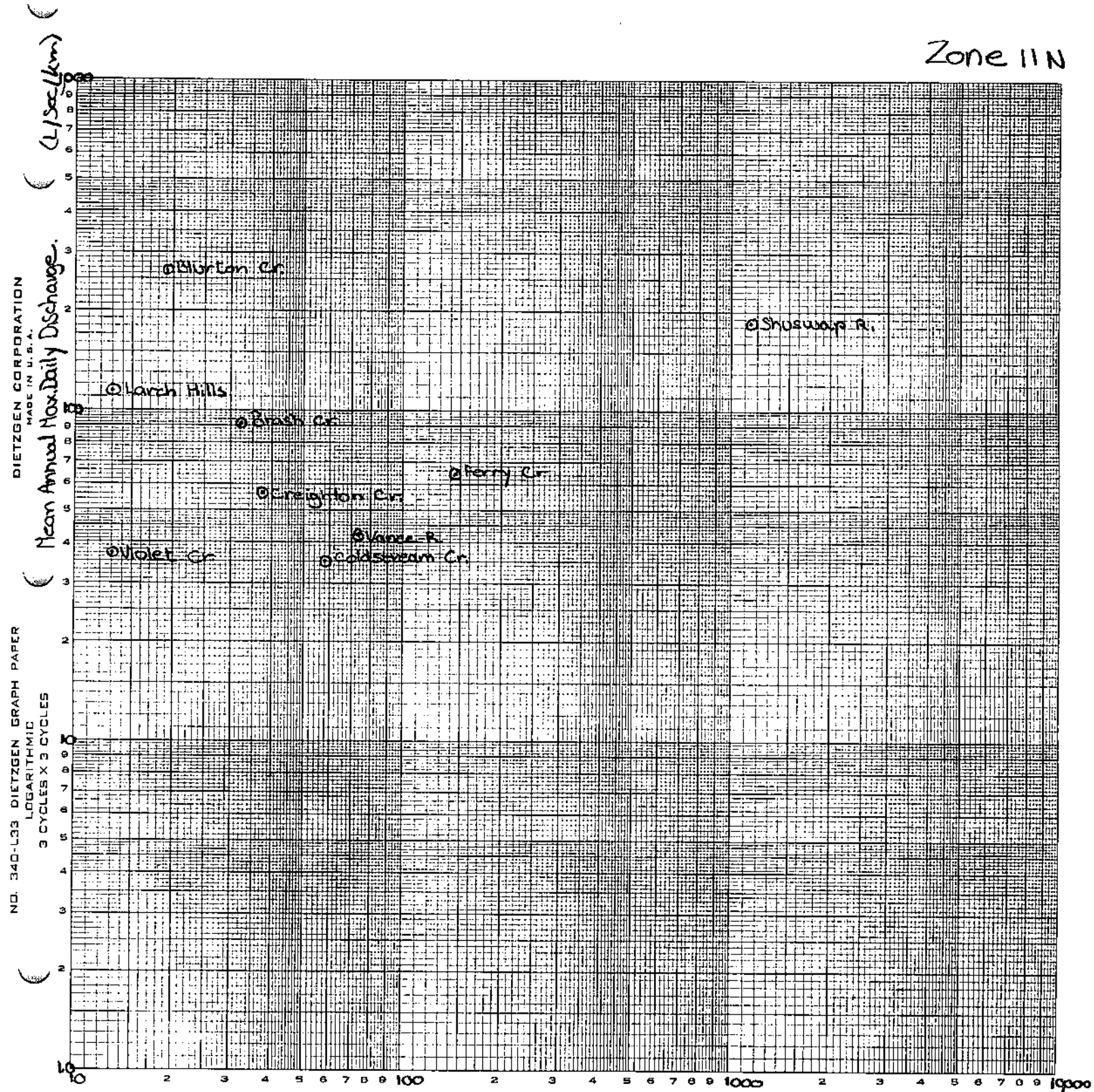


Drainage Area (km²)

Fig. 7.3

Okanagan Region

Zone 11N

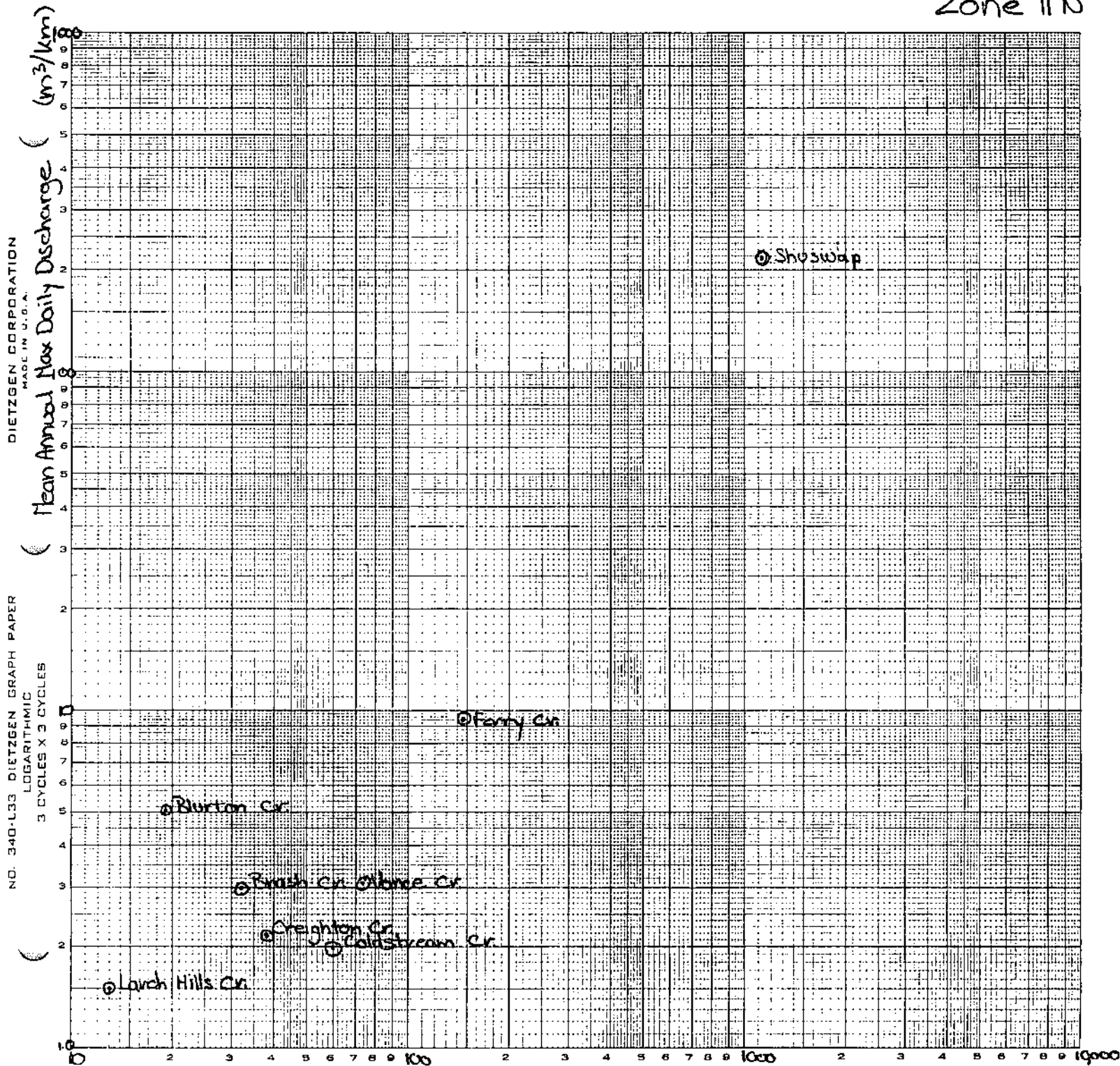


Drainage Area (km²)

Fig. 11.1

Okanagan Region

Zone 11 N



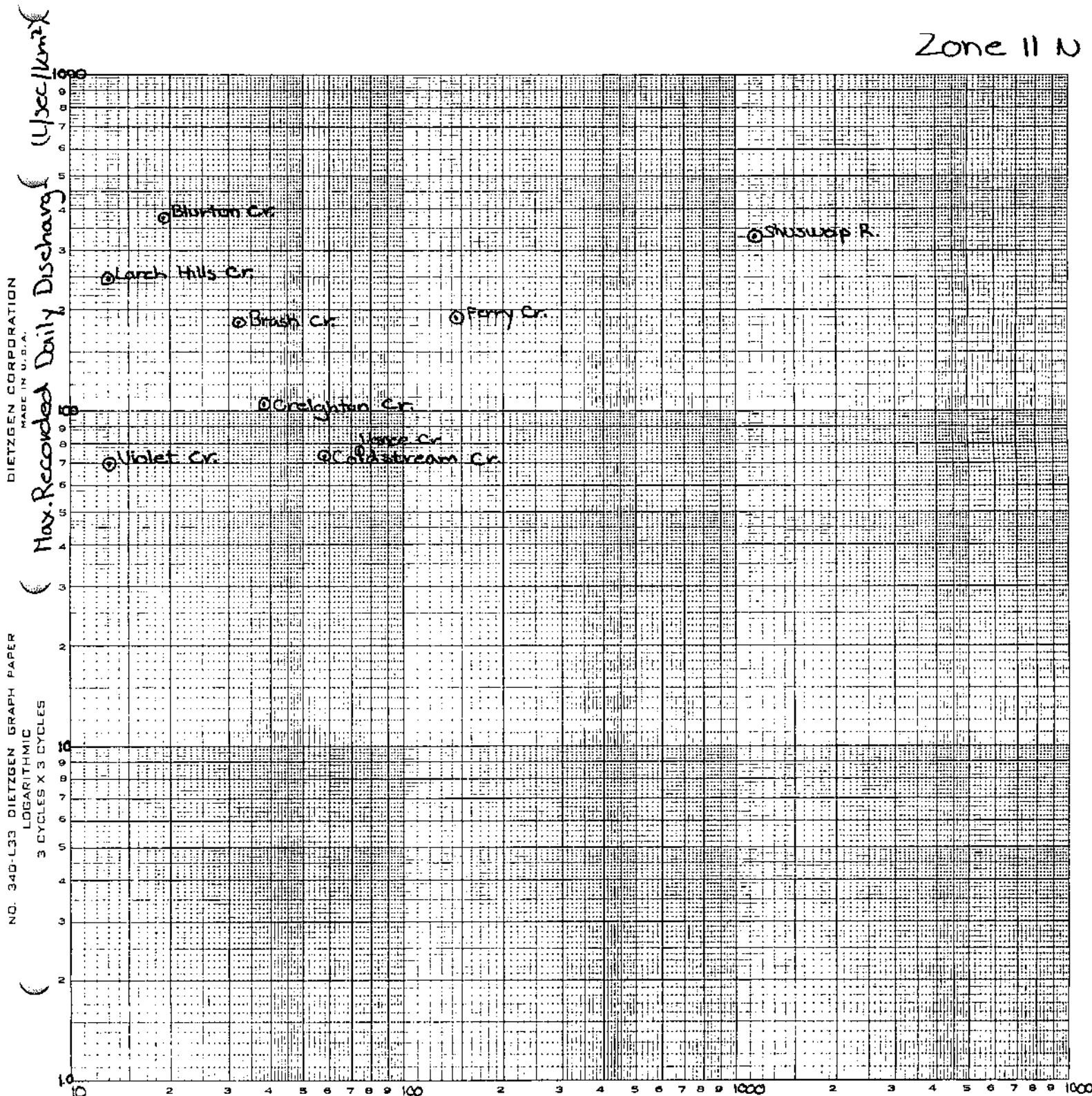
Violet Cr. (Lc020)

Drainage Area (km²)

Fig. 11.2

Okanagan Region

Zone II N



Drainage Area (km²)

Fig. 11.3

APPENDIX 6

Date of Peak Flow

The date of occurrence data listed in this Appendix are compiled for natural flow stations with at least 10 years of daily peak flow data.

The second figure under each month is the number of times the annual maximum daily discharge occurred in that month within the period of record. The first figure is this number expressed as a percentage of the period of record.

The "average date" is obtained by converting the peak flow date for each year of data to a Julian date, calculating the average Julian date and converting back to a calendar date. The "date of maximum recorded" is the date when the maximum recorded daily discharge occurred in the period of record.

The "date code" is based on the following seasonal subdivision:

Oct. - Nov.	1
Dec. - Feb.	2
Mar. - Apr.	3
May - June	4
July	5
Aug. - Sep.	6

The left-hand figure is the season containing the month with the largest number of annual peak flow occurrences. The figure to the right of the slash is the season in which the maximum recorded peak flow occurred. This coding could be used to "regionalize" and map peak flow season of occurrence.

SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN SN

STATION NUMBER	STATION NAME	YEARS OF DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE	DATE OF MAX RECORDED	DATE CUDG	
03N069	PASAYTEN RIVER ABOVE CALCITE CREEK	11	0	0	0	0	0	36	55	0	0	0	0	0	9	JUN 23	MAY 30/83	4/4
03N070	SIMILKAMEEN RIVER ABOVE GOODFELLOW CREEK	12	0	0	0	0	0	34	50	0	0	0	0	0	8	JUL 10	JUN 19/74	4/4
03N071	TULAMEEN RIVER BELOW VUICH CREEK	12	0	0	0	0	0	34	50	0	0	0	0	0	8	JUL 9	DEC 27/80	4/4
03N036	WHIPSAW CREEK BELOW LAMONT CREEK	21	0	0	0	0	0	47	33	0	0	0	0	0	0	MAY 26	MAY 30/72	4/4

TOTAL SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN SN

TOTAL NUMBER OF STATIONS	TOTAL NUMBER OF YEARS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE OF OCCURRENCE	MONTH	DATE CODE
4	56	4	0	0	0	46	45	0	0	0	0	0	0	3	JUN 20	4/4
		2	0	0	0	26	25	0	0	0	0	0	0	3		

SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 7N

STATION NUMBER	STATION NAME	YEARS OF DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE	DATE OF MAX RECORDED	DATE CODE
08NE039	BIG SHEEP CREEK NEAR ROSSLAND	38	0	0	0	0	16	81	3	0	0	0	0	0	MAY 14	APR 29/80	4/4
08NE073	BLUEBERRY CREEK NEAR BLUEBERRY CREEK	13	0	0	0	0	13	70	13	0	0	0	0	0	MAY 17	MAY 13/59	4/4
08NN023	BURRELL CREEK ABOVE GLOUCESTER CREEK	12	0	0	0	0	8	75	17	0	0	0	0	0	MAY 20	APR 29/80	4/4
08NE087	DEER CREEK AT DEER PARK	27	0	0	0	0	4	48	49	0	0	0	0	0	MAY 30	JUN 7/61	4/4
08NN021	MOODY CREEK NEAR CHRISTINA	13	0	0	0	0	31	69	0	0	0	0	0	0	MAY 3	MAY 1/74	4/4
08NN020	TRAPPING CREEK AT THE 1220 M. CONTOUR	11	0	0	0	0	0	53	43	0	0	0	0	0	MAY 27	MAY 16/73	4/4
08NN019	TRAPPING CREEK NEAR THE MOUTH	20	0	0	0	0	0	75	25	0	0	0	0	0	MAY 23	MAY 6/79	4/4
08NN022	WEST KETTLE RIVER BELOW CARMICHAEL CREEK	12	0	0	0	0	8	84	8	0	0	0	0	0	MAY 19	MAY 21/81	4/4
08NN015	WEST KETTLE RIVER NEAR MCCULLOCH	20	0	0	0	0	0	60	35	3	0	0	0	0	MAY 30	JUN 16/76	4/4

TOTAL SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 7N																	
TOTAL NUMBER OF STATIONS	TOTAL NUMBER OF YEARS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE OF OCCURRENCE	DATE OF MAXIMUM MONTH	DATE CODE	
9	165	0	0	0	0	9	68	22	1	0	0	0	0	MAY 20	MAY	4/4	

SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR IN 7LDM

STATION NUMBER	STATION NAME	YEARS OF DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE	DATE OF MAX RECORDED	DATE CODE
08NN013	KETILE RIVER NEAR FERRY	57	0	0	0	0	4	73	21	0	0	0	0	0	MAY 24	MAY 27/48	4/4
08NN012	KETILE RIVER NEAR LAURIER	56	0	0	0	0	4	66	30	0	0	0	0	0	MAY 24	MAY 29/48	4/4

TOTAL SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR IN 7LDM

TOTAL NUMBER OF STATIONS 2
TOTAL NUMBER OF YEARS 113
JAN 0 FEB 0 MAR 0 APR 4 MAY 70 JUN 26 JUL 29 AUG 0 SEP 0 OCT 0 NOV 0 DEC 0
AVERAGE DATE OF MAXIMUM OCCURRENCE MAY 24
DATE CODE MAY 4/4

SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 11N

STATION NUMBER	STATION NAME	YEARS OF DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE	DATE OF MAX RECORDED	DATE CODE
08LC004	BRASH CREEK NEAR ENDERBY	10	0	0	0	0	0	30	0	0	0	0	0	0	MAY 29	JUN 7/61	4/4
08N1142	COLDSTREAM CREEK ABOVE MUNICIPAL INTAKE	18	0	0	0	0	28	66	6	0	0	0	0	0	MAY 10	MAY 19/82	4/4
08LC034	FERRY CREEK NEAR LUMBY	18	0	0	0	0	0	39	61	0	0	0	0	0	MAY 30	JUN 1/72	4/4
08LC018	SHUSWAP RIVER AT OUTLET OF SUGAR LAKE RES.	10	0	0	0	0	0	30	70	0	0	0	0	0	JUN 7	MAY 28/28	4/4
08LC040	VANCE CREEK BELOW DEAFIES CREEK	15	0	0	0	0	13	80	7	0	0	0	0	0	MAY 15	APR 25/83	4/4

TOTAL SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 11N

TOTAL NUMBER OF STATIONS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE OF OCCURRENCE	DATE CODE
5	0	0	0	10	59	33	0	0	0	0	0	0	MAY 23	4/4

SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 11LDN

STATION NUMBER	STATION NAME	YEARS OF DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE	DATE OF MAX RECORDED	DATE CODE	
OBLC002	SHUSWAP RIVER NEAR ENDERBY	24	0	0	0	0	0	33	67	0	0	0	0	0	0	JUN 8	MAY 30/28	4/4
OBLC003	SHUSWAP RIVER NEAR LUMBY	19	0	0	0	0	11	15	68	5	0	0	0	0	0	JUN 6	MAY 28/28	4/4

TOTAL SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 11LDN																
TOTAL NUMBER OF STATIONS	TOTAL NUMBER OF YEARS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE OF OCCURRENCE	DATE OF MAXIMUM MONTH	DATE CODE
2	43	0	0	0	0	3	26	67	2	1	0	0	0	JUN 7	JUN	4/4

SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR IN 60SN

STATION NUMBER	STATION NAME	YEARS OF DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE	DATE OF MAX RECORDED	DATE CODE
08N004	ASHNOLA RIVER NEAR KEREMEOS	43	0	0	0	0	0	44	54	2	0	0	0	0	JUN 3	JUN 18/74	4/4
08N015	ASP CREEK NEAR PRINCETON	10	0	0	0	0	0	90	10	0	0	0	0	0	MAY 20	JUN 3/67	4/4
08N039	BELIEVE CREEK NEAR OKANAGAN MISSION	27	0	0	0	0	4	74	22	0	0	0	0	0	MAY 22	MAY 31/72	4/4
08N133	BULL CREEK NEAR CRUMP	20	0	0	0	0	5	60	35	0	0	0	0	0	MAY 26	MAY 31/72	4/4
08N134	CAMP CREEK AT MOUTH NEAR THIRSK	20	0	0	0	0	0	80	20	0	0	0	0	0	MAY 21	MAY 30/72	4/4
08N146	CLARK CREEK NEAR WINFIELD	15	0	0	0	0	0	93	7	0	0	0	0	0	MAY 15	MAY 18/82	4/4
08N137	DAVES CREEK NEAR RUTLAND	20	0	0	0	0	20	75	9	0	0	0	0	0	MAY 10	MAY 11/75	4/4
08N176	EWER CREEK NEAR THE MOUTH	14	0	0	0	0	14	79	7	0	0	0	0	0	MAY 16	MAY 7/74	4/4
08N173	GREATA CREEK NEAR THE MOUTH	15	0	0	0	0	7	93	0	0	0	0	0	0	MAY 16	MAY 21/72	4/4
08N050	HEDLEY CREEK NEAR THE MOUTH	12	0	0	0	0	0	58	42	0	0	0	0	0	MAY 29	JUN 13/74	4/4
08N012	INKANEEP CREEK NEAR OLIVER (LOWER STATION)	18	0	0	0	0	22	50	28	0	0	0	0	0	MAY 19	MAY 26/42	4/4
08N172	PEARSON CREEK NEAR THE MOUTH	15	0	0	0	0	0	33	60	7	0	0	0	0	JUN 6	JUN 18/76	4/4
08N036	SHINGLE CREEK ABOVE KALEDEN DIVERSION	14	0	0	0	0	7	43	50	0	0	0	0	0	MAY 28	JUN 8/68	4/4
08N035	SOUKUP CREEK NEAR HEDLEY	14	0	0	0	0	21	79	0	0	0	0	0	0	MAY 9	MAY 12/72	4/4
08N164	TESTALINDEN CREEK IN CANYON	13	0	0	0	0	0	92	8	0	0	0	0	0	MAY 20	MAY 26/74	4/4
08N037	TREHEARNE CREEK NEAR PRINCETON	14	0	0	0	0	21	79	0	0	0	0	0	0	MAY 8	MAY 27/72	4/4
08N041	TREPANIER CREEK NEAR PEACHLAND	15	0	0	0	0	7	53	40	0	0	0	0	0	MAY 25	MAY 24/21	4/4
08N032	TROUT CREEK SUMMERLAND DIVERSION	10	0	0	0	0	0	70	20	10	0	0	0	0	MAY 30	JUN 1/31	4/4
08N008	TULAMEEN RIVER AT COALMONT	11	0	0	0	0	0	59	34	0	0	0	0	0	JUN 12	MAY 27/48	4/4
08N013	VASEUX CREEK ABOVE DUTTON CREEK	27	0	0	0	0	0	78	22	0	0	0	0	0	MAY 23	MAY 30/72	4/4

SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR IN 60SN

STATION NUMBER	STATION NAME	YEARS OF DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE	DATE OF MAX RECORDED	DATE CODE
08NM171	VASEUX CREEK ABOVE SOLCO CREEK	15	0	0	0	0	0	80	20	0	0	0	0	0	MAY 24	MAY 30/72	4/4
08NM174	WHITEMAN CREEK ABOVE BOULEAU CREEK	15	0	0	0	0	0	93	7	0	0	0	0	0	MAY 19	MAY 30/72	4/4
08NM041	WOLFE CREEK AT OUTLET OF ISSITZ LAKE	14	0	0	0	0	0	79	21	0	0	0	0	0	MAY 23	MAY 31/72	4/4

TOTAL SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR IN 60SN

TOTAL NUMBER OF STATIONS	TOTAL NUMBER OF YEARS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE OF OCCURRENCE	DATE OF MAXIMUM MONTH	DATE CODE
23	391	0	0	0	0	3	69	23	1	0	0	0	0	MAY 23	MAY	4/4
		0	0	0	0	21	270	96	3	0	0	1	0			

SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 60SLN

STATION NUMBER	STATION NAME	YEARS OF DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE	DATE OF MAX RECORDED	DATE CODE
08N007	SIMILKAMEEN RIVER AT PRINCETON	49	0	0	0	0	0	61	37	0	0	0	0	2	JUN 3	MAY 31/72	4/4
08N038	SIMILKAMEEN RIVER NEAR HEDLEY	21	5	0	0	0	0	57	33	0	0	0	0	5	JUN 18	MAY 30/72	4/4
08N006	SIMILKAMEEN RIVER NEAR KEREMEDS	18	0	0	0	0	11	45	41	0	0	0	0	0	MAY 26	MAY 22/28	4/4

TOTAL SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 60SLN

TOTAL NUMBER OF STATIONS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE OF OCCURRENCE	DATE CODE
3	1	0	0	2	57	38	0	0	0	0	0	2	JUN 5	MAY 4/4

SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR IN SN -1

STATION NUMBER	STATION NAME	YEARS OF DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE	DATE OF MAX RECORDED	DATE CODE
08N069	PASAYTEN RIVER ABOVE CALCITE CREEK	10	0	0	0	0	0	40	0	0	0	0	0	0	JUN 4	MAY 30/83	4/4
08N070	SIMILKAMEEN RIVER ABOVE GOODFELLOW CREEK	11	?	0	0	0	0	36	55	0	0	0	0	0	MAY 22	JUN 20/74	4/4
08N036	WHIPSAW CREEK BELOW LAMONT CREEK	21	0	0	0	0	0	62	38	0	0	0	0	0	MAY 27	MAY 30/72	4/4

TOTAL SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR IN SN -1

TOTAL NUMBER OF STATIONS	TOTAL NUMBER OF YEARS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE OF OCCURRENCE	DATE OF MAXIMUM MONTH	DATE CODE
3	42	2	0	0	0	50	48	0	0	0	0	0	0	MAY 28	MAY	4/4
		1	0	0	0	21	20	0	0	0	0	0	0			

SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 60SN-1

STATION NUMBER	STATION NAME	YEARS OF DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE	DATE OF MAX RECORDED	DATE CODE
08NM035	BELLEVEUE CREEK NEAR OKANAGAN MISSION	16	0	0	0	0	0	56	38	6	0	0	0	0	MAY 28	MAY 25/81	4/4
08NM133	BULL CREEK NEAR CRUMP	19	0	0	0	0	5	58	37	0	0	0	0	0	MAY 28	MAY 31/72	4/4
08NM134	CAMP CREEK AT MOUTH NEAR THIRSK	20	0	0	0	0	0	80	20	0	0	0	0	0	MAY 21	MAY 29/72	4/4
08NM146	CLARK CREEK NEAR WINFIELD	14	0	0	0	0	0	86	7	7	0	0	0	0	MAY 19	JUL 4/82	4/5
08NM137	DAVES CREEK NEAR RUTLAND	16	0	0	0	0	19	75	6	0	0	0	0	0	MAY 11	MAY 10/75	4/4
08NM176	EWER CREEK NEAR THE MOUTH	10	0	0	0	0	20	80	0	0	0	0	0	0	MAY 12	MAY 7/74	4/4
08NM173	GREATA CREEK NEAR THE MOUTH	15	0	0	0	0	7	93	0	0	0	0	0	0	MAY 17	MAY 30/72	4/4
08NM012	INKANEEP CREEK NEAR OLIVER (LOWER STATION)	11	0	0	0	0	27	37	36	0	0	0	0	0	MAY 21	APR 30/49	4/3
08NM172	PEARSON CREEK NEAR THE MOUTH	15	0	0	0	0	0	33	60	7	0	0	0	0	JUN 6	JUN 18/76	4/4
08NM164	TESTALINDEN CREEK IN CANYON	10	0	0	0	0	0	90	10	0	0	0	0	0	MAY 19	MAY 22/72	4/4
08NM015	VASEUX CREEK ABOVE DUTTON CREEK	23	0	0	0	0	0	83	17	0	0	0	0	0	MAY 22	MAY 30/72	4/4
08NM171	VASEUX CREEK ABOVE SOLCO CREEK	14	0	0	0	0	0	79	21	0	0	0	0	0	MAY 29	MAY 30/72	4/4
08NM174	WHITEMAN CREEK ABOVE BOULEAU CREEK	14	0	0	0	0	0	93	7	0	0	0	0	0	MAY 20	MAY 30/72	4/4
08NL041	WOLFE CREEK AT OUTLET OF ISSITZ LAKE	14	0	0	0	0	0	79	21	0	0	0	0	0	MAY 23	MAY 30/72	4/4

***** TOTAL SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 60SN-1 *****

TOTAL NUMBER OF STATIONS	TOTAL NUMBER OF YEARS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE OF OCCURRENCE	DATE OF MAXIMUM MONTH	DATE CODE
14	211	0	0	0	5	73	21	1	0	0	0	0	0	MAY 22	MAY	4/4

SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 60SLN-1

STATION NUMBER	STATION NAME	YEARS OF DATA												AVERAGE DATE	DATE OF MAX RECORDED	DATE CODE
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC			
08NLO38	SIMILKANEEN RIVER NEAR HEDLEY	20	0	0	0	0	0	0	0	0	0	0	0	5	JUN 8	MAY 31/72 4/4

TOTAL SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 60SLN-1

TOTAL NUMBER OF STATIONS	TOTAL NUMBER OF YEARS	YEARS OF DATA												AVERAGE DATE OF OCCURRENCE	DATE OF MAXIMUM MONTH	DATE CODE
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC			
1	20	0	0	0	0	0	0	0	0	0	0	0	0	5	MAY	4/4

SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 7N -1

STATION NUMBER	STATION NAME	YEARS OF DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE	DATE OF MAX RECORDED	DATE CODE
08NE039	BIG SHEEP CREEK NEAR ROSSLAND	26	0	0	0	0	14	83	3	0	0	0	0	0	MAY 14	APR 29/80	4/3
08NN023	BURRELL CREEK ABOVE GLOUCESTER CREEK	10	0	0	0	0	10	70	20	0	0	0	0	0	MAY 21	APR 29/80	4/3
08NN020	TRAPPING CREEK AT THE 1220 M. CONTOUR	11	0	0	0	0	0	55	45	0	0	0	0	0	MAY 27	JUN 3/71	4/4
08NN019	TRAPPING CREEK NEAR THE MOUTH	20	0	0	0	0	0	75	25	0	0	0	0	0	MAY 23	MAY 5/79	4/4
08NN022	WEST KETTLE RIVER BELOW CARMICHAEL CREEK	10	0	0	0	0	0	80	20	0	0	0	0	0	MAY 23	MAY 25/81	4/4
08NN015	WEST KETTLE RIVER NEAR MCCULLOCH	21	0	0	0	0	0	97	38	5	0	0	0	0	MAY 31	MAY 25/85	4/4

TOTAL SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 7N -1

TOTAL NUMBER OF STATIONS	TOTAL NUMBER OF YEARS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE OF OCCURRENCE	DATE OF MAXIMUM MONTH	DATE CODE
6	108	0	0	0	6	72	21	1	0	0	0	0	0	MAY 22	MAY	4/4

SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 7LDN-I

STATION NUMBER	STATION NAME	YEARS OF DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE	DATE OF RECORDED	MAX DATE	CODE
08NN013	KITTLE RIVER NEAR FERRY	53	0	0	0	0	2	72	26	0	0	0	0	0	0	MAY 24	MAY 29/48	4/4
08NN012	KEILF RIVER NEAR LAURIER	51	0	0	0	0	4	67	29	0	0	0	0	0	0	MAY 24	MAY 22/56	4/4

TOTAL SUMMARY OF THE PEAK FLOW DATE OF OCCURRENCE FOR ZN 7LDN-I

TOTAL NUMBER OF STATIONS	TOTAL NUMBER OF YEARS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE DATE OF OCCURRENCE	MAXIMUM MONTH	DATE CODE
2	104	0	0	0	3	69	28	0	0	0	0	0	0	0	MAY	4/4

APPENDIX 7

Previous Peak Flow Estimates

1

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 5

STREAM/WATERSHED: CORRAL CR. NR. PRINCETON (TRIB. TO WHIPSAW CR.)

LOCATION: NR. MOUTH MAP: 92I

ASI CODE NO:

DRAINAGE AREA (km²): APPROX. 16

MEDIAN ELEVATION (m): APPROX. 1360

ELEVATION RANGE (m):

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: WHIPSAW CR.

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	2	125				
2						
5						
10						
25	4.6	288	2.3	5.8	360	1.25
50	5.4	338	2.7	6.8	422	1.25
100						
200						
500						
1000						

REQUESTED BY: O. PODZUN, WATER MGMT., PENTICTON

DATE: 82-11-29

PURPOSE: LOGGING ROAD - CULVERT

FILE NO/REPORT: (0340526) S2104-8

DATE: 82-11-29

AUTHOR: D.E. REKSTEN

FORM COMPLETED BY: DER

DATE: 82-11-29

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATAHYDROLOGIC ZONE 5STREAM/WATERSHED: PEEVE CREEK (TRIB. TO PASAYTEN R.)

LOCATION: _____ MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 4.7

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELTMETHOD OF ESTIMATION: REGIONALIZATIONSTATIONS USED: 8NL004 ASHNOLA R., 8NL069 PASAYTEN R.ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean		200				
2						
5						
10						
25			1.90	2.23		1.25
25*				3.12*		
100						
200						
500						
1000						

REQUESTED BY: R. RICHARDS, G. CLARK DATE: 85-10-09PURPOSE: HYDROMETRIC STN., WEIR INSTALLATIONFILE NO/REPORT: S2104-3 DATE: 85-10-09AUTHOR: L.J. BARRFORM COMPLETED BY: DER DATE: 85-12-31LISTED ☒MAPPED ☐

* PLUS 40% FOR BURN

AES:W0090/FORM

3

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 6

STREAM/WATERSHED: BLIND CREEK

LOCATION: NEAR KEREMEOS

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): APPROX. 28.5

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: TRANSPOSITION

STATIONS USED: 8NLO10 KEREMEOS CR., 8NM147 HORN CR.,
8NM164 TESTALINDEN CR.

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	0.623	21.9				
2						
5						
10	1.12	39.3				
25	1.56	54.6				1.25
50						
100						
200						
500						
1000						

REQUESTED BY: R. PENNER, WMB, VICTORIA

DATE: 78-01-10

PURPOSE: _____

FILE NO/REPORT: S2104-8 (0340526)

DATE: 78-01-10

AUTHOR: D.E. REKSTEN

FORM COMPLETED BY: D. SINNOTT

DATE: 85-02-19

LISTED



MAPPED



AES:W0090/FORM

41

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 6

STREAM/WATERSHED: ECHO LAKE INFLOW

LOCATION: NR. WINFIELD MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 3.56 (LAKE AREA 0.16 km²)

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): 1470 - 1586

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: 8NM145 BULMAN CR.; 8NM146 CLARK CR.; 8NM036 SCOTTY CR.;
8NM137 DAVES CR.

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	0.328	92.0				
2						
5						
10						
25	0.68	191	2.08	0.89		1.3
50	0.78	218	2.37	1.0		1.3
100	0.87	244	2.65	1.1		1.3
200						
500						
1000						

REQUESTED BY: G. GOOS, FISHERIES BR., VICTORIA

DATE: 87-02-20

PURPOSE: DAM RESTORATION, SPILLWAY DESIGN

FILE NO/REPORT: S2105 (PROJECT 248)

DATE: 87-03-05

AUTHOR: D.E. REKSTEN

FORM COMPLETED BY: DER

DATE: 87-03-16

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATAHYDROLOGIC ZONE 6STREAM/WATERSHED: ENEAS CREEKLOCATION: NEAR SUMMERLAND MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 81.6MEDIAN ELEVATION (m): 920ELEVATION RANGE (m): 488 - 1770TYPE OF EVENT: RAINMETHOD OF ESTIMATION: COULSON'S "GOPHER CR," METHOD (UNIT HYDROGRAPH)STATIONS USED: 8NM134 CAMP CR.; PEACHLAND BRENDA MINESESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean						
2						
5						
10						
25						
50						
100						
200				11.2	138	
500						
1000						

REQUESTED BY: _____ DATE: _____

PURPOSE: _____

FILE NO/REPORT: 0256957 DATE: 72-09-28 *AUTHOR: D.E. REKSTENFORM COMPLETED BY: D. SINNOTT DATE: 85-02-19LISTED ☒MAPPED ☐

* SEE MAY 25, 1973, DEC. 6, 1973

AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 6

STREAM/WATERSHED: FINNEGAN CR. (TRIB. TO HAYES CREEK)

LOCATION: AT MOUTH

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 40.0

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: 8NLO39 SIWASH CR.; 8NLO37 TREHEARNE CR.; 8NLO51 HAYES CR.;
8NM113 BULL CR.

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean		40				
2						
5						
10						
25		124	3.1	6.94	174	1.4
50						
100						
200						
500						
1000						

REQUESTED BY: D. DOBSON, WMB PENTICTON

DATE: 84-09-19

PURPOSE: CULVERT

FILE NO/REPORT: S2104-8

DATE: 84-09-20

AUTHOR: L.J. BARR

FORM COMPLETED BY: D. E. REKSTEN

DATE: 84-10-01

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATAHYDROLOGIC ZONE 6STREAM/WATERSHED: FORTUNE CREEKLOCATION: NR. ENDERBY

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 132

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELTMETHOD OF ESTIMATION: REGIONALIZATION; TRANSPOSITIONSTATIONS USED: 8LC031 FORTUNE CR.ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean		174				
2						
5						
10						
25						
50						
100						
200		322	1.85		402	1.25
500						
1000						

REQUESTED BY: CPR, REVELSTOKEDATE: 82-05-20PURPOSE: RLWY. CROSSINGFILE NO/REPORT: 2104-3DATE: 82-05-20AUTHOR: D.E. REKSTENFORM COMPLETED BY: DERDATE: 84-03-06

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATAHYDROLOGIC ZONE 6STREAM/WATERSHED: MCDUGALL CREEKLOCATION: NEAR WESTBANK

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 38.8

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT AND RAINMETHOD OF ESTIMATION: TRANSPOSITION; PEAK FLOW MAPSSTATIONS USED: 8NM014 MCDUGALL CR.ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	2.55	65.7				
2						
5						
10						
25						
50						
100	6.37	164				1.3
200						
500						
1000						

REQUESTED BY: R. RUNGAS, WIB, VICTORIADATE: 78-11-23

PURPOSE: _____

FILE NO/REPORT: S2104-8 (0340526)DATE: 78-11-24AUTHOR: D.E. REKSTENFORM COMPLETED BY: D. SINNOTTDATE: 85-02-19

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATAHYDROLOGIC ZONE 6

STREAM/WATERSHED: OELRICH CREEK NR. PRINCETON
 LOCATION: (TRIB. TO ALLISON CR.) MAP: _____
 ASI CODE NO: _____
 DRAINAGE AREA (km²): APPROX. 2.59
 MEDIAN ELEVATION (m): _____
 ELEVATION RANGE (m): _____
 TYPE OF EVENT: SNOWMELT
 METHOD OF ESTIMATION: REGIONALIZATION
 STATIONS USED: _____

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	0.226	87.5				
2						
5						
10						
25	0.544	210				1.2
50						
100						
200						
500						
1000						

REQUESTED BY: O. PODZUN, WMB, PENTICTON DATE: 80-03-20
 PURPOSE: LOGGING RD. CULVERT
 FILE NO/REPORT: S2104-8 (0340526) DATE: 80-03-21
 AUTHOR: D.E. REKSTEN
 FORM COMPLETED BY: D. SINNOTT DATE: 85-02-20

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATAHYDROLOGIC ZONE 6STREAM/WATERSHED: SHINGLE CREEKLOCATION: 8NM150

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 308

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELTMETHOD OF ESTIMATION: REGIONALIZATIONSTATIONS USED: SHATFORD - 08NM037; SHINGLE - 08NM038; TROUT - 08NM059ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	10.1	32.8				
2						
5						
10						
25						
50						
100			2.65	32.1	104	1.20
200						
500						
1000						

REQUESTED BY: W. TEMPEST, WMB, VICTORIADATE: 80-09-11PURPOSE: DESIGN FLOW FOR FISH LADDERFILE NO/REPORT: (0340526) S2104-8DATE: 80-09-12AUTHOR: L.J. BARRFORM COMPLETED BY: D. SINNOTTDATE: 85-02-19

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATAHYDROLOGIC ZONE 6STREAM/WATERSHED: TULAMEEN RIVERLOCATION: ABOVE OTTER CREEK

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 640

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELTMETHOD OF ESTIMATION: REGIONALIZATIONSTATIONS USED: 8NLO23 OTTER CREEK; 8NLO08 TULAMEEN R. AT COALMONT;8NLO67 TULAMEEN RIVER NEAR TULAMEENESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	161	251				
2						
5						
10						
20	357	557				
50						
100						
200	546	853				1.17
500						
1000						

REQUESTED BY: J.H. DOUGHTY-DAVIES, PLANNING & SRVYS., VIC. DATE: 80-06-19PURPOSE: FLOODPLAIN MAPPINGFILE NO/REPORT: (0340526) S2104-8DATE: 80-08-11AUTHOR: D.E. REKSTENFORM COMPLETED BY: D. SINNOTTDATE: 85-02-20

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATAHYDROLOGIC ZONE 6STREAM/WATERSHED: TULAMEEN RIVERLOCATION: BELOW OTTER CREEK

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 1320

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELTMETHOD OF ESTIMATION: REGIONALIZATION; FREQUENCY ANALYSISSTATIONS USED: 8NLO23 OTTER CR.; 8NLO08 TULAMEEN R. AT COALMONTESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	194	147				
2						
5						
10						
20	430	326				
50						
100						
200	657	498				1.17
500						
1000						

REQUESTED BY: J.H. DOUGHTY-DAVIES, PLANNING & SRVYS., VIC. DATE: 80-06-19PURPOSE: FLOODPLAIN MAPPINGFILE NO/REPORT: (0340526)S2104-8DATE: 80-08-11AUTHOR: D.E. REKSTENFORM COMPLETED BY: D. SINNOTTDATE: 85-02-20

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: BLUEBERRY CREEK SUB-BASINS

LOCATION: NEAR CASTLEGAR MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): VARIOUS

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: _____

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: _____

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean						
2						
5						
10						
25					437	
50						
100						
200						
500						
1000						

REQUESTED BY: T. OXLAND, WATER RIGHTS, NELSON DATE: 76-10-19

PURPOSE: CHART AREA APPLICATION A02137; CULVERT DESIGN

FILE NO/REPORT: 0328555-7 DATE: 76-12-16

AUTHOR: D.W. ROBERTS, D.E. REKSTEN

FORM COMPLETED BY: D.E. REKSTEN DATE: 86-08-07

LISTED ☒

MAPPED ☐

AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: BOUNDARY CREEK

LOCATION: _____ MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 37.8

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): 1 070+

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: _____

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean						
2						
5						
10						
25	10.3	273				1.5
50						
100						
200						
500						
1000						

REQUESTED BY: _____ DATE: _____

PURPOSE: _____

FILE NO/REPORT: S2104-4 (0340526) DATE: 81-02-05

AUTHOR: D.E. REKSTEN

FORM COMPLETED BY: D. SINNOTT DATE: 85-02-20

LISTED ☒

MAPPED ☐

AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: CARMI CREEK

LOCATION: _____ MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): APPROX. 44.0

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: PEAK FLOW REGIONALIZATION

STATIONS USED: _____

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	6.26	142				
2						
5						
10						
25	10.6	242				1.20
50						
100						
200						
500						
1000						

REQUESTED BY: _____ DATE: _____

PURPOSE: _____

FILE NO/REPORT: (0340526) S2104 DATE: 80-02-28

AUTHOR: S. REYNOLDS, W. OBEDKOFF

FORM COMPLETED BY: D. SINNOTT DATE: 85-02-20

LISTED ☒

MAPPED ☐

AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: CARMI CREEK

LOCATION: _____ MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): _____

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: _____

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean		142				
2						
5						
10						
25						
50						
100						
200		327				1.2
500						
1000						

REQUESTED BY: _____ DATE: _____

PURPOSE: _____

FILE NO/REPORT: 0340526 DATE: 80-03-10

AUTHOR: S. REYNOLDS

FORM COMPLETED BY: D. SINNOTT DATE: 85-02-20

LISTED ☒

MAPPED ☐

AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: CINNAMON CREEK

LOCATION: NEAR EDGEWOOD

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): APPROX. 6.22

MEDIAN ELEVATION (m): APPROX. 1 220

ELEVATION RANGE (m): 792 - 1 770

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION; TRANSPOSITION

STATIONS USED: 08NE077 BARNES CREEK; 08NE009, 110 INONOAKLIN CREEK;

08NE052 FAUQUIER CREEK; 08NN023 BURRELL CREEK

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	1.36	219				
2						
5						
10						
25	2.04	328				1.8
50						
100						
200						
500						
1000						

REQUESTED BY: C.A. COOMBS, MOF, NELSON

DATE: 79-08-13

PURPOSE: CULVERT DESIGN

FILE NO/REPORT: (0340526) S2104-4

DATE: 79-08-27

AUTHOR: D.E. REKSTEN

FORM COMPLETED BY: D. SINNOTT

DATE: 85-02-20

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: DAVID CREEK

LOCATION: NEAR ROCK CREEK

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 36.5

MEDIAN ELEVATION (m): APPROX. 1 370

ELEVATION RANGE (m): _____

TYPE OF EVENT: _____

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: TRAPPING CKS. (08NN020 & 08NN019), KETTLE R. (08NN012 & 08NN013), BURRELL CR. (08NN023), ROCK CR. (08NN007), W. KETTLE (08NN003) AND BOUNDARY (08NN001)

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	9.98	273				
2						
5						
10						
25	17.5	479				1.55
50						
100						
200						
500						
1000						

REQUESTED BY: _____ DATE: _____

PURPOSE: _____

FILE NO/REPORT: (0340526) DATE: 81-07-06

AUTHOR: L. BARR

FORM COMPLETED BY: D. SINNOTT DATE: 85-02-20

LISTED

☒

MAPPED

☐

AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: DEER CREEK

LOCATION: AT DEER PARK (08NE087)

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 80.5

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: FREQUENCY ANALYSIS; REGIONALIZATION

STATIONS USED: 08NE087 DEER CREEK

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean						
2						
5						
10						
25						
50						
100						
200	17			22		1.30
500						
1000						

REQUESTED BY: W.K. SMYTH, FLOODPLAIN PL. & SURVEYS

DATE: 81-03-20

PURPOSE: CULVERT DESIGN AT COLEMAN ROAD

FILE NO/REPORT: 2104-4

DATE: 81-03-25

AUTHOR: D.E. REKSTEN

FORM COMPLETED BY: D.E. REKSTEN

DATE: 84-03-06

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: DEER CREEK

LOCATION: AT DEER PARK (08NE087)

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 80.5

MEDIAN ELEVATION (m): 1 296

ELEVATION RANGE (m): 427 - 2 364

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: FREQUENCY ANALYSIS

STATIONS USED: 08NE087 DEER CREEK

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	7.75	96.3				
2						
5						
10						
25	12.3	153		18.5	230	1.5
50	13.6	170		20.3	252	1.5
100						
200						
500						
1000						

REQUESTED BY: D. ROBERTS, WATER RIGHTS BRANCH

DATE: -

PURPOSE: RESOURCE FOLIO INPUT

FILE NO/REPORT: 0328555-7; DEER CREEK FOLIO

DATE: 76-03-12

AUTHOR: D.W. ROBERTS, D.E. REKSTEN

FORM COMPLETED BY: D.E. REKSTEN

DATE: 86-08-07

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: DEER CREEK TRIBUTARIES

LOCATION: AT DEER PARK

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): _____

MEDIAN ELEVATION (m): LOW ELEV. < 1 200 M; HIGH ELEV. > 1 200 M

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION; TRANSPOSITION

STATIONS USED: 08NE087 DEER CREEK

ESTIMATED PEAK FLOW (LOW ELEV.-HIGH ELEV.)

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean						
2						
5						
10						
25					350-438	1.5
50					383-547	1.5
100						
200						
500						
1000						

REQUESTED BY: D. ROBERTS, WATER RIGHTS, NELSON

DATE: -

PURPOSE: RESOURCE FOLIO INPUT; CULVERT DESIGN

FILE NO/REPORT: 0328555-7; DEER CREEK FOLIO

DATE: 76-03-12

AUTHOR: D.W. ROBERTS, D.E. REKSTEN

FORM COMPLETED BY: D.E. REKSTEN

DATE: 86-08-07

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: FRUITVALE CREEK

LOCATION: NEAR TRAIL

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 6.1

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: _____

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	1.67	273				
2						
5						
10						
25	2.83	464	1.7	3.68	603	1.3
50	3.08	505	1.85	4.00	656	1.3
100						
200						
500						
1000						

REQUESTED BY: D. RUSH, MECKMAN CONSULTANTS, CASTLEGAR

DATE: 81-10-19

PURPOSE: _____

FILE NO/REPORT: S2104-4

DATE: 81-10-19

AUTHOR: D.E. REKSTEN

FORM COMPLETED BY: D.E. REKSTEN

DATE: 84-03-06

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: LOST HORSE CREEK

LOCATION: NEAR ROCK CREEK MAP:

ASI CODE NO:

DRAINAGE AREA (km²): 30.8

MEDIAN ELEVATION (m): APPROX. 1 370

ELEVATION RANGE (m):

TYPE OF EVENT:

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: 08NN019, 020 TRAPPING CREEK, 08NN012, 08NN013, KETTLE RIVER,
08NN023 BURRELL CREEK, 08NN007 ROCK CREEK, ETC.

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	8.76	285				
2						
5						
10						
25	15.3	498				1.60
50						
100						
200						
500						
1000						

REQUESTED BY: DATE:

PURPOSE:

FILE NO/REPORT: (0340526) DATE: 81-07-06

AUTHOR: L. BARR

FORM COMPLETED BY: D. SINNOTT DATE: 85-02-20

LISTED ☒

MAPPED ☐

AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: LOWER ARROW LAKE TRIBUTARIES

LOCATION: E.SIDE, FAQUIER CR. TO VAN HOUTEN MAP: 82 E/9, 16

ASI CODE NO: CREEK

DRAINAGE AREA (km²): VARIOUS

MEDIAN ELEVATION (m): LOW ELEV. < 1 500 M; HIGH ELEV. > 1 500 M

ELEVATION RANGE (m): 430 - 2 500

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: _____

ESTIMATED PEAK FLOW (LOW ELEV. - HIGH ELEV.)

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean						
2						
5						
10						
25					547-1090	
50						
100						
200						
500						
1000						

REQUESTED BY: D.W. ROBERTS, WATER RIGHTS, NELSON DATE: 76-11-30

PURPOSE: RESOURCE FOLIO INPUT; CULVERT DESIGN

FILE NO/REPORT: 0328555-7; OCTUPUS RESOURCE FOLIO DATE: 76-11-30

AUTHOR: D.W. ROBERTS; D.E. REKSTEN

FORM COMPLETED BY: D.E. REKSTEN DATE: 86-08-07

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: RHONDA LAKE INFLOW/OUTFLOW

LOCATION: NR. BIG WHITE MOUNTAIN

MAP: 82 E/10

ASI CODE NO: _____

DRAINAGE AREA (km²): 0.45

MEDIAN ELEVATION (m): APPROX. 2 100

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: 08NN020 TRAPPING CREEK

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean						
2						
5						
10						
25						
50						
100						
200						
500						
1000	1.22	2 700				

REQUESTED BY: O. PODZUN, WATER MGMT. BR. PENTICTON

DATE: 86-06-18

PURPOSE: DAM SPILLWAY

FILE NO/REPORT: S2104-3

DATE: 86-06-18

AUTHOR: W. OBEDKOFF

FORM COMPLETED BY: D.E. REKSTEN

DATE: 86-07-30

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: TEXAS CREEK

LOCATION: NR. CHRISTINA LAKE

MAP: 92 H/, 82 E

ASI CODE NO: _____

DRAINAGE AREA (km²): 46

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: _____

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: 08NE073 BLUEBERRY CK; 08NN019 TRAPPING CK; 08NN020 TRAPPING
CK; 08NN021 MOODY CK; 08NE087 DEER CK.

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	25.8	560				
2						
5						
10						
25	45.4	986	1.76	74.0	1 610	1.63
50	50.0	1 090	1.94	81.5	1 770	1.63
100						
200						
500						
1000						

REQUESTED BY: R. PRATT, MOH, NELSON

DATE: 82-08-04

PURPOSE: CULVERT

FILE NO/REPORT: S2104-4

DATE: 82-08-04

AUTHOR: D.E. REKSTEN

FORM COMPLETED BY: D.E. REKSTEN

DATE: 84-03-06

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: TEXAS CREEK

LOCATION: NEAR CHRISTINA LAKE

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 45.8

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION; WSC ENVELOPE CURVE

STATIONS USED: _____

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean						
2						
5						
10						
25						
50						
100						
200				20.0	438	1.1
500						
1000						

REQUESTED BY: P. WOODS

DATE: 79-03-27

PURPOSE: _____

FILE NO/REPORT: (0340526) S2104-4

DATE: 79-03-27

AUTHOR: W. OBEDKOFF

FORM COMPLETED BY: D. SINNOTT

DATE: 85-02-20

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: TRAIL CREEK

LOCATION: TRAIL(08NE118)

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 51.0

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: 08NE118 TRAIL CK.; 08NE073 BLUEBERRY; 08NE039 BIG SHEEP CR.

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean		90				
2						
5						
10						
25		158	1.75		395	2.5
50		171	1.90		427	2.5
100		189	2.10		473	2.5
200						
500						
1000						

REQUESTED BY: K. GORSLINE

DATE: 84-02-01

PURPOSE: CULVERT DESIGN - TRAIL, B.C.

FILE NO/REPORT: S2104-4

DATE: 84-02-01

AUTHOR: D.E. REKSTEN

FORM COMPLETED BY: D.E. REKSTEN

DATE: 84-02-01

LISTED

☐

MAPPED

☐

K. GORSLINE - VERBAL - TRAIL CR. 1969 PEAK 910 CFS - CULVERT - BASED ESTIMATE
- WHAT R.P.?
AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 7

STREAM/WATERSHED: TRAIL CREEK (08NE118)

LOCATION: AT FRENCH ST., TRAIL MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 51.0

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: 08NE118 TRAIL CK.

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	5.44	107				
2						
5						
10						
25						
50						
100						
200	13.6	267	2.5	19	375	1.4
500						
1000						

REQUESTED BY: J.D. WATTS DATE: 83-09-01

PURPOSE: FLOODPLAIN

FILE NO/REPORT: S2104-4 DATE: 83-09-01

AUTHOR: D.E. REKSTEN

FORM COMPLETED BY: D.E. REKSTEN DATE: 83-11-17

LISTED ☒

MAPPED ☐

AES:W0090/FORM

PEAK FLOW ESTIMATE DATAHYDROLOGIC ZONE 11STREAM/WATERSHED: BLUE SPRING CR. (W. BDY OF LOT 361)LOCATION: E. OF LUMBY MAP: 82 L/2

ASI CODE NO: _____

DRAINAGE AREA (km²): 32.5

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT/RAINFALLMETHOD OF ESTIMATION: REGIONALIZATIONSTATIONS USED: 8LC004 BRASH CR.; 8LC033 CREIGHTON CR.; 8LE027 SILVER CR.;
8NM142 COLDSTREAM CR.; 8LC034 FERRY CR.ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	5.75	177				
2						
5						
10						
25						
50						
100	12.2	375	2.12	16.7	514	1.37
200						
500						
1000						

REQUESTED BY: K. SONEFF, WATER MGMT., PENTICTONDATE: 82-07-09PURPOSE: CULVERT DESIGNFILE NO/REPORT: S2104-3DATE: 82-07-13AUTHOR: J. LOPES, W. OBEDKOFFFORM COMPLETED BY: DERDATE: 84-03-07

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATAHYDROLOGIC ZONE 11STREAM/WATERSHED: HUMMINGBIRD CREEKLOCATION: NR. SICAMOUS

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 43.2MEDIAN ELEVATION (m): 1710

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELTMETHOD OF ESTIMATION: TRANSPOSITION; EXTRAPOLATIONSTATIONS USED: HUMMINGBIRD CR.; MARA CR.; SICAMOUS CR.ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean						
2						
5						
10						
25						
50						
100						
200	33.1	766				1.20
500						
1000						

REQUESTED BY: ?DATE: ?PURPOSE: ?FILE NO/REPORT: (0273896-GEN) S2104-8DATE: 77-03-07AUTHOR: D.E. REKSTENFORM COMPLETED BY: D. SINNOTTDATE: 85-02-21

LISTED



MAPPED



AES:W0090/FORM

12

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 11

STREAM/WATERSHED: SIMS CREEK (TRIB. TO EAGLE R.)

LOCATION: AT MOUTH

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 32.3

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: 8LE024 EAGLE R.; 8LE025 CELISTA CR.; 8LE027 SEYMOUR R.;
8LE086 RATCHFORD CR.

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	16.7	520				
2						
5						
10						
25						
50						
100						
200	28.4	884	1.7	40	1240	1.4
500						
1000						

REQUESTED BY: W.K. SMYTH, PLANNING SUBS.

DATE: 82-07-06

PURPOSE: _____

FILE NO/REPORT: S2104-3

DATE: 82-07-07

AUTHOR: W. OBEDKOFF

FORM COMPLETED BY: DER

DATE: 84-03-07

LISTED



MAPPED



AES:W0090/FORM

16

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 11

STREAM/WATERSHED: STRUTHERS CREEK

LOCATION: NR. REVELSTOKE MAP: 82L/15

ASI CODE NO: _____

DRAINAGE AREA (km²): 1.5

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): 640 - 946

TYPE OF EVENT: SNOWMELT ?

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: 8LE106 SOUTH PASS CR.

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	0.66	440				
2						
5						
10						
25						
50	1.5	968	2.2	3-6		2-4
100						
200						
500						
1000						

REQUESTED BY: O. PODZUN, WATER MGMT. BR., PENTICTON DATE: 86-06-03

PURPOSE: CULVERT DESIGN, LOGGING RD.

FILE NO/REPORT: S2104-3 DATE: 86-06-04

AUTHOR: W. OBEDKOFF

FORM COMPLETED BY: DER DATE: 86-07-30

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATA

HYDROLOGIC ZONE 11

STREAM/WATERSHED: WAP CREEK NEAR REVELSTOKE

LOCATION: _____ MAP: 82L/16

ASI CODE NO: _____

DRAINAGE AREA (km²): 71.7

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): 730-2720

TYPE OF EVENT: SNOWMELT

METHOD OF ESTIMATION: REGIONALIZATION

STATIONS USED: 8LE024 EAGLE R., 8LE086 RATCHFORD CR. AND OTHERS

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean		360				
2						
5						
10						
25						
50						
100		720	2.0	63.0	878	1.22
200						
500						
1000						

REQUESTED BY: N. BANERA, WMB, PENTICTON

DATE: 87-04-09

PURPOSE: HYDROELECTRIC LICENCE

FILE NO/REPORT: S2104-8

DATE: 87-04-21

AUTHOR: L.J.BARR

FORM COMPLETED BY: DER

DATE: 87-09-01

LISTED



MAPPED



AES:W0090/FORM

PEAK FLOW ESTIMATE DATAHYDROLOGIC ZONE 11STREAM/WATERSHED: YARD CREEKLOCATION: NEAR SICAMOUS

MAP: _____

ASI CODE NO: _____

DRAINAGE AREA (km²): 123

MEDIAN ELEVATION (m): _____

ELEVATION RANGE (m): _____

TYPE OF EVENT: SNOWMELTMETHOD OF ESTIMATION: REGIONALIZATION MAPS, GRAPHS

STATIONS USED: _____

ESTIMATED PEAK FLOW

RETURN PERIOD (years)	DAILY			INSTANTANEOUS		INST./DAILY (estimated)
	m ³ /s	L/s/km ²	Ratio to Mean	m ³ /s	L/s/km ²	
Mean	16.1	131				
2						
5						
10						
25	25.8	210				1.30
50						
100						
200						
500						
1000						

REQUESTED BY: O. PODZUN, WMB, KELOWNADATE: 80-05-14

PURPOSE: _____

FILE NO/REPORT: (0340526) S2104-3DATE: 80-05-15AUTHOR: L.J.BARRFORM COMPLETED BY: D. SINNOTTDATE: 85-02-21

LISTED



MAPPED



AES:W0090/FORM

APPENDIX 8

Definitions and Symbols

PEAK FLOW - general term for annual maximum daily or instantaneous discharge in units of m^3/s or L/s/km^2 .

FLOOD FLOW - same as peak flow but generally in the context of 200 year return period peak flows for floodplain delineation.

UNIT PEAK FLOW - same as peak flow but specifically in units of L/s/km^2 (peak flow divided by drainage area).

DAILY PEAK FLOW - annual maximum daily discharge

INSTANTANEOUS PEAK FLOW - annual maximum instantaneous discharge

q - unit peak flow, L/s/km^2

Q - peak flow, m^3/s

m - mean

d - daily

i - instantaneous

r - return period (e.g. q50d is the 50 year return period unit daily peak flow).

MEAN DAILY PEAK FLOW - Q_{md} in m^3/s ; q_{md} in $L/s/km^2$ - average of annual maximum daily discharges for a period of record.

I/D - ratio of instantaneous to daily annual maximum discharge; calculated by averaging the I/D ratios for the 3 highest annual maximum daily discharges in a period of record.

Cr - ratio of the return period peak flow to the mean peak flow (e.g. C100 = q_{100d}/q_{md})

DA - drainage area

Lsk - $L/s/km^2$

APPENDIX 9

References and Data Sources

1. Environment Canada, 1983. Surface Water Data Reference Index, Canada 1983; Inland Waters Directorate, Water Resources Branch, Water Survey of Canada.
2. Environment Canada, 1985. Historical Streamflow Summary, British Columbia, to 1984. Inland Waters Directorate, Water Resources Branch, Water Survey of Canada.
3. Environment Canada, 1985. Surface Water Data, British Columbia, 1985. Inland Waters Directorate, Water Resources Branch, Water Survey of Canada.
4. Environment Canada, June 1986. Magnitude of Floods, British Columbia and Yukon Territory. Inland Waters Directorate, Water Resources Branch, Water Survey of Canada, Planning and Studies Section, Vancouver.

April 22/88

Steve

Apparently Steve Matthews (Fish & Wildlife) was informed that there has been some streamcleaning undertaken again this year in Hummingbird Creek.

We have an extensive file on this creek. Probably check first with

MR. D. J. Rayner (Hummingbird Resort)

or Regional District of Columbia Shuswap - to see what is going on. Check with F&W and Federal Fisheries re their concerns.

May require inspection when you next in the area.

LS.

Apr 27/88

- no recent work done from Hwy-D/S to lake
- bed material has been pushed up - last yr?
from lake $\approx$ 1000' U/S

July 17, 1985

File: 55.50
Hummingbird Creek

The Regional District of Columbia-Shuswap
P.O. Box 978
Salmon Arm, B.C.
VOE 2T0

Attention: Mr. E.L. Lalonde, Administrator

Dear Sir:

Re: Hummingbird Creek

On April 26, 1983, you made your concerns regarding the above creek known to Mr. Al Zackodnik, Regional Water Manager in Kamloops. In October 1983 a number of Mr. Zackodnik's staff investigated the creek and the concern regarding bank sloughing. The decision at that time was that the bank was stable except at extreme flows and therefore no remedial action was required.

On June 19, 1985, the site was again visited by staff from the Water Management Program office in Penticton. Since the first visit the left bank has shown no further sloughing, and there is vegetation becoming established. The only area when there was some minor erosion was at the highway culvert on the downstream left bank. If this area became a concern the Ministry of Highways would probably rock the area.

It was noted during the inspection that the trash rack at the upper end of the culvert required cleaning. This matter has been brought to the attention of the Ministry of Highways for their action.

If you have any further questions please contract me at 493-8261.

Yours truly,



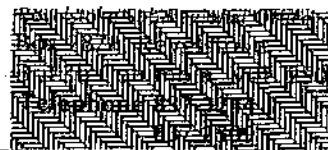
D.A. Dobson, P.Eng.
Engineering Section Head
Okanagan Sub-Region

DAD/ma

THE REGIONAL DISTRICT of COLUMBIA - SHUSWAP



Main Office:
P.O. Box 978, Salmon Arm,
British Columbia V0E 2T0
Telephone 832-8194



1985-05-14

File: 55.50 HUMMINGBIRD CR.
Our File Bylaw 118

Ministry of Environment
3547 Skaha Lake Road
Penticton, BC
V2A 7K2

DIST	DATE	INITIALS
		WLB
KS		KS
AM		AM

ATTENTION: Al Zackodnick, P. Eng.
Regional Water Manager
Southern Interior Region

RE: Hummingbird Creek
Your File 55.50

We acknowledge your correspondence of May 1/85 on the subject matter.

Firstly, I would like to apologize for inadvertently omitting to advise the local residents of the need for the involvement of the Ministry of Environment prior to remedial works being carried out on Hummingbird Creek. In my approval that the works proceed, I limited my concerns to financial implications.

Your concerns have been noted and we will endeavour to seek Ministry approval prior to any remedial works in future years.

Yours very truly,

E. L. Lalonde,
Administrator

ELL/bb

cc: D.J. Raymer, Hummingbird Resort Ltd. R.R. 1, Mara, BC V0E 2K0
Don Stewart, Conservation Officer Service 4320 - 29 Street, Vernon, BC
V1T 5B7

MUNICIPALITIES:

TOWN of GOLDEN
CITY of REVELSTOKE
DISTRICT of SALMON ARM

ELECTORAL AREAS:

A—GOLDEN-COLUMBIA
B—REVELSTOKE-COLUMBIA
C—SOUTH SHUSWAP

D—FALKLAND-SALMON RIVER VALLEY
E—SICAMOUS-MAI AKWA
F—NORTH SHUSWAP—SEYMOUR ARM

May 1, 1985

File: 55.50
Hummingbird Creek

Regional District of
Columbia-Shuswap
431 Hudson Street, N.E.
Salmon Arm, B.C.

Attention: Mr. Lalonde

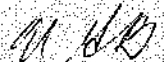
Dear Sir:

This will confirm our telephone conversation of April 24, 1985, pertaining to work that was commissioned by yourselves and Mr. Raymer of the Hummingbird Resort, at the outlet of Hummingbird Creek.

Although Hummingbird Creek is subject to possible flooding due to gravel deposits which infill the creekbed each freshet, please be advised that the removal of this gravel or any work in or about a stream requires approval from the Ministry of Environment as stated under Section 7 of the British Columbia Water Act.

Application forms are available at this office upon request.

Yours truly,


Al Zackodnik, P. Eng.
Regional Water Manager
Southern Interior Region

HARE/smc

cc: Mr. D.J. Raymer
Hummingbird Resort Ltd.,
R.R.#1, Mara, B.C. VOE 2K0

Mr. Don Stewart
Conservation Officer Service
4320 - 29th Street
Vernon, B.C.

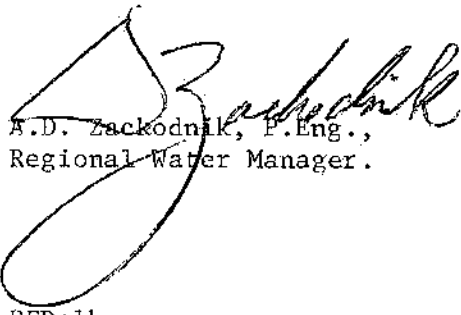


D.B. Lovdahl
Regional Water Manager
Okanagan Region

55.50 HUMMINGBIRD CK
Date: October 13, 1983
File: 71.0503

Re: Sloughing Problem at Hummingbird Creek

The above problem was finally investigated on October 7, 1983 by my staff following a lengthy delay since the original contact with Eugene Lalonde of Columbia-Shuswap Regional District about the matter. Hummingbird Creek at the mouth is in your Region as you know. The sloughing problem extended from the Highway 97 A culvert downstream for nearly 300 m along the left bank. The 3 m high left bank, however, is on the inside of a very gradual bend to the right and is not subject to erosive action except at extreme flows. The right bank which is under constant attack has been permanently stabilized by shot rock of exceptional quality for this same distance. Hence, it appears that no remedial works are needed at this location except perhaps an attempt to establish vegetation along the left bank. You may wish to view the site yourself prior to sending a recommendation to Columbia-Shuswap Regional District. I feel that Water Management official response should come from your Region.


A.D. Zackodnik, P.Eng.,
Regional Water Manager.

PFD:lb



EUGENE L. LALONDE
Administrator

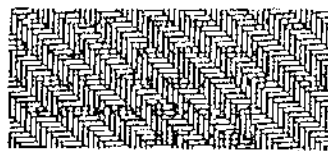
P.O. Box 978
431 Hudson Street N.E.
SALMON ARM, B.C. V0E 2T0
Telephone
832-8194

HDCS

IT
P



Main Office:
P.O. Box 978, Salmon Arm,
British Columbia V0E 2T0
Telephone 832-8194

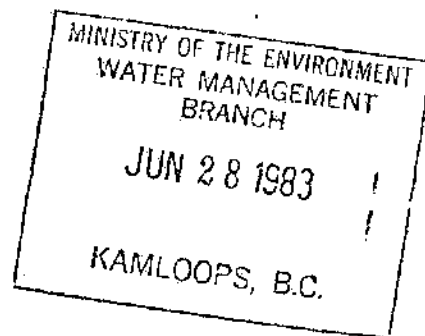


1983-05-03

Swansea Point Community Association
R.R. #1
Mara, B.C.
V0E 2K0

ATTENTION: Janice Crandall,
Secretary

RE: Hummingbird Creek and
Projected Capital Works



My apologies for the delay in responding to the request of your President, Mr. Bill McCartney, to have representatives from Water Management make an assessment of the necessary capital works on Hummingbird Creek.

As discussed with representatives of your Association on occasion last year, it was felt necessary that some capital works be undertaken to remove the part of the creek bank below the highway to prevent the ongoing "sloughing" problem. On April 26 I had occasion to discuss the problem with Al Zackodnick of Water Management Kamloops, and he has agreed to have his technical staff look into the situation and make a recommendation.

As soon as a recommendation is received, your Association will be advised.

Yours very truly,

E. L. Lalonde
E. L. Lalonde,
Administrator

ELL/bb

cc Al Zackodnick, Water Management Kamloops

MUNICIPALITIES:

TOWN OF GOLDEN
CITY OF REVELSTOCK
DISTRICT OF SALMON ARM

ELECTORAL AREAS:

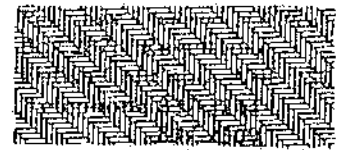
A - GOLDEN COLUMBIA
B - REVELSTOCK COLUMBIA
C - SOUTH SHUSWAP

D - FALKLAND-SALMON RIVER VALLEY
E - SICAMOUS-MALAKWA
F - NORTH SHUSWAP

THE REGIONAL DISTRICT of COLUMBIA - SHUSWAP



Main Office:
P.O. Box 978, Salmon Arm,
British Columbia V0E 2T0
Telephone 832-8194

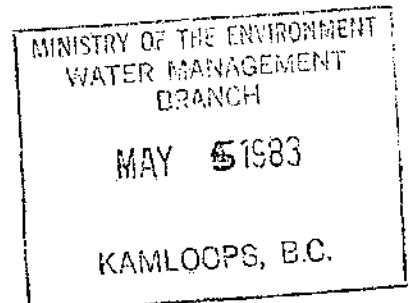


1983-05-03

Swansea Point Community Association
R.R. #1
Mara, B.C.
V0E 2K0

ATTENTION: Janice Crandall,
Secretary

RE: Hummingbird Creek and
Projected Capital Works



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As soon as a recommendation is received, your Association will be advised.

Yours very truly,


E. L. Lalonde,
Administrator

ELL/bb

cc: Al Zackodnick, Water Management Kamloops

MUNICIPALITIES:

TOWN of GOLDEN
CITY of REVELSTOKE
DISTRICT of SALMON ARM

ELECTORAL AREAS:

A—GOLDEN COLUMBIA
B—REVELSTOKE COLUMBIA
C—SOUTH SHUSWAP

D—FALKLAND-SALMON RIVER VALLEY
E—SICAMOUS MALAKWA
F—NORTH SHUSWAP

Hummingbird Creek

S.22

P78-38

July 2 1982

telephoned to say that the 1979 infilling problems has returned, and with the recent rains, the creek is in flood and is eroding away the loose granular right bank berm pushed up in 1979.

From memory, no houses should be threatened if the bank overflows; only landscaping would be damaged.

S.22

would like to cleanout the creek channel, as was done in 1979, with financial assistance from the Province.

I explained to him and to Mr. Al Black of the Regional District Columbia Shuswap (P32 8194) that we had no funds. I gave him no hope of recovering expenses if he went ahead on his own.

I passed the matter on to Dave Lovetahl, in Penticton with the confirmation of no funds. ~~unless~~ A proven threat to a number of homes might pry some money from B. Mass.

Discussed this with J. Wester.

P.T.O.

RJ [Signature]

June 6/82

Mr. Barrass phoned again (collect call attempted twice but refused). To enquire why I hadn't visited him last week (PST had apparently said that I was in the area and he would attempt to contact me — but failed).

I knew nothing of the current situation but promised a visit either from our office or from the Region (I mistakenly said Kamloops rather than Penticton).

PST had already alerted the region (see over) — Dave Lundahl
no further action unless we are in the area, as Brian Hill may be.

July 12/82

Mr. Dave Rayner of Hummingbird Resort phoned to support above request — he has 12 campsites which are "wet" and is willing to pay for cat work if approval is given.

Phoned Neil Banerjee (wrote Penticton) and told him of situation. He will phone Mr. Rayner & arrange for approval appn. forms etc.

Reminded Neil B. that funding is virtually unobtainable.

Mr. K. MacKay, Director
Financial Services
Ministry of Environment
Harbour Towers

May 22, 1979

File: P78-38

Re: Stream Clearing
Columbia-Shuswap Regional District

Enclosed please find for payment two copies of a claim totalling \$1,967.00
from Mara Sand & Gravel Ltd., Box 344, Sicamous, B. C. for work on
Humming Bird Creek.

Vote 91-48-750-05458-7025

for *John Fuller*
P. M. Brady
Director

BMH BMH/cr

Encl.



Hummingbird Creek - File P78-38

Date: Ap. 19/79

Mr. Farrell of WRB Kelowna phoned re: above. I told him that we would arrange supervision of stream clearing work since his staff are all going to be tied up for the next while.

Mr. F. gave his approval for the work to proceed subject to Fisheries approval which I agreed to solicit.

s.22

The landowner, phoned to say that a D9G Cat 1963± would be available for work on Monday next, if reqd, since ~~he~~ it is currently finishing off work on a nearby subdivision.

I agreed with the cat operator (owner I presume) that his machine would be suitable and that the book rate of \$70.25 would prevail.

We are to advise ^{s.22} if we will be able to utilize the cat, i.e. when we have sorted out site supervision & FdW.C. clearance.

Phoned FdW.C. in Kamloops (Phil Homan) where the reception was somewhat hostile and eventually agreed to set up an on-site mtg. for either ^{s.22} Monday p.m. or Tuesday. ^{will be} out all day Friday, so we are to contact him 8-30 am Monday.

H. Rautu



Mr. H. H. Nesbitt-Porter, P. Eng.
Senior Hydraulic Engineer
Engineering Division
Water Investigations Branch

Date: March 23, 1979

Files: P78-38
0305030-8

Regional District File: 118(Bylaws)

Re: HUMMINGBIRD CREEK
REGIONAL DISTRICT COLUMBIA-SHUSWAP

With respect to the request of August 18, 1978, from the Regional District I have inspected and surveyed Hummingbird Creek. Attached is a proposal which should alleviate problems from erosion and deposition on the alluvial fan of Hummingbird Creek downstream of Provincial Highway 97A.

The Creek in its present channel since 1956, appears to be degrading at the sector downstream of Highway 97A in the area of recent erosion protection work, depositing this and material carried from upstream of the Highway in the area adjacent to Lots 1 and 2 Plan 16375 near the stream mouth. Deposition has reduced the channel capacity, and adjacent landowners are concerned about the possibility of a channel change and flooding.

Trimming the left bank, placement of broken rock to prevent further bank erosion, and the placement of selected rock nuggets in the stream bottom at the sector showing erosion; and downstream where deposition is occurring, channel shaping and construction of a dyke along the right bank, is proposed. It is estimated that this work, based on the rental of local equipment, would cost in the order of \$15,000. The two drawings 4918-78-38-1 and -2 illustrating the proposed work and my estimate are attached.

Channel shaping and construction of a dyke from materials excavated out of the channel adjacent to Lots 1 and 2 Plan 16375 could provide temporary relief from the threat of flooding by an average spring freshet, but unless upstream feeder areas are sealed, deposition adjacent to Lots 1 and 2 will continue to occur.

Although a memorandum of November 19, 1976, from the Regional District of Columbia-Shuswap to the Department of Environment issued when riprap was placed to protect the upstream subdivision, provides an agreement to assume responsibilities for maintenance of works, perhaps the current problem results from the design. Existing riprap has shifted a little, but is otherwise in good condition.

R. U. Talbot, P. Eng.
Hydraulic Engineer
Rivers Section

RJT:khh

MEMORANDUM

TO: Mr. R.J. Talbot
and file.

FROM

HA
Nov 9

1978

SUBJECT: Hummingbird Creek.

OUR FILE: P78-38

YOUR FILE:

Al. Black of Columbia-Shuswap Regional District phoned today enquiring re: progress of investigation. Told him that report is under preparation and the est. cost of remedial work is \$15,000±.

We are to outline any preventative work which the owner could implement on his own to provide interim protection, on the assumption that financial assistance may be forthcoming but not until after next freshet. This info. should be included in a covering letter forwarding our report.

HA
Dick: Treat this as note to file and don't draft the letter but do provide ~~any~~ advice pl. HA

THE REGIONAL DISTRICT
of COLUMBIA - SHUSWAP



P.O. BOX 978, SALMON ARM,
BRITISH COLUMBIA V0E 2T0
TELEPHONE 832-3086
832-7059

December 19, 1977.

Our File: By-law #118

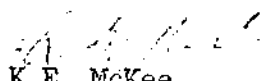
Mr. P.M.E. Walker,
Manager,
Bank of Montreal,
Box 190,
SICAMOUS, B.C.
V0E 2V0

Dear Mr. Walker:

Reference is made to a term deposit placed by Mr. Harold S. Shannon and Mrs. Florence V. Shannon as security for certain works which were to be completed relative to a subdivision at Hummingbird Creek.

We now have assurance from Mr. P.M. Brady of the Water Investigations Branch that the works have been completed to the satisfaction of his Ministry. You are now at liberty to release the Eighteen Thousand Dollars (\$18,000.00) which you are holding to our order.

Yours truly,


K.E. McKee,
Administrator.

KEM/th

c.c. H.S. Shannon.
P.M. Brady.
Director J. Monk.

WATER INVESTIGATIONS BRANCH		
REC'D	DATE	FILE NO.
APR 11	1979	P18-38

MUNICIPALITIES :

TOWN of GOLDEN
CITY of REVELSTOKE
DISTRICT of SALMON ARM

ELECTORAL AREAS :

A - GOLDEN - COLUMBIA
B - REVELSTOKE - COLUMBIA
C - SOUTH SHUSWAP

D - FALKLAND - SALMON RIVER VALLEY
E - SICAMOUS - MALAKWA
F - NORTH SHUSWAP

THE REGIONAL DISTRICT of COLUMBIA - SHUSWAP



P78-38
P.O. BOX 978, SALMON ARM,
BRITISH COLUMBIA V0E 2T0
TELEPHONE 832-3086
832-7059

August 18, 1978

Our File: # 118 (Bj-law)

Your File: 0305030-8 *Hi Simons file
kind use proposal*

Director,
Water Investigations Branch,
204 - 780 Blanshard Street,
Victoria, B. C.
V3W 2H1

ATTENTION: P. M. Brady, P. Eng.

RE: Hummingbird Creek

By telephone yesterday, I alerted Dick Talbot to a problem which our elected Director for the Eagle Valley/Mara Lake area had drawn to my attention. Mr. Talbot advised that he would schedule a field inspection, but suggested I drop you a note outlining the problem.

In completing the works approved pursuant to the above file, boulders were removed from the bed of Hummingbird Creek, thereby loosening the surrounding gravel. The 1978 freshets have apparently moved all the loose gravel downstream, where it has raised the level of the creek bed. The concern of the downstream owner is that the 1979 freshet will be deflected by this new gravel deposit and flood his property. The suggestion is that immediate removal of the gravel deposit should avoid this problem once and for all.

We have asked that your staff review the situation and authorize the appropriate remedial action. We also seek a ruling on whose responsibility it is to pay the relatively small cost of the remedial action, given that this removal is hardly the "maintenance of works intended to provide flood protection" within the specified area, but is rather a consequence of the original construction of the works.

Yours very truly,

K.A. Pellett

K. A. Pellett,
Planning Director

c.c. Director J. Monk, R.R. # 1, Sicamous, B. C.
Leo Pauloski, W.R.B., 1921 Kent, Kelowna, B. C.

KAP/nw

Please discuss with me

WATER INVESTIGATIONS BRANCH

DISTRIBUTION	DATE	INITIALS
	10/21/78	Am
SCANT	10/23/78	B
Enlar	10/23/78	West
JW		

MUNICIPALITIES:

TOWN of GOLDEN
CITY of REVELSTOKE
DISTRICT of SALMON ARM

ELECTORAL AREAS:

A - GOLDEN - COLUMBIA
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F - NORTH SHUSWAP

~~RTI/ear.~~

Transfer to P78-38

March 11, 1977

Mr. M.A. Thompson
Alan R. Colby and Associates
264 Westminster Avenue West
Penticton, B.C.

Dear Sir:

Re: Proposed Subdivision - Hummingbird Creek

Reference is to the February 28, 1977 letter report by Kohn, Leonoff Consultants Ltd. pertaining to bank protection along Hummingbird Creek.

As a result of an in-house hydrology review and discussions with Mr. Portfors, it has been concluded the design discharge should be 1,400 cfs. In view of this, our Engineering Division has reviewed the design requirements based on our experience. The associated memorandum dated March 9, 1977 is from Mr. P.J. Woods and is enclosed for your information.

A firm requirement is that the top of the riprap must provide two feet of freeboard above the design profile. Should the bank be too low to accommodate this, backfill to a top width of 12 feet should be provided.

If instructions left by Mr. Shannon prior to his trip permit further services on your part, I would recommend the design be modified as soon as possible to accommodate the flow of 1,400 cfs. The revised drawings and report changes could possibly be submitted in triplicate directly to this office to expedite matters.

Yours very truly,


P.M. Brady, Director
Water Investigations Branch
Ministry of the Environment

PMB/jjs

Encl.

cc Mr. F. Shannon
779 East 21st Street
North Vancouver, B.C.

Mr. Woods PTW
Mr. Watts J.W.
& File.



December 22, 1977

Our File: 0305030-8

Your File: 22-21-78 (1606)

Mr. W.A. Budden
District Highways Manager
Ministry of Highways & Public Works
Box 759
Salmon Arm, British Columbia

Dear Sir:

Re: Proposed Strata Development of Lot 1, Plan 16375, Sec. 2, Twp. 21,
R. 8, W6M (Shannon - Hummingbird Creek/Mara Lake)

This letter is in reply to your correspondence of October 18, 1977.

Pursuant to Section 93A of the Land Registry Act, consent is given to the approval of the above-mentioned plan of subdivision, subject to the subdiv-
ider entering into a covenant registrable under Section 24A, which shall run
with the land, and shall effect the following conditions for each lot created:

- "1. Hereafter, no building shall be constructed, nor mobile home located within seventy-five (75) feet of the natural boundary of Hummingbird Creek. Within Lots SL 10 to SL 16, no area used for habitation, business, or storage of goods damageable by floodwaters shall be located within any building at an elevation such that the underside of the floor system thereof is less than 1152.0 feet G.S.C. or four (4) feet above the natural ground elevation, whichever elevation is the higher. Within the remaining lots no area used for habitation, business or storage of goods damageable by floodwaters shall be located within any building at an elevation such that the underside of the floor system thereof is less than elevation 1152.0 feet G.S.C. or two (2) feet above the natural ground elevation. Except that in the case of a mobile home, the ground level on which it is located shall be no lower than 1152.0 feet G.S.C. or four (4) feet above the natural ground elevation, whichever elevation is the higher.
2. The required elevation may be achieved by landfill, thereby raising the ground level on which any building is to be constructed, or mobile home located, or by structurally elevating the said habitable, business, or storage area, or by a combination of both landfill and structural elevation, provided, that no area below the required elevation shall be used

..... 2

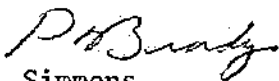
for the installation of furnaces or other fixed equipment susceptible to damage by floodwater. Where landfill is used to raise the natural ground elevation, the toe of the landfill slope shall be no closer than seventy-five (75) feet from the natural boundary of Hummingbird Creek and the face of the landfill slope shall be adequately protected against erosion from flood flows.

3. The owner agrees to save harmless the Province of British Columbia and and Regional District of Columbia-Shuswap in the event of any damage being caused by flooding to any building, improvement, or other structure built, constructed or placed upon the said lands and to any contents thereof."

The above requirements are to minimize future flood damage, but are not a guarantee that no damage can occur. This consent to the approval of the proposed subdivision applies only to the requirements under Section 93A of the Land Registry Act, and does not apply to any other approval which may be required.

If you require any further information, please do not hesitate to contact us.

Yours very truly


G.E. Simmons
Associate Deputy Minister
Ministry of the Environment

ccs: Regional District of Columbia-Shuswap
Box 978
Salmon Arm, B.C. VOE 2T0

Regional Engineer
Water Rights Branch
Kelowna, B.C.
Attention: D.B. Lovdahl
(File No. DP-28SA)

0210

March 29, 1977

832-3086
-7059

Mr. K.F. McKee
Administrator
Regional District of Columbia-Shuswap
P.O. Box 978
Salmon Arm, B.C.
VOE 2T0

Dear Sir:

Thank you for your telephone call on March 28, advising Mr. Shannon has arranged for assurance in the amount of \$18,000 for the bank protection work at Hummingbird Creek.

I have now sent a letter to the Ministry of Highways and Public Works providing consent for approval under Section 93A of the Land Registry Act subject to conditions which have previously been discussed with Mr. Shannon.

According to my agreement with Mr. Shannon, the protective works will be constructed as soon as road restrictions and fishery constraints permit. The works will be constructed under contract arranged by Mr. Shannon and the works inspected, during construction, by his consultant to ensure design standards are met.

We are well satisfied with the standard of protection designed by the consultant. I have enclosed for your information copies of letters dated February 28 and March 25, 1977, including associated technical information and drawings. It would appear the main requirement for maintenance will be channel cleanout necessary to ensure the bed elevation is at or below that shown on Drawing D-2191-1, Rev. A prior to freshet. It will be necessary to clear this with the Water Rights Branch and the Fish and Wildlife Branch.

I will advise the Regional District of the satisfactory completion of the works.

Yours very truly,


P.M. Brady, Director
Water Investigations Branch
Ministry of the Environment

PMB/js

Encls.

cc Mr. F. Shannon
779 East 21st Street
North Vancouver, B.C.



Kohn Leonoff Consultants Ltd.

CIVIL & GEOTECHNICAL ENGINEERS

Earle J. Kohn
Cyril E. Leonoff
Ray P. Benson
Don M. Davison
Mark T. Olsen
Earl W. Speer
K. Ian Morrison
James Hunter
Fred B. Claridge
Ken R. Gillespie

Keith Douglass
Allan Edgeworth
Geoffrey A. Evans
David S. Gladwin
Thomas G. Harper
T. Leon Kung
Peter C. Lighthall
Robert Lo
Raul S. Lopez
Bob Maartman
Ashraf M. Mirza
Ernest Portfors
Don R. Pelley
Walter Shukin
Brian I. Tollin
Adrian Wightman

Robert J. Melling
Accountant

Our File: VA 2191

February 28, 1977

Alan R. Colby and Associates
264 Westminster Ave W.
Penticton B.C.

A. Murray Thomson, P. Eng.

Hummingbird Creek Protection
Fallen Rock Campground Subdivision

Dear Sir:

As requested in your letter of February 23, 1977 we have briefly investigated Hummingbird Creek below the Highway 97A crossing and have designed bank protection along the right (west) bank. The work included by field visit on February 23 and subsequent office analysis. Enclosed Drawings 2191-1 and -2 (Alan R. Colby ref 76-9-W2) show the recommended protection, the estimated quantities of riprap and filter material needed, and general specifications covering material sizes and methods of placement.

This letter summarizes the work conducted and lists some items of concern regarding the creek.

1. Hydrology

We were instructed initially to design the channel to carry 500 cfs, however, details of how this flow was derived were not available.

A detailed hydrological analysis of the Hummingbird Creek basin was outside our terms of reference but we briefly

10180 SHELLBRIDGE WAY, RICHMOND B.C., CANADA V6X 2W7
TELEPHONE: (604) 273-0311 TELEX: 043-55520 CABLE: 'RIPSOIL VCR'

considered the range of peak discharges possible. The basin drains an area of just over 4 square miles and ranges in elevation from Mara Lake at about El 1140 to Mount Mara at El 7201. Using a rational flow approach and an assumed 25 year recurrence rainfall of 1.5 inches in 1 to 2 hours, the estimated peak discharge is about 1500 cfs. As creek protection should be designed for a return interval of 50 to 100 years, it appears that the 500 cfs estimate is quite low.

The Department of Highways installed a 12.3 ft by 7.6 ft pipe arch culvert under Highway 97A in early 1976. We have calculated the culvert capacity to be about 850 cfs when the water level is at the top of the highway. If flows exceed 850 cfs, water will flood over the highway and probably be diverted to the south away from lower Hummingbird Creek.

Consequently, the largest flow that should reach the lower creek along the Shannon property is 850 cfs.

2. Creek Morphology

Attached Drawing 2191-1 shows the creek bed profile as surveyed by Alan R. Colby and Associates in mid February 1977. Comparison with a similar survey in May 1976 (Colby Drawing 76-9-WP1) shows that the creek bed from the culvert to about station 8+00 has lowered significantly during the 9 month period.

The maximum difference in bed level is centred near Sta 2+00 and amounts to about 3 to 4 feet. Details of the May 1976 survey are not sufficient to clearly establish the amount of degradation at all points along the creek profile.

Klohn Leonoff Consultants Ltd.

Examination of the creek indicates that immediately downstream from the culvert, the bed profile is very steep and is composed of rocks with a mean size of about 9 inches, whereas from about Sta 3+00 to the end of the Shannon property, mean bed gravel size is about 1 inch and the creek slope is about 3%. Larger stone sizes are also available in the lower reaches and it appears that immediately below the culvert the flow has removed the small gravel sizes until the bed became armored by the larger stones. The removal of smaller gravel sizes implies that the culvert is limiting the transport of bed materials into the lower creek reaches from above the Highway.

Department of Highways have installed a trash rack with bar spacing of 10 to 14 inches at the upstream end of the culvert. During the site visit on February 23, there was a pile of rock about 2 to 3 feet deep against this rack. The predominate rock size was large enough to be trapped by the rack, however the damming formed by these large stones in turn trapped smaller rock. A large deposit of rock in the 1 to 6 inch size range was observed upstream of the trapped large stone. Some small stones were passing this dam as a few were observed within the culvert.

It is expected that this trapping of rock upstream of the culvert has been an appreciable factor in the apparent downstream bed degradation. Blocking of the culvert inlet will also result in reduction of flow capacity and increase the likelihood of flooding over the highway.

Department of Highways probably have a continuing maintenance problem in removing this bed material.

Klohn Leonoff Consultants Ltd.

As long as bed material transport is restricted by the trash rack, it can be expected that bed degradation below the culvert will continue. Design of the bank protection allows for further general degradation of 1 or 2 feet but without detailed study the final amount of degradation cannot be estimated.

It is recommended that bed profiles be taken at least annually and if the bed continues to lower riprap be added along the toe of the slope to prevent undermining.

Conversely, if Highways remove the trash rack, full bed transport will resume and the bed may aggrade downstream of the culvert. Again periodic surveys are necessary to assess the speed of any aggradation.

3. Bank Protection

Drawings 2191-1 and -2 show the plan, profile and sections of the proposed protection. Also indicated are general specifications for the required rock.

The filter is an important element of the design as it will prevent the fine bank material from being eroded or piped out of the bank through the riprap, leading to slumping and loss of riprap.

A minimum bed width of 25 feet should be maintained in the future to ensure that design water levels are not exceeded. Top of the bank riprap has been set 2 feet above the calculated maximum water level. Mara Lake levels do not affect creek water levels in this reach.

The bank riprap must be tied into the existing culvert riprap to ensure that the creek does not cut behind the protection works.

Klohn Leonoff Consultants Ltd.

February 28, 1977

Two levels of bank riprap have been designed; riprap A is lighter and is to be placed along the straight portions downstream of the main degradation; riprap B is designed to withstand the higher velocities in the creek bend and is extended deeper into the existing bed to withstand potential local scour and some general bed degradation.

Construction control is vital to the success of the bank protection design. The specifications on Drawing 2191-2 indicate the general construction requirements but it is essential that adequate supervision be provided during construction.

If you require further information regarding this design, please do not hesitate to call us. We would also be pleased to offer our services for the construction supervision portion of the work.

Yours very truly,
KLOHN LEONOFF CONSULTANTS LTD.


E.A. PORTFORS, P. Eng.

EAP/fh

cc: Mr. H. Shannon

Klohn Leonoff Consultants Ltd.

MEMORANDUM

TO C. H. Coulson, Head
Surface Water Section
Hydrology Division

FROM D. E. Reksten
Senior Hydraulic Engineer
Hydrology Division

March 7, 1977

SUBJECT Hummingbird Creek (1 in 200-year peak flow)

OUR FILE 0273896-Gen

YOUR FILE

From our planimentering, the drainage area of Hummingbird Creek above a point just below the Highway 97A crossing is 16.7 sq. mi. as opposed to "just over 4 sq. mi." given in the K.L.C. Ltd. memo.

The median elevation of this drainage basin is 5600 ft. with 85% of the basin lying above 4000 ft. Rather than extreme peak flows being the result of rainfall events, they would be the result of snowmelt plus spring rain.

In three or four years of data on Hummingbird, Mara and Sicamous Creeks, the highest recorded daily flow is 25 cfs/sq.mi. on Sicamous Creek in 1948. Based on flow data for the Upper Shuswap River, 1948 peak flow has a return period of 25 or 30 years.

Based on flow frequency analyses of limited peak flow data in this area, an estimated extreme peak daily flow (approximately 200-year return period) would be 70 cfs/sq.mi. In this region the ratio of instantaneous to daily peak flow is 1.20. Thus the design flow value would be 84 cfs/sq.mi. or 1400 cfs at the point of interest on Hummingbird Creek.

Although based on a different analysis, we do agree that a design figure of 500 cfs is too low for a 16.7 sq. mi. drainage area.

D. E. Reksten

DER:wf

MEMORANDUM

TO Mr. J. D. C. Fuller, Chief
Engineering Division
Water Investigations Branch

FROM P. J. Woods, Hydraulic Engineer
Rivers Section
Engineering Division

March 9th, 1977

SUBJECT Review of Proposed Hummingbird Creek
Bank Protection

OUR FILE R-77 General

YOUR FILE

In response to your request, a brief office review has been undertaken of riprap requirements for a bank as described in a report by Klohn Leonoff Consultants dated February 28th, 1977, entitled "Hummingbird Creek Protection-Fallen Rock Campground Subdivision".

1. As requested, the review has been undertaken for a design flow of 1400 cfs which is understood to represent the required 1:200 year design event.
2. Using a design flow of 1400 cfs, a bedwidth of 25 feet, bedslope of about 3% and sideslopes of 2½:1, we recommend the following riprap gradation in such an application:

Percentage Finer Than	Size	
	A	B
100%	24 inch	48 inch
50%	12 inch	30 inch
±10%	6 inch	12 inch
Minimum Required Thickness	2 feet	4 feet

A - flows parallel to the bank
B - flows impinging on a curved bank

3. The top of the riprap profile should provide about 2 feet of freeboard over the design flow, ie: the required top profile is about 5 feet above the existing channel bed.
4. It is recommended that a rock toe be provided to increase confidence against damage to the slope by downcutting.

P. J. Woods
P. J. Woods, P. Eng.

PJW:khh

THE REGIONAL DISTRICT of COLUMBIA - SHUSWAP



P.O. BOX 978, SALMON ARM,
BRITISH COLUMBIA V0E 2T0
TELEPHONE 832-3086
832-7059

Department of Environment
Victoria, B.C.

November 19, 1976

RE: Proposed Subdivision of Lot A, Section 11, Township 21, Range 8
Block A, Application DD 271376 W6M, KDYD - Harold S. Shannon.

The Regional District of Columbia-
Shuswap hereby agrees to assume all responsibility
for maintenance of works intended to provide flood
protection on Hummingbird Creek within the above
described subdivision.

CHAIRMAN

SECRETARY-TREASURER

MUNICIPALITIES :

TOWN of GOLDEN
CITY of REVELSTOKE
DISTRICT of SALMON ARM

ELECTORAL AREAS :

A - GOLDEN - COLUMBIA
B - REVELSTOKE - COLUMBIA
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D - FALKLAND - SALMON RIVER VALLEY
E - SICAMOUS - MALAKWA
F - NORTH SHUSWAP



YOUR FILE
OUR FILE 0305030-8

December 12, 1977

Mr. K.F. McKee
Administrator
Regional District of Columbia-Shuswap
P.O. Box 978
Salmon Arm, B.C. VOE 2T0

Dear Sir:

Re: Proposed Subdivision of Lot A, Section 11,
Township 21, Range 8, West of the 6th Mer-
idian - Hummingbird Creek

Further to my letter of March 29, 1977, and our subsequent telephone discussions, I am enclosing a copy of the December 7, 1977 letter which I received from Mr. Alan R. Colby, P.Eng.

In view of the aforementioned, the completed works are accepted as meeting our requirements.

In accordance with earlier agreement, future maintenance responsibilities rest with the regional district.

Thankyou for your co-operation in this matter.

Yours very truly

P.M. Brady
P.M. Brady, P.Eng.
Director
Water Investigations Branch

PMB/l
enclosure

CCS: Mr. H.S. Shannon, 7208 Summit Dr., Vernon, B.C.
Mr. Alan R. Colby, P.Eng., Penticton, B.C.
Mr. Leo Pauloski, W.R.B., Kelowna, B.C.

Alan R. Colby & Associates
CONSULTING ENGINEERS

264 WESTMINSTER AVE. W. PENTICTON, B.C.

TELEPHONE 492-5903 AND 492-5991

December 7, 1977

Mr. P. M. Brady, Director,
Water Investigations Branch,
Parliament Buildings,
VICTORIA, B. C. V8V 1X5

Dear Sir:

Re: Proposed Subdivision of Lot A,
Sec. 11, Tp. 21, R. 8, W. 6 M. -
Hummingbird Creek Channel Protection

By means of this letter, please be advised our firm carried out construction supervision entailing surveys, and quantity and quality control for the above-noted project. For this purpose we had been retained by Mr. H. S. Shannon, the owner and developer of the proposed subdivision.

Our terms of reference were dictated by the contents of Drawings 2191-1 and -2 (Alan R. Colby Ref. 76-9-W2), which were submitted by Klohn Leonoff Consultants Ltd., Richmond, B.C. The drawings show the recommended protection and general specifications covering material sizes.

Construction was begun on November 3 by the contractor, Double J. Construction Ltd., Sicamous, B.C., with bank trimming and preparation of the creek bed for trenching. These areas having been located and staked to the dimensions set out in Drawings D-2191-1 and D-219-2 noted in para. 2 of this letter report. A D7J Crawler was employed for this phase. Upon completion of the trimming, trenching was commenced with a backhoe, commencing at the downstream end of the construction area and progressing in the direction to the pipe arch culvert at Highway 97A.

Filter material compatible to specified size, quality and quantity was obtained at the construction site and the riprap material was brought in by truck from a quarry approximately four miles north and east of the construction area. Placement of these items was done by an Allis Chalmers rubber mounted front-end loader.

cont'd.....

Mr. P. Brady

- 2 -

December 2, 1984

The contract was completed on November 30, all elements of the Specifications having been met to our satisfaction. This observation is based on several on-site inspections (including the quarry operation), field surveys and bank sideslope and trench location and excavation operations.

For your information,



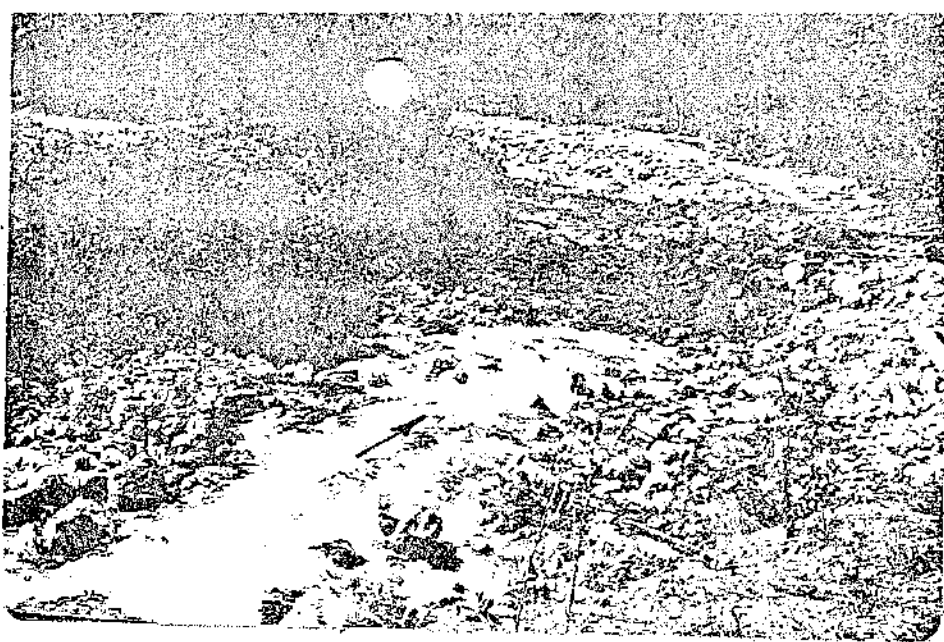
Alan R. Colby, P. Eng.,
ALAN R. COLBY & ASSOCIATES.

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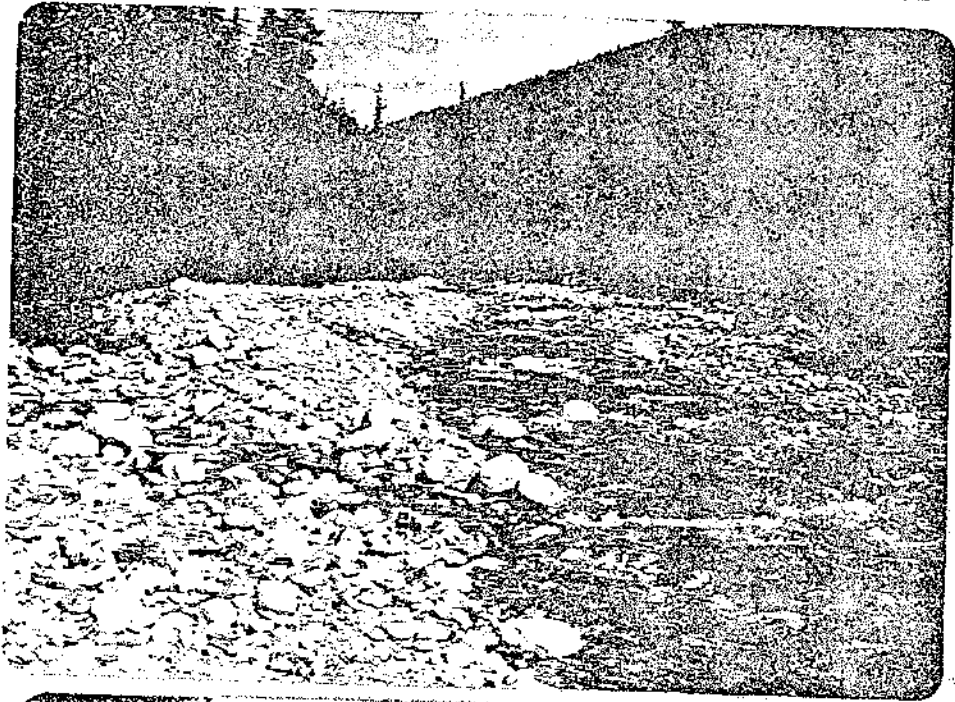
cc: Mr. H. S. Shannon,
77208 Summit Drive,
Vernon, B. C.

Mr. L. Pauloski,
Water Rights Branch,
1921 Kent,
Kelowna, B. C.

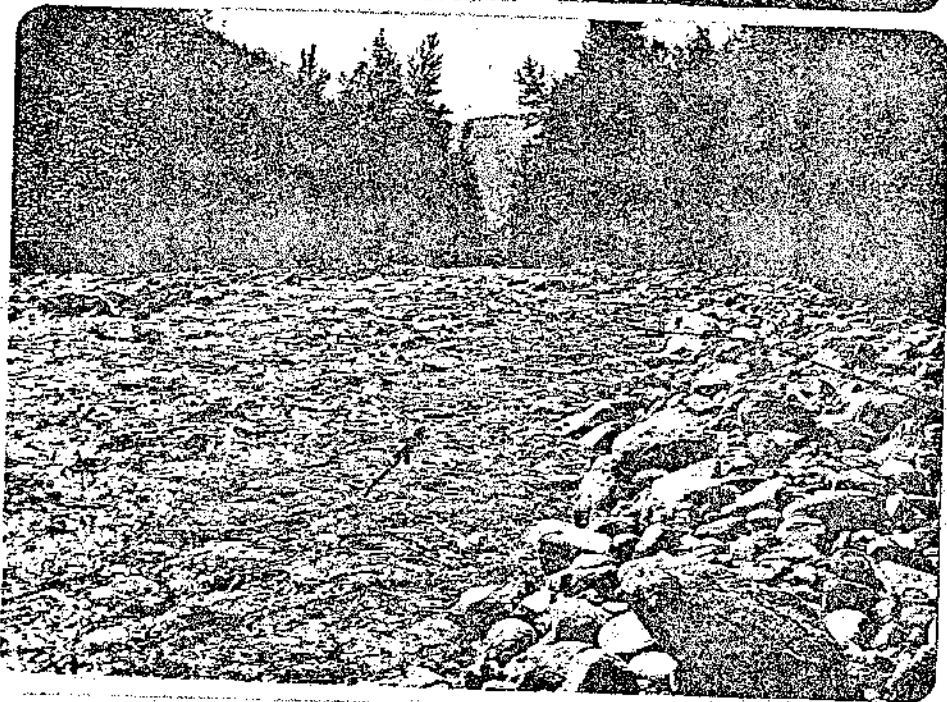
Looking
downstream
from the
highway.



300 m upstream
from the mouth

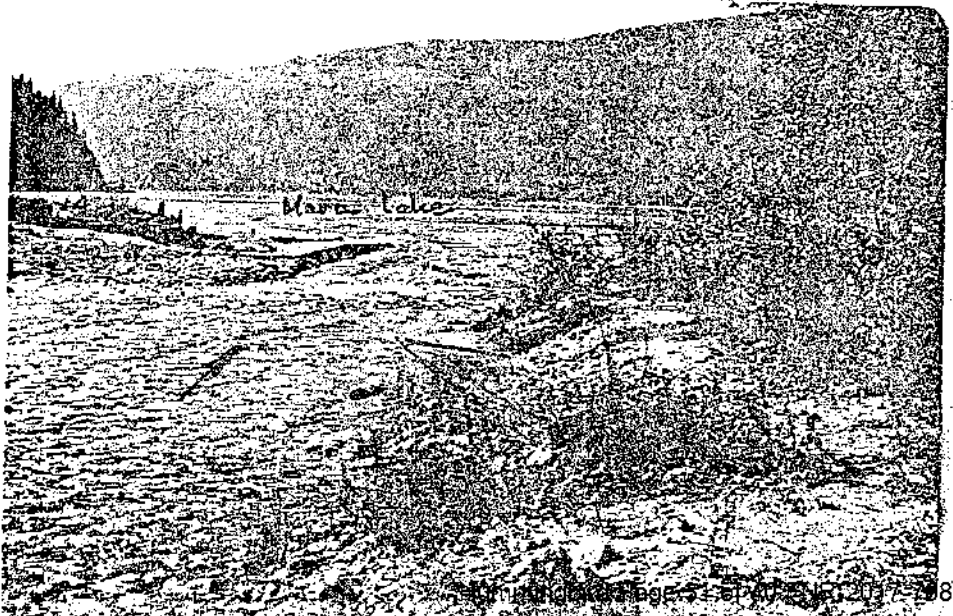


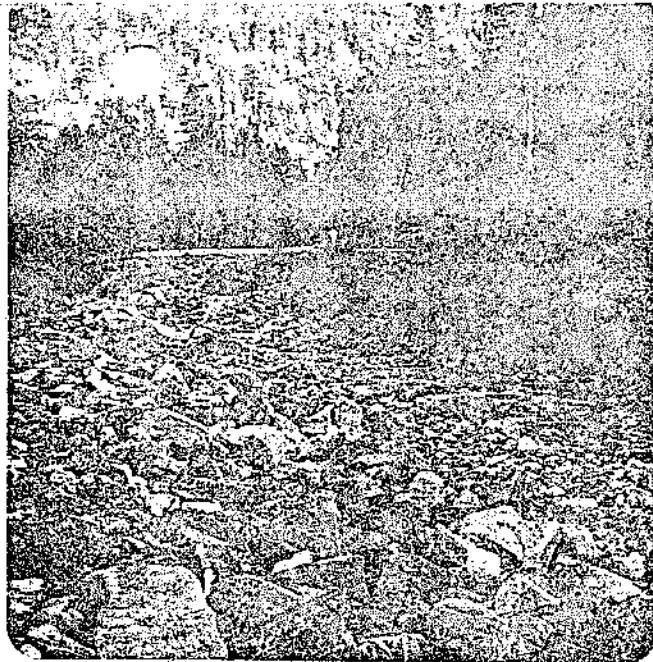
200 m upstream
from the mouth



Creek mouth.

Nov 1978





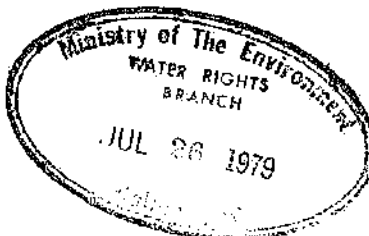
THE REGIONAL DISTRICT
of COLUMBIA - SHUSWAP



P.O. BOX 978, SALMON ARM,
BRITISH COLUMBIA V0E 2T0
TELEPHONE 832-3086
832-7059

July 25, 1979.

Water Rights Branch,
1905 Kent Road,
KELOWNA, B.C.
V1Y 7S6



ATTENTION: D. Lovdahl

RE: T.P.C. Meeting, August 2.

We draw your attention to two items on the enclosed agenda.

Item 6 deals with land the access to which may be seriously affected by the periodic rampages of Montana Creek. We will need the expertise of your agency to complete an adequate discussion of this issue.

Item 9 raises the subject of water supply and other community services in the vicinity of Hummingbird Creek, 6 miles south of Sicamous.

We look forward to seeing you or your designate on August 2.

Yours very truly,

K.A. Pellett

K.A. Pellett,
Planning Director.

KAP/th
Enclosure.

Pellett
MUNICIPALITIES:

TOWN of GOLDEN
CITY of REVELSTOKE
DISTRICT of SALMON ARM

ELECTORAL AREAS:

A - GOLDEN - COLUMBIA	D - FALKLAND - SALMON RIVER VALLEY
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THE REGIONAL DISTRICT
of COLUMBIA - SHUSWAP



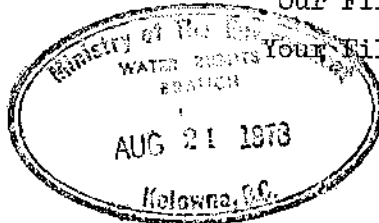
P.O. BOX 978, SALMON ARM,
BRITISH COLUMBIA V0E 2T0
TELEPHONE 832-3086
832-7059

August 18, 1978

Our File: # 118 (By-law)

Your File: 0305030-8

Director,
Water Investigations Branch,
204 - 780 Blanshard Street,
Victoria, B. C.
V8W 2H1



ATTENTION: P. M. Brady, P. Eng.

RE: Hummingbird Creek

By telephone yesterday, I alerted Dick Talbot to a problem which our elected Director for the Eagle Valley/Mara Lake area had drawn to my attention. Mr. Talbot advised that he would schedule a field inspection, but suggested I drop you a note outlining the problem.

In completing the works approved pursuant to the above file, boulders were removed from the bed of Hummingbird Creek, thereby loosening the surrounding gravel. The 1978 freshets have apparently moved all the loose gravel downstream, where it has raised the level of the creek bed. The concern of the downstream owner is that the 1979 freshet will be deflected by this new gravel deposit and flood his property. The suggestion is that immediate removal of the gravel deposit should avoid this problem once and for all.

We have asked that your staff review the situation and authorize the appropriate remedial action. We also seek a ruling on whose responsibility it is to pay the relatively small cost of the remedial action, given that this removal is hardly the "maintenance of works intended to provide flood protection" within the specified area, but is rather a consequence of the original construction of the works.

Yours very truly,

K. A. Pellett,
Planning Director

c.c. Director J. Monk, R.R. # 1, Sicamous, B. C.
✓ Leo Pauloski, W.R.B., 1921 Kent, Kelowna, B. C.

KAP/nw

MUNICIPALITIES:

TOWN of GOLDEN
CITY of REVELSTOKE
DISTRICT of SALMON ARM

ELECTORAL AREAS:

A - GOLDEN - COLUMBIA
B - REVELSTOKE - COLUMBIA
C - SOUTH SHUSWAP

D - FALKLAND - SALMON RIVER VALLEY
E - SICAMOUS - MALAKWA
F - NORTH SHUSWAP



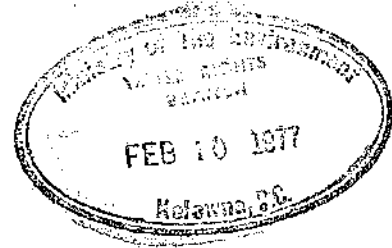
DEPARTMENT OF ENVIRONMENT

PLEASE REFER TO FILE NO. 0305030-8

YOUR REF: *HUMMA*

DP-28 SA

February 4, 1977



Mr. F. Shannon
779 East 21st Street
North Vancouver, B.C.

Dear Mr. Shannon:

Re: Hummingbird Creek Subdivision

This will confirm our telephone discussion of February 4, 1977.

As I understand it, the present situation arose because you were under the impression the Regional District was prepared to maintain the Creek and the bank in its present condition. In return you posted a bond and donated land for parks purposes.

Our requirement is that protective works to adequate standards be constructed prior to subdivision approval.

To facilitate this you will submit for our approval a design prepared by your consultants. The required information is as follows:

- 1) 200-year design profile plus 2 feet;
- 2) Profile showing channel grade to be maintained;
- 3) Riprap sizing and design velocity - a toe trench should be included in the works.

After approval by this Branch the works can proceed to construction. Upon receipt of notification from your consultant that the works have been completed to the approved standards, approval of the subdivision will be acceptable to this Ministry.

We will expedite the processing of the information you provide.

Yours very truly

P. M. Brady

P. M. Brady
Director
Water Investigations Branch

Peter M. H.H.
PMB/jw

ccs: Water Rights - Kelowna

Ministry of Highways - Salmon Arm



DEPARTMENT OF HIGHWAYS

Box 759

Salmon Arm, B. C.

August 18, 1976

Department of Recreation and Travel Industry
Fish and Wildlife Branch
#106 - 1959 East Trans-Canada Highway
Kamloops, B. C.

Attention: S. J. MacDonald

Re: Your file 40-03-04 - Bridge Elimination
Hummingbird Creek - Highway 97A

Dear Sir:

In reply to your letter of July 20, we plan on completing the placement of rip rap at the inlet and outfall during October or November this year. Please advise if this period is acceptable for this type of work.

Most of the rip rap will be hand placed and there will be a minimal amount of disturbance to the stream.

Unless I hear from you to the contrary, I will assume the timing is acceptable.

Yours truly,

W. A. Budden
District Highways Manager

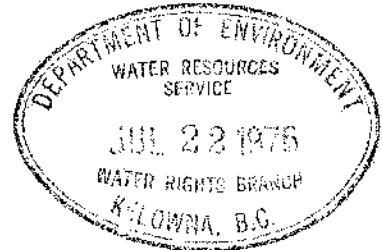
DAVID ✓
c.c. -District Water Rights Engineer
Kelowna
-D. C. MacVicar
-V. Flockhart



#106 - 1959 East Trans-Canada Highway
KAMLOOPS, British Columbia V2G 4A3

July 20, 1976

District Highways Engineer
Department of Highways
P. O. Box 759
SALMON ARM, British Columbia



Dear Sir:

Re. Bridge Elimination - Hummingbird Creek - Highway 97A

This stream supports a spawning run of kokanee. During discussions we talked about the fact that we did not want the culvert to become an obstruction to the upstream passage of fish. We were assured that the culvert would be laid at the gradient of the old stream bed and would be of such size that the stream would not increase velocity. Therefore, there would be no scouring at the downstream end.

An early July 1976 inspection of this site indicated that the flows through the culverts had been greatly increased to that of the old river bed and that excessive scouring had taken place downstream end of the culverts. This scouring had been to such a great affect that there now exists a drop between the culvert invert and the river bed that would not be negotiable by upstream migrating fish.

It is our understanding that Water Rights Branch has requested more work on this stream bed and Fish and Wildlife wish, at this time, to make it known that the present situation is unacceptable and must be rectified.

We would be most pleased to get together with yourselves and Water Rights to discuss timing and method of construction.

Yours truly,

S. J. MacDonald
Regional Habitat Protection
Biologist

SJM:br

cc District Water Rights Engineer, Kelowna

*DAVE
PETER
V*

MEMORANDUM

TO.....

FROM.....

February 15 1974

SUBJECT..... Hummingbird Creek

OUR FILE..... HUMM

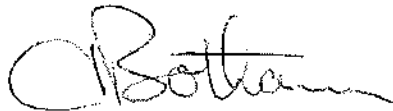
YOUR FILE.....

MEMO TO FILE:

Sandy McDonald of the Fish and Wildlife Branch advised this office last week that he had inspected Hummingbird Creek recently and observed work being done in the channel. It was his opinion that what was being done was foolish and a waste of time.

On February 13th, 1974 Mr. E.D. Anthony and J.A. Botham inspected the creek. A snowfall that morning obscured the channel to some extent, but the only evidence of work in the creek was at its mouth, where the wide fan had been narrowed by building up abutments on each side. (With the permission of Mr. Anthony). We could only conclude that Sandy considered that the freshet flow would erode these banks to near the former condition.

It is recommended that D.B. Lovdahl reinspect Hummingbird Creek during the freshet and contact Sandy for clarification.



J. Botham,
Technician.

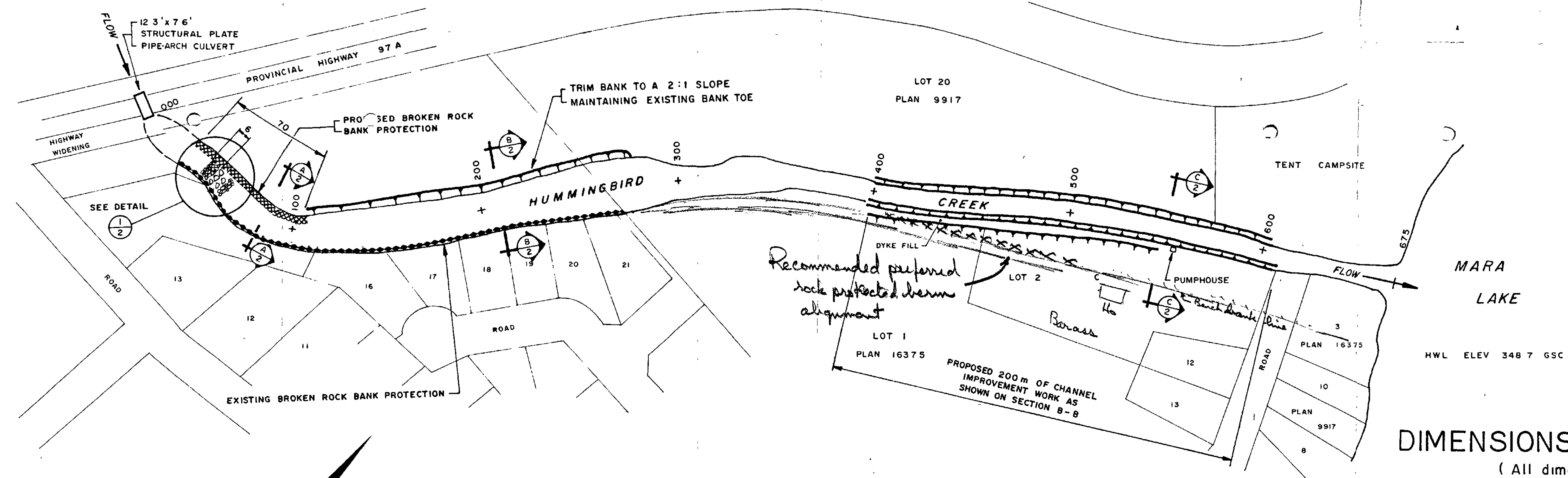
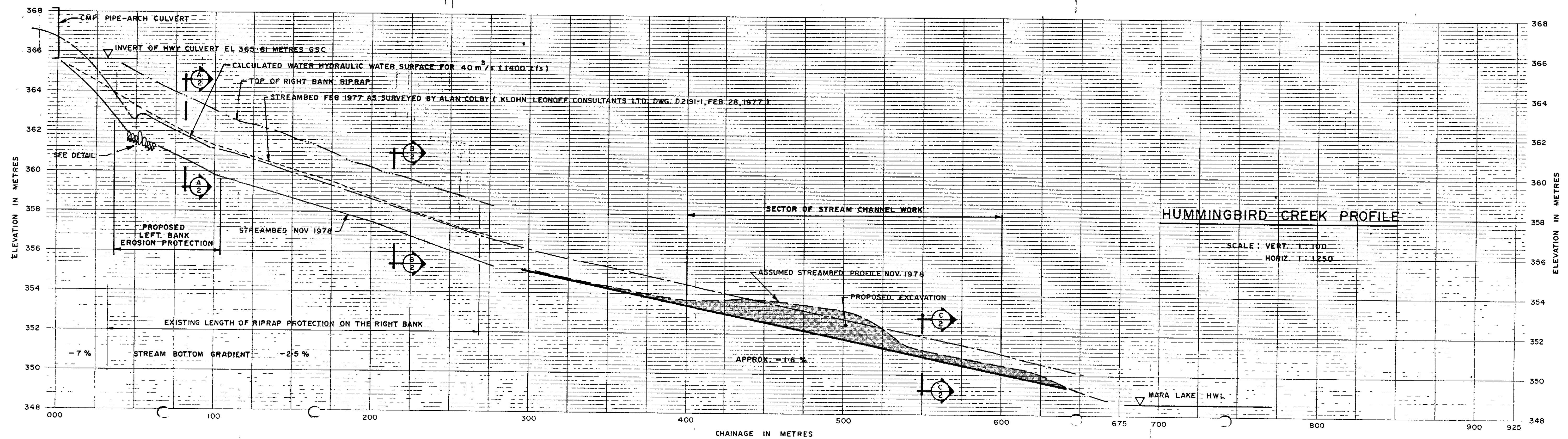
JB:mea

*SANDY CONTACTED. & NOT CONCERNED.
COULD INSPECT FOR INTEREST.*



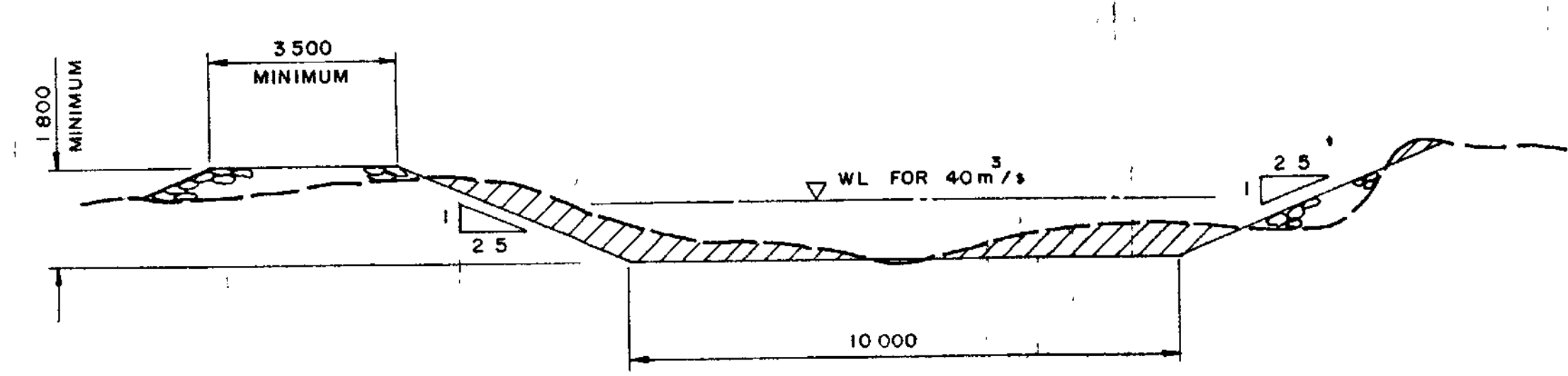
1971 MARKS THE 100TH ANNIVERSARY OF THE ENTRY OF BRITISH COLUMBIA INTO CANADIAN CONFEDERATION ON JULY 20, 1871.

1871
1971

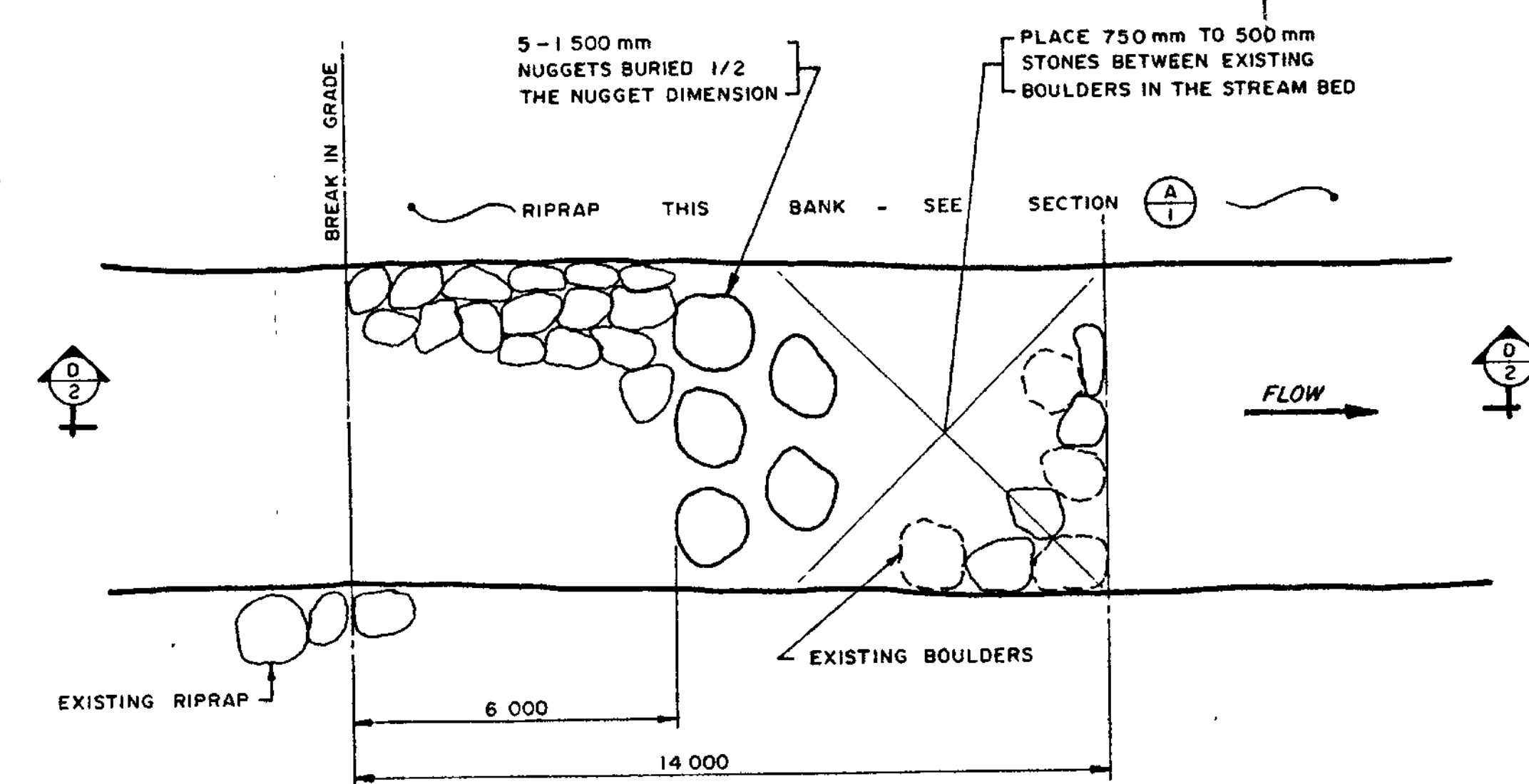



DIMENSIONS ARE IN SI METRIC
(All dimensions are in metres)

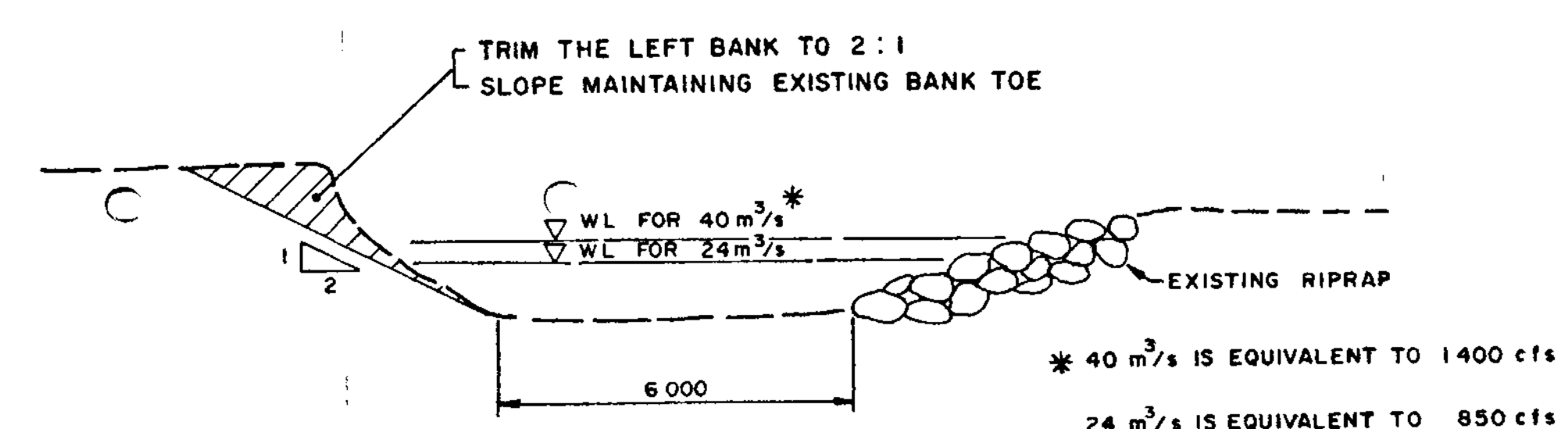
REFERENCES			REVISIONS			SURVEYED A. A. McE. AND R. J. T. DATE NOV. 2, 1978	DESIGNED R. J. TALBOT	DRAWN R. J. TALBOT	TRACED M. A. O.	CHECKED C. P. O.	DATE FEB 1979	ENGINEER R. J. TALBOT	APPROVED DIV. CHIEF	FILE No.
DWG No.	DESCRIPTION	DATE	No.	DESCRIPTION	DATE									
4918-78-38-2	SITE PLAN, SECTIONS AND DETAIL WR MAP AND 528 E	FEB 1979												
HUMMINGBIRD CREEK PROPOSED STREAM IMPROVEMENT WORK PLAN AND PROFILE OF WORK														SCALE AS SHOWN
FOR THE REGIONAL DISTRICT, COLUMBIA SHUSWAP P.O. BOX 978, SALMON ARM														DWG No 4918-78-38-1
SHEET OF 1														



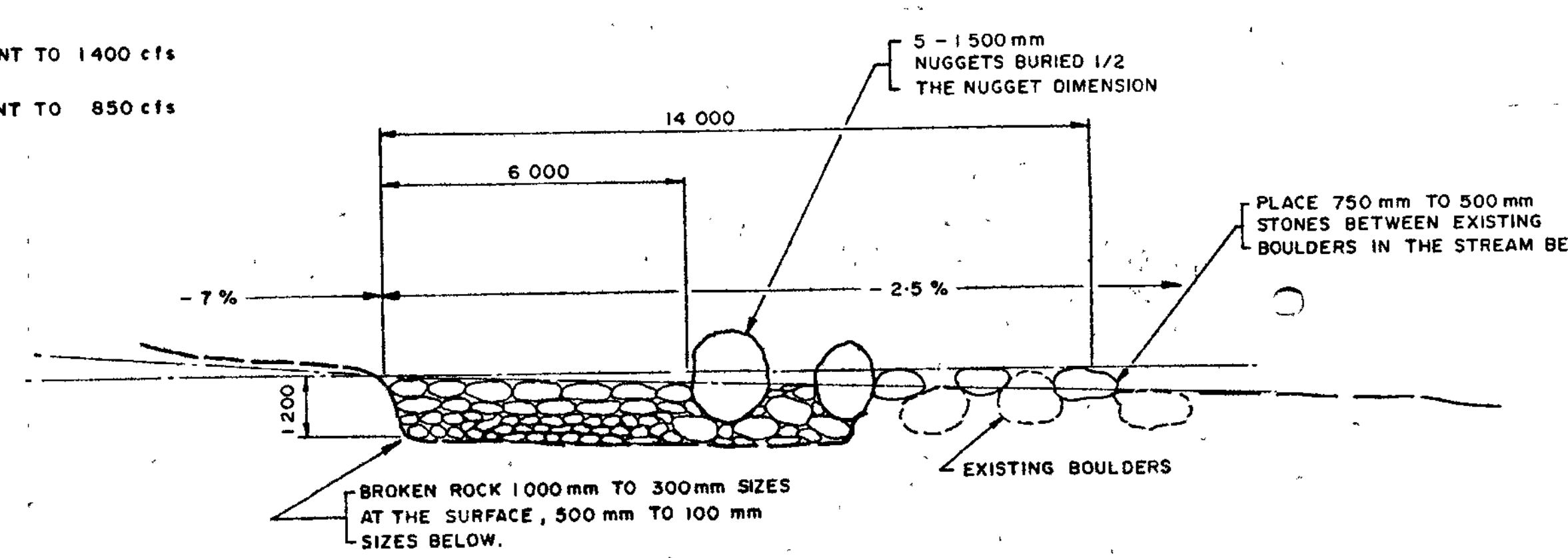
SECTION C-1
AT STATION 550
SCALE 1:100



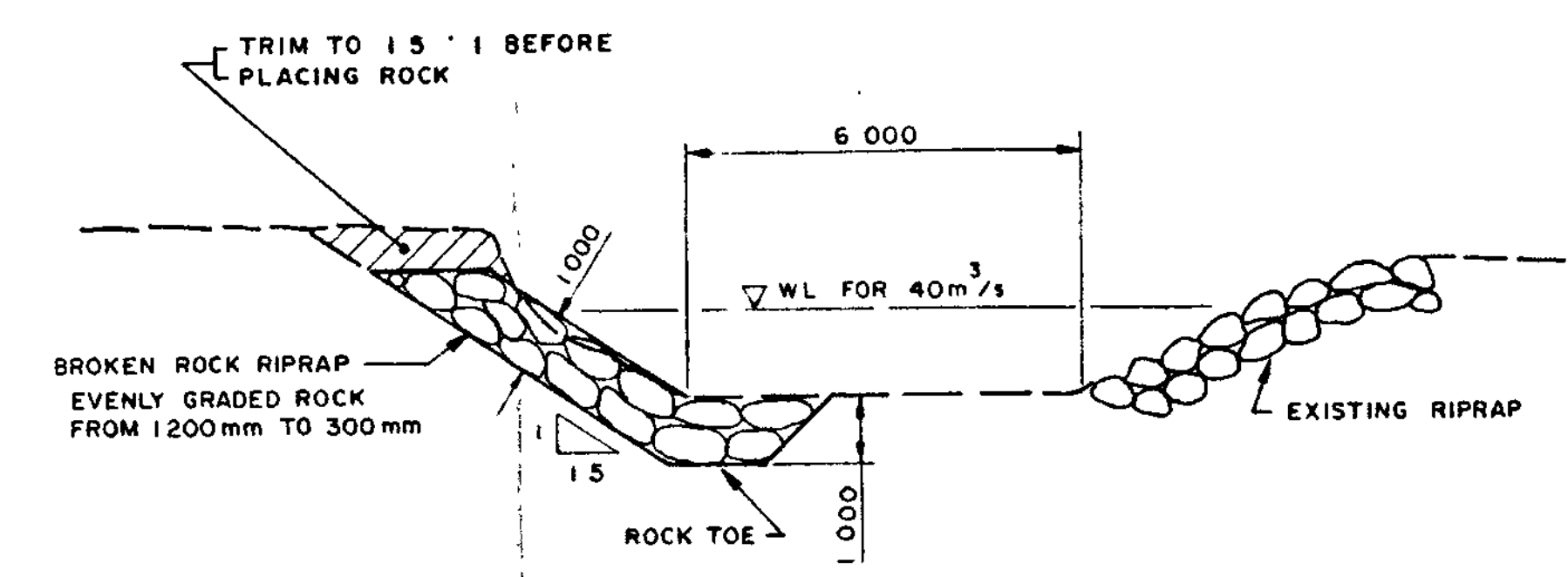
DETAIL 1-1
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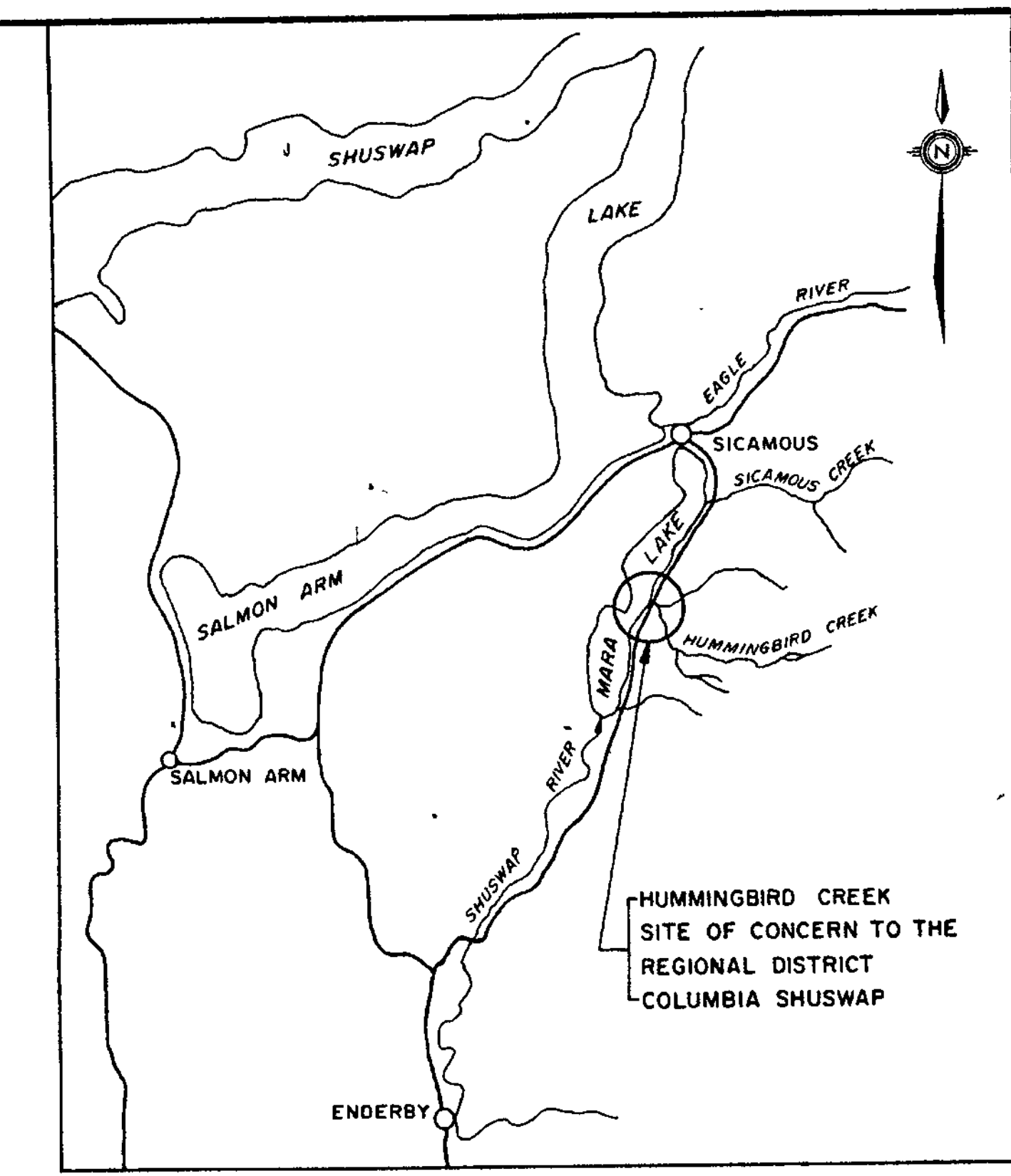
SECTION B-1
AT STATION 215
SCALE 1:100



SECTION D-2
SCALE 1:100



SECTION A-1
AT STATION 080
SCALE 1:100



SITE PLAN
SCALE 1:250,000

DIMENSIONS ARE IN SI METRIC
(All dimensions are in mm)

REFERENCES			REVISIONS			RIVERS SECTION		Province of British Columbia Ministry of the Environment ENVIRONMENTAL AND ENGINEERING SERVICE WATER INVESTIGATIONS BRANCH	FILE No.
DWG No	DESCRIPTION	DATE	No	DESCRIPTION	DATE	SURVEYED	DATE		
4918-78-38-2	PLAN AND PROFILE OF WORK WR MAP AND 528 E	FEB 1979				A. A. McK AND R. J. T.	NOV 2, 1978	FOR THE REGIONAL DISTRICT, COLUMBIA SHUSWAP P.O. BOX 978, SALMON ARM	
						COMPILED	R. J. TALBOT	HUMMINGBIRD CREEK	SCALE AS SHOWN
						CHECKED	[Signature]	PROPOSED STREAM IMPROVEMENT WORK	DRAWING No 4918-78-38-2
						DATE	May 1979	SITE PLAN, SECTIONS	SHEET 1 of 1
						DRAUGHTING SECTION		AND DETAIL	
						DRAWN	[Signature]		
						CHECKED	[Signature]		
						DATE	FEB 1979		