

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

01/17/24 03:00

PETITION TO AMEND INTERIM INSTREAM FLOW STANDARDS

MAKAPIPI, EAST AND WEST STREAMS, 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

16506000 (W), 16506500 (w), Data to follow.
 USGS stream gaging station 16507000 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
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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

Alan

May 24, 2001

Signature

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

Date

For Official Use

Date Received _____
 Date Accepted _____

Makapipi Stream

The Makapipi Stream drainage basin lies on the eastern end of the study area and is headed at 1,900 ft altitude 4 mi inland from the coast (plate 1). This stream rises from sea level to 600 ft 0.9 mi from the coast (a gradient of 630 ft/mi) and the valley is incised only 50 ft below the upland surface at this altitude. The stream lies on rocks of the Hana Volcanics along its entire length (Stearns and Macdonald, 1942). Streamflow is diverted by the Koolau Ditch at about 1,300 ft altitude (table 4).

Three gaging stations were operated in the Makapipi Stream drainage basin, one at 1,300 ft altitude (5060, table 3) measuring water flowing from water development tunnels into the Koolau Ditch, one for Makapipi Spring at 1,150 ft altitude (5065), and one at 920 ft altitude (5070) downstream of the Koolau Ditch (table 2, plate 1). The average annual flow at gaging station 5060 during 1949–65 was 2.87 Mgal/d, all of which is assumed to be ground-water discharge. Ground-water discharge at gaging station 5065 averaged about 0.67 Mgal/d during 1932–45 but the spring occasionally went dry during dry weather. The estimated base flow at gaging station 5070 is about 1.96 Mgal/d and the stream has gone dry at this altitude during 1932–45 indicating that the stream is not perennial between the Koolau Ditch and this gaging station (table 2, fig. 15S). A water budget was not calculated for this stream basin.

MAKAPIPI

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16506000
MAKAPIPI DITCH NEAR NAHIKU, 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	1949 1949	1949 1949	1950 1950																																							
NUMBER OF DAYS IN CLASS					6						5	4	16	10	11	27	23	16	21	15	9	12	36	9	17	25	25	36	17	12	11	22	6	3	2							
1951 1951											1	8	7	18	22	26	32	20	27	18	15	17	19	17	15	14	15	14	13	9	14	5	6	5	8							
1952 1952											8	2	3	3	2	8	2	4	13	16	15	37	22	27	39	24	32	43	20	23	5	3	1	1	1							
1953 1953					4	8					3	12	11	13	12	7	14	11	24	26	20	16	24	12	11	17	18	15	13	19	15	6	6	8	4							
1954 1954						8					5	13	10	9	3	2	7	6	13	19	13	17	17	12	14	13	21	27	26	24	24	22	11	4								
1955 1955											1	5	6	10	8	6	7	19	16	17	11	15	10	22	22	31	24	46	38	22	16	5	5	4								
1956 1956											4	6	9	5	11	10	12	10	12	10	10	22	17	31	37	33	29	29	19	20	13	7	4	6								
1957 1957											7	3	7	3	11	22	17	18	39	28	19	29	12	13	13	9	18	19	8	17	14	4	4									
1958 1958					6	8					3	5	3	6	13	15	9	10	15	19	13	19	17	24	21	24	26	13	22	13	10	1	5									
1959 1959											10	3	9	5	18	27	14	12	16	21	25	29	25	27	25	30	36	18	8	8	3											
1960 1960											10	3	9	5	18	27	14	12	16	21	25	29	25	27	25	30	36	18	8	8	3											
1961 1961											1	14	10	4	11	35	22	25	26	36	24	18	16	19	15	21	17	12	6	11	6	3	1	1								
1962 1962											7	11	11	11	18	40	14	15	19	19	18	14	8	11	17	27	36	10	11	4												
1963 1963											4	6	23	11	7	12	15	16	10	13	15	18	18	14	17	18	14	7	9	14	16	7	5	9	1							
1964 1964											1	3	6	1	13	25	11	10	10	14	16	39	22	33	24	28	35	16	23	18	13	5	5	1								
1965 1965											1	3	2	6	3	7	16	16	25	26	19	40	24	38	14	15	18	15	10	11	9	6	8	5								

CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT
1	0.00	0	6209	100.00	13	1.70	155	5708	91.93	25	5.00	354	2412	38.85
2	0.65	6	6209	100.00	14	1.90	107	5553	89.43	26	5.40	389	2058	33.15
3	0.71	8	6203	99.90	15	2.00	185	5446	87.71	27	5.90	450	1669	26.88
4	0.78	7	6195	99.77	16	2.20	357	5261	84.73	28	6.50	330	1219	19.63
5	0.85	16	6188	99.66	17	2.50	226	4904	78.98	29	7.10	271	889	14.32
6	0.93	44	6172	99.40	18	2.70	280	4678	75.34	30	7.70	253	618	9.95
7	1.00	21	6128	98.70	19	2.90	338	4398	70.83	31	8.40	181	365	5.88
8	1.10	65	6107	98.36	20	3.20	317	4060	65.39	32	9.20	78	184	2.96
9	1.20	79	6042	97.31	21	3.50	277	3743	60.28	33	10.00	58	106	1.71
10	1.30	40	5963	96.04	22	3.80	423	3466	55.82	34	11.00	43	48	0.77
11	1.40	127	5923	95.39	23	4.20	268	3043	49.01	35	12.00	5	5	0.08
12	1.60	88	5796	93.35	24	4.50	363	2775	44.69					

DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...
 STATION ID: 16506000 MAKAPIPI DITCH NEAR NAIHIKU, 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	1.44	0.15791)
90.0	1.85	(LOG = 0.26828)
85.0	2.18	(LOG = 0.33885)
80.0	2.45	(LOG = 0.38861)
75.0	2.72	(LOG = 0.43380)
70.0	2.95	(LOG = 0.46922)
65.0	3.22	(LOG = 0.50824)
60.0	3.52	(LOG = 0.54643)
55.0	3.85	(LOG = 0.58527)
50.0	4.14	(LOG = 0.61719)
45.0	4.48	(LOG = 0.65115)
40.0	4.90	(LOG = 0.69032)
35.0	5.27	(LOG = 0.72180)
30.0	5.65	(LOG = 0.75213)
25.0	6.06	(LOG = 0.78216)
20.0	6.47	(LOG = 0.81088)
15.0	7.02	(LOG = 0.84652)
10.0	7.69	(LOG = 0.88613)
5.0	8.64	(LOG = 0.93657)

MEAN OF LOGS = 0.59955

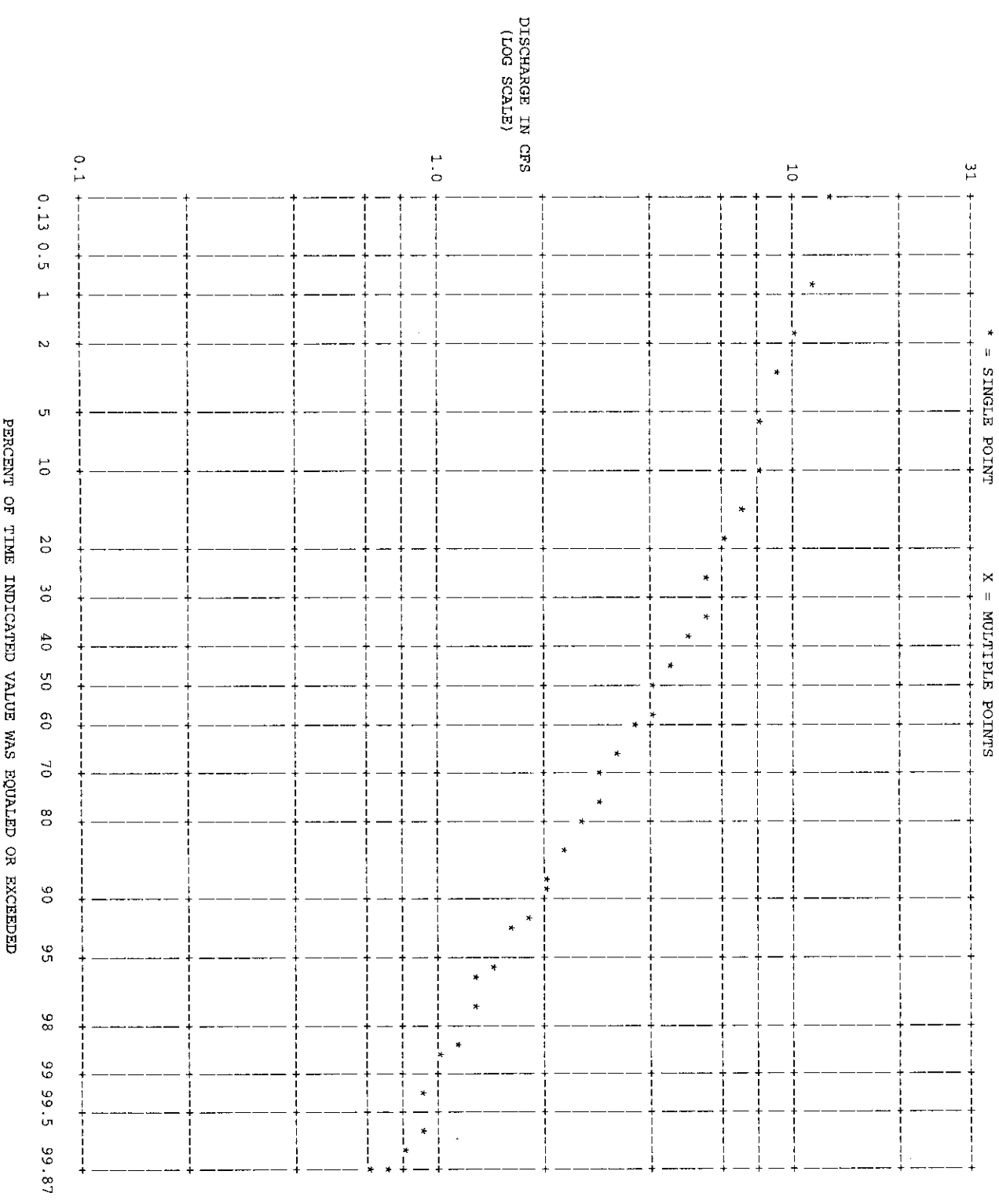
STANDARD DEVIATION OF LOGS = 0.21823 (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = 0.36398

COEFFICIENT OF SKEW = -0.35013

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP
 STATION ID: 16506000 MAKAPIPI DITCH NEAR NAHIKU, MAUI, HI
 PARAMETER CODE - 00060 DISCHARGE
 STATISTIC CODE - 00003 MEAN

(YEARS 1948 - 1966)



DVSPAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16506000
 MAKAPIPI DITCH NEAR NAHIKU, 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
1949 1949	1.40 13	1.43 14	1.50 14	1.61 13	2.22 16	2.37 9	3.11 8	3.61 11	3.56 9
1950 1950	1.20 10	1.20 10	1.21 8	1.28 8	1.46 7	2.90 14	4.22 17	4.13 15	4.54 14
1951 1951	1.30 11	1.37 11	1.39 11	1.48 10	1.66 9	2.03 6	2.20 1	2.52 3	3.15 4
1952 1952	1.10 8	1.10 8	1.16 7	1.20 7	1.47 8	3.27 16	3.94 15	4.61 17	4.90 16
1953 1953	.87 3	.89 4	.90 3	.95 3	1.12 2	1.74 3	2.89 5	2.75 5	3.38 6
1954 1954	.99 7	.99 7	.99 5	1.04 4	1.20 4	2.22 8	3.23 10	3.18 7	3.45 8
1955 1955	1.50 15	1.57 16	1.60 16	1.70 15	1.84 12	2.38 10	4.10 16	4.58 16	5.33 17
1956 1956	1.50 16	1.53 15	1.57 15	1.63 14	1.90 13	2.85 13	3.11 9	3.54 9	4.49 13
1957 1957	.82 2	.84 2	.92 4	1.13 6	1.32 6	2.02 5	3.09 7	3.06 6	3.35 5
1958 1958	.65 1	.67 1	.70 1	.79 1	.84 1	1.88 4	2.27 3	2.40 2	2.88 2
1959 1959	.91 5	.96 5	1.25 10	2.36 17	2.58 17	2.79 12	3.34 11	3.56 10	4.06 11
1960 1960	1.40 14	1.40 13	1.40 12	1.48 11	1.82 11	2.21 7	3.51 13	3.80 13	4.19 12
1961 1961	1.30 12	1.37 12	1.41 13	1.50 12	1.92 14	3.13 15	3.02 6	3.21 8	3.40 7
1962 1962	.87 4	.87 3	.89 2	.94 2	1.12 3	1.64 2	2.65 4	2.57 4	3.05 3
1963 1963	.96 6	.97 6	1.04 6	1.08 5	1.28 5	1.52 1	2.21 2	2.16 1	2.53 1
1964 1964	1.70 17	1.70 17	1.76 17	1.91 16	2.17 15	3.39 17	3.78 14	3.99 14	4.77 15
1965 1965	1.10 9	1.17 9	1.24 9	1.36 9	1.74 10	2.73 11	3.45 12	3.65 12	3.99 10

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16506000
 MAKAPIPI DITCH NEAR NAHIKU, 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
1949 1949	11.0	10.7	10.2	9.57	8.92	7.63	6.99	6.33	5.50
1950 1950	11.0	10.3	9.56	8.05	7.36	6.50	5.85	5.64	5.43
1951 1951	11.0	11.0	10.6	9.43	8.14	6.29	5.62	6.02	5.16
1952 1952	12.0	11.0	9.39	8.24	7.09	6.53	6.26	5.93	5.80
1953 1953	11.0	11.0	10.2	9.41	8.54	7.98	6.54	5.44	4.74
1954 1954	10.0	10.0	9.61	9.16	8.25	7.52	6.92	7.10	6.21
1955 1955	11.0	11.0	10.4	9.19	8.28	6.99	7.21	6.88	6.72
1956 1956	11.0	11.0	10.9	8.99	7.45	7.02	6.95	6.87	6.47
1957 1957	10.0	10.0	9.24	8.41	7.83	6.97	5.63	4.57	4.71
1958 1958	10.0	10.0	9.51	8.45	7.83	6.95	6.26	6.23	5.15
1959 1959	8.80	8.57	8.00	7.13	6.58	5.79	5.43	5.06	4.90
1960 1960	11.0	10.3	9.10	8.30	7.30	6.27	5.54	5.43	5.47
1961 1961	11.0	10.1	8.71	7.95	6.98	5.81	4.75	5.03	4.58
1962 1962	8.30	8.10	7.50	6.77	6.39	5.96	5.06	4.27	4.20
1963 1963	12.0	11.3	11.0	10.0	9.63	7.88	7.08	6.86	5.92
1964 1964	13.0	12.3	10.8	8.71	8.19	6.67	6.38	6.40	5.50
1965 1965	11.0	11.0	10.5	10.1	9.35	7.34	6.08	5.23	5.08

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16506000
 MAKAPUHI DITCH NEAR NAHIKU, 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	
1949 1949	4.61 12	1949 1949	4.61 6
1950 1950	4.59 11	1950 1950	4.59 7
1951 1951	4.04 4	1951 1951	4.04 14
1952 1952	5.05 15	1952 1952	5.05 3
1953 1953	4.14 6	1953 1953	4.14 12
1954 1954	4.77 13	1954 1954	4.77 5
1955 1955	5.36 17	1955 1955	5.36 1
1956 1956	5.15 16	1956 1956	5.15 2
1957 1957	4.04 3	1957 1957	4.04 15
1958 1958	4.14 7	1958 1958	4.14 11
1959 1959	4.32 8	1959 1959	4.32 10
1960 1960	4.39 9	1960 1960	4.39 9
1961 1961	3.87 2	1961 1961	3.87 16
1962 1962	3.52 1	1962 1962	3.52 17
1963 1963	4.11 5	1963 1963	4.11 13
1964 1964	4.95 14	1964 1964	4.95 4
1965 1965	4.51 10	1965 1965	4.51 8

DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...
 STATION ID: 16507000 WAKAPIPI STREAM NEAR NAHIKU, 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 = 2)

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	0.01	(LOG = -1.86922)
85.0	0.02	(LOG = -1.74428)
80.0	0.03	(LOG = -0.48479)
75.0	0.97	(LOG = -0.01160)
70.0	1.28	(LOG = 0.10827)
65.0	1.84	(LOG = 0.26471)
60.0	2.56	(LOG = 0.40836)
55.0	3.14	(LOG = 0.49751)
50.0	3.98	(LOG = 0.59967)
45.0	4.86	(LOG = 0.68646)
40.0	5.65	(LOG = 0.75172)
35.0	6.51	(LOG = 0.81361)
30.0	7.75	(LOG = 0.88952)
25.0	9.33	(LOG = 0.96993)
20.0	12.0	(LOG = 1.07811)
15.0	18.1	(LOG = 1.25871)
10.0	40.2	(LOG = 1.60369)
5.0		

* INDICATES SUBSTITUTION FOR ZERO OR NEAR-ZERO VALUES

MEAN OF LOGS = -Inf

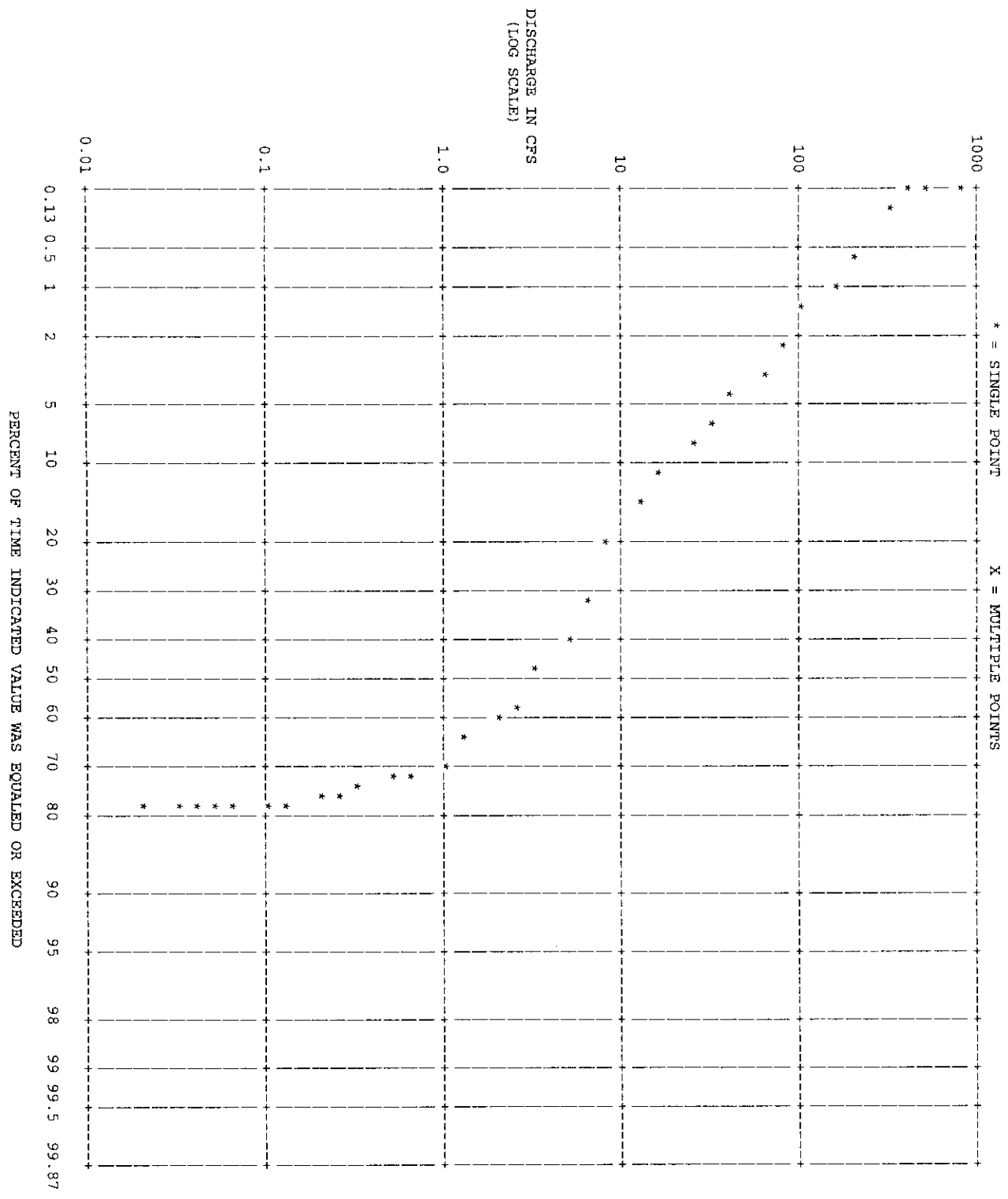
STANDARD DEVIATION OF LOGS = NAN (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = NAN

COEFFICIENT OF SKEW = NAN

*
*

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP
 STATION ID: 16507000 MAKAPIPI STREAM NEAR NAHIKU, MAUI, HI (YEARS 1932 - 1945)
 PARAMETER CODE - 00060 DISCHARGE
 STATISTIC CODE - 00003 MEAN



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16507000
 MAKAPIPI STREAM NEAR NAHIKU, 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	.0000 1	.11 4	.45 3	.72 5	2.98 5
1934 1934	.0000 2	.0000 2	.0000 2	.0000 2	.0000 2	.14 5	.70 4	.53 3	1.33 4
1935 1935	.34 11	.39 11	.49 11	.87 11	1.39 11	1.71 9	1.85 8	2.51 8	5.36 8
1936 1936	.0000 3	.0000 3	.0000 3	.0000 3	.0000 3	.041 3	.32 2	.45 1	1.18 3
1937 1937	1.30 12	1.37 12	1.39 12	1.53 12	2.12 12	3.30 12	13.4 12	14.1 12	16.8 12
1938 1938	.0000 4	.050 10	.18 10	.34 10	1.00 10	2.77 11	3.72 10	5.74 11	15.5 11
1939 1939	.0000 5	.0000 4	.0000 4	.054 8	.79 9	2.25 10	4.22 11	5.09 10	8.63 10
1940 1940	.0000 6	.0000 5	.0000 5	.0000 4	.0000 4	.0000 1	.0000 1	.52 2	.47 1
1941 1941	.0000 7	.0000 6	.0000 6	.0000 5	.0000 5	.20 6	1.80 7	2.49 7	4.23 7
1942 1942	.0000 8	.0000 7	.0000 7	.13 9	.46 8	.97 8	1.68 6	2.26 6	8.58 9
1943 1943	.0000 9	.0000 8	.0000 8	.0000 6	.0000 6	-.27 7	3.17 9	3.98 9	3.94 6
1944 1944	.0000 10	.0000 9	.0000 9	.0000 7	.0000 7	.0000 2	.74 5	.63 4	1.05 2

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16507000
 MAKAPIPI STREAM NEAR NAHIKU, 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 '00 SEP

WATER YEAR	1	3	7	15	30	60	90	120	183
1933 1933	190	130	80.6	44.0	27.5	18.0	16.3	14.6	10.8
1934 1934	413	172	84.9	58.6	43.6	27.1	22.9	19.1	13.6
1935 1935	371	338	185	93.2	57.8	36.6	28.0	24.7	19.0
1936 1936	196	85.0	42.9	22.6	13.8	10.9	8.75	8.09	8.00
1937 1937	333	261	172	112	76.5	56.9	54.7	45.2	36.7
1938 1938	1220	778	458	240	129	82.5	61.6	49.8	41.1
1939 1939	130	91.7	83.6	50.7	30.0	25.5	20.4	18.0	14.8
1940 1940	156	92.7	52.7	34.7	20.9	11.5	7.67	5.75	4.13
1941 1941	153	92.3	52.8	26.6	14.0	11.1	10.5	8.48	7.17
1942 1942	560	467	355	227	138	82.7	60.5	46.8	37.2
1943 1943	238	83.9	36.6	20.3	14.0	9.53	7.78	6.44	6.36
1944 1944	65.0	25.3	15.6	7.63	3.82	2.91	2.99	2.42	1.99

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16507000
 MAKAPIPI STREAM NEAR NAHIKU, 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	
1933 1933	5.75	6
1934 1934	7.48	7
1935 1935	10.9	9
1936 1936	4.59	3
1937 1937	23.4	12
1938 1938	23.2	11
1939 1939	9.32	8
1940 1940	3.38	2
1941 1941	5.61	5
1942 1942	22.8	10
1943 1943	4.65	4
1944 1944	1.21	1

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

WATER YEAR	RANGE	
1933 1933	5.75	7
1934 1934	7.48	6
1935 1935	10.9	4
1936 1936	4.59	10
1937 1937	23.4	1
1938 1938	23.2	2
1939 1939	9.32	5
1940 1940	3.38	11
1941 1941	5.61	8
1942 1942	22.8	3
1943 1943	4.65	9
1944 1944	1.21	12

DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...
 STATION ID: 16506500 WEST MAKAPIPI SPRING NR MAHIKU, 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 = 1)

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	0.01	(LOG = -1.89999)
85.0	0.02	(LOG = -1.72389)
80.0	0.20	(LOG = -0.70014)
75.0	0.28	(LOG = -0.55497)
70.0	0.36	(LOG = -0.44440)
65.0	0.47	(LOG = -0.33131)
60.0	0.59	(LOG = -0.23022)
55.0	0.71	(LOG = -0.14805)
50.0	0.85	(LOG = -0.07306)
45.0	1.09	(LOG = 0.03852)
40.0	1.27	(LOG = 0.10435)
35.0	1.48	(LOG = 0.16970)
30.0	1.65	(LOG = 0.21840)
25.0	1.82	(LOG = 0.26043)
20.0	1.97	(LOG = 0.29472)
15.0	2.13	(LOG = 0.32778)
10.0	2.32	(LOG = 0.36585)
5.0	2.67	(LOG = 0.42710)

* INDICATES SUBSTITUTION FOR ZERO OR NEAR-ZERO VALUES

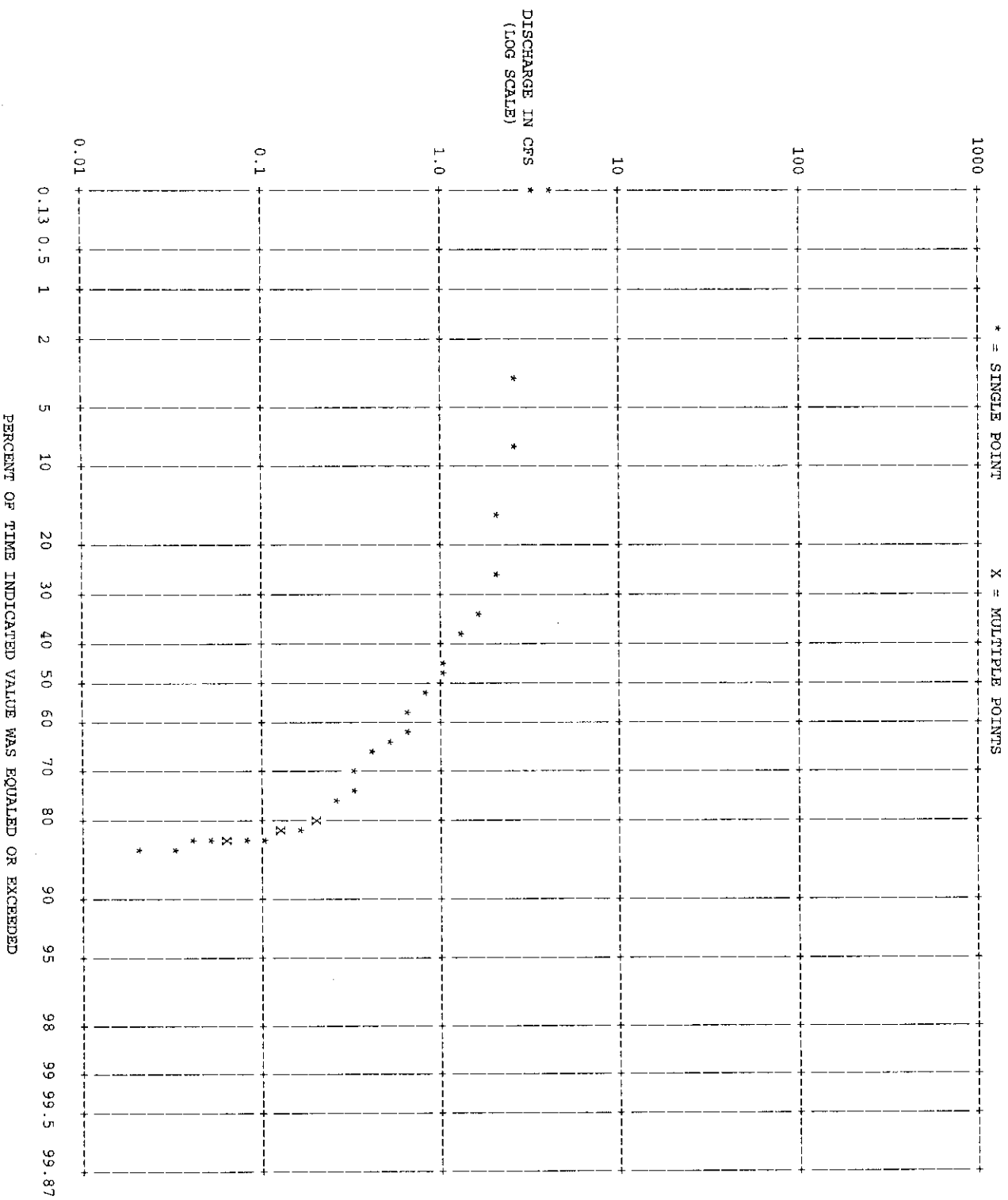
MEAN OF LOGS = -Inf

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: 16506500 WEST MAKAPIPI SPRING NR NAHIKU, MAUI, HI (YEARS 1932 - 1945)
 PARAMETER CODE - 00060 DISCHARGE
 STATISTIC CODE - 00003 MEAN



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16506500
 WEST MAKAPIPI SPRING NR MAHIKU, 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
1933 1933	.0000 1	.0000 1	.0000 1	.0000 1	.0000 1	.001 3	.051 3	.13 4	.62 5
1934 1934	.0000 2	.0000 2	.0000 2	.0000 2	.0000 2	.0000 1	.0000 1	.0000 1	.0000 1
1935 1935	.23 7	.23 7	.23 7	.23 7	.25 7	.28 7	.34 7	.55 7	.96 6
1937 1937	.62 10	.62 10	.62 10	.64 10	.69 10	.85 10	1.01 9	1.40 10	1.90 10
1938 1938	.25 8	.25 8	.26 9	.29 9	.39 9	.70 9	1.09 10	1.32 9	1.46 9
1939 1939	.14 6	.14 6	.14 6	.15 6	.17 6	.21 6	.32 6	.54 6	1.05 7
1940 1940	.0000 3	.0000 3	.0000 3	.0000 3	.0000 3	.0000 2	.0000 2	.0000 2	.0000 2
1941 1941	.0000 4	.0000 4	.0000 4	.0000 4	.030 5	.14 5	.21 5	.26 5	.40 4
1942 1942	.25 9	.25 9	.25 8	.26 8	.26 8	.28 8	.39 8	.70 8	1.40 8
1943 1943	.0000 5	.0000 5	.0000 5	.0000 5	.0000 4	.011 4	.057 4	.11 3	.21 3

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16506500
 WEST MAKAPIPI SPRING NR NAHIKU, 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	2.40	2.27	2.20	2.12	2.02	1.93	1.81	1.61	1.17
1934 1934	2.60	2.47	2.43	2.33	2.24	2.09	1.97	1.79	1.26
1935 1935	6.00	4.43	2.96	2.36	2.21	2.02	1.96	1.89	1.77
1937 1937	3.20	3.20	3.16	3.07	3.01	2.92	2.89	2.78	2.50
1938 1938	2.90	2.90	2.87	2.79	2.68	2.53	2.44	2.29	2.09
1939 1939	2.40	2.37	2.30	2.28	2.19	2.09	2.05	2.05	1.94
1940 1940	1.90	1.90	1.87	1.57	.85	.63	.56	.55	.41
1941 1941	1.90	1.90	1.90	1.86	1.68	1.27	1.06	.94	.73
1942 1942	3.20	3.13	3.10	3.01	2.95	2.79	2.55	2.26	2.05
1943 1943	1.60	1.43	1.31	1.25	1.21	1.03	.92	.98	.86

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16506500
 WEST MAKAPIPI SPRING NR NAHIKU, 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	.63	3	1933 1933	.63	8
1934 1934	.63	4	1934 1934	.63	7
1935 1935	1.12	6	1935 1935	1.12	5
1937 1937	2.04	10	1937 1937	2.04	1
1938 1938	1.61	9	1938 1938	1.61	2
1939 1939	1.31	7	1939 1939	1.31	4
1940 1940	.27	1	1940 1940	.27	10
1941 1941	.72	5	1941 1941	.72	6
1942 1942	1.58	8	1942 1942	1.58	3
1943 1943	.54	2	1943 1943	.54	9