State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources

01 MAY 22 P3:43 01 MAY 24 P3:10

PETITION TO AMEND INTERIM INSTREAM FLOW STANDARDS

WAIKAMOI STREAM, EAST MAUI

Instructions: Please print in ink or type and send completed petition with attachments to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. Petition must be accompanied by a non-refundable filing fee of $25.00 payable to the Dept. of Land and Natural Resources. The Commission may not accept incomplete applications. For assistance, call the Regulation Branch at 587-0225.

1. PETITIONER

Firm/Name: Na Moku 'Aupuni o Ko'olau Hui c/o Native Hawaiian Legal Corporation
Contact Person: Alan Murakami, Attorney Ph: 521-2302
Address: 1164 Bishop Street, Honolulu, Hawai'i 96813

2. STREAMFLOW DATA

16552600, 16552800, 165540, Data to follow.

USGS stream gaging station 1655500, 16556000 Period of Record: Gages Inactive
Location/Reach: SEE ATTACHED

(Attach a USGS map, scale 1"=2000', and a property tax map showing diversion location referenced to established property boundaries.)

TABLE 1. PERIOD OF RECORD AVERAGE MONTHLY STREAMFLOW WITHIN THE AFFECTED STREAM REACH, IN CFS

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
STREAMFLOW DATA TABLES TO FOLLOW.												

Annual Median flow in cfs =

TABLE 2. PROPOSED AVERAGE MONTHLY STREAMFLOW DIVERSION FROM AFFECTED STREAM REACH, IN CFS

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
UNDETERMINED; SUFFICIENT FOR TARO FARMING AND/OR GATHERING.												

Annual Median flow in cfs =

TABLE 3. AVERAGE MONTHLY STREAMFLOW IN AFFECTED STREAM REACH AFTER RESTORATION (min release flow), IN CFS

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
NATURAL STREAMFLOW EXCEPT FOR EXERCISE OF APPURTENANT WATER RIGHTS.												

Annual Median flow in cfs =

3. EXISTING INSTREAM AND OFFSTREAM WATER USES FOR ENTIRE STREAM REACH

TMK	OWNER	USE
RESEARCH IN PROGRESS.		

(If more space is necessary, attach an extended list following above format)

4. ANTICIPATED IMPACTS ON STREAM AND BASIS FOR SUCH IMPACTS:

RESTORATION OF INSTREAM NATURAL HABITAT AND BIOTA, AND BENEFICIAL APPURTENANT AND GATHERING USES.

(Attach supporting documentation, plans, letters, etc.)

May 24, 2001
Date

NATIVE HAWAIIAN LEGAL CORPORATION
Signature
Alan Murakami Petitioner
Attorney for Na Moku 'Aupuni o Ko'olau Hui

For Official Use
Date Received
Date Accepted

Waikamoi Stream

Waikamoi Stream is one of the longer streams in the study area. The stream is 8.5 mi long from the ocean to the head of several tributaries near Hosmer Grove Spring at 6,560 ft altitude (plate 1). Alo Stream, a major tributary, branches to the east at about 840 ft altitude. Waikamoi Stream rises from sea level to 600 ft altitude 0.8 mi from the coast (a gradient of 790 ft/mi) and at this altitude the stream valley is incised 280 ft below the upland surface. Waikamoi Stream lies on Honomanu Basalt for 3,000 ft from the coast and then on Kula Volcanics to the stream head where cinder cones of the volcano's north rift zone are located (Stearns and Macdonald, 1942). Streamflow is captured by five surface-water diversion systems (table 4).

Waikamoi Stream has not gone dry at any of the gaging stations downstream of 3,000 ft altitude during the periods of record despite the presence of Upper and Lower Kula diversion systems (table 2, plate 1). The stream has gone dry upstream of these diversion systems at gaging stations 5530 (4,250 ft altitude), 5528 (4,487 ft altitude), and 5526 (5,750 ft altitude). Base flow at 3,000 ft altitude in the two stream branches above gaging stations 5540 and 5545 is 1.7 Mgal/d and increases to 3.02 Mgal/d at 1,300 ft altitude (station 5550), a gain of 1.3 Mgal/d (table 2, fig. 15G–H). Alo Stream, headed at about 2,400 ft altitude, also gains an average of about 1.3 Mgal/d upstream of 1,248 ft altitude (station 5570), but along a shorter stream distance (plate 1).

Streamflow measurements made on October 18 and 24, 1994 during low-flow conditions show gains in flow of 1.68 Mgal/d between 3,160 ft and 490 ft altitude (table 11). The cumulative streamflow data were obtained by converting the October 24 measurements to equivalent October 18 measurements using a ratio of flow measurements made at site Waikamoi 33 on both days. Measurements were not made downstream of 490 ft altitude because the terrain prevented access. On the basis of the streamflow measurements, Waikamoi Stream (1) appears to be perennial upstream of 500 ft altitude and at the least downstream of 3,000 ft altitude, and possibly as high as 4,200 ft altitude and (2) does not have any measured sections that are losing water. No measurements were made where the stream flows on the Honomanu Basalt.

In the Waikamoi Stream water budget (Shade, 1999) of the 2.46-mi^2 area upstream of gaging station 5280, 9.19 Mgal/d of rainfall and 1.18 Mgal/d of fog drip is apportioned into 1.29 Mgal/d of runoff, 3.22 Mgal/d of evapotranspiration, and 5.87 Mgal/d of recharge (table 1, fig. 6). Because the gaged subbasin lies at higher altitudes with less precipitation than the rest of the subbasins included in Shade's study (fig. 3), it has a smaller ratio of precipitation to the stream subbasin area (fig. 6). Hence, the water-budget components are all proportionately smaller. The amount of base flow estimated from the streamflow record is only about 1 percent of the recharge to the subbasin (table 1). Most of the recharge is apparently following deeper groundwater flow paths and discharging downgradient of this gaging station.

Streamflow

Estimates of streamflow and base flow are based on streamflow records of varying length and from different times. The error associated with comparing these records is not considered significant because the average annual values used in the comparisons are expected to be within about 10 percent of the true value in most cases. A statistical analysis of five streamflow records, each with more than 60 years of record, shows that the average annual discharge for any 10-year period within that record has a standard error of 12 percent when compared with the whole record (Fontaine, 1996). When the length of the subset is increased to a 50-year period, the standard error only improves to 5 percent. Thirty nine of the streamflow records for the study area are equal to or greater than 10 years long.

For this study, the length of the period of record at each gaging station was determined to be unimportant by comparing each record to three reference records from the study area. The three longest streamflow records, 5080 (73 years), 5180 (76 years), and 5870 (85 years) were chosen as reference records. For each other individual record, a time period equal to the length of that record was chosen. A subset of a reference record was then selected from this same time period and the average flow during that time period was compared with the total reference record to estimate the ratio of flow during the subset period to the reference period. This analysis was made for all three reference records and the result was averaged to obtain a period-of-record scale factor for each of the other records. The scale factor ranged from 0.88 to 1.13 (table 2). This variability is consistent with the statistical analysis reported by Fontaine (1996). This range of accuracy is considered sufficient for the type of comparisons made in this study, and therefore, no corrections were made to any of the records to account for differences in length or period of record.

Table 11. Streamflow, temperature, and specific conductance in Waikamoi Stream, northeast Maui, Hawaii

[ft, feet; Mgal/d, million gallons per day; °C, degrees Celsius; µS/cm, microsiemens per centimeter; --, not determined; all altitudes estimated from U.S. Geological Survey topographic maps, Haiku, Keanae, and Kilohana quadrangles; measured flow from October 24 was scaled by 0.828 to make flow equivalent to October 18 flow for cumulative flow calculation; 1931 flow data is from Hofmann (1934); all other data is unpublished in files of U.S. Geological Survey, Hawaii District office]

Station number	Stream name	Altitude (ft)	Date	Streamflow (Mgal/d)	Cumulative streamflow without diversion, October 18, 1994 (Mgal/d)	Water temperature (°C)	Water specific conductance (µS/cm)	Comments
Waikamoi 7a	Waikamoi	490	10/18/94	0.14	1.68	22.0	108	
Waikamoi 8	unnamed tributary	500	10/18/94	--	--	21.9	87	Tributary from spring on east bank
Waikamoi 8a	Waikamoi	510	10/18/94	0.11	1.65	21.9	153	
Waikamoi 9	Waikamoi	515	9/10/95	--	--	21.9	153	Waikamoi Spring at 515 ft, on west bank at highway
Waikamoi 9a	Waikamoi	520	10/18/94	--	--	21.2	119	Waikamoi Spring at 520 ft, on east bank
			9/10/95	--	--	22.8	119	
Waikamoi 10	Waikamoi	530	10/18/94	0.02	1.56	23.0	84	
Waikamoi 11	Waikamoi	680	10/18/94	0.01	1.54	22.2	74	Most flow diverted
Waikamoi 14	Waikamoi	720	10/18/94	0.37	1.54	22.4	80	Upstream of Manuel Luis Ditch diversion
Waikamoi 15	Waikamoi	760	10/18/94	0.32	1.50	22.8	78	
Waikamoi 16	Waikamoi	820	10/18/94	0.36	1.53	23.3	75	Downstream of confluence with Alo Stream
Waikamoi 17	Waikamoi	860	10/18/94	0.15	1.32	23.2	81	Upstream of confluence with Alo Stream
Waikamoi 29a	Alo	1,210	10/24/94	0.69	--	20.3	42	Upstream of Wailoa Ditch diversion
Waikamoi 32	Waikamoi	1,190	10/18/94	0.01	1.19	--	--	
Waikamoi 33	Waikamoi	1,250	10/18/94	0.53	1.19	21.8	42	Upstream of Wailoa Ditch diversion
			10/24/94	0.64	--	20.2	40	
Waikamoi 40	Waikamoi	1,780	10/24/94	0.55	1.11	20.6	37	
Waikamoi 45	Waikamoi	2,360	10/24/94	0.33	0.93	19.4	36	Downstream of confluence with East Branch Waikamoi
Waikamoi 45a	Waikamoi (east branch)	2,420	10/20/31	0.34	--	--	--	
Waikamoi 45b	Waikamoi (east branch)	2,560	10/20/31	0.20	--	--	--	
Waikamoi 46	Waikamoi	2,375	10/24/94	0.19	0.82	18.0	36	Upstream of East Branch Waikamoi
Waikamoi 55a	flume inflow	3,135	10/18/94	0.13	--	18.5	18	
Waikamoi 56	Waikamoi	3,160	10/18/94	0.72	0.72	19.0	38	Upstream of flume inflow
Waikamoi 60	Waikamoi	4,270	10/18/94	0.00	0.00	--	--	Downstream of Upper Kula Pipeline diversion dam
Waikamoi 65	Waikamoi	4,500	10/18/94	0.02	0.02	16.0	16	
Waikamoi 72	Waikamoi	6,290	10/17/94	0.00	0.00	--	--	
Waikamoi 73	Waikamoi (west branch)	6,400	10/17/94	0.00	0.00	--	--	

[3] Estimated flow

WAIKAMOI

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16554500
E BR WAIKAMOI STR AT HAIKU-UKA BDRY NR KAILIILI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

DURATION TABLE OF DAILY VALUES
FOR PERIOD OCT TO SEP

CLASS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
WATER YEAR RANGE	NUMBER OF DAYS IN CLASS																																		
1919 1919	12		3	27		29	40	54	17	36	12	19	18	22	10	5	8	10	13	10	2	4	2	6	3	1				1	1			
1920 1920	17		25	89		54	23	37	9	23	11	10	13	7	8	6	6	2	4	6	2		4	1	1	2	2	1	1		1	1		
1921 1921	17		24	15		15	20	41	15	29	26	19	24	12	18	8	11	8	12	4	7	10	2	7	3	6	4	1	2	2	2		1	
1922 1922	19		38	22		11	9	15	10	18	15	11	28	17	18	18	14	13	11	9	17	7	3	3	5	4	5	3	3	4	6	5	2	2
1923 1923			10	16		12	35	51	35	26	29	13	25	19	21	13	5	13	4	4	5	5	3	7	6	4	1			2		1		
1924 1924			34	47		25	36	50	13	13	20	11	18	15	10	5	10	9	12	6	6	5	5	3	1	6	1	2		1	1	1		
1925 1925			36	39		18	27	40	13	12	30	16	23	9	19	9	9	13	3	4	5	12	4	5	8	3	1	1	2	3		1		
1926 1926	26		106	41		21	21	24	13	22	14	11	17	10	7	6	4	7	1	2	1	3	1	3		3	1							
1927 1927			16	55		23	23	36	15	23	22	13	35	12	21	5	17	6	8	7	6	4	1	6	4	1	4		1			1		

CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT
1	0.00	0	3287	100.00	13	2.10	123	1242	37.79	25	17.00	41	177	5.38
2	0.31	91	3287	100.00	14	2.50	201	1119	34.04	26	21.00	31	136	4.14
3	0.37	0	3196	97.23	15	3.00	123	918	27.93	27	25.00	30	105	3.19
4	0.44	292	3196	97.23	16	3.60	132	795	24.19	28	30.00	19	75	2.28
5	0.52	351	2904	88.35	17	4.30	75	663	20.17	29	35.00	8	56	1.70
6	0.63	0	2553	77.67	18	5.10	84	588	17.89	30	42.00	9	48	1.46
7	0.74	208	2553	77.67	19	6.10	81	504	15.33	31	50.00	13	39	1.19
8	0.89	234	2345	71.34	20	7.30	68	423	12.87	32	60.00	11	26	0.79
9	1.10	348	2111	64.22	21	8.70	52	355	10.80	33	71.00	10	15	0.46
10	1.30	140	1763	53.64	22	10.00	51	303	9.22	34	85.00	3	5	0.15
11	1.50	202	1623	49.38	23	12.00	50	252	7.67	35	101.00	2	2	0.06
12	1.80	179	1421	43.23	24	15.00	25	202	6.15					

DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...
STATION ID: 16554500 E BR WAIKAMOI STR AT HAIKU-UKA BDRY NR KAILIILI
PARAMETER CODE = 00060
STATISTIC CODE - 00003 MEAN

DURATION DATA VALUES ARE INTERPOLATED FROM DURATION TABLE:
DATA ARE NOT ANALYTICALLY FITTED TO A PARTICULAR STATISTICAL DISTRIBUTION,
AND THE USER IS RESPONSIBLE FOR ASSESSMENT AND INTERPRETATION.

ADDITIONAL CONDITIONS FOR THIS RUN ARE:
STATISTICS ARE BASED ON LOGARITHMS (BASE 10).
NUMBER OF VALUES IS REDUCED FOR EACH NEAR-ZERO OR ZERO VALUE.

NUMBER OF VALUES = 19 (NUMBER OF NEAR-ZERO VALUES = 0)
LISTING OF DATA FOLLOWS:

PERCENT OF TIME VALUE EQUALED OR EXCEEDED	DATA VALUE	
95.0	0.46	(LOG = -0.33715)
90.0	0.51	(LOG = -0.29660)
85.0	0.55	(LOG = -0.25611)
80.0	0.61	(LOG = -0.21753)
75.0	0.80	(LOG = -0.09513)
70.0	0.93	(LOG = -0.03171)
65.0	1.08	(LOG = 0.03224)
60.0	1.18	(LOG = 0.07180)
55.0	1.27	(LOG = 0.10525)
50.0	1.47	(LOG = 0.16753)
45.0	1.71	(LOG = 0.23392)
40.0	1.98	(LOG = 0.29622)
35.0	2.40	(LOG = 0.37980)
30.0	2.83	(LOG = 0.45188)
25.0	3.47	(LOG = 0.54027)
20.0	4.36	(LOG = 0.63946)
15.0	6.26	(LOG = 0.79673)
10.0	9.36	(LOG = 0.97116)
5.0	18.2	(LOG = 1.26089)

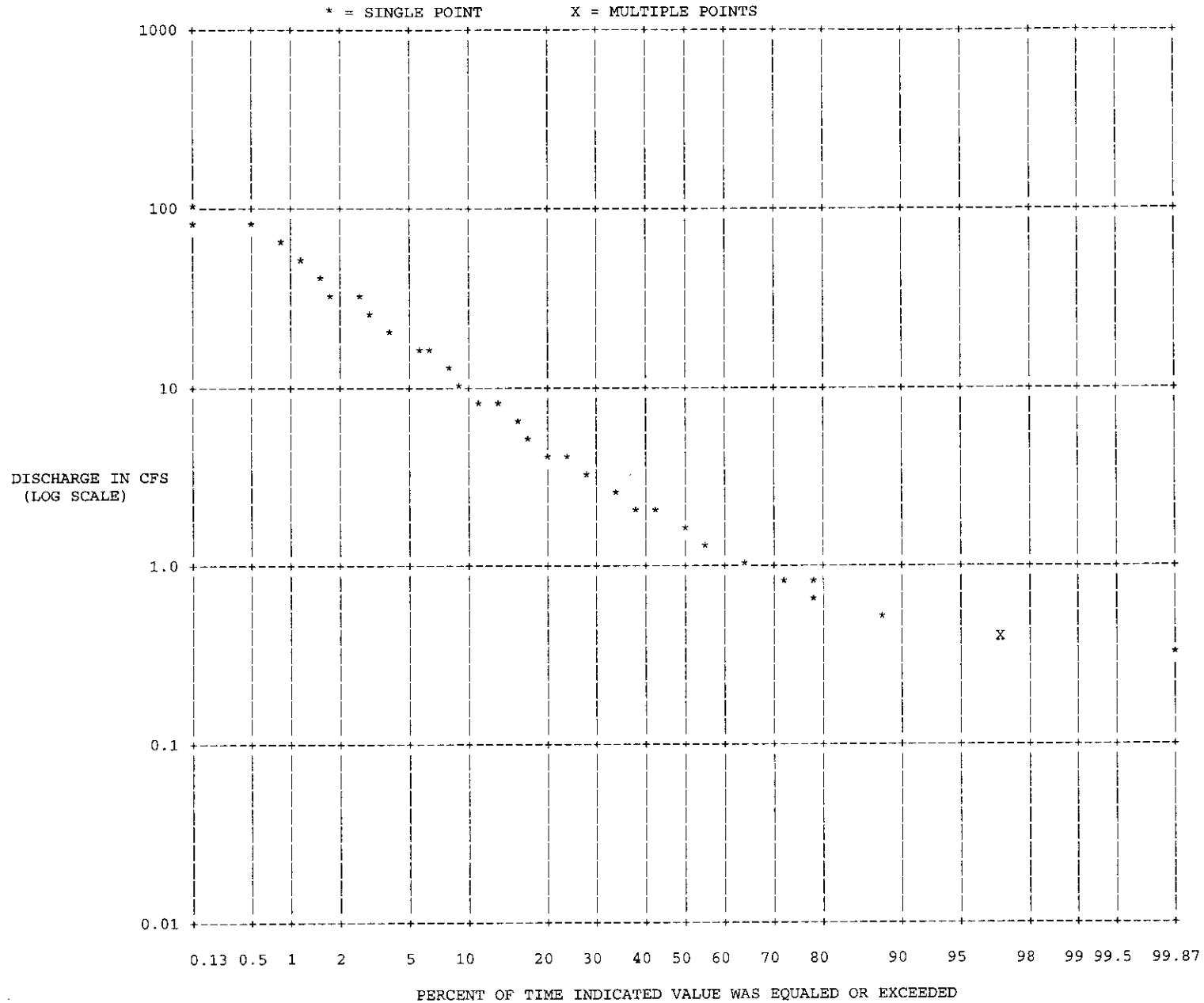
MEAN OF LOGS = 0.24805

STANDARD DEVIATION OF LOGS = 0.44475 (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = 1.79299

COEFFICIENT OF SKEW = 0.70990

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP (YEARS 1918 - 1933)
STATION ID: 16554500 E BR WAIKAMOI STR AT HAIKU-UKA BDRY NR KAILIILI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16554500
E BR WAIKAMOI STR AT HAIKU-UKA BDRY NR KAILIILI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

LOWEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR RANGE	1		3		7		14		30		60		90		120		183	
1919 1919	.31	1	.31	1	.31	1	.39	4	.88	9	1.42	7	1.88	5	2.01	5	2.32	3
1920 1920	.31	2	.31	2	.31	2	.37	3	.47	4	.64	2	.77	1	1.36	3	1.94	2
1921 1921	.31	3	.31	3	.35	5	.41	5	.46	3	1.00	4	1.65	4	3.10	9	3.74	8
1922 1922	.31	4	.31	4	.31	3	.31	1	.38	1	.52	1	.95	2	1.32	2	2.57	5
1923 1923	.46	6	.46	6	.51	9	.51	8	.67	7	2.16	9	2.59	9	2.76	7	3.02	7
1924 1924	.46	7	.46	7	.46	6	.49	7	.66	6	1.05	5	2.11	8	1.91	4	2.51	4
1925 1925	.46	8	.46	8	.46	7	.52	9	.83	8	1.41	6	2.03	7	2.90	8	4.48	9
1926 1926	.31	5	.31	5	.31	4	.31	2	.45	2	.84	3	1.00	3	1.13	1	1.18	1
1927 1927	.46	9	.46	9	.46	8	.48	6	.61	5	1.61	8	1.94	6	2.74	6	2.80	6

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16554500
E BR WAIKAMOI STR AT HAIKU-UKA BDRY NR KAILIILI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

HIGHEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR RANGE	1		3		7		15		30		60		90		120		183	
1919 1919	68.0	8	37.3	7	30.4	4	17.6	6	11.0	6	6.92	7	5.54	6	5.59	6	4.54	6
1920 1920	71.0	7	48.3	5	42.3	2	22.4	4	12.8	4	7.24	6	5.46	7	4.93	7	3.68	8
1921 1921	90.0	2	57.0	2	29.1	5	24.0	2	15.8	3	11.5	2	9.75	2	8.43	2	7.39	2
1922 1922	104	1	85.3	1	73.6	1	42.5	1	30.6	1	21.1	1	19.6	1	20.1	1	15.1	1
1923 1923	74.0	6	48.7	4	37.3	3	22.9	3	12.5	5	8.42	4	7.10	4	6.12	4	5.21	4
1924 1924	80.0	3	53.0	3	25.3	7	14.4	7	8.89	7	7.56	5	6.12	5	6.12	5	5.05	5
1925 1925	79.0	4	41.7	6	27.5	6	19.7	5	16.8	2	10.1	3	7.99	3	6.85	3	6.02	3
1926 1926	34.0	9	17.7	9	10.1	9	6.76	9	5.72	9	3.71	9	3.20	9	2.71	9	2.25	9
1927 1927	79.0	5	34.7	8	19.1	8	10.9	8	6.87	8	5.88	8	5.46	8	4.55	8	4.46	7

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16554500
E BR WAIKAMOI STR AT HAIKU-UKA BDRY NR KAILIILI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

ANNUAL AND/OR SEMI-ANNUAL VALUES

MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN LOW-VALUE ANALYSIS (OCT-SEP)			MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN HIGH-VALUE ANALYSIS (OCT-SEP)		
WATER YEAR RANGE			WATER YEAR RANGE		
1919 1919	3.33	3	1919 1919	3.33	7
1920 1920	2.69	2	1920 1920	2.69	8
1921 1921	5.18	8	1921 1921	5.18	2
1922 1922	8.57	9	1922 1922	8.57	1
1923 1923	4.09	6	1923 1923	4.09	4
1924 1924	3.89	5	1924 1924	3.89	5
1925 1925	4.58	7	1925 1925	4.58	3
1926 1926	1.95	1	1926 1926	1.95	9
1927 1927	3.69	4	1927 1927	3.69	6

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16554000
WAIKAMOI STR AT HAIKU-UKA BDRY NR KAILIILI, MAUI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

DURATION TABLE OF DAILY VALUES
FOR PERIOD OCT TO SEP

CLASS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
WATER YEAR RANGE	NUMBER OF DAYS IN CLASS																																		
1920 1920	18				25	21	32	33	37	40	26	28	24	13	9	9	5	11	4	6	6	5	2		3	2		4		2				1	
1921 1921					3	7	10	5	6	47	30	50	50	11	24	22	8	10	14	14	4	6	12	5	5	6	4	1	3	3	2	3			
1922 1922					1	6	25	8	4	35	27	21	28	35	17	12	20	25	10	16	8	10	12	3	4	4	1	7	4	4	5	6	3	3	1
1923 1923								3	13	19	16	39	45	39	39	20	10	11	31	14	7	22	7	2	6	4	4	3	4	2	1	2		1	1
1924 1924						2	14	12	26	47	19	47	36	22	12	17	20	10	10	13	4	11	6	8	8	2	5	4	2	2	3	1	3		
1925 1925						1	9	7	14	40	18	42	43	22	26	20	16	18	11	8	11	10	9	3	9	4	4	6	4	2	3	1	3	1	
1926 1926					2	11	30	16	40	75	26	30	43	15	16	15	12	5	6	3	3	1	5	4		1	1		4	1						
1927 1927					1	5	20	23	19	44	24	40	38	13	19	20	22	13	6	9	10	10	5	3	4	2	6	4	3		1		1		
1933 1933					30	25	27	16	48	34	17	40	24	15	14	10	8	14	5	4	3	10	7	1	3	1	3	1	5						
1934 1934		3			44	13	37	9	36	18	8	15	12	20	23	12	20	9	12	12	10	14	8	9	2	6	3	5	2	1	2				

CLASS	VALUE	TOTAL	ACCUM	PERCT
1	0.00	0	3652	100.00
2	0.15	21	3652	100.00
3	0.19	0	3631	99.42
4	0.24	0	3631	99.42
5	0.31	106	3631	99.42
6	0.40	91	3525	96.52
7	0.51	204	3434	94.03
8	0.65	132	3230	88.44
9	0.82	243	3098	84.83
10	1.00	399	2855	78.18
11	1.30	211	2456	67.25
12	1.70	352	2245	61.47

CLASS	VALUE	TOTAL	ACCUM	PERCT
13	2.20	343	1893	51.83
14	2.80	205	1550	42.44
15	3.50	199	1345	36.83
16	4.50	157	1146	31.38
17	5.80	141	989	27.08
18	7.30	126	848	23.22
19	9.40	109	722	19.77
20	12.00	99	613	16.79
21	15.00	66	514	14.07
22	19.00	99	448	12.27
23	25.00	73	349	9.56
24	32.00	38	276	7.56

CLASS	VALUE	TOTAL	ACCUM	PERCT
25	40.00	44	238	6.52
26	51.00	32	194	5.31
27	65.00	31	162	4.44
28	84.00	35	131	3.59
29	106.00	31	96	2.63
30	136.00	17	65	1.78
31	173.00	17	48	1.31
32	221.00	13	31	0.85
33	282.00	10	18	0.49
34	359.00	6	8	0.22
35	458.00	2	2	0.05

DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...
STATION ID: 16554000 WAIKAMOI STR AT HAIKU-UKA BDRY NR KAILIILI, MAUI
PARAMETER CODE = 00060
STATISTIC CODE - 00003 MEAN

DURATION DATA VALUES ARE INTERPOLATED FROM DURATION TABLE:
DATA ARE NOT ANALYTICALLY FITTED TO A PARTICULAR STATISTICAL DISTRIBUTION,
AND THE USER IS RESPONSIBLE FOR ASSESSMENT AND INTERPRETATION.

ADDITIONAL CONDITIONS FOR THIS RUN ARE:
STATISTICS ARE BASED ON LOGARITHMS (BASE 10).
NUMBER OF VALUES IS REDUCED FOR EACH NEAR-ZERO OR ZERO VALUE.

NUMBER OF VALUES = 19 (NUMBER OF NEAR-ZERO VALUES = 0)
LISTING OF DATA FOLLOWS:

PERCENT OF TIME VALUE EQUALED OR EXCEEDED	DATA VALUE	
95.0	0.47	(LOG = -0.33049)
90.0	0.61	(LOG = -0.21394)
85.0	0.81	(LOG = -0.09044)
80.0	0.95	(LOG = -0.02197)
75.0	1.09	(LOG = 0.03632)
70.0	1.22	(LOG = 0.08796)
65.0	1.46	(LOG = 0.16311)
60.0	1.78	(LOG = 0.24955)
55.0	2.04	(LOG = 0.30873)
50.0	2.32	(LOG = 0.36496)
45.0	2.64	(LOG = 0.42105)
40.0	3.10	(LOG = 0.49200)
35.0	3.84	(LOG = 0.58384)
30.0	4.92	(LOG = 0.69173)
25.0	6.61	(LOG = 0.82010)
20.0	9.26	(LOG = 0.96661)
15.0	14.0	(LOG = 1.14538)
10.0	24.0	(LOG = 1.38054)
5.0	56.0	(LOG = 1.74809)

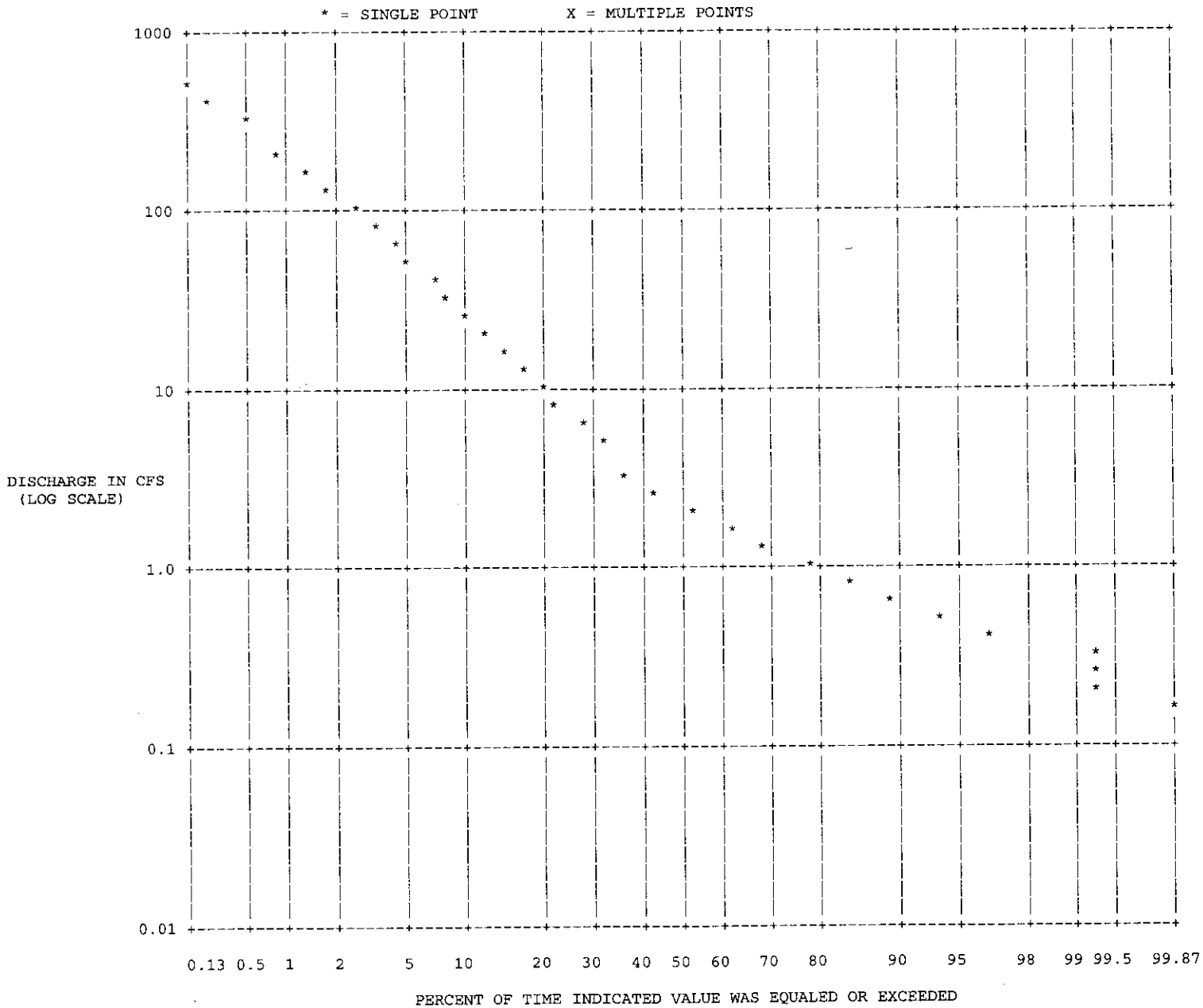
MEAN OF LOGS = 0.46332

STANDARD DEVIATION OF LOGS = 0.55431 (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = 1.19637

COEFFICIENT OF SKEW = 0.77614

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP (YEARS 1918 - 1935)
STATION ID: 16554000 WAIKAMOI STR AT HAIKU-UKA BDRY NR KAILIILI, MAUI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16554000
WAIKAMOI STR AT HAIKU-UKA BDRY NR KAILIILI, MAUI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

LOWEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR RANGE	1		3		7		14		30		60		90		120		183	
1920 1920	.15	1	.15	1	.20	1	.20	1	.32	1	.78	1	.98	1	1.68	1	3.00	3
1921 1921	.31	3	.36	4	.44	5	.48	4	.64	4	1.22	4	1.88	5	3.78	5	6.37	6
1922 1922	.31	4	.41	5	.55	7	.58	7	.65	5	.99	3	1.62	3	2.19	3	4.42	4
1923 1923	.77	10	.77	10	.89	10	.95	9	1.34	10	5.21	10	5.67	8	6.82	9	8.09	9
1924 1924	.46	8	.51	8	.57	8	.67	8	.94	8	2.17	7	5.99	9	5.35	7	7.91	8
1925 1925	.46	9	.57	9	.66	9	.96	10	1.32	9	3.02	8	7.49	10	7.87	10	14.0	10
1926 1926	.31	5	.41	6	.44	4	.55	6	.72	7	1.47	5	1.66	4	2.35	4	2.80	1
1927 1927	.31	6	.41	7	.51	6	.54	5	.70	6	3.60	9	4.58	7	6.28	8	7.39	7
1933 1933	.31	7	.31	3	.31	3	.40	3	.49	3	.94	2	1.53	2	2.09	2	2.93	2
1934 1934	.15	2	.15	2	.24	2	.28	2	.48	2	1.49	6	3.82	6	3.89	6	4.88	5

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16554000
WAIKAMOI STR AT HAIKU-UKA BDRY NR KAILIILI, MAUI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

HIGHEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR RANGE	1	3	7	15	30	60	90	120	183
1920 1920	360 4	169 5	141 4	73.2 5	39.6 6	20.7 7	15.9 7	13.3 8	9.12 9
1921 1921	269 7	166 6	94.3 6	79.5 4	58.3 4	41.0 4	33.6 3	26.9 3	21.8 4
1922 1922	500 1	332 1	262 1	145 1	107 1	69.6 1	66.8 1	66.8 1	46.6 1
1923 1923	458 2	325 2	234 2	130 2	68.5 3	46.1 2	36.1 2	28.8 2	22.9 3
1924 1924	343 5	239 4	109 5	66.4 7	36.8 7	32.9 5	24.7 6	24.6 5	19.8 5
1925 1925	427 3	250 3	151 3	100 3	75.4 2	41.8 3	31.0 4	26.5 4	23.0 2
1926 1926	145 9	68.8 10	36.1 10	23.9 10	17.6 10	10.1 10	8.92 10	7.23 10	5.49 10
1927 1927	340 6	152 7	76.0 9	41.1 8	24.3 9	16.4 9	14.5 9	13.2 9	11.0 7
1933 1933	116 10	116 9	77.4 8	38.3 9	26.9 8	18.7 8	15.6 8	14.0 7	11.0 8
1934 1934	217 8	149 8	84.0 7	69.5 6	44.2 5	30.7 6	25.4 5	21.8 6	16.6 6

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16554000
WAIKAMOI STR AT HAIKU-UKA BDRY NR KAILIILI, MAUI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

ANNUAL AND/OR SEMI-ANNUAL VALUES

MEAN VALUE AND RANKING FOR
PERIOD INCLUDED IN LOW-VALUE ANALYSIS
(OCT-SEP)

WATER YEAR RANGE			
1920	1920	6.00	2
1921	1921	12.8	6
1922	1922	25.3	10
1923	1923	15.2	8
1924	1924	14.4	7
1925	1925	17.1	9
1926	1926	5.11	1
1927	1927	9.71	4
1933	1933	6.28	3
1934	1934	10.4	5

MEAN VALUE AND RANKING FOR
PERIOD INCLUDED IN HIGH-VALUE ANALYSIS
(OCT-SEP)

WATER YEAR RANGE			
1920	1920	6.00	9
1921	1921	12.8	5
1922	1922	25.3	1
1923	1923	15.2	3
1924	1924	14.4	4
1925	1925	17.1	2
1926	1926	5.11	10
1927	1927	9.71	7
1933	1933	6.28	8
1934	1934	10.4	6

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16555000
WAIKAMOI STR AB WAILOA DITCH NR HUELO, MAUI,HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

DURATION TABLE OF DAILY VALUES
FOR PERIOD OCT TO SEP

CLASS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
WATER YEAR RANGE	NUMBER OF DAYS IN CLASS																																		
1923 1923									7	13	21	29	43	44	54	34	28	18	15	12	10	11	5	4	9	2	2	2		2					
1924 1924									16	39	34	32	39	38	28	19	24	19	14	12	15	6	12	2	7	3	4	1	2						
1925 1925									7	25	25	27	34	39	29	31	44	15	18	9	8	5	21	10	3	9	2	2	2						
1926 1926						1	8	35	31	41	35	32	29	32	29	32	20	10	7	6	4	2	5	1	4	1									
1927 1927								11	16	17	25	27	38	40	35	32	28	23	15	19	7	9	7	6	7	1	1		1						
1928 1928									1	9	19	30	35	43	38	37	41	24	15	23	16	5	8	8	7	3	4								
1929 1929							3	8	10	13	23	47	41	31	29	32	23	19	9	15	16	11	14	7	6	3	4		1						
1930 1930						7	4	6	3	7	24	11	22	42	25	38	19	36	16	26	22	13	7	11	10	9	4	2	1						
1931 1931									1	15	38	41	39	30	32	29	21	32	13	19	12	13	12	5	5	4	3	1							
1932 1932											13	31	38	42	36	46	34	30	22	12	14	12	11	8	10	5		1	1						
1933 1933							4	18	49	22	59	40	42	23	27	16	11	12	6	12	10	3	2	5	1	1	1			1					
1934 1934						1	7	26	24	39	44	23	16	24	28	23	14	28	4	22	12	9	6	6	8						1				
1935 1935									2	14	17	33	45	36	41	43	30	28	14	14	10	9	6	7	4	7	1	3		1					
1936 1936								5	31	29	23	21	21	35	21	31	30	22	24	21	17	13	13	6	2	1									
1937 1937										1	7	13	18	23	37	47	32	26	36	30	21	12	13	19	11	4	5	5	1	4					
1938 1938									2	15	24	39	39	42	31	29	19	22	20	15	16	7	14	9	7	1	4	5	1	2	1			1	
1939 1939										5	24	19	43	44	28	47	32	23	22	15	16	9	15	9	7	3	2	1	1						
1940 1940					5	5	5	12	28	30	24	40	29	38	28	30	15	14	16	13	10	3	4	4	5	1	3	1	2		1				
1941 1941						4	3	10	23	19	28	28	28	35	35	28	19	21	18	14	14	12	8	7	4	2	2	2			1				
1942 1942					2	5	3	7	12	13	13	25	32	38	30	33	27	19	12	19	8	11	12	8	9	7	11	6	1		2				
1943 1943								10	22	36	38	34	29	40	28	32	18	10	14	12	10	9	7	3	7	4	1	1							
1944 1944				8	11	12	17	16	27	33	39	33	32	37	20	21	10	13	8	9	4	5	4	4	1	1	1								
1945 1945			13	10	7	5	7	10	39	15	27	30	21	32	27	20	18	21	11	14	13	7	8	4	2	4									
1946 1946				4	14	17	12	7	14	20	40	33	33	27	16	18	14	17	20	12	8	9	10	9	6	2		1		2					
1947 1947					4	4	8	7	11	16	26	46	38	32	28	31	25	14	15	12	9	6	9	8	4	3	4	2	1			1	1		
1948 1948									6	12	16	50	33	46	29	40	21	21	9	13	12	14	12	11	5	7	3	1	1	2					2
1949 1949							8	14	19	19	28	37	32	32	32	25	26	21	10	18	8	11	6	9	5	4			1						
1950 1950						3	7	6	13	8	22	32	39	42	31	22	21	24	16	11	20	15	9	7	7	2	3	3		1	1				
1951 1951							5	13	26	16	18	26	55	44	36	25	20	21	11	10	11	4	9	2	5	3	2	3							
1952 1952					1	4	2	5	2	7	16	17	35	54	65	31	30	22	17	16	9	11	6	7	5	3	1								
1953 1953			14	11	15	8	10	12	17	23	30	20	27	43	35	23	15	14	5	4	9	7	11	3	6		1	2							
1954 1954	1	8	6	11	6	9	6	11	17	14	20	27	39	38	26	25	23	18	11	15	8	13	5	2	4	2									
1955 1955					5	9	5	3	5	7	15	26	36	35	36	29	35	27	14	11	13	10	13	10	6	4	4	2	4				1		
1956 1956					8	8	8	14	12	14	18	17	28	39	36	24	30	18	22	17	11	11	9	3	7	6	2		1	1		2			
1957 1957					6	4	3	7	15	20	41	44	43	36	33	25	18	11	7	10	7	8	3	6	10	3	2	2		1					

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16555000
WAIKAMOI STR AB WAILOA DITCH NR HUELO, MAUI,HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

DURATION TABLE OF DAILY VALUES

CLASS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

WATER YEAR NUMBER OF DAYS IN CLASS

CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT
1	0.00	0	12784	100.00	13	4.40	1179	9019	70.55	25	128.00	204	503	3.93
2	0.20	1	12784	100.00	14	5.80	1297	7840	61.33	26	170.00	117	299	2.34
3	0.26	35	12783	99.99	15	7.70	1131	6543	51.18	27	225.00	79	182	1.42
4	0.35	39	12748	99.72	16	10.00	1049	5412	42.33	28	298.00	49	103	0.81
5	0.46	89	12709	99.41	17	14.00	837	4363	34.13	29	395.00	22	54	0.42
6	0.62	103	12620	98.72	18	18.00	718	3526	27.58	30	523.00	17	32	0.25
7	0.82	138	12517	97.91	19	24.00	513	2808	21.96	31	692.00	6	15	0.12
8	1.10	268	12379	96.83	20	31.00	508	2295	17.95	32	917.00	4	9	0.07
9	1.40	502	12111	94.74	21	42.00	417	1787	13.98	33	1210.00	2	5	0.04
10	1.90	629	11609	90.81	22	55.00	310	1370	10.72	34	1610.00	1	3	0.02
11	2.50	908	10980	85.89	23	73.00	324	1060	8.29	35	2130.00	2	2	0.02
12	3.30	1053	10072	78.79	24	97.00	233	736	5.76					

DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...
STATION ID: 16555000 WAIKAMOI STR AB WAILOA DITCH NR HUELO, MAUI,HI
PARAMETER CODE = 00060
STATISTIC CODE - 00003 MEAN

DURATION DATA VALUES ARE INTERPOLATED FROM DURATION TABLE:
DATA ARE NOT ANALYTICALLY FITTED TO A PARTICULAR STATISTICAL DISTRIBUTION,
AND THE USER IS RESPONSIBLE FOR ASSESSMENT AND INTERPRETATION.

ADDITIONAL CONDITIONS FOR THIS RUN ARE:
STATISTICS ARE BASED ON LOGARITHMS (BASE 10).
NUMBER OF VALUES IS REDUCED FOR EACH NEAR-ZERO OR ZERO VALUE.

NUMBER OF VALUES = 19 (NUMBER OF NEAR-ZERO VALUES = 0)
LISTING OF DATA FOLLOWS:

PERCENT OF TIME VALUE EQUALED OR EXCEEDED	DATA VALUE	
95.0	1.36	(LOG = 0.13423)
90.0	2.00	(LOG = 0.30073)
85.0	2.60	(LOG = 0.41499)
80.0	3.16	(LOG = 0.50013)
75.0	3.81	(LOG = 0.58042)
70.0	4.48	(LOG = 0.65160)
65.0	5.24	(LOG = 0.71953)
60.0	6.05	(LOG = 0.78164)
55.0	6.98	(LOG = 0.84416)
50.0	8.01	(LOG = 0.90347)
45.0	9.31	(LOG = 0.96881)
40.0	11.1	(LOG = 1.04680)
35.0	13.6	(LOG = 1.13275)
30.0	16.5	(LOG = 1.21807)
25.0	20.8	(LOG = 1.31718)
20.0	27.4	(LOG = 1.43819)
15.0	39.2	(LOG = 1.59298)
10.0	60.3	(LOG = 1.78045)
5.0	109.9	(LOG = 2.04091)

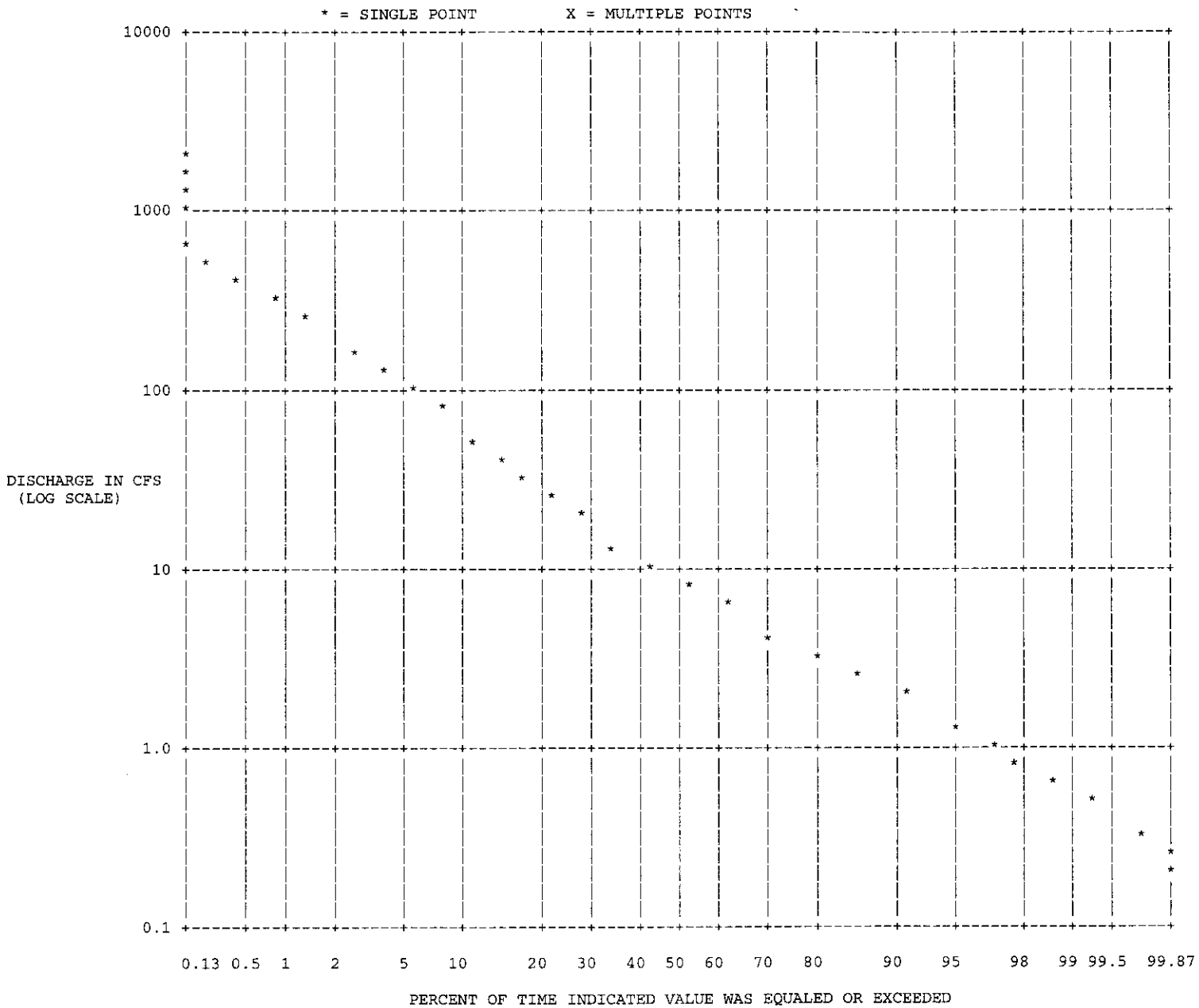
MEAN OF LOGS = 0.96669

STANDARD DEVIATION OF LOGS = 0.50947 (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = 0.52703

COEFFICIENT OF SKEW = 0.44084

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP (YEARS 1922 - 1958)
STATION ID: 16555000 WAIKAMOI STR AB WAILOA DITCH NR HUELO, MAUI,HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16555000
WAIKAMOI STR AB WAILOA DITCH NR HUELO, MAUI,HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

LOWEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR RANGE	1	3	7	14	30	60	90	120	183
1923 1923	1.50 28	1.63 27	1.81 27	1.93 26	2.72 18	9.80 28	11.7 19	12.9 18	15.5 14
1924 1924	1.40 25	1.43 25	1.53 25	1.84 24	2.74 19	5.13 16	12.0 20	10.8 13	15.1 13
1925 1925	1.40 26	1.53 26	1.94 29	2.53 30	3.90 26	6.89 18	13.1 23	18.5 31	27.6 31
1926 1926	.77 16	.93 20	.96 15	1.04 13	1.73 13	4.24 10	5.01 4	6.08 3	6.29 1
1927 1927	1.10 22	1.13 22	1.29 22	1.54 21	2.39 16	7.98 20	9.69 14	16.0 24	16.0 16
1928 1928	1.70 30	1.87 32	1.96 30	2.26 28	3.72 25	12.7 32	18.1 31	20.8 33	22.2 25
1929 1929	.93 20	.99 21	1.03 16	1.19 14	1.81 14	7.71 19	9.85 15	9.92 11	13.4 12
1930 1930	.62 13	.72 14	.80 11	.92 11	1.57 12	17.1 35	20.7 34	21.3 34	32.1 33
1931 1931	1.70 31	1.83 31	2.07 31	2.23 27	4.12 27	8.49 22	8.93 12	11.1 15	16.9 17
1932 1932	2.50 35	2.83 35	3.30 35	3.74 33	7.81 33	10.5 29	18.3 32	16.8 30	23.6 28
1933 1933	.93 21	.93 19	1.16 20	1.35 17	1.42 7	3.55 7	4.78 3	5.58 2	6.74 2
1934 1934	.77 17	.88 16	.95 14	1.21 15	1.33 6	2.93 4	4.21 1	4.59 1	7.14 3
1935 1935	1.70 32	1.77 29	1.91 28	2.28 29	6.66 31	8.66 23	9.95 16	11.2 16	17.8 20
1936 1936	1.20 24	1.20 24	1.41 24	1.51 20	2.47 17	4.93 15	6.59 8	7.39 7	12.0 9
1937 1937	2.30 34	2.50 34	3.24 34	4.15 34	11.9 35	16.6 34	30.9 35	31.5 35	35.1 35
1938 1938	1.50 29	1.80 30	2.10 32	3.01 31	6.06 30	9.73 27	13.1 24	16.4 28	32.3 34
1939 1939	2.00 33	2.17 33	2.79 33	4.75 35	9.39 34	12.2 31	15.6 28	20.7 32	26.7 30
1940 1940	.52 8	.53 6	.59 6	.82 9	1.56 11	5.41 17	6.00 5	6.73 5	11.3 8
1941 1941	.66 14	.70 13	.82 13	1.33 16	3.54 23	4.40 11	10.8 18	11.0 14	17.9 21
1942 1942	.56 10	.61 11	.82 12	.98 12	1.51 10	3.89 8	14.0 25	15.5 22	22.6 26
1943 1943	1.10 23	1.17 23	1.30 23	1.66 22	3.21 22	8.76 24	16.9 29	15.7 23	18.3 22
1944 1944	.35 4	.37 4	.46 4	.57 4	.89 2	3.18 5	6.55 7	8.80 9	8.92 4
1945 1945	.26 2	.28 2	.30 1	.33 1	1.22 4	2.51 2	4.70 2	6.34 4	12.1 10
1946 1946	.37 5	.55 7	.67 10	.72 5	1.22 5	2.87 3	12.1 21	13.1 19	17.2 18
1947 1947	.51 7	.57 9	.65 8	.79 8	1.45 9	8.83 25	12.7 22	14.5 21	18.8 23
1948 1948	1.40 27	1.67 28	1.77 26	3.10 32	4.71 29	13.6 33	18.5 33	16.6 29	23.7 29
1949 1949	.85 19	.92 18	1.12 19	1.47 19	2.76 20	4.60 13	6.62 9	9.64 10	10.8 6
1950 1950	.71 15	.74 15	1.19 21	1.81 23	3.13 21	9.26 26	14.2 26	16.1 26	23.4 27
1951 1951	.83 18	.90 17	1.06 17	1.42 18	3.63 24	4.57 12	6.03 6	7.39 8	10.9 7
1952 1952	.60 12	.65 12	1.07 18	1.88 25	6.93 32	10.6 30	15.2 27	16.0 25	17.3 19
1953 1953	.26 3	.29 3	.31 3	.38 2	.48 1	2.02 1	6.69 10	7.11 6	9.63 5
1954 1954	.20 1	.25 1	.30 2	.54 3	1.09 3	8.41 21	9.15 13	10.2 12	12.6 11
1955 1955	.57 11	.61 10	.66 9	.75 6	4.31 28	4.90 14	17.9 30	16.3 27	20.8 24
1956 1956	.46 6	.49 5	.57 5	.78 7	2.09 15	4.22 9	9.96 17	13.1 20	28.4 32
1957 1957	.54 9	.56 8	.59 7	.88 10	1.42 8	3.50 6	7.12 11	11.6 17	15.5 15

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16555000
WAIKAMOI STR AB WAILOA DITCH NR HUELO, MAUI,HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

HIGHEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR RANGE	1	3	7	15	30	60	90	120	183
1923 1923	664 11	441 9	326 8	186 8	99.2 11	66.2 10	53.4 10	43.9 13	35.8 16
1924 1924	493 18	328 15	157 20	102 18	60.4 24	51.6 19	39.8 22	39.3 21	32.6 19
1925 1925	439 22	322 16	204 15	142 13	109 8	65.9 11	51.5 12	43.5 15	37.7 13
1926 1926	210 34	104 34	59.9 35	44.1 34	33.4 34	20.7 35	17.7 35	14.9 35	12.2 35
1927 1927	506 17	233 22	122 24	71.2 29	43.7 32	31.4 33	29.3 31	26.2 31	24.5 29
1928 1928	268 30	168 28	101 30	65.3 30	48.5 29	39.9 26	37.0 25	29.3 27	30.1 23
1929 1929	430 23	272 19	217 14	133 14	95.5 12	60.5 14	52.1 11	47.9 10	39.9 11
1930 1930	461 21	336 13	260 11	148 11	89.6 13	78.3 9	60.8 9	59.5 7	51.0 6
1931 1931	376 26	226 23	135 21	76.9 27	50.4 28	42.7 25	38.6 23	31.6 24	31.0 21
1932 1932	416 24	186 26	118 27	99.2 19	72.9 18	48.4 23	46.1 18	41.8 17	36.6 14
1933 1933	545 15	293 17	162 18	80.3 25	55.2 27	36.1 29	31.4 30	27.4 30	21.7 32
1934 1934	933 6	354 12	182 16	131 15	85.9 15	58.7 15	49.7 14	42.7 16	33.0 18
1935 1935	589 13	425 10	275 9	142 12	85.0 16	62.8 12	48.7 15	46.8 11	40.5 10
1936 1936	179 35	95.7 35	62.7 34	56.1 33	44.1 31	35.0 31	33.5 28	29.3 28	27.6 27
1937 1937	603 12	576 7	364 7	259 6	169 5	108 4	93.0 4	80.6 2	66.6 2
1938 1938	1830 2	1013 2	646 2	320 2	205 1	120 2	98.1 2	79.3 3	64.7 3
1939 1939	484 19	208 25	134 22	98.5 20	65.5 20	52.4 18	42.9 20	45.2 12	38.7 12
1940 1940	726 9	467 8	266 10	154 10	106 9	60.9 13	44.3 19	36.2 22	29.8 25
1941 1941	897 7	384 11	223 13	125 16	69.5 19	50.7 21	40.7 21	41.7 18	36.0 15
1942 1942	758 8	611 6	465 5	278 5	191 2	126 1	95.1 3	73.4 5	61.8 4
1943 1943	350 27	135 32	83.4 31	57.8 32	41.2 33	32.2 32	27.2 32	26.1 32	23.5 30
1944 1944	243 32	123 33	65.0 33	40.2 35	27.6 35	22.0 34	18.1 34	17.0 34	14.6 34
1945 1945	221 33	179 27	115 28	97.4 21	61.2 23	36.4 28	25.4 33	22.3 33	21.1 33
1946 1946	575 14	226 24	131 23	89.1 22	63.9 22	49.9 22	47.9 17	43.7 14	33.7 17
1947 1947	1520 3	932 3	573 3	286 4	170 4	98.9 5	71.6 6	56.5 8	47.2 8
1948 1948	2460 1	1562 1	691 1	327 1	172 3	116 3	101 1	85.8 1	68.5 1
1949 1949	466 20	281 18	169 17	119 17	89.6 14	58.1 16	50.1 13	39.7 20	31.8 20
1950 1950	693 10	331 14	229 12	155 9	102 10	82.4 8	63.3 8	53.7 9	45.5 9
1951 1951	388 25	257 20	121 25	87.5 24	58.0 25	54.5 17	48.5 16	40.8 19	30.5 22
1952 1952	257 31	161 29	119 26	79.1 26	56.0 26	35.6 30	32.1 29	30.6 26	27.2 28
1953 1953	347 28	151 31	115 29	71.3 28	64.4 21	51.0 20	37.7 24	28.5 29	23.2 31
1954 1954	278 29	154 30	82.1 32	61.1 31	46.1 30	38.2 27	34.7 27	34.2 23	30.1 24
1955 1955	1360 4	747 5	511 4	290 3	168 6	96.5 6	89.1 5	75.7 4	59.7 5
1956 1956	1110 5	779 4	385 6	254 7	137 7	84.9 7	68.3 7	61.3 6	49.0 7
1957 1957	535 16	245 21	161 19	88.9 23	75.0 17	46.4 24	36.9 26	30.9 25	28.0 26

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16555000
WAIKAMOI STR AB WAILOA DITCH NR HUELO, MAUI,HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

ANNUAL AND/OR SEMI-ANNUAL VALUES

WATER YEAR RANGE	MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN LOW-VALUE ANALYSIS (OCT-SEP)		MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN HIGH-VALUE ANALYSIS (OCT-SEP)	
1923 1923	25.6	22	25.6	14
1924 1924	24.3	18	24.3	18
1925 1925	29.3	26	29.3	10
1926 1926	10.9	1	10.9	35
1927 1927	20.4	12	20.4	24
1928 1928	24.7	20	24.7	16
1929 1929	25.0	21	25.0	15
1930 1930	34.7	30	34.7	6
1931 1931	24.2	17	24.2	19
1932 1932	27.2	24	27.2	12
1933 1933	13.0	3	13.0	33
1934 1934	19.7	7	19.7	29
1935 1935	26.2	23	26.2	13
1936 1936	19.7	8	19.7	28
1937 1937	46.8	35	46.8	1
1938 1938	40.1	32	40.1	4
1939 1939	27.4	25	27.4	11
1940 1940	21.6	14	21.6	22
1941 1941	24.6	19	24.6	17
1942 1942	42.2	33	42.2	3
1943 1943	19.1	6	19.1	30
1944 1944	11.1	2	11.1	34
1945 1945	16.0	4	16.0	32
1946 1946	22.2	16	22.2	20
1947 1947	31.0	29	31.0	7
1948 1948	43.2	34	43.2	2
1949 1949	20.6	13	20.6	23
1950 1950	29.5	27	29.5	9
1951 1951	20.4	10	20.4	26
1952 1952	20.4	11	20.4	25
1953 1953	16.5	5	16.5	31
1954 1954	20.3	9	20.3	27
1955 1955	36.2	31	36.2	5
1956 1956	30.7	28	30.7	8
1957 1957	22.0	15	22.0	21

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16556000
WAIKAMOI STREAM NEAR HUELO, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

DURATION TABLE OF DAILY VALUES
FOR PERIOD OCT TO SEP

CLASS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
WATER YEAR RANGE	NUMBER OF DAYS IN CLASS																																		
1912 1912			9	3	3	2	4	7	12	13	26	44	36	39	44	34	13	23	19	11	9	8	5	2											
1913 1913					2	2	4	4	7	20	33	38	50	46	48	25	22	23	14	8	6	6	3	2	2										
1914 1914						2	10	5	8	13	8	13	13	19	26	19	10	35	22	25	21	16	19	22	14	11	14	10	4	4	1	1			
1915 1915								2	15	12	17	41	24	29	41	22	1	41	16	21	8	18	14	14	8	7	3	6	4			1			
1916 1916								3	6	6	11	17	13	19	35	20	14	41	20	22	25	27	18	23	7	12	6	6	4	3	2	2	2	1	1
1917 1917		8	2		3	2	4	5	11	19	23	26	34	47	23	28	22	27	13	13	10	9	11	6	8	2	2	1	1	3		1		1	
1918 1918		5	1	8	5	1	1	1	3	5	10	11	28	24	35	32	37	29	16	21	17	18	13	9	8	6	7	3	2	3	2	2	1	1	
1919 1919			1	1			7	4	2	9	13	61	19	17	11	12	18	41	37	45	13	8	16	10	7	5	3	3					1	1	
1920 1920		2	5	4	16	12	31	30	30	45	30	28	27	11	12	10	6	10	4	9	8	11	8	1	6	1	4	2		1	1	1			
1921 1921							6	17	13	29	11	19	28	22	21	23	12	36	10	15	28	20	13	6	9	14	6	1	5	1					

CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT
1	0.00	0	3653	100.00	13	4.50	272	2651	72.57	25	85.00	69	262	7.17
2	0.31	15	3653	100.00	14	5.80	273	2379	65.12	26	108.00	58	193	5.28
3	0.40	18	3638	99.59	15	7.40	296	2106	57.65	27	138.00	45	135	3.70
4	0.50	16	3620	99.10	16	9.40	225	1810	49.55	28	176.00	32	90	2.46
5	0.64	29	3604	98.66	17	12.00	155	1585	43.39	29	225.00	20	58	1.59
6	0.82	21	3575	97.86	18	15.00	306	1430	39.15	30	287.00	15	38	1.04
7	1.00	67	3554	97.29	19	20.00	171	1124	30.77	31	367.00	6	23	0.63
8	1.30	78	3487	95.46	20	25.00	190	953	26.09	32	468.00	8	17	0.47
9	1.70	107	3409	93.32	21	32.00	145	763	20.89	33	597.00	4	9	0.25
10	2.20	171	3302	90.39	22	41.00	141	618	16.92	34	762.00	4	5	0.14
11	2.80	182	3131	85.71	23	52.00	120	477	13.06	35	973.00	1	1	0.03
12	3.60	298	2949	80.73	24	66.00	95	357	9.77					

DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...
STATION ID: 16556000 WAIKAMOI STREAM NEAR HUELO, MAUI, HI
PARAMETER CODE = 00060
STATISTIC CODE - 00003 MEAN

DURATION DATA VALUES ARE INTERPOLATED FROM DURATION TABLE:
DATA ARE NOT ANALYTICALLY FITTED TO A PARTICULAR STATISTICAL DISTRIBUTION,
AND THE USER IS RESPONSIBLE FOR ASSESSMENT AND INTERPRETATION.

ADDITIONAL CONDITIONS FOR THIS RUN ARE:
STATISTICS ARE BASED ON LOGARITHMS (BASE 10).
NUMBER OF VALUES IS REDUCED FOR EACH NEAR-ZERO OR ZERO VALUE.

NUMBER OF VALUES = 19 (NUMBER OF NEAR-ZERO VALUES = 0)
LISTING OF DATA FOLLOWS:

PERCENT OF TIME VALUE EQUALED OR EXCEEDED	DATA VALUE	
95.0	1.39	(LOG = 0.14157)
90.0	2.25	(LOG = 0.35222)
85.0	2.91	(LOG = 0.46450)
80.0	3.68	(LOG = 0.56589)
75.0	4.23	(LOG = 0.62654)
70.0	4.95	(LOG = 0.69450)
65.0	5.83	(LOG = 0.76542)
60.0	6.90	(LOG = 0.83867)
55.0	8.05	(LOG = 0.90603)
50.0	9.29	(LOG = 0.96795)
45.0	11.3	(LOG = 1.05384)
40.0	14.4	(LOG = 1.15825)
35.0	17.5	(LOG = 1.24241)
30.0	20.8	(LOG = 1.31851)
25.0	26.5	(LOG = 1.42266)
20.0	34.0	(LOG = 1.53162)
15.0	46.5	(LOG = 1.66712)
10.0	65.0	(LOG = 1.81312)
5.0	113.4	(LOG = 2.05443)

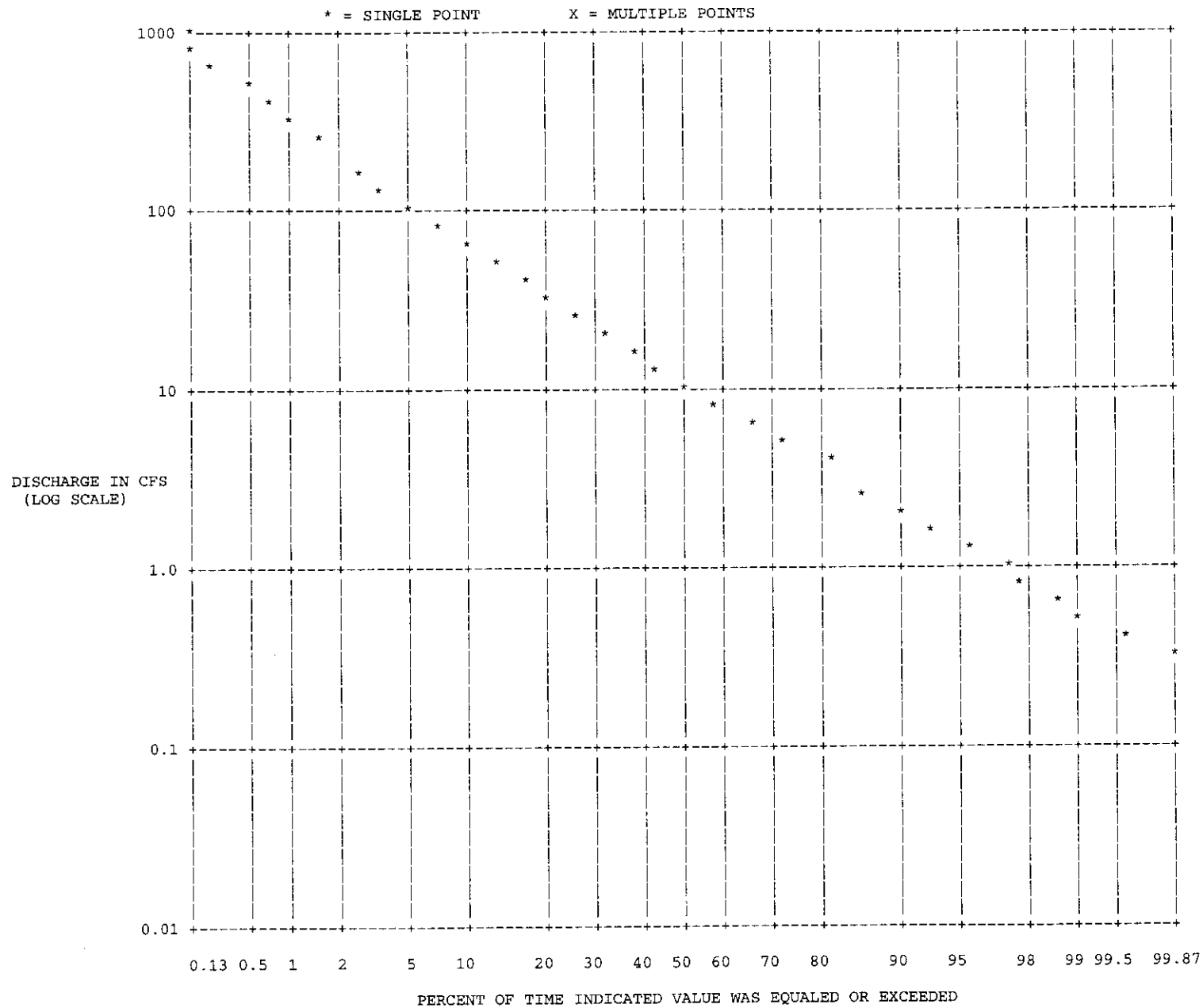
MEAN OF LOGS = 1.03080

STANDARD DEVIATION OF LOGS = 0.51666 (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = 0.50122

COEFFICIENT OF SKEW = 0.27030

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP (YEARS 1911 - 1922)
STATION ID: 16556000 WAIKAMOI STREAM NEAR HUELO, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16556000
WAIKAMOI STREAM NEAR HUELO, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

LOWEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR RANGE	1		3		7		14		30		60		90		120		183	
1912 1912	.49	5	.49	4	.49	4	.69	2	1.57	4	3.86	3	5.52	3	5.83	2	8.50	1
1913 1913	.80	6	.83	6	1.38	8	2.04	8	4.00	9	4.92	5	6.49	4	7.07	4	9.78	2
1914 1914	.86	7	.94	7	1.17	6	1.41	6	2.37	6	6.47	6	11.4	7	16.5	9	28.0	8
1915 1915	1.50	9	1.83	10	2.00	10	2.26	9	3.96	8	9.19	8	15.0	9	14.8	8	19.5	7
1916 1916	1.50	10	1.57	9	1.87	9	2.75	10	8.09	10	20.7	10	19.1	10	31.0	10	46.9	10
1917 1917	.31	1	.31	1	.31	1	.77	3	1.23	2	3.76	2	4.64	2	6.21	3	12.7	4
1918 1918	.31	2	.31	2	.40	2	1.41	7	1.97	5	10.2	9	11.3	6	12.3	6	28.3	9
1919 1919	.46	4	.76	5	1.03	5	1.19	4	3.90	7	8.78	7	11.4	8	13.3	7	17.4	6
1920 1920	.31	3	.36	3	.44	3	.63	1	.94	1	1.58	1	2.25	1	5.11	1	11.2	3
1921 1921	1.10	8	1.17	8	1.26	7	1.33	5	1.56	3	3.97	4	8.43	5	12.0	5	17.0	5

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16556000
WAIKAMOI STREAM NEAR HUELO, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

HIGHEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR RANGE	1		3		7		15		30		60		90		120		183	
1912 1912	74.0	10	54.3	10	45.9	10	33.3	10	24.3	10	23.7	9	18.6	9	15.3	9	15.0	9
1913 1913	93.0	9	68.7	9	62.7	9	39.2	9	26.0	9	16.8	10	14.8	10	12.7	10	13.1	10
1914 1914	566	6	268	7	183	6	143	6	110	4	98.0	3	76.8	3	67.5	2	64.0	1
1915 1915	546	7	297	6	177	7	107	8	70.5	8	51.0	7	43.1	7	38.9	7	35.1	7
1916 1916	1300	1	698	1	541	1	297	1	168	1	102	1	78.9	1	71.1	1	62.2	2
1917 1917	804	3	542	2	290	3	187	3	113	3	79.5	4	60.1	5	47.1	6	36.6	6
1918 1918	787	4	445	3	249	5	209	2	123	2	101	2	78.5	2	66.3	3	58.1	3
1919 1919	823	2	380	4	304	2	163	4	96.0	5	66.4	6	49.5	6	47.9	5	39.6	5
1920 1920	585	5	321	5	283	4	159	5	91.9	6	48.6	8	33.3	8	30.8	8	23.6	8
1921 1921	308	8	232	8	161	8	124	7	85.7	7	79.4	5	65.7	4	55.3	4	44.6	4

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16556000
WAIKAMOI STREAM NEAR HUELO, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

ANNUAL AND/OR SEMI-ANNUAL VALUES

MEAN VALUE AND RANKING FOR
PERIOD INCLUDED IN LOW-VALUE ANALYSIS
(OCT-SEP)

WATER YEAR RANGE			
1912	1912	10.6	2
1913	1913	10.2	1
1914	1914	46.1	9
1915	1915	28.8	6
1916	1916	52.7	10
1917	1917	23.2	4
1918	1918	37.6	8
1919	1919	28.1	5
1920	1920	16.0	3
1921	1921	29.0	7

MEAN VALUE AND RANKING FOR
PERIOD INCLUDED IN HIGH-VALUE ANALYSIS
(OCT-SEP)

WATER YEAR RANGE			
1912	1912	10.6	9
1913	1913	10.2	10
1914	1914	46.1	2
1915	1915	28.8	5
1916	1916	52.7	1
1917	1917	23.2	7
1918	1918	37.6	3
1919	1919	28.1	6
1920	1920	16.0	8
1921	1921	29.0	4

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16552800
WAIKAMOI STR AB RES AT KULA PL INTAKE NR OLINDA
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

DURATION TABLE OF DAILY VALUES
FOR PERIOD OCT TO SEP

CLASS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
WATER YEAR RANGE	NUMBER OF DAYS IN CLASS																																		
1954 1954	3		49	30		61	24	23	23	16	17	13	21	16	15	7	12	6	11	6	4	2	4	1			1							
1955 1955			7	26		61	31	21	18	19	21	20	26	11	21	15	8	15	7	9	7	4	5	2	1	2	2	1	1	3				1
1956 1956	16		24	37		56	18	20	21	17	19	17	21	21	16	12	11	6	5	5	3	8	3	1		1	1	1	4	2				
1957 1957				58		86	31	28	20	22	17	12	17	10	13	7	5	7	3	7	3	6	4	4		3		2						
1958 1958	3		10	22		55	33	27	23	19	19	18	21	19	17	13	15	12	9	3	6	7	5	3	4		1			1				
1959 1959			2	6		62	39	39	36	25	22	24	17	16	12	8	8	9	7	10	7	4	2		4	3	1	1			1			
1960 1960				32		83	27	29	25	16	26	14	14	18	14	6	13	9	10	8	5	2	4	2	2	1		2	2	1				1
1961 1961			13	37		86	39	37	29	14	20	15	9	8	9	5	6	8	5	10	2	6	1		2	3	1							
1962 1962	11		37	40		75	27	24	12	23	19	16	14	11	10	5	12	9	7	2	3	2	4		1			1						
1963 1963	19		52	22		56	25	31	18	15	22	13	14	12	8	7	8	12	8	7	4	4	6			1			1					
1964 1964			4	27		82	30	33	20	24	27	18	13	19	11	8	4	12	7	5	10	5	3	2	1	1								
1965 1965			2	24		79	32	23	20	29	22	17	16	12	18	10	13	8	7	7	4	5	6	2	3	1	1	2	1		1			
1966 1966		1	22	28	5	66	36	41	18	24	17	12	19	14	11	8	12	6	8	2	5	3	3			3	1							
1967 1967		6	19	35	24	61	34	34	14	15	19	11	13	15	10	10	7	3	8	4	7	3	4		4	2	2			1				
1968 1968		7	24	31	18	70	23	23	6	25	15	13	12	20	7	4	12	14	9	9	10	2	3	5	3			1						

CLASS	VALUE	TOTAL	ACCUM	PERCT
1	0.00	52	5479	100.00
2	0.01	14	5427	99.05
3	0.02	265	5413	98.80
4	0.03	455	5148	93.96
5	0.04	47	4693	85.65
6	0.05	1039	4646	84.80
7	0.07	449	3607	65.83
8	0.10	433	3158	57.64
9	0.13	303	2725	49.74
10	0.18	303	2422	44.21
11	0.25	302	2119	38.67
12	0.35	233	1817	33.16
13	0.48	247	1584	28.91
14	0.66	222	1337	24.40
15	0.91	192	1115	20.35
16	1.30	125	923	16.85
17	1.70	146	798	14.56
18	2.40	136	652	11.90
19	3.30	111	516	9.42
20	4.60	94	405	7.39
21	6.30	80	311	5.68
22	8.70	63	231	4.22
23	12.00	57	168	3.07
24	17.00	22	111	2.03
25	23.00	25	89	1.62
26	32.00	21	64	1.17
27	44.00	11	43	0.78
28	60.00	11	32	0.58
29	83.00	9	21	0.38
30	115.00	8	12	0.22
31	159.00	1	4	0.07
32	219.00	1	3	0.05
33	303.00	0	2	0.04
34	418.00	2	2	0.04
35	0.00	0	0	0.00

DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...
STATION ID: 16552800 WAIKAMOI STR AB RES AT KULA PL INTAKE NR OLINDA
PARAMETER CODE = 00060
STATISTIC CODE - 00003 MEAN

DURATION DATA VALUES ARE INTERPOLATED FROM DURATION TABLE:
DATA ARE NOT ANALYTICALLY FITTED TO A PARTICULAR STATISTICAL DISTRIBUTION,
AND THE USER IS RESPONSIBLE FOR ASSESSMENT AND INTERPRETATION.

ADDITIONAL CONDITIONS FOR THIS RUN ARE:
STATISTICS ARE BASED ON LOGARITHMS (BASE 10).
NUMBER OF VALUES IS REDUCED FOR EACH NEAR-ZERO OR ZERO VALUE.

NUMBER OF VALUES = 19 (NUMBER OF NEAR-ZERO VALUES = 0)
LISTING OF DATA FOLLOWS:

PERCENT OF TIME VALUE EQUALED OR EXCEEDED	DATA VALUE	
95.0	0.03	(LOG = -1.55522)
90.0	0.03	(LOG = -1.45883)
85.0	0.05	(LOG = -1.32214)
80.0	0.06	(LOG = -1.25917)
75.0	0.06	(LOG = -1.21945)
70.0	0.07	(LOG = -1.18306)
65.0	0.07	(LOG = -1.13638)
60.0	0.09	(LOG = -1.03927)
55.0	0.11	(LOG = -0.95855)
50.0	0.13	(LOG = -0.88943)
45.0	0.17	(LOG = -0.76242)
40.0	0.23	(LOG = -0.63222)
35.0	0.32	(LOG = -0.49939)
30.0	0.45	(LOG = -0.34999)
25.0	0.64	(LOG = -0.19645)
20.0	0.95	(LOG = -0.02273)
15.0	1.62	(LOG = 0.21050)
10.0	3.09	(LOG = 0.48980)
5.0	7.41	(LOG = 0.86991)

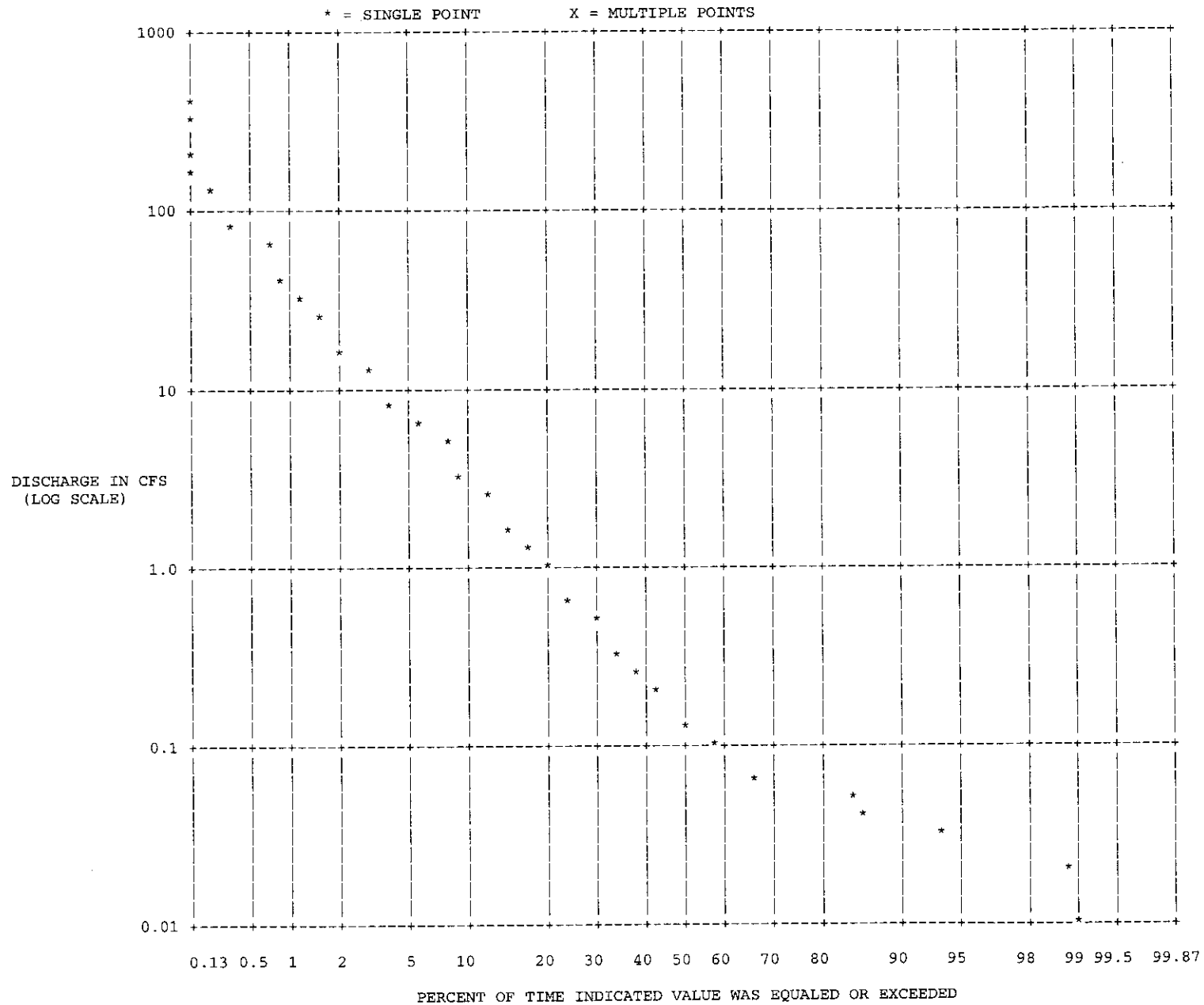
MEAN OF LOGS = -0.67971

STANDARD DEVIATION OF LOGS = 0.68732 (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = -1.01119

COEFFICIENT OF SKEW = 0.84194

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP (YEARS 1953 - 1968)
STATION ID: 16552800 WAIKAMOI STR AB RES AT KULA PL INTAKE NR OLINDA
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16552800
WAIKAMOI STR AB RES AT KULA PL INTAKE NR OLINDA
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

LOWEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR RANGE	1	3	7	14	30	60	90	120	183
1954 1954	.0000 1	.007 5	.014 5	.019 4	.020 3	.33 13	.31 9	.60 10	.70 3
1955 1955	.020 9	.020 8	.023 9	.028 9	.11 14	.17 10	.73 13	.78 13	.92 7
1956 1956	.0000 2	.0000 1	.0000 1	.011 3	.028 5	.10 5	.75 14	1.06 15	1.28 14
1957 1957	.030 14	.030 14	.030 12	.031 10	.040 8	.088 3	.24 6	.51 8	1.24 13
1958 1958	.0000 3	.0000 2	.011 4	.022 7	.18 15	.54 15	.45 12	.69 12	.99 10
1959 1959	.020 10	.023 11	.030 13	.041 15	.051 9	.17 9	.34 10	.47 7	.98 9
1960 1960	.030 15	.030 15	.030 14	.035 13	.055 10	.22 12	.28 8	.39 4	.80 5
1961 1961	.020 11	.020 9	.024 10	.031 11	.084 13	.19 11	.25 7	.43 6	.89 6
1962 1962	.0000 4	.0000 3	.003 3	.004 1	.014 2	.067 2	.11 2	.19 3	.27 2
1963 1963	.0000 5	.0000 4	.0000 2	.004 2	.011 1	.15 8	.23 5	.62 11	1.00 11
1964 1964	.020 12	.023 12	.027 11	.034 12	.037 7	.14 6	.35 11	.43 5	.79 4
1965 1965	.020 13	.023 13	.030 15	.036 14	.061 12	.41 14	.92 15	.81 14	1.35 15
1966 1966	.010 6	.020 10	.020 8	.020 5	.025 4	.055 1	.089 1	.11 1	.17 1
1967 1967	.010 7	.010 6	.017 7	.027 8	.055 11	.10 4	.18 4	.59 9	1.09 12
1968 1968	.010 8	.010 7	.014 6	.021 6	.035 6	.14 7	.17 3	.17 2	.98 8

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16552800
WAIKAMOI STR AB RES AT KULA PL INTAKE NR OLINDA
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

HIGHEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR RANGE	1	3	7	15	30	60	90	120	183
1954 1954	45.0 13	15.8 15	6.91 15	3.46 15	3.05 15	2.04 15	1.65 15	1.57 15	1.38 15
1955 1955	473 1	251 1	146 1	72.6 1	37.5 1	19.4 1	15.8 1	12.5 1	8.58 1
1956 1956	158 5	86.7 5	37.3 5	27.3 4	15.2 4	10.7 3	10.0 3	8.04 3	5.83 3
1957 1957	70.0 9	42.0 8	25.3 8	12.2 8	7.06 9	3.91 10	3.32 11	2.66 12	2.09 11
1958 1958	147 7	56.9 7	26.4 6	14.4 7	9.84 7	5.28 6	3.66 7	2.95 8	2.35 8
1959 1959	254 3	114 3	55.7 4	26.1 5	13.3 5	9.33 5	7.26 4	5.71 4	4.58 4
1960 1960	418 2	206 2	114 2	55.5 2	28.1 2	14.8 2	12.3 2	9.44 2	6.73 2
1961 1961	52.0 12	32.3 10	18.2 10	12.1 9	6.49 10	4.78 9	3.34 10	2.76 10	2.25 9
1962 1962	63.0 11	26.9 12	12.3 13	8.02 12	6.34 11	3.72 12	2.60 14	1.97 14	1.60 14
1963 1963	100 8	39.0 9	16.9 11	8.18 11	5.63 13	3.67 13	2.68 12	2.80 9	2.22 10
1964 1964	41.0 15	19.7 14	10.4 14	7.64 13	5.68 12	3.34 14	2.68 13	2.37 13	1.75 13
1965 1965	217 4	104 4	74.1 3	37.0 3	19.6 3	10.2 4	6.91 5	5.69 5	4.58 5
1966 1966	45.0 14	29.7 11	18.3 9	10.1 10	8.54 8	4.84 8	3.61 8	3.04 7	2.07 12
1967 1967	152 6	60.8 6	26.3 7	17.6 6	10.2 6	5.23 7	4.30 6	4.06 6	3.15 6
1968 1968	65.0 10	23.0 13	12.7 12	7.41 14	5.04 14	3.89 11	3.43 9	2.75 11	2.89 7

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16552800
WAIKAMOI STR AB RES AT KULA PL INTAKE NR OLINDA
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

ANNUAL AND/OR SEMI-ANNUAL VALUES

WATER YEAR RANGE	MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN LOW-VALUE ANALYSIS (OCT-SEP)		MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN HIGH-VALUE ANALYSIS (OCT-SEP)	
1954 1954	.98	2	.98	14
1955 1955	4.59	15	4.59	1
1956 1956	3.14	13	3.14	3
1957 1957	1.67	8	1.67	8
1958 1958	2.11	10	2.11	6
1959 1959	2.56	11	2.56	5
1960 1960	3.57	14	3.57	2
1961 1961	1.31	6	1.31	10
1962 1962	.93	1	.93	15
1963 1963	1.27	5	1.27	11
1964 1964	1.21	4	1.21	12
1965 1965	2.77	12	2.77	4
1966 1966	1.12	3	1.12	13
1967 1967	2.00	9	2.00	7
1968 1968	1.58	7	1.58	9

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16552600
WAIKAMOI STREAM AT PUU LUAU NR OLINDA, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

DURATION TABLE OF DAILY VALUES
FOR PERIOD OCT TO SEP

CLASS		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
WATER YEAR RANGE		NUMBER OF DAYS IN CLASS																																		
1951	1951342	3			2	2	1	2						1	1	1	1					1	1	1	2	1		1	1	1					1
1952	1952348	4	1		1	3	1	1		1	1	1					1	1			1		1												
1953	1953344	2	4			2	2	2	2	1	1	1							1	1	1									1					
1954	1954349	4	1		1	3		1	1	2	1	1												1											
1955	1955314	13	7		2	3	1	2		1	4	2	1				1	1	1	1	1		1	1	1		2	1	1	1	1				1
1956	1956333	5	3		2	3	2	3							1	1		2	1			1			1	2	1		1	2	2				
1957	1957333	5	3		2	1	3	1	3	1				1	1		3		1	1	1			2			3								
1958	1958326	4	4		2	2	1	3	3	3	2	2	1			1	1		1	2	3		2		1					1					
1960	1960343	2	1		1	1	1	2	1		1		3							1		2	1			2		2						1	1
1961	1961342		5				2	5		1	1		1				1	1				2	1		1	2									
1962	1962349	5			3			1	1	1								1	1	2									1						
1963	1963342	3	4		1	2	1	3		1			1		1		1					4								1					
1964	1964337	10	1		2	6	3			2	2				2								1												
1965	1965334	1	3		3	3	1			2				3	3			1		1	2	2			2		1	2			1				
1966	1966344	3	4		3	2	1					1			1				2		1		1		1	1									

CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT
1	0.00	5080	5479	100.00	13	0.50	11	141	2.57	25	17.00	8	39	0.71
2	0.02	64	399	7.28	14	0.68	10	130	2.37	26	23.00	7	31	0.57
3	0.03	41	335	6.11	15	0.91	3	120	2.19	27	31.00	6	24	0.44
4	0.04	0	294	5.37	16	1.20	9	117	2.14	28	41.00	4	18	0.33
5	0.05	25	294	5.37	17	1.60	7	108	1.97	29	55.00	6	14	0.26
6	0.06	33	269	4.91	18	2.20	8	101	1.84	30	74.00	4	8	0.15
7	0.09	20	236	4.31	19	2.90	9	93	1.70	31	99.00	1	4	0.07
8	0.12	26	216	3.94	20	3.90	10	84	1.53	32	133.00	0	3	0.05
9	0.16	11	190	3.47	21	5.30	12	74	1.35	33	178.00	0	3	0.05
10	0.21	16	179	3.27	22	7.10	9	62	1.13	34	239.00	1	3	0.05
11	0.28	14	163	2.97	23	9.50	5	53	0.97	35	320.00	2	2	0.04
12	0.38	8	149	2.72	24	13.00	9	48	0.88					

DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...
STATION ID: 16552600 WAIKAMOI STREAM AT PUU LUAU NR OLINDA, MAUI, HI
PARAMETER CODE = 00060
STATISTIC CODE - 00003 MEAN

DURATION DATA VALUES ARE INTERPOLATED FROM DURATION TABLE:
DATA ARE NOT ANALYTICALLY FITTED TO A PARTICULAR STATISTICAL DISTRIBUTION,
AND THE USER IS RESPONSIBLE FOR ASSESSMENT AND INTERPRETATION.

ADDITIONAL CONDITIONS FOR THIS RUN ARE:
STATISTICS ARE BASED ON LOGARITHMS (BASE 10).
NUMBER OF VALUES IS REDUCED FOR EACH NEAR-ZERO OR ZERO VALUE.

NUMBER OF VALUES = 19 (NUMBER OF NEAR-ZERO VALUES = 9)

SUBSTITUTION FOR ZERO AND NEAR-ZERO VALUES = 0.0000
LISTING OF DATA FOLLOWS:

PERCENT OF TIME VALUE EQUALED OR EXCEEDED	DATA VALUE		
95.0	0.00	(LOG = -Inf)	*
90.0	0.00	(LOG = -Inf)	*
85.0	0.00	(LOG = -Inf)	*
80.0	0.00	(LOG = -Inf)	*
75.0	0.00	(LOG = -Inf)	*
70.0	0.00	(LOG = -Inf)	*
65.0	0.00	(LOG = -Inf)	*
60.0	0.00	(LOG = -Inf)	*
55.0	0.00	(LOG = -Inf)	*
50.0	0.01	(LOG = -1.96716)	
45.0	0.01	(LOG = -1.92577)	
40.0	0.01	(LOG = -1.88798)	
35.0	0.01	(LOG = -1.85322)	
30.0	0.02	(LOG = -1.82103)	
25.0	0.02	(LOG = -1.79107)	
20.0	0.02	(LOG = -1.76304)	
15.0	0.02	(LOG = -1.73671)	
10.0	0.02	(LOG = -1.71189)	
5.0	0.06	(LOG = -1.23642)	

* INDICATES SUBSTITUTION FOR ZERO OR NEAR-ZERO VALUES

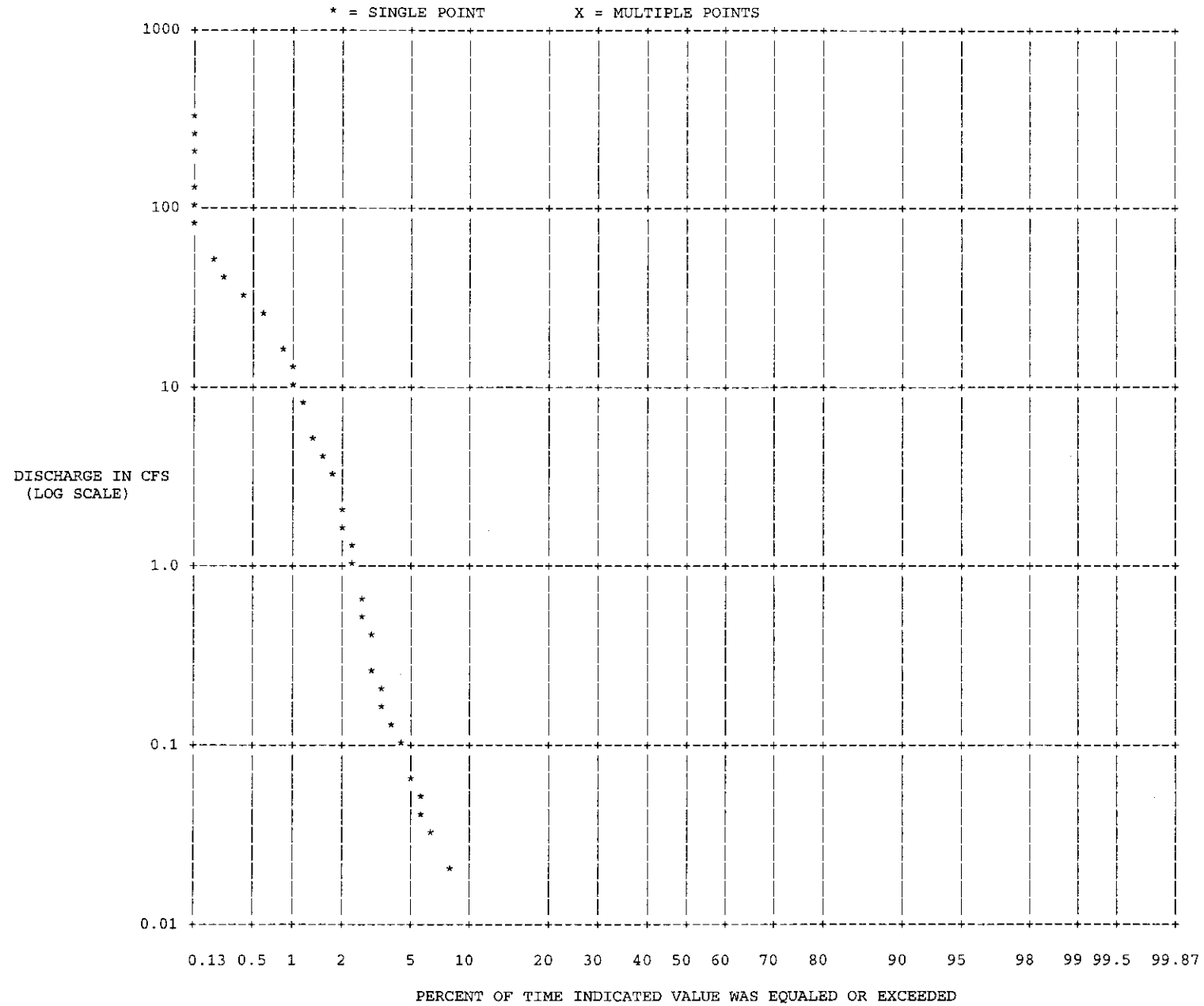
MEAN OF LOGS = -Inf

STANDARD DEVIATION OF LOGS = NaN (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = NaN

COEFFICIENT OF SKEW = NaN

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP (YEARS 1950 - 1967)
STATION ID: 16552600 WAIKAMOI STREAM AT PUU LUAU NR OLINDA, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16552600
WAIKAMOI STREAM AT PUU LUAU NR OLINDA, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

LOWEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR RANGE	1	3	7	14	30	60	90	120	183
1951 1951	.0000 1	.0000 1	.0000 1	.0000 1	.0000 1	.0000 1	.0000 1	.0000 1	.008 10
1952 1952	.0000 2	.0000 2	.0000 2	.0000 2	.0000 2	.0000 2	.0000 2	.0000 2	.002 4
1953 1953	.0000 3	.0000 3	.0000 3	.0000 3	.0000 3	.0000 3	.0000 3	.0000 3	.001 3
1954 1954	.0000 4	.0000 4	.0000 4	.0000 4	.0000 4	.0000 4	.0000 4	.007 15	.007 9
1955 1955	.0000 5	.0000 5	.0000 5	.0000 5	.0000 5	.0000 5	.0000 5	.001 9	.002 5
1956 1956	.0000 6	.0000 6	.0000 6	.0000 6	.0000 6	.0000 6	.002 13	.004 14	.004 7
1957 1957	.0000 7	.0000 7	.0000 7	.0000 7	.0000 7	.0000 7	.0000 6	.003 11	.035 11
1958 1958	.0000 8	.0000 8	.0000 8	.0000 8	.0000 8	.0000 8	.0000 7	.001 10	.098 13
1960 1960	.0000 9	.0000 9	.0000 9	.0000 9	.0000 9	.0000 9	.0000 8	.0000 4	.002 6
1961 1961	.0000 10	.0000 10	.0000 10	.0000 10	.0000 10	.0000 10	.0000 9	.0000 5	.10 15
1962 1962	.0000 11	.0000 11	.0000 11	.0000 11	.0000 11	.0000 11	.0000 10	.0000 6	.0000 1
1963 1963	.0000 12	.0000 12	.0000 12	.0000 12	.0000 12	.0000 12	.0000 11	.0000 7	.083 12
1964 1964	.0000 13	.0000 13	.0000 13	.0000 13	.0000 13	.0000 13	.003 14	.003 12	.004 8
1965 1965	.0000 14	.0000 14	.0000 14	.0000 14	.0000 14	.0000 14	.004 15	.003 13	.099 14
1966 1966	.0000 15	.0000 15	.0000 15	.0000 15	.0000 15	.0000 15	.0000 12	.0000 8	.0000 2

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16552600
WAIKAMOI STREAM AT PUU LUAU NR OLINDA, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

HIGHEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR RANGE	1	3	7	15	30	60	90	120	183
1951 1951	57.0 7	21.4 7	9.20 8	4.29 8	3.10 6	2.20 5	1.94 5	1.71 5	1.12 5
1952 1952	8.20 14	2.76 15	1.18 15	.58 15	.29 15	.28 13	.19 13	.14 13	.095 13
1953 1953	56.0 8	19.4 8	8.33 9	3.89 9	1.94 9	.97 10	.65 10	.57 10	.38 10
1954 1954	11.0 13	3.69 13	1.58 13	.74 13	.37 13	.19 14	.13 14	.10 14	.068 14
1955 1955	404 1	175 2	89.4 2	44.8 1	22.4 1	11.2 1	8.19 1	6.15 1	4.03 1
1956 1956	94.0 4	56.6 3	24.2 4	11.3 4	10.4 3	5.36 3	5.00 3	3.75 3	2.46 3
1957 1957	30.0 10	18.8 9	9.98 6	4.66 6	2.37 8	1.19 8	.80 8	.60 9	.41 8
1958 1958	79.0 5	29.6 5	12.8 5	6.19 5	3.25 5	1.63 6	1.08 6	.81 6	.61 6
1960 1960	320 2	205 1	94.0 1	43.9 2	22.0 2	11.2 2	7.94 2	5.95 2	3.90 2
1961 1961	18.0 12	12.2 11	6.62 11	3.12 11	1.74 11	1.09 9	.79 9	.61 8	.40 9
1962 1962	45.0 9	17.1 10	7.33 10	3.45 10	1.89 10	.95 11	.63 11	.47 11	.31 11
1963 1963	61.0 6	22.5 6	9.64 7	4.50 7	2.46 7	1.23 7	.82 7	.74 7	.49 7
1964 1964	7.50 15	2.77 14	1.20 14	.61 14	.33 14	.17 15	.11 15	.086 15	.058 15
1965 1965	123 3	54.0 4	35.9 3	17.1 3	8.53 4	4.34 4	2.89 4	2.17 4	1.52 4
1966 1966	19.0 11	8.57 12	5.92 12	2.77 12	1.73 12	.87 12	.58 12	.43 12	.28 12

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16552600
WAIKAMOI STREAM AT PUU LUAU NR OLINDA, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

ANNUAL AND/OR SEMI-ANNUAL VALUES

MEAN VALUE AND RANKING FOR
PERIOD INCLUDED IN LOW-VALUE ANALYSIS
(OCT-SEP)

WATER YEAR RANGE			
1951	1951	.57	11
1952	1952	.048	3
1953	1953	.19	6
1954	1954	.035	2
1955	1955	2.02	15
1956	1956	1.23	13
1957	1957	.33	9
1958	1958	.38	10
1960	1960	1.95	14
1961	1961	.20	7
1962	1962	.16	5
1963	1963	.24	8
1964	1964	.031	1
1965	1965	.77	12
1966	1966	.14	4

MEAN VALUE AND RANKING FOR
PERIOD INCLUDED IN HIGH-VALUE ANALYSIS
(OCT-SEP)

WATER YEAR RANGE			
1951	1951	.57	5
1952	1952	.048	13
1953	1953	.19	10
1954	1954	.035	14
1955	1955	2.02	1
1956	1956	1.23	3
1957	1957	.33	7
1958	1958	.38	6
1960	1960	1.95	2
1961	1961	.20	9
1962	1962	.16	11
1963	1963	.24	8
1964	1964	.031	15
1965	1965	.77	4
1966	1966	.14	12