

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

01 JUN 22 P3:43

01 JUN 24 P3:10

PETITION TO AMEND INTERIM INSTREAM FLOW STANDARDS

WAIAKA'A 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, Hawaii'i 96813

2. STREAMFLOW DATA

USGS stream gaging station 16510000, 16513000 Period of Record Data to follow.
 Location/Reach SEE ATTACHED Gages Inactive
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

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

May 24, 2001

Date

For Official Use

Date Received

Date Accepted

Paakea and Waiaka Streams

Paakea Stream is headed at 1,800 ft altitude 1.7 mi inland from the coast (plate 1). Waiaka Stream is short, 0.9 mi long, and heads at 1,400 ft altitude. Both streams rise from sea level to 600 ft altitude 0.5 mi from the coast (a gradient of 1,320 ft/mi) and both valleys are incised 260 ft below the upland surface at this altitude. Both stream valleys lie on lava flows of the Hana Volcanics along their entire lengths except for a small exposure of Honomanu Basalt near the coast in Waiaka Stream valley (Stearns and Macdonald, 1942). Numerous springs have been mapped along both streams (plate 1). All base flow in both streams is captured by the Koolau Ditch at 1,300 ft (table 4).

During 1932–47, these streams and Kapaula and Hanawi Streams to the east were gaged at altitudes ranging from 500 to 650 ft to determine the feasibility of extending one of the lower altitude ditches from the west to capture water gained downstream from the Koolau Ditch (Takasaki and Yamanaga, 1970). On Paakea Stream, gaging station 5140, at 650 ft altitude, measured a minimum daily flow of about 1.29 Mgal/d (table 2, plate 1). The estimated average annual base flow at this gaging station is about 2.53 Mgal/d (table 2, fig. 15P). The minimum daily flow measured at gaging station 5130 on Waiaka Stream was about 0.29 Mgal/d and the estimated average annual base flow is 0.53 Mgal/d (table 2, fig. 15P). No water budgets were calculated for either stream subbasin.

WAIAKA`A

DVSTNT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16513000
 MAIAPKA STREAM 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		
1933 1933	25	51	24	40	55	38	35	32	16	15	11	11	1	5	3	2	1	2	1	2	2	3	1	1	2	1	1	1	1	1	1	1	1	1	1	2	
1934 1934																																					
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1945 1945																																					
1946 1946																																					

CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT
1	0.00	0	5113	100.00	13	1.70	110	604	11.81	25	7.00	13	76	1.49					
2	0.45	36	5113	100.00	14	1.90	78	494	9.66	26	7.90	12	63	1.23					
3	0.51	248	5077	99.30	15	2.10	81	416	8.14	27	8.90	12	51	1.00					
4	0.57	443	4829	94.45	16	2.40	45	335	6.55	28	10.00	3	39	0.76					
5	0.64	719	4386	85.78	17	2.70	43	290	5.67	29	11.00	17	36	0.70					
6	0.72	519	3667	71.72	18	3.00	43	247	4.83	30	13.00	2	19	0.37					
7	0.82	757	3148	61.57	19	3.40	22	204	3.99	31	14.00	9	17	0.33					
8	0.92	396	2391	46.76	20	3.80	30	182	3.56	32	16.00	5	8	0.16					
9	1.00	605	1595	39.02	21	4.30	29	152	2.97	33	18.00	0	3	0.06					
10	1.20	248	1390	27.19	22	4.90	22	123	2.41	34	20.00	1	3	0.06					
11	1.30	306	1142	22.34	23	5.50	11	101	1.98	35	23.00	2	2	0.04					
12	1.50	232	836	16.35	24	6.20	14	90	1.76										

DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...
 STATION ID: 16513000 WAI'AAKA 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 = 0)
 LISTING OF DATA FOLLOWS:

PERCENT OF TIME VALUE EQUALED OR EXCEEDED	DATA VALUE	(LOG =
95.0	0.56	-0.24938)
90.0	0.61	(LOG = -0.21759)
85.0	0.64	(LOG = -0.19081)
80.0	0.67	(LOG = -0.17206)
75.0	0.70	(LOG = -0.15407)
70.0	0.74	(LOG = -0.13257)
65.0	0.79	(LOG = -0.10447)
60.0	0.83	(LOG = -0.08061)
55.0	0.86	(LOG = -0.06330)
50.0	0.90	(LOG = -0.04666)
45.0	0.94	(LOG = -0.02770)
40.0	0.99	(LOG = -0.00443)
35.0	1.07	(LOG = 0.02854)
30.0	1.15	(LOG = 0.06161)
25.0	1.25	(LOG = 0.09519)
20.0	1.38	(LOG = 0.13926)
15.0	1.56	(LOG = 0.19239)
10.0	1.87	(LOG = 0.27150)
5.0	2.94	(LOG = 0.46830)

MEAN OF LOGS = -0.00980

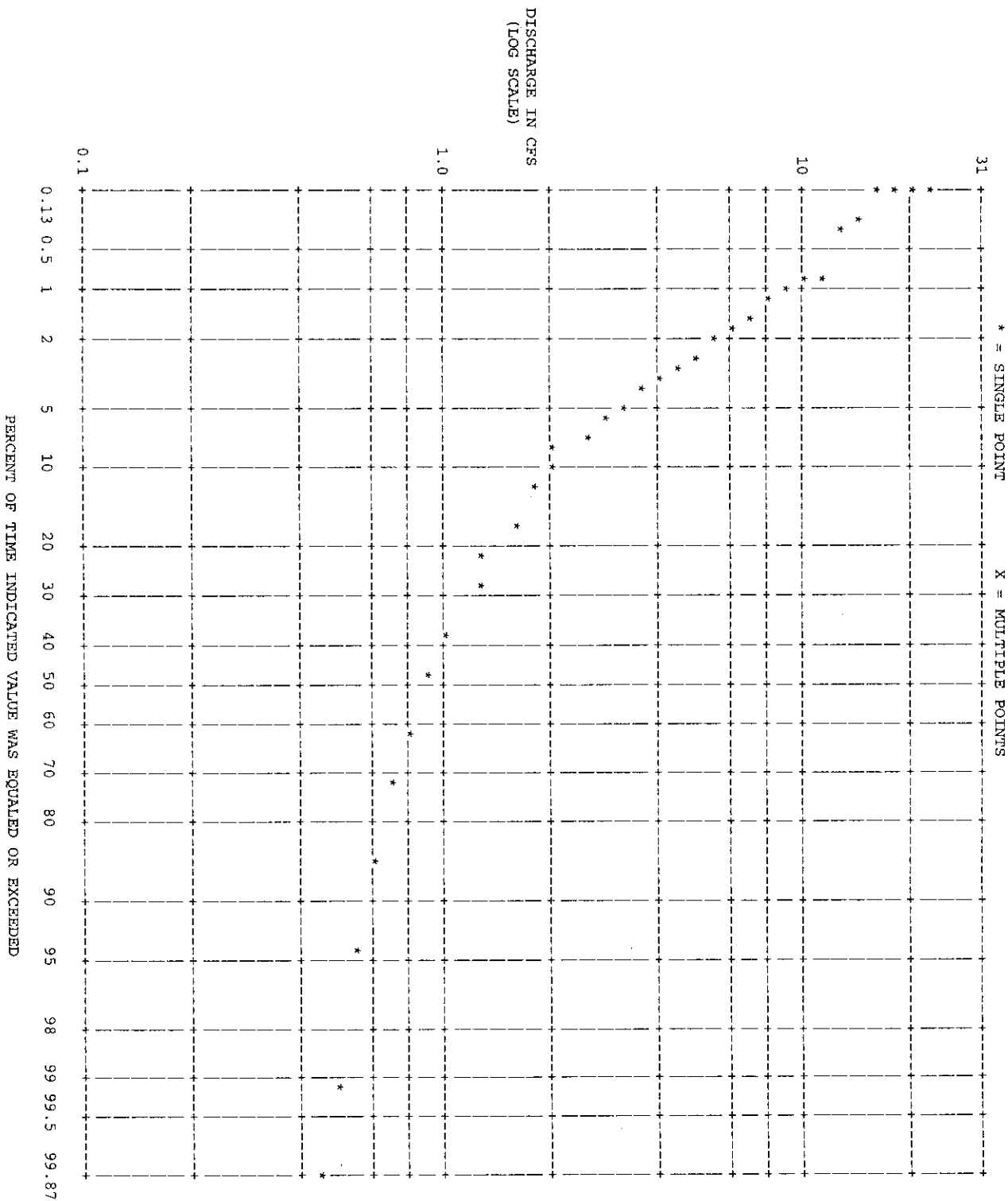
STANDARD DEVIATION OF LOGS = 0.18299 (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = *****

COEFFICIENT OF SKEW = 1.06988

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP
 STATION ID: 16513000 WAIANAHA STREAM NEAR NAHIKU, MAUI, HI
 PARAMETER CODE - 00060 DISCHARGE
 STATISTIC CODE - 00003 MEAN

(YEARS 1932 - 1947)



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16513000
 WAI'AAKA 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 RANGE	1	2	3	4	5	6	7	8	9	10	14	30	60	90	120	183
1933 1933	.46	.60	.46	.61	.46	.49	.50	.55	.67	.78	.84	.50	.55	.67	.78	.84
1934 1934	.60	.60	.60	.62	.60	.61	.65	.72	.81	.81	.83	.65	.72	.81	.81	.83
1935 1935	.60	.60	.60	.62	.60	.63	.67	.92	.94	.95	1.04	.67	.92	.94	.95	1.04
1936 1936	.52	.59	.52	.61	.52	.56	.56	.66	.67	.74	.87	.56	.66	.67	.74	.87
1937 1937	.59	.62	.61	.62	.65	.68	.77	.96	1.19	1.25	1.41	.77	.96	1.19	1.25	1.41
1938 1938	.62	.62	.62	.62	.62	.65	.68	.75	.79	.92	1.37	.68	.75	.79	.92	1.37
1939 1939	.62	.62	.62	.64	.64	.70	.84	.91	.94	.96	1.08	.84	.91	.94	.96	1.08
1940 1940	.52	.52	.52	.52	.52	.53	.56	.63	.70	.72	.72	.56	.63	.70	.72	.72
1941 1941	.52	.59	.52	.59	.52	.52	.57	.63	.83	.82	.93	.57	.63	.83	.82	.93
1942 1942	.59	.59	.59	.59	.59	.64	.65	.76	.87	.94	1.16	.65	.76	.87	.94	1.16
1943 1943	.59	.59	.59	.59	.59	.61	.67	.71	.86	.90	1.04	.67	.71	.86	.90	1.04
1944 1944	.54	.54	.54	.54	.54	.55	.56	.58	.82	.80	.85	.56	.58	.82	.80	.85
1945 1945	.45	.45	.45	.45	.47	.50	.52	.54	.55	.72	.86	.52	.54	.55	.72	.86
1946 1946	.48	.48	.48	.48	.52	.54	.55	.62	.81	.89	.94	.55	.62	.81	.89	.94

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16513000
 WAIAPAKA 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	1.11	4
1934 1934	1.15	6
1935 1935	1.51	12
1936 1936	1.19	8
1937 1937	1.68	14
1938 1938	1.43	11
1939 1939	1.29	10
1940 1940	.92	1
1941 1941	1.03	3
1942 1942	1.58	13
1943 1943	1.16	7
1944 1944	.98	2
1945 1945	1.12	5
1946 1946	1.27	9

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

WATER YEAR	RANGE	
1933 1933	1.11	11
1934 1934	1.15	9
1935 1935	1.51	3
1936 1936	1.19	7
1937 1937	1.68	1
1938 1938	1.43	4
1939 1939	1.29	5
1940 1940	.92	14
1941 1941	1.03	12
1942 1942	1.58	2
1943 1943	1.16	8
1944 1944	.98	13
1945 1945	1.12	10
1946 1946	1.27	6