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

01 MAY 24 P3:10

PETITION TO AMEND INTERIM INSTREAM FLOW STANDARDS

PALAUHULU 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

Data to follow.

USGS stream gaging station: 16522000 Period of Record: Gage Inactive
Location/Reach: SEE ATTACHED
(Attach a USGS map, scale 1"=2000', and a property tax map showing diversion location referenced to established property boundaries.)

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

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

Annual Median flow in cfs =

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
NONE.					UNDETERMINED; SUFFICIENT FOR TARO FARMING AND/OR GATHERING.							

Annual Median flow in cfs =

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

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

Annual Median flow in cfs =

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

TMK	OWNER	USE
RESEARCH IN PROGRESS.		

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

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

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

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

NATIVE HAWAIIAN LEGAL CORPORATION

May 24, 2001
Date

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

For Official Use
Date Received
Date Accepted

PALAUHULU

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

Palauhulu/Waianu

STATION ID - 16522000
TARO PATCH FEEDER DITCH AT KEANAE, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

DURATION TABLE OF DAILY VALUES
FOR PERIOD OCT TO SEP

CLASS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
WATER YEAR RANGE	NUMBER OF DAYS IN CLASS																																		
1935 1935				2				1		1							2		1	3		5	5	10	6	1	183	98	31	13	2	1			
1936 1936																								1	22	40	146	110	42	5					
1937 1937										5						1				1					2	36	75	178	58	9					
1938 1938														1							1		1	1	4	54	167	103	22	10	1				
1939 1939		1											2						1	1			1	1	18	45	184	90	18	2		1			
1940 1940																										89	215	39	13	6	2	2			
1941 1941																										9	110	97	88	32	12	10	3	2	2
1942 1942																									3	4	43	121	127	29	13	20	4	1	
1943 1943																									3	59	192	77	21	9	3	1			
1944 1944																								24	133	123	62	16	4	3	1				
1945 1945																								22	94	100	103	26	14	6					
1946 1946																									36	134	44	70	45	23	9	3		1	
1947 1947																						3	21	70	121	58	58	15	6	8	2	1	2		
1948 1948																				1	3	1	13	36	95	64	87	41	16	6		1	1		1
1949 1949																						1	8	95	102	56	68	22	10	2	1				
1950 1950																							3	81	99	54	71	35	15	3	3	1			
1951 1951																					1		7	171	60	37	53	20	9	5	1	1			
1952 1952																							6	38	57	61	131	55	14	4					
1953 1953																								29	147	60	47	42	26	13		1			
1954 1954																							1	38	58	81	92	49	24	11	5	4	2		
1955 1955																						1		4	36	77	93	59	50	18	9	5	9	2	2
1956 1956																								4	32	111	123	52	26	10	2	3		1	2
1957 1957																									11	32	152	93	49	16	7	2	3		
1958 1958																							2	1	14	55	156	61	41	13	12	6	3	1	
1959 1959																									5	6	79	110	119	24	6	8	4	3	1
1960 1960																							1	1	5	98	109	66	44	17	14	7	3		1
1961 1961																								10	46	109	103	62	17	6	7	3	1	1	
1962 1962																								6	99	74	91	55	25	7	6	2			
1963 1963																							9	100	79	36	45	52	18	17	7	1	1		
1964 1964																								8	46	62	144	55	35	11	2	3			
1965 1965																								16	52	57	132	73	23	6	2	3	1		
1966 1966	28																						2	9	105	91	51	24	27	19	5	3	1		
1967 1967																							2	6	106	127	67	25	15	8	6	2	1		
1968 1968																							1	46	103	97	42	31	15	17	5	5	4		

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16522000
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STATISTIC CODE - 00003 MEAN

CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT
1	0.00	28	12419	100.00	13	0.41	2	12381	99.69	25	2.50	1897	11404	91.83
2	0.08	1	12391	99.77	14	0.48	1	12379	99.68	26	2.90	2107	9507	76.55
3	0.09	0	12390	99.77	15	0.56	0	12378	99.67	27	3.30	3544	7400	59.59
4	0.11	2	12390	99.77	16	0.65	1	12378	99.67	28	3.90	2097	3856	31.05
5	0.13	0	12388	99.75	17	0.75	2	12377	99.66	29	4.50	1085	1759	14.16
6	0.15	0	12388	99.75	18	0.87	0	12375	99.65	30	5.20	374	674	5.43
7	0.17	0	12388	99.75	19	1.00	2	12375	99.65	31	6.10	139	300	2.42
8	0.20	1	12388	99.75	20	1.20	6	12373	99.63	32	7.00	97	161	1.30
9	0.23	0	12387	99.74	21	1.40	5	12367	99.58	33	8.20	44	64	0.52
10	0.26	6	12387	99.74	22	1.60	11	12362	99.54	34	9.50	11	20	0.16
11	0.31	0	12381	99.69	23	1.80	83	12351	99.45	35	11.00	9	9	0.07
12	0.36	0	12381	99.69	24	2.10	864	12268	98.78					

DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...
STATION ID: 16522000 TARO PATCH FEEDER DITCH AT KEANAE, MAUI, HI
PARAMETER CODE = 00060
STATISTIC CODE - 00003 MEAN

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

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

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

PERCENT OF TIME VALUE EQUALED OR EXCEEDED	DATA VALUE	
95.0	2.32	(LOG = 0.36503)
90.0	2.55	(LOG = 0.40617)
85.0	2.68	(LOG = 0.42794)
80.0	2.81	(LOG = 0.44866)
75.0	2.94	(LOG = 0.46784)
70.0	3.05	(LOG = 0.48494)
65.0	3.17	(LOG = 0.50138)
60.0	3.29	(LOG = 0.51723)
55.0	3.40	(LOG = 0.53102)
50.0	3.50	(LOG = 0.54426)
45.0	3.61	(LOG = 0.55711)
40.0	3.71	(LOG = 0.56959)
35.0	3.82	(LOG = 0.58171)
30.0	3.94	(LOG = 0.59520)
25.0	4.11	(LOG = 0.61436)
20.0	4.29	(LOG = 0.63272)
15.0	4.47	(LOG = 0.65034)
10.0	4.83	(LOG = 0.68427)
5.0	5.33	(LOG = 0.72654)

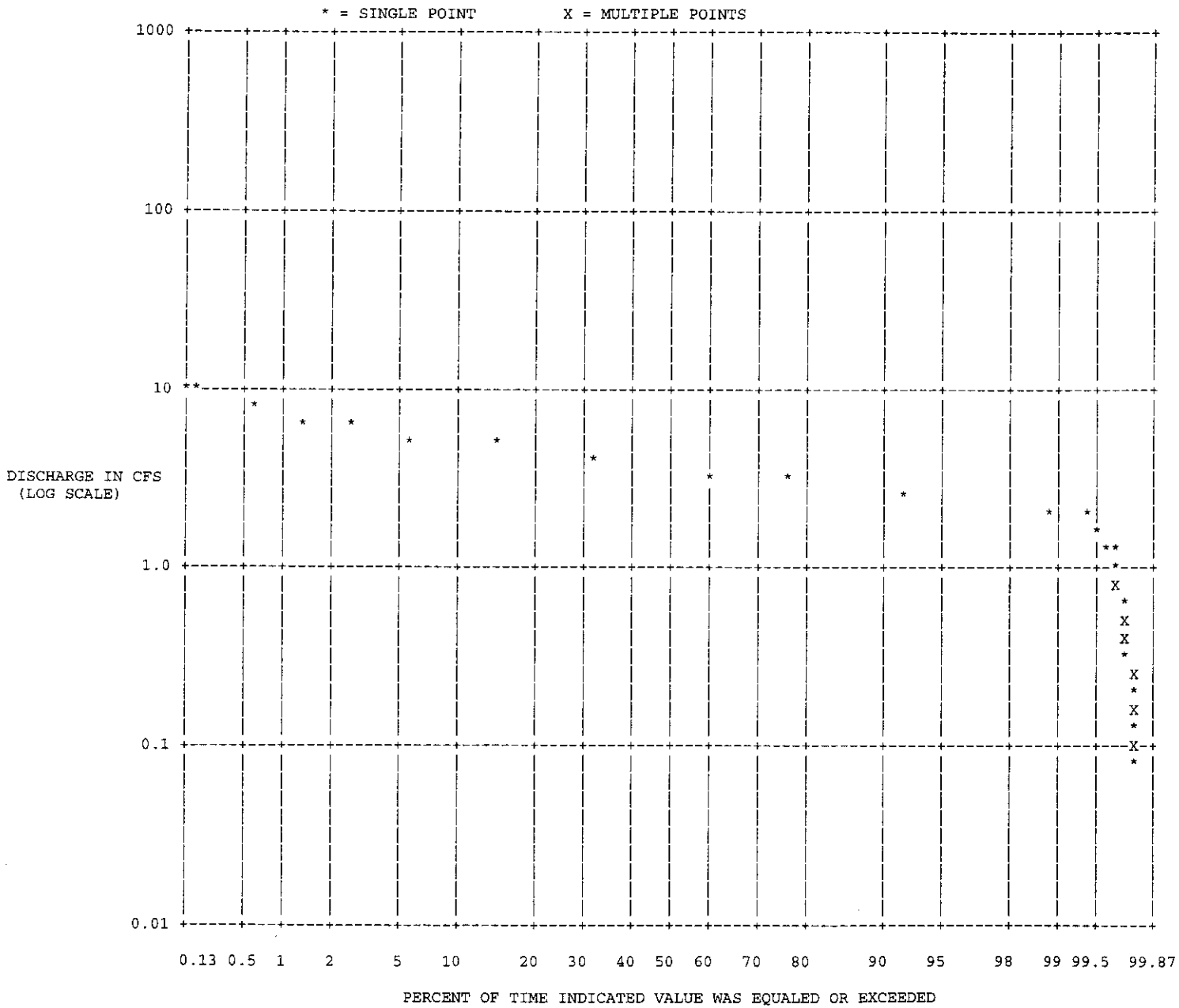
MEAN OF LOGS = 0.54244

STANDARD DEVIATION OF LOGS = 0.09647 (VARIABILITY INDEX - SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = 0.17785

COEFFICIENT OF SKEW = 0.03848

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP (YEARS 1934 - 1968)
STATION ID: 16522000 TARO PATCH FEEDER DITCH AT KEANAE, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16522000
TARO PATCH FEEDER DITCH AT KEANAE, 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
1935 1935	.12 3	.15 2	.51 3	1.00 2	1.63 2	2.61 11	3.04 18	3.35 23	3.46 20
1936 1936	2.40 27	2.47 26	2.49 23	2.54 19	2.72 20	2.94 19	3.07 20	3.18 19	3.30 17
1937 1937	.26 4	.26 3	.48 2	2.22 8	3.17 29	3.29 30	3.39 28	3.58 29	3.78 30
1938 1938	.51 5	1.84 8	2.44 22	2.99 30	3.09 28	3.22 26	3.31 25	3.39 24	3.53 22
1939 1939	.080 2	1.34 4	2.35 18	2.71 25	2.92 24	3.15 25	3.36 27	3.55 28	3.51 21
1940 1940	2.90 33	3.03 32	3.10 32	3.13 31	3.20 30	3.26 29	3.34 26	3.39 25	3.43 19
1941 1941	3.00 34	3.20 34	3.24 33	3.27 32	3.35 32	3.42 31	3.65 32	3.64 31	3.98 32
1942 1942	2.80 31	3.10 33	3.46 34	3.59 34	3.74 34	4.08 34	4.25 34	4.38 34	4.44 33
1943 1943	2.80 32	2.80 31	2.87 30	2.90 28	3.06 26	3.22 27	3.45 29	3.41 27	3.67 28
1944 1944	2.20 20	2.20 15	2.20 10	2.23 9	2.34 6	2.54 7	2.80 12	2.82 7	2.83 5
1945 1945	2.30 21	2.30 18	2.31 15	2.36 12	2.43 12	2.55 8	2.68 6	2.84 11	3.01 8
1946 1946	2.30 22	2.30 19	2.36 19	2.40 16	2.47 13	2.47 5	2.80 13	2.82 8	3.09 12
1947 1947	1.60 8	1.63 6	1.81 4	2.01 3	2.21 4	2.34 4	2.75 8	2.83 10	2.85 6
1948 1948	1.30 6	1.53 5	2.00 6	2.11 6	2.41 10	2.56 9	2.77 10	2.82 9	3.13 14
1949 1949	1.70 9	1.77 7	1.91 5	2.01 4	2.34 7	2.48 6	2.52 4	2.52 3	2.81 4
1950 1950	1.80 11	2.00 11	2.20 11	2.23 10	2.36 8	2.67 13	2.91 15	2.93 14	3.01 9
1951 1951	1.50 7	1.87 9	2.01 8	2.19 7	2.23 5	2.28 3	2.34 1	2.42 1	2.49 1
1952 1952	1.90 14	1.93 10	2.03 9	2.36 13	2.53 17	2.63 12	2.75 9	2.95 15	3.09 13
1953 1953	2.30 23	2.30 20	2.33 16	2.39 15	2.51 15	2.56 10	2.65 5	2.66 4	2.75 3
1954 1954	2.00 16	2.20 16	2.26 12	2.36 14	2.39 9	2.72 16	2.93 16	2.92 13	3.03 10
1955 1955	1.70 10	2.40 25	2.53 26	2.62 23	2.82 21	3.07 21	3.12 21	3.20 21	3.74 29
1956 1956	2.40 28	2.47 27	2.50 25	2.59 22	2.84 22	2.99 20	3.01 17	3.18 20	3.53 23
1957 1957	2.50 29	2.70 29	2.71 28	2.80 27	2.96 25	3.23 28	3.57 31	3.74 32	3.82 31
1958 1958	1.80 12	2.53 28	2.70 27	2.76 26	3.22 31	3.59 32	3.53 30	3.62 30	3.65 27
1959 1959	2.70 30	2.70 30	2.81 29	3.29 33	3.49 33	3.76 33	3.98 33	4.22 33	4.51 34
1960 1960	2.00 17	2.37 24	2.87 31	2.94 29	3.06 27	3.07 22	3.12 22	3.21 22	3.62 26
1961 1961	2.30 24	2.30 21	2.39 20	2.45 17	2.49 14	2.74 17	2.85 14	2.97 16	3.33 18
1962 1962	2.30 25	2.33 23	2.41 21	2.45 18	2.52 16	2.68 15	2.77 11	2.79 5	3.05 11
1963 1963	1.80 13	2.00 12	2.00 7	2.05 5	2.19 3	2.24 2	2.42 2	2.43 2	2.58 2
1964 1964	2.30 26	2.30 22	2.30 14	2.63 24	2.90 23	3.09 23	3.29 24	3.40 26	3.53 24
1965 1965	2.10 19	2.10 13	2.34 17	2.55 20	2.58 18	3.14 24	3.24 23	3.16 18	3.54 25
1966 1966	.0000 1	.0000 1	.0000 1	.0000 1	.13 1	1.76 1	2.49 3	2.85 12	2.92 7
1967 1967	2.00 18	2.13 14	2.49 24	2.58 21	2.63 19	2.86 18	3.06 19	3.15 17	3.28 16
1968 1968	1.90 15	2.20 17	2.27 13	2.31 11	2.42 11	2.67 14	2.71 7	2.80 6	3.21 15

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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
1935 1935	7.60 24	6.13 21	5.17 21	4.93 15	4.59 17	4.43 16	4.28 11	4.12 12	3.82 18
1936 1936	5.70 34	5.20 32	4.96 26	4.77 22	4.70 14	4.47 13	4.34 9	4.29 7	4.20 6
1937 1937	6.00 31	5.50 27	5.11 24	4.81 20	4.53 19	4.37 18	4.30 10	4.25 9	4.16 7
1938 1938	6.20 29	5.77 24	5.16 22	4.74 24	4.52 21	4.10 23	4.01 23	3.95 19	3.91 13
1939 1939	7.00 27	5.07 33	4.61 30	4.47 29	4.30 26	4.07 25	3.98 24	3.80 25	3.74 23
1940 1940	7.70 21	6.53 17	5.51 15	5.00 14	4.45 24	4.07 26	3.81 27	3.67 27	3.62 27
1941 1941	12.0 1	9.73 3	7.37 3	6.31 4	5.64 2	5.45 3	5.27 3	5.21 1	5.09 1
1942 1942	9.90 7	8.03 8	7.07 6	6.39 2	5.80 1	5.61 1	5.42 1	5.08 2	4.93 2
1943 1943	7.70 22	5.80 23	4.87 28	4.79 21	4.47 23	4.31 20	4.14 19	3.98 18	3.87 15
1944 1944	6.50 28	5.30 30	4.13 34	3.77 34	3.56 34	3.54 33	3.46 32	3.40 32	3.24 32
1945 1945	5.90 33	5.53 26	5.00 25	4.65 27	4.11 28	3.77 29	3.62 29	3.45 30	3.50 28
1946 1946	8.70 14	5.57 25	4.91 27	4.87 19	4.64 15	4.49 12	4.22 13	4.04 16	3.81 19
1947 1947	9.30 10	7.30 14	6.60 8	4.55 28	3.84 33	3.39 34	3.27 34	3.14 34	3.17 33
1948 1948	12.0 2	8.53 6	5.49 16	4.75 23	4.33 25	4.08 24	3.87 25	3.78 26	3.64 25
1949 1949	6.20 30	5.40 29	4.56 32	4.37 31	3.93 32	3.64 32	3.39 33	3.22 33	3.29 31
1950 1950	7.60 25	6.03 22	4.77 29	4.45 30	3.99 30	3.73 31	3.60 30	3.45 31	3.37 30
1951 1951	7.30 26	5.27 31	4.59 31	4.03 33	3.95 31	3.81 28	3.63 28	3.51 29	3.17 34
1952 1952	6.00 32	4.70 34	4.53 33	4.27 32	4.06 29	3.88 27	3.86 26	3.82 24	3.64 26
1953 1953	7.70 23	5.47 28	5.16 23	4.92 16	4.73 13	4.60 10	4.23 12	4.00 17	3.69 24
1954 1954	8.50 16	7.87 11	5.49 17	4.90 17	4.51 22	4.26 21	4.09 21	4.12 13	3.90 14
1955 1955	12.0 3	10.2 2	9.09 1	6.61 1	5.56 4	4.94 5	4.90 4	4.80 5	4.73 4
1956 1956	12.0 4	8.60 5	7.21 5	6.33 3	5.28 7	4.50 11	4.20 16	4.10 14	3.94 10
1957 1957	9.10 11	7.97 10	6.10 12	5.62 8	4.93 11	4.45 14	4.21 14	4.13 11	4.03 9
1958 1958	9.80 8	8.03 9	6.53 9	6.13 6	5.42 6	4.78 7	4.46 8	4.23 10	4.11 8
1959 1959	11.0 6	10.3 1	7.61 2	6.03 7	5.62 3	5.48 2	5.31 2	5.07 3	4.78 3
1960 1960	12.0 5	9.00 4	7.26 4	6.23 5	5.56 5	5.09 4	4.89 5	4.88 4	4.61 5
1961 1961	9.80 9	7.43 13	6.06 14	5.18 13	4.60 16	4.25 22	4.10 20	3.94 20	3.87 16
1962 1962	8.10 19	6.43 18	5.20 20	4.89 18	4.57 18	4.35 19	4.07 22	3.87 23	3.92 12
1963 1963	8.20 18	6.43 19	6.11 11	5.55 11	5.22 8	4.76 8	4.54 7	4.36 6	3.93 11
1964 1964	8.00 20	7.00 16	6.47 10	5.62 9	5.03 10	4.43 17	4.15 18	3.91 22	3.79 20
1965 1965	8.60 15	7.03 15	5.44 18	4.74 25	4.53 20	4.44 15	4.21 15	4.07 15	3.87 17
1966 1966	9.10 12	7.77 12	6.64 7	5.59 10	5.22 9	4.80 6	4.57 6	4.26 8	3.78 21
1967 1967	8.40 17	6.30 20	5.41 19	4.69 26	4.12 27	3.75 30	3.60 31	3.62 28	3.42 29
1968 1968	8.80 13	8.17 7	6.09 13	5.41 12	4.75 12	4.65 9	4.19 17	3.92 21	3.78 22

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

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ANNUAL AND/OR SEMI-ANNUAL VALUES

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

WATER YEAR RANGE			
1935	1935	3.71	24
1936	1936	3.75	26
1937	1937	3.97	29
1938	1938	3.71	25
1939	1939	3.62	22
1940	1940	3.57	19
1941	1941	4.45	32
1942	1942	4.71	34
1943	1943	3.70	23
1944	1944	3.02	4
1945	1945	3.22	8
1946	1946	3.27	11
1947	1947	2.95	3
1948	1948	3.19	7
1949	1949	2.92	2
1950	1950	3.09	5
1951	1951	2.81	1
1952	1952	3.32	13
1953	1953	3.22	9
1954	1954	3.47	16
1955	1955	4.01	31
1956	1956	3.60	20
1957	1957	3.98	30
1958	1958	3.94	27
1959	1959	4.50	33
1960	1960	3.95	28
1961	1961	3.55	17
1962	1962	3.45	15
1963	1963	3.22	10
1964	1964	3.61	21
1965	1965	3.55	18
1966	1966	3.17	6
1967	1967	3.29	12
1968	1968	3.35	14

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

WATER YEAR RANGE			
1935	1935	3.71	11
1936	1936	3.75	9
1937	1937	3.97	6
1938	1938	3.71	10
1939	1939	3.62	13
1940	1940	3.57	16
1941	1941	4.45	3
1942	1942	4.71	1
1943	1943	3.70	12
1944	1944	3.02	31
1945	1945	3.22	27
1946	1946	3.27	24
1947	1947	2.95	32
1948	1948	3.19	28
1949	1949	2.92	33
1950	1950	3.09	30
1951	1951	2.81	34
1952	1952	3.32	22
1953	1953	3.22	26
1954	1954	3.47	19
1955	1955	4.01	4
1956	1956	3.60	15
1957	1957	3.98	5
1958	1958	3.94	8
1959	1959	4.50	2
1960	1960	3.95	7
1961	1961	3.55	18
1962	1962	3.45	20
1963	1963	3.22	25
1964	1964	3.61	14
1965	1965	3.55	17
1966	1966	3.17	29
1967	1967	3.29	23
1968	1968	3.35	21