

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

2001 22 P3:42

2001 24 P3:00

**PETITION TO AMEND INTERIM INSTREAM FLOW STANDARDS**

HAIPUAENA 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**

16531000, 16531100, 16532000, Data to follow.  
16533000, 16534000, 16536000, 16530000, Gages Inactive  
 USGS stream gaging station 16537000, 16541000 Period of Record  
 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
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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
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UNDETERMINED; SUFFICIENT FOR TARO FARMING AND/OR GATHERING.

Annual Median flow in cfs =

RESTORATION

**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
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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.)

NATIVE HAWAIIAN LEGAL CORPORATION

May 24, 2001

Signature

Alan Murakami  
 Attorney for Na Moku 'Aupuni o Ko'olau Hui

Petitioner

For Official Use

Date Received

Date

## Haipuaena Stream

Haipuaena Stream is headed near 5,200 ft altitude between Waikamoi and Honomanu Streams, 6.5 mi from the coast (plate 1). The Haipuaena Stream valley is similar in gradient and incision to adjacent Puohokamo Stream valley at 600 ft altitude but is steeper at the coast. The contact between the Honomanu Basalt and the overlying Kula Volcanics is within 1,000 ft of the shore, which accounts for the steep gradient of Haipuaena Stream near the coast (Stearns and Macdonald, 1942). Streamflow is captured by five of the surface-water diversion systems (table 4). In addition, water was diverted at 1,880 ft altitude into Kolea Stream to the east from 1938 to 1960 to generate electricity.

Seven gaging stations were operated on Haipuaena Stream and two of the diversion ditches (Fontaine, 1996) (table 2, plate 1). At the Upper Kula Pipeline near 4,300 ft altitude, gaging station 5310 recorded the diverted flow and gaging station 5311 recorded streamflow past the diversion. These two records were added together to obtain the total flow at this altitude (0.97 Mgal/d) and the estimated average annual base flow (0.14 Mgal/d) for 1947–67 (fig. 15J). Three gaging stations measured flow for less than a year on three stream branches at about 2,900 ft altitude. Streamflow diverted into Kolea Stream was measured at gaging station 5350. This record was added to the streamflow record from gaging station 5360 (1,512 ft altitude) upstream of Spreckels Ditch to obtain a record of the total streamflow (table 2) and a base-flow estimate at this altitude (fig. 15J). The base-flow estimates indicate that the average annual gains from ground water are 2.5 Mgal/d between 4,300 ft and 1,500 ft altitude.

Streamflow measurements were also made on two occasions along several stream sections (table 13, plate 1). Measurements were made some time in the 1920's between 2,860 and 1,510 ft altitude that show continuous gains totaling about 0.9 Mgal/d (written commun. from J.H. Hofmann to J.H. Foss, November 17, 1932 in USGS Hawaii District files). Streamflow data from gaging stations 5360 and 5320 on two dates in 1962 and 1965 confirm this pattern (table 13). Measurements were also made on October 13, 1932 between 2,860 ft and 2,500 ft altitude during low base-flow conditions (table 13). These measurements, along with concurrent records from gaging stations, show a gain of about 0.1

Mgal/d in this short reach of the main branch of Haipuaena Stream (Hofmann, 1934). Overall, Haipuaena Stream appears to gain water continuously upstream of 1,500 ft altitude from at least as high as 4,300 altitude. EMI records from March 1928 show that the stream was dry at about 500 ft altitude indicating no gain in flow downstream of the lowest diversion system at about 900 ft altitude (table 10). A water budget was not estimated for this subbasin.

## 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 13. Streamflow in Haipuaena Stream, northeast Maui, Hawaii**

(ft, feet; Mgal/d, million gallons per day; all altitudes estimated from U.S. Geological Survey topographic maps, Keanae, Kilohana, and Nahiku quadrangles; 1920 flow data from Hofmann; written commun. to Foss, 11/17/32, in U.S. Geological Survey Hawaii District files; 1932 flow data from Hofmann (1934) and daily-discharge data from Grover and Carson (1935); 1963 daily-discharge data from U.S. Geological Survey (undated[b]); 1965 daily-discharge data from U.S. Geological Survey (1967); gaging-station number is preceded by 16 and ends in 00)

Station number	Stream name	Altitude (ft)	Date	Streamflow (Mgal/d)	Comments
5360	Haipuaena	1,512	1920	1.10 <sup>a</sup>	Daily mean at gaging station; upstream of Spreckels Ditch diversion
			10/13/32	0.70	
			10/18/62	1.00	
			1/12/65	1.00	
Haipuaena 20	Haipuaena	1,750	1920	0.83 <sup>a</sup>	
Haipuaena 30	Haipuaena	1,850	1920	0.97 <sup>a</sup>	
Haipuaena 40	Haipuaena	1,950	1920	0.61 <sup>a</sup>	
Haipuaena 41	Third Branch Haipuaena	2,000	1920	0.11 <sup>a</sup>	
Haipuaena 42	Haipuaena	2,000	1920	0.50 <sup>a</sup>	
Haipuaena 50	Haipuaena	2,500	1920	0.36 <sup>a</sup>	
			10/13/32	0.39	
Haipuaena 51	Haipuaena	2,580	10/13/32	0.35	
Haipuaena 52	Haipuaena	2,680	10/13/32	0.30	
Haipuaena 53	Haipuaena	2,800	10/13/32	0.29	
5320	Haipuaena	2,860	1920	0.20 <sup>a</sup>	Daily mean at gaging station; upstream of Lower Kula Pipeline diversion
			10/13/32	0.26	
			10/18/62	0.23	
			1/12/65	0.24	
5340	First Branch Haipuaena	3,000	10/13/32	0.01	Daily mean at gaging station
5330	Third Branch Haipuaena	2,950	10/13/32	0.10	Daily mean at gaging station
5310; 5311	Haipuaena	4,320	10/18/62	0.03	Combined flow at gaging stations; at Upper Kula Pipeline diversion
			1/12/65	0.07	

<sup>a</sup> Instantaneous measurement

***HAIPUAENA***





DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...  
 STATION ID: 16531000 KULA DIV FROM HAIPUAENA STR 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 = 0)  
 LISTING OF DATA FOLLOWS:

PERCENT OF TIME VALUE EQUALLED OR EXCEEDED	DATA VALUE	(LOG = ...)
95.0	0.04	(LOG = -1.44796)
90.0	0.06	(LOG = -1.20981)
85.0	0.09	(LOG = -1.04011)
80.0	0.13	(LOG = -0.89927)
75.0	0.16	(LOG = -0.79078)
70.0	0.21	(LOG = -0.68625)
65.0	0.25	(LOG = -0.59754)
60.0	0.31	(LOG = -0.51092)
55.0	0.36	(LOG = -0.43818)
50.0	0.43	(LOG = -0.36231)
45.0	0.52	(LOG = -0.28035)
40.0	0.62	(LOG = -0.20724)
35.0	0.74	(LOG = -0.13133)
30.0	0.88	(LOG = -0.05478)
25.0	1.05	(LOG = 0.02301)
20.0	1.27	(LOG = 0.10418)
15.0	1.49	(LOG = 0.17462)
10.0	1.81	(LOG = 0.25811)
5.0	2.34	(LOG = 0.36943)

MEAN OF LOGS = -0.40671

STANDARD DEVIATION OF LOGS = 0.51274 (VARIABILITY INDEX - SEE USGS WSP 1542-A)

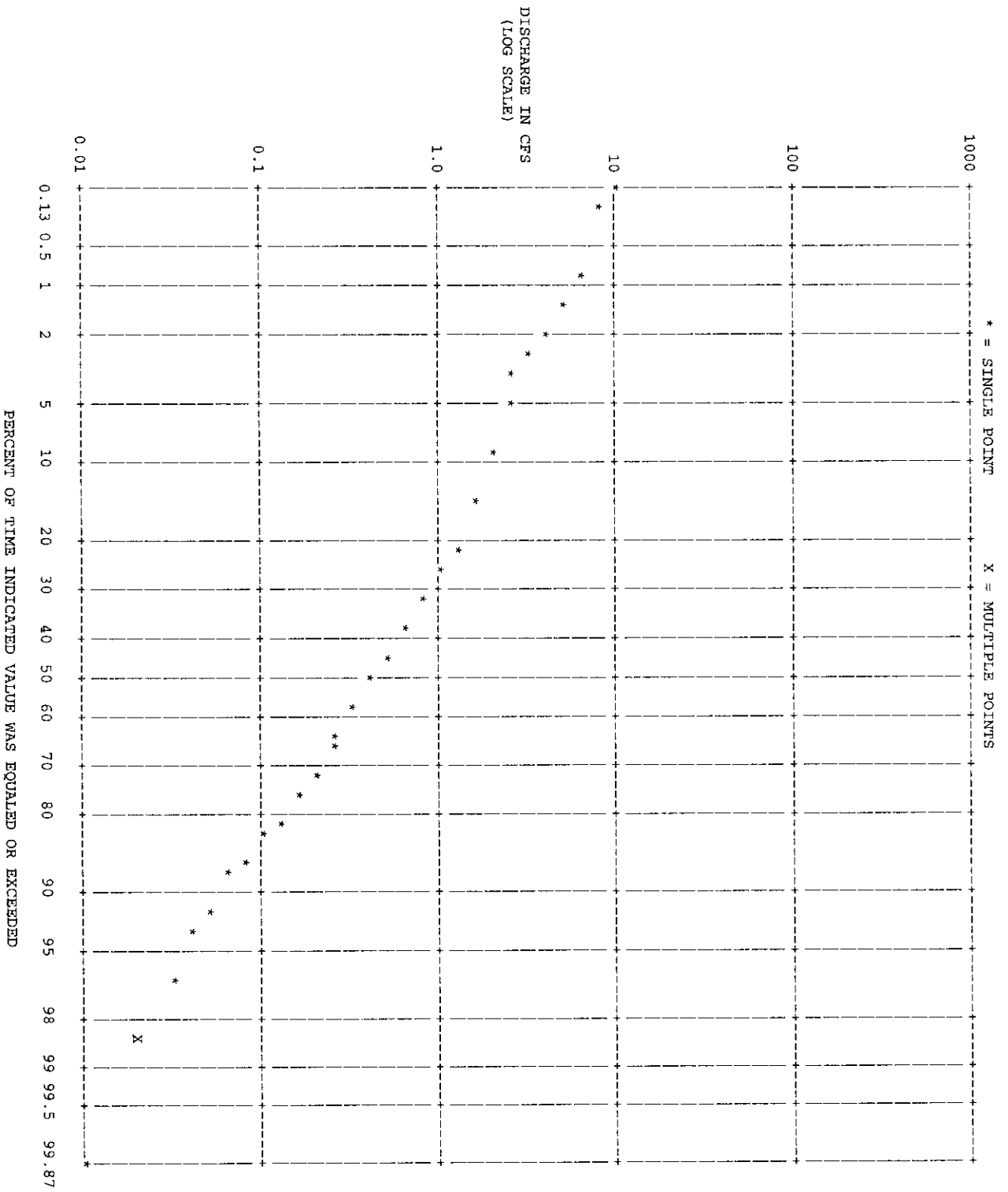
COEFFICIENT OF VARIATION = -1.26071

COEFFICIENT OF SKEW = -0.39709



LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP  
 STATION ID: 16531000 KULA DIV FROM HAIPIAENA STR NR OLINDA, MAUI, HI  
 PARAMETER CODE - 00060 DISCHARGE  
 STATISTIC CODE - 00003 MEAN

(YEARS 1945 - 1985)



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16531000  
 KUIA DIV FROM HAIPUENA STR 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
1946 1946	.030 25	.030 22	.030 20	.030 16	.032 9	.12 6	.35 16	.35 12	.47 9
1947 1947	.030 26	.030 23	.030 21	.036 17	.051 11	.39 32	.55 34	.56 33	.59 22
1948 1948	.050 39	.067 40	.090 38	.27 40	.35 37	.49 37	.67 38	.62 36	.71 31
1949 1949	.030 27	.030 24	.030 22	.048 23	.13 26	.35 31	.45 25	.46 23	.50 14
1950 1950	.030 28	.030 25	.040 30	.075 32	.12 24	.31 23	.42 20	.49 25	.58 21
1951 1951	.030 29	.030 26	.036 26	.061 26	.33 36	.39 33	.43 22	.49 26	.57 20
1952 1952	.030 30	.050 37	.073 37	.18 38	.38 39	.58 39	.61 36	.68 37	.73 34
1953 1953	.020 14	.020 11	.020 9	.020 8	.020 5	.080 5	.28 10	.28 4	.38 3
1954 1954	.020 15	.020 12	.020 10	.020 9	.021 7	.20 13	.27 9	.35 11	.47 10
1955 1955	.020 16	.020 13	.024 17	.036 18	.18 31	.30 21	.57 35	.61 35	.72 32
1956 1956	.020 17	.020 14	.024 18	.026 14	.11 21	.24 14	.24 6	.34 10	.50 16
1957 1957	.030 31	.030 27	.039 29	.054 25	.091 19	.31 24	.45 24	.47 24	.50 15
1958 1958	.030 32	.030 28	.030 23	.063 27	.37 38	.42 35	.54 33	.53 29	.65 27
1959 1959	.030 33	.043 36	.044 31	.068 29	.12 23	.33 29	.49 28	.55 31	.65 28
1960 1960	.050 40	.050 38	.050 33	.066 28	.14 27	.44 36	.50 31	.55 32	.64 25
1961 1961	.030 34	.030 29	.047 32	.071 31	.14 28	.31 22	.42 21	.40 18	.50 17
1962 1962	.020 18	.020 15	.020 11	.020 10	.032 10	.15 8	.33 14	.40 16	.45 8
1963 1963	.020 19	.020 16	.020 12	.020 11	.023 8	.16 9	.22 5	.31 7	.35 1
1964 1964	.030 35	.037 33	.051 34	.091 33	.13 25	.31 26	.43 23	.51 27	.72 33
1965 1965	.0000 1	.037 34	.060 36	.10 34	.18 32	.33 27	.50 30	.61 34	.60 23
1966 1966	.030 36	.030 30	.030 24	.045 20	.090 18	.25 17	.34 15	.40 17	.47 11
1967 1967	.020 20	.037 35	.056 35	.11 35	.18 33	.33 28	.38 19	.46 20	.48 13
1968 1968	.020 21	.027 17	.027 19	.046 22	.15 29	.30 20	.36 17	.35 13	.51 18
1969 1969	.020 22	.020 18	.021 15	.049 24	.12 22	.25 18	.45 26	.46 21	.75 35
1970 1970	.030 37	.030 31	.037 28	.11 36	.16 30	.25 19	.36 18	.40 19	.44 7
1971 1971	.0000 2	.003 2	.021 16	.026 15	.051 12	.14 7	.14 3	.19 1	.39 4
1972 1972	.010 4	.020 19	.020 13	.030 12	.070 15	.25 16	.30 12	.33 8	.38 2
1973 1973	.010 5	.017 10	.034 25	.036 19	.079 16	.17 10	.26 8	.30 5	.43 6
1974 1974	.020 23	.020 20	.020 14	.024 13	.10 20	.19 11	.25 7	.27 2	.43 5
1975 1975	.0000 3	.0000 1	.007 1	.045 21	.062 14	.20 12	.30 11	.39 15	.47 12
1976 1976	.010 6	.010 3	.010 2	.014 6	.053 13	.40 34	.51 32	.55 30	.94 37
1977 1977	.010 7	.010 4	.010 3	.010 1	.011 2	.025 1	.099 1	.52 28	1.02 39
1978 1978	.010 8	.010 5	.010 4	.010 2	.020 6	.065 4	.46 27	.38 14	.64 24
1979 1979	.040 38	.053 39	.10 40	.12 37	.27 35	.50 38	.75 39	.92 39	.92 36
1980 1980	.020 24	.023 21	.036 27	.068 30	.18 34	.34 30	.63 37	.71 38	.96 38
1981 1981	.010 9	.010 6	.010 5	.010 3	.016 4	.057 2	.16 4	.28 3	.65 26

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16531000  
 KULA DIV FROM HAIPOAENA STR 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	1	3	7	14	30	60	90	120	183
1982 1982	.010 10	.030 32	.091 39	.21 39	.66 40	.94 40	1.08 40	1.39 40	1.60 40
1983 1983	.010 11	.010 7	.010 6	.010 4	.010 1	.062 3	.14 2	.33 9	.52 19
1984 1984	.010 12	.010 8	.011 8	.015 7	.079 17	.25 15	.31 13	.30 6	.66 29
1985 1985	.010 13	.010 9	.010 7	.010 5	.014 3	.31 25	.50 29	.46 22	.66 30

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16531000  
 KIUA DIV FROM HAIPUENA STR 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 '70 SEP

WATER YEAR RANGE	1	3	7	15	30	60	90	120	183
1946 1946	2.40 31	2.13 28	1.86 27	1.69 20	1.39 22	1.07 23	.89 29	.83 27	.76 28
1947 1947	2.30 36	1.90 37	1.70 34	1.30 36	1.11 33	.87 39	.86 31	.75 36	.75 30
1948 1948	3.20 12	2.10 29	1.76 33	1.51 31	1.32 24	1.11 21	1.03 20	.95 21	.88 19
1949 1949	2.40 32	2.00 34	1.86 28	1.59 26	1.26 28	1.16 19	1.06 19	.93 22	.78 27
1950 1950	2.80 18	1.97 35	1.79 31	1.61 25	1.46 18	1.37 13	1.20 13	1.11 13	1.01 12
1951 1951	2.50 30	2.17 26	1.94 20	1.67 23	1.28 26	1.00 30	.92 27	.86 24	.80 25
1952 1952	3.10 13	2.63 12	1.91 21	1.58 27	1.17 30	1.03 26	.97 25	.91 23	.86 20
1953 1953	2.60 27	2.53 14	2.11 16	1.87 14	1.49 16	1.32 14	1.01 22	.76 33	.65 36
1954 1954	2.70 23	2.43 15	2.37 12	1.84 15	1.56 13	1.39 12	1.18 14	1.17 10	1.01 13
1955 1955	2.70 24	2.17 27	1.83 29	1.73 18	1.37 23	1.09 22	1.07 18	1.03 17	.98 14
1956 1956	3.10 14	2.33 20	1.91 22	1.71 19	1.43 19	1.27 15	1.25 11	1.12 12	1.05 10
1957 1957	2.90 15	2.67 11	2.56 11	2.21 11	1.55 14	1.01 28	.79 37	.82 28	.73 32
1958 1958	2.80 19	2.33 21	2.20 14	2.01 12	1.67 12	1.26 16	1.10 17	1.03 18	.91 17
1959 1959	2.80 20	2.40 17	1.87 26	1.54 29	1.17 31	1.03 27	.98 24	.86 25	.83 23
1960 1960	2.40 33	2.07 31	1.69 36	1.42 34	1.24 29	1.04 25	.89 30	.80 30	.82 24
1961 1961	2.60 28	2.07 32	1.80 30	1.52 30	1.11 34	.89 38	.81 35	.77 32	.64 37
1962 1962	2.70 25	2.23 23	2.00 19	1.69 21	1.27 27	.97 33	.83 34	.66 39	.71 33
1963 1963	2.80 21	2.60 13	2.04 17	1.68 22	1.51 15	1.23 18	1.14 16	1.08 15	.91 18
1964 1964	2.70 26	2.20 25	1.91 23	1.58 28	1.47 17	1.26 17	1.17 15	1.06 16	.92 16
1965 1965	2.40 34	2.03 33	1.90 25	1.41 35	1.15 32	1.01 29	.94 26	.86 26	.80 26
1966 1966	2.90 16	2.27 22	1.70 35	1.63 24	1.43 20	1.14 20	1.03 21	.98 19	.84 22
1967 1967	2.80 22	2.40 18	2.13 15	1.76 17	1.43 21	.95 34	.77 39	.80 31	.67 35
1968 1968	2.40 35	1.70 38	1.61 37	1.27 37	1.11 35	.98 31	.80 36	.69 38	.70 34
1969 1969	2.90 17	2.43 16	2.30 13	1.89 13	1.69 11	1.59 10	1.46 8	1.27 9	1.11 9
1970 1970	2.30 37	2.10 30	1.91 24	1.77 16	1.32 25	1.05 24	.99 23	.96 20	.85 21
1971 1971	2.20 38	1.93 36	1.61 38	1.24 38	1.07 38	.90 37	.83 33	.76 35	.73 31
1972 1972	1.60 40	1.27 40	1.12 40	.93 40	.80 40	.58 40	.50 40	.48 40	.45 40
1973 1973	1.80 39	1.67 39	1.34 39	1.16 39	1.04 39	.90 36	.84 32	.76 34	.63 38
1974 1974	2.60 29	2.23 24	1.78 32	1.44 33	1.10 36	.97 32	.78 38	.73 37	.62 39
1975 1975	3.90 11	2.40 19	2.02 18	1.46 32	1.10 37	.91 35	.90 28	.81 29	.76 29
1976 1976	7.20 10	5.37 9	4.47 7	3.45 7	3.04 5	2.72 5	2.35 5	2.01 5	1.56 5
1977 1977	10.0 1	8.80 2	6.47 2	4.19 5	4.02 1	3.38 1	2.63 1	2.03 4	1.59 4
1978 1978	9.10 7	6.70 7	3.80 10	2.22 10	1.87 10	1.67 8	1.43 9	1.43 8	1.32 8
1979 1979	9.80 3	7.43 5	5.49 5	4.51 4	2.87 6	2.77 4	2.45 4	2.20 3	1.76 3
1980 1980	9.70 4	9.07 1	6.31 3	5.19 1	3.83 3	2.94 3	2.62 2	2.46 1	2.25 2
1981 1981	9.30 6	7.07 6	5.24 6	3.63 6	2.10 9	1.60 9	1.37 10	1.11 14	.95 15



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16531000  
 KUIA DIV FROM HAIPUAENA STR 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)		MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN HIGH-VALUE ANALYSIS (OCT-SEP)	
WATER YEAR RANGE		WATER YEAR RANGE	
1946 1946	.56 7	1946 1946	.56 34
1947 1947	.66 17	1947 1947	.66 24
1948 1948	.75 28	1948 1948	.75 13
1949 1949	.64 15	1949 1949	.64 26
1950 1950	.74 24	1950 1950	.74 17
1951 1951	.67 18	1951 1951	.67 23
1952 1952	.74 25	1952 1952	.74 16
1953 1953	.53 4	1953 1953	.53 37
1954 1954	.69 20	1954 1954	.69 21
1955 1955	.79 29	1955 1955	.79 12
1956 1956	.72 23	1956 1956	.72 18
1957 1957	.61 12	1957 1957	.61 29
1958 1958	.81 30	1958 1958	.81 11
1959 1959	.71 22	1959 1959	.71 19
1960 1960	.67 19	1960 1960	.67 22
1961 1961	.59 11	1961 1961	.59 30
1962 1962	.58 9	1962 1962	.58 32
1963 1963	.61 13	1963 1963	.61 28
1964 1964	.75 27	1964 1964	.75 14
1965 1965	.70 21	1965 1965	.70 20
1966 1966	.66 16	1966 1966	.66 25
1967 1967	.56 8	1967 1967	.56 33
1968 1968	.54 6	1968 1968	.54 35
1969 1969	.86 32	1969 1969	.86 9
1970 1970	.64 14	1970 1970	.64 27
1971 1971	.53 5	1971 1971	.53 36
1972 1972	.41 1	1972 1972	.41 40
1973 1973	.47 3	1973 1973	.47 38
1974 1974	.46 2	1974 1974	.46 39
1975 1975	.59 10	1975 1975	.59 31
1976 1976	1.07 36	1976 1976	1.07 5
1977 1977	1.09 37	1977 1977	1.09 4
1978 1978	.97 34	1978 1978	.97 7
1979 1979	1.34 38	1979 1979	1.34 3
1980 1980	1.50 39	1980 1980	1.50 2
1981 1981	.75 26	1981 1981	.75 15
1982 1982	1.92 40	1982 1982	1.92 1
1983 1983	1.04 35	1983 1983	1.04 6
1984 1984	.83 31	1984 1984	.83 10
1985 1985	.95 33	1985 1985	.95 8



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16531100  
 HAIPUAENA STR AT KUUA PL INPK NR OLINDA, MAUI, HI  
 PARAMETER CODE - 00060 DISCHARGE  
 STATISTIC CODE - 00003 MEAN

CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT
1	0.00	4967	7670	100.00	13	0.28	117	1833	23.90	25	6.10	74	281	3.66
2	0.01	4	2703	35.24	14	0.36	137	1716	22.37	26	7.80	64	207	2.70
3	0.02	130	2699	35.19	15	0.47	110	1579	20.59	27	10.00	45	143	1.86
4	0.03	79	2569	33.49	16	0.60	154	1469	19.15	28	13.00	48	98	1.28
5	0.04	2	2490	32.46	17	0.78	146	1315	17.14	29	17.00	16	50	0.65
6	0.05	82	2488	32.44	18	1.00	104	1169	15.24	30	22.00	21	34	0.44
7	0.06	94	2406	31.37	19	1.30	168	1065	13.89	31	28.00	9	13	0.17
8	0.08	107	2312	30.14	20	1.70	131	897	11.69	32	36.00	2	4	0.05
9	0.10	81	2205	28.75	21	2.20	119	766	9.99	33	47.00	2	2	0.03
10	0.13	79	2124	27.69	22	2.80	122	647	8.44	34	0.00	0	0	0.00
11	0.17	95	2045	26.66	23	3.60	140	525	6.84	35	0.00	0	0	0.00
12	0.22	117	1950	25.42	24	4.70	104	385	5.02					



DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...  
 STATION ID: 16531100 HAIPUENA STR AT KULA PL INTR 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 = 12)

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

PERCENT OF TIME VALUE EQUALED OR EXCEEDED	DATA VALUE	(LOG = -Inf )	*
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	0.00	(LOG = -Inf )	*
45.0	0.00	(LOG = -Inf )	*
40.0	0.00	(LOG = -Inf )	*
35.0	0.02	(LOG = -1.67540)	*
30.0	0.08	(LOG = -1.08589)	*
25.0	0.24	(LOG = -0.62586)	*
20.0	0.52	(LOG = -0.28135)	*
15.0	1.05	(LOG = 0.02258)	*
10.0	2.20	(LOG = 0.34167)	*
5.0	4.72	(LOG = 0.67396)	*

\* INDICATES SUBSTITUTION FOR ZERO OR NEAR-ZERO VALUES

MEAN OF LOGS = -Inf

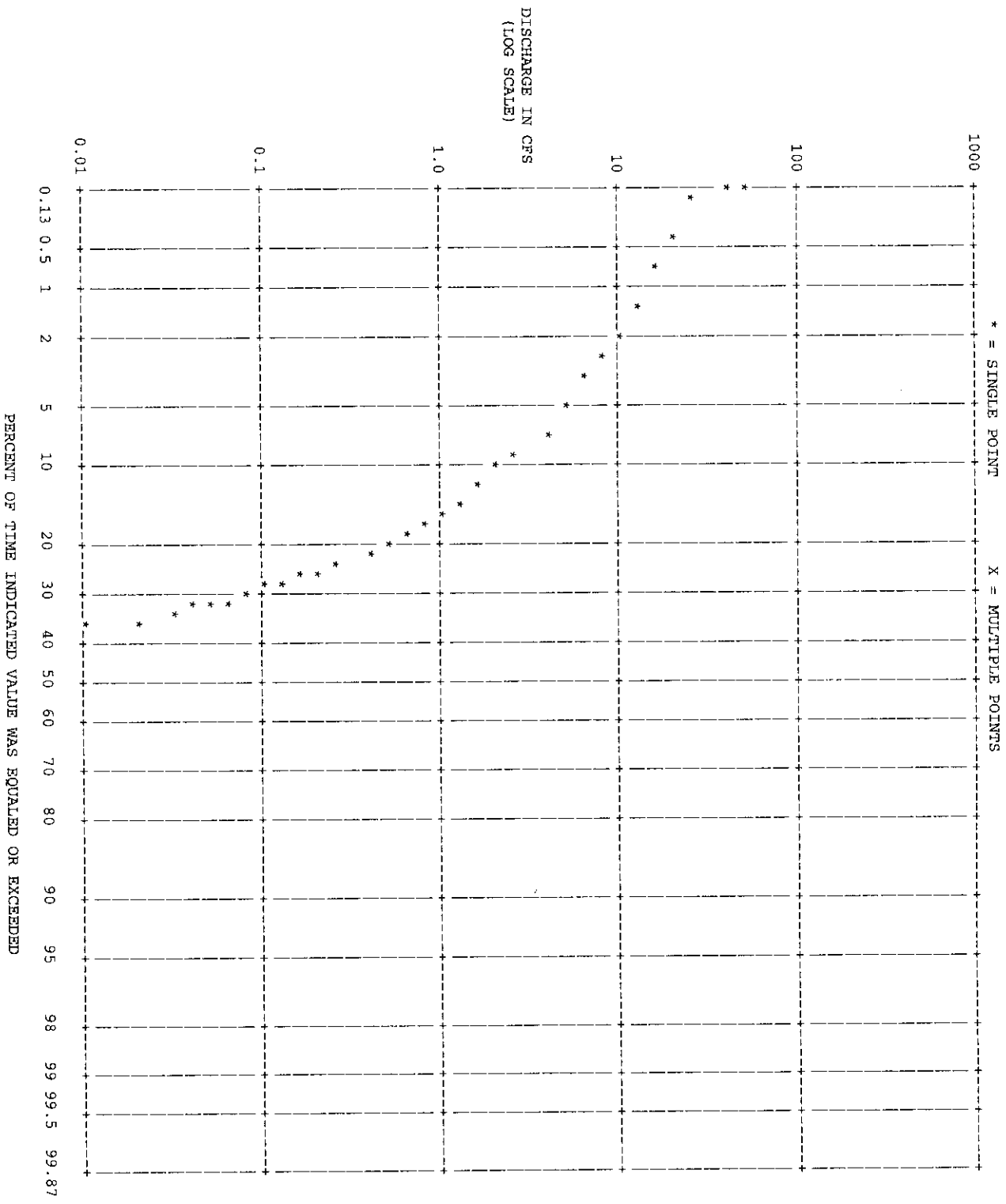
STANDARD DEVIATION OF LOGS = NaN (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = NaN

COEFFICIENT OF SKEW = NaN

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP  
 STATION ID: 1531100 HAIPOAENA STR AP KOILA PL INTR NR OLINDA, MAUI, HI  
 PARAMETER CODE - 00060 DISCHARGE  
 STATISTIC CODE - 00003 MEAN

(YEARS 1946 - 1968)



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16531100  
 HAIPIAENA STR AT KUIA PL INTRK 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
1947 1947	.0000 1	.0000 1	.0000 1	.0000 1	.0000 1	.24 19	.32 15	.44 16	.61 15
1948 1948	.0000 2	.0000 2	.0000 2	.0000 2	.016 17	.34 21	.43 20	.45 17	.61 16
1949 1949	.0000 3	.0000 3	.0000 3	.0000 3	.0000 2	.004 3	.084 3	.13 4	.15 2
1950 1950	.0000 4	.0000 4	.0000 4	.0000 4	.0000 3	.20 16	.34 16	.57 20	.86 20
1951 1951	.0000 5	.0000 5	.0000 5	.0000 5	.014 16	.045 7	.10 4	.13 5	.31 7
1952 1952	.0000 6	.0000 6	.0000 6	.0000 6	.053 21	.13 15	.27 14	.26 8	.29 6
1953 1953	.0000 7	.0000 7	.0000 7	.0000 7	.0000 4	.0000 1	.14 6	.12 3	.23 4
1954 1954	.0000 8	.0000 8	.0000 8	.0000 8	.0000 5	.20 17	.22 13	.32 13	.41 8
1955 1955	.0000 9	.0000 9	.0000 9	.0000 9	.031 20	.10 12	.39 18	.42 15	.52 13
1956 1956	.0000 10	.0000 10	.0000 10	.0000 10	.0000 6	.083 10	.36 17	.48 18	.77 19
1957 1957	.0000 11	.0000 11	.0000 11	.0000 11	.0000 7	.013 4	.16 9	.32 12	.62 17
1958 1958	.0000 12	.0000 12	.0000 12	.0000 12	.018 18	.26 20	.21 12	.38 14	.54 14
1959 1959	.0000 13	.0000 13	.0000 13	.0000 13	.0000 8	.071 9	.18 10	.26 9	.51 12
1960 1960	.0000 14	.0000 14	.0000 14	.0000 14	.0000 9	.10 13	.15 8	.22 6	.46 9
1961 1961	.0000 15	.0000 15	.0000 15	.0000 15	.018 19	.099 11	.11 5	.25 7	.51 11
1962 1962	.0000 16	.0000 16	.0000 16	.0000 16	.0000 10	.027 5	.066 2	.089 2	.11 1
1963 1963	.0000 17	.0000 17	.0000 17	.0000 17	.0000 11	.032 6	.15 7	.28 11	.28 5
1964 1964	.0000 18	.0000 18	.0000 18	.0000 18	.0000 12	.11 14	.19 11	.27 10	.49 10
1965 1965	.0000 19	.0000 19	.0000 19	.0000 19	.007 15	.21 18	.56 21	.50 19	.76 18
1966 1966	.0000 20	.0000 20	.0000 20	.0000 20	.0000 13	.002 2	.049 1	.088 1	.16 3
1967 1967	.0000 21	.0000 21	.0000 21	.0000 21	.0000 14	.068 8	.41 19	.61 21	.99 21

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16531100  
 HAIPIUENA STR AT KULA PL INTRK 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
1947 1947	15.0 19	9.50 16	6.30 16	3.25 19	2.23 20	1.45 19	1.10 19	1.01 19	.97 17
1948 1948	24.0 10	10.7 14	6.49 15	4.54 15	3.64 11	2.23 14	1.76 13	1.69 8	1.34 9
1949 1949	20.0 14	12.7 11	7.33 10	5.07 9	3.82 9	2.35 12	1.96 10	1.52 14	1.12 15
1950 1950	38.0 3	14.8 9	7.63 9	5.20 7	3.07 15	2.62 6	2.02 9	1.60 10	1.42 6
1951 1951	29.0 7	15.0 8	6.56 14	4.03 16	2.87 16	2.60 7	2.21 5	1.78 7	1.29 10
1952 1952	12.0 21	9.03 18	6.21 17	3.73 17	2.35 19	1.44 20	1.05 20	1.08 17	.85 18
1953 1953	16.0 18	8.97 19	6.73 13	3.69 18	3.13 14	2.07 16	1.42 17	1.07 18	.84 19
1954 1954	24.0 11	8.27 21	3.55 21	2.04 21	1.74 21	1.08 21	.94 21	.95 20	.82 20
1955 1955	47.0 2	31.3 2	22.7 1	13.1 1	7.26 1	4.03 1	3.85 1	3.21 1	2.32 1
1956 1956	36.0 4	21.4 4	11.5 4	9.17 4	5.03 3	3.04 4	2.36 3	2.07 4	1.66 5
1957 1957	30.0 6	15.3 7	9.97 5	4.90 11	3.48 12	1.94 17	1.58 16	1.28 16	1.06 16
1958 1958	24.0 12	11.9 12	6.94 12	5.16 8	4.14 7	2.43 10	2.07 8	1.67 9	1.28 11
1959 1959	23.0 13	14.7 10	9.33 6	5.05 10	2.79 17	2.26 13	1.96 11	1.58 11	1.42 7
1960 1960	60.0 1	35.0 1	19.6 2	9.37 3	4.92 4	3.27 2	2.78 2	2.22 3	1.77 3
1961 1961	26.0 9	17.2 5	7.87 8	5.98 6	3.16 13	2.41 11	1.66 15	1.42 15	1.20 12
1962 1962	17.0 17	9.17 17	4.74 20	3.00 20	2.57 18	1.60 18	1.11 18	.86 21	.77 21
1963 1963	18.0 16	8.53 20	5.97 18	4.62 14	3.95 8	2.56 8	1.80 12	1.56 12	1.13 14
1964 1964	20.0 15	11.1 13	5.79 19	4.89 12	3.74 10	2.22 15	1.74 14	1.54 13	1.16 13
1965 1965	33.0 5	21.6 3	18.4 3	10.4 2	5.92 2	3.20 3	2.17 7	1.93 6	1.74 4
1966 1966	15.0 20	10.7 15	6.97 11	4.70 13	4.44 6	2.63 5	2.18 6	1.98 5	1.38 8
1967 1967	27.0 8	16.4 6	8.93 7	6.18 5	4.65 5	2.54 9	2.26 4	2.50 2	1.99 2

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16531100  
 HAIPUAENA STR AT KULA PL INTRK 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)		MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN HIGH-VALUE ANALYSIS (OCT-SEP)	
WATER YEAR RANGE		WATER YEAR RANGE	
1947 1947	.68 7	1947 1947	.68 15
1948 1948	.90 14	1948 1948	.90 8
1949 1949	.63 5	1949 1949	.63 17
1950 1950	.94 15	1950 1950	.94 7
1951 1951	.79 10	1951 1951	.79 12
1952 1952	.56 3	1952 1952	.56 19
1953 1953	.54 2	1953 1953	.54 20
1954 1954	.58 4	1954 1954	.58 18
1955 1955	1.33 20	1955 1955	1.33 2
1956 1956	.96 16	1956 1956	.96 6
1957 1957	.83 12	1957 1957	.83 10
1958 1958	1.01 18	1958 1958	1.01 4
1959 1959	.85 13	1959 1959	.85 9
1960 1960	1.00 17	1960 1960	1.00 5
1961 1961	.71 8	1961 1961	.71 14
1962 1962	.44 1	1962 1962	.44 21
1963 1963	.66 6	1963 1963	.66 16
1964 1964	.82 11	1964 1964	.82 11
1965 1965	1.15 19	1965 1965	1.15 3
1966 1966	.76 9	1966 1966	.76 13
1967 1967	1.35 21	1967 1967	1.35 1



DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...  
 STATION ID: 16532000 HAIPOAENA STR AT HAIKU-UKA BDY NR KAILIILLI, 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	(LOG =
95.0	0.41	-0.38565)
90.0	0.62	(LOG = -0.20545)
85.0	0.71	(LOG = -0.15046)
80.0	0.79	(LOG = -0.10382)
75.0	0.86	(LOG = -0.06756)
70.0	0.92	(LOG = -0.03409)
65.0	1.14	(LOG = 0.05788)
60.0	1.38	(LOG = 0.13882)
55.0	1.56	(LOG = 0.19439)
50.0	1.78	(LOG = 0.25013)
45.0	2.08	(LOG = 0.31799)
40.0	2.49	(LOG = 0.39702)
35.0	3.00	(LOG = 0.47715)
30.0	3.68	(LOG = 0.56550)
25.0	4.77	(LOG = 0.67868)
20.0	6.68	(LOG = 0.82459)
15.0	10.2	(LOG = 1.00919)
10.0	14.9	(LOG = 1.17464)
5.0	26.4	(LOG = 1.42192)

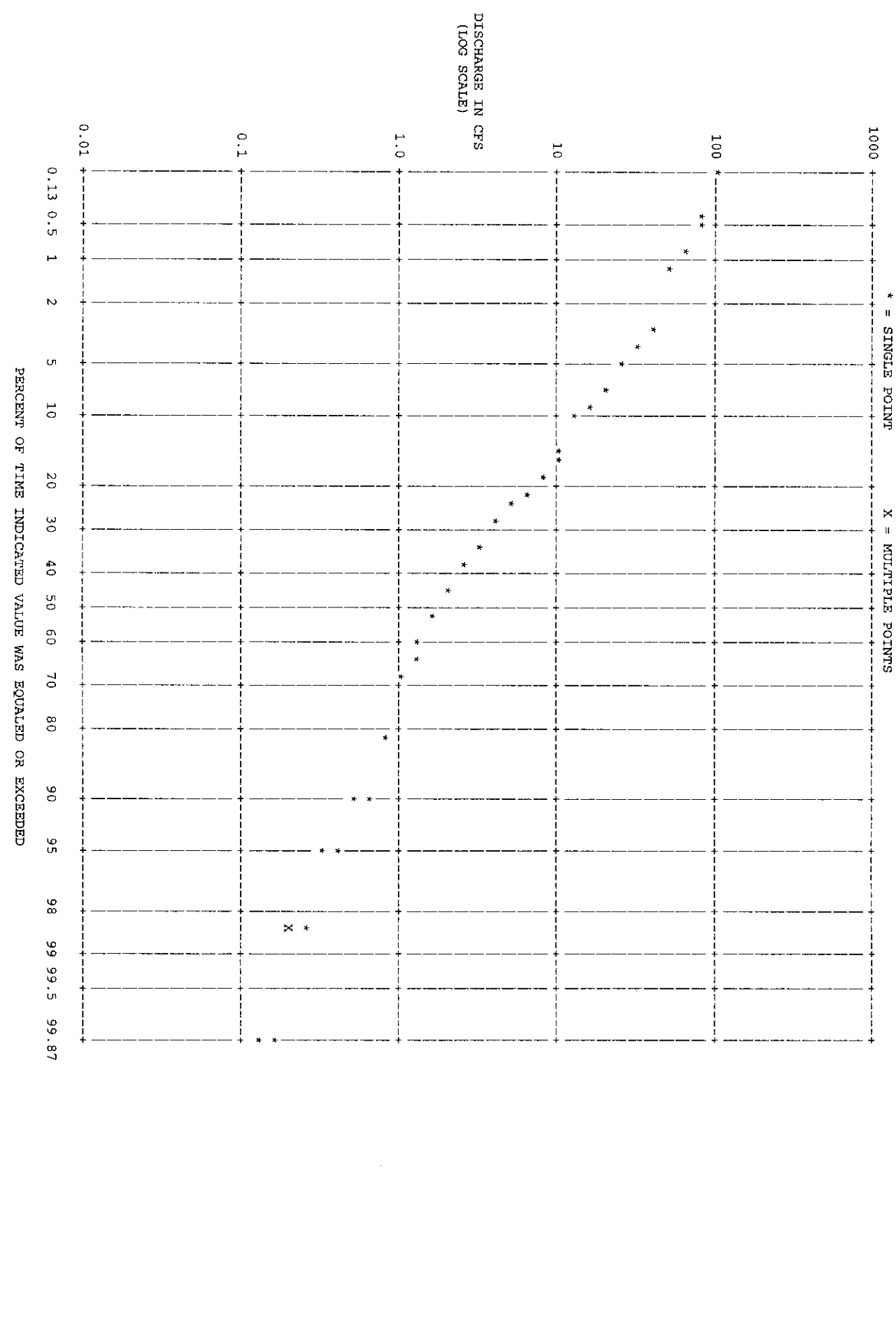
MEAN OF LOGS = 0.34531

STANDARD DEVIATION OF LOGS = 0.49746 (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = 1.44062

COEFFICIENT OF SKEW = 0.67548

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP (YEARS 1919 - 1935)  
 STATION ID: 16532000 HAIPOAENA SPR AT HAIKU-UKA BDY NR KAILIILI, MAUI  
 PARAMETER CODE - 00060 DISCHARGE  
 STATISTIC CODE - 00003 MEAN





DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16532000  
 HAIPIAENA STR AT HAIKU-UKA BDY NR KALIIILI, 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	.15 1	.19 1	.29 1	.50 2	.67 1	1.20 1	2.07 2
1921 1921	.15 2	.20 3	.26 3	.30 3	.42 3	.83 3	1.29 3	2.24 4	3.45 5
1922 1922	.15 3	.15 2	.17 2	.23 2	.31 2	.47 1	1.04 2	1.52 2	2.75 3
1923 1923	.31 4	.31 4	.42 6	.54 6	.78 5	1.67 6	1.99 5	2.49 5	2.75 4
1925 1925	.31 5	.31 5	.35 5	.50 5	.86 6	1.57 5	2.84 6	3.98 6	6.30 6
1926 1926	.31 6	.31 6	.31 4	.42 4	.74 4	1.38 4	1.59 4	1.85 3	1.89 1
1932 1932	.62 7	.67 7	.75 7	1.20 7	1.58 7	3.57 7	5.39 7	5.05 7	6.63 7

DVSTAP - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16532000  
 HAIPUENA STR AT HAIKU-UKA BDY NR KALILILI, 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	46.0 5	46.0 5	46.0 2	27.4 5	15.7 5	8.51 6	6.29 6	5.64 6	4.20 6
1921 1921	82.0 4	50.3 4	46.0 3	35.8 2	25.0 3	16.3 2	13.9 2	11.5 2	9.69 2
1922 1922	94.0 2	93.0 1	93.0 1	57.2 1	39.6 1	23.9 1	23.2 1	22.5 1	16.4 1
1923 1923	40.0 6	39.0 6	39.0 5	29.6 3	15.8 4	10.5 5	8.44 5	7.43 5	6.44 5
1925 1925	94.0 3	56.3 2	39.9 4	28.6 4	25.5 2	15.9 3	12.6 3	10.8 3	9.15 3
1926 1926	40.0 7	21.8 7	12.4 7	10.4 7	7.21 7	4.74 7	4.09 7	3.51 7	2.99 7
1932 1932	97.0 1	52.0 3	29.2 6	20.3 6	14.1 6	10.8 4	10.3 4	9.56 4	8.50 4

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16532000  
 HAIPUAMENA STR AT HAIKU-UKA BDY 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)		MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN HIGH-VALUE ANALYSIS (OCT-SEP)	
WATER YEAR RANGE		WATER YEAR RANGE	
1920 1920	3.00 2	1920 1920	3.00 6
1921 1921	5.91 4	1921 1921	5.91 4
1922 1922	9.33 7	1922 1922	9.33 1
1923 1923	4.68 3	1923 1923	4.68 5
1925 1925	6.80 6	1925 1925	6.80 2
1926 1926	2.85 1	1926 1926	2.85 7
1932 1932	6.79 5	1932 1932	6.79 3





DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...  
 STATION ID: 16536000 HAIPUENA STR AB SPECKELS DITCH NR HUELO, 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	(LOG =
95.0	0.55	-0.26277)
90.0	1.09	(LOG = 0.03573)
85.0	1.62	(LOG = 0.21053)
80.0	2.06	(LOG = 0.31446)
75.0	2.53	(LOG = 0.40258)
70.0	3.04	(LOG = 0.48259)
65.0	3.56	(LOG = 0.55142)
60.0	4.09	(LOG = 0.61126)
55.0	4.69	(LOG = 0.67104)
50.0	5.41	(LOG = 0.73291)
45.0	6.28	(LOG = 0.79790)
40.0	7.26	(LOG = 0.86090)
35.0	8.65	(LOG = 0.93678)
30.0	10.6	(LOG = 1.02415)
25.0	13.5	(LOG = 1.13034)
20.0	17.6	(LOG = 1.24658)
15.0	24.3	(LOG = 1.38587)
10.0	35.3	(LOG = 1.54733)
5.0	64.4	(LOG = 1.80919)

MEAN OF LOGS = 0.76257

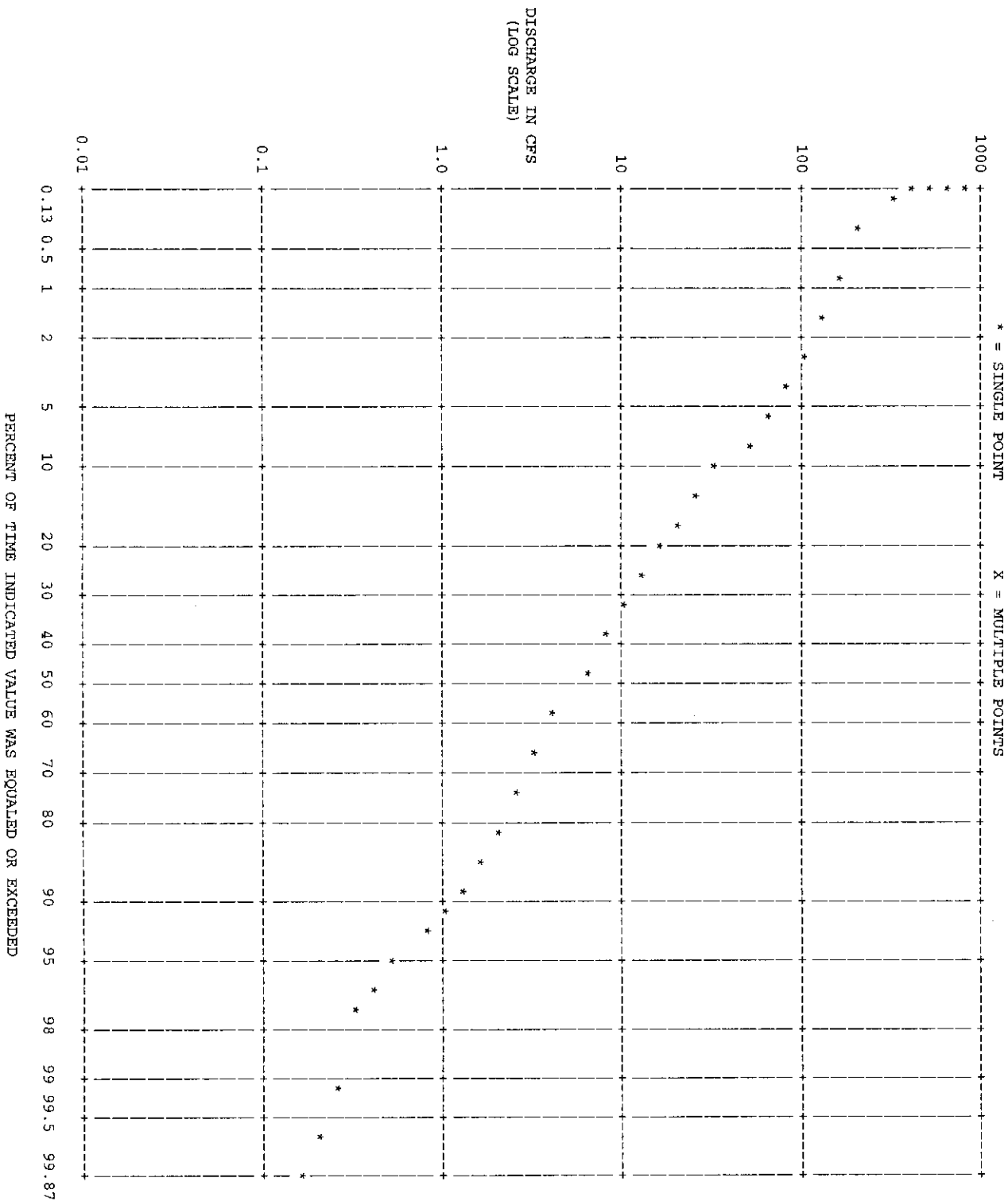
STANDARD DEVIATION OF LOGS = 0.52434 (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = 0.68760

COEFFICIENT OF SKEW = 0.11061

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP  
 STATION ID: 15536000 HAIPIAENA STR AB SPRECKELS DITCH NR HUELO, MAUI  
 PARAMETER CODE - 00060 DISCHARGE  
 STATISTIC CODE - 00003 MEAN

(YEARS 1914 - 1967)



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16536000  
 HAIPIUKENA STR AB SPECKELS DITCH NR HUELO, 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
1915 1915	1.90 47	1.90 45	1.96 43	2.57 48	4.72 50	6.90 44	9.19 44	9.65 41	12.0 35
1916 1916	2.50 51	2.70 52	3.06 52	3.29 52	4.80 51	9.20 49	9.96 45	16.5 51	19.8 50
1917 1917	1.60 41	1.60 41	1.60 38	1.80 38	2.03 28	3.13 19	3.72 12	4.87 11	7.41 14
1918 1918	1.10 34	1.17 35	1.24 34	1.54 31	1.79 22	5.39 34	6.06 23	6.42 20	15.0 45
1919 1919	1.70 42	1.70 42	2.00 44	2.44 47	2.73 38	4.81 30	6.81 26	7.31 24	9.51 22
1920 1920	.46 20	.46 19	.46 17	.47 13	.59 5	1.29 3	2.12 2	3.34 3	5.53 7
1921 1921	1.10 35	1.13 34	1.36 36	1.76 36	2.13 31	3.65 22	4.91 18	7.63 28	9.79 25
1922 1922	.77 28	.82 28	.97 30	.99 24	1.10 18	1.82 6	3.11 7	3.95 5	6.90 13
1923 1923	1.70 43	1.83 44	2.00 45	2.12 41	2.80 39	7.70 48	9.05 43	10.2 42	11.1 30
1924 1924	1.90 48	2.00 48	2.13 48	2.26 43	3.54 44	4.57 27	8.76 41	8.14 34	10.6 28
1925 1925	2.50 52	2.50 51	2.51 51	3.24 51	4.05 46	6.06 38	8.10 38	11.0 45	17.5 48
1926 1926	.93 32	.93 30	.93 27	1.32 28	1.84 24	2.81 15	3.14 8	3.96 6	4.03 1
1927 1927	1.40 38	1.40 38	1.64 40	1.82 39	2.41 33	6.32 41	7.32 33	11.5 46	11.4 31
1928 1928	1.90 49	2.00 49	2.03 46	2.23 42	3.13 42	9.73 50	13.9 49	16.1 49	17.2 47
1929 1929	1.70 44	1.70 43	1.81 42	1.98 40	2.90 40	5.53 35	6.84 28	7.54 27	9.54 23
1930 1930	1.20 36	1.20 36	1.39 37	1.66 32	2.04 29	11.9 52	15.3 51	16.4 50	22.3 52
1931 1931	2.00 50	2.13 50	2.20 49	2.33 45	3.11 41	6.38 42	6.82 27	8.10 33	12.4 36
1932 1932	1.70 45	1.97 47	2.34 50	2.78 50	5.81 52	7.53 47	14.1 50	12.8 48	18.5 49
1933 1933	.62 26	.67 26	.84 25	1.09 26	1.12 19	3.08 18	4.66 17	4.94 12	5.41 6
1934 1934	.46 21	.46 20	.51 20	.77 21	1.05 15	4.71 29	5.83 21	5.77 18	6.77 12
1935 1935	1.40 39	1.53 40	1.69 41	2.42 46	3.47 43	6.79 43	7.65 36	8.04 31	11.4 32
1936 1936	1.40 40	1.47 39	1.60 39	1.73 34	2.23 32	3.72 23	4.23 15	5.66 16	8.45 18
1937 1937	.43 19	.49 23	.94 28	2.31 44	4.46 49	11.6 51	20.0 52	18.3 52	20.2 51
1938 1938	.31 13	.34 15	.36 15	.61 18	1.73 21	4.49 26	6.09 24	7.85 30	13.6 41
1939 1939	.46 22	.46 21	.55 22	1.74 35	4.23 47	5.78 37	7.48 35	10.7 44	12.4 37
1940 1940	.19 7	.20 8	.29 10	.45 12	.70 8	2.15 11	3.26 11	3.76 4	6.10 11
1941 1941	.17 5	.17 4	.18 2	.30 7	1.08 16	1.69 5	5.57 20	5.70 17	9.08 19
1942 1942	.88 31	.98 32	1.22 32	1.29 27	1.79 23	3.33 20	9.01 42	10.5 43	14.3 44
1943 1943	.46 23	.46 22	.57 23	.83 23	2.53 36	6.20 40	10.6 48	9.34 39	13.2 39
1944 1944	.15 1	.15 1	.22 5	.29 5	.33 3	2.01 10	2.97 5	5.59 15	5.27 5
1945 1945	.15 2	.15 2	.15 1	.15 1	.24 1	1.30 4	3.17 9	4.47 10	9.34 20
1946 1946	.31 14	.31 13	.31 11	.33 10	.81 11	1.97 8	10.1 46	12.0 47	15.7 46
1947 1947	.31 15	.31 14	.31 12	.38 11	1.00 13	5.75 36	7.39 34	9.02 38	10.5 27
1948 1948	.77 29	1.02 33	1.18 31	1.71 33	2.69 37	7.28 46	10.2 47	9.61 40	14.1 43
1949 1949	.15 3	.15 3	.22 6	.33 9	.63 6	1.98 9	2.88 3	4.31 7	5.08 4
1950 1950	.17 6	.19 6	.22 7	.24 3	1.08 17	3.45 21	7.11 31	7.41 26	12.6 38



DVSTXT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16536000  
 HAIPOAENA STR AB SPECKELS DITCH NR HUELO, 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	1	3	7	14	30	60	90	120	183
1951 1951	.20 11	.21 10	.23 8	.29 6	1.02 14	1.16 2	1.98 1	2.58 1	4.21 3
1952 1952	.19 8	.21 11	.32 13	.55 14	2.51 35	4.91 31	7.18 32	7.31 25	7.80 16
1953 1953	.19 9	.19 7	.21 3	.23 2	.25 2	.71 1	3.02 6	2.62 2	4.10 2
1954 1954	.15 4	.18 5	.21 4	.25 4	.41 4	2.92 17	3.73 13	4.39 9	5.85 10
1955 1955	.48 24	.53 24	.53 21	.61 17	1.85 25	2.43 13	8.35 39	7.83 29	10.1 26
1956 1956	.19 10	.20 9	.24 9	.30 8	.71 10	2.15 12	2.94 4	4.33 8	13.4 40
1957 1957	.37 18	.40 17	.47 19	.55 15	.68 7	1.91 7	3.19 10	6.04 19	7.47 15
1958 1958	.36 16	.40 18	.46 18	.65 19	4.43 48	7.18 45	7.10 30	8.76 37	9.77 24
1959 1959	.36 17	.36 16	.44 16	.79 22	2.02 27	3.90 24	6.26 25	6.91 22	10.7 29
1960 1960	.28 12	.29 12	.32 14	.56 16	.71 9	4.41 25	7.77 37	8.27 35	14.0 42
1961 1961	1.20 37	1.20 37	1.34 35	1.76 37	2.41 34	5.19 32	5.29 19	6.95 23	9.49 21
1962 1962	.82 30	.85 29	.94 29	1.04 25	1.38 20	2.54 14	4.18 14	5.02 13	5.62 8
1963 1963	.59 25	.60 25	.67 24	.74 20	.98 12	2.91 16	4.45 16	5.22 14	5.83 9
1964 1964	1.80 46	1.90 46	2.07 47	2.59 49	3.86 45	6.13 39	6.91 29	8.04 32	11.4 33
1965 1965	.97 33	.97 31	1.23 33	1.44 30	2.04 30	5.27 33	8.39 40	8.52 36	11.4 34
1966 1966	.76 27	.78 27	.91 26	1.42 29	1.87 26	4.64 28	5.97 22	6.49 21	7.85 17

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16536000  
 HAIPUAENA STR AB SPRECKELS DITCH NR HUELO, 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
1915 1915	189 43	115 43	72.7 43	49.9 39	44.3 29	31.8 27	28.1 24	22.9 29	20.7 24
1916 1916	356 11	225 8	194 3	117 3	70.4 6	47.8 8	38.8 10	34.4 9	27.8 10
1917 1917	204 42	171 26	102 25	70.5 22	48.8 23	36.8 14	28.7 21	23.2 25	18.3 33
1918 1918	356 12	193 16	119 18	98.4 8	61.3 7	49.2 7	40.9 7	34.6 8	30.7 7
1919 1919	249 32	137 36	112 21	64.6 29	40.6 34	28.8 35	21.6 37	19.6 38	17.1 39
1920 1920	299 20	186 20	166 9	87.3 16	48.5 25	26.3 37	19.1 43	16.5 45	12.2 48
1921 1921	206 41	174 25	96.1 27	78.7 19	48.7 24	35.7 16	29.8 17	25.2 18	21.5 23
1922 1922	354 13	227 7	170 8	103 5	79.9 3	56.9 3	54.9 2	54.5 1	39.7 1
1923 1923	263 27	182 22	158 12	93.9 11	51.3 20	34.4 19	28.2 23	24.0 23	20.5 25
1924 1924	294 21	187 18	88.4 31	56.5 34	34.8 39	29.2 34	23.3 33	23.0 26	19.0 30
1925 1925	334 15	163 29	99.0 26	71.2 21	58.3 12	36.3 15	29.6 18	25.2 19	22.4 20
1926 1926	133 49	67.3 50	37.4 52	24.4 52	23.0 50	14.8 51	12.6 50	10.9 52	8.44 52
1927 1927	376 9	163 28	84.7 37	50.1 38	30.0 46	21.8 45	19.8 42	19.1 41	17.4 36
1928 1928	246 34	145 34	78.4 40	49.2 40	34.2 40	30.3 31	28.7 22	23.0 27	23.5 17
1929 1929	241 36	164 27	114 20	70.4 23	52.5 18	35.0 18	32.7 15	31.0 12	26.5 11
1930 1930	308 18	219 9	172 6	96.1 9	58.1 14	50.5 5	39.2 9	37.1 6	31.9 5
1931 1931	243 35	146 33	85.0 35	50.5 37	35.5 38	31.3 29	28.9 19	23.6 24	22.9 18
1932 1932	252 29	141 35	105 24	88.3 14	58.7 11	40.3 10	36.3 11	33.5 11	28.7 9
1933 1933	251 31	153 31	86.6 32	43.8 46	31.0 45	20.6 47	18.5 45	16.7 44	13.4 47
1934 1934	370 10	151 32	84.9 36	64.6 30	46.1 28	32.7 26	28.8 20	25.4 17	20.3 26
1935 1935	234 37	195 13	131 15	70.1 24	42.9 30	33.2 25	26.2 30	25.2 20	22.9 19
1936 1936	104 52	57.0 52	44.6 49	38.2 47	31.1 43	25.1 41	23.6 32	21.0 34	20.3 27
1937 1937	252 30	204 12	126 16	102 7	70.5 5	50.4 6	45.3 4	40.7 3	35.4 2
1938 1938	325 17	213 11	164 10	87.6 15	61.0 8	39.5 12	35.6 12	29.5 14	24.7 14
1939 1939	215 40	95.3 45	65.1 45	46.1 44	31.1 44	23.9 43	21.0 38	21.0 35	18.4 32
1940 1940	348 14	186 19	108 23	69.4 25	50.4 21	29.6 33	22.1 36	18.3 42	15.3 43
1941 1941	439 5	187 17	109 22	63.0 33	36.2 36	26.3 38	23.1 34	21.5 32	19.5 28
1942 1942	382 8	302 3	247 2	151 2	102 2	67.7 2	51.7 3	40.2 5	33.2 4
1943 1943	220 38	117 42	67.9 44	46.7 43	32.7 42	25.7 40	20.7 40	19.2 39	17.3 38
1944 1944	159 46	83.0 47	45.4 47	25.9 51	18.8 52	14.4 50	12.3 51	11.6 51	9.69 50
1945 1945	173 44	120 41	79.4 38	65.9 27	41.8 31	24.3 42	17.3 46	14.8 47	15.8 41
1946 1946	551 3	217 10	126 17	85.2 17	58.3 13	46.4 9	43.9 5	40.4 4	31.9 6
1947 1947	835 1	613 1	418 1	212 1	132 1	77.5 1	56.4 1	43.2 2	33.9 3
1948 1948	693 2	430 2	191 4	91.8 12	59.8 9	39.6 11	41.1 6	35.3 7	29.5 8
1949 1949	302 19	158 30	92.0 29	64.0 31	46.3 27	30.5 30	26.6 27	21.2 33	17.4 37
1950 1950	410 7	274 6	182 5	117 4	71.8 4	54.1 4	40.9 8	33.8 10	25.9 12

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16536000  
 HAIPUAENA STR AB SPRECKELS DITCH NR HUELO, 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	1	3	7	15	30	60	90	120	183
1951 1951	272 24	178 24	79.2 39	52.8 36	33.3 41	28.1 36	22.9 35	19.2 40	14.0 45
1952 1952	107 51	60.3 51	42.1 51	29.5 50	21.2 51	13.9 52	12.2 52	12.0 49	10.7 49
1953 1953	141 48	71.0 49	42.5 50	29.7 49	26.4 48	21.3 46	15.4 48	11.7 50	9.17 51
1954 1954	108 50	76.0 48	45.1 48	32.5 48	25.2 49	18.7 49	17.2 47	17.0 43	15.2 44
1955 1955	292 22	194 14	160 11	95.9 10	58.9 10	35.5 17	34.4 13	29.9 13	24.6 15
1956 1956	452 4	295 4	150 13	102 6	55.2 16	38.7 13	31.9 16	28.9 15	24.0 16
1957 1957	291 23	135 38	91.8 30	48.6 41	41.2 32	26.2 39	19.0 44	15.7 46	15.5 42
1958 1958	248 33	137 37	75.0 41	63.5 32	52.2 19	34.2 21	27.4 25	22.6 30	18.3 34
1959 1959	257 28	194 15	118 19	64.8 28	41.0 33	34.1 22	26.6 28	22.5 31	21.7 22
1960 1960	432 6	282 5	171 7	84.3 18	47.6 26	33.7 24	33.1 14	27.7 16	25.0 13
1961 1961	331 16	181 23	85.5 33	67.3 26	37.5 35	30.1 32	21.0 39	20.3 37	18.0 35
1962 1962	166 45	93.7 46	54.1 46	47.4 42	27.9 47	19.7 48	15.2 49	13.4 48	13.6 46
1963 1963	265 26	123 40	92.6 28	75.7 20	53.3 17	34.1 23	27.2 26	24.4 22	19.2 29
1964 1964	151 47	105 44	74.7 42	44.8 45	35.7 37	22.5 44	20.2 41	21.0 36	16.6 40
1965 1965	269 25	185 21	141 14	88.7 13	57.6 15	34.3 20	25.4 31	23.0 28	22.3 21
1966 1966	218 39	133 39	85.2 34	56.4 35	49.0 22	31.8 28	26.3 29	24.5 21	19.0 31

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16536000  
 HALPAENA STR AB SPRECKELS DITCH NR HUELLO, 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)		MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN HIGH-VALUE ANALYSIS (OCT-SEP)	
WATER YEAR RANGE		WATER YEAR RANGE	
1915 1915	17.0	1915 1915	17.0
1916 1916	24.4	1916 1916	24.4
1917 1917	12.5	1917 1917	12.5
1918 1918	19.7	1918 1918	19.7
1919 1919	13.0	1919 1919	13.0
1920 1920	8.43	1920 1920	8.43
1921 1921	14.6	1921 1921	14.6
1922 1922	23.1	1922 1922	23.1
1923 1923	15.8	1923 1923	15.8
1924 1924	15.2	1924 1924	15.2
1925 1925	17.6	1925 1925	17.6
1926 1926	7.28	1926 1926	7.28
1927 1927	14.6	1927 1927	14.6
1928 1928	19.6	1928 1928	19.6
1929 1929	17.1	1929 1929	17.1
1930 1930	23.2	1930 1930	23.2
1931 1931	18.0	1931 1931	18.0
1932 1932	21.4	1932 1932	21.4
1933 1933	8.61	1933 1933	8.61
1934 1934	13.3	1934 1934	13.3
1935 1935	15.6	1935 1935	15.6
1936 1936	14.1	1936 1936	14.1
1937 1937	25.4	1937 1937	25.4
1938 1938	15.7	1938 1938	15.7
1939 1939	13.2	1939 1939	13.2
1940 1940	10.9	1940 1940	10.9
1941 1941	13.2	1941 1941	13.2
1942 1942	23.8	1942 1942	23.8
1943 1943	13.1	1943 1943	13.1
1944 1944	7.22	1944 1944	7.22
1945 1945	11.9	1945 1945	11.9
1946 1946	20.7	1946 1946	20.7
1947 1947	21.8	1947 1947	21.8
1948 1948	20.1	1948 1948	20.1
1949 1949	11.0	1949 1949	11.0
1950 1950	16.0	1950 1950	16.0
1951 1951	8.98	1951 1951	8.98
1952 1952	8.48	1952 1952	8.48
1953 1953	6.86	1953 1953	6.86
1954 1954	10.0	1954 1954	10.0
1955 1955	15.3	1955 1955	15.3

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16536000  
 HATPUAENA STR AB SPRECKELS DITCH NR HUELO, 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)		MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN HIGH-VALUE ANALYSIS (OCT-SEP)	
WATER YEAR RANGE		WATER YEAR RANGE	
1956 1956	14.3 25	1956 1956	14.3 28
1957 1957	11.8 12	1957 1957	11.8 41
1958 1958	16.1 37	1958 1958	16.1 16
1959 1959	14.4 26	1959 1959	14.4 27
1960 1960	15.9 35	1960 1960	15.9 18
1961 1961	12.3 15	1961 1961	12.3 38
1962 1962	9.61 8	1962 1962	9.61 45
1963 1963	12.1 14	1963 1963	12.1 39
1964 1964	13.7 23	1964 1964	13.7 30
1965 1965	15.9 34	1965 1965	15.9 19
1966 1966	13.1 19	1966 1966	13.1 34





DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...  
 STATION ID: 16541000 KOOLAU DITCH AT HAIPOAENA 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	(LOG =
95.0	27.1	1.43324)
90.0	35.3	(LOG = 1.54776)
85.0	42.2	(LOG = 1.62504)
80.0	48.6	(LOG = 1.68656)
75.0	54.6	(LOG = 1.73681)
70.0	60.6	(LOG = 1.78257)
65.0	67.7	(LOG = 1.83089)
60.0	74.9	(LOG = 1.87436)
55.0	83.9	(LOG = 1.92354)
50.0	93.2	(LOG = 1.96932)
45.0	104.6	(LOG = 2.01945)
40.0	116.9	(LOG = 2.06776)
35.0	132.7	(LOG = 2.12283)
30.0	149.7	(LOG = 2.17515)
25.0	170.7	(LOG = 2.23227)
20.0	192.3	(LOG = 2.28390)
15.0	214.8	(LOG = 2.33205)
10.0	237.4	(LOG = 2.37540)
5.0	268.1	(LOG = 2.42832)

MEAN OF LOGS = 1.97091

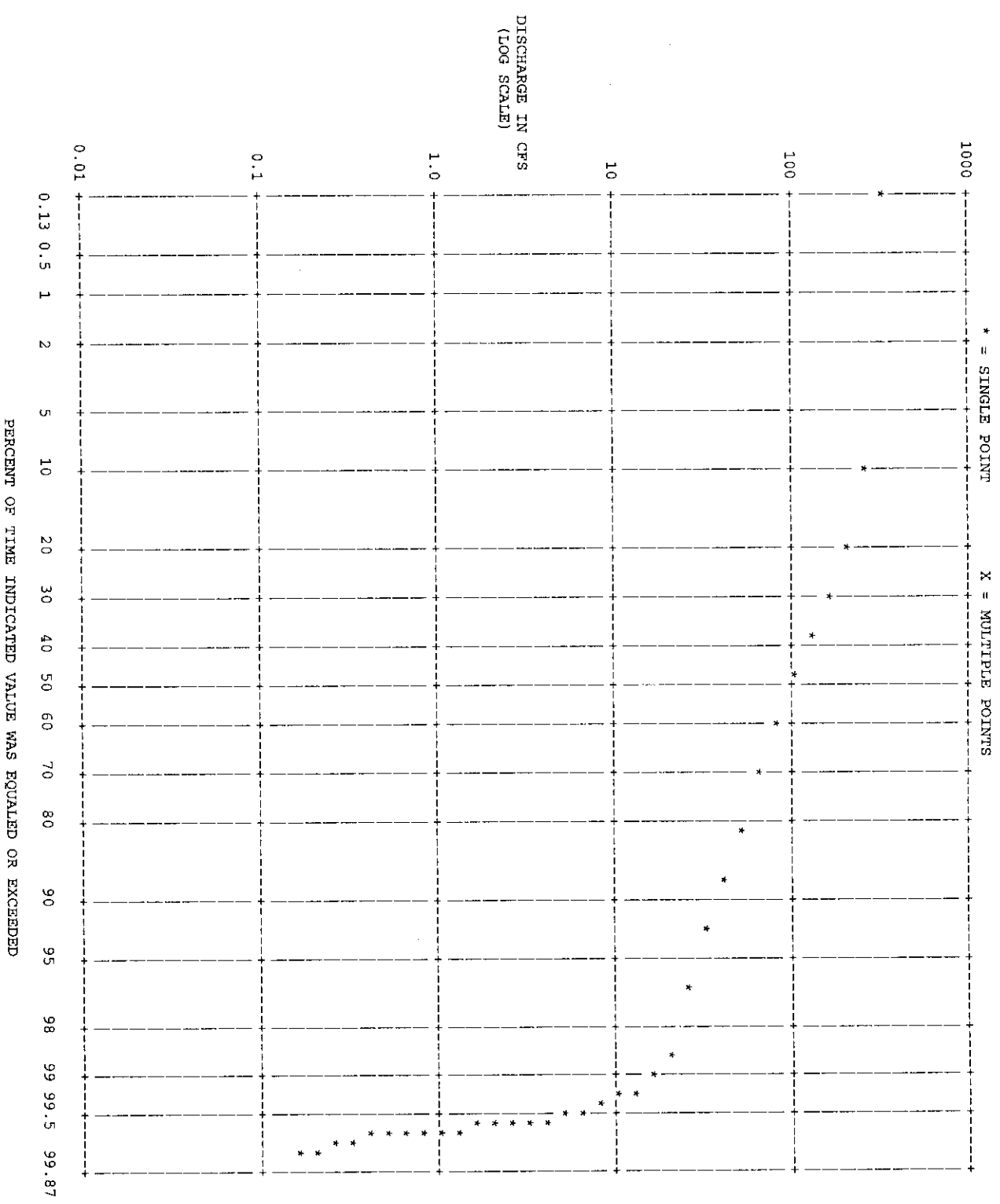
STANDARD DEVIATION OF LOGS = 0.29213 (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = 0.14822

COEFFICIENT OF SKEW = -0.12021



LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP (YEARS 1932 - 1987)  
 STATION ID: 16541006 KOOLAU DITCH AT HAIPUAENA NR HUELO, MAUI, HI  
 PARAMETER CODE - 00060 DISCHARGE  
 STATISTIC CODE - 00003 MEAN



DYSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16541000  
 KOOLAU DITCH AT HAIPIUENA 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	1	3	7	14	30	60	90	120	183
1933 1933	.0000 1	.0000 1	.0000 1	.0000 1	15.5 3	43.1 17	52.4 12	55.4 11	62.2 4
1934 1934	18.0 21	18.7 20	19.0 17	20.2 14	22.5 10	31.6 5	35.4 4	42.1 1	49.2 1
1935 1935	.0000 2	.0000 2	.0000 2	.0000 2	7.48 1	42.6 15	67.6 24	81.3 33	98.2 32
1936 1936	6.20 12	21.7 29	23.3 28	25.5 27	31.8 22	42.7 16	46.1 9	59.2 13	81.2 17
1937 1937	50.0 54	51.7 55	54.3 53	63.2 53	95.4 54	123 55	157 55	178 55	183 55
1938 1938	50.0 55	51.0 54	55.7 54	68.1 54	82.6 53	110 53	106 49	123 52	143 53
1939 1939	46.0 53	49.7 53	69.4 55	79.8 55	112 55	118 54	130 54	146 54	152 54
1940 1940	26.0 34	26.0 34	27.4 32	29.8 29	39.2 27	60.5 33	62.9 21	66.6 17	75.4 9
1941 1941	30.0 43	30.7 43	32.6 41	37.4 44	47.5 42	59.5 30	81.1 35	87.2 36	106 36
1942 1942	32.0 44	33.3 48	35.4 47	40.6 47	47.5 43	76.4 45	105 48	114 47	138 52
1943 1943	30.0 48	30.7 44	33.1 43	37.6 45	51.9 46	62.6 35	74.5 32	77.0 29	96.8 30
1944 1944	20.0 26	20.0 23	21.7 23	24.6 24	27.1 14	39.8 14	61.7 19	60.0 14	65.0 5
1945 1945	20.0 27	20.3 27	21.0 22	22.4 17	29.0 18	43.6 18	57.8 16	69.2 22	87.2 22
1946 1946	4.50 10	9.70 11	33.6 44	34.7 37	42.4 33	57.1 27	83.3 38	87.4 37	116 41
1947 1947	26.0 35	28.0 37	30.0 37	33.1 34	46.9 41	88.8 49	112 51	116 48	117 43
1948 1948	5.30 11	6.50 9	11.8 7	15.9 7	59.8 49	91.4 50	114 53	116 49	131 49
1949 1949	34.0 50	35.3 50	37.7 50	42.6 48	51.1 45	70.9 44	86.6 41	94.7 39	98.4 33
1950 1950	30.0 45	30.7 45	35.4 48	45.9 49	59.9 50	93.1 51	107 50	110 46	119 46
1951 1951	34.0 51	34.0 49	35.6 49	37.1 43	49.3 44	60.8 34	67.6 25	77.0 30	87.2 23
1952 1952	26.0 36	28.0 38	33.6 45	35.1 39	58.2 48	87.4 48	104 47	117 51	130 48
1953 1953	20.0 28	21.0 28	22.7 26	23.1 19	27.2 15	46.3 20	68.6 27	67.4 20	75.8 10
1954 1954	19.0 25	20.0 24	20.9 21	25.2 25	33.3 23	53.2 24	70.5 30	74.5 26	82.7 20
1955 1955	28.0 41	28.7 40	29.7 36	32.7 33	46.8 39	59.8 31	103 46	116 50	133 51
1956 1956	30.0 46	30.0 41	32.0 40	35.3 40	46.8 40	66.5 40	70.3 29	80.9 32	111 40
1957 1957	30.0 47	31.3 46	32.9 42	36.3 42	42.6 34	58.7 28	82.1 36	86.4 35	92.9 28
1958 1958	7.30 13	7.30 10	7.70 5	10.7 4	20.9 6	50.2 22	61.8 20	73.3 25	101 34
1959 1959	39.0 52	41.7 52	44.0 51	49.6 51	67.5 51	83.2 47	96.5 45	102 44	116 42
1960 1960	32.0 49	32.0 47	34.7 46	38.4 46	42.7 35	64.6 39	90.9 42	94.7 40	118 44
1961 1961	26.0 37	26.0 35	27.4 33	33.9 35	40.2 29	63.2 36	67.9 26	77.1 31	78.4 13
1962 1962	20.0 29	20.0 25	22.0 24	23.6 20	28.6 17	39.3 12	60.9 18	60.4 15	69.7 7
1963 1963	14.0 16	16.7 15	18.3 15	25.5 15	25.1 13	39.7 13	49.8 10	50.6 7	57.7 3
1964 1964	.70 8	1.33 6	18.1 14	49.0 50	55.5 47	70.2 43	85.8 40	96.2 41	118 45
1965 1965	23.0 32	23.0 32	27.3 31	30.6 30	34.6 24	63.6 38	82.7 37	88.4 38	97.3 31
1966 1966	20.0 30	20.0 26	20.6 20	24.5 23	30.3 20	54.6 25	68.6 28	74.6 27	87.3 24
1967 1967	27.0 38	28.0 39	30.9 38	34.4 36	45.3 37	77.4 46	94.4 44	97.6 42	108 38
1968 1968	22.0 31	22.7 31	24.3 29	25.3 26	37.7 26	59.9 32	71.3 31	72.2 24	104 35
1969 1969	.21 4	4.70 8	22.9 27	24.1 22	28.3 16	45.4 19	60.3 17	66.6 18	107 37

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16541000  
 KOOLAU DITCH AT HAIPOAENA NR HOELO, 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
1970 1970	.16 3	.16 3	12.0 8	30.6 31	40.1 28	56.0 26	81.0 34	84.1 34	84.4 21
1971 1971	.32 6	.32 4	.35 3	.98 3	29.1 19	37.4 9	40.1 5	44.4 2	77.7 12
1972 1972	24.0 33	24.0 33	25.0 30	28.4 28	35.1 25	50.4 23	64.9 22	72.0 23	79.8 14
1973 1973	17.0 19	17.7 17	19.6 19	20.0 13	21.3 8	28.9 4	44.1 8	53.8 10	80.3 16
1974 1974	.38 7	.38 5	3.75 4	16.6 8	21.7 9	34.2 6	43.7 7	49.8 6	81.4 18
1975 1975	12.0 15	12.7 13	13.9 9	14.9 6	41.6 31	49.7 21	55.5 15	66.6 19	82.1 19
1976 1976	27.0 39	27.7 36	28.7 35	30.6 32	40.6 30	58.7 29	66.7 23	63.6 16	93.5 29
1977 1977	15.0 17	15.0 14	16.3 12	18.1 10	19.6 4	23.1 1	35.1 3	56.3 12	91.2 27
1978 1978	18.0 22	19.0 22	22.0 25	22.6 18	30.9 21	37.8 10	52.9 13	53.5 9	70.6 8
1979 1979	.26 5	2.65 7	14.2 10	23.7 21	42.2 32	63.5 37	78.8 33	76.1 28	88.7 26
1980 1980	1.30 9	21.8 30	27.9 34	35.4 41	45.3 38	67.7 41	83.8 39	98.0 43	109 39
1981 1981	15.0 18	15.3 15	15.7 11	17.5 9	20.7 5	25.8 2	30.7 2	44.4 3	52.8 2
1982 1982	28.0 42	36.0 51	45.3 52	50.1 52	82.1 52	103 52	112 52	128 53	133 50
1983 1983	17.0 20	17.7 18	17.9 13	18.5 11	21.0 7	25.9 3	30.5 1	48.6 5	66.1 6
1984 1984	18.0 23	18.3 19	18.4 16	18.9 12	22.6 11	35.2 7	42.0 6	48.0 4	76.0 11
1985 1985	11.0 14	11.0 12	11.1 6	11.6 5	13.1 2	36.2 8	55.0 14	51.7 8	79.8 15
1986 1986	18.0 24	18.7 21	19.1 18	21.7 16	24.8 12	38.3 11	51.3 11	67.9 21	88.5 25
1987 1987	27.0 40	30.0 42	31.0 39	34.8 38	44.4 36	68.8 42	90.9 43	103 45	121 47

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16541000  
 KOOLAU DITCH AT HAIPIUENA 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	1	3	7	15	30	60	90	120	183
1933 1933	251 54	242 53	199 55	178 52	148 54	130 54	118 52	95.4 54	88.3 54
1934 1934	217 55	217 55	215 52	209 48	195 43	172 39	165 32	162 23	139 33
1935 1935	271 49	268 40	260 29	244 20	202 37	155 45	144 43	133 44	122 45
1936 1936	283 32	268 39	264 24	257 10	238 6	205 11	192 10	188 7	183 2
1937 1937	283 33	283 13	274 11	267 3	253 2	241 1	231 1	227 1	214 1
1938 1938	283 34	272 33	266 22	245 17	225 16	204 12	197 6	190 6	173 6
1939 1939	283 35	279 19	278 7	244 21	224 17	198 17	188 13	190 5	181 4
1940 1940	283 36	279 20	269 16	254 12	217 24	181 29	160 38	135 43	122 46
1941 1941	283 37	276 25	261 28	240 27	197 40	175 33	172 24	166 20	160 13
1942 1942	294 6	294 1	282 5	262 7	252 3	235 3	217 2	185 8	167 9
1943 1943	294 7	272 32	247 40	237 31	203 36	182 27	162 35	156 31	146 23
1944 1944	294 8	248 52	225 50	170 54	159 52	138 52	125 50	125 48	115 48
1945 1945	294 9	279 21	277 8	260 8	211 28	173 37	144 44	120 50	130 42
1946 1946	299 2	283 16	274 12	268 2	254 1	240 2	193 9	172 15	146 24
1947 1947	294 10	290 3	274 13	230 37	221 19	182 28	163 34	141 40	144 26
1948 1948	294 11	290 6	283 4	265 5	251 4	222 4	200 5	175 11	165 11
1949 1949	294 12	284 11	274 9	234 32	225 14	200 16	189 12	167 18	147 22
1950 1950	294 13	285 10	263 25	232 35	217 23	203 14	184 16	172 16	158 14
1951 1951	294 14	274 28	268 19	222 42	206 35	172 40	157 40	155 32	139 32
1952 1952	294 15	290 4	285 2	249 14	207 32	183 26	180 18	177 9	163 12
1953 1953	294 16	287 8	269 18	248 15	227 11	210 7	169 27	136 42	120 47
1954 1954	283 38	279 22	269 17	255 11	226 12	217 6	194 8	195 3	167 8
1955 1955	294 17	276 26	262 27	231 36	216 25	180 30	176 20	174 12	172 7
1956 1956	294 18	287 9	279 6	258 9	215 26	206 10	204 4	197 2	182 3
1957 1957	294 19	290 5	285 3	270 1	215 27	169 44	142 47	127 46	128 43
1958 1958	283 39	276 27	264 23	244 19	226 13	201 15	177 19	177 10	152 17
1959 1959	283 40	283 14	273 14	229 38	193 44	175 34	166 30	150 35	145 25
1960 1960	294 20	283 15	267 21	233 34	208 31	184 25	161 37	155 33	156 16
1961 1961	294 21	279 23	263 26	242 22	186 46	154 46	125 51	125 49	109 51
1962 1962	288 26	267 41	220 51	206 49	183 48	151 50	128 49	107 53	112 49
1963 1963	300 1	271 36	242 47	234 33	209 30	180 31	175 22	172 14	144 27
1964 1964	288 27	287 7	272 15	228 39	218 22	169 43	162 36	161 25	141 29
1965 1965	299 3	294 2	285 1	266 4	239 5	179 32	152 42	132 45	134 40
1966 1966	288 28	270 37	242 48	220 43	200 38	172 41	163 33	156 30	136 35
1967 1967	283 41	273 31	245 44	224 40	193 45	153 48	144 45	149 37	135 37
1968 1968	277 47	265 45	255 31	247 16	210 29	196 18	166 31	144 39	141 30
1969 1969	282 42	267 42	254 32	237 30	225 15	206 9	194 7	174 13	157 15

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16541000  
 KOOLAHI DITCH AT HAIPUAENA 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 '70 SEP

WATER YEAR RANGE	1	3	7	15	30	60	90	120	183
1971 1971	290 24	274 29	253 36	245 18	196 41	175 35	170 26	150 36	139 34
1972 1972	287 30	269 38	210 53	170 53	154 53	134 53	116 54	112 52	107 52
1973 1973	285 31	267 43	247 41	240 28	232 8	196 19	172 23	162 24	134 38
1974 1974	295 5	272 35	254 33	217 44	174 50	153 49	133 48	126 47	111 50
1975 1975	279 46	265 46	249 38	204 50	185 47	172 38	171 25	160 28	149 21
1976 1976	288 29	258 50	251 37	241 24	219 20	204 13	181 17	161 27	132 41
1977 1977	294 22	282 17	268 20	242 23	230 9	210 8	185 15	154 34	141 28
1978 1978	282 43	260 49	242 46	212 47	195 42	171 42	158 39	146 38	136 36
1979 1979	290 25	272 34	247 42	240 26	207 33	175 36	167 28	164 21	134 39
1980 1980	296 4	282 18	274 10	264 6	237 7	219 5	205 3	191 4	179 5
1981 1981	281 45	264 47	200 54	155 55	119 55	97.8 55	81.9 55	69.4 55	66.4 55
1982 1982	282 44	278 24	249 39	237 29	219 21	196 20	185 14	163 22	166 10
1983 1983	262 52	250 51	247 43	215 45	173 51	154 47	144 46	138 41	126 44
1984 1984	260 53	240 54	227 49	191 51	181 49	141 51	117 53	114 51	103 53
1985 1985	267 50	264 48	244 45	241 25	223 18	194 21	191 11	166 19	150 20
1986 1986	275 48	273 30	254 34	213 46	206 34	189 23	166 29	171 17	152 18
1987 1987	267 51	266 44	254 35	223 41	200 39	186 24	175 21	161 26	140 31

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16541000  
 KOOLAU DITCH AT HAIPIUAENA NR 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)			MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN HIGH-VALUE ANALYSIS (OCT-SEP)		
WATER YEAR RANGE			WATER YEAR RANGE		
1933 1933	68.5	2	1933 1933	68.5	54
1934 1934	92.6	9	1934 1934	92.6	47
1935 1935	110	25	1935 1935	110	31
1936 1936	130	44	1936 1936	130	12
1937 1937	187	55	1937 1937	187	1
1938 1938	146	51	1938 1938	146	5
1939 1939	157	54	1939 1939	157	2
1940 1940	108	21	1940 1940	108	35
1941 1941	131	45	1941 1941	131	11
1942 1942	152	53	1942 1942	152	3
1943 1943	114	30	1943 1943	114	26
1944 1944	88.8	6	1944 1944	88.8	50
1945 1945	108	22	1945 1945	108	34
1946 1946	116	32	1946 1946	116	24
1947 1947	128	41	1947 1947	128	15
1948 1948	136	48	1948 1948	136	8
1949 1949	123	36	1949 1949	123	20
1950 1950	129	43	1950 1950	129	13
1951 1951	111	26	1951 1951	111	30
1952 1952	134	46	1952 1952	134	10
1953 1953	98.1	10	1953 1953	98.1	46
1954 1954	124	37	1954 1954	124	19
1955 1955	137	49	1955 1955	137	7
1956 1956	136	47	1956 1956	136	9
1957 1957	110	24	1957 1957	110	32
1958 1958	129	42	1958 1958	129	14
1959 1959	126	39	1959 1959	126	17
1960 1960	120	34	1960 1960	120	22
1961 1961	91.5	8	1961 1961	91.5	48
1962 1962	90.0	7	1962 1962	90.0	49
1963 1963	99.4	12	1963 1963	99.4	44
1964 1964	122	35	1964 1964	122	21
1965 1965	114	29	1965 1965	114	27
1966 1966	107	20	1966 1966	107	36
1967 1967	117	33	1967 1967	117	23
1968 1968	109	23	1968 1968	109	33
1969 1969	128	40	1969 1969	128	16
1970 1970	116	31	1970 1970	116	25
1971 1971	103	16	1971 1971	103	40
1972 1972	87.0	4	1972 1972	87.0	52
1973 1973	99.1	11	1973 1973	99.1	45

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16541000  
 KOOLAU DITCH AT HAIPUAENA NR 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)		MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN HIGH-VALUE ANALYSIS (OCT-SEP)	
WATER YEAR RANGE		WATER YEAR RANGE	
1974 1974	85.4 3	1974 1974	85.4 53
1975 1975	106 19	1975 1975	106 37
1976 1976	105 18	1976 1976	105 38
1977 1977	102 14	1977 1977	102 42
1978 1978	103 17	1978 1978	103 39
1979 1979	111 27	1979 1979	111 29
1980 1980	137 50	1980 1980	137 6
1981 1981	61.6 1	1981 1981	61.6 55
1982 1982	148 52	1982 1982	148 4
1983 1983	102 15	1983 1983	102 41
1984 1984	88.4 5	1984 1984	88.4 51
1985 1985	101 13	1985 1985	101 43
1986 1986	112 28	1986 1986	112 28
1987 1987	125 38	1987 1987	125 18







DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16538000  
 SPRECKELS DITCH AT HAIPUAENA WEIR NR HUELO, MAUI  
 PARAMETER CODE - 00060 DISCHARGE  
 STATISTIC CODE - 00003 MEAN

CLASS	VALUE	TOTAL	ACCU	PERCT	CLASS	VALUE	TOTAL	ACCU	PERCT	CLASS	VALUE	TOTAL	ACCU	PERCT
1	0.00	25	22646	100.00	13	0.50	108	21953	96.94	25	12.00	2475	14085	62.20
2	0.02	1	22621	99.89	14	0.65	147	21845	96.46	26	16.00	2362	11610	51.27
3	0.03	1	22620	99.89	15	0.85	86	21698	95.81	27	21.00	2357	9248	40.84
4	0.04	0	22619	99.88	16	1.10	236	21612	95.43	28	28.00	1788	6891	30.43
5	0.06	0	22619	99.88	17	1.50	233	21376	94.39	29	36.00	1307	5073	22.40
6	0.08	5	22619	99.88	18	1.90	345	21143	93.36	30	47.00	1059	3285	14.51
7	0.10	2	22614	99.86	19	2.50	397	20798	91.84	31	62.00	1059	1978	8.73
8	0.13	21	22612	99.85	20	3.20	621	20401	90.09	32	81.00	685	919	4.06
9	0.17	83	22591	99.76	21	4.20	997	19780	87.34	33	106.00	231	234	1.03
10	0.22	257	22508	99.39	22	5.60	1402	18783	82.94	34	138.00	3	3	0.01
11	0.29	156	22251	98.26	23	7.20	1837	17381	76.75	35	0.00	0	0	0.00
12	0.38	142	22095	97.57	24	9.50	1459	15544	68.64					

DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...  
 STATION ID: 16538000 SPECTRELS DITCH AT HAIPUENA WEIR NR HUELO, 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	1.27	(LOG = 0.10264)
90.0	3.23	(LOG = 0.50941)
85.0	4.95	(LOG = 0.69421)
80.0	6.36	(LOG = 0.80348)
75.0	7.70	(LOG = 0.88629)
70.0	9.11	(LOG = 0.95971)
65.0	10.9	(LOG = 1.03791)
60.0	12.8	(LOG = 1.10734)
55.0	14.6	(LOG = 1.16536)
50.0	16.6	(LOG = 1.22031)
45.0	19.0	(LOG = 1.27886)
40.0	21.6	(LOG = 1.33371)
35.0	24.9	(LOG = 1.39665)
30.0	28.4	(LOG = 1.45374)
25.0	33.4	(LOG = 1.52388)
20.0	39.3	(LOG = 1.59490)
15.0	46.3	(LOG = 1.66569)
10.0	58.7	(LOG = 1.76872)
5.0	77.2	(LOG = 1.88747)

MEAN OF LOGS = 1.17844

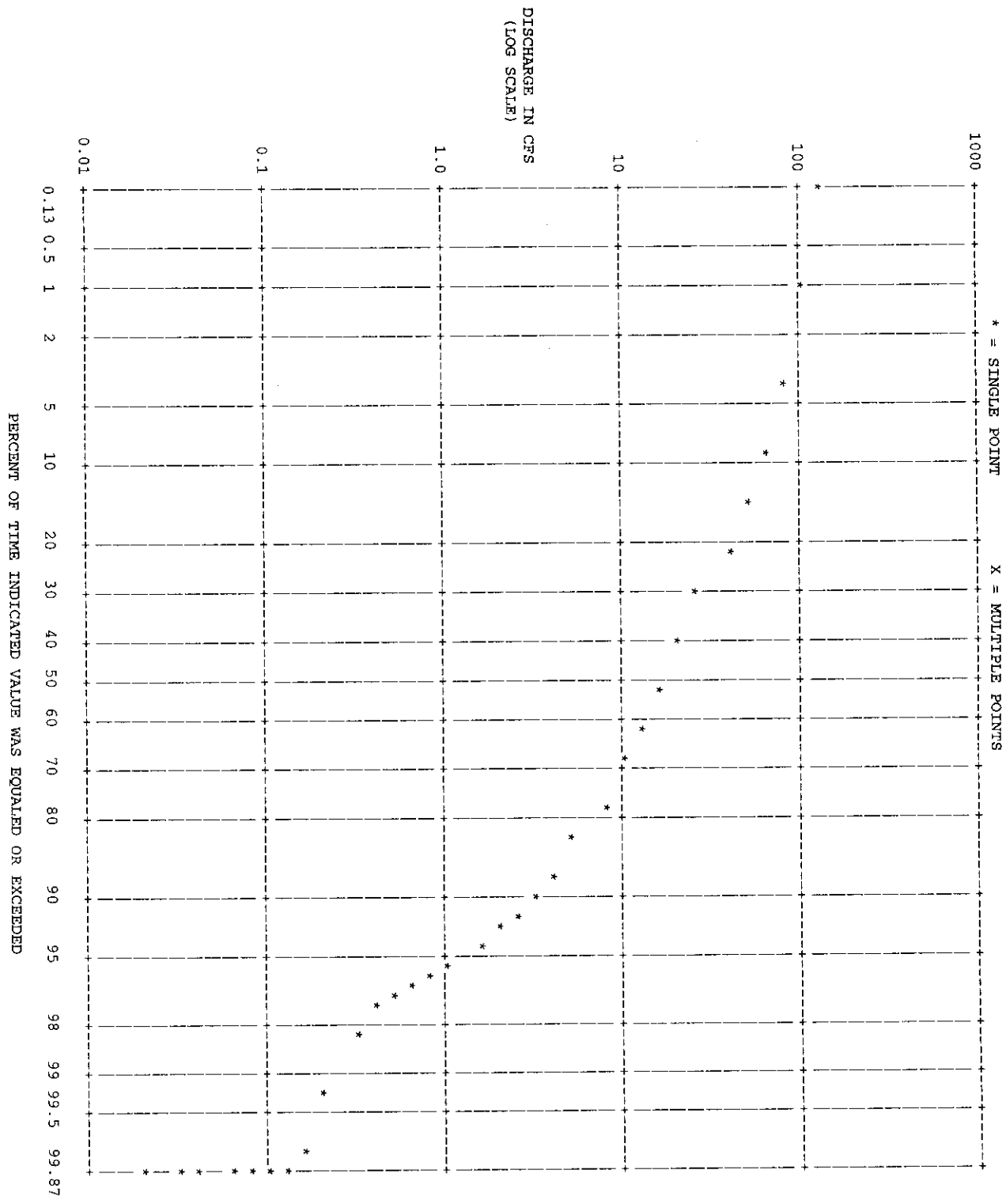
STANDARD DEVIATION OF LOGS = 0.45209 (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = 0.38363

COEFFICIENT OF SKEW = -0.61955

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP  
 STATION ID: 16538000  
 PARAMETER CODE - 00060 DISCHARGE  
 STATISTIC CODE - 00003 MEAN

(YEARS 1922 - 1986)



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16538000  
 SPRECKELS DITCH AT HAIPUANA WEIR NR HUELO, 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	1	3	7	14	30	60	90	120	183
1923 1923	1.90 32	5.03 58	5.67 58	6.64 55	8.96 48	12.6 41	14.1 34	15.7 36	18.0 29
1924 1924	4.50 56	4.87 57	5.26 57	6.42 53	9.04 49	11.6 40	15.9 41	15.3 35	17.9 28
1925 1925	.0000 1	.0000 1	.0000 1	.73 15	7.31 39	9.59 32	10.8 23	12.6 23	14.6 16
1926 1926	3.40 47	3.70 47	3.87 44	4.16 39	6.30 34	9.61 33	9.94 18	9.72 10	10.9 5
1927 1927	4.30 55	4.47 54	4.96 55	5.71 51	7.44 42	10.8 36	13.2 32	14.0 31	15.2 18
1928 1928	3.90 53	4.17 52	4.31 47	5.16 43	7.38 41	14.9 47	16.8 43	18.0 42	20.3 34
1929 1929	.0000 2	.017 3	.037 3	.63 13	2.29 14	9.79 34	10.6 21	11.0 17	13.6 14
1931 1931	3.70 50	4.20 53	4.49 49	7.81 59	10.4 52	14.5 44	16.3 42	17.2 40	18.5 31
1932 1932	7.30 62	8.67 62	10.5 62	12.0 62	16.6 62	19.3 60	26.5 61	25.9 59	30.9 58
1933 1933	3.10 45	3.60 44	4.29 46	5.24 46	5.66 33	10.9 38	14.4 35	14.9 33	15.5 22
1934 1934	3.10 46	3.10 43	3.19 37	3.75 38	4.73 28	7.00 19	8.34 12	10.7 15	12.4 9
1935 1935	1.90 33	1.93 31	2.41 33	5.19 45	10.7 55	16.9 56	19.6 52	20.7 49	26.4 50
1936 1936	1.00 29	1.13 28	1.33 25	1.57 22	3.01 20	5.39 11	6.63 6	9.32 8	14.8 17
1937 1937	2.20 36	2.67 38	3.44 42	5.88 52	13.7 59	18.9 59	32.0 62	33.7 62	35.3 61
1938 1938	.31 20	.36 19	.66 22	3.63 35	9.68 51	15.3 49	15.1 37	18.3 43	23.0 44
1939 1939	.28 19	.37 21	1.29 24	4.65 40	11.8 58	14.8 45	17.0 44	21.3 51	22.3 43
1940 1940	.19 12	.19 9	.19 7	.20 3	1.13 5	4.61 8	6.19 5	7.44 3	10.7 4
1941 1941	.19 13	.20 11	.21 9	.41 12	2.95 19	5.03 10	9.69 17	10.6 13	15.9 24
1942 1942	.85 27	.93 26	1.20 23	1.52 21	2.21 13	6.51 17	15.6 39	17.9 41	24.3 49
1943 1943	.42 24	.42 23	.52 20	.77 16	2.86 17	5.77 13	9.60 16	9.41 9	14.3 15
1944 1944	.15 8	.15 6	.18 6	.22 4	.38 3	2.61 1	5.02 2	6.28 2	6.84 1
1945 1945	.17 10	.17 8	.17 5	.17 2	.37 2	2.85 4	6.05 4	7.49 4	11.6 7
1946 1946	.17 11	.19 10	.20 8	.24 5	1.40 6	4.13 7	11.7 28	10.7 16	15.7 23
1947 1947	.090 6	.14 5	.21 10	.39 10	.98 4	7.60 23	10.4 20	12.3 21	13.3 11
1948 1948	.67 26	.96 27	1.46 28	1.91 24	3.78 23	8.31 28	11.4 25	11.6 19	15.2 19
1949 1949	.22 14	.22 12	.23 11	.41 11	1.46 7	2.88 5	5.37 3	8.29 6	8.22 3
1950 1950	.090 7	.13 4	.23 12	.26 6	2.58 16	8.23 26	11.9 29	13.6 29	16.3 25
1951 1951	.22 15	.23 13	.24 13	.34 9	2.39 15	2.75 2	4.35 1	5.50 1	7.39 2
1952 1952	.23 16	.24 14	.29 16	.90 17	4.50 26	7.04 20	8.94 13	10.0 11	11.5 10
1953 1953	.15 9	.15 7	.15 4	.17 1	1.19 1	2.82 3	8.00 10	7.49 5	11.2 6
1954 1954	.26 18	.26 16	.29 15	.31 7	1.72 9	6.86 18	11.4 26	13.4 28	15.3 20
1955 1955	.31 21	.36 20	.39 18	.68 14	4.98 31	7.05 21	21.7 56	22.2 52	26.4 51
1956 1956	.0000 3	.25 15	.28 14	.32 8	2.90 18	6.23 15	7.07 8	10.0 12	15.4 21
1957 1957	.31 22	.33 18	.36 17	1.00 18	1.58 8	6.46 16	9.20 14	12.5 22	13.5 12
1958 1958	.40 23	.40 22	.65 21	1.25 19	10.4 53	14.1 43	15.4 38	15.9 37	20.3 35
1959 1959	.53 25	.74 25	1.39 26	3.16 32	7.64 43	12.6 42	15.7 40	17.0 39	20.5 36
1960 1960	.23 17	.31 17	.43 19	1.62 23	2.09 11	8.26 27	18.1 47	18.9 45	20.2 33

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16538000  
 SPRECKELS DITCH AT HAIPUAENA WEIR NR HUELO, 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	1	3	7	14	30	60	90	120	183
1961 1961	4.50 57	4.57 55	5.04 56	6.60 54	8.41 46	16.0 54	17.8 46	20.3 48	21.0 37
1962 1962	2.90 41	2.97 39	3.27 39	3.71 36	4.84 30	8.08 25	11.5 27	14.4 32	16.5 26
1963 1963	.0000 4	.47 24	2.34 32	2.59 27	3.59 22	8.73 29	11.3 24	12.0 20	13.5 13
1964 1964	.94 28	3.71 48	4.69 51	8.74 60	14.5 60	20.4 61	20.6 55	24.1 57	26.8 52
1965 1965	.0000 5	.0000 2	.0000 2	5.61 50	7.35 40	15.3 50	20.0 53	23.0 53	28.3 55
1966 1966	2.90 42	3.03 40	3.46 43	5.17 44	6.77 38	17.1 57	21.9 57	23.7 55	28.0 54
1967 1967	5.40 59	5.73 59	6.76 59	7.33 56	11.1 56	18.3 58	23.6 59	28.9 61	30.3 57
1968 1968	3.70 51	3.83 49	4.73 52	5.57 49	8.55 47	14.8 46	19.2 50	19.6 46	29.4 56
1969 1969	3.50 48	3.60 45	4.36 48	5.03 42	6.30 35	11.5 39	19.5 51	20.1 47	38.8 62
1970 1970	5.40 60	6.17 61	7.09 60	7.43 57	11.5 57	16.0 55	22.5 58	23.0 54	23.6 46
1971 1971	3.50 49	3.63 46	3.97 45	4.66 41	6.60 37	10.4 35	10.2 19	11.3 18	21.0 38
1972 1972	3.00 43	3.07 42	3.31 41	3.73 37	4.77 29	15.3 51	18.5 48	20.8 50	22.1 41
1973 1973	1.90 34	2.20 33	3.30 40	3.52 34	3.84 25	5.88 14	10.7 22	13.3 26	21.0 39
1974 1974	2.30 38	2.33 35	2.60 34	2.98 31	6.51 36	9.41 31	12.6 30	13.6 30	23.5 45
1975 1975	1.90 35	1.93 32	2.11 30	2.72 28	8.33 45	10.8 37	13.2 33	18.3 44	21.6 40
1976 1976	4.60 58	4.73 56	4.90 54	5.38 48	7.91 44	15.4 52	17.3 45	16.6 38	24.1 47
1977 1977	2.40 39	2.53 36	2.64 35	2.86 29	3.81 24	4.93 9	8.08 11	15.1 34	26.8 53
1978 1978	3.00 44	3.03 41	3.26 38	3.40 33	5.23 32	7.27 22	12.9 31	12.6 24	18.1 30
1979 1979	3.90 54	4.00 51	4.56 50	5.36 47	9.37 50	15.5 53	20.5 54	24.0 56	24.2 48
1980 1980	3.80 52	3.93 50	4.84 53	7.54 58	10.6 54	15.0 48	19.1 49	24.6 58	31.6 59
1981 1981	1.20 30	1.33 29	1.93 29	2.08 25	2.20 12	3.86 6	6.67 7	8.90 7	11.9 8
1982 1982	5.70 61	5.93 60	7.27 61	9.76 61	15.8 61	22.5 62	23.7 60	28.1 60	33.0 60
1983 1983	2.20 37	2.27 34	2.31 31	2.48 26	3.11 21	5.40 12	7.55 9	12.7 25	16.9 27
1984 1984	2.50 40	2.63 37	2.69 36	2.87 30	4.66 27	7.75 24	9.39 15	10.6 14	19.3 32
1985 1985	1.40 31	1.40 30	1.43 27	1.51 20	1.88 10	9.14 30	14.6 36	13.3 27	22.1 42

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16538000  
 SPRECKELS DITCH AT HAIPUAENA WEIR NR HUELO, 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	1	3	7	15	30	60	90	120	183
1923 1923	43.0 62	38.0 62	33.4 62	29.9 62	25.8 62	23.5 60	23.0 56	22.7 51	22.1 50
1924 1924	82.0 51	63.0 55	42.3 58	35.1 57	31.6 54	25.4 56	25.5 53	23.0 50	21.5 51
1925 1925	56.0 60	43.7 60	40.6 60	37.5 53	30.3 55	29.0 51	26.4 50	26.5 45	25.0 42
1926 1926	53.0 61	47.0 59	41.6 59	32.4 58	29.2 58	22.9 61	19.5 62	17.5 61	16.2 62
1927 1927	68.0 59	43.3 61	38.7 61	31.0 61	30.1 56	28.3 54	26.4 51	23.9 49	22.6 48
1928 1928	71.0 58	55.7 57	43.1 57	37.3 54	32.8 51	29.0 52	28.4 44	25.4 47	24.2 43
1929 1929	77.0 54	53.0 58	48.4 55	41.1 52	38.0 50	29.0 53	27.2 47	26.6 44	24.2 44
1931 1931	74.0 55	68.0 50	61.9 42	46.9 49	41.8 43	38.1 35	36.4 32	32.3 32	29.7 33
1932 1932	80.0 53	77.0 40	68.0 37	64.7 26	50.9 28	44.6 23	40.4 20	40.6 18	37.3 16
1933 1933	73.0 57	63.3 54	55.3 50	41.5 51	31.9 52	29.4 49	28.4 45	27.3 42	24.2 45
1934 1934	94.0 44	73.7 43	62.9 41	56.2 34	47.8 31	43.6 24	43.2 18	42.9 15	36.1 19
1935 1935	107 35	87.3 35	75.9 29	67.7 21	52.6 25	39.0 32	36.3 33	32.1 33	30.1 31
1936 1936	97.0 41	86.0 36	75.1 31	67.1 23	58.4 20	46.4 18	43.9 16	39.6 22	38.7 14
1937 1937	114 30	103 19	83.7 21	75.1 16	64.5 13	55.0 12	51.1 9	49.2 5	46.1 4
1938 1938	110 32	102 22	84.9 20	61.3 28	46.4 33	38.4 34	37.9 26	35.2 28	30.9 28
1939 1939	88.0 48	75.7 41	68.0 38	53.2 40	43.5 38	34.8 39	31.4 36	32.0 34	29.3 34
1940 1940	101 38	80.7 38	70.0 34	52.8 41	39.2 49	30.6 46	26.7 49	22.5 52	20.6 53
1941 1941	110 33	100 23	64.4 40	48.7 46	42.1 42	31.7 45	29.7 41	29.5 37	28.4 36
1942 1942	101 39	96.0 28	94.9 10	81.5 10	72.0 8	59.7 7	50.8 10	40.6 19	34.3 23
1943 1943	96.0 43	70.7 47	57.6 46	53.5 38	42.4 41	34.9 38	30.3 38	28.7 39	25.7 41
1944 1944	113 31	70.7 48	51.0 54	32.2 60	29.8 57	23.8 59	21.0 59	20.8 56	18.3 57
1945 1945	93.0 45	77.7 39	66.0 39	55.1 35	41.8 44	30.2 47	23.8 54	18.9 59	20.6 54
1946 1946	116 27	74.3 42	57.1 47	52.2 42	45.8 34	40.0 30	30.7 37	28.7 40	23.4 47
1947 1947	119 22	62.0 56	51.4 52	32.4 59	26.4 61	22.3 62	20.1 60	17.8 60	17.4 59
1948 1948	84.0 49	71.3 46	51.1 53	48.1 47	40.0 47	29.2 50	23.5 55	19.4 58	20.2 55
1949 1949	74.0 56	68.0 51	56.0 49	50.5 44	41.1 46	30.2 48	26.3 52	21.5 55	18.3 58
1950 1950	93.0 46	68.3 49	60.3 43	47.5 48	39.9 48	34.1 44	29.1 42	26.5 46	24.0 46
1951 1951	84.0 50	64.7 52	55.3 51	37.1 55	28.7 59	24.3 58	21.8 58	20.0 57	16.4 61
1952 1952	82.0 52	64.0 53	44.3 56	35.3 56	28.1 60	26.2 55	23.0 57	22.4 53	21.3 52
1953 1953	93.0 47	72.3 44	56.1 48	51.1 43	43.5 39	37.1 36	28.9 43	21.8 54	18.4 56
1954 1954	121 20	95.3 29	71.7 32	58.8 32	49.0 30	42.8 28	40.1 22	39.7 21	34.1 24
1955 1955	150 1	111 10	88.0 19	66.7 25	54.6 23	38.9 33	40.1 23	36.8 24	35.9 20
1956 1956	150 2	103 20	77.1 27	54.9 36	44.2 36	40.3 29	37.6 27	34.8 29	33.1 25
1957 1957	127 12	95.0 30	68.7 36	58.0 33	43.2 40	34.7 40	27.0 48	24.0 48	22.6 49
1958 1958	116 28	102 21	77.0 28	61.1 29	54.6 24	43.6 25	37.0 30	36.2 26	30.4 29
1959 1959	118 24	113 9	82.0 25	54.6 37	41.2 45	35.6 37	32.6 35	28.2 41	28.4 37
1960 1960	99.0 40	72.3 45	59.0 45	49.7 45	45.3 35	34.7 41	30.3 39	29.9 36	27.8 39

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

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 SPRECKELS DITCH AT HAIPUANA WEIR NR HUELO, MAUI  
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 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
1961 1961	128 10	106 17	75.7 30	67.7 27	43.6 37	34.3 43	28.3 46	30.0 35	26.5 40
1962 1962	127 13	93.3 32	70.0 35	62.1 24	46.8 32	40.0 31	33.2 34	27.3 43	28.0 38
1963 1963	104 36	89.0 34	83.7 22	69.6 18	64.6 12	49.1 14	40.3 21	33.4 31	30.1 32
1964 1964	137 4	111 11	99.0 7	60.9 30	51.1 27	43.4 26	37.4 29	36.8 25	33.1 26
1965 1965	134 5	118 3	108 2	82.3 7	70.9 10	45.0 22	37.5 28	35.9 27	34.9 22
1966 1966	119 23	109 15	92.0 15	69.1 19	59.6 17	47.7 16	46.5 14	44.4 10	40.4 11
1967 1967	122 18	114 7	94.7 11	81.7 9	63.3 15	46.4 19	40.0 24	43.2 13	37.9 15
1968 1968	126 14	117 6	101 5	90.0 2	71.0 9	65.3 3	51.6 8	44.4 11	44.1 5
1969 1969	132 7	117 4	115 1	103 1	90.1 1	83.8 1	74.1 1	65.4 1	54.9 1
1970 1970	118 25	104 18	90.9 18	87.2 4	74.4 6	57.5 10	46.4 15	45.9 8	42.5 7
1971 1971	131 9	117 5	101 6	87.1 5	72.9 7	58.7 9	51.8 7	44.9 9	41.6 8
1972 1972	132 8	123 1	82.0 26	53.3 39	49.9 29	34.4 42	29.9 40	29.1 38	28.9 35
1973 1973	128 11	114 8	97.3 8	87.3 3	81.0 2	63.1 5	54.4 5	51.0 3	40.9 9
1974 1974	133 6	111 12	101 4	76.3 14	56.3 21	45.4 21	39.4 25	38.8 23	32.5 27
1975 1975	126 15	110 14	91.6 16	67.4 22	55.0 22	46.4 20	47.1 13	43.0 14	40.2 12
1976 1976	122 19	94.0 31	83.0 23	74.2 17	64.3 14	59.0 8	50.6 11	44.2 12	35.0 21
1977 1977	126 16	119 2	104 3	81.4 11	76.2 3	64.8 4	52.8 6	42.8 16	39.7 13
1978 1978	110 34	89.3 33	71.6 33	59.3 31	52.2 26	47.3 17	43.7 17	40.2 20	37.2 18
1979 1979	138 3	99.0 24	82.1 24	75.2 15	59.4 18	55.3 11	49.9 12	47.6 6	40.9 10
1980 1980	102 37	97.7 26	94.4 12	79.7 12	75.8 4	66.8 2	57.6 2	52.4 2	48.3 3
1981 1981	97.0 42	84.0 37	59.4 44	44.5 50	31.9 53	25.0 57	19.8 61	16.7 62	17.2 60
1982 1982	115 29	111 13	94.4 13	86.1 6	74.9 5	61.5 6	56.3 3	49.5 4	49.7 2
1983 1983	120 21	97.7 27	97.1 9	78.1 13	58.6 19	48.8 15	43.2 19	40.8 17	37.3 17
1984 1984	125 17	106 16	92.4 14	68.4 20	60.9 16	43.2 27	36.6 31	34.2 30	30.2 30
1985 1985	117 26	99.0 25	91.6 17	81.9 8	66.1 11	54.3 13	55.5 4	47.3 7	42.6 6



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16538000  
 SPRECKELS DITCH AT HAIPUANA WEIR NR HUELO, 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)		MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN HIGH-VALUE ANALYSIS (OCT-SEP)	
WATER YEAR RANGE		WATER YEAR RANGE	
1923 1923	19.3	1923 1923	19.3
1924 1924	19.2	1924 1924	19.2
1925 1925	19.8	1925 1925	19.8
1926 1926	15.2	1926 1926	15.2
1927 1927	19.1	1927 1927	19.1
1928 1928	22.1	1928 1928	22.1
1929 1929	18.2	1929 1929	18.2
1931 1931	24.5	1931 1931	24.5
1932 1932	31.5	1932 1932	31.5
1933 1933	18.2	1933 1933	18.2
1934 1934	23.8	1934 1934	23.8
1935 1935	26.5	1935 1935	26.5
1936 1936	26.1	1936 1936	26.1
1937 1937	37.0	1937 1937	37.0
1938 1938	23.8	1938 1938	23.8
1939 1939	23.7	1939 1939	23.7
1940 1940	16.6	1940 1940	16.6
1941 1941	21.3	1941 1941	21.3
1942 1942	28.9	1942 1942	28.9
1943 1943	18.1	1943 1943	18.1
1944 1944	12.2	1944 1944	12.2
1945 1945	15.9	1945 1945	15.9
1946 1946	16.8	1946 1946	16.8
1947 1947	15.4	1947 1947	15.4
1948 1948	15.6	1948 1948	15.6
1949 1949	12.9	1949 1949	12.9
1950 1950	18.0	1950 1950	18.0
1951 1951	11.8	1951 1951	11.8
1952 1952	15.9	1952 1952	15.9
1953 1953	15.8	1953 1953	15.8
1954 1954	24.2	1954 1954	24.2
1955 1955	26.5	1955 1955	26.5
1956 1956	22.3	1956 1956	22.3
1957 1957	18.3	1957 1957	18.3
1958 1958	25.6	1958 1958	25.6
1959 1959	23.0	1959 1959	23.0
1960 1960	23.4	1960 1960	23.4
1961 1961	23.0	1961 1961	23.0
1962 1962	22.2	1962 1962	22.2
1963 1963	21.5	1963 1963	21.5
1964 1964	30.3	1964 1964	30.3

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16538000  
 SPRECKELS DITCH AT HAIPUAENA WEIR NR HUELO, MAUI  
 PARAMETER CODE - 00060 DISCHARGE  
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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	
1965 1965	30.6 52	1965 1965	30.6 11
1966 1966	32.2 55	1966 1966	32.2 8
1967 1967	32.3 56	1967 1967	32.3 7
1968 1968	32.1 54	1968 1968	32.1 9
1969 1969	42.2 62	1969 1969	42.2 1
1970 1970	32.4 57	1970 1970	32.4 6
1971 1971	29.5 50	1971 1971	29.5 13
1972 1972	24.2 35	1972 1972	24.2 28
1973 1973	29.4 49	1973 1973	29.4 14
1974 1974	24.1 33	1974 1974	24.1 30
1975 1975	28.5 46	1975 1975	28.5 17
1976 1976	27.7 43	1976 1976	27.7 20
1977 1977	28.3 44	1977 1977	28.3 19
1978 1978	27.4 42	1978 1978	27.4 21
1979 1979	32.5 58	1979 1979	32.5 5
1980 1980	36.3 59	1980 1980	36.3 4
1981 1981	14.9 4	1981 1981	14.9 59
1982 1982	40.8 61	1982 1982	40.8 2
1983 1983	28.9 47	1983 1983	28.9 16
1984 1984	24.8 37	1984 1984	24.8 26
1985 1985	28.5 45	1985 1985	28.5 18