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SUSITNA HYDROELECTRIC PROJECT

PROCESSED CLIMATIC DATA

OCTOBER 1981 THRU SEPTEMBER 1982

VOLUME 5

0650 - WATANA STATION

DECEMBER 1982

PREPARED BY:

R&M CONSULTANTS, INC.

PREPARED FOR:

ACRES

ALASKA POWER AUTHORITY

DGNO 46
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ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT

TASK 3 - HYDROLOGY

PROCESSED CLIMATIC DATA

VOLUME 5
0650 - WATANA STATION
OCTOBER 1981 - SEPTEMBER 1982

DECEMBER 1982

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ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT

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VOLUME INDEX

ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT

WATANA CLIMATIC DATA

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Acknowledgments

These climatic data were collected under contract to Acres American, Incorporated for the Alaska Power Authority's Susitna Hydroelectric Feasibility Study. The data recorders were Model 5100 Weather Wizards manufactured by Meteorology Research, Incorporated (MRI). All sensors were supplied by MRI. Field maintenance and data collection were performed by the hydrology staff of R&M Consultants, Incorporated. Data reduction and processing were performed by Lisa Fotherby, using computer programs developed by Mark Holmstrand. The computer hardware used was a Hewlett-Packard 9845 B system.

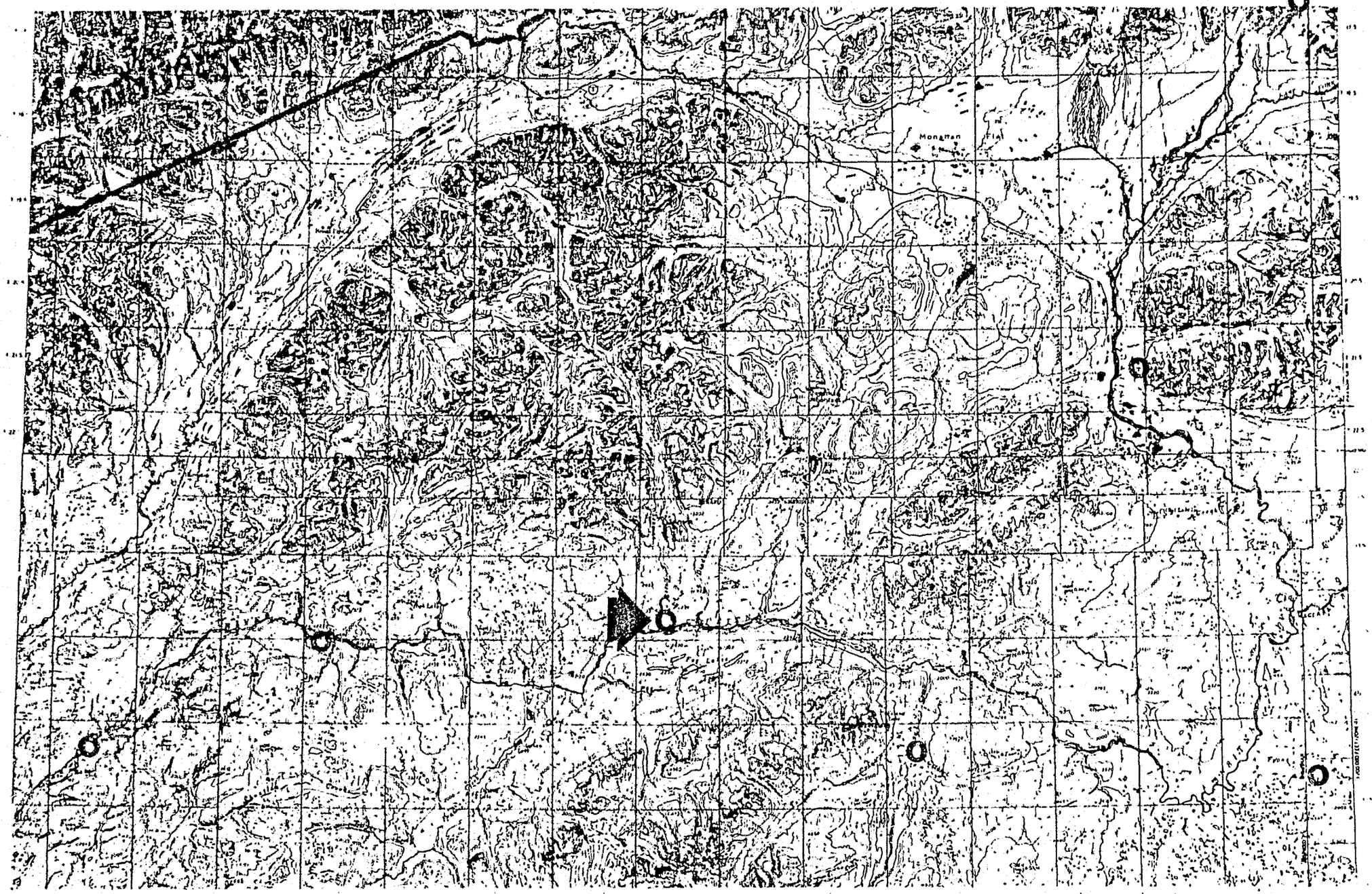
HISTORY OF WATANA STATION (0650)

The Watana climate station is located about 100 yards from the Watana base camp and lies in an open, gradually sloping area. The elevation is approximately 2,200 feet above mean sea level. The Susitna River Mile at Watana Station is 184. Due to its proximity to camp, it was chosen as the initial experimental site for the Weather Wizards. The station began recording on April 8, 1980.

In this year's data (water year 1982), all relative humidity values have been deleted (see Interpreting Data). There are also no data for the month of February.

Previous data reports of this station are:

Processed Climatic Data
Volume 5
Watana Station
March 1982
For the period: April 1980 - September 1981



PREPARED BY: USGS TALKEETNA MTS. AND HEALY QUADRANGLES APPROX. SCALE 1" = 1 MILE PREPARED FOR:

R&M CONSULTANTS, INC.

WATANA CLIMATE STATION

UPPER SUSITNA BASIN

: Station Location

ACRES

INTERPRETING DATA

Missing sections of data can bias or "throw off" the values listed as daily averages in the monthly summary. The user should be aware that daily solar radiation values are averages computed from whatever section of data for the day is available, whether it is extrapolated from a minimum time (night) or a maximum period (noon). The user is advised to become familiar with the methods of summation for each parameter. These are described in the section "Data Computation Standards".

The relative humidity sensors used in the Weather Wizards are printed circuit elements which sense changes in relative humidity by changes in impedance. The chemically treated surfaces of these sensors degrade with time, however, and at an individual rate. Therefore, monthly variations in relative humidity values can occasionally be noted. The variations usually appear as a decrease in the R.H. range for successive months at one station.

Blocks of R.H. readings have been completely eliminated from Watana (0650) and Glacier (0610) climate data. The deterioration patterns of the sensors at these stations were so severe as to make these data unreliable.

The relative humidity sensors will also occasionally transmit values over 100 percent. These values are a system malfunction, but are recorded and appear on the data printout as values less than 10 percent. Therefore, values under 10 percent should not be used for further computations.

Precipitation data from Watana (0650) have been reported for the entire year. The data are collected with a heated precipitation bucket which tests out at 43°F during an air temperature of 18°F. Precipitation data measured at the remaining stations are reported for April through September only. These stations do not have heated precipitation buckets so April, September and occasionally May, may only be partial or inaccurate measures of the actual precipitation for that month. This is due to Alaska's extended winters. There may be blowing snow in April, May, and September, which can not be accurately collected by the precipitation buckets without the aid of a Wyoming Wind Gage (Watana is the only precipitation Station equipped with a Wyoming Wind Gage). In addition, snow collected in the precipitation bucket may not melt until a sunny day two weeks later, thereby indicating a rainstorm on this sunny day.

DATA COMPUTATION STANDARDS

Graphical Data Plot

Graphical representation of valid recorded and/or computed data.

Hourly Precipitation Summary Table

Hourly precipitation values are calculated as the difference between valid consecutive hourly readings. When either of the hourly precipitation readings is invalid, no value is reported and zero precipitation is assumed.

Monthly Summary Table

1. Maximum daily and monthly temperatures are determined from all valid recorded temperatures.

2. Minimum daily and monthly temperatures are determined from all valid recorded temperatures.

3. Mean daily and monthly temperatures are determined from all valid recorded temperatures. The mean daily temperature is determined from the mean of the maximum and minimum temperatures. The mean monthly temperature is determined from the mean of all reported daily mean temperatures.

4. Resultant daily and monthly wind directions and speeds are summed vectorially from all valid readings.

5. Average daily and monthly wind speeds are determined for all valid readings (arithmetic mean).

6. Maximum daily and monthly gust speeds are determined from all valid readings. Associated directions are the resultant directions from the recording interval in which the peak interval gust was observed.

7. Prevailing daily and monthly directions are determined from all valid readings. The reported value is the most frequent direction observed.

8. Mean daily and monthly relative humidities are determined from all valid readings (arithmetic mean).

9. Mean daily and monthly dewpoint temperatures are determined from all valid readings (arithmetic mean). Dewpoints are omitted when the wind speed is less than 1 m/s, when the dewpoint calculates to a value greater than the recorded temperature, or

when the dewpoint calculates to less than minus 47 degrees or more than 27 degrees.

10. Daily and monthly precipitation values are determined from all valid readings.

11. Daily and monthly solar energy values are determined from all valid readings. Daily solar energy is determined by averaging the recorded solar intensity and converting the units. The monthly value is the sum of the daily values.

Three Hour Summary Tables

1. The temperature reported is the temperature recorded at the specified time.

2. The dewpoint temperature reported is the dewpoint calculated at the specified time. Dewpoints are omitted when the wind speed is less than 1 m/s, when the dewpoint is calculated to a value greater than the recorded temperature, or when the dewpoint calculates to less than minus 47 degrees or more than 27 degrees.

3. The relative humidity reported is the humidity recorded at the specified time.

4. The wind direction reported is the three-hour vectorial resultant sum of data recorded up to the specified time.

5. The wind speed reported is the three-hour vectorial resultant of data recorded up to the specified time.

6. The gust direction reported is the direction of the maximum gust recorded during the preceeding three-hour period.

7. The gust reported is the maximum recorded during the three-hour period.

8. The radiation reported is the solar radiation intensity recorded at the specified time.

Wind Frequency Summary Table

1. Reported data are determined from all valid readings.

Wind Rose Graphical Plot

1. Plot is a graphical representation of the wind frequency summary table.

General Notes

1. The following are the valid data ranges; data outside these ranges are not used:

   Time: 0000 through 2400 hours - at specified time intervals.

   Temperature: -50 through +35 °C

   Wind: 0 through 99.9 meters per second and less than or equal to GUST

   Direction: 0 through 360 degrees

   Relative Humidity: 0 through 99 percent

   Precipitation: 0 through 99.8 mm & greater than the last precipitation except in the case of an automatic roll-over. The difference between precipitations cannot exceed 30mm. A '-1' implies a manual re-start.

   Solar: 0 through 150 milliwatts/cm

   Gust: 0 through 99.9 m/sec

   Battery: 9 through 14.5 volts

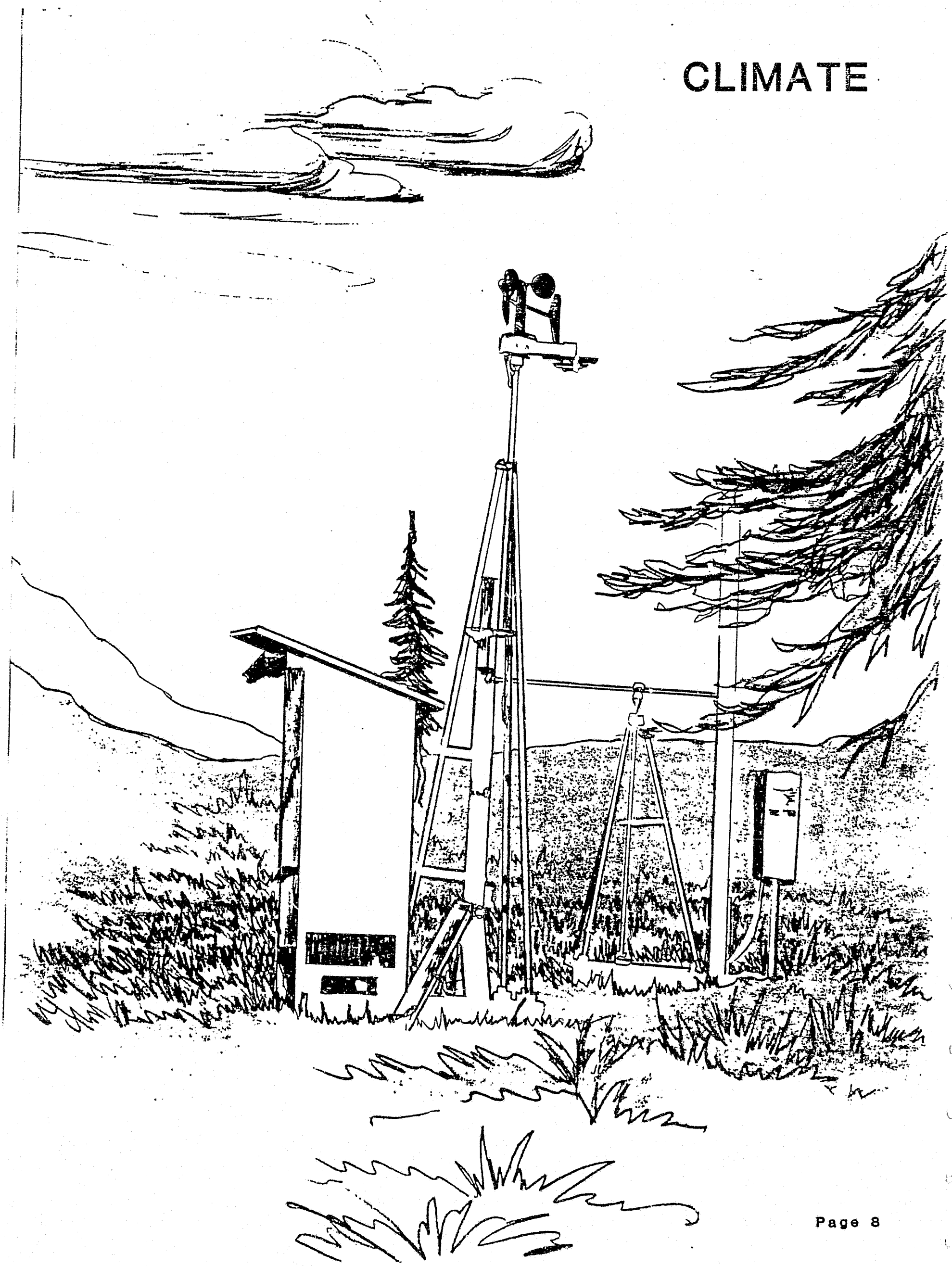
2. Accuracy of the MRI (Meteorology Research, Inc.) sensors and processor are as follows:

   Temperature: ±1°C
   Wind Speed: ±0.5 meters per second
   Wind Direction: ±1% of full scale
   Relative Humidity: ±6%
   Precipitation: ±1% up to 76.2 mm/hr, ± 5 % from 76.2 mm/hr to 254 mm/hr
   Solar Radiation: ±5mw cm^{-2}
   Tape Recorder Error Rate: 1 bit in 10^7

3. The following are the direction ranges used in the prevailing direction, wind frequency and wind rose summaries:

DIRECTION	COMPASS HEADING
NORTH	350 through 11
NORTH-NORTHEAST	12 through 34
NORTHEAST	35 through 56
EAST-NORTHEAST	57 through 79
EAST	80 through 101
EAST-SOUTHEAST	102 through 124
SOUTHEAST	125 through 146
SOUTH-SOUTHEAST	147 through 169
SOUTH	170 through 191
SOUTH-SOUTHWEST	192 through 214
SOUTHWEST	215 through 236
WEST-SOUTHWEST	237 through 259
WEST	260 through 281
WEST-NORTHWEST	282 through 304
NORTHWEST	305 through 326
NORTH-NORTHWEST	327 through 349

CLIMATE



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1981

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE
1	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	1
2	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	2
3	****	****	****	****	****	****	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.2	.4	.8	.8	.2	.8	1.0	12
13	1.0	.6	.6	.4	.4	.6	.2	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17
18	.4	.4	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
21	.2	0.0	.4	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.8	.6	.8	1.0	1.2	1.2	21
22	.8	0.0	.2	0.0	.4	.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	22
23	.2	.2	.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	.2	0.0	.2	.8	.2	.4	.6	.8	.4	.2	23
24	.2	.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1981

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	-8.3	*****	**	061	1.6	058	3.8	16
1200	-1.9	*****	**	076	1.4	036	3.2	19
1500	-1.2	*****	**	044	2.4	052	4.4	8
1800	-2.8	*****	**	024	2.3	029	3.8	0
2100	-1.8	*****	**	038	2.9	052	5.7	0
2400	-2.9	*****	**	053	3.6	066	6.3	0

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.6	*****	**	060	5.0	064	8.3	0
0600	-3.6	*****	**	058	4.9	063	8.3	0
0900	-2.2	*****	**	049	4.4	045	6.3	19
1200	-.8	*****	**	060	5.2	056	8.3	15
1500	-.6	*****	**	041	5.5	036	8.9	11
1800	-.8	*****	**	029	6.5	034	9.5	1
2100	-1.4	*****	**	026	6.0	031	8.9	1
2400	-1.4	*****	**	034	5.7	021	8.9	1

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.8	*****	**	051	4.8	036	8.3	1
0600	-.8	*****	**	054	4.5	063	7.6	1
0900	.6	*****	**	037	4.3	037	6.3	20
1200	1.4	*****	**	076	2.1	060	4.4	23
1500	1.1	*****	**	041	1.6	019	3.2	15
1800	-.8	*****	**	001	1.0	358	2.5	2
2100	-1.5	*****	**	040	1.3	055	3.8	2
2400	-2.2	*****	**	043	2.4	068	5.1	2

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.4	*****	**	060	3.4	076	8.3	2
0600	-3.6	*****	**	078	1.9	090	4.4	2
0900	-2.1	*****	**	086	2.6	067	4.4	14
1200	-.6	*****	**	063	2.7	066	5.1	19
1500	-.5	*****	**	044	2.8	045	5.1	10
1800	-1.5	*****	**	051	2.3	046	4.4	0
2100	-2.5	*****	**	057	3.1	067	5.1	1
2400	-3.3	*****	**	036	3.7	035	5.1	1

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.0	*****	**	040	4.2	035	6.3	1
0600	-6.9	*****	**	065	2.9	058	5.7	1
0900	-4.5	*****	**	072	3.5	058	7.6	22
1200	-2.2	*****	**	059	3.6	042	7.6	35
1500	-1.7	*****	**	041	4.8	048	7.0	18
1800	-2.1	*****	**	033	3.8	029	6.3	1
2100	-3.2	*****	**	023	5.4	017	8.9	1
2400	-2.7	*****	**	035	4.2	030	7.0	1

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.8	*****	**	040	3.5	044	6.3	1
0600	-2.8	*****	**	055	4.2	064	7.6	2
0900	-2.2	*****	**	051	4.4	061	6.3	10
1200	-.8	*****	**	063	4.1	069	6.3	33
1500	-.8	*****	**	072	4.3	075	6.3	11
1800	-2.4	*****	**	039	3.1	057	4.4	2
2100	-1.7	*****	**	039	3.7	035	5.7	1
2400	-1.6	*****	**	056	3.6	065	6.3	2

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.4	*****	**	068	4.0	069	6.3	1
0600	-.7	*****	**	081	2.9	107	5.7	1
0900	0.0	*****	**	052	3.2	060	5.7	9
1200	2.6	*****	**	070	3.6	084	7.0	38
1500	1.7	*****	**	074	3.9	074	6.3	9
1800	.1	*****	**	081	1.7	071	5.1	2
2100	-1.7	*****	**	059	.8	073	2.5	1
2400	-2.9	*****	**	263	.2	263	1.3	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1981

DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.8	*****	**	035	.4	110	1.9	1
0600	-4.6	*****	**	063	1.0	056	2.5	1
0900	-3.2	*****	**	014	1.1	066	2.5	12
1200	.4	*****	**	339	1.3	357	2.5	31
1500	1.2	*****	**	011	1.4	010	3.2	16
1800	-2.4	*****	**	020	2.3	013	3.2	1
2100	-2.5	*****	**	047	2.7	060	5.7	2
2400	-1.9	*****	**	060	4.4	064	7.6	2

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.7	*****	**	058	5.1	071	8.9	2
0600	-2.3	*****	**	067	7.0	063	11.4	1
0900	-2.2	*****	**	065	7.7	059	10.8	6
1200	-1.3	*****	**	060	6.7	059	10.2	12
1500	-.8	*****	**	063	5.7	067	9.5	7
1800	-.8	*****	**	057	3.3	052	6.3	1
2100	-.8	*****	**	058	2.0	060	3.8	1
2400	-.1	*****	**	034	3.4	028	5.7	1

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.3	*****	**	047	4.2	058	6.3	1
0600	.4	*****	**	044	4.3	040	6.3	1
0900	.7	*****	**	036	3.7	038	5.7	12
1200	2.0	*****	**	040	4.3	046	6.3	22
1500	2.1	*****	**	040	4.4	054	6.3	8
1800	1.4	*****	**	042	4.6	040	6.3	1
2100	1.1	*****	**	047	4.6	055	6.3	1
2400	1.1	*****	**	058	5.3	060	7.6	1

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.1	*****	**	050	4.1	054	7.6	1
0600	.6	*****	**	047	2.1	046	5.7	1
0900	1.7	*****	**	014	.3	038	1.3	12
1200	3.7	*****	**	028	.4	030	1.3	40
1500	2.6	*****	**	051	1.0	034	1.9	10
1800	1.6	*****	**	359	1.5	348	3.2	1
2100	1.5	*****	**	028	1.1	000	2.5	1
2400	.5	*****	**	282	.5	002	1.9	1

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.7	*****	**	234	.3	252	1.9	1
0600	0.0	*****	**	095	1.0	113	1.9	1
0900	.8	*****	**	084	.7	027	1.9	16
1200	2.6	*****	**	020	.2	049	1.3	21
1500	2.3	*****	**	019	.1	101	1.3	7
1800	1.5	*****	**	011	1.0	005	1.9	1
2100	0.0	*****	**	302	1.3	258	3.2	1
2400	.2	*****	**	011	.7	285	1.9	1

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.7	*****	**	105	1.1	115	1.9	1
0600	-2.3	*****	**	***	****	***	****	1
0900	0.0	*****	**	031	1.4	012	2.5	26
1200	1.9	*****	**	010	1.8	003	3.2	16
1500	2.2	*****	**	007	1.0	339	2.5	8
1800	-.8	*****	**	345	1.6	337	2.5	1
2100	-1.2	*****	**	351	1.8	346	2.5	1
2400	-1.0	*****	**	***	****	***	****	1

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.5	*****	**	***	****	***	****	1
0600	-2.7	*****	**	***	****	***	****	1
0900	-.3	*****	**	***	****	***	****	8
1200	2.1	*****	**	046	3.3	053	5.7	19
1500	1.5	*****	**	044	3.9	031	5.7	6
1800	.2	*****	**	034	3.3	034	5.1	1
2100	.1	*****	**	040	4.0	044	6.3	1
2400	1.0	*****	**	046	3.3	050	6.3	1

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.7	*****	**	090	3.3	084	7.0	1
0600	-.9	*****	**	062	3.1	076	6.3	1
0900	-.2	*****	**	021	2.6	042	4.4	14
1200	3.2	*****	**	075	.5	353	2.5	21
1500	.8	*****	**	248	1.4	257	2.5	8
1800	2.2	*****	**	315	1.0	346	7.0	0
2100	-.2	*****	**	344	4.0	345	8.3	1
2400	-1.6	*****	**	246	2.0	252	5.7	1

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.0	*****	**	181	.3	099	1.9	0
0600	-2.9	*****	**	252	.9	262	1.9	1
0900	-2.1	*****	**	236	.4	262	1.9	7
1200	0.0	*****	**	207	.9	214	1.9	10
1500	-1.4	*****	**	258	.6	217	2.5	5
1800	-2.7	*****	**	315	.5	250	1.9	1
2100	-5.2	*****	**	358	.8	056	3.2	1
2400	-5.4	*****	**	007	.8	338	2.5	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.0	*****	**	017	1.4	001	3.2	0
0600	-9.7	*****	**	036	1.5	002	3.2	1
0900	-9.3	*****	**	052	1.9	031	3.2	16
1200	-5.0	*****	**	074	1.3	051	3.2	22
1500	-4.7	*****	**	039	2.5	037	4.4	5
1800	-5.7	*****	**	037	4.1	035	5.7	0
2100	-4.2	*****	**	029	3.9	042	6.3	0
2400	-3.7	*****	**	037	4.1	033	6.3	0

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.2	*****	**	046	4.0	056	6.3	0
0600	-4.5	*****	**	034	3.8	035	5.1	0
0900	-3.3	*****	**	036	4.3	044	6.3	10
1200	-2.3	*****	**	052	5.2	060	8.3	18
1500	-2.0	*****	**	054	5.2	058	8.3	6
1800	-1.5	*****	**	064	6.1	069	8.9	0
2100	-1.2	*****	**	059	6.3	057	9.5	1
2400	-1.0	*****	**	064	7.6	066	10.8	1

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.2	*****	**	065	7.5	064	10.8	1
0600	.1	*****	**	066	8.1	067	12.7	1
0900	1.7	*****	**	062	7.6	063	10.8	6
1200	3.6	*****	**	058	6.4	063	11.4	11
1500	4.3	*****	**	066	5.8	070	9.5	2
1800	1.5	*****	**	022	1.5	062	5.7	1
2100	2.0	*****	**	039	2.5	042	5.7	0
2400	.2	*****	**	262	1.6	264	3.2	1

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.2	*****	**	298	.4	261	1.3	1
0600	.2	*****	**	050	.3	078	1.3	1
0900	.9	*****	**	087	1.0	103	2.5	7
1200	2.2	*****	**	071	.9	105	2.5	11
1500	1.8	*****	**	029	.7	347	1.9	3
1800	1.7	*****	**	030	1.7	041	3.2	1
2100	1.8	*****	**	069	2.1	083	5.7	0
2400	1.9	*****	**	069	4.0	064	7.0	0

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.9	*****	**	076	5.4	073	8.3	0
0600	2.1	*****	**	075	5.3	074	8.3	0
0900	1.1	*****	**	072	2.4	065	6.3	6
1200	2.7	*****	**	019	1.1	030	3.8	12
1500	2.2	*****	**	029	3.1	024	4.4	3
1800	1.9	*****	**	022	2.9	024	4.4	1
2100	1.6	*****	**	004	1.6	010	3.2	1
2400	1.1	*****	**	011	1.0	002	1.9	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.0	*****	**	081	1.6	092	3.2	1
0600	1.9	*****	**	254	.5	269	5.7	0
0900	1.1	*****	**	251	3.4	245	7.0	6
1200	2.8	*****	**	250	2.9	250	6.3	30
1500	.8	*****	**	253	3.7	261	7.0	4
1800	-.6	*****	**	251	3.1	263	5.1	0
2100	-1.4	*****	**	***	****	***	****	1
2400	-2.5	*****	**	***	****	***	****	0

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.0	*****	**	***	****	***	****	0
0600	-2.8	*****	**	***	****	***	****	0
0900	-2.4	*****	**	***	****	***	****	7
1200	-1.1	*****	**	057	.5	021	1.9	12
1500	-1.0	*****	**	079	2.0	082	3.8	6
1800	-.9	*****	**	056	2.8	057	5.1	0
2100	-2.3	*****	**	***	****	***	****	0
2400	-2.8	*****	**	063	3.2	077	4.4	0

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.3	*****	**	061	3.2	069	5.1	0
0600	-3.7	*****	**	051	2.6	055	4.4	0
0900	-2.7	*****	**	072	2.3	063	3.8	9
1200	-.8	*****	**	076	2.2	053	4.4	23
1500	-1.0	*****	**	031	3.5	024	5.7	12
1800	-2.2	*****	**	025	3.8	026	5.7	0
2100	-2.1	*****	**	031	3.6	022	5.7	0
2400	-2.7	*****	**	043	3.3	044	5.1	0

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.5	*****	**	046	3.5	047	5.7	0
0600	-4.9	*****	**	052	4.3	052	6.3	0
0900	-2.6	*****	**	060	4.8	072	7.6	15
1200	-2.5	*****	**	078	6.4	078	9.5	37
1500	-3.9	*****	**	077	6.0	077	8.9	6
1800	-5.0	*****	**	062	4.5	075	7.6	0
2100	-5.5	*****	**	044	4.2	051	7.0	0
2400	-5.6	*****	**	048	5.3	052	8.3	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1981

DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.9	*****	**	053	5.8	053	8.9	0
0600	-5.4	*****	**	049	6.1	052	8.3	0
0900	-4.3	*****	**	047	7.1	047	8.9	13
1200	-3.0	*****	**	039	5.1	056	9.5	11
1500	-3.9	*****	**	060	6.5	054	9.5	2
1800	-4.8	*****	**	042	5.0	055	7.0	0
2100	-5.2	*****	**	048	5.2	048	7.0	0
2400	-5.5	*****	**	047	5.0	049	7.6	0

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.8	*****	**	043	4.8	047	7.0	0
0600	-6.1	*****	**	044	5.3	047	8.3	0
0900	-5.8	*****	**	051	6.2	066	10.2	15
1200	-6.2	*****	**	048	5.9	058	10.2	20
1500	-7.2	*****	**	050	6.0	050	10.2	3
1800	-6.0	*****	**	049	6.5	066	10.8	0
2100	-7.6	*****	**	065	4.7	058	8.9	0
2400	-10.7	*****	**	056	2.3	061	5.7	0

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.7	*****	**	081	1.9	084	3.8	0
0600	-6.3	*****	**	052	2.8	049	6.3	0
0900	-6.3	*****	**	054	4.0	052	7.0	8
1200	-4.9	*****	**	060	4.5	066	7.6	20
1500	-4.6	*****	**	060	3.5	065	5.7	5
1800	-8.5	*****	**	044	2.4	072	4.4	0
2100	-10.9	*****	**	044	1.6	021	3.8	0
2400	-11.1	*****	**	064	1.0	094	1.9	0

DAY 31

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.6	*****	**	066	1.2	050	2.5	0
0600	-13.4	*****	**	063	1.2	064	2.5	0
0900	-11.7	*****	**	039	.8	023	2.5	4
1200	-8.8	*****	**	047	1.0	031	3.2	7
1500	-7.5	*****	**	030	2.2	047	4.4	7
1800	-10.4	*****	**	023	2.9	033	5.7	0
2100	-13.6	*****	**	030	3.2	058	6.3	0
2400	-13.0	*****	**	043	3.2	047	5.7	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1981

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	1
2	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	2
3	-.9	-11.0	-6.0	047	2.3	2.4	066	6.3	NE	**	*****	0.0	2003	3
4	.1	-3.8	-1.9	044	5.3	5.5	034	9.5	NE	**	*****	0.0	1518	4
5	2.4	-2.5	-.1	047	2.6	2.8	036	8.3	NE	**	*****	0.0	1883	5
6	.3	-4.2	-2.0	058	2.7	2.9	076	8.3	NE	**	*****	.6	1468	6
7	-1.5	-7.7	-4.6	043	3.9	4.1	017	8.9	NNE	**	*****	0.0	2438	7
8	-.5	-3.0	-1.8	053	3.8	3.9	064	7.6	NE	**	*****	0.0	1605	8
9	2.6	-3.3	-.4	069	2.5	2.7	084	7.0	ENE	**	*****	.2	2080	9
10	1.8	-4.8	-1.5	036	1.7	1.9	064	7.6	NE	**	*****	0.0	2080	10
11	-.1	-2.8	-1.5	060	5.1	5.2	063	11.4	ENE	**	*****	.6	948	11
12	2.3	-.1	1.1	045	4.4	4.5	060	7.6	NE	**	*****	4.4	1320	12
13	3.7	.4	2.1	036	1.2	1.5	054	7.6	NE	**	*****	4.0	1405	13
14	4.5	-.2	2.2	018	.3	.9	258	3.2	E	**	*****	0.0	1330	14
15	3.4	-2.3	.6	002	1.4	1.5	003	3.2	NNW	**	*****	0.0	1598	15
16	2.5	-2.9	-.2	042	3.5	2.7	044	6.3	NE	**	*****	0.0	1325	16
17	3.4	-1.9	.8	019	1.0	2.5	345	8.3	WSW	**	*****	0.0	1373	17
18	.3	-7.3	-3.5	273	.3	.9	056	3.2	WSW	**	*****	1.0	795	18
19	-2.8	-12.3	-7.6	038	2.5	2.7	042	6.3	NE	**	*****	0.0	1328	19
20	-.8	-4.8	-2.8	054	5.2	5.3	066	10.8	ENE	**	*****	0.0	985	20
21	4.3	-1.0	1.7	060	4.7	5.3	067	12.7	ENE	**	*****	6.6	843	21
22	2.6	.1	1.4	060	1.2	1.5	064	7.0	ENE	**	*****	2.0	883	22
23	2.8	1.0	1.9	052	2.5	2.9	073	8.3	NNE	**	*****	4.8	705	23
24	2.8	-2.5	.2	250	2.0	2.6	245	7.0	WSW	**	*****	.8	913	24
25	-.3	-3.1	-1.7	066	2.0	1.9	057	5.1	ENE	**	*****	0.0	733	25
26	-.3	-5.0	-2.7	045	2.9	3.1	024	5.7	NNE	**	*****	0.0	1050	26
27	-2.2	-5.9	-4.1	060	4.7	4.9	078	9.5	NE	**	*****	0.0	1630	27
28	-2.5	-6.0	-4.3	049	5.7	5.8	056	9.5	NE	**	*****	0.0	868	28
29	-5.0	-10.7	-7.9	050	5.2	5.3	066	10.8	NE	**	*****	0.0	960	29
30	-3.6	-11.6	-7.6	057	2.7	2.8	066	7.6	ENE	**	*****	0.0	928	30
31	-6.7	-13.6	-10.2	038	1.9	2.0	058	6.3	NNE	**	*****	0.0	1075	31
MONTH	4.5	-13.6	-2.1	049	2.8	3.2	067	12.7	NE	**	*****	25.0	38063	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 10.8
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 12.1
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 10.8
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 10.8

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

**** SEE NOTES AT THE BACK OF THIS REPORT ****

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1981

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.89	3.40	.19	0.00	0.00	0.00	0.00	4.48
NNE	.97	6.45	7.30	1.08	0.00	0.00	0.00	15.80
NE	1.04	6.22	22.84	2.36	0.00	0.00	0.00	32.46
ENE	1.51	6.30	10.86	6.53	0.00	0.00	0.00	25.19
E	1.20	3.98	1.35	.19	0.00	0.00	0.00	6.72
ESE	.73	1.51	.12	0.00	0.00	0.00	0.00	2.36
SE	.15	.15	0.00	0.00	0.00	0.00	0.00	.31
SSE	.15	.08	0.00	0.00	0.00	0.00	0.00	.23
S	.15	.08	0.00	0.00	0.00	0.00	0.00	.23
SSW	.27	.08	0.00	0.00	0.00	0.00	0.00	.35
SW	.19	.54	0.00	0.00	0.00	0.00	0.00	.73
WSW	.46	1.82	.97	0.00	0.00	0.00	0.00	3.25
W	.50	1.12	.39	0.00	0.00	0.00	0.00	2.01
WNW	.46	.43	0.00	0.00	0.00	0.00	0.00	.89
NW	.77	.27	0.00	0.00	0.00	0.00	0.00	1.04
NNW	.54	2.36	.23	0.00	0.00	0.00	0.00	3.13
CALM								.81
TOTAL	10.01	34.78	44.24	10.16	0.00	0.00	0.00	100.00

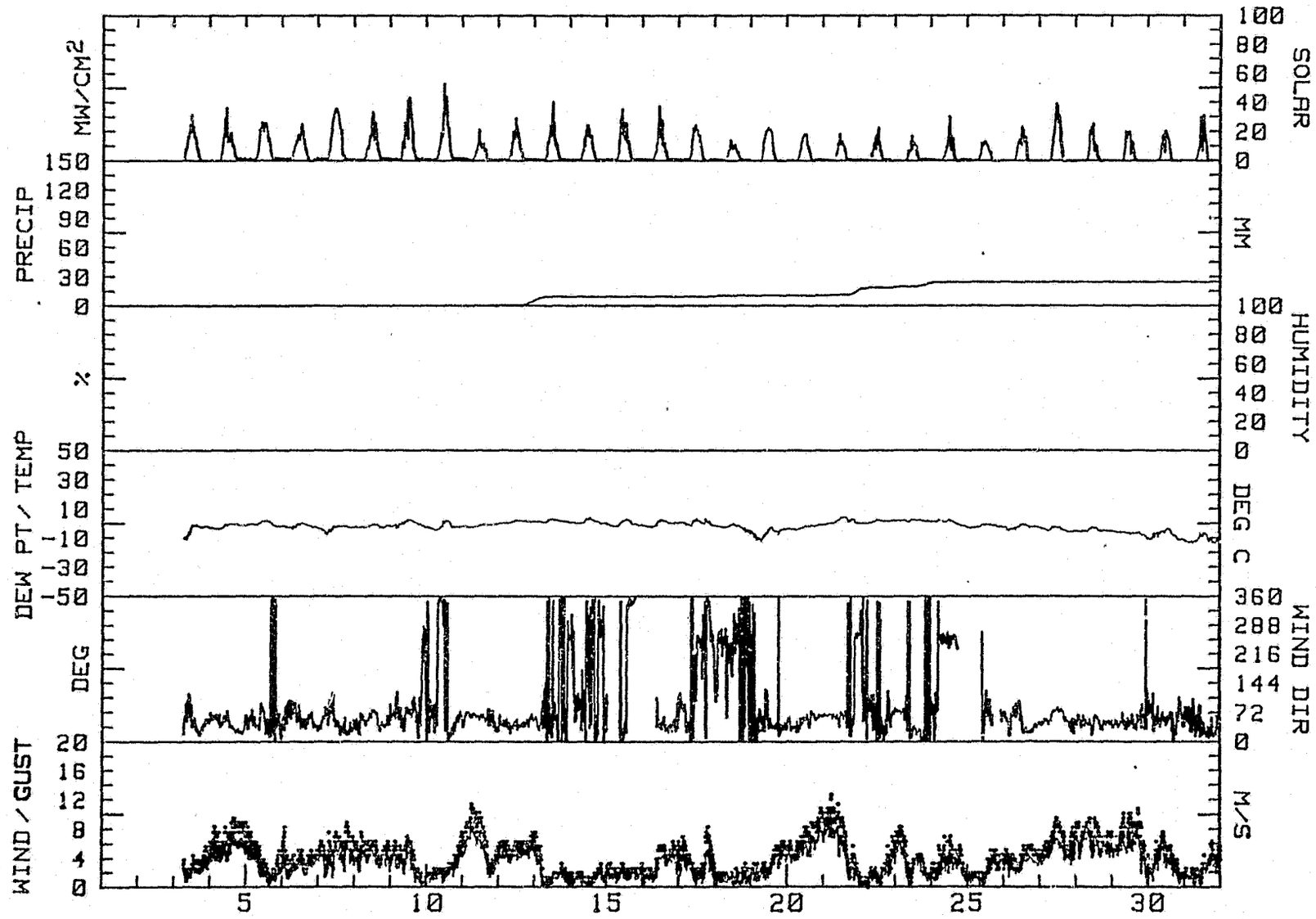
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2588 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

October, 1981

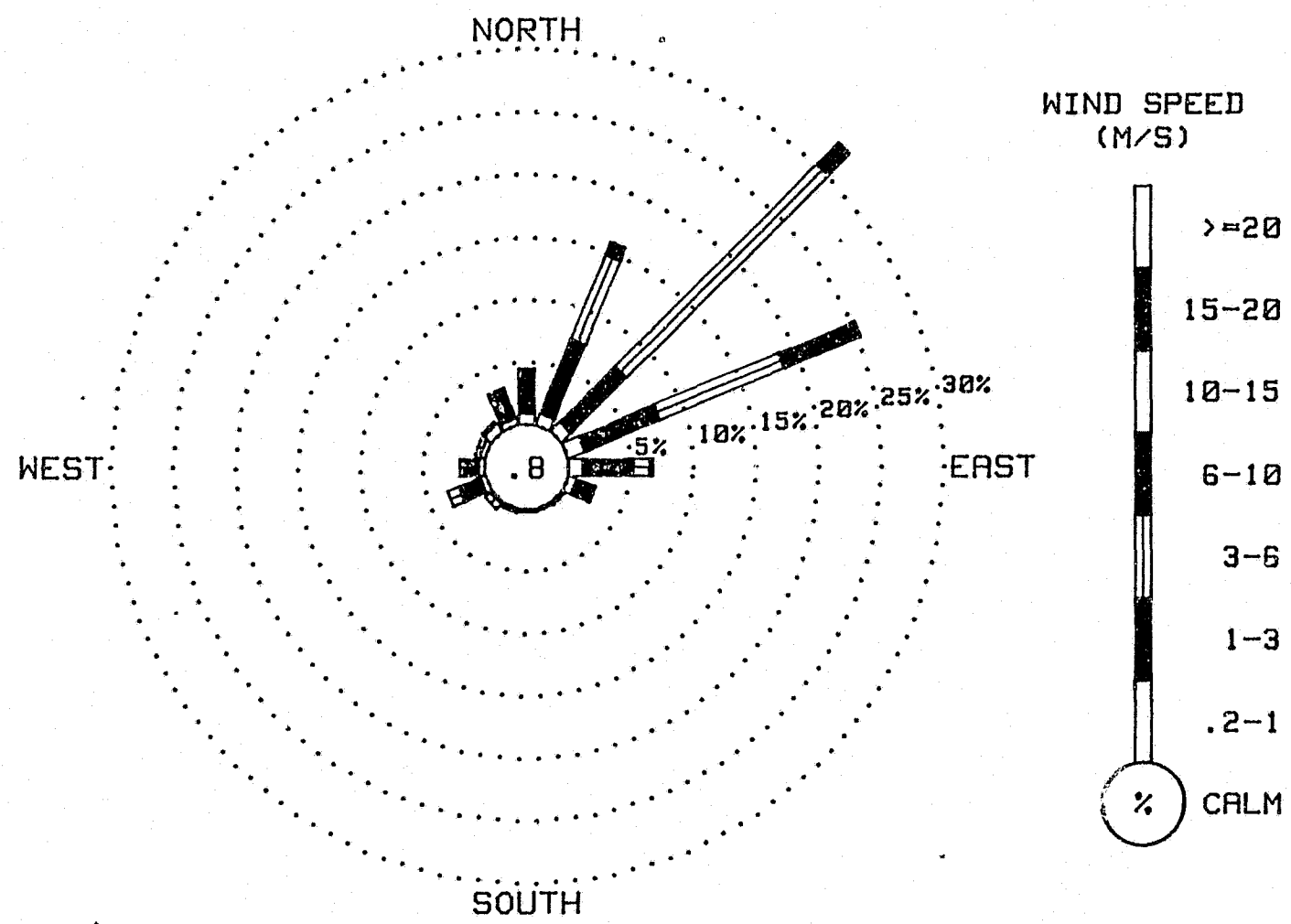


R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

October, 1981



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1981

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	0.0	.2	.2	.2	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	14
15	****	****	****	****	****	****	****	****	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	****	****	16
17	****	****	****	****	****	****	****	****	****	****	0.0	****	****	****	****	****	****	****	****	****	****	****	****	****	17
18	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	18
19	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	0.0	0.0	****	****	****	****	****	****	****	19
20	****	****	.6	****	****	****	****	0.0	****	0.0	0.0	****	0.0	****	0.0	0.0	****	****	****	****	****	0.0	0.0	0.0	20
21	****	0.0	0.0	0.0	0.0	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	0.0	0.0	0.0	0.0	****	21
22	0.0	0.0	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	****	0.0	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	22
23	****	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	23
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	.2	0.0	.2	0.0	0.0	0.0	0.0	0.0	.2	0.0	.2	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	.2	.4	.2	.8	.4	.4	26
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1981

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.6	*****	**	065	1.6	070	4.4	0
0600	-14.2	*****	**	075	2.3	084	4.4	0
0900	-10.2	*****	**	087	2.8	077	5.1	3
1200	-8.3	*****	**	063	5.0	056	8.3	13
1500	-9.3	*****	**	063	4.8	055	7.6	3
1800	-10.4	*****	**	038	4.1	037	6.3	0
2100	-10.5	*****	**	054	5.4	055	7.6	0
2400	-9.6	*****	**	051	5.6	057	8.9	0

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.8	*****	**	045	5.5	052	8.9	0
0600	-7.3	*****	**	050	5.3	061	8.3	0
0900	-4.7	*****	**	026	4.0	031	6.3	7
1200	-2.1	*****	**	063	5.2	079	13.3	16
1500	-7.2	*****	**	098	4.5	093	12.7	4
1800	-9.4	*****	**	228	5.2	235	7.6	0
2100	-11.9	*****	**	222	4.4	217	6.3	0
2400	-11.5	*****	**	252	1.9	260	3.8	0

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.4	*****	**	273	.7	206	2.5	0
0600	-15.1	*****	**	350	1.6	340	2.5	0
0900	-14.9	*****	**	348	1.2	341	3.2	6
1200	-12.7	*****	**	033	.9	029	2.5	8
1500	-10.9	*****	**	040	2.4	070	5.1	2
1800	-9.9	*****	**	057	3.8	050	5.7	0
2100	-9.2	*****	**	070	3.6	071	5.7	0
2400	-10.6	*****	**	092	3.5	083	7.0	0

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.1	*****	**	081	2.1	091	4.4	0
0600	-8.4	*****	**	080	2.0	012	3.8	0
0900	-7.0	*****	**	035	2.5	025	7.0	3
1200	-8.7	*****	**	316	1.2	026	6.3	8
1500	-10.1	*****	**	248	2.0	240	5.1	2
1800	-10.7	*****	**	339	1.3	334	3.2	0
2100	-13.4	*****	**	342	1.3	339	2.5	0
2400	-14.8	*****	**	018	1.2	342	2.5	0

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.5	*****	**	039	1.5	023	2.5	0
0600	-15.9	*****	**	059	.9	074	1.9	0
0900	-16.8	*****	**	063	.6	066	1.9	4
1200	-13.9	*****	**	306	.7	318	1.9	10
1500	-13.4	*****	**	329	.8	003	1.9	3
1800	-14.5	*****	**	004	.6	001	1.9	0
2100	-15.7	*****	**	332	1.4	333	2.5	0
2400	-17.3	*****	**	338	1.9	345	2.5	0

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-18.3	*****	**	344	2.1	335	3.2	0
0600	-18.5	*****	**	351	1.5	355	2.5	0
0900	-17.9	*****	**	032	.7	331	2.5	14
1200	-18.5	*****	**	093	1.5	088	3.8	9
1500	-15.8	*****	**	074	1.1	075	4.4	1
1800	-14.9	*****	**	054	3.9	050	5.7	0
2100	-14.2	*****	**	059	4.7	064	7.6	0
2400	-12.8	*****	**	056	6.0	053	8.9	0

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.4	*****	**	049	6.2	051	8.9	0
0600	-10.3	*****	**	044	6.6	048	9.5	0
0900	-8.9	*****	**	040	5.8	042	8.9	3
1200	-6.9	*****	**	036	6.4	044	8.9	7
1500	-5.7	*****	**	050	5.9	047	8.9	2
1800	-5.7	*****	**	053	5.4	064	8.9	0
2100	-6.9	*****	**	054	5.2	053	8.9	0
2400	-10.1	*****	**	077	3.0	062	5.7	0

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.6	*****	**	067	2.6	069	3.8	0
0600	-4.0	*****	**	061	2.3	056	4.4	0
0900	-3.1	*****	**	061	3.4	057	7.6	7
1200	-4.8	*****	**	073	5.9	079	9.5	11
1500	-5.9	*****	**	057	4.7	073	7.6	2
1800	-8.4	*****	**	052	4.8	059	7.0	0
2100	-10.6	*****	**	029	2.4	055	5.1	0
2400	-9.7	*****	**	061	1.5	002	3.2	0

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.8	*****	**	049	3.7	047	7.0	0
0600	-4.0	*****	**	046	6.1	055	8.9	0
0900	-3.7	*****	**	061	6.8	071	10.8	6
1200	-2.6	*****	**	067	6.9	072	10.8	9
1500	-3.2	*****	**	046	5.2	058	8.9	1
1800	-1.3	*****	**	055	5.1	067	8.3	0
2100	-3.2	*****	**	071	6.0	078	10.8	0
2400	-1.6	*****	**	006	3.7	058	8.9	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November 1981

DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.2	*****	**	061	6.1	082	12.1	0
0600	.5	*****	**	064	5.7	080	10.8	0
0900	1.6	*****	**	088	7.8	085	12.1	4
1200	2.2	*****	**	085	9.7	080	14.6	12
1500	2.1	*****	**	094	8.5	098	14.0	1
1800	1.7	*****	**	063	7.5	057	10.8	0
2100	1.4	*****	**	050	3.7	063	7.0	0
2400	.9	*****	**	027	3.1	030	5.7	0

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.5	*****	**	054	2.1	053	5.7	0
0600	-3.1	*****	**	079	3.2	087	5.7	0
0900	1.0	*****	**	054	3.0	055	5.7	6
1200	1.5	*****	**	044	3.7	054	7.0	11
1500	1.4	*****	**	061	4.8	071	11.4	1
1800	.0	*****	**	062	5.5	071	12.1	0
2100	.9	*****	**	065	7.0	057	10.8	0
2400	.3	*****	**	066	5.2	065	8.9	0

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.8	*****	**	045	3.6	066	6.3	0
0600	-4.0	*****	**	044	4.3	053	6.3	0
0900	-3.4	*****	**	039	4.3	051	7.6	2
1200	-.8	*****	**	048	4.7	050	8.9	13
1500	-3.2	*****	**	034	3.8	059	7.0	1
1800	-4.5	*****	**	048	4.1	060	7.0	0
2100	-3.7	*****	**	053	4.1	059	7.0	0
2400	-9.0	*****	**	065	3.2	082	7.0	0

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.2	*****	**	068	1.9	078	4.4	0
0600	-10.4	*****	**	082	2.6	083	5.7	0
0900	-8.1	*****	**	036	1.8	035	3.8	6
1200	-7.2	*****	**	066	1.7	054	3.2	15
1500	-5.7	*****	**	057	2.4	062	5.7	1
1800	-9.7	*****	**	040	2.8	060	5.7	0
2100	-11.9	*****	**	051	2.4	026	4.4	0
2400	-13.1	*****	**	070	3.3	077	5.1	0

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.7	*****	**	063	2.1	069	3.8	0
0600	-14.6	*****	**	061	2.1	074	4.4	0
0900	-14.2	*****	**	077	1.8	075	3.2	6
1200	*****	*****	**	***	****	075	2.5	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	093	3.6	098	6.3	***
1500	-9.0	*****	**	065	5.0	067	7.6	1
1800	-11.2	*****	**	079	3.5	063	6.3	0
2100	-11.9	*****	**	073	3.3	077	5.7	0
2400	-11.9	*****	**	072	4.1	068	5.7	0

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.0	*****	**	077	5.8	076	8.9	0
0600	-10.9	*****	**	071	6.5	073	8.9	0
0900	-10.9	*****	**	074	7.0	074	9.5	3
1200	-10.8	*****	**	080	7.0	081	10.2	***
1500	-12.6	*****	**	076	6.9	077	9.5	1
1800	-14.2	*****	**	065	6.9	067	8.9	0
2100	-14.7	*****	**	074	7.2	073	10.8	0
2400	*****	*****	**	***	****	***	****	***

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	-12.8	*****	**	067	6.4	071	8.9	***
1500	*****	*****	**	***	****	060	7.6	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1981

DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	099	3.8	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	081	2.2	083	3.2	0
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	082	3.8	***
1200	*****	*****	**	***	****	090	3.8	***
1500	*****	*****	**	080	2.5	099	3.8	***
1800	*****	*****	**	***	****	048	3.2	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	071	2.1	068	3.8	0

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-22.7	*****	**	085	2.7	086	4.4	0
0600	*****	*****	**	***	****	100	4.4	***
0900	-14.7	*****	**	067	3.0	076	7.0	2
1200	-13.7	*****	**	088	4.1	063	8.3	17
1500	-15.1	*****	**	061	5.1	052	8.3	1
1800	-14.6	*****	**	064	4.9	063	7.6	0
2100	*****	*****	**	064	6.4	056	10.8	0
2400	*****	*****	**	***	****	063	8.3	***

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	065	10.2	***
0600	-14.6	*****	**	064	7.2	065	10.2	0
0900	-14.0	*****	**	053	7.7	055	10.2	1
1200	-14.6	*****	**	056	7.1	067	10.8	6
1500	*****	*****	**	051	6.1	050	8.3	2
1800	-13.6	*****	**	053	6.3	063	8.9	0
2100	-13.2	*****	**	062	8.0	063	10.8	0
2400	*****	*****	**	***	****	066	10.2	***

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.8	*****	**	079	6.2	070	9.5	0
0600	-10.8	*****	**	068	4.6	079	7.6	0
0900	-13.5	*****	**	068	2.7	062	5.7	1
1200	*****	*****	**	093	1.8	091	4.6	7
1500	*****	*****	**	108	.5	126	1.9	0
1800	-11.4	*****	**	065	1.1	079	3.2	0
2100	-10.8	*****	**	065	3.8	064	7.6	0
2400	*****	*****	**	***	****	053	8.9	***

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	047	5.5	066	8.9	1
0600	-11.2	*****	**	048	5.3	051	7.6	1
0900	-10.9	*****	**	046	4.4	050	6.3	1
1200	-10.0	*****	**	079	1.3	047	5.1	7
1500	-9.9	*****	**	092	1.4	101	2.5	1
1800	-9.9	*****	**	086	.5	104	1.9	1
2100	-9.6	*****	**	282	.5	266	1.9	1
2400	-8.7	*****	**	052	.4	355	1.9	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.4	*****	**	095	1.0	107	2.5	1
0600	-8.7	*****	**	099	1.2	098	1.9	1
0900	-8.4	*****	**	068	.5	061	1.9	2
1200	-8.0	*****	**	049	.4	342	2.5	15
1500	-9.2	*****	**	015	.3	061	1.9	1
1800	*****	*****	**	026	.5	359	3.2	1
2100	*****	*****	**	049	1.7	061	3.2	***
2400	-8.2	*****	**	039	2.2	043	7.0	0

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.8	*****	**	059	6.1	060	9.5	0
0600	-8.1	*****	**	055	5.4	058	8.3	1
0900	-8.2	*****	**	055	5.4	065	8.3	1
1200	-7.5	*****	**	051	5.6	058	7.6	3
1500	-6.6	*****	**	045	5.9	048	8.3	1
1800	-5.2	*****	**	056	5.9	058	8.3	1
2100	-6.1	*****	**	079	2.4	057	5.7	1
2400	-5.5	*****	**	059	.9	085	1.9	1

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.2	*****	**	081	1.1	083	1.9	1
0600	-5.8	*****	**	065	1.0	038	2.5	1
0900	-6.7	*****	**	061	.5	094	2.5	2
1200	-6.4	*****	**	295	.9	258	2.5	4
1500	-6.2	*****	**	277	1.5	264	3.2	2
1800	-4.6	*****	**	243	3.4	226	6.3	1
2100	-5.4	*****	**	233	3.8	230	5.7	2
2400	-5.9	*****	**	256	2.7	246	4.4	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1981

DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.9	*****	**	270	1.5	263	2.5	1
0600	-6.0	*****	**	300	.6	320	1.9	1
0900	-7.7	*****	**	354	.5	029	1.9	2
1200	-8.5	*****	**	351	1.5	342	2.5	4
1500	-9.4	*****	**	037	.8	000	2.5	1
1800	-9.5	*****	**	060	.7	046	2.5	1
2100	-10.2	*****	**	005	.6	113	1.3	1
2400	-10.3	*****	**	021	.6	010	1.9	1

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.1	*****	**	063	1.1	060	2.5	1
0600	-9.5	*****	**	078	2.3	075	5.7	1
0900	-10.5	*****	**	059	2.9	071	5.7	1
1200	-10.1	*****	**	048	4.7	054	7.6	15
1500	-10.7	*****	**	057	6.8	064	11.4	1
1800	-10.9	*****	**	057	7.0	060	10.8	1
2100	-10.9	*****	**	059	7.2	060	10.8	1
2400	-10.3	*****	**	049	6.1	058	10.2	1

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.2	*****	**	048	5.6	049	8.9	0
0600	-8.7	*****	**	042	5.0	060	7.6	0
0900	-7.7	*****	**	036	5.0	042	8.3	1
1200	-5.4	*****	**	045	5.8	031	8.3	7
1500	-5.4	*****	**	036	4.3	050	8.3	0
1800	-5.7	*****	**	059	7.3	062	12.1	0
2100	-6.2	*****	**	036	4.6	035	8.3	0
2400	-7.1	*****	**	046	6.0	055	9.5	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1981

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	-7.7	-14.8	-11.3	059	3.8	4.0	057	8.9	ENE	**	*****	0.0	1030	1
2	-2.1	-12.3	-7.2	062	1.4	4.8	079	13.3	NE	**	*****	0.0	720	2
3	-8.6	-15.4	-12.0	052	1.7	2.4	083	7.0	ENE	**	*****	0.0	860	3
4	-6.7	-14.8	-10.8	020	.8	2.1	025	7.0	NNW	**	*****	1.2	440	4
5	-11.5	-17.7	-14.6	359	.8	1.1	023	2.5	NNW	**	*****	0.0	690	5
6	-12.8	-20.5	-16.7	049	2.4	2.8	053	8.9	ENE	**	*****	0.0	640	6
7	-4.8	-12.7	-8.8	049	5.5	5.6	048	9.5	NE	**	*****	.2	388	7
8	-3.1	-12.2	-7.7	059	3.4	3.5	079	9.5	ENE	**	*****	0.0	540	8
9	-.4	-11.9	-6.2	054	5.2	5.6	071	10.8	ENE	**	*****	0.0	475	9
10	2.6	-1.3	.7	073	6.2	6.6	085	14.6	E	**	*****	0.0	438	10
11	2.7	-3.7	-.5	062	4.3	4.4	071	12.1	ENE	**	*****	0.0	620	11
12	.3	-9.3	-4.5	046	4.0	4.1	050	8.9	NE	**	*****	0.0	543	12
13	-4.3	-13.1	-8.7	059	2.2	2.4	083	5.7	ENE	**	*****	0.0	638	13
14	-12.2	-20.2	-16.2	068	1.9	2.0	074	4.4	ENE	**	*****	0.0	348	14
15	-7.5	-14.6	-11.1	075	3.8	4.0	067	7.6	ENE	**	*****	0.0	1158	15
16	-9.8	-14.8	-12.3	074	6.7	6.7	073	10.8	ENE	**	*****	0.0	492	16
17	-11.7	-12.8	-12.3	065	6.4	6.4	071	8.9	ENE	**	*****	0.0	1920	17
18	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	18
19	-15.6	-16.4	-16.0	087	2.0	2.2	099	3.8	E	**	*****	0.0	0	19
20	-18.9	-24.3	-21.6	077	2.4	2.4	082	3.8	E	**	*****	.6	970	20
21	-12.5	-24.2	-18.4	072	4.3	4.5	056	10.8	ENE	**	*****	0.0	606	21
22	-12.2	-18.6	-15.4	059	7.3	7.2	067	10.8	ENE	**	*****	0.0	252	22
23	-10.4	-14.7	-12.6	069	3.2	3.4	070	9.5	ENE	**	*****	0.0	237	23
24	-8.7	-11.8	-10.3	052	2.2	2.6	066	8.9	NE	**	*****	.8	443	24
25	-4.9	-14.6	-9.8	059	.9	1.2	043	7.0	NNE	**	*****	0.0	705	25
26	-4.9	-8.5	-6.7	055	4.6	4.7	060	9.5	NE	**	*****	2.8	288	26
27	-4.2	-7.0	-5.6	250	1.2	2.0	226	6.3	WSW	**	*****	0.0	383	27
28	-5.7	-10.6	-8.2	348	.6	1.0	263	2.5	N	**	*****	0.0	380	28
29	-9.2	-11.7	-10.5	056	4.7	4.9	064	11.4	NE	**	*****	0.0	543	29
30	-4.5	-10.1	-7.3	045	5.4	5.6	062	12.1	NE	**	*****	0.0	253	30
MONTH	2.7	-24.3	-10.4	058	3.2	3.8	085	14.6	ENE	**	*****	5.6	16996	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 13.3
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 14.0
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 14.6
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 14.0

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

**** SEE NOTES AT THE BACK OF THIS REPORT ****

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1981

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.77	2.65	.77	.04	0.00	0.00	0.00	4.23
NNE	1.02	2.86	3.29	.17	0.00	0.00	0.00	7.34
NE	.98	3.80	16.05	6.28	0.00	0.00	0.00	27.11
ENE	1.49	7.56	10.59	11.44	.04	0.00	0.00	31.13
E	1.20	6.19	3.84	2.26	.21	0.00	0.00	13.71
ESE	.51	1.84	.17	.09	0.00	0.00	0.00	2.60
SE	.26	.21	0.00	0.00	0.00	0.00	0.00	.47
SSE	.09	.04	0.00	0.00	0.00	0.00	0.00	.13
S	.04	0.00	0.00	0.00	0.00	0.00	0.00	.04
SSW	.13	.13	0.00	0.00	0.00	0.00	0.00	.26
SW	.09	.17	1.49	.04	0.00	0.00	0.00	1.79
WSW	.34	.85	.98	0.00	0.00	0.00	0.00	2.18
W	.73	1.37	.09	0.00	0.00	0.00	0.00	2.18
WNW	.13	.51	0.00	0.00	0.00	0.00	0.00	.64
NW	.73	.47	0.00	0.00	0.00	0.00	0.00	1.20
NNW	.51	3.84	.21	0.00	0.00	0.00	0.00	4.57
CALM								.43
TOTAL	9.01	32.49	37.49	20.32	.26	0.00	0.00	100.00

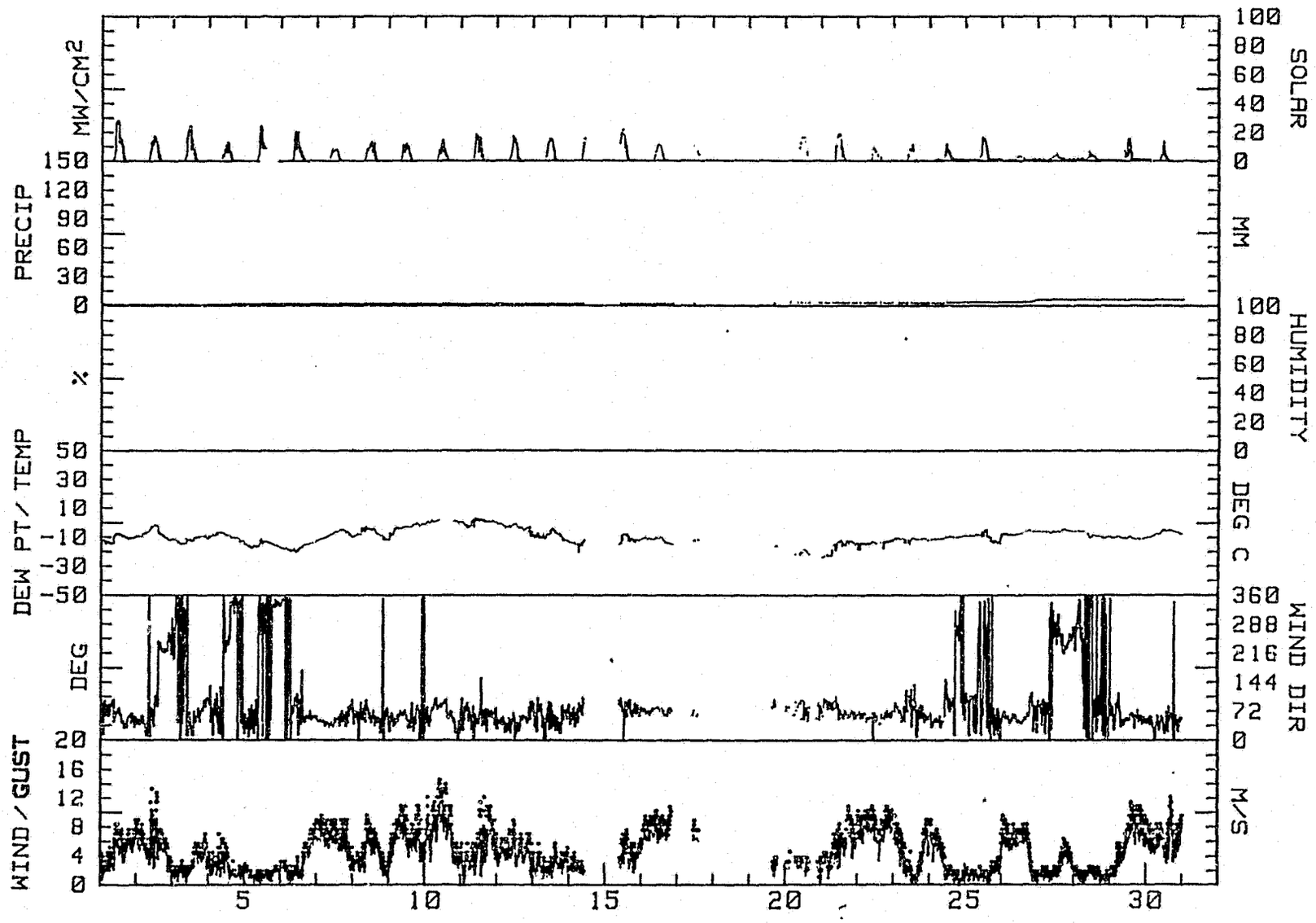
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2342 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

November, 1981



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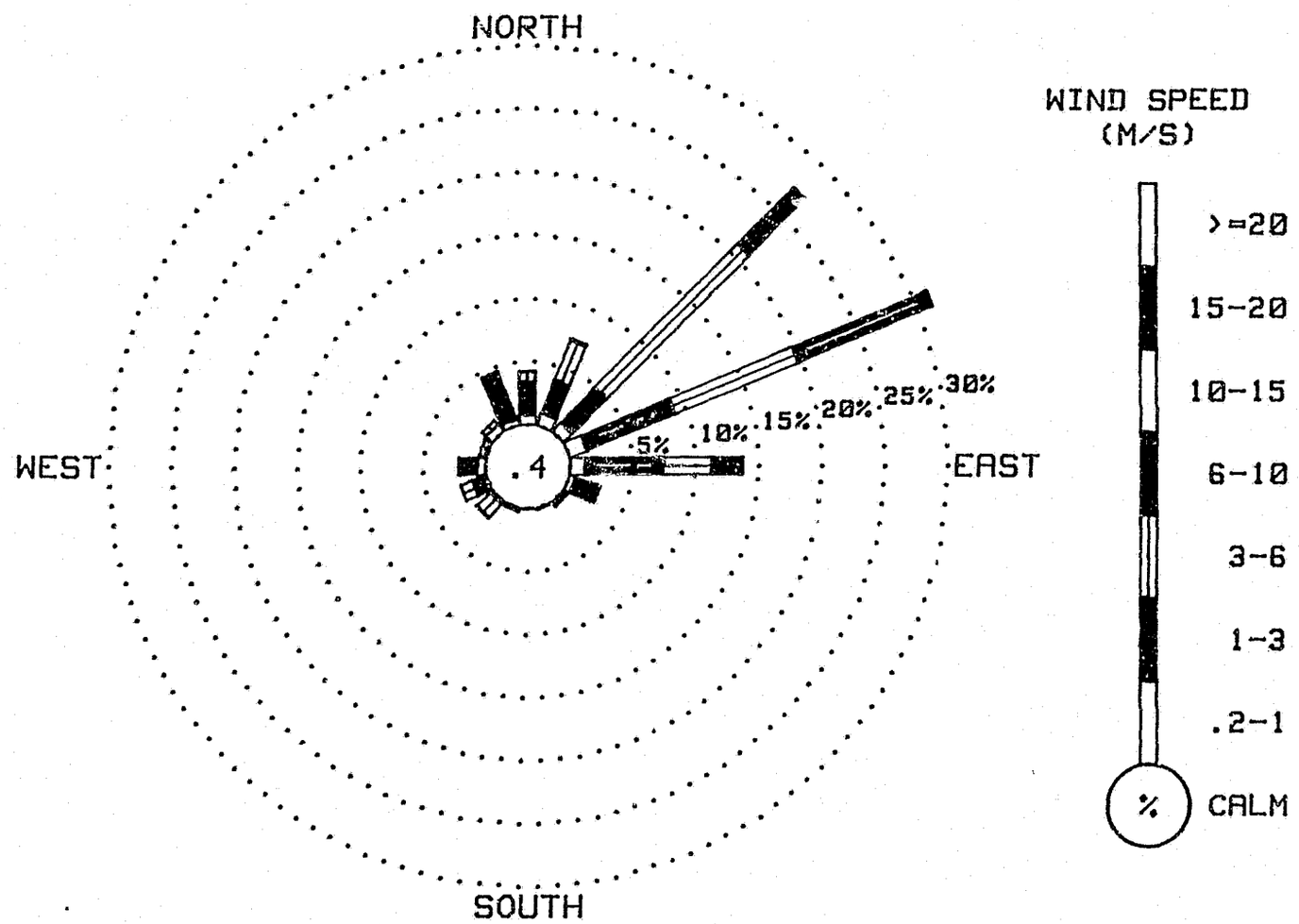
SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

November, 1981



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1981

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
2	.2	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.6	2
3	.6	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	.2	0.0	.2	.6	.4	.2	0.0	0.0	.2	.2	3
4	.8	.6	.6	.2	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18
19	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31

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DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.3	*****	**	065	8.7	066	14.6	0
0600	-8.1	*****	**	066	8.4	073	12.7	0
0900	-6.3	*****	**	068	7.5	068	14.0	2
1200	-5.9	*****	**	067	7.4	061	10.8	4
1500	-6.0	*****	**	069	8.4	070	12.1	1
1800	-5.8	*****	**	051	4.7	040	7.0	1
2100	-7.0	*****	**	069	4.0	062	6.3	1
2400	-7.8	*****	**	085	1.7	059	3.2	1

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.8	*****	**	335	.3	245	2.5	1
0600	-9.6	*****	**	233	4.0	231	6.3	1
0900	-10.1	*****	**	243	3.6	242	5.1	1
1200	-11.7	*****	**	209	.9	222	4.4	6
1500	-12.2	*****	**	034	1.5	073	3.8	1
1800	-11.2	*****	**	028	2.7	059	5.7	0
2100	-9.6	*****	**	061	4.0	070	6.3	1
2400	-8.4	*****	**	088	2.9	069	5.7	1

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.8	*****	**	030	1.9	045	4.4	1
0600	-11.8	*****	**	272	1.2	267	4.4	1
0900	-10.9	*****	**	278	.5	319	2.5	1
1200	-9.9	*****	**	330	.9	340	1.9	3
1500	-10.0	*****	**	319	.1	086	1.3	1
1800	-10.3	*****	**	272	.5	270	1.9	1
2100	-10.9	*****	**	256	.8	247	2.5	1
2400	-9.8	*****	**	240	4.0	241	8.9	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.5	*****	**	240	1.5	235	5.1	1
0600	-13.1	*****	**	328	1.1	261	2.5	1
0900	-16.4	*****	**	006	1.7	345	3.2	1
1200	-10.3	*****	**	040	2.3	053	5.7	4
1500	-10.2	*****	**	043	3.8	066	9.5	1
1800	-11.5	*****	**	007	3.4	347	6.3	0
2100	-13.8	*****	**	043	2.1	027	4.4	0
2400	-13.5	*****	**	025	1.8	009	3.8	0

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.2	*****	**	044	2.3	072	5.1	0
0600	-12.8	*****	**	073	2.2	090	5.1	0
0900	-14.1	*****	**	078	2.6	082	3.8	1
1200	-14.4	*****	**	078	2.4	086	3.8	4
1500	-14.8	*****	**	077	2.1	072	3.8	0
1800	-12.9	*****	**	082	2.0	072	3.8	0
2100	-13.4	*****	**	090	1.9	112	4.4	0
2400	-11.4	*****	**	067	4.5	068	9.5	0

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.1	*****	**	056	4.1	073	7.0	0
0600	-11.2	*****	**	053	3.1	070	5.1	0
0900	-12.5	*****	**	045	2.3	043	4.4	1
1200	-11.2	*****	**	055	3.2	062	5.1	5
1500	-13.7	*****	**	047	3.3	061	5.1	0
1800	-14.5	*****	**	033	2.6	056	5.7	0
2100	-17.4	*****	**	066	1.6	029	3.8	0
2400	-18.9	*****	**	073	2.6	075	4.4	0

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-19.0	*****	**	081	2.4	083	3.8	0
0600	-21.4	*****	**	061	1.7	070	3.8	0
0900	-22.7	*****	**	034	1.3	033	3.2	1
1200	-19.6	*****	**	031	1.8	020	3.2	13
1500	-20.5	*****	**	042	1.4	044	3.8	0
1800	-20.8	*****	**	080	1.5	067	3.8	0
2100	-17.7	*****	**	069	1.9	055	5.7	0
2400	-19.1	*****	**	053	2.3	038	5.1	0

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-17.7	*****	**	044	4.6	053	7.6	0
0600	-20.9	*****	**	047	3.9	051	7.0	0
0900	-22.2	*****	**	064	2.1	037	3.8	1
1200	-22.9	*****	**	083	2.1	068	3.2	13
1500	-23.4	*****	**	084	2.2	084	3.8	0
1800	-23.4	*****	**	074	2.9	076	4.4	0
2100	-24.5	*****	**	077	2.8	082	4.4	0
2400	-21.9	*****	**	064	1.5	059	3.2	0

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-22.3	*****	**	086	1.7	083	3.8	0
0600	-21.2	*****	**	088	1.7	089	3.2	0
0900	-21.1	*****	**	083	1.3	090	3.2	1
1200	-19.2	*****	**	071	1.3	090	2.5	5
1500	-21.0	*****	**	072	2.3	086	3.8	0
1800	-20.9	*****	**	063	2.4	082	4.4	0
2100	-21.1	*****	**	071	2.8	079	4.4	0
2400	-20.6	*****	**	088	2.9	096	4.4	0

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DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-19.5	*****	**	087	2.8	089	3.8	0
0600	-13.4	*****	**	072	2.6	070	7.0	0
0900	-17.8	*****	**	080	5.0	082	8.9	1
1200	-17.8	*****	**	084	4.3	082	8.3	3
1500	-13.9	*****	**	078	4.9	073	8.9	0
1800	-16.1	*****	**	068	7.0	073	10.2	0
2100	-17.5	*****	**	060	6.9	059	10.2	0
2400	-16.4	*****	**	051	6.5	057	9.5	0

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.6	*****	**	059	5.3	050	7.6	0
0600	-14.2	*****	**	047	5.3	055	7.6	0
0900	-14.1	*****	**	045	5.7	055	8.3	1
1200	-14.4	*****	**	051	6.3	046	9.5	3
1500	-13.1	*****	**	045	6.6	048	8.9	0
1800	-12.6	*****	**	044	6.6	047	8.9	0
2100	-11.8	*****	**	044	6.7	046	9.5	1
2400	-10.8	*****	**	044	6.5	045	8.3	0

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.3	*****	**	049	6.6	061	8.9	0
0600	-9.1	*****	**	058	6.4	058	8.3	0
0900	-8.1	*****	**	047	5.9	037	8.3	0
1200	-6.5	*****	**	042	6.2	041	8.3	2
1500	-6.3	*****	**	044	5.5	039	7.6	0
1800	-6.7	*****	**	055	6.4	066	8.3	0
2100	-5.9	*****	**	043	5.7	035	8.3	0
2400	-6.0	*****	**	046	5.7	043	8.3	0

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.4	*****	**	055	4.6	055	6.3	0
0600	-5.8	*****	**	057	6.2	054	10.2	0
0900	-7.3	*****	**	054	5.8	062	8.3	1
1200	-7.1	*****	**	052	5.6	045	8.3	2
1500	-12.5	*****	**	047	1.9	037	5.7	0
1800	-12.5	*****	**	070	1.9	076	3.2	0
2100	-13.4	*****	**	070	1.9	079	3.8	0
2400	-14.3	*****	**	071	2.2	076	3.2	0

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.3	*****	**	066	2.1	057	4.4	0
0600	-13.2	*****	**	071	3.2	057	4.4	0
0900	-13.4	*****	**	062	2.1	045	5.1	1
1200	-12.2	*****	**	090	2.5	083	5.1	3
1500	-12.0	*****	**	073	3.3	074	7.0	0
1800	-10.7	*****	**	067	3.4	059	7.0	0
2100	-9.6	*****	**	068	2.8	059	5.7	0
2400	-9.5	*****	**	056	2.7	060	5.1	0

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.1	*****	**	060	3.9	058	8.3	0
0600	-9.5	*****	**	053	5.5	069	8.3	0
0900	-9.6	*****	**	050	5.9	059	7.6	0
1200	-8.6	*****	**	057	6.2	057	8.3	3
1500	-8.3	*****	**	055	5.6	061	8.3	0
1800	-6.7	*****	**	052	5.8	047	8.3	0
2100	-5.5	*****	**	050	6.3	049	10.8	0
2400	-7.7	*****	**	055	7.5	055	10.8	0

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.4	*****	**	062	7.4	071	10.8	0
0600	-9.1	*****	**	059	8.4	072	12.7	0
0900	-7.0	*****	**	041	5.6	052	12.1	0
1200	-4.3	*****	**	051	5.2	095	10.2	2
1500	-4.5	*****	**	077	7.3	090	15.9	0
1800	-4.2	*****	**	046	7.1	060	14.0	1
2100	-2.9	*****	**	067	9.7	069	15.2	1
2400	-2.5	*****	**	054	9.0	062	15.2	1

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.6	*****	**	063	7.0	062	13.3	1
0600	-1.9	*****	**	071	7.4	068	11.4	1
0900	-2.5	*****	**	071	8.0	074	13.3	1
1200	-1.9	*****	**	065	5.8	073	11.4	3
1500	-1.2	*****	**	073	7.2	076	12.7	1
1800	-1.1	*****	**	060	6.0	086	12.7	1
2100	.7	*****	**	080	2.9	076	10.8	0
2400	-.5	*****	**	070	7.3	074	10.8	1

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.7	*****	**	071	9.1	062	14.6	1
0600	1.0	*****	**	074	7.5	076	13.3	1
0900	-.2	*****	**	055	5.0	061	8.9	1
1200	.1	*****	**	059	3.6	082	7.6	2
1500	-1.1	*****	**	074	6.4	076	10.2	1
1800	-1.6	*****	**	063	3.9	061	6.3	1
2100	-3.0	*****	**	037	2.1	053	3.8	1
2400	-3.6	*****	**	069	1.2	088	2.5	1

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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.9	*****	**	***	****	***	****	1
0600	-4.9	*****	**	***	****	***	****	1
0900	-6.6	*****	**	***	****	***	****	1
1200	-9.0	*****	**	***	****	***	****	3
1500	-9.1	*****	**	357	1.9	011	3.2	1
1800	-10.1	*****	**	051	1.3	089	3.8	1
2100	-9.8	*****	**	090	2.0	103	3.8	1
2400	-10.9	*****	**	086	1.9	078	5.1	1

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.1	*****	**	060	2.2	046	6.3	0
0600	-6.2	*****	**	037	3.9	037	6.3	0
0900	-6.7	*****	**	060	2.2	049	5.7	1
1200	-7.6	*****	**	055	4.1	063	6.3	2
1500	-8.0	*****	**	053	3.3	062	5.7	1
1800	-8.3	*****	**	067	.9	063	3.2	1
2100	-8.3	*****	**	036	1.1	032	3.2	1
2400	-9.3	*****	**	079	1.0	074	1.9	1

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.4	*****	**	116	.6	086	1.9	1
0600	-9.2	*****	**	207	.7	207	1.9	1
0900	-10.1	*****	**	210	.4	210	1.3	1
1200	-10.2	*****	**	211	.6	209	1.9	3
1500	-10.1	*****	**	214	.8	212	1.9	1
1800	-10.2	*****	**	207	1.0	111	2.5	1
2100	-10.8	*****	**	211	.3	026	3.2	1
2400	-15.8	*****	**	067	2.1	088	3.8	1

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-16.4	*****	**	042	1.6	036	3.2	1
0600	-15.6	*****	**	032	1.6	025	3.2	1
0900	-16.6	*****	**	008	2.8	005	4.4	1
1200	-14.2	*****	**	032	3.8	052	7.6	2
1500	-14.4	*****	**	057	6.8	053	9.5	1
1800	-13.0	*****	**	050	7.0	051	9.5	1
2100	-11.8	*****	**	042	6.7	046	8.9	1
2400	-11.2	*****	**	050	6.9	052	8.9	0

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.0	*****	**	045	6.8	040	9.5	0
0600	-8.7	*****	**	045	6.9	058	10.2	0
0900	-8.4	*****	**	048	7.3	070	13.3	1
1200	-6.3	*****	**	045	4.6	053	9.5	6
1500	-7.9	*****	**	051	5.8	065	10.2	0
1800	-7.8	*****	**	060	5.8	063	7.6	0
2100	-7.9	*****	**	045	4.7	045	6.3	1
2400	-6.7	*****	**	042	4.1	042	7.0	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.6	*****	**	016	1.8	032	4.4	1
0600	-11.0	*****	**	356	1.7	353	2.5	1
0900	-11.8	*****	**	338	1.8	328	3.2	1
1200	-10.7	*****	**	358	1.2	338	2.5	3
1500	-11.2	*****	**	331	1.3	357	2.5	1
1800	-10.1	*****	**	325	2.0	315	3.2	1
2100	-10.1	*****	**	338	2.0	351	3.2	1
2400	-11.8	*****	**	346	2.2	349	3.2	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.0	*****	**	358	1.9	345	3.2	1
0600	-10.8	*****	**	019	1.1	345	3.2	1
0900	-10.4	*****	**	013	1.4	022	3.2	1
1200	-10.1	*****	**	073	1.0	074	2.5	3
1500	-11.9	*****	**	088	1.6	086	3.2	1
1800	-12.6	*****	**	089	1.8	097	3.8	1
2100	-13.5	*****	**	099	3.3	100	6.3	1
2400	-9.2	*****	**	064	3.9	026	7.0	0

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.2	*****	**	028	5.3	028	8.3	0
0600	-10.6	*****	**	006	4.7	025	8.3	0
0900	-11.9	*****	**	349	4.0	352	7.6	1
1200	-11.6	*****	**	351	2.2	014	5.7	4
1500	-14.6	*****	**	002	.8	080	3.8	0
1800	-14.4	*****	**	176	.3	070	3.2	0
2100	-16.1	*****	**	314	1.1	354	3.8	0
2400	-19.1	*****	**	005	1.3	324	5.1	0

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-19.4	*****	**	042	1.6	074	3.8	0
0600	-26.1	*****	**	070	1.9	096	4.4	0
0900	-26.4	*****	**	086	3.8	075	7.0	1
1200	-25.5	*****	**	080	2.1	087	5.1	4
1500	-25.0	*****	**	091	3.2	083	7.0	0
1800	-20.3	*****	**	066	4.1	073	8.3	0
2100	-26.7	*****	**	074	5.4	062	8.3	0
2400	-20.2	*****	**	082	3.5	075	8.3	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1981

DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-24.2	*****	**	088	4.4	083	8.3	0
0600	-21.3	*****	**	083	3.5	074	7.0	0
0900	-25.9	*****	**	078	3.0	085	8.3	1
1200	-25.2	*****	**	089	2.8	060	6.3	3
1500	-21.6	*****	**	091	3.5	080	7.0	0
1800	-23.6	*****	**	079	4.5	080	7.6	0
2100	-27.5	*****	**	082	3.2	097	6.3	0
2400	-27.4	*****	**	080	2.6	088	5.1	0

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-28.5	*****	**	071	1.8	041	5.1	0
0600	-29.2	*****	**	060	2.0	081	3.8	0
0900	-29.5	*****	**	060	2.6	064	5.1	1
1200	-27.4	*****	**	059	2.5	068	5.1	5
1500	-29.4	*****	**	076	2.3	066	4.4	0
1800	-29.8	*****	**	059	2.3	040	4.4	0
2100	-29.9	*****	**	070	3.2	061	5.7	0
2400	-28.8	*****	**	052	1.9	061	4.4	0

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-29.5	*****	**	080	2.5	087	4.4	0
0600	-28.7	*****	**	071	3.0	078	5.1	0
0900	-30.3	*****	**	068	2.4	073	3.8	1
1200	-27.9	*****	**	073	1.9	059	3.8	4
1500	-28.0	*****	**	087	2.0	083	3.8	0
1800	-22.7	*****	**	065	4.7	066	8.9	0
2100	-21.6	*****	**	059	6.6	055	9.5	0
2400	-22.8	*****	**	057	6.5	064	9.5	0

DAY 31

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-23.8	*****	**	063	4.1	060	7.0	0
0600	-25.2	*****	**	087	2.2	063	5.7	0
0900	-22.7	*****	**	092	1.9	101	3.8	0
1200	-22.7	*****	**	098	1.6	092	3.2	3
1500	-23.0	*****	**	090	1.7	090	3.2	0
1800	-24.4	*****	**	075	1.5	062	3.2	0
2100	-24.9	*****	**	075	2.0	074	3.8	0
2400	-24.9	*****	**	064	2.0	082	3.8	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1981

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	-5.3	-9.8	-7.6	066	6.3	6.4	066	14.6	ENE	**	*****	0.0	235	1
2	-7.4	-14.3	-10.9	057	.2	2.7	231	6.3	ENE	**	*****	1.4	390	2
3	-6.9	-12.1	-9.5	274	.8	1.5	241	8.9	WSW	**	*****	3.0	310	3
4	-8.8	-16.8	-12.8	021	1.7	2.5	066	9.5	N	**	*****	2.4	300	4
5	-10.1	-16.0	-13.1	073	2.4	2.6	068	9.5	E	**	*****	0.0	165	5
6	-9.6	-18.9	-14.3	053	2.8	2.9	073	7.0	NE	**	*****	0.0	198	6
7	-17.1	-23.7	-20.4	058	1.7	1.8	055	5.7	ENE	**	*****	0.0	390	7
8	-16.9	-25.3	-21.1	064	2.7	2.8	053	7.6	ENE	**	*****	0.0	348	8
9	-18.4	-24.2	-21.3	077	2.0	2.1	082	4.4	E	**	*****	0.0	125	9
10	-12.6	-21.5	-17.1	070	4.9	5.1	073	10.2	ENE	**	*****	0.0	123	10
11	-10.8	-16.6	-13.7	047	6.1	6.2	046	9.5	NE	**	*****	0.0	138	11
12	-5.6	-10.5	-8.1	048	6.0	6.1	061	8.9	NE	**	*****	0.0	98	12
13	-4.2	-15.6	-9.9	057	3.7	3.8	054	10.2	ENE	**	*****	0.0	113	13
14	-9.3	-17.1	-13.2	069	2.8	2.9	074	7.0	ENE	**	*****	0.0	148	14
15	-5.5	-12.6	-9.1	054	5.8	5.9	049	10.8	NE	**	*****	0.0	118	15
16	-2.4	-10.3	-6.4	058	7.3	7.6	090	15.9	ENE	**	*****	0.0	178	16
17	.8	-3.2	-1.2	069	6.4	6.6	062	13.3	ENE	**	*****	0.0	255	17
18	1.7	-4.1	-1.2	066	5.1	5.0	062	14.6	ENE	**	*****	0.0	275	18
19	-3.3	-11.7	-7.5	070	1.5	1.5	078	5.1	E	**	*****	.2	320	19
20	-5.5	-11.7	-8.6	053	2.3	2.5	046	6.3	NE	**	*****	0.0	200	20
21	-9.2	-15.8	-12.5	169	.4	1.0	088	3.8	SSW	**	*****	0.0	313	21
22	-11.2	-19.3	-15.3	044	4.5	4.7	053	9.5	NE	**	*****	0.0	293	22
23	-6.2	-11.4	-8.8	048	5.7	5.9	070	13.3	NE	**	*****	0.0	220	23
24	-6.5	-12.1	-9.3	345	1.7	1.8	032	4.4	NNW	**	*****	0.0	335	24
25	-8.8	-14.2	-11.5	063	1.6	2.2	026	7.0	E	**	*****	0.0	295	25
26	-8.7	-20.3	-14.5	004	2.2	2.8	028	8.3	NNE	**	*****	0.0	130	26
27	-17.2	-26.7	-22.0	076	3.1	3.3	073	8.3	E	**	*****	0.0	138	27
28	-19.4	-27.8	-23.6	084	3.4	3.5	083	8.3	E	**	*****	0.0	163	28
29	-25.1	-32.0	-28.6	064	2.3	2.4	061	5.7	ENE	**	*****	0.0	153	29
30	-21.1	-32.5	-26.8	066	3.7	3.7	055	9.5	ENE	**	*****	0.0	155	30
31	-21.5	-26.1	-23.8	078	2.1	2.2	060	7.0	E	**	*****	0.0	110	31
MONTH	1.7	-32.5	-13.7	058	3.2	3.6	090	15.9	ENE	**	*****	7.0	6725	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 12.1
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 13.3
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 14.0
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 11.4

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

**** SEE NOTES AT THE BACK OF THIS REPORT ****

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1981

DIRECTION	VELOCITY (M/S) 0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.38	3.30	1.03	0.00	0.00	0.00	0.00	4.70
NNE	.34	3.64	2.61	.10	0.00	0.00	0.00	6.69
NE	.55	5.46	9.92	9.10	.03	0.00	0.00	25.06
ENE	.55	11.64	8.24	9.75	.79	0.00	0.00	30.96
E	.69	11.36	5.49	.65	.10	0.00	0.00	18.30
ESE	.55	1.82	.34	0.00	0.00	0.00	0.00	2.71
SE	.03	.10	0.00	0.00	0.00	0.00	0.00	.14
SSE	.14	.07	0.00	0.00	0.00	0.00	0.00	.21
S	.21	.07	0.00	0.00	0.00	0.00	0.00	.27
SSW	1.48	.82	0.00	0.00	0.00	0.00	0.00	2.30
SW	.14	.38	.55	0.00	0.00	0.00	0.00	1.06
WSW	.27	.69	.55	.03	0.00	0.00	0.00	1.54
W	.31	.45	0.00	0.00	0.00	0.00	0.00	.76
WNW	.27	.10	0.00	0.00	0.00	0.00	0.00	.38
NW	.38	1.17	0.00	0.00	0.00	0.00	0.00	1.54
NNW	.21	2.57	.41	0.00	0.00	0.00	0.00	3.19
CALM								.17
TOTAL	6.49	43.63	29.15	19.64	.93	0.00	0.00	100.00

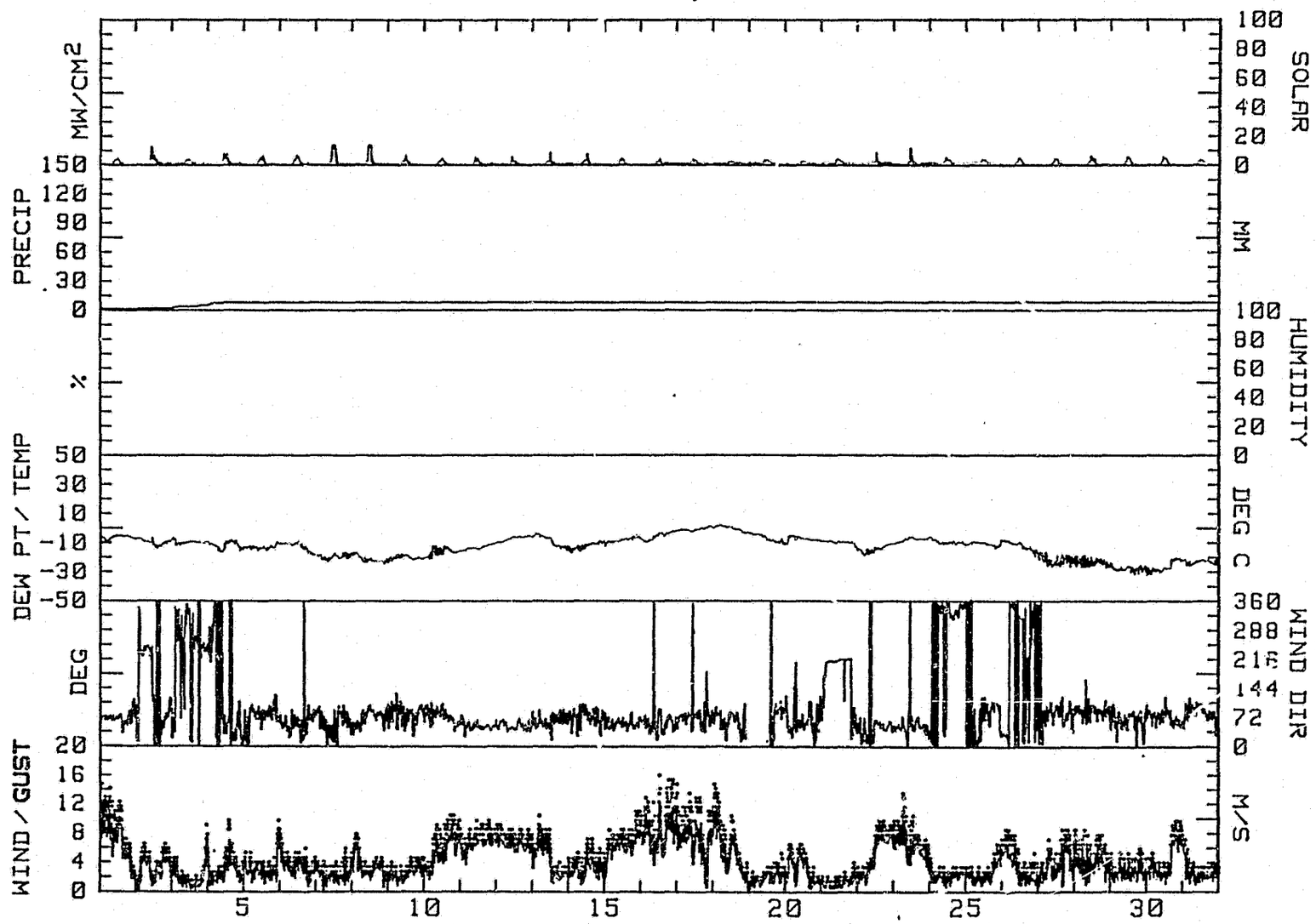
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2913 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

December, 1981

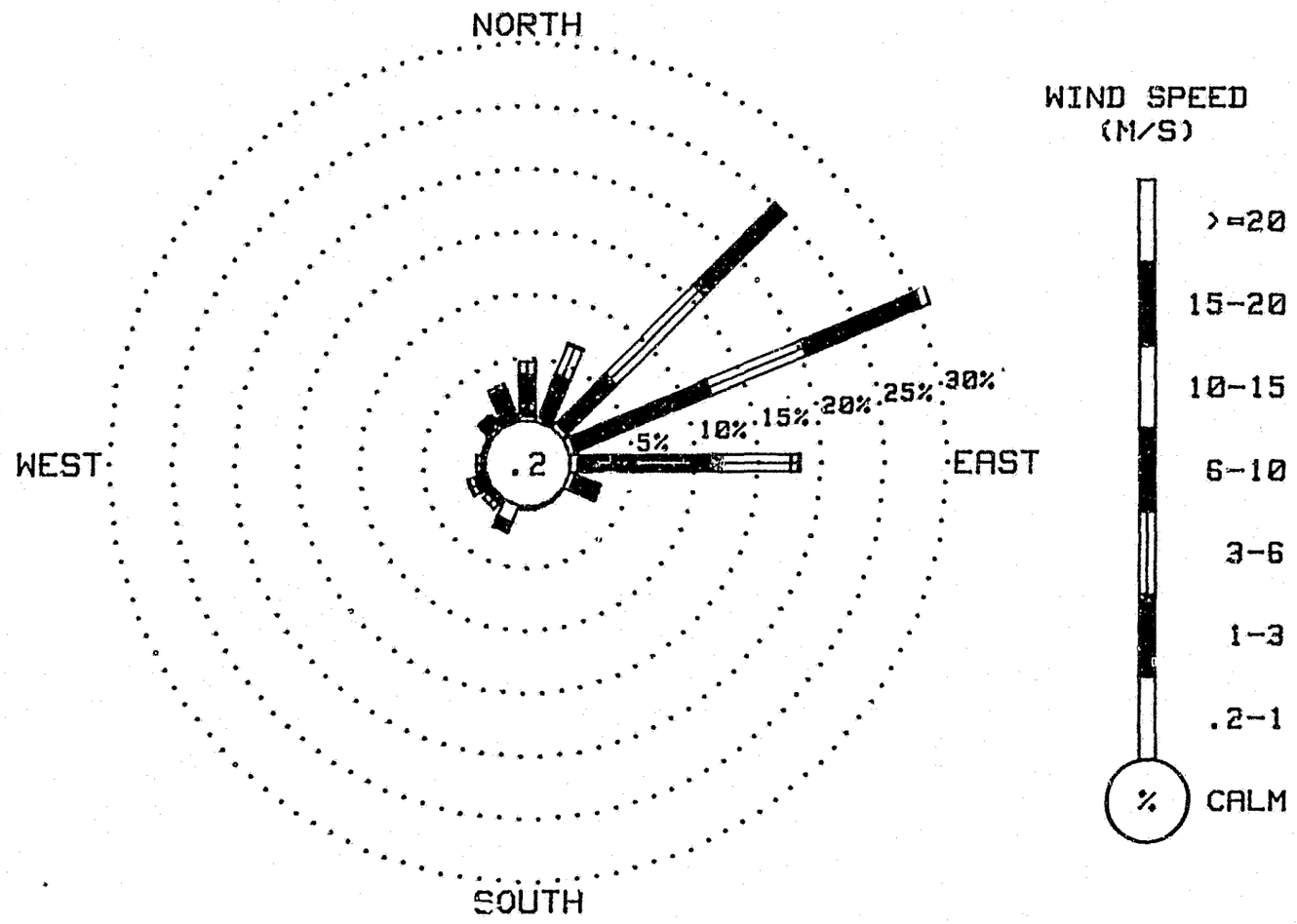


R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

December, 1981



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING January, 1982

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14
15	0.0	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	0.0	****	0.0	15
16	****	****	0.0	****	0.0	****	****	****	****	****	****	****	****	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
21	0.0	0.0	0.0	0.0	0.0	0.0	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	21
22	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	22
23	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	23
24	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	24
25	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	25
26	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	26
27	****	****	****	****	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	0.0	****	****	****	****	****	****	****	****	****	****	27
28	****	****	****	****	****	****	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	0.0	0.0	0.0	0.0	0.0	0.0	****	0.0	29
30	0.0	****	****	****	****	0.0	0.0	0.0	0.0	0.0	****	****	****	****	****	0.0	0.0	****	0.0	****	0.0	****	****	****	30
31	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	0.0	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING January, 1982

DAY 19

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.6	*****	**	360	1.8	344	4.4	0
0600	-17.4	*****	**	342	2.9	3[illegible]	4.4	0
0900	-17.6	*****	**	352	2.9	352	4.4	1
1200	-17.7	*****	**	037	1.7	346	3.8	11
1500	-17.1	*****	**	069	2.7	070	4.4	1
1800	-18.7	*****	**	033	2.9	029	4.4	0
2100	-18.6	*****	**	015	3.2	015	5.1	1
2400	-16.5	*****	**	043	4.0	051	6.3	0

DAY 20

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-16.4	*****	**	069	4.3	075	7.6	0
0600	-15.2	*****	**	063	5.2	053	7.6	0
0900	-16.0	*****	**	069	6.3	071	9.5	1
1200	-15.7	*****	**	073	6.0	076	8.9	7
1500	-15.3	*****	**	068	5.4	071	9.3	1
1800	-16.9	*****	**	069	6.9	068	10.2	0
2100	-17.8	*****	**	067	7.6	071	10.8	0
2400	-15.4	*****	**	070	5.1	064	9.5	0

DAY 21

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-16.8	*****	**	055	10.0	059	13.3	***
0600	-17.6	*****	**	058	10.9	055	15.2	***
0900	*****	*****	**	***	****	061	10.8	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 22

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 23

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 24

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 25

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 26

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	077	2.9	075	4.4	***
0600	-28.3	*****	**	076	3.3	076	4.4	***
0900	-29.7	*****	**	072	2.8	075	5.7	***
1200	*****	*****	**	***	****	081	3.2	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 27

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	-23.6	*****	**	056	8.2	***	****	0
0900	-22.5	*****	**	048	7.9	045	10.2	1
1200	-20.7	*****	**	051	7.3	042	10.2	20
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING January, 1982

DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	044	9.5	***
0900	-14.8	*****	**	041	8.1	042	10.8	1
1200	-13.3	*****	**	050	8.0	059	12.7	4
1500	-12.5	*****	**	060	7.7	065	10.2	1
1800	-11.9	*****	**	057	8.0	057	10.2	0
2100	-11.3	*****	**	044	6.8	053	9.5	0
2400	-11.2	*****	**	052	4.1	042	8.9	0

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.6	*****	**	076	3.6	067	7.6	0
0600	-11.6	*****	**	063	3.5	073	7.0	0
0900	-13.8	*****	**	073	3.6	077	7.0	2
1200	-11.3	*****	**	095	2.8	086	5.7	3
1500	-12.3	*****	**	097	2.9	084	5.7	2
1800	-13.7	*****	**	100	2.9	100	4.4	0
2100	-15.8	*****	**	095	2.4	086	4.4	0
2400	*****	*****	**	089	2.9	091	6.8	***

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	099	1.5	094	6.2	0
0600	*****	*****	**	065	1.7	058	2.5	0
0900	*****	*****	**	090	1.8	077	3.2	2
1200	*****	*****	**	***	****	099	6.4	***
1500	*****	*****	**	***	****	204	4.4	***
1800	*****	*****	**	***	****	095	8.4	***
2100	-15.6	*****	**	096	2.4	101	3.8	1
2400	*****	*****	**	***	****	081	6.3	***

DAY 31

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.4	*****	**	069	5.9	072	8.9	0
0600	-12.6	*****	**	057	6.9	058	9.5	0
0900	-11.2	*****	**	054	6.6	068	8.6	5
1200	*****	*****	**	***	****	044	8.3	***
1500	*****	*****	**	041	6.3	038	8.3	2
1800	-11.8	*****	**	042	6.6	046	8.9	0
2100	-11.6	*****	**	048	6.9	038	9.5	0
2400	-10.9	*****	**	042	6.9	038	9.5	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING January, 1982

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	-20.6	-26.4	-23.5	074	2.0	2.1	085	5.7	E	**	*****	0.0	133	1
2	-22.9	-27.0	-25.0	065	1.8	1.9	071	3.8	ENE	**	*****	0.0	280	2
3	-23.2	-27.2	-25.2	071	2.0	2.1	081	4.4	ENE	**	*****	0.0	223	3
4	-16.3	-23.8	-20.1	086	1.5	1.7	058	5.7	E	**	*****	0.0	130	4
5	-17.9	-27.9	-22.9	087	2.9	3.6	090	10.2	E	**	*****	0.0	185	5
6	-24.6	-33.8	-29.2	085	4.4	4.6	085	10.2	E	**	*****	0.0	165	6
7	-25.5	-32.4	-29.0	052	2.6	2.8	077	6.1	NE	**	*****	0.0	185	7
8	-16.3	-31.4	-23.9	057	4.5	4.8	053	10.2	NE	**	*****	0.0	205	8
9	-17.6	-20.2	-18.9	061	8.2	8.3	064	14.6	ENE	**	*****	0.0	133	9
10	-12.6	-17.7	-15.2	062	5.5	5.6	051	12.7	ENE	**	*****	0.0	215	10
11	-9.8	-16.3	-13.1	070	4.5	4.5	064	8.9	ENE	**	*****	0.0	185	11
12	-8.1	-16.0	-12.1	089	2.5	2.5	085	5.7	E	**	*****	0.0	330	12
13	-11.8	-20.9	-16.4	065	2.7	3.0	054	15.2	ENE	**	*****	0.0	725	13
14	-14.6	-18.7	-16.7	051	8.8	8.9	062	14.6	NE	**	*****	0.0	243	14
15	-18.4	-23.6	-21.0	057	4.1	4.3	042	10.8	ENE	**	*****	0.0	******	15
16	-19.2	-27.8	-23.5	064	2.1	2.2	081	4.4	ENE	**	*****	0.0	129	16
17	-11.8	-24.5	-18.2	065	1.5	1.8	094	6.3	ENE	**	*****	0.0	323	17
18	-16.0	-23.4	-19.7	056	1.5	2.2	075	8.3	ENE	**	*****	0.0	285	18
19	-13.3	-20.8	-17.1	022	2.5	2.9	051	6.3	NNW	**	*****	0.0	413	19
20	-15.1	-21.8	-18.5	068	5.8	5.9	071	10.8	ENE	**	*****	0.0	313	20
21	-14.7	-17.7	-16.2	057	10.4	10.4	055	15.2	ENE	**	*****	0.0	******	21
22	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	22
23	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	23
24	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	24
25	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	25
26	-28.1	-30.3	-29.2	075	2.9	3.1	075	5.7	ENE	**	*****	0.0	******	26
27	-20.3	-24.0	-22.2	050	7.5	7.6	045	10.2	NE	**	*****	0.0	845	27
28	-10.7	-16.2	-13.5	052	6.9	7.0	059	12.7	NE	**	*****	0.0	283	28
29	-10.2	-17.0	-13.6	084	3.0	3.2	067	7.6	E	**	*****	0.0	480	29
30	-11.8	-16.8	-14.3	095	2.2	2.5	095	8.4	E	**	*****	0.0	670	30
31	-10.1	-13.0	-11.6	048	6.6	6.6	058	9.5	NE	**	*****	0.0	566	31
MONTH	-8.1	-33.8	-19.6	063	3.7	4.0	054	15.2	ENE	**	*****	0.0	7640	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 12.7
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 13.3
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 14.0
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 13.3

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

**** SEE NOTES AT THE BACK OF THIS REPORT ****

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING January, 1982

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.24	1.18	.38	0.00	0.00	0.00	0.00	1.79
NNE	.05	1.65	1.93	.28	0.00	0.00	0.00	3.91
NE	.19	6.55	4.43	11.31	.66	0.00	0.00	23.14
ENE	.38	14.00	12.02	9.61	1.56	0.00	0.00	37.56
E	.75	15.74	8.01	.57	0.00	0.00	0.00	25.07
ESE	.28	1.98	1.46	.09	0.00	0.00	0.00	3.82
SE	.05	.28	.24	0.00	0.00	0.00	0.00	.57
SSE	.19	0.00	0.00	0.00	0.00	0.00	0.00	.19
S	.05	0.00	0.00	0.00	0.00	0.00	0.00	.05
SSW	.05	0.00	.09	0.00	0.00	0.00	0.00	.14
SW	.14	.24	0.00	0.00	0.00	0.00	0.00	.38
WSW	.14	.28	.05	0.00	0.00	0.00	0.00	.47
W	.05	.05	0.00	0.00	0.00	0.00	0.00	.09
WNW	.19	.42	0.00	0.00	0.00	0.00	0.00	.61
NW	.09	.19	0.00	0.00	0.00	0.00	0.00	.28
NNW	.05	1.32	.57	0.00	0.00	0.00	0.00	1.93
CALM								0.00
TOTAL	2.87	43.87	29.17	21.87	2.21	0.00	0.00	100.00

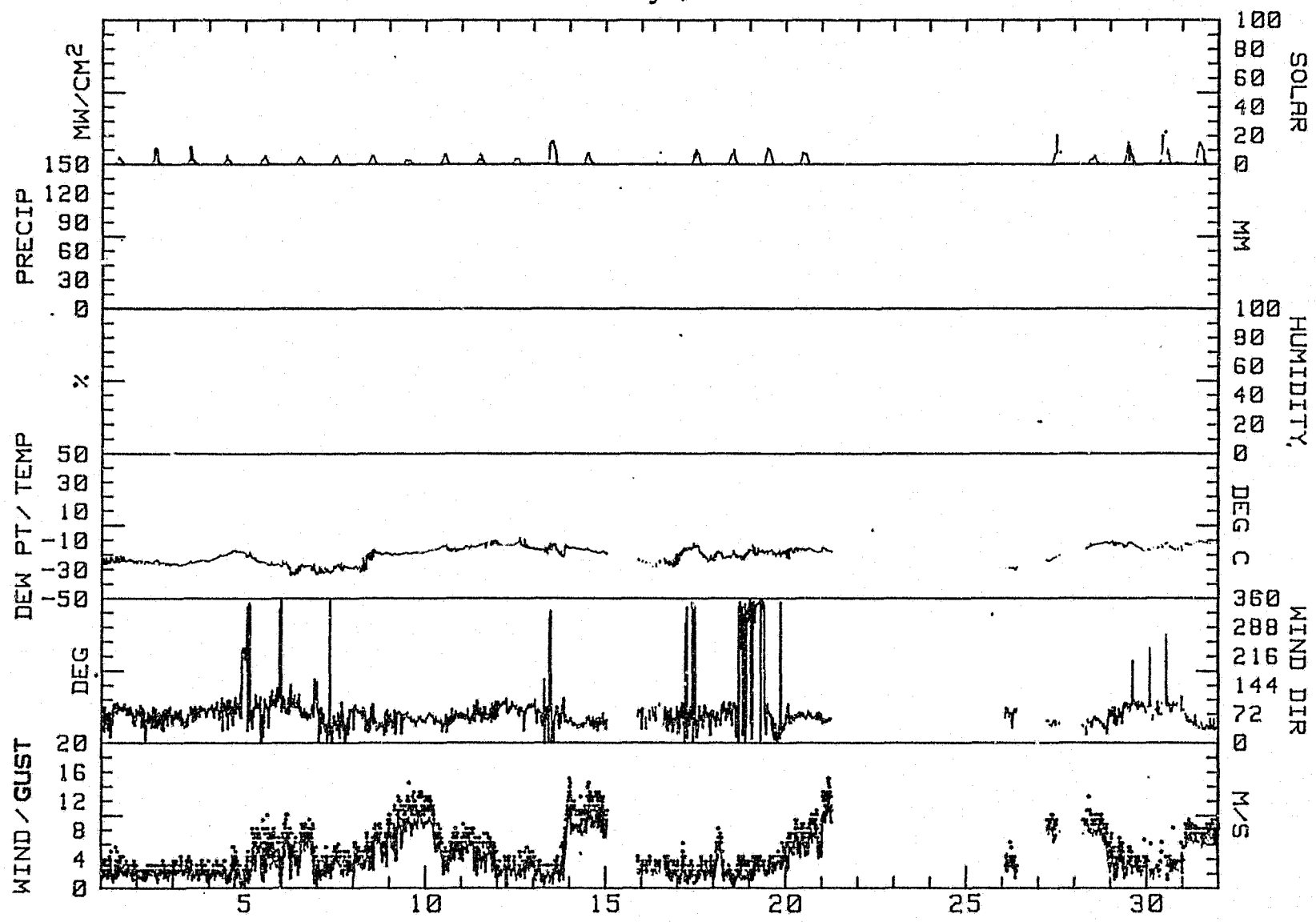
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2122 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

January, 1982

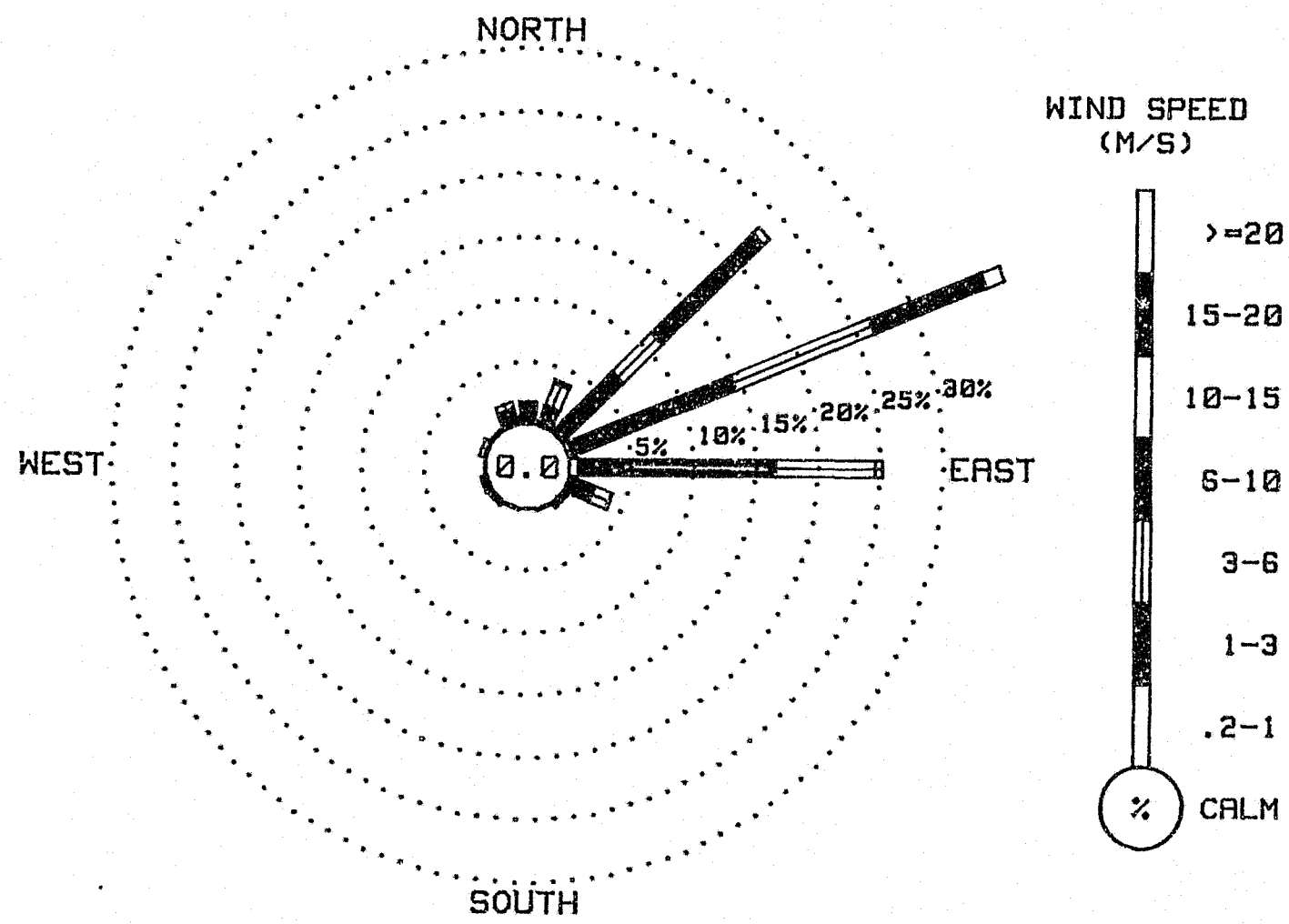


R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

January, 1982



WIND ROSE PLOT

s8/t4

NO DATA FOR
FEBRUARY 1982
AT
WATANA CLIMATE STATION

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING March, 1982

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE
1	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	1
2	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	2
3	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	3
4	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	4
5	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	5
6	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	6
7	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	7
8	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	8
9	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	9
10	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	10
11	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	11
12	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	12
13	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	13
14	****	****	****	****	****	****	****	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	15
16	0.0	0.0	.2	0.0	0.0	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16
17	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	.2	.4	0.0	0.0	0.0	0.0	.4	.6	0.0	.2	0.0	0.0	0.0	17
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
21	.2	0.0	0.0	0.0	0.0	0.0	.2	.2	.4	.4	.4	1.0	1.0	1.0	1.8	2.0	.8	.2	.4	.6	.4	0.0	0.0	0.0	21
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22
23	0.0	.4	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31

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DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

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DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	038	3.2	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	-14.7	*****	**	088	2.6	086	3.8	***
1200	-10.8	*****	**	078	3.1	097	5.7	***
1500	-11.5	*****	**	039	3.6	031	5.7	***
1800	-15.5	*****	**	038	3.4	035	5.7	***
2100	-19.7	*****	**	042	3.6	041	5.1	***
2400	-16.7	*****	**	041	4.7	035	7.0	***

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-16.4	*****	**	056	5.0	056	8.9	***
0600	-16.5	*****	**	058	6.0	058	8.3	***
0900	-14.6	*****	**	058	6.4	062	8.3	***
1200	-12.3	*****	**	055	5.4	063	8.3	***
1500	-11.2	*****	**	071	4.7	059	6.3	***
1800	-12.1	*****	**	061	4.5	075	6.3	***
2100	-8.8	*****	**	056	3.6	066	6.3	***
2400	-11.9	*****	**	002	1.7	021	3.2	***

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.2	*****	**	358	1.4	338	2.5	***
0600	-10.4	*****	**	047	.8	058	2.5	***
0900	-9.1	*****	**	069	1.6	068	3.8	***
1200	-7.5	*****	**	061	2.8	074	4.4	***
1500	-5.8	*****	**	052	3.3	063	5.7	***
1800	-7.1	*****	**	060	4.1	058	5.7	***
2100	-8.0	*****	**	057	4.8	062	7.6	***
2400	-7.4	*****	**	044	5.3	048	7.6	***

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.8	*****	**	054	5.3	064	8.9	***
0600	-6.1	*****	**	061	6.2	059	8.9	***
0900	-5.0	*****	**	050	5.3	066	8.3	***
1200	-2.6	*****	**	066	4.5	064	7.6	***
1500	-1.1	*****	**	046	.7	059	5.7	***
1800	-1.8	*****	**	008	1.3	052	4.4	***
2100	-2.9	*****	**	262	.9	262	1.3	***
2400	-3.5	*****	**	***	****	***	****	***

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.8	*****	**	***	****	***	****	0
0600	-4.0	*****	**	***	****	***	****	0
0900	-2.5	*****	**	064	4.6	069	7.0	5
1200	-2.0	*****	**	059	4.1	068	7.0	28
1500	-1.2	*****	**	053	4.0	060	7.0	34
1800	-1.6	*****	**	034	2.7	050	4.4	9
2100	-3.1	*****	**	031	2.0	034	3.8	0
2400	-3.6	*****	**	066	1.2	080	3.2	0

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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.2	*****	**	064	1.3	066	2.5	1
0600	-7.0	*****	**	060	1.1	044	3.8	0
0900	-5.0	*****	**	085	1.7	085	3.8	7
1200	-1.2	*****	**	058	4.3	050	8.3	36
1500	1.3	*****	**	066	6.3	067	8.9	36
1800	1.6	*****	**	079	4.1	066	8.3	10
2100	-1.6	*****	**	059	.9	064	5.1	0
2400	-3.2	*****	**	051	1.0	064	3.8	0

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.5	*****	**	070	2.3	083	5.1	1
0600	-2.5	*****	**	070	5.7	071	8.3	0
0900	-1.7	*****	**	073	5.0	070	7.6	10
1200	1.1	*****	**	066	4.0	066	6.3	48
1500	.6	*****	**	282	.6	256	6.3	31
1800	-.5	*****	**	229	4.1	230	7.6	12
2100	-2.5	*****	**	253	3.5	252	5.1	0
2400	-3.0	*****	**	***	****	***	****	0

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.3	*****	**	***	****	***	****	0
0600	-3.2	*****	**	***	****	***	****	0
0900	-3.0	*****	**	***	****	***	****	3
1200	-1.5	*****	**	065	2.7	345	4.4	11
1500	.6	*****	**	090	2.0	078	3.8	17
1800	-.3	*****	**	115	1.6	116	3.8	4
2100	-1.6	*****	**	218	4.4	212	8.9	1
2400	-2.8	*****	**	***	****	***	****	0

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.2	*****	**	***	****	***	****	0
0600	-4.5	*****	**	***	****	***	****	0
0900	-3.9	*****	**	***	****	***	****	12
1200	1.0	*****	**	088	1.9	088	4.4	68
1500	.3	*****	**	045	2.1	056	3.8	34
1800	-.4	*****	**	056	2.6	075	5.1	13
2100	-3.7	*****	**	085	2.3	074	5.1	0
2400	-3.5	*****	**	313	.9	356	2.5	0

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.8	*****	**	234	1.6	241	5.1	0
0600	-6.5	*****	**	269	.3	224	2.5	0
0900	-5.5	*****	**	042	1.6	035	4.4	12
1200	-2.9	*****	**	060	5.1	075	8.9	44
1500	-1.8	*****	**	074	4.6	073	7.0	27
1800	-2.5	*****	**	070	2.6	105	5.7	11
2100	-5.0	*****	**	026	2.2	012	3.2	0
2400	-5.7	*****	**	032	3.3	042	4.4	0

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.0	*****	**	055	3.9	068	6.3	0
0600	-4.9	*****	**	066	3.3	067	5.1	0
0900	-5.8	*****	**	060	3.1	067	5.1	12
1200	-2.6	*****	**	084	3.6	078	6.3	37
1500	-5.5	*****	**	033	3.5	352	8.3	38
1800	-7.6	*****	**	022	6.6	018	9.5	15
2100	-7.6	*****	**	028	5.1	039	8.3	0
2400	-7.7	*****	**	013	4.5	029	7.6	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.4	*****	**	014	3.9	013	7.0	1
0600	-8.3	*****	**	347	2.3	016	7.0	0
0900	-7.6	*****	**	007	3.3	004	6.3	12
1200	-5.9	*****	**	009	4.4	359	7.6	48
1500	-7.0	*****	**	007	5.2	013	7.6	39
1800	-8.2	*****	**	005	5.4	008	8.3	25
2100	-10.4	*****	**	012	4.8	012	8.3	1
2400	-11.8	*****	**	014	5.0	009	8.9	0

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.1	*****	**	018	3.6	009	7.6	0
0600	-16.0	*****	**	067	1.8	020	4.4	0
0900	-12.2	*****	**	080	3.9	083	7.0	17
1200	-9.7	*****	**	066	4.6	067	10.2	47
1500	-9.1	*****	**	039	5.4	052	7.6	49
1800	-10.3	*****	**	031	5.7	029	7.6	20
2100	-12.1	*****	**	036	4.7	032	7.0	1
2400	-13.9	*****	**	058	3.6	050	7.0	1

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.2	*****	**	067	4.8	063	7.6	0
0600	-17.4	*****	**	049	3.6	055	6.3	1
0900	-13.3	*****	**	031	3.3	026	5.7	11
1200	-10.4	*****	**	068	4.9	065	7.0	38
1500	-7.7	*****	**	045	4.5	054	6.3	59
1800	-8.4	*****	**	035	4.0	003	5.7	17
2100	-10.2	*****	**	060	3.7	043	5.7	0
2400	-10.8	*****	**	066	3.7	068	5.1	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING March, 1982

DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.6	*****	**	059	3.8	064	5.7	1
0600	-13.6	*****	**	040	2.2	041	3.8	1
0900	-13.5	*****	**	054	1.2	045	2.5	13
1200	-8.0	*****	**	060	1.1	040	3.2	34
1500	-5.2	*****	**	028	2.1	016	3.8	52
1800	-6.7	*****	**	345	2.0	343	3.2	21
2100	-12.6	*****	**	343	2.4	341	3.8	1
2400	-14.1	*****	**	348	3.0	343	4.4	1

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.4	*****	**	032	1.6	010	2.5	1
0600	-15.7	*****	**	035	1.7	036	3.2	1
0900	-14.7	*****	**	046	1.8	021	3.2	18
1200	-6.8	*****	**	062	1.9	061	3.2	54
1500	-5.4	*****	**	051	3.5	057	6.3	46
1800	-7.5	*****	**	056	3.6	066	7.0	11
2100	-10.8	*****	**	028	2.2	034	4.4	1
2400	-11.3	*****	**	050	1.4	010	3.8	1

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.4	*****	**	020	1.2	012	3.8	1
0600	-17.0	*****	**	064	2.4	066	4.4	1
0900	-11.8	*****	**	068	2.3	082	4.4	30
1200	-9.7	*****	**	063	4.2	062	7.6	55
1500	-9.9	*****	**	041	6.2	045	8.3	46
1800	-11.3	*****	**	032	6.1	038	8.9	13
2100	-14.3	*****	**	016	5.4	017	7.6	0
2400	-15.9	*****	**	030	4.4	019	7.0	1

DAY 31

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-16.9	*****	**	045	4.0	060	9.5	0
0600	-20.7	*****	**	043	3.0	001	5.7	1
0900	-15.6	*****	**	020	2.7	020	5.1	30
1200	-11.8	*****	**	025	4.5	028	7.6	56
1500	-11.6	*****	**	027	5.4	030	7.6	47
1800	-13.4	*****	**	029	5.8	026	7.6	13
2100	-15.3	*****	**	023	5.3	014	8.9	1
2400	-15.7	*****	**	029	4.7	021	7.0	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING March, 1982

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	1
2	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	2
3	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	3
4	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	4
5	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	5
6	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	6
7	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	7
8	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	8
9	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	9
10	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	10
11	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	11
12	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	12
13	-16.1	-16.1	-16.1	038	2.0	2.0	038	3.2	NE	**	*****	****	******	13
14	-10.3	-19.7	-13.0	048	3.5	3.7	035	7.0	NE	**	*****	0.0	******	14
15	-8.4	-19.3	-13.9	057	4.6	4.7	056	8.9	ENE	**	*****	.2	******	15
16	-5.7	-11.7	-8.7	052	2.7	3.1	062	7.6	ENE	**	*****	.6	******	16
17	2.3	-7.4	-2.6	054	3.7	3.4	064	8.9	NE	**	*****	2.0	******	17
18	-.8	-4.1	-2.5	052	3.0	2.8	069	7.0	ENE	**	*****	0.0	2245	18
19	2.1	-7.0	-2.5	067	2.6	2.9	067	8.9	ENE	**	*****	0.0	2743	19
20	4.1	-3.1	.5	076	1.6	3.5	071	8.3	ENE	**	*****	.2	3020	20
21	1.8	-3.7	-1.0	125	1.3	2.6	212	8.9	ESE	**	*****	11.0	1048	21
22	3.8	-4.5	-.4	062	1.6	2.4	075	5.1	ENE	**	*****	.6	3555	22
23	-1.2	-6.8	-4.0	054	2.1	2.9	075	8.9	ENE	**	*****	.6	3095	23
24	-2.2	-10.5	-6.4	041	3.9	4.3	018	9.5	NNE	**	*****	0.0	3078	24
25	-5.7	-11.8	-8.8	008	4.3	4.4	009	8.9	N	**	*****	0.0	3518	25
26	-8.6	-16.0	-12.3	047	3.9	4.3	067	10.2	NNE	**	*****	0.0	3950	26
27	-7.4	-18.2	-12.8	054	3.9	4.1	063	7.6	ENE	**	*****	0.0	3543	27
28	-4.9	-15.1	-10.0	023	1.9	2.3	064	5.7	NNW	**	*****	0.0	3895	28
29	-5.0	-16.8	-10.9	047	2.2	2.4	066	7.0	NE	**	*****	0.0	3795	29
30	-9.3	-17.4	-13.4	039	3.8	4.2	038	8.9	NNE	**	*****	0.0	4378	30
31	-11.3	-20.8	-16.1	030	4.4	4.5	060	9.5	NNE	**	*****	0.0	4425	31
MONTH	4.1	-20.8	-8.2	046	3.0	3.5	067	10.2	ENE	**	*****	15.2	46285	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 5.7
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 7.5
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 7.8
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 8.3

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

**** SEE NOTES AT THE BACK OF THIS REPORT ****

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING March, 1982

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.39	2.67	4.50	.33	0.00	0.00	0.00	7.89
NNE	.26	6.26	12.91	1.50	0.00	0.00	0.00	20.93
NE	.26	5.93	15.58	1.76	0.00	0.00	0.00	23.53
ENE	.39	6.78	17.80	3.26	0.00	0.00	0.00	28.23
E	.72	4.37	2.80	0.00	0.00	0.00	0.00	7.89
ESE	.39	1.63	.46	0.00	0.00	0.00	0.00	2.48
SE	.26	.26	0.00	0.00	0.00	0.00	0.00	.52
SSE	.20	0.00	0.00	0.00	0.00	0.00	0.00	.20
S	.13	.33	0.00	0.00	0.00	0.00	0.00	.46
SSW	.07	.07	.07	07	0.00	0.00	0.00	.26
SW	0.00	.26	.85	0.00	0.00	0.00	0.00	1.11
WSW	.07	.39	.91	0.00	0.00	0.00	0.00	1.37
W	.39	.39	.13	0.00	0.00	0.00	0.00	.91
WNW	.13	.39	0.00	0.00	0.00	0.00	0.00	.52
NW	.13	.26	0.00	0.00	0.00	0.00	0.00	.39
NNW	.13	2.48	.72	0.00	0.00	0.00	0.00	3.32
CALM								0.00
TOTAL	3.91	32.46	56.71	6.91	0.00	0.00	0.00	100.00

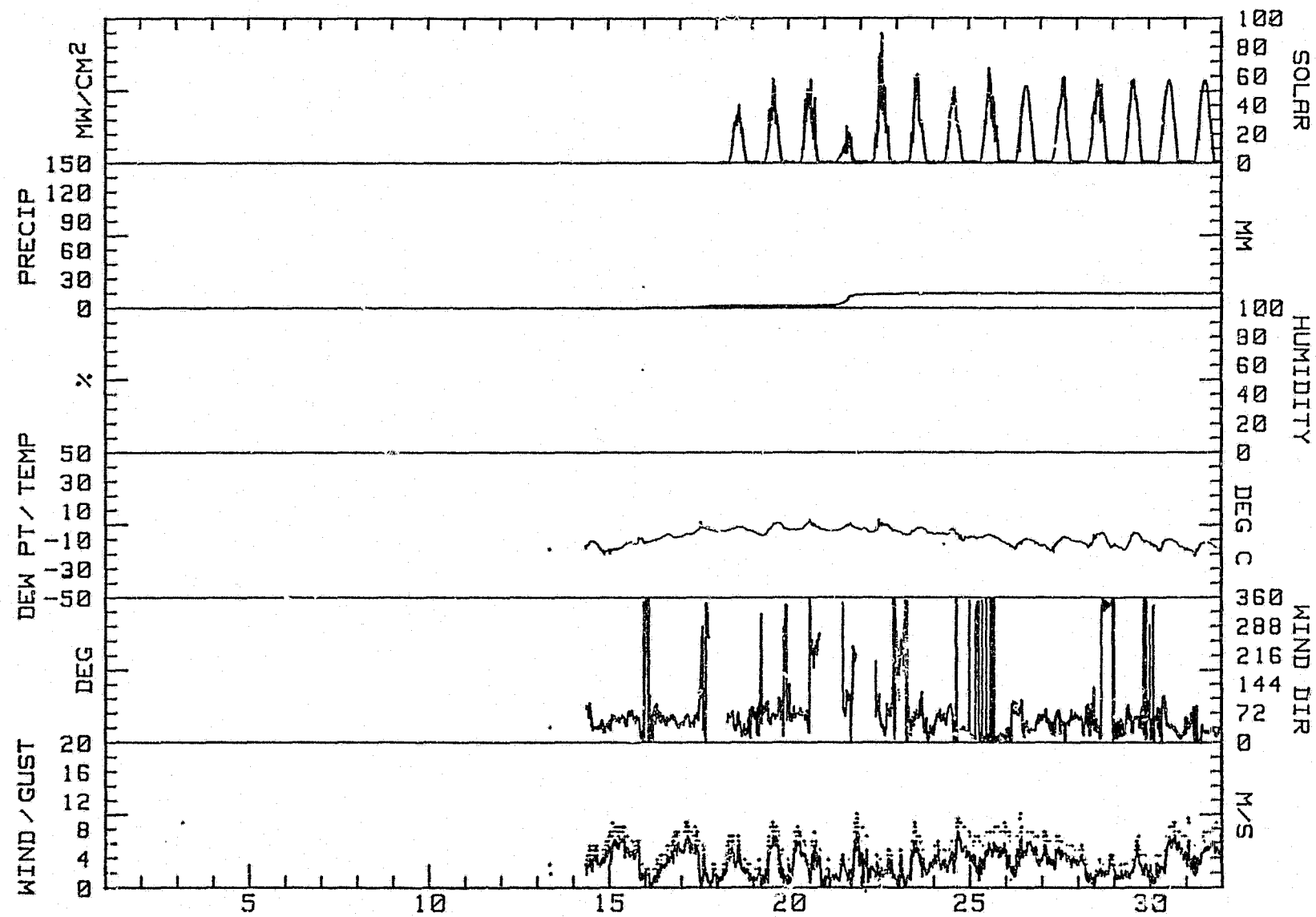
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1534 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

March, 1982



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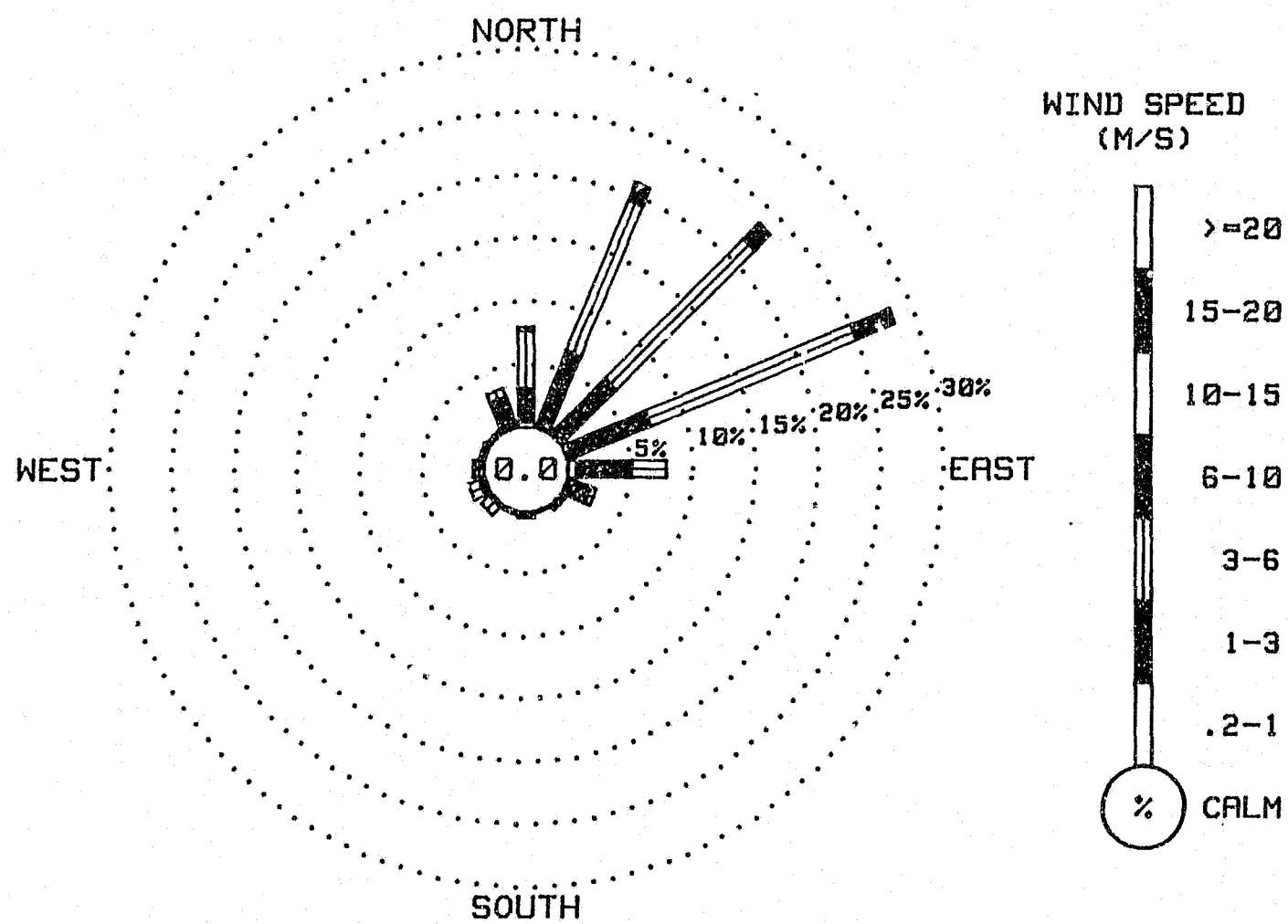
SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

March, 1982



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING April, 1982

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	.6	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.6	1.6	.4	.4	.4	.2	0.0	0.0	0.0	0.0	0.0	0.0	8
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13
14	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	14
15	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	23
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	.2	.2	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28
29	.2	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING April, 1982

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.7	*****	**	022	4.5	021	7.0	1
0600	-16.3	*****	**	024	3.6	022	7.0	1
0900	-12.9	*****	**	052	1.5	001	7.6	30
1200	-12.3	*****	**	018	4.5	021	9.5	57
1500	-11.9	*****	**	021	5.6	013	8.9	48
1800	-13.6	*****	**	014	5.4	013	9.5	13
2100	-15.6	*****	**	010	4.3	019	7.0	0
2400	-16.8	*****	**	015	4.1	003	7.0	0

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-17.4	*****	**	017	3.8	010	8.9	1
0600	-17.5	*****	**	029	4.1	032	7.0	1
0900	-15.5	*****	**	062	4.1	084	7.0	31
1200	-13.1	*****	**	060	4.8	046	8.3	58
1500	-12.5	*****	**	043	6.6	051	9.5	48
1800	-13.2	*****	**	040	5.4	031	7.6	14
2100	-15.8	*****	**	043	5.1	039	7.6	0
2400	-19.4	*****	**	067	3.0	064	5.7	1

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-19.6	*****	**	062	1.5	071	4.4	0
0600	-19.3	*****	**	060	3.5	068	6.3	2
0900	-14.3	*****	**	065	4.0	[illegible]	8.3	31
1200	-9.7	*****	**	079	6.6	077	9.5	61
1500	-8.1	*****	**	076	6.0	076	8.9	50
1800	-9.0	*****	**	060	5.3	058	7.6	16
2100	-11.2	*****	**	071	5.8	072	8.3	1
2400	-14.3	*****	**	057	4.5	069	7.6	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.4	*****	**	050	4.5	058	7.6	0
0600	-12.5	*****	**	051	4.9	062	8.9	1
0900	-9.4	*****	**	055	6.0	063	9.5	36
1200	-7.3	*****	**	049	4.5	056	7.6	39
1500	-4.9	*****	**	048	3.5	057	6.3	41
1800	-4.3	*****	**	065	2.6	055	3.8	21
2100	-7.5	*****	**	061	2.0	090	3.2	0
2400	-11.8	*****	**	357	2.2	350	3.8	0

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.4	*****	**	005	1.9	350	3.8	1
0600	-12.4	*****	**	032	1.5	354	3.2	1
0900	-7.8	*****	**	062	1.3	030	3.2	33
1200	-2.6	*****	**	052	.9	007	2.5	60
1500	-1.2	*****	**	007	1.9	027	3.2	41
1800	-3.1	*****	**	003	1.9	347	3.2	11
2100	-5.4	*****	**	351	1.9	347	2.5	0
2400	-5.7	*****	**	003	1.4	356	3.2	0

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.6	*****	**	043	1.1	091	2.5	1
0600	-6.7	*****	**	061	1.7	060	3.2	1
0900	-2.6	*****	**	049	1.4	047	2.5	39
1200	.8	*****	**	034	2.9	044	5.1	61
1500	1.8	*****	**	052	3.6	058	6.3	50
1800	-.3	*****	**	065	3.8	067	7.0	7
2100	-3.3	*****	**	323	1.2	340	3.2	1
2400	-3.3	*****	**	277	1.1	267	2.5	0

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.6	*****	**	031	.3	258	1.9	1
0600	-3.8	*****	**	033	.4	072	2.5	1
0900	-.8	*****	**	231	2.6	253	5.7	16
1200	.7	*****	**	260	6.8	240	10.8	25
1500	1.4	*****	**	260	5.2	248	7.6	40
1800	1.7	*****	**	289	3.2	262	7.0	16
2100	-2.8	*****	**	012	1.5	009	4.4	0
2400	-7.6	*****	**	359	2.4	011	3.8	1

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.4	*****	**	360	2.4	347	3.8	1
0600	-4.9	*****	**	042	2.2	036	5.1	2
0900	-2.7	*****	**	055	4.6	076	8.3	22
1200	-3.0	*****	**	080	3.0	077	7.0	26
1500	-2.3	*****	**	268	.4	221	3.2	14
1800	-2.2	*****	**	246	2.5	244	5.1	7
2100	-4.9	*****	**	246	2.7	241	4.4	1
2400	-9.1	*****	**	***	****	***	****	0

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.2	*****	**	357	1.7	273	3.8	1
0600	-8.1	*****	**	045	1.5	045	3.2	2
0900	-7.1	*****	**	052	1.3	052	3.2	30
1200	-.7	*****	**	036	1.2	042	2.5	72
1500	.1	*****	**	323	.9	231	4.4	61
1800	-1.2	*****	**	313	1.2	285	3.2	17
2100	-6.3	*****	**	358	2.0	354	3.8	0
2400	-9.2	*****	**	032	1.6	019	3.8	1

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DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.8	*****	**	015	1.9	043	3.2	1
0600	-12.7	*****	**	042	2.1	018	3.8	3
0900	-6.5	*****	**	065	2.5	06.	6.3	32
1200	-3.5	*****	**	076	4.4	071	7.6	58
1500	-3.9	*****	**	081	4.8	090	7.6	47
1800	-5.0	*****	**	067	4.0	070	6.3	13
2100	-7.5	*****	**	047	2.7	065	3.8	1
2400	-8.6	*****	**	036	3.1	031	4.4	0

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.4	*****	**	046	1.4	026	3.2	***
0600	-9.2	*****	**	089	2.5	084	3.8	***
0900	-4.7	*****	**	087	2.5	084	8.3	***
1200	-2.9	*****	**	042	5.3	059	7.6	***
1500	-3.0	*****	**	035	5.3	031	7.6	***
1800	-4.6	*****	**	024	5.9	033	7.0	***
2100	-6.9	*****	**	014	5.3	015	8.3	***
2400	-8.2	*****	**	018	5.1	014	7.6	***

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.9	*****	**	032	2.3	017	7.6	***
0600	-7.6	*****	**	005	1.1	014	7.6	***
0900	-3.9	*****	**	061	.9	062	6.3	***
1200	-3.3	*****	**	035	5.2	040	7.6	54
1500	-3.8	*****	**	027	5.7	026	7.6	38
1800	-6.3	*****	**	012	6.1	010	8.9	8
2100	-6.7	*****	**	011	6.2	012	8.9	1
2400	-5.3	*****	**	019	5.5	016	8.9	0

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.9	*****	**	096	1.0	073	3.8	0
0600	-7.7	*****	**	001	.3	332	1.9	1
0900	-6.6	*****	**	049	1.0	068	1.9	25
1200	-1.0	*****	**	062	2.5	067	5.7	49
1500	.6	*****	**	079	4.8	071	7.6	37
1800	-1.7	*****	**	023	3.1	081	7.6	7
2100	-4.1	*****	**	026	3.0	035	5.1	0
2400	-6.8	*****	**	050	3.2	031	5.1	0

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	-1.7	*****	**	009	2.7	009	3.8	7
2100	-4.1	*****	**	026	3.0	012	5.1	0
2400	-6.8	*****	**	050	3.2	031	5.1	0

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.2	*****	**	064	1.5	081	5.1	0
0600	-8.2	*****	**	078	2.0	056	3.8	12
0900	-.4	*****	**	076	2.4	055	5.1	51
1200	2.2	*****	**	055	3.6	053	5.7	68
1500	.9	*****	**	021	3.4	020	5.1	38
1800	-2.1	*****	**	019	3.7	012	5.1	11
2100	-5.2	*****	**	043	2.2	067	4.4	0
2400	-6.7	*****	**	026	1.8	017	5.1	4

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.9	*****	**	000	1.7	015	3.2	1
0600	-8.5	*****	**	347	1.8	354	3.2	12
0900	-3.0	*****	**	357	1.4	337	3.8	45
1200	-1.6	*****	**	003	1.9	001	3.8	70
1500	-1.9	*****	**	003	3.2	359	4.4	42
1800	-4.5	*****	**	022	2.2	022	3.8	8
2100	-6.1	*****	**	023	1.7	022	3.8	0
2400	-6.2	*****	**	011	1.6	007	3.8	0

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.2	*****	**	030	2.2	012	3.8	0
0600	-7.1	*****	**	060	2.2	036	5.1	8
0900	-4.2	*****	**	130	1.0	070	5.7	36
1200	-4.3	*****	**	230	5.0	232	8.9	45
1500	-4.9	*****	**	262	5.6	242	8.9	29
1800	-6.2	*****	**	269	3.7	265	7.0	8
2100	-10.5	*****	**	338	1.6	349	3.8	1
2400	-12.3	*****	**	345	2.7	343	4.4	1

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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.1	*****	**	017	1.8	351	3.2	1
0600	-13.5	*****	**	057	2.3	058	4.4	17
0900	-4.9	*****	**	067	3.5	057	7.0	37
1200	-3.1	*****	**	060	4.7	070	7.0	58
1500	-2.7	*****	**	054	5.3	066	7.6	40
1800	-4.2	*****	**	035	5.6	032	8.3	3
2100	-3.9	*****	**	027	5.8	027	8.9	0
2400	-2.7	*****	**	034	5.8	032	8.3	0

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.1	*****	**	035	4.8	038	8.3	1
0600	-1.8	*****	**	081	5.5	077	10.8	7
0900	1.6	*****	**	080	5.7	082	10.2	71
1200	3.1	*****	**	063	5.6	068	8.9	76
1500	.9	*****	**	066	4.6	072	8.9	30
1800	.8	*****	**	021	3.4	015	5.7	14
2100	-2.5	*****	**	036	2.1	035	5.7	0
2400	-3.1	*****	**	038	1.8	036	5.7	0

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.4	*****	**	032	1.2	046	3.8	0
0600	-3.6	*****	**	040	.6	095	1.9	11
0900	.6	*****	**	034	1.2	027	1.9	51
1200	1.9	*****	**	316	.5	238	6.3	39
1500	2.4	*****	**	251	4.4	263	7.0	26
1800	1.3	*****	**	249	4.0	263	6.3	8
2100	.1	*****	**	269	1.4	240	4.4	1
2400	-.7	*****	**	271	1.3	252	3.2	0

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.6	*****	**	259	3.2	276	5.1	0
0600	-1.8	*****	**	241	2.1	246	4.4	12
0900	-2.0	*****	**	239	2.0	254	3.8	21
1200	.4	*****	**	269	1.4	304	3.8	32
1500	1.3	*****	**	272	2.4	255	5.7	30
1800	-.3	*****	**	214	4.1	207	7.0	8
2100	-2.5	*****	**	228	1.9	215	5.1	0
2400	-3.9	*****	**	259	.7	262	1.9	0

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.4	*****	**	070	.9	071	1.9	1
0600	-5.8	*****	**	078	1.9	082	4.4	15
0900	-1.2	*****	**	046	1.2	020	2.5	50
1200	.1	*****	**	002	1.6	340	3.2	43
1500	-1.2	*****	**	340	2.2	311	4.4	34
1800	-2.3	*****	**	350	1.3	353	3.2	6
2100	-3.0	*****	**	290	.7	265	1.9	1
2400	-4.2	*****	**	063	.8	089	1.9	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.5	*****	**	051	1.6	075	3.2	0
0600	-3.1	*****	**	052	2.5	074	5.7	13
0900	-.8	*****	**	068	4.8	073	7.0	53
1200	1.8	*****	**	067	5.1	072	8.3	68
1500	1.7	*****	**	065	5.6	069	8.3	34
1800	-.2	*****	**	055	4.1	065	7.6	7
2100	-.2	*****	**	038	3.2	039	5.1	1
2400	-.4	*****	**	046	3.9	064	6.3	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.3	*****	**	053	4.1	064	7.6	1
0600	.1	*****	**	066	5.9	071	9.5	14
0900	2.9	*****	**	073	6.1	077	10.8	50
1200	5.4	*****	**	107	4.4	117	8.9	71
1500	3.3	*****	**	214	2.3	272	7.6	33
1800	-.9	*****	**	239	4.3	232	8.9	7
2100	-2.6	*****	**	241	2.2	219	7.0	0
2400	-3.3	*****	**	256	1.6	269	3.8	0

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.3	*****	**	273	.9	255	2.5	1
0600	-4.7	*****	**	020	1.3	351	2.5	16
0900	-.1	*****	**	050	2.9	055	5.7	41
1200	1.2	*****	**	023	3.6	011	6.3	81
1500	1.3	*****	**	036	4.2	013	7.6	54
1800	.1	*****	**	072	4.3	079	7.6	13
2100	-.3	*****	**	052	2.5	074	5.1	0
2400	-1.1	*****	**	059	3.0	057	4.4	0

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.1	*****	**	061	3.5	073	5.7	1
0600	-.3	*****	**	057	3.1	059	5.1	9
0900	2.6	*****	**	052	2.7	045	5.7	40
1200	4.8	*****	**	059	5.3	093	10.2	49
1500	5.4	*****	**	074	4.2	096	8.9	43
1800	3.7	*****	**	060	2.6	053	5.1	7
2100	2.1	*****	**	047	3.2	076	7.0	0
2400	2.6	*****	**	044	3.5	050	6.3	1

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DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.9	*****	**	076	5.1	071	7.6	1
0600	2.0	*****	**	073	2.8	079	5.7	25
0900	3.6	*****	**	053	3.5	064	6.3	48
1200	3.3	*****	**	352	2.2	335	5.1	52
1500	3.8	*****	**	034	1.9	035	3.2	29
1800	1.1	*****	**	238	2.5	236	8.3	9
2100	-.8	*****	**	222	2.1	240	5.1	0
2400	-1.6	*****	**	241	2.3	233	3.8	0

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.2	*****	**	238	3.0	236	5.1	1
0600	-1.3	*****	**	250	2.7	250	3.8	15
0900	1.6	*****	**	235	3.5	243	5.7	57
1200	1.9	*****	**	255	3.0	228	5.7	30
1500	4.0	*****	**	236	1.6	247	3.8	45
1800	1.8	*****	**	337	1.0	341	2.5	17
2100	-3.8	*****	**	344	2.2	336	3.2	1
2400	-5.7	*****	**	348	2.3	346	3.8	1

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.8	*****	**	359	1.8	344	3.2	1
0600	-4.6	*****	**	025	1.3	005	1.9	21
0900	.8	*****	**	026	.9	051	1.9	59
1200	2.8	*****	**	004	1.7	002	3.2	72
1500	3.1	*****	**	003	3.0	000	4.4	52
1800	.1	*****	**	019	3.1	019	4.4	11
2100	-2.9	*****	**	017	2.8	023	4.4	0
2400	-5.0	*****	**	020	1.8	021	3.2	0

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MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING April, 1982

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	-11.1	-16.8	-14.0	019	4.1	4.4	021	9.5	NNE	**	*****	0.0	4455	1
2	-12.1	-19.8	-16.0	045	4.5	4.7	051	9.5	NE	**	*****	0.0	4583	2
3	-7.7	-21.2	-14.5	068	4.6	4.8	077	9.5	ENE	**	*****	0.0	4663	3
4	-3.9	-14.3	-9.1	049	3.6	3.8	063	9.5	NE	**	*****	0.0	4308	4
5	-.5	-13.9	-7.2	015	1.5	1.7	350	3.8	N	**	*****	0.0	4520	5
6	1.9	-7.1	-2.6	044	1.7	2.2	067	7.0	NE	**	*****	0.0	4310	6
7	2.1	-7.7	-2.8	279	2.1	3.1	240	10.8	WSW	**	*****	1.2	2940	7
8	.8	-9.1	-4.2	039	1.1	2.5	076	8.3	NE	**	*****	3.8	2285	8
9	6.8	-10.1	-1.7	013	1.2	1.6	281	4.4	NE	**	*****	0.0	5603	9
10	-2.8	-13.4	-8.1	059	3.0	3.3	071	7.6	ENE	**	*****	0.0	4773	10
11	-2.7	-9.9	-6.3	036	3.7	4.1	084	8.3	NNE	**	*****	0.0	******	11
12	-3.1	-10.9	-7.0	021	4.0	4.5	010	8.9	NNE	**	*****	0.0	5008	12
13	1.6	-8.6	-3.5	060	2.2	2.7	071	7.6	ENE	**	*****	0.0	4273	13
14	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	14
15	-1.7	-6.9	-4.3	037	3.0	3.2	012	5.1	NNE	**	*****	0.0	240	15
16	2.3	-8.8	-3.3	045	2.4	2.7	053	5.7	NNE	**	*****	0.0	5325	16
17	-1.0	-9.9	-5.5	006	1.9	2.0	359	4.4	NNE	**	*****	0.0	5240	17
18	-2.9	-13.3	-8.1	283	1.4	3.4	232	6.9	W	**	*****	0.0	4855	18
19	-2.5	-14.9	-8.7	044	4.2	4.4	027	8.9	NE	**	*****	0.0	4453	19
20	4.2	-6.5	-1.2	058	3.9	4.3	077	10.8	ENE	**	*****	0.0	5868	20
21	4.5	-4.8	-.2	270	1.2	2.1	263	7.0	WSW	**	*****	0.0	4420	21
22	3.2	-3.9	-.4	244	2.1	2.4	207	7.0	WSW	**	*****	0.0	4345	22
23	3.4	-6.6	-1.6	022	1.0	1.4	082	4.4	ENE	**	*****	.2	4863	23
24	1.8	-4.7	-1.5	057	3.8	3.9	072	8.3	ENE	**	*****	0.0	5125	24
25	5.5	-3.6	1.0	091	1.3	4.2	077	10.8	ENE	**	*****	1.4	5340	25
26	1.9	-6.3	-2.2	045	2.5	3.0	013	7.6	ENE	**	*****	.2	6258	26
27	5.6	-1.2	2.2	057	3.5	3.7	093	10.2	NE	**	*****	0.0	4660	27
28	5.0	-1.6	1.7	055	.9	3.0	236	8.3	ENE	**	*****	0.0	5250	28
29	5.6	-5.7	-.1	266	1.7	2.4	243	5.7	WSW	**	*****	.4	5380	29
30	3.3	-6.4	-1.6	013	2.0	2.1	000	4.4	NNE	**	*****	0.0	6130	30
MONTH	6.8	-21.2	-4.5	038	1.9	3.2	240	10.8	NNE	**	*****	7.2	129469	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 5.7
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 8.3
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 10.8
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 9.5

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

**** SEE NOTES AT THE BACK OF THIS REPORT ****

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING April, 1982

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.37	7.15	2.11	.56	0.00	0.00	0.00	10.19
NNE	.48	8.49	10.04	1.22	0.00	0.00	0.00	20.24
NE	.85	6.82	9.86	1.04	0.00	0.00	0.00	18.57
ENE	1.00	5.78	11.38	1.74	0.00	0.00	0.00	19.90
E	.56	2.63	1.96	.78	0.00	0.00	0.00	5.93
ESE	.07	.67	.41	.11	0.00	0.00	0.00	1.26
SE	.04	.37	.26	0.00	0.00	0.00	0.00	.67
SSE	.04	.22	0.00	0.00	0.00	0.00	0.00	.26
S	.15	.15	0.00	0.00	0.00	0.00	0.00	.30
SSW	.11	.30	.30	0.00	0.00	0.00	0.00	.70
SW	.15	1.70	1.56	.26	0.00	0.00	0.00	3.67
WSW	.33	3.41	2.37	.37	0.00	0.00	0.00	6.49
W	.22	1.67	1.37	.30	0.00	0.00	0.00	3.56
WNW	.52	1.48	.33	0.00	0.00	0.00	0.00	2.34
NW	.33	.96	.11	0.00	0.00	0.00	0.00	1.41
NNW	.48	3.82	.22	0.00	0.00	0.00	0.00	4.52
CALM								0.00
TOTAL	5.71	45.63	42.29	6.38	0.00	0.00	0.00	100.00

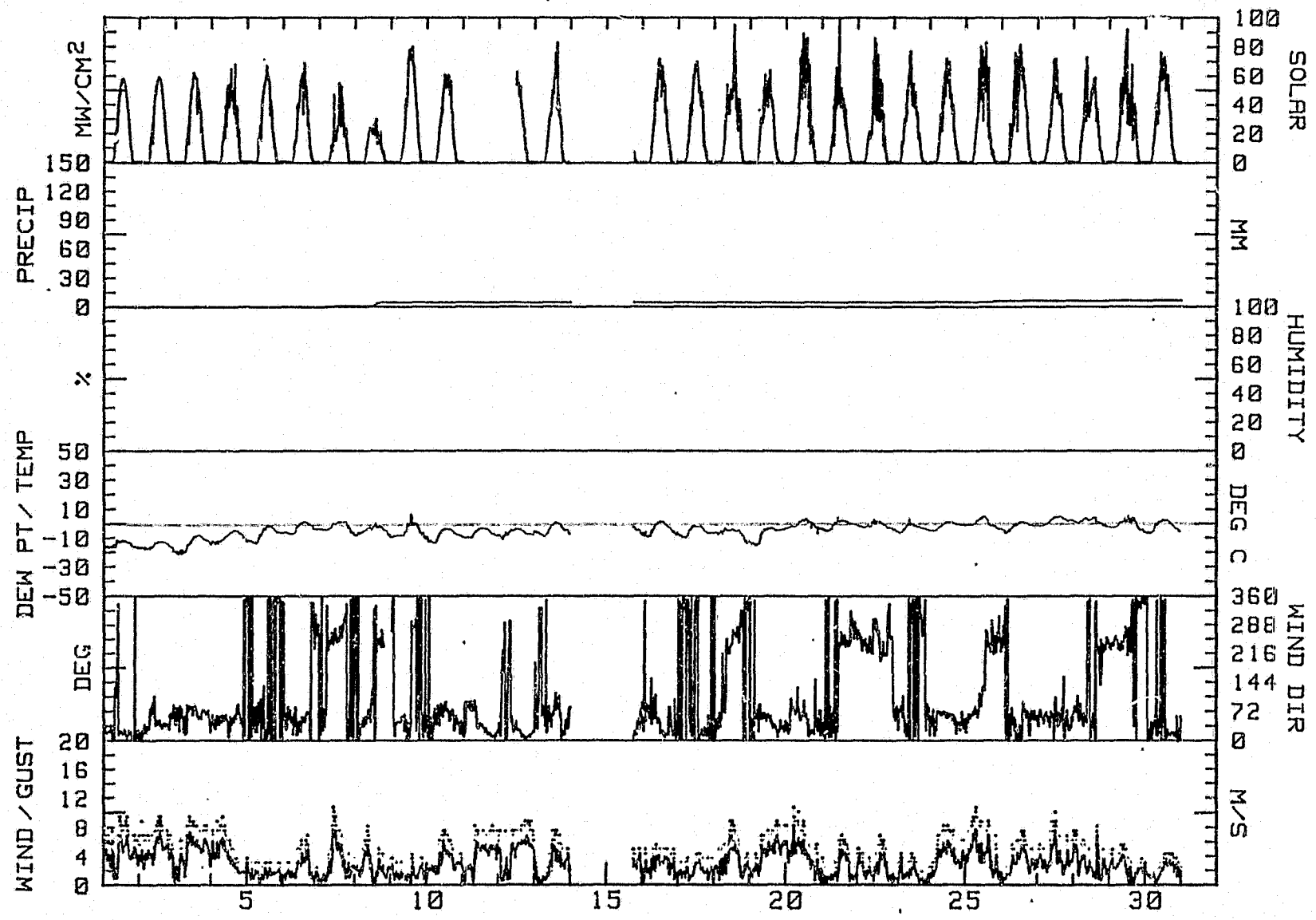
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2698 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

April, 1982

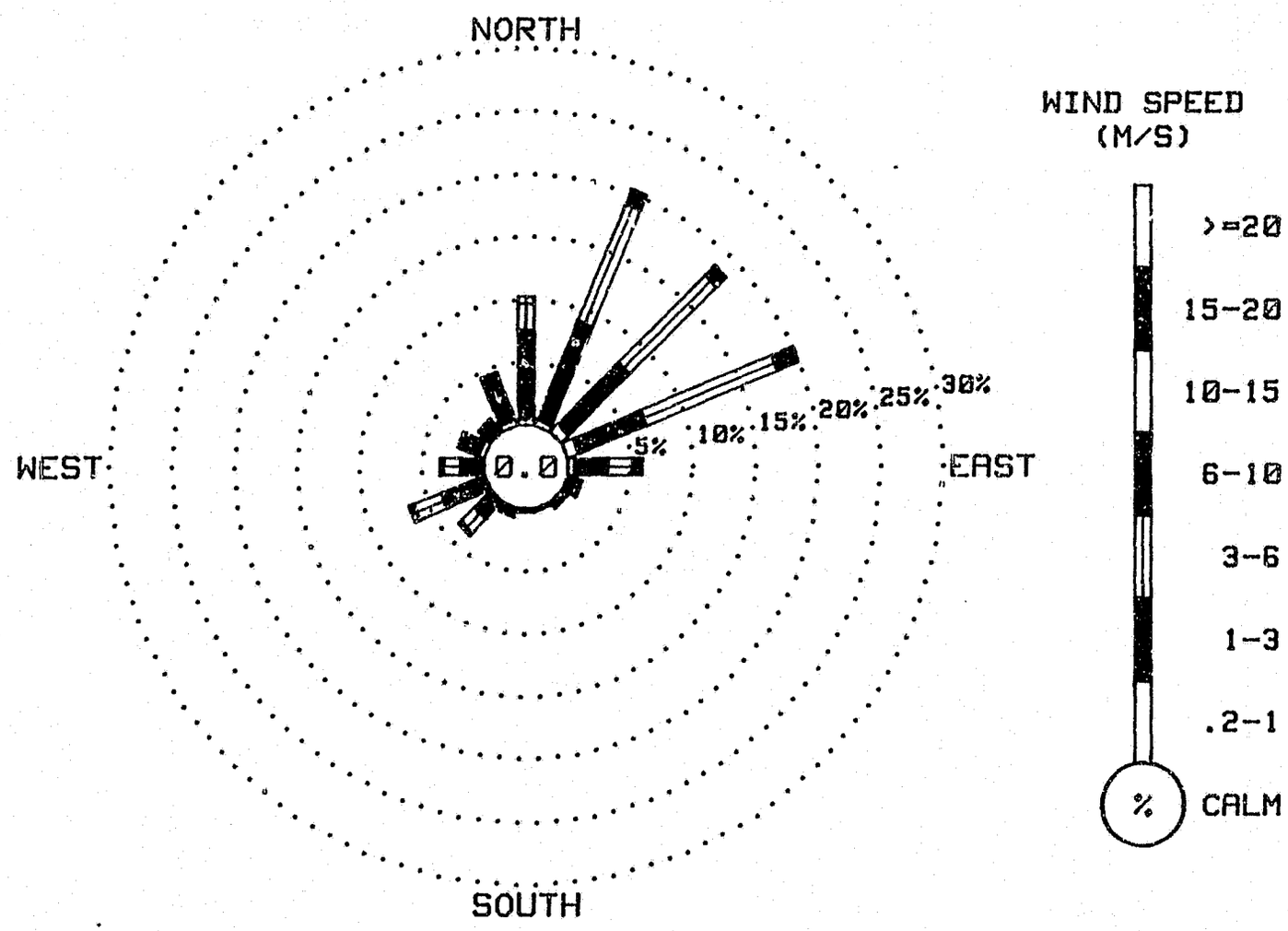


R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

April, 1982



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING May, 1982

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.8	.2	.2	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	0.0	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
9	.2	0.0	.2	.2	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
10	0.0	0.0	0.0	[illegible]	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.6	1.0	1.0	.8	10
11	.8	.6	1.4	[illegible]	1.6	1.2	.6	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	0.0	0.0	0.0	0.0	0.0	0.0	.2	.6	18
19	.4	.4	1.4	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.6	.6	1.8	2.4	.2	.2	.2	0.0	.4	.2	0.0	0.0	0.0	0.0	0.0	20
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.6	.4	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25
26	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	.4	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING May, 1982

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.4	*****	**	019	1.9	014	3.2	1
0600	-4.7	*****	**	011	1.5	024	2.5	27
0900	0.0	*****	**	012	1.3	001	2.5	64
1200	2.6	*****	**	348	1.9	318	3.8	77
1500	2.7	*****	**	359	2.2	347	3.8	16
1800	.7	*****	**	019	1.5	324	5.1	6
2100	-2.5	*****	**	331	1.5	307	4.4	1
2400	-2.4	*****	**	349	.7	347	2.5	1

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.6	*****	**	082	1.0	071	1.9	0
0600	-2.5	*****	**	025	1.1	031	2.5	29
0900	1.5	*****	**	005	1.6	002	3.2	73
1200	2.4	*****	**	015	2.5	008	3.8	79
1500	1.7	*****	**	023	3.0	016	4.4	57
1800	0.0	*****	**	024	3.7	021	5.7	21
2100	-3.5	*****	**	016	3.2	022	5.7	1
2400	-5.6	*****	**	011	2.5	004	5.7	1

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.6	*****	**	014	1.7	007	5.1	1
0600	-4.0	*****	**	063	1.3	013	3.8	34
0900	.4	*****	**	049	1.9	022	4.4	***
1200	2.1	*****	**	013	3.3	007	5.1	***
1500	1.9	*****	**	001	3.3	002	5.1	***
1800	-1.2	*****	**	235	.6	180	4.4	***
2100	-2.5	*****	**	114	1.2	111	1.9	***
2400	-5.0	*****	**	097	1.7	081	2.5	***

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.4	*****	**	077	1.4	010	3.2	***
0600	-4.0	*****	**	001	2.2	000	3.2	***
0900	1.5	*****	**	032	.7	347	1.9	***
1200	2.3	*****	**	351	.6	327	3.2	***
1500	-7.1	*****	**	058	1.5	082	3.8	***
1800	-9.3	*****	**	082	3.4	098	5.1	***
2100	-20.0	*****	**	089	3.3	072	5.1	***
2400	-23.2	*****	**	093	2.7	089	5.1	***

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-27.2	*****	**	088	1.2	059	3.8	***
0600	-2.1	*****	**	003	2.3	001	3.2	***
0900	1.3	*****	**	047	4.1	040	6.3	***
1200	3.3	*****	**	059	3.9	048	6.3	***
1500	4.0	*****	**	067	4.2	071	6.3	***
1800	2.6	*****	**	029	4.2	028	6.3	***
2100	.6	*****	**	030	3.8	028	6.3	***
2400	-.1	*****	**	032	2.7	026	4.4	***

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.0	*****	**	011	2.0	014	3.8	***
0600	2.8	*****	**	054	1.8	068	5.7	***
0900	5.1	*****	**	065	4.6	065	6.3	***
1200	-3.3	*****	**	087	3.8	074	6.3	***
1500	7.0	*****	**	007	2.3	045	4.4	***
1800	4.3	*****	**	006	1.7	025	3.2	***
2100	2.1	*****	**	349	2.0	001	3.2	***
2400	2.6	*****	**	302	.6	348	2.5	***

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.6	*****	**	258	2.1	258	3.2	***
0600	3.5	*****	**	250	1.4	257	2.5	***
0900	6.8	*****	**	286	.2	281	1.3	***
1200	6.2	*****	**	017	.8	002	2.5	***
1500	7.0	*****	**	302	1.3	286	3.2	***
1800	4.9	*****	**	274	.9	293	2.5	***
2100	2.5	*****	**	246	1.9	241	3.2	***
2400	1.1	*****	**	244	3.1	230	5.7	***

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.4	*****	**	238	3.4	243	5.1	***
0600	1.9	*****	**	250	2.5	259	4.4	***
0900	4.1	*****	**	233	3.2	236	5.7	***
1200	5.0	*****	**	278	1.6	293	3.8	***
1500	5.3	*****	**	319	1.2	276	3.8	***
1800	3.8	*****	**	006	1.6	026	2.5	***
2100	3.3	*****	**	025	2.0	032	3.8	***
2400	.2	*****	**	120	.6	074	5.7	***

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.1	*****	**	282	.8	257	2.5	***
0600	3.4	*****	**	314	.2	340	1.9	***
0900	4.1	*****	**	071	3.1	065	5.7	***
1200	5.9	*****	**	060	2.9	067	5.1	***
1500	5.3	*****	**	054	1.9	056	4.4	***
1800	3.0	*****	**	310	1.2	077	3.2	***
2100	1.8	*****	**	265	1.3	249	2.5	***
2400	1.4	*****	**	298	.9	295	1.9	***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING May, 1982

DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.0	*****	**	294	.4	359	1.9	***
0600	2.3	*****	**	347	.4	321	1.3	***
0900	5.5	*****	**	203	.1	344	1.9	***
1200	7.2	*****	**	001	1.1	356	3.2	***
1500	7.7	*****	**	290	.4	220	3.2	***
1800	4.2	*****	**	044	1.1	064	3.8	***
2100	2.1	*****	**	074	1.2	056	2.5	***
2400	-.1	*****	**	233	2.7	236	5.1	***

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.6	*****	**	236	2.7	236	4.4	1
0600	.4	*****	**	241	1.1	237	1.9	13
0900	1.8	*****	**	232	2.8	239	4.4	38
1200	2.7	*****	**	257	3.9	251	6.3	45
1500	2.8	*****	**	265	4.0	280	6.3	45
1800	3.6	*****	**	273	3.3	264	5.7	35
2100	.1	*****	**	255	2.6	245	5.1	1
2400	-1.3	*****	**	248	1.8	265	3.2	0

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.8	*****	**	252	1.7	231	2.5	1
0600	-.2	*****	**	255	1.7	246	3.2	16
0900	2.6	*****	**	236	2.3	249	5.7	44
1200	3.8	*****	**	235	2.6	236	5.1	32
1500	5.2	*****	**	300	2.3	319	4.4	42
1800	3.8	*****	**	282	2.1	268	4.4	13
2100	.8	*****	**	263	1.3	263	3.2	1
2400	-.7	*****	**	253	2.0	238	3.8	0

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.9	*****	**	278	1.7	260	3.8	1
0600	0.0	*****	**	275	1.7	006	3.8	19
0900	2.2	*****	**	242	2.9	236	6.3	32
1200	3.6	*****	**	228	3.0	224	5.7	53
1500	4.3	*****	**	268	2.0	251	4.4	37
1800	3.7	*****	**	295	1.8	304	4.4	18
2100	.4	*****	**	326	1.4	302	2.5	1
2400	-1.6	*****	**	301	1.2	350	2.5	0

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.1	*****	**	302	1.0	283	2.5	1
0600	1.2	*****	**	270	1.6	249	3.2	35
0900	3.7	*****	**	240	3.1	239	5.1	71
1200	4.9	*****	**	244	2.7	246	4.4	38
1500	6.3	*****	**	298	2.4	297	4.4	69
1800	5.5	*****	**	300	2.8	290	4.4	26
2100	2.4	*****	**	305	1.7	290	3.8	1
2400	-.3	*****	**	348	1.7	348	2.5	0

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.8	*****	**	347	1.7	344	2.5	1
0600	4.1	*****	**	355	1.4	356	2.5	33
0900	4.9	*****	**	243	1.8	241	4.4	64
1200	6.0	*****	**	241	2.5	230	4.4	28
1500	6.4	*****	**	301	2.4	283	4.4	24
1800	6.5	*****	**	298	3.2	290	5.1	26
2100	3.4	*****	**	308	1.4	302	3.2	1
2400	-.9	*****	**	356	2.3	353	3.8	1

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.3	*****	**	344	2.0	346	3.2	1
0600	1.4	*****	**	015	1.3	357	2.5	33
0900	6.0	*****	**	022	.5	003	1.9	71
1200	6.8	*****	**	016	2.7	015	5.7	48
1500	7.3	*****	**	015	3.6	010	5.7	68
1800	6.0	*****	**	017	4.3	013	6.3	10
2100	2.6	*****	**	018	3.1	017	5.7	1
2400	1.9	*****	**	020	1.8	020	4.4	1

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.2	*****	**	003	1.4	342	3.2	1
0600	2.4	*****	**	026	2.4	026	4.4	15
0900	5.7	*****	**	079	3.8	099	7.0	55
1200	6.8	*****	**	091	2.9	081	5.7	39
1500	5.4	*****	**	011	3.8	358	7.0	63
1800	4.6	*****	**	014	3.9	012	6.3	19
2100	2.9	*****	**	023	2.8	008	5.1	1
2400	.1	*****	**	275	1.5	001	3.2	1

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.1	*****	**	275	.5	252	2.5	1
0600	.7	*****	**	359	.8	355	1.9	20
0900	3.9	*****	**	013	.5	293	2.5	30
1200	5.9	*****	**	094	2.0	125	5.7	44
1500	3.6	*****	**	201	1.1	145	6.3	18
1800	3.1	*****	**	295	2.4	287	5.7	13
2100	1.5	*****	**	189	1.7	167	3.8	1
2400	-.1	*****	**	225	1.7	217	5.7	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.8	*****	**	224	1.3	228	3.8	1
0600	.6	*****	**	069	1.0	058	2.5	18
0900	3.7	*****	**	061	2.5	063	5.1	32
1200	6.7	*****	**	084	3.7	042	7.6	80
1500	7.8	*****	**	094	2.8	109	7.6	68
1800	6.0	*****	**	014	3.7	031	8.3	26
2100	1.8	*****	**	014	2.9	021	5.1	1
2400	.9	*****	**	309	2.0	352	3.8	0

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.6	*****	**	320	1.2	296	2.5	2
0600	1.0	*****	**	079	.9	091	3.2	17
0900	2.2	*****	**	090	2.4	088	6.3	18
1200	1.3	*****	**	122	1.0	076	3.2	22
1500	2.7	*****	**	228	3.0	219	7.0	32
1800	1.3	*****	**	231	4.6	225	7.0	8
2100	.8	*****	**	247	1.6	239	5.7	1
2400	.1	*****	**	062	1.1	105	2.5	1

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.5	*****	**	335	.7	268	1.9	2
0600	.9	*****	**	216	.2	234	3.2	15
0900	3.5	*****	**	237	1.6	234	4.4	35
1200	4.7	*****	**	294	1.8	284	4.4	58
1500	6.7	*****	**	313	1.6	000	4.4	68
1800	6.3	*****	**	298	2.1	243	5.1	27
2100	.9	*****	**	347	2.2	333	3.8	1
2400	-2.0	*****	**	350	2.1	335	3.2	1

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.3	*****	**	353	2.5	013	3.8	2
0600	2.3	*****	**	032	1.0	347	3.2	38
0900	6.8	*****	**	009	.8	011	3.2	75
1200	9.3	*****	**	331	1.2	231	4.4	96
1500	9.0	*****	**	338	2.1	013	6.3	75
1800	7.7	*****	**	036	2.8	020	6.3	26
2100	3.0	*****	**	043	2.5	027	4.4	1
2400	.1	*****	**	036	2.0	047	3.8	0

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.7	*****	**	039	2.5	039	4.4	3
0600	4.7	*****	**	035	2.7	054	5.7	37
0900	7.7	*****	**	085	3.5	089	6.3	85
1200	8.9	*****	**	096	3.4	109	7.0	38
1500	9.9	*****	**	022	3.2	077	5.7	63
1800	9.3	*****	**	017	4.1	015	7.0	21
2100	5.7	*****	**	026	2.6	023	4.4	1
2400	4.2	*****	**	020	2.0	024	4.4	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.2	*****	**	037	1.8	062	5.1	2
0600	4.7	*****	**	259	1.1	234	4.4	27
0900	5.8	*****	**	219	4.1	217	6.3	73
1200	7.2	*****	**	224	5.0	218	8.3	31
1500	8.9	*****	**	238	4.0	233	8.3	52
1800	4.6	*****	**	231	6.5	231	10.2	15
2100	3.1	*****	**	242	3.8	238	8.3	1
2400	2.1	*****	**	263	2.0	247	5.7	0

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.9	*****	**	092	2.1	037	3.8	3
0600	4.5	*****	**	152	1.1	125	2.5	24
0900	5.6	*****	**	188	2.3	148	5.1	53
1200	7.1	*****	**	240	2.9	261	7.0	44
1500	4.7	*****	**	226	3.6	239	7.0	36
1800	4.8	*****	**	244	2.4	245	5.1	12
2100	3.1	*****	**	264	.9	247	4.4	1
2400	1.9	*****	**	039	1.1	080	2.5	0

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.5	*****	**	083	1.1	058	2.5	2
0600	2.4	*****	**	080	.8	086	1.9	22
0900	5.1	*****	**	135	.8	110	2.5	28
1200	7.6	*****	**	240	2.3	242	6.3	76
1500	7.4	*****	**	256	3.4	241	5.7	41
1800	6.4	*****	**	245	3.3	244	6.3	11
2100	4.4	*****	**	236	2.0	255	4.4	1
2400	3.2	*****	**	264	.5	222	2.5	1

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.3	*****	**	008	2.3	000	5.7	1
0600	5.0	*****	**	073	1.6	088	7.0	10
0900	8.1	*****	**	231	2.3	246	5.1	78
1200	10.0	*****	**	227	3.6	232	7.0	99
1500	10.0	*****	**	309	2.4	355	7.0	54
1800	5.2	*****	**	256	5.7	246	9.5	9
2100	3.7	*****	**	258	4.4	256	7.6	1
2400	2.7	*****	**	229	1.8	249	3.8	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
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DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.2	*****	**	319	.3	236	3.2	3
0600	2.2	*****	**	204	1.4	192	3.2	8
0900	3.5	*****	**	209	2.7	214	6.3	55
1200	4.7	*****	**	221	5.3	219	8.9	27
1500	5.9	*****	**	247	4.5	230	8.3	44
1800	*****	*****	**	232	4.0	241	7.6	13
2100	*****	*****	**	***	****	***	****	1
2400	*****	*****	**	***	****	***	****	0

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	1
0600	*****	*****	**	239	1.1	240	2.5	18
0900	*****	*****	**	***	****	***	****	79
1200	*****	*****	**	***	****	***	****	48
1500	*****	*****	**	***	****	***	****	26
1800	5.0	*****	**	267	3.5	262	5.7	7
2100	3.2	*****	**	247	2.2	255	4.4	1
2400	1.8	*****	**	221	1.9	225	3.2	0

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.4	*****	**	237	2.2	224	3.8	2
0600	*****	*****	**	256	1.9	255	2.5	21
0900	6.0	*****	**	251	3.4	281	5.7	47
1200	9.3	*****	**	239	3.1	258	6.3	97
1500	*****	*****	**	248	2.8	245	6.3	65
1800	10.1	*****	**	328	3.5	325	5.7	24
2100	5.5	*****	**	339	2.3	327	4.4	1
2400	*****	*****	**	354	1.5	359	3.2	0

DAY 31

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.3	*****	**	028	1.4	018	2.5	4
0600	6.8	*****	**	088	1.5	102	3.8	38
0900	11.9	*****	**	028	3.9	033	6.3	76
1200	13.2	*****	**	015	4.0	023	6.3	89
1500	15.3	*****	**	020	3.4	024	7.0	68
1800	14.5	*****	**	007	3.1	022	5.1	29
2100	8.2	*****	**	347	2.9	339	5.1	2
2400	3.3	*****	**	003	2.5	019	3.8	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING May, 1982

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	3.8	-8.4	-2.3	002	1.5	1.7	324	5.1	N	**	*****	0.0	6580	1
2	3.0	-5.6	-1.3	021	2.3	2.4	021	5.7	NNE	**	*****	0.0	7343	2
3	2.2	-8.1	-3.0	023	1.6	2.0	007	5.1	N	**	*****	1.2	2734	3
4	5.7	-23.2	-8.8	076	1.8	2.2	098	5.1	E	**	*****	.4	******	4
5	5.1	-27.2	-11.1	046	3.2	3.4	040	6.3	NNE	**	*****	0.0	******	5
6	7.3	-4.1	1.6	039	1.8	2.5	065	6.3	NNW	**	*****	0.0	******	6
7	9.1	1.1	5.1	261	1.2	1.5	230	5.7	WSW	**	*****	0.0	******	7
8	8.5	.2	4.4	267	1.1	2.3	236	5.7	WSW	**	*****	0.0	******	8
9	7.8	0.0	3.9	031	.7	1.7	065	5.7	ENE	**	*****	.8	******	9
10	9.6	-.1	4.8	325	.2	1.1	236	5.1	N	**	*****	3.6	******	10
11	3.6	-1.6	1.0	253	2.7	2.8	251	6.3	WSW	**	*****	7.4	5248	11
12	7.0	-2.1	2.5	259	1.8	2.1	249	5.7	WSW	**	*****	0.0	5863	12
13	5.1	-2.2	1.5	268	1.7	2.3	236	6.3	WSW	**	*****	0.0	5005	13
14	6.8	-4.1	1.4	282	1.8	2.2	239	5.1	WNW	**	*****	0.0	7178	14
15	7.5	-3.3	2.1	304	1.6	2.2	290	5.1	WNW	**	*****	0.0	7170	15
16	7.7	-3.8	2.0	013	2.4	2.6	013	6.3	NNE	**	*****	0.0	7838	16
17	7.5	.1	3.8	032	2.1	3.1	099	7.0	NNE	**	*****	0.0	6418	17
18	7.2	-.2	3.5	236	.4	2.0	145	6.3	SW	**	*****	1.2	4595	18
19	8.2	-.9	3.7	046	1.5	2.7	031	8.3	ENE	**	*****	2.4	7873	19
20	2.8	-1.0	.9	214	.7	2.1	219	7.0	SW	**	*****	6.6	3020	20
21	7.3	-2.3	2.5	312	1.3	1.8	243	5.1	NNW	**	*****	0.0	6038	21
22	9.5	-3.3	3.1	015	1.7	2.2	013	6.3	NNE	**	*****	0.0	7570	22
23	11.1	-.1	5.5	043	2.6	3.2	109	7.0	NNE	**	*****	0.0	7955	23
24	9.4	1.8	5.6	235	3.0	3.8	231	10.2	SW	**	*****	0.0	7360	24
25	7.1	.6	3.9	214	1.1	2.4	261	7.0	WSW	**	*****	1.2	4295	25
26	8.1	.2	4.2	238	1.1	1.9	242	6.3	WSW	**	*****	.2	5283	26
27	11.1	1.6	6.4	259	2.0	3.4	246	9.5	WSW	**	*****	0.0	5815	27
28	6.2	2.0	4.1	227	2.8	3.0	219	8.9	SW	**	*****	.8	4573	28
29	5.5	1.8	3.7	243	2.0	2.5	262	5.7	WSW	**	*****	0.0	4955	29
30	12.2	1.3	6.8	269	1.8	2.6	258	6.3	WSW	**	*****	0.0	7403	30
31	15.6	2.2	8.9	018	2.7	2.9	024	7.0	NNE	**	*****	0.0	9123	31
MONTH	15.6	-27.2	2.3	325	.6	2.4	231	10.2	WSW	**	*****	25.8	147231	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 9.5
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 8.9
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 9.5
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 8.9

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

**** SEE NOTES AT THE BACK OF THIS REPORT ****

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING May, 1982

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.97	8.57	2.67	0.00	0.00	0.00	0.00	12.21
NNE	.83	5.58	6.41	0.00	0.00	0.00	0.00	12.82
NE	.94	3.53	1.55	0.00	0.00	0.00	0.00	6.02
ENE	.97	3.39	2.77	0.00	0.00	0.00	0.00	7.13
E	.83	2.45	2.13	0.00	0.00	0.00	0.00	5.40
ESE	.40	1.98	.76	0.00	0.00	0.00	0.00	3.13
SE	.14	.50	.25	0.00	0.00	0.00	0.00	.90
SSE	.14	.36	.18	0.00	0.00	0.00	0.00	.68
S	.18	.72	.07	0.00	0.00	0.00	0.00	.97
SSW	.25	1.59	.50	0.00	0.00	0.00	0.00	2.34
SW	.36	4.47	4.57	.43	0.00	0.00	0.00	9.83
WSW	.65	8.36	5.37	.18	0.00	0.00	0.00	14.55
W	1.15	4.21	1.80	.04	0.00	0.00	0.00	7.20
WNW	.65	4.18	.86	0.00	0.00	0.00	0.00	5.69
NW	.68	2.81	.29	0.00	0.00	0.00	0.00	3.78
NNW	.83	5.40	.54	0.00	0.00	0.00	0.00	6.77
CALM								.54
TOTAL	9.98	58.11	30.73	.65	0.00	0.00	0.00	100.00

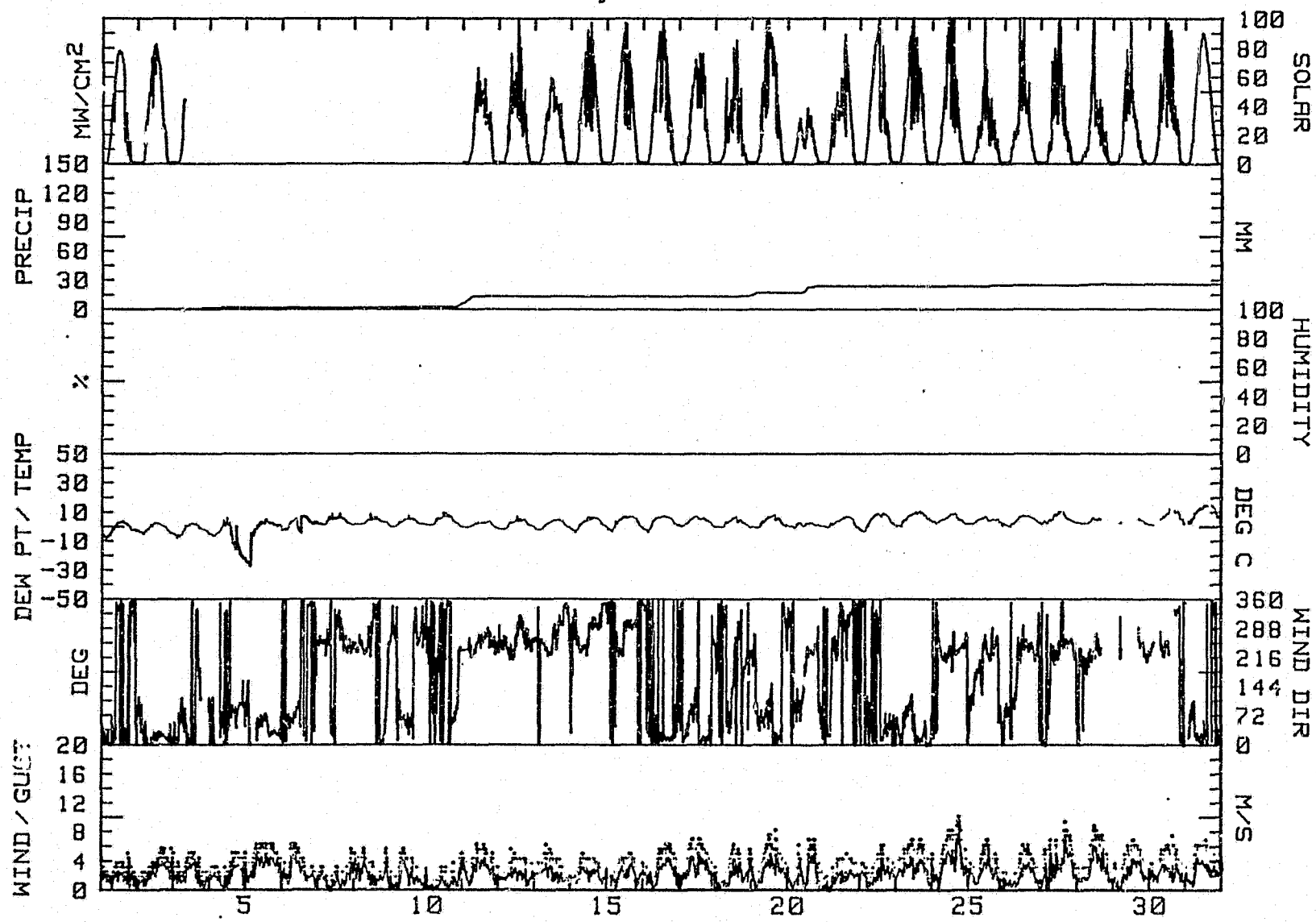
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2776 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

May, 1982



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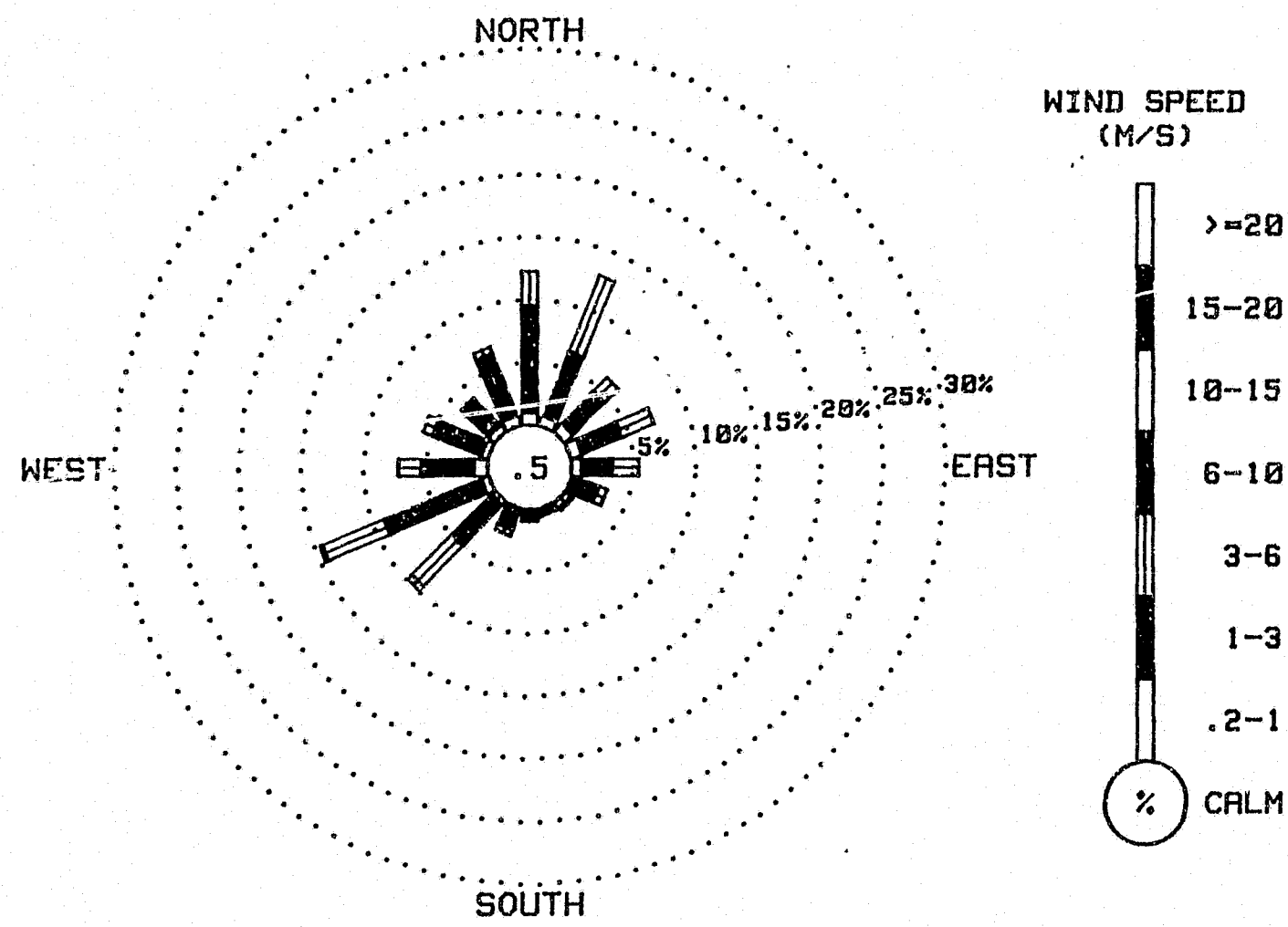


WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1982

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE
1	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
2	0.0	.4	1.0	1.0	1.2	1.2	.8	1.4	.8	1.2	.6	.6	.2	1.8	.8	1.6	1.6	3.4	.2	.2	0.0	0.0	0.0	0.0	2
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
6	0.0	0.0	.2	0.0	.2	0.0	.2	0.0	0.0	0.0	.2	1.2	.6	.6	.2	.2	.6	0.0	.2	0.0	0.0	0.0	0.0	0.0	6
7	0.0	0.0	0.0	.2	0.0	0.0	0.0	.2	.8	.2	.8	.2	0.0	.2	1.4	.6	.2	0.0	1.0	.6	0.0	0.0	0.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	.4	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	.8	.8	.2	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	12
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14
15	0.0	.2	1.6	1.8	1.6	1.6	.8	.4	1.0	1.2	2.0	.8	.4	.2	0.0	.2	0.0	0.0	.2	0.0	.6	.2	.4	.2	15
16	0.0	.6	.8	.4	.2	0.0	.2	0.0	.4	0.0	0.0	.4	0.0	.4	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.8	16
17	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.0	.4	1.0	.4	.2	0.0	0.0	0.0	0.0	0.0	18
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19
20	1.2	1.6	2.6	2.4	2.6	2.0	1.8	1.8	2.0	1.0	1.2	1.0	.6	.4	.2	.2	.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28
29	0.0	.4	.8	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	0.0	0.0	0.0	****	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.8	.4	.6	.8	30

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1982

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.9	*****	**	006	2.1	355	3.8	4
0600	7.5	*****	**	081	.7	010	2.5	40
0900	13.0	*****	**	187	.6	255	4.4	76
1200	15.3	*****	**	240	3.0	204	7.0	81
1500	14.9	*****	**	235	4.3	229	9.5	35
1800	12.5	*****	**	243	5.6	243	9.5	7
2100	9.3	*****	**	259	3.9	260	7.6	1
2400	7.6	*****	**	271	1.3	291	3.2	0

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.1	*****	**	254	1.6	249	5.1	1
0600	4.9	*****	**	076	.6	335	1.9	13
0900	3.8	*****	**	280	1.7	263	3.8	17
1200	4.0	*****	**	264	1.5	248	3.2	12
1500	4.8	*****	**	208	.5	281	2.5	11
1800	1.2	*****	**	100	1.0	151	5.1	6
2100	1.2	*****	**	279	.8	275	2.5	1
2400	1.2	*****	**	315	.5	213	1.9	0

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.9	*****	**	022	.5	305	2.5	1
0600	4.3	*****	**	011	.3	058	1.9	24
0900	6.7	*****	**	241	2.3	234	4.4	80
1200	8.8	*****	**	268	1.4	310	5.1	50
1500	10.3	*****	**	325	2.1	006	5.7	30
1800	10.3	*****	**	239	2.9	234	6.3	30
2100	5.7	*****	**	255	1.9	221	5.7	2
2400	1.8	*****	**	001	2.1	348	3.2	0

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	0.0	*****	**	013	1.9	034	3.2	3
0600	5.0	*****	**	076	1.2	036	2.5	40
0900	11.1	*****	**	102	1.9	097	3.8	57
1200	11.2	*****	**	233	2.2	253	6.3	48
1500	12.1	*****	**	233	3.1	233	7.0	76
1800	*****	*****	**	255	4.4	231	7.0	13
2100	6.1	*****	**	266	3.9	273	8.9	1
2400	4.3	*****	**	246	1.5	268	4.4	0

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.3	*****	**	236	.2	239	2.5	2
0600	5.6	*****	**	089	.7	069	1.9	10
0900	6.4	*****	**	248	2.1	253	4.4	15
1200	7.5	*****	**	236	3.5	243	5.7	49
1500	10.1	*****	**	239	2.8	250	7.0	38
1800	8.4	*****	**	240	3.5	248	6.3	11
2100	5.3	*****	**	236	2.4	243	4.4	1
2400	4.6	*****	**	259	.7	232	1.9	0

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.3	*****	**	336	.7	318	1.9	2
0600	7.3	*****	**	342	.5	018	2.5	19
0900	*****	*****	**	072	4.8	084	10.2	27
1200	11.2	*****	**	088	4.0	090	10.2	26
1500	*****	*****	**	272	2.1	272	3.8	21
1800	*****	*****	**	***	****	***	****	12
2100	*****	*****	**	***	****	***	****	1
2400	*****	*****	**	***	****	***	****	0

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.6	*****	**	235	2.3	261	3.8	1
0600	5.1	*****	**	250	.9	196	2.5	10
0900	5.9	*****	**	100	.1	357	1.9	14
1200	6.8	*****	**	237	.9	251	5.1	22
1500	6.3	*****	**	240	4.5	245	8.3	32
1800	6.8	*****	**	223	2.8	246	5.7	10
2100	5.1	*****	**	230	2.3	225	4.4	2
2400	3.4	*****	**	251	1.3	241	3.2	0

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.7	*****	**	358	.4	273	2.5	6
0600	5.5	*****	**	021	1.0	346	2.5	21
0900	10.1	*****	**	116	1.0	013	2.5	74
1200	12.5	*****	**	325	1.5	000	4.4	52
1500	13.6	*****	**	275	2.0	329	6.3	79
1800	12.5	*****	**	255	3.7	244	7.0	38
2100	7.3	*****	**	265	3.2	275	7.6	2
2400	4.3	*****	**	284	1.3	349	3.2	0

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.5	*****	**	357	1.7	348	2.5	4
0600	8.5	*****	**	080	1.4	060	3.8	17
0900	9.2	*****	**	066	3.4	077	5.7	29
1200	9.4	*****	**	069	4.2	018	7.6	34
1500	12.5	*****	**	071	3.4	077	5.7	33
1800	*****	*****	**	056	2.0	060	5.1	15
2100	*****	*****	**	***	****	***	****	1
2400	6.7	*****	**	018	2.8	020	4.4	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1982

DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	2
0600	*****	*****	**	***	****	***	****	48
0900	12.1	*****	**	139	4.9	149	9.5	38
1200	13.3	*****	**	135	3.0	146	8.3	48
1500	*****	*****	**	090	4.5	083	7.6	24
1800	*****	*****	**	***	****	***	****	14
2100	*****	*****	**	228	3.8	195	7.6	2
2400	*****	*****	**	***	****	***	****	0

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	3
0600	5.1	*****	**	034	.7	136	2.5	13
0900	10.0	*****	**	127	1.7	138	5.1	40
1200	10.9	*****	**	206	1.7	236	5.7	42
1500	*****	*****	**	250	2.2	257	5.1	19
1800	*****	*****	**	***	****	***	****	18
2100	*****	*****	**	***	****	***	****	1
2400	5.2	*****	**	298	.8	283	1.9	0

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.3	*****	**	250	.4	267	1.9	2
0600	6.1	*****	**	240	.6	252	1.9	14
0900	9.4	*****	**	221	1.5	234	5.1	84
1200	9.7	*****	**	221	2.7	232	5.7	62
1500	2.7	*****	**	249	3.9	219	14.6	3
1800	4.8	*****	**	258	2.9	273	8.3	15
2100	4.3	*****	**	181	1.0	187	2.5	2
2400	2.2	*****	**	074	1.0	123	1.9	0

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.4	*****	**	315	.3	264	2.5	3
0600	5.5	*****	**	086	.2	322	1.9	29
0900	7.6	*****	**	212	1.6	232	3.8	52
1200	9.6	*****	**	256	1.2	233	3.8	50
1500	*****	*****	**	231	1.5	276	4.4	24
1800	*****	*****	**	238	2.4	240	3.8	19
2100	*****	*****	**	***	****	***	****	3
2400	5.3	*****	**	268	1.8	263	2.5	0

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	259	1.5	234	3.2	3
0600	6.0	*****	**	267	1.6	236	4.4	27
0900	10.0	*****	**	225	3.9	229	6.3	61
1200	13.0	*****	**	150	2.2	078	6.3	85
1500	*****	*****	**	230	3.6	259	9.5	29
1800	*****	*****	**	***	****	***	****	13
2100	6.2	*****	**	240	5.5	264	7.6	1
2400	4.3	*****	**	238	5.4	287	8.3	0

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.3	*****	**	234	4.6	229	7.0	1
0600	.9	*****	**	228	4.4	225	7.0	7
0900	1.1	*****	**	235	3.8	240	6.3	12
1200	2.0	*****	**	233	4.2	236	6.3	21
1500	2.7	*****	**	233	4.6	241	7.0	20
1800	3.3	*****	**	233	5.2	234	7.6	8
2100	3.3	*****	**	239	4.6	240	6.3	2
2400	*****	*****	**	245	3.6	245	4.4	0

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	1
0600	*****	*****	**	***	****	***	****	8
0900	*****	*****	**	***	****	***	****	33
1200	*****	*****	**	***	****	***	****	68
1500	*****	*****	**	***	****	***	****	10
1800	*****	*****	**	***	****	***	****	15
2100	5.1	*****	**	244	3.1	243	5.7	1
2400	4.4	*****	**	248	2.7	227	5.7	0

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.0	*****	**	253	2.4	237	4.4	1
0600	5.4	*****	**	264	2.2	265	3.2	20
0900	8.3	*****	**	255	3.6	254	5.7	50
1200	*****	*****	**	253	3.2	320	6.3	111
1500	14.9	*****	**	234	2.2	259	5.7	77
1800	*****	*****	**	334	1.7	311	4.4	35
2100	*****	*****	**	***	****	***	****	3
2400	4.0	*****	**	008	1.2	357	2.5	0

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.2	*****	**	063	2.1	027	3.8	6
0600	6.7	*****	**	101	2.5	092	3.8	28
0900	9.4	*****	**	048	3.3	042	7.0	28
1200	10.7	*****	**	069	3.7	103	7.0	35
1500	7.1	*****	**	098	5.5	102	9.5	10
1800	7.8	*****	**	034	2.2	071	5.1	15
2100	7.1	*****	**	018	1.7	012	3.8	1
2400	5.6	*****	**	327	1.5	315	2.5	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1982

DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.4	*****	**	002	1.4	334	2.5	2
0600	6.5	*****	**	329	1.1	344	2.5	17
0900	10.3	*****	**	238	1.8	245	5.1	22
1200	*****	*****	**	188	1.5	172	3.8	117
1500	15.4	*****	**	255	2.2	211	7.6	76
1800	13.2	*****	**	112	.9	235	7.0	13
2100	10.0	*****	**	219	2.8	224	7.0	1
2400	*****	*****	**	249	4.2	256	8.9	0

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.1	*****	**	247	4.2	236	6.3	1
0600	1.5	*****	**	255	4.0	239	8.3	6
0900	2.6	*****	**	257	2.5	255	5.1	17
1200	3.4	*****	**	208	2.4	218	3.8	20
1500	6.0	*****	**	235	2.3	223	4.4	43
1800	6.1	*****	**	255	3.2	260	5.7	13
2100	4.6	*****	**	265	2.9	260	5.1	1
2400	3.8	*****	**	258	.5	269	2.5	0

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.7	*****	**	264	.6	296	1.9	1
0600	4.7	*****	**	244	1.6	235	3.2	16
0900	7.1	*****	**	242	2.9	249	5.1	37
1200	10.2	*****	**	260	1.9	273	5.1	53
1500	12.2	*****	**	244	3.1	240	7.6	68
1800	*****	*****	**	252	3.9	263	7.0	24
2100	*****	*****	**	***	****	***	****	2
2400	*****	*****	**	***	****	***	****	0

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.6	*****	**	287	.8	303	1.9	3
0600	6.8	*****	**	320	.6	311	1.9	16
0900	*****	*****	**	189	.6	151	1.9	53
1200	13.5	*****	**	044	1.2	059	3.2	46
1500	*****	*****	**	344	1.3	334	3.2	26
1800	*****	*****	**	***	****	***	****	27
2100	*****	*****	**	***	****	***	****	3
2400	7.6	*****	**	251	2.4	228	5.1	1

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.6	*****	**	272	1.2	280	2.5	7
0600	9.6	*****	**	236	1.7	222	3.8	36
0900	14.0	*****	**	252	1.3	232	3.8	66
1200	*****	*****	**	***	****	***	****	52
1500	*****	*****	**	215	1.9	215	3.8	62
1800	*****	*****	**	***	****	***	****	36
2100	*****	*****	**	***	****	***	****	3
2400	*****	*****	**	345	1.7	355	2.5	0

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.4	*****	**	349	2.3	348	3.2	5
0600	11.4	*****	**	062	1.0	358	3.2	38
0900	*****	*****	**	166	.5	231	2.5	75
1200	*****	*****	**	258	1.4	303	3.8	89
1500	*****	*****	**	***	****	***	****	80
1800	21.2	*****	**	308	4.1	308	5.7	36
2100	16.3	*****	**	297	2.3	295	5.7	3
2400	*****	*****	**	341	2.3	351	3.8	0

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.5	*****	**	019	1.4	019	2.5	5
0600	12.9	*****	**	037	1.0	356	3.2	36
0900	*****	*****	**	121	1.2	119	2.5	75
1200	*****	*****	**	101	1.8	127	5.1	27
1500	*****	*****	**	028	1.6	028	3.2	88
1800	*****	*****	**	***	****	***	****	27
2100	*****	*****	**	***	****	***	****	3
2400	9.1	*****	**	341	2.2	340	3.8	0

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	358	2.2	352	3.2	5
0600	*****	*****	**	***	****	***	****	24
0900	*****	*****	**	***	****	***	****	58
1200	21.4	*****	**	138	1.0	047	3.8	40
1500	22.8	*****	**	302	1.6	295	5.1	30
1800	*****	*****	**	239	4.5	228	8.9	35
2100	*****	*****	**	***	****	***	****	2
2400	9.4	*****	**	344	2.6	349	3.8	0

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.8	*****	**	356	2.4	338	3.2	4
0600	10.8	*****	**	077	1.5	093	3.2	36
0900	19.8	*****	**	085	3.5	086	7.0	76
1200	22.5	*****	**	082	3.6	097	7.6	87
1500	*****	*****	**	091	4.6	087	8.3	26
1800	16.9	*****	**	252	4.4	349	8.9	21
2100	12.7	*****	**	178	.4	219	5.7	1
2400	14.6	*****	**	073	3.5	092	9.5	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1982

DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	060	6.2	038	10.2	2
0600	13.1	*****	**	064	.7	351	2.5	38
0900	15.2	*****	**	214	2.3	227	6.3	36
1200	16.5	*****	**	244	5.5	251	8.9	107
1500	*****	*****	**	226	6.3	228	9.5	25
1800	*****	*****	**	***	****	***	****	7
2100	*****	*****	**	***	****	***	****	1
2400	*****	*****	**	***	****	***	****	0

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	1
0600	*****	*****	**	***	****	***	****	10
0900	9.1	*****	**	280	1.2	264	3.2	61
1200	11.2	*****	**	113	1.0	148	3.2	41
1500	13.7	*****	**	237	.3	121	5.1	79
1800	14.8	*****	**	273	.6	289	3.2	41
2100	12.7	*****	**	349	.6	279	3.2	4
2400	9.1	*****	**	103	2.8	133	8.3	1

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.4	*****	**	020	1.7	051	4.4	3
0600	9.9	*****	**	068	2.7	078	5.7	11
0900	10.8	*****	**	078	5.6	086	9.5	21
1200	13.3	*****	**	095	5.3	120	8.9	53
1500	12.6	*****	**	095	5.2	102	10.8	21
1800	13.1	*****	**	091	5.5	090	9.5	13
2100	6.8	*****	**	264	2.6	247	9.5	2
2400	6.0	*****	**	312	.9	302	2.5	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1982

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	16.3	1.5	8.9	250	2.1	2.9	229	9.5	WSW	**	*****	0.0	7525	1
2	7.5	.8	4.2	267	.6	1.4	249	5.1	WSW	**	*****	20.0	1635	2
3	11.0	.9	6.0	289	1.0	2.2	234	6.3	WSW	**	*****	0.0	6625	3
4	12.8	-.5	6.2	252	1.3	2.7	273	8.9	WSW	**	*****	0.0	7258	4
5	10.6	3.3	7.0	239	1.8	2.1	250	7.0	WSW	**	*****	0.0	4078	5
6	11.4	4.1	7.8	069	1.9	3.1	084	10.2	E	**	*****	4.4	3715	6
7	7.6	3.4	5.5	236	1.8	2.3	245	8.3	WSW	**	*****	6.4	2380	7
8	14.6	1.7	8.2	276	1.2	2.1	275	7.6	WSW	**	*****	0.0	7078	8
9	13.2	3.0	8.1	061	2.5	2.6	018	7.6	ENE	**	*****	1.0	4090	9
10	14.4	6.7	10.6	138	2.7	4.1	149	9.5	E	**	*****	0.0	4028	10
11	11.8	3.4	7.6	183	.4	2.0	236	5.7	SE	**	*****	0.0	3965	11
12	11.9	1.8	6.9	235	1.4	2.2	219	14.6	WSW	**	*****	2.2	5453	12
13	10.0	1.1	5.6	240	.9	1.6	276	4.4	W	**	*****	0.0	5478	13
14	14.6	1.5	8.1	229	2.7	3.7	259	9.5	SW	**	*****	0.0	6718	14
15	4.1	.8	2.5	234	4.5	4.5	234	7.6	SW	**	*****	15.4	2070	15
16	5.8	4.4	5.1	245	2.9	4.1	243	5.7	WSW	**	*****	4.4	2708	16
17	15.0	3.8	9.4	257	2.4	2.4	320	6.3	WSW	**	*****	.2	7218	17
18	13.8	1.3	7.6	064	2.3	2.9	102	9.5	NNE	**	*****	4.2	3740	18
19	15.8	2.7	9.3	243	1.1	2.4	256	8.9	SW	**	*****	0.0	6765	19
20	6.5	1.5	4.0	248	2.5	2.9	239	8.3	WSW	**	*****	23.2	2763	20
21	12.5	3.6	8.1	249	2.3	2.5	240	7.6	WSW	**	*****	0.0	5958	21
22	14.3	4.3	9.3	278	.7	1.8	228	5.1	WSW	**	*****	0.0	5768	22
23	18.4	5.2	11.8	262	1.2	2.1	222	3.8	SW	**	*****	0.0	8948	23
24	21.2	.9	11.1	329	1.1	2.2	308	5.7	NNW	**	*****	0.0	9478	24
25	23.1	7.5	15.3	055	.8	2.1	127	5.1	ESE	**	*****	0.0	7755	25
26	23.9	8.1	16.0	283	1.0	2.2	228	8.9	NW	**	*****	0.0	8105	26
27	23.9	5.3	14.6	075	1.8	3.3	092	9.5	E	**	*****	0.0	7305	27
28	16.6	9.7	13.2	232	2.5	3.8	038	10.2	SW	**	*****	0.0	6338	28
29	15.5	5.5	10.5	099	.5	1.5	133	8.3	ESE	**	*****	1.4	5579	29
30	14.9	5.8	10.4	082	2.7	4.0	102	10.8	E	**	*****	4.6	3975	30
MONTH	23.9	-.5	8.6	241	.7	2.7	219	14.6	WSW	**	*****	87.4	164494	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 4.4
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 7.0
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 14.0
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 12.1

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

**** SEE NOTES AT THE BACK OF THIS REPORT ****

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1982

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.60	4.19	.10	.05	0.00	0.00	0.00	4.94
NNE	.75	3.10	.30	0.00	0.00	0.00	0.00	4.14
NE	1.05	1.80	.90	.05	0.00	0.00	0.00	3.79
ENE	.80	3.20	2.65	.10	0.00	0.00	0.00	6.74
E	.70	2.40	4.09	.85	0.00	0.00	0.00	8.04
ESE	.60	3.34	.80	.35	0.00	0.00	0.00	5.09
SE	.55	1.40	.50	0.00	0.00	0.00	0.00	2.45
SSE	.70	1.10	.15	.15	0.00	0.00	0.00	2.10
S	.30	.85	.25	0.00	0.00	0.00	0.00	1.40
SSW	.75	2.55	.70	0.00	0.00	0.00	0.00	3.99
SW	.80	5.29	7.74	.30	0.00	0.00	0.00	14.13
WSW	1.25	9.14	9.49	.65	0.00	0.00	0.00	20.52
W	1.15	4.84	2.60	.10	0.00	0.00	0.00	8.69
WNW	1.15	3.30	.65	.05	0.00	0.00	0.00	5.14
NW	.65	2.25	.25	0.00	0.00	0.00	0.00	3.15
NNW	.65	4.29	.25	.05	0.00	0.00	0.00	5.24
CALM								.45
TOTAL	12.43	53.02	31.40	2.70	0.00	0.00	0.00	100.00

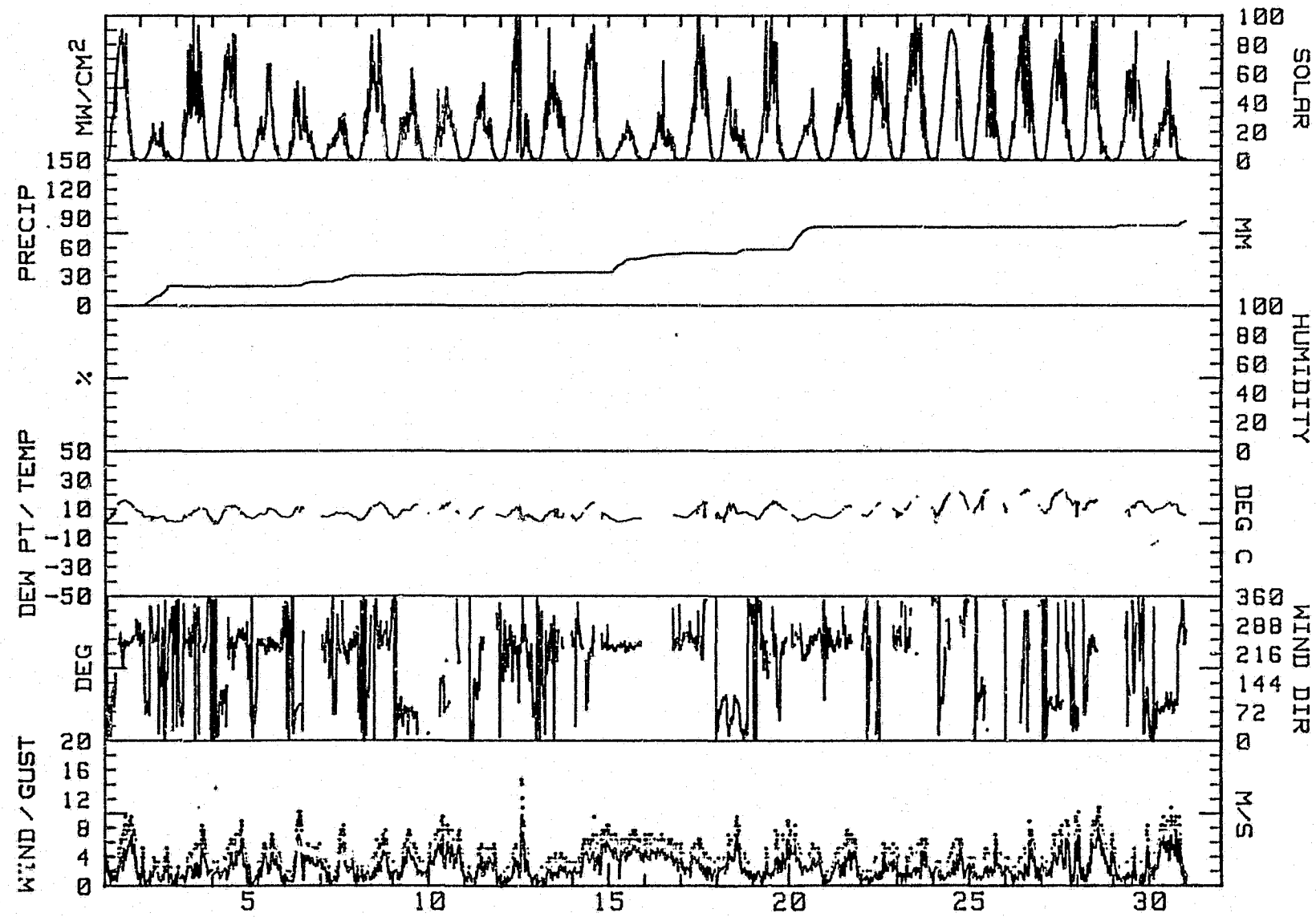
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2003 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

June, 1982

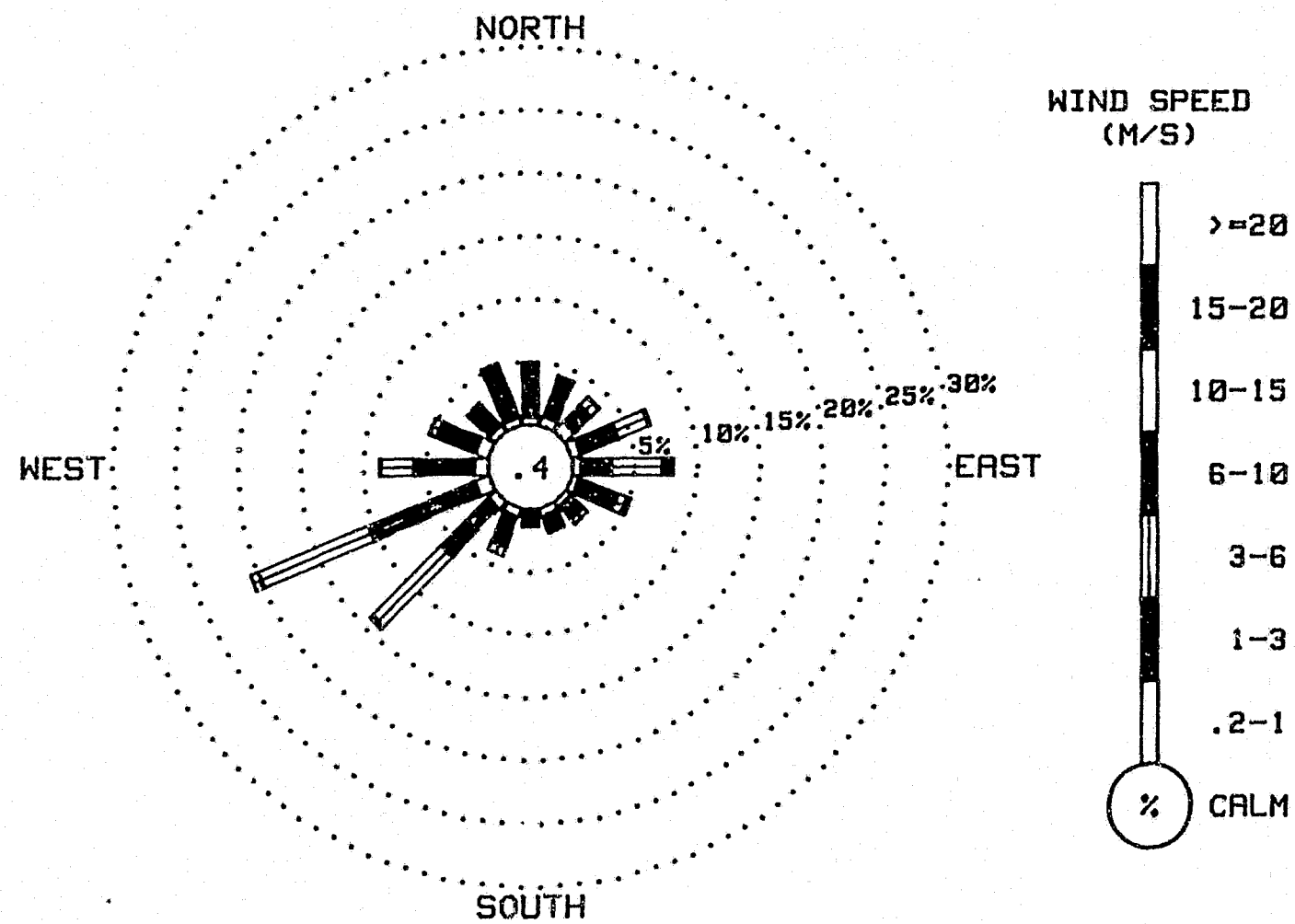


R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

June, 1982



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 1982

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE
1	.8	1.0	1.8	1.6	.8	2.4	2.4	1.4	.6	0.0	0.0	0.0	0.0	0.0	1.0	.2	.2	0.0	.2	0.0	0.0	0.0	0.0	0.0	1
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	.2	0.0	0.0	0.0	10
11	0.0	0.0	0.0	.4	0.0	.2	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
12	.2	.2	.6	.4	.2	.6	1.0	1.4	2.4	2.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12
13	1.4	.6	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	13
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.4	1.4	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	14
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.2	.4	.2	0.0	.2	.2	.6	.2	.2	.6	.2	.2	1.0	.4	.4	.4	16
17	.2	.4	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	****	****	****	****	****	****	****	****	****	****	****	****	****	****	17
18	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	18
19	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	19
20	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	20
21	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	21
22	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	22
23	****	****	****	****	****	****	****	****	****	12.2	1.8	.6	2.4	.2	0.0	0.0	0.0	0.0	0.0	1.4	1.8	1.6	2.2	1.6	23
24	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.4	1.2	1.4	1.2	.8	1.6	1.2	24
25	.8	.4	.4	.4	.4	1.0	.6	.6	1.0	1.8	1.0	1.2	1.4	.6	.2	.6	0.0	.8	.4	0.0	0.0	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28
29	0.0	0.0	0.0	0.0	0.0	.6	.8	.2	.2	.6	.2	.2	.2	.2	0.0	.2	1.2	0.0	0.0	0.0	.8	0.0	0.0	0.0	29
30	0.0	1.2	3.2	.6	2.2	1.0	1.0	1.6	.2	.6	.4	.8	1.4	.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30
31	0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.5	*****	**	171	.6	131	3.2	2
0600	5.3	*****	**	116	1.4	134	2.5	6
0900	6.5	*****	**	247	1.7	236	4.4	29
1200	9.5	*****	**	205	.9	251	3.2	60
1500	7.8	*****	**	145	1.2	079	5.1	23
1800	8.2	*****	**	262	.3	063	5.1	10
2100	6.7	*****	**	291	2.6	296	7.0	3
2400	4.5	*****	**	268	1.3	268	3.2	1

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.3	*****	**	315	.5	303	1.9	3
0600	5.9	*****	**	092	.8	096	1.9	23
0900	9.3	*****	**	346	.4	324	3.2	45
1200	12.5	*****	**	195	.6	028	3.2	64
1500	14.4	*****	**	187	1.7	142	5.1	103
1800	12.9	*****	**	262	3.3	252	6.3	48
2100	8.7	*****	**	257	2.5	249	5.7	3
2400	3.4	*****	**	290	1.1	273	2.5	1

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.1	*****	**	006	1.7	003	3.2	4
0600	4.5	*****	**	047	1.2	005	3.2	37
0900	12.7	*****	**	091	2.7	089	7.0	77
1200	16.6	*****	**	080	4.1	079	7.6	90
1500	19.2	*****	**	083	3.3	066	7.0	73
1800	16.6	*****	**	160	1.4	239	8.3	15
2100	12.1	*****	**	247	4.6	240	7.6	4
2400	8.1	*****	**	273	1.9	253	3.8	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.1	*****	**	288	1.7	281	3.2	4
0600	9.3	*****	**	325	1.0	328	2.5	36
0900	14.1	*****	**	122	.7	121	4.4	75
1200	19.4	*****	**	089	3.1	083	6.3	81
1500	18.6	*****	**	085	4.0	081	7.6	32
1800	17.2	*****	**	104	3.9	083	7.0	13
2100	9.9	*****	**	237	3.0	252	9.5	3
2400	5.8	*****	**	239	3.1	237	6.3	1

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.7	*****	**	283	1.6	284	3.2	3
0600	7.6	*****	**	270	1.8	052	5.1	38
0900	11.5	*****	**	246	2.9	244	5.7	78
1200	14.9	*****	**	284	.8	030	4.4	51
1500	13.1	*****	**	277	1.8	247	7.0	19
1800	13.6	*****	**	266	4.1	261	7.6	16
2100	10.7	*****	**	253	2.9	252	5.1	3
2400	8.0	*****	**	260	2.1	238	4.4	1

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.6	*****	**	309	1.4	279	3.2	3
0600	10.2	*****	**	353	1.1	000	3.2	36
0900	14.4	*****	**	163	.8	250	3.2	45
1200	18.8	*****	**	179	.4	128	5.1	86
1500	19.5	*****	**	029	.9	052	3.8	45
1800	18.5	*****	**	249	3.7	244	7.6	40
2100	14.0	*****	**	258	3.1	254	5.7	3
2400	8.3	*****	**	276	1.7	260	5.1	1

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.1	*****	**	004	2.3	359	3.2	3
0600	9.8	*****	**	048	1.0	008	2.5	36
0900	18.0	*****	**	129	1.2	113	2.5	73
1200	23.6	*****	**	191	.9	298	5.1	86
1500	25.3	*****	**	133	2.1	184	5.1	29
1800	25.4	*****	**	042	3.4	048	6.3	31
2100	18.7	*****	**	025	2.8	034	6.3	4
2400	18.4	*****	**	036	2.3	009	5.1	1

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	14.8	*****	**	056	1.2	063	3.2	3
0600	16.1	*****	**	054	1.0	069	3.2	39
0900	14.4	*****	**	254	3.9	240	10.2	17
1200	16.1	*****	**	246	5.9	238	8.9	27
1500	15.3	*****	**	268	6.0	284	8.9	22
1800	13.1	*****	**	263	5.9	244	9.5	8
2100	10.8	*****	**	256	4.3	259	7.0	2
2400	9.0	*****	**	267	2.3	267	6.3	1

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.6	*****	**	290	1.6	301	3.2	2
0600	11.6	*****	**	280	1.9	267	3.8	40
0900	12.8	*****	**	247	3.7	243	5.7	42
1200	15.0	*****	**	242	4.0	256	6.3	51
1500	15.0	*****	**	242	4.3	238	7.0	10
1800	14.4	*****	**	258	2.4	233	4.4	6
2100	13.2	*****	**	255	2.2	251	4.4	2
2400	11.9	*****	**	262	2.8	250	5.1	1

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DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	11.1	*****	**	261	2.8	253	4.4	2
0600	11.5	*****	**	279	1.7	282	3.2	15
0900	13.5	*****	**	256	3.5	244	5.7	42
1200	14.2	*****	**	242	5.8	241	8.3	47
1500	12.4	*****	**	241	6.6	247	9.5	27
1800	9.1	*****	**	250	6.5	246	10.2	6
2100	8.5	*****	**	259	3.8	251	7.6	1
2400	8.2	*****	**	268	3.0	269	4.4	1

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.8	*****	**	263	2.8	262	4.4	1
0600	8.1	*****	**	256	2.8	261	4.4	7
0900	9.5	*****	**	257	2.5	254	4.4	22
1200	11.3	*****	**	252	3.4	262	5.7	45
1500	11.9	*****	**	242	4.7	242	7.6	16
1800	12.3	*****	**	242	4.0	234	6.3	17
2100	11.0	*****	**	259	4.0	252	6.3	2
2400	9.4	*****	**	258	3.4	275	5.7	1

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.5	*****	**	265	2.6	252	4.4	1
0600	8.5	*****	**	224	3.4	254	5.1	5
0900	8.6	*****	**	209	3.4	215	5.1	11
1200	10.0	*****	**	208	4.5	213	6.3	18
1500	10.8	*****	**	218	4.0	214	6.3	20
1800	10.1	*****	**	235	4.1	231	7.0	11
2100	8.9	*****	**	222	3.0	229	5.1	2
2400	7.9	*****	**	226	2.4	234	4.4	1

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.0	*****	**	229	2.3	225	3.8	1
0600	7.6	*****	**	233	1.6	242	3.2	11
0900	9.3	*****	**	225	2.5	211	4.4	40
1200	14.6	*****	**	202	2.5	222	5.1	92
1500	15.4	*****	**	354	.7	312	3.8	34
1800	14.3	*****	**	256	1.3	234	4.4	8
2100	12.2	*****	**	260	1.6	223	3.8	2
2400	10.4	*****	**	313	.7	266	1.9	1

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.2	*****	**	289	.9	310	1.9	2
0600	9.9	*****	**	098	.9	086	1.9	23
0900	13.6	*****	**	084	1.1	119	3.8	30
1200	16.5	*****	**	117	1.9	096	4.4	76
1500	11.2	*****	**	233	1.5	263	9.5	17
1800	12.6	*****	**	252	1.0	267	3.8	13
2100	9.7	*****	**	278	1.7	249	3.2	3
2400	8.3	*****	**	275	1.3	253	2.5	1

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.7	*****	**	290	2.2	302	3.8	2
0600	8.2	*****	**	272	1.8	253	4.4	12
0900	9.5	*****	**	253	3.2	250	5.7	30
1200	10.9	*****	**	254	3.5	251	7.0	49
1500	11.9	*****	**	262	3.8	272	6.3	54
1800	10.1	*****	**	242	3.1	242	6.3	11
2100	7.4	*****	**	259	2.2	245	4.4	2
2400	6.8	*****	**	300	.6	270	1.9	1

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.6	*****	**	010	1.0	005	2.5	2
0600	8.2	*****	**	067	1.8	077	6.3	11
0900	8.5	*****	**	073	3.4	077	5.7	27
1200	9.8	*****	**	094	2.5	098	5.1	26
1500	10.3	*****	**	249	1.5	247	7.0	43
1800	8.5	*****	**	252	3.6	251	7.0	11
2100	6.8	*****	**	253	3.8	257	6.3	2
2400	6.2	*****	**	269	1.9	259	3.8	1

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.6	*****	**	265	2.4	264	4.4	2
0600	6.3	*****	**	271	2.4	267	3.8	14
0900	8.5	*****	**	256	3.1	252	5.7	36
1200	*****	*****	**	***	****	243	5.1	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	9.4	*****	**	182	.8	267	8.9	11
1500	11.1	*****	**	216	1.5	241	5.1	9
1800	11.1	*****	**	265	4.8	272	8.9	6
2100	9.4	*****	**	259	3.5	252	8.9	2
2400	9.1	*****	**	259	2.1	270	4.4	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.5	*****	**	260	1.6	275	3.2	1
0600	8.6	*****	**	284	1.6	272	3.2	5
0900	9.9	*****	**	269	1.4	260	3.2	54
1200	11.7	*****	**	268	3.5	264	7.6	45
1500	10.8	*****	**	278	3.8	288	6.3	25
1800	9.4	*****	**	268	1.7	263	4.4	8
2100	9.2	*****	**	155	.8	211	1.9	2
2400	8.2	*****	**	270	1.0	280	2.5	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.0	*****	**	105	.8	131	1.9	1
0600	8.0	*****	**	101	1.3	103	2.5	5
0900	9.2	*****	**	097	.5	111	1.9	10
1200	10.2	*****	**	139	.4	249	6.3	26
1500	11.1	*****	**	272	3.5	250	6.3	30
1800	10.9	*****	**	274	3.1	263	6.3	11
2100	10.1	*****	**	277	2.7	278	5.7	3
2400	9.2	*****	**	280	2.8	274	4.4	1

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.0	*****	**	293	.5	299	3.2	1
0600	6.1	*****	**	093	.8	091	2.5	7
0900	10.0	*****	**	208	.5	240	2.5	28
1200	12.6	*****	**	254	1.5	269	7.0	31
1500	15.3	*****	**	264	3.0	259	5.7	79
1800	14.5	*****	**	260	3.9	248	6.3	19
2100	12.6	*****	**	260	2.2	286	4.4	3
2400	9.4	*****	**	286	1.3	217	3.2	1

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	10.0	*****	**	320	.5	300	1.9	1
0600	10.3	*****	**	280	.5	081	1.3	7
0900	11.1	*****	**	268	1.1	254	1.9	24
1200	12.6	*****	**	260	1.9	252	5.7	16
1500	13.5	*****	**	252	2.7	238	5.1	45
1800	14.0	*****	**	259	3.7	240	5.7	23
2100	12.9	*****	**	245	2.3	251	4.4	2
2400	11.8	*****	**	279	.8	280	1.9	1

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DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	10.9	*****	**	040	.4	355	1.3	1
0600	9.9	*****	**	034	.9	009	2.5	20
0900	13.8	*****	**	089	1.0	111	3.2	28
1200	17.0	*****	**	291	1.2	274	8.3	51
1500	18.7	*****	**	265	3.8	285	7.0	49
1800	16.8	*****	**	283	5.2	266	7.6	44
2100	13.6	*****	**	283	4.3	292	7.0	4
2400	10.0	*****	**	257	4.1	251	6.3	1

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.2	*****	**	253	1.3	255	2.5	1
0600	8.6	*****	**	263	1.4	301	3.8	4
0900	10.1	*****	**	253	1.8	242	3.2	12
1200	11.3	*****	**	262	2.1	282	5.1	38
1500	10.5	*****	**	253	2.9	280	5.1	12
1800	10.4	*****	**	256	.9	263	3.8	11
2100	10.3	*****	**	246	.8	231	2.5	3
2400	9.2	*****	**	294	1.1	275	2.5	1

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.9	*****	**	309	.6	028	2.5	1
0600	9.0	*****	**	283	.8	276	1.9	7
0900	9.5	*****	**	259	1.8	261	3.8	18
1200	9.8	*****	**	249	1.8	248	7.0	21
1500	10.6	*****	**	261	3.7	259	6.3	45
1800	10.9	*****	**	251	4.7	242	7.0	24
2100	9.5	*****	**	246	4.3	238	7.0	6
2400	8.1	*****	**	277	2.9	264	5.1	1

DAY 31

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0308	7.6	*****	**	292	1.9	294	3.2	1
0600	7.5	*****	**	297	1.1	297	2.5	10
0900	9.5	*****	**	283	1.3	277	3.8	42
1200	14.5	*****	**	265	1.3	165	5.1	55
1500	15.4	*****	**	349	1.0	017	5.1	41
1800	12.8	*****	**	212	2.0	170	5.7	20
2100	10.3	*****	**	076	.8	016	3.8	3
2400	7.4	*****	**	088	1.6	071	3.2	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 1982

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	10.2	4.1	7.2	233	.6	1.9	296	7.0	W	**	*****	14.4	3968	1
2	14.4	3.4	8.9	252	.9	1.7	252	6.3	W	**	*****	0.0	6583	2
3	19.7	.7	10.2	083	.7	3.0	239	8.3	E	**	*****	0.0	9383	3
4	19.4	5.1	12.3	124	.6	2.9	252	9.5	E	**	*****	0.0	6760	4
5	15.4	3.9	9.7	264	2.2	2.6	261	7.6	WSW	**	*****	0.0	6513	5
6	19.7	4.6	12.2	269	1.1	2.0	244	7.6	W	**	*****	0.0	7920	6
7	26.4	4.1	15.3	050	1.3	2.2	048	6.3	NNE	**	*****	0.0	8883	7
8	18.3	9.0	13.7	261	3.3	4.0	240	10.2	WSW	**	*****	0.0	4713	8
9	16.1	8.6	12.4	255	2.8	2.9	238	7.0	WSW	**	*****	0.0	4583	9
10	14.2	8.2	11.2	252	4.1	4.2	246	10.2	WSW	**	*****	.4	3455	10
11	13.9	7.8	10.9	253	3.4	3.5	242	7.6	WSW	**	*****	.8	4468	11
12	11.3	7.9	9.6	224	3.3	3.5	231	7.0	SW	**	*****	9.2	2788	12
13	16.5	6.9	11.7	237	1.4	1.9	222	5.1	SW	**	*****	2.6	5675	13
14	17.3	8.1	12.7	240	.4	1.6	263	9.5	W	**	*****	7.2	4770	14
15	12.2	6.8	9.5	260	2.5	2.6	251	7.0	WSW	**	*****	0.0	4618	15
16	11.2	6.2	8.7	263	.3	2.6	247	7.0	WSW	**	*****	5.6	3945	16
17	9.4	5.5	7.5	261	2.7	2.8	252	5.7	W	**	*****	.8	3754	17
18	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	18
19	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	19
20	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	20
21	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	21
22	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	22
23	11.7	9.1	10.4	253	2.4	2.8	272	8.9	WSW	**	*****	25.8	1853	23
24	12.5	8.2	10.4	269	1.8	2.0	264	7.6	W	**	*****	8.2	3348	24
25	11.2	7.9	9.6	272	1.2	2.2	250	6.3	W	**	*****	17.6	2287	25
26	16.0	5.3	10.7	262	1.5	2.0	269	7.0	W	**	*****	0.0	6053	26
27	15.4	9.4	12.4	260	1.6	1.8	252	5.7	W	**	*****	0.0	3906	27
28	19.1	8.1	13.6	278	2.1	2.8	274	8.3	W	**	*****	0.0	5921	28
29	12.0	8.5	10.3	259	1.5	1.7	282	5.1	WSW	**	*****	5.4	2897	29
30	11.2	7.9	9.6	259	2.5	2.7	248	7.0	WSW	**	*****	14.8	3287	30
31	15.7	6.8	11.3	282	.5	1.7	170	5.7	WNW	**	*****	.4	5631	31
MONTH	26.4	.7	10.8	260	1.6	2.4	240	10.2	W	**	*****	109.2	127956	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 7.6
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 8.9
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 8.9
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 8.9

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

**** SEE NOTES AT THE BACK OF THIS REPORT ****

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 1982

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.74	2.05	.02	0.00	0.00	0.00	0.00	2.81
NNE	.44	1.43	.15	0.00	0.00	0.00	0.00	2.02
NE	.42	.91	.22	0.00	0.00	0.00	0.00	1.56
ENE	.67	1.46	1.01	0.00	0.00	0.00	0.00	3.14
E	1.23	2.52	.96	0.00	0.00	0.00	0.00	4.72
ESE	.62	3.46	.27	0.00	0.00	0.00	0.00	4.35
SE	.69	1.63	.02	0.00	0.00	0.00	0.00	2.35
SSE	.49	.96	.05	0.00	0.00	0.00	0.00	1.51
S	.44	.94	.10	0.00	0.00	0.00	0.00	1.48
SSW	.52	1.33	.91	0.00	0.00	0.00	0.00	2.77
SW	.47	4.27	1.90	.10	0.00	0.00	0.00	6.74
WSW	1.46	9.48	10.77	1.23	0.00	0.00	0.00	22.94
W	1.53	15.53	8.77	.47	0.00	0.00	0.00	26.30
WNW	1.06	8.94	2.67	.07	0.00	0.00	0.00	12.74
NW	.96	1.65	0.00	0.00	0.00	0.00	0.00	2.62
NNW	.57	1.06	0.00	0.00	0.00	0.00	0.00	1.63
CALM								.35
TOTAL	12.32	57.63	27.83	1.88	0.00	0.00	0.00	100.00

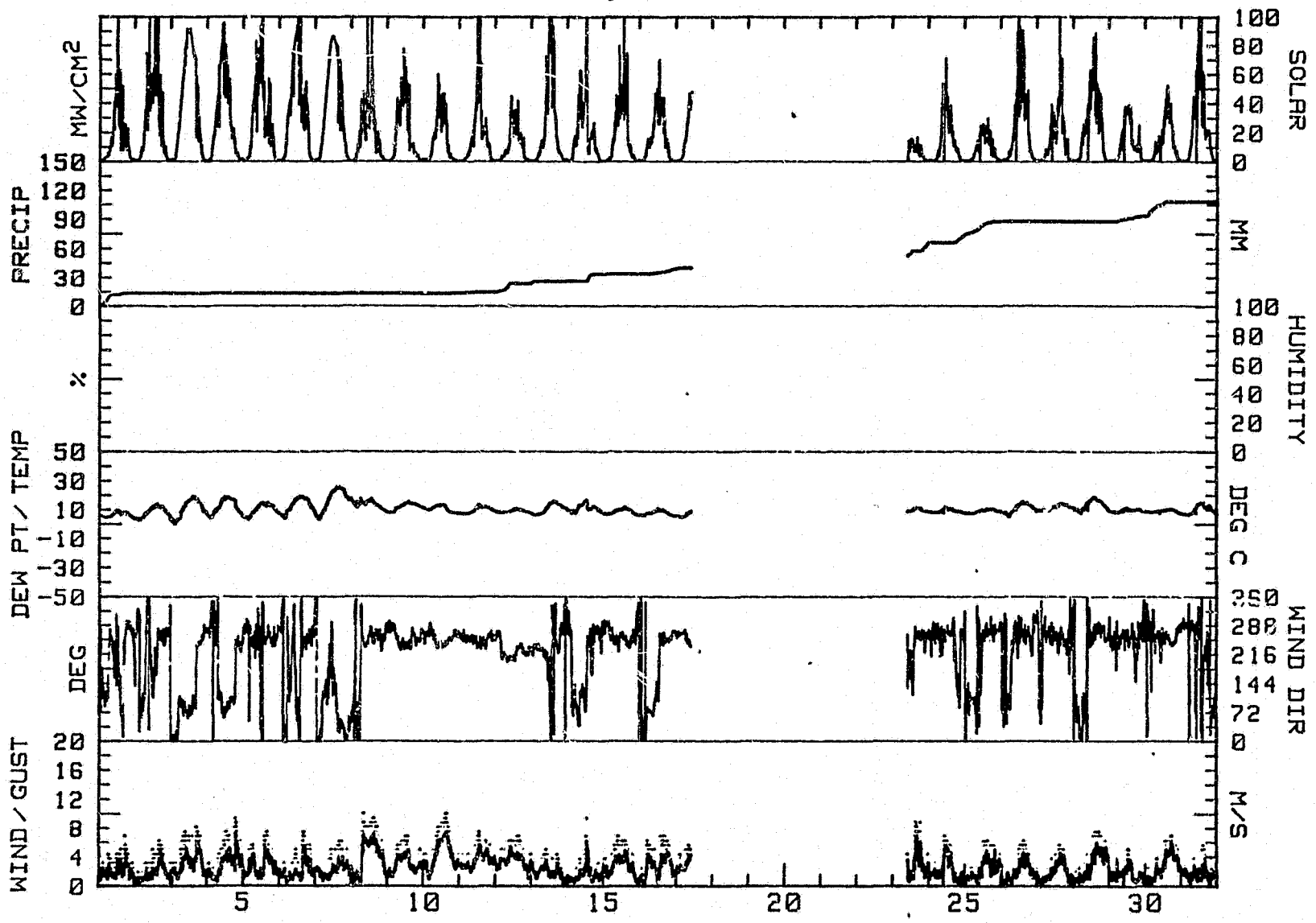
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
4050 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

July, 1982

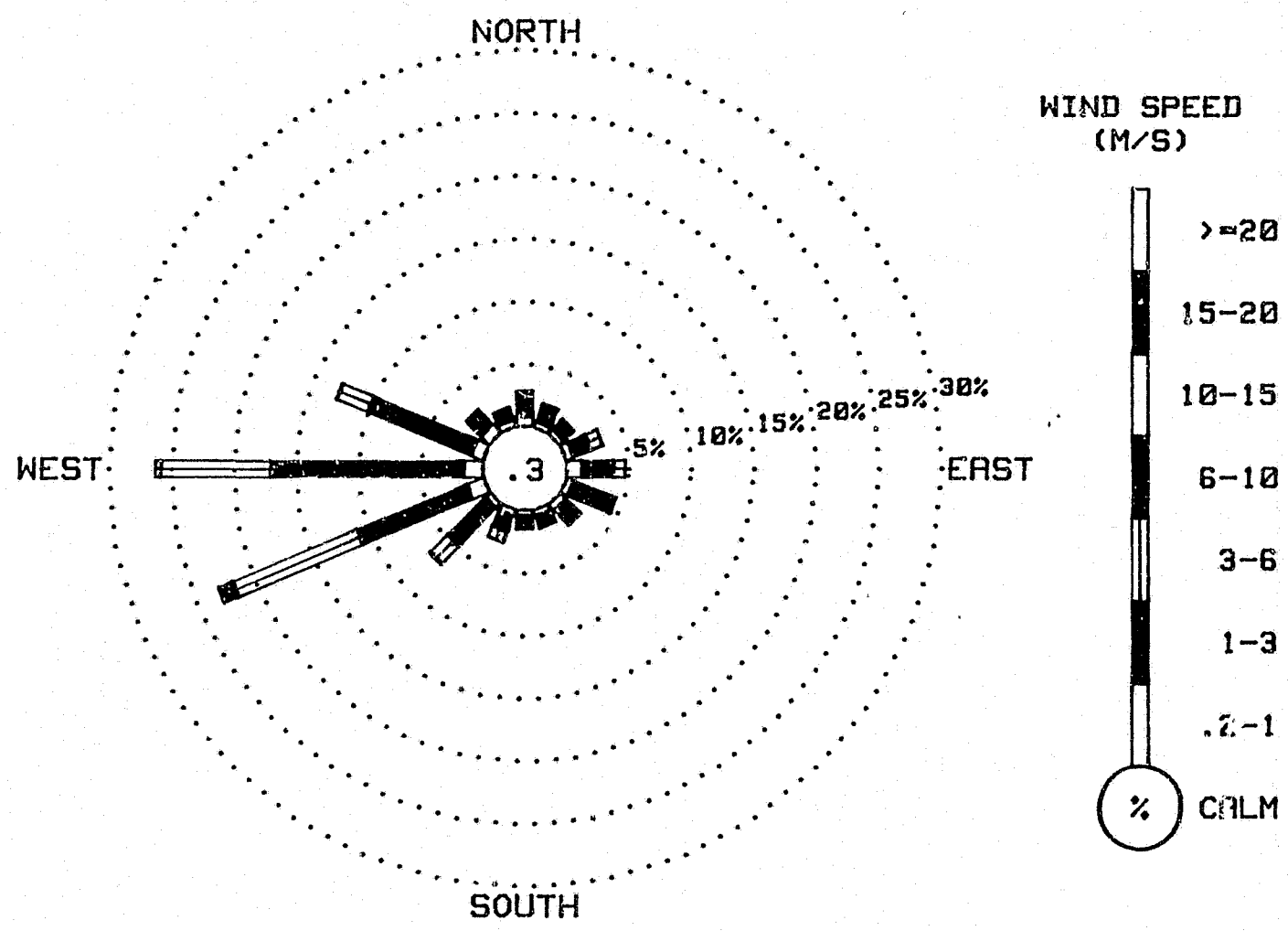


R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

July, 1982



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August, 1982

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	0.0	0.0	0.0	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	5
6	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	6
7	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	7
8	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	8
9	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	9
10	****	****	****	***	***	****	****	****	****	****	8.0	0.0	1.2	0.0	0.0	0.0	.4	0.0	0.0	.2	0.0	0.0	0.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.8	1.0	1.4	14
15	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.6	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16
17	0.0	.2	0.0	0.0	.2	.4	.2	.6	.2	1.4	.8	0.0	.4	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22
23	0.0	.2	.8	1.0	.2	0.0	.2	0.0	0.0	0.0	0.0	.2	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23
24	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	24
25	0.0	.2	.2	.6	.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28
29	0.0	0.0	0.0	0.0	0.0	.4	.6	.6	.2	.8	.2	.2	.4	0.0	0.0	0.0	0.0	.2	0.0	.6	.8	.4	.2	.6	29
30	3.4	3.2	.8	.6	.6	1.0	0.0	.8	.6	.8	.2	0.0	0.0	.4	0.0	.2	2.4	.4	.6	.6	.8	.4	.2	.4	30
31	.4	0.0	.2	.2	.2	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	.4	.2	0.0	.6	.6	1.2	1.4	.4	0.0	0.0	0.0	31

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August, 1982

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.7	*****	**	077	1.3	115	2.5	1
0600	6.4	*****	**	008	.9	007	2.5	16
0900	11.9	*****	**	109	1.5	115	3.2	54
1200	13.9	*****	**	036	2.6	031	8.3	78
1500	15.3	*****	**	030	2.2	037	6.3	91
1800	14.8	*****	**	006	2.9	007	5.7	40
2100	10.8	*****	**	018	3.1	029	5.7	4
2400	7.4	*****	**	031	2.0	028	4.4	1

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.4	*****	**	057	.7	073	1.9	1
0600	7.9	*****	**	327	.3	313	1.3	15
0900	11.1	*****	**	123	1.5	120	3.2	54
1200	15.9	*****	**	063	2.6	056	7.0	100
1500	17.0	*****	**	054	2.8	055	5.7	73
1800	16.7	*****	**	075	1.0	147	3.2	25
2100	13.0	*****	**	055	.9	037	3.2	4
2400	7.8	*****	**	045	1.4	029	3.8	1

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.9	*****	**	036	1.5	034	2.5	1
0600	6.9	*****	**	026	1.2	015	1.9	15
0900	11.6	*****	**	107	1.0	112	3.2	35
1200	16.7	*****	**	204	.9	287	6.3	81
1500	17.8	*****	**	280	2.5	267	5.1	25
1800	18.3	*****	**	274	3.2	246	7.0	38
2100	15.1	*****	**	280	2.5	280	5.7	4
2400	9.4	*****	**	055	1.0	120	2.5	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.3	*****	**	007	1.8	356	3.2	2
0600	6.6	*****	**	004	2.1	357	3.2	14
0900	12.5	*****	**	133	.4	019	1.9	45
1200	16.7	*****	**	235	1.8	237	7.0	76
1500	19.1	*****	**	247	4.2	246	7.0	72
1800	17.5	*****	**	256	3.3	272	6.3	12
2100	16.1	*****	**	277	1.5	270	3.8	3
2400	10.8	*****	**	312	1.0	340	2.5	1

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.4	*****	**	360	2.1	359	3.2	1
0600	*****	*****	**	***	****	000	3.2	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	356	3.2	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	8.8	*****	**	275	3.3	261	5.7	17
1500	10.3	*****	**	267	2.9	276	4.4	34
1800	7.5	*****	**	276	2.8	283	5.1	6
2100	6.3	*****	**	244	1.1	272	3.2	1
2400	5.6	*****	**	283	.8	275	1.9	1

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.2	*****	**	279	2.1	289	3.8	1
0600	5.2	*****	**	277	1.9	286	3.2	9
0900	7.5	*****	**	275	1.8	275	2.5	22
1200	11.2	*****	**	287	1.0	288	3.8	26
1500	14.6	*****	**	186	.6	266	4.4	71
1800	15.0	*****	**	243	2.2	216	4.4	24
2100	8.8	*****	**	327	1.3	291	3.2	1
2400	7.3	*****	**	015	1.1	052	2.5	1

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.6	*****	**	001	1.8	002	3.2	2
0600	4.9	*****	**	042	1.3	008	2.5	22
0900	11.7	*****	**	118	1.4	114	2.5	59
1200	17.3	*****	**	135	1.1	099	3.8	76
1500	18.4	*****	**	341	.9	311	3.8	51
1800	18.0	*****	**	270	2.1	269	4.4	19
2100	11.6	*****	**	286	2.2	288	3.8	1
2400	7.4	*****	**	295	1.5	300	2.5	1

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.7	*****	**	349	1.4	357	2.5	2
0600	8.8	*****	**	036	1.1	065	2.5	15
0900	15.0	*****	**	141	.3	206	3.2	65
1200	17.4	*****	**	232	2.0	239	5.7	73
1500	19.2	*****	**	247	3.4	251	6.3	55
1800	17.8	*****	**	281	3.8	270	6.3	20
2100	13.6	*****	**	284	2.2	294	6.3	1
2400	12.2	*****	**	288	1.8	284	3.2	1

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	11.9	*****	**	274	1.1	287	2.5	1
0600	11.3	*****	**	294	.9	280	1.9	6
0900	13.1	*****	**	279	1.6	278	4.4	18
1200	13.6	*****	**	276	1.8	271	3.0	16
1500	14.2	*****	**	275	3.1	280	5.7	68
1800	13.3	*****	**	265	3.1	262	5.7	11
2100	10.9	*****	**	289	2.5	292	5.7	1
2400	7.5	*****	**	267	2.5	276	7.0	1

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.2	*****	**	286	2.1	276	3.8	1
0600	7.7	*****	**	281	1.7	277	3.8	26
0900	8.3	*****	**	253	2.9	250	5.7	23
1200	11.9	*****	**	248	3.2	256	5.1	45
1500	12.6	*****	**	262	2.1	228	4.4	32
1800	11.0	*****	**	271	2.8	263	6.3	16
2100	7.7	*****	**	252	1.4	248	3.8	1
2400	6.0	*****	**	278	2.0	280	3.8	1

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.2	*****	**	276	1.9	271	3.8	1
0600	5.2	*****	**	333	1.3	342	2.5	13
0900	7.9	*****	**	250	2.1	222	4.4	58
1200	12.7	*****	**	258	3.3	258	6.3	73
1500	12.9	*****	**	239	4.8	251	7.6	29
1800	12.0	*****	**	258	5.0	237	9.5	10
2100	7.2	*****	**	265	3.5	256	8.3	1
2400	6.8	*****	**	296	1.4	288	2.5	1

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.4	*****	**	289	.8	307	2.5	1
0600	6.2	*****	**	293	.5	295	2.5	4
0900	7.3	*****	**	210	.5	162	2.5	12
1200	8.2	*****	**	270	2.0	255	4.4	23
1500	9.1	*****	**	257	2.7	258	5.7	24
1800	10.3	*****	**	258	3.0	268	5.7	26
2100	6.9	*****	**	266	2.7	251	6.3	1
2400	4.7	*****	**	295	1.6	287	3.2	1

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.7	*****	**	347	1.0	341	2.5	1
0600	4.7	*****	**	034	.6	356	2.5	8
0900	8.0	*****	**	107	.4	103	2.5	48
1200	13.7	*****	**	205	.9	241	3.8	63
1500	14.5	*****	**	318	1.9	293	5.7	67
1800	12.9	*****	**	256	3.5	262	7.0	11
2100	8.2	*****	**	283	2.2	285	5.7	1
2400	4.3	*****	**	353	1.5	352	2.5	1

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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.0	*****	**	004	2.4	002	3.2	1
0600	4.9	*****	**	005	2.3	001	3.2	21
0900	11.9	*****	**	135	.8	227	2.5	55
1200	15.7	*****	**	256	1.7	282	5.7	76
1500	16.1	*****	**	253	2.5	242	6.3	61
1800	14.9	*****	**	266	2.6	257	5.7	13
2100	8.9	*****	**	291	1.5	251	3.0	2
2400	8.0	*****	**	025	1.3	017	2.5	1

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.4	*****	**	046	1.1	004	2.5	1
0600	6.9	*****	**	066	1.0	035	2.5	8
0900	12.7	*****	**	110	1.1	077	2.5	38
1200	16.7	*****	**	087	2.5	077	5.7	72
1500	18.4	*****	**	033	1.7	029	5.1	55
1800	18.2	*****	**	055	1.0	065	3.8	20
2100	11.4	*****	**	026	1.2	029	3.8	1
2400	7.6	*****	**	004	1.6	001	3.2	1

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.1	*****	**	007	1.9	359	3.2	2
0600	8.5	*****	**	016	1.2	009	2.5	6
0900	10.9	*****	**	112	.7	139	1.9	22
1200	15.3	*****	**	228	.9	270	3.2	87
1500	18.1	*****	**	271	2.3	278	5.7	71
1800	16.9	*****	**	281	3.2	281	7.0	20
2100	12.0	*****	**	290	1.8	292	5.7	1
2400	8.6	*****	**	307	.9	284	1.9	1

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.0	*****	**	357	1.8	355	3.2	1
0600	5.8	*****	**	000	2.0	356	3.2	17
0900	12.5	*****	**	120	.7	016	1.9	53
1200	17.0	*****	**	259	1.1	287	3.8	68
1500	18.4	*****	**	251	2.6	239	7.6	39
1800	15.9	*****	**	270	3.3	246	6.3	8
2100	12.2	*****	**	280	1.8	289	4.4	1
2400	11.0	*****	**	294	1.4	284	2.5	1

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.1	*****	**	278	1.9	261	3.8	1
0600	9.0	*****	**	265	1.3	267	2.5	5
0900	10.6	*****	**	267	1.3	282	2.5	21
1200	11.7	*****	**	266	2.1	249	3.8	26
1500	12.7	*****	**	269	2.7	276	5.7	30
1800	11.3	*****	**	250	2.3	270	4.4	7
2100	9.9	*****	**	254	1.0	221	1.9	1
2400	9.0	*****	**	258	.8	237	1.9	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.3	*****	**	319	.6	303	1.9	1
0600	8.2	*****	**	040	.6	040	1.9	8
0900	11.0	*****	**	128	.9	114	1.9	39
1200	13.7	*****	**	214	1.4	197	3.8	39
1500	10.6	*****	**	246	2.1	257	5.1	15
1800	10.3	*****	**	267	3.0	260	6.3	6
2100	9.0	*****	**	250	1.1	236	4.4	1
2400	7.7	*****	**	276	2.2	271	3.8	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.7	*****	**	279	2.2	275	3.8	1
0600	7.7	*****	**	265	2.8	271	4.4	4
0900	9.0	*****	**	261	2.8	263	5.1	20
1200	11.0	*****	**	253	2.6	271	4.4	88
1500	13.1	*****	**	258	2.8	269	5.1	58
1800	11.8	*****	**	315	.7	242	4.4	5
2100	8.2	*****	**	290	1.0	285	3.2	1
2400	6.5	*****	**	291	1.4	294	3.2	1

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.7	*****	**	342	1.1	358	2.5	1
0600	6.7	*****	**	336	1.0	352	2.5	6
0900	9.3	*****	**	284	1.8	270	3.2	26
1200	13.6	*****	**	266	2.3	278	4.4	70
1500	13.3	*****	**	273	2.5	297	6.3	58
1800	14.4	*****	**	272	2.8	269	5.7	13
2100	10.5	*****	**	328	.8	292	2.5	1
2400	6.0	*****	**	014	1.3	003	3.8	1

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.3	*****	**	026	1.9	359	3.8	1
0600	4.5	*****	**	030	1.8	073	3.8	13
0900	11.9	*****	**	061	2.7	068	5.1	50
1200	14.6	*****	**	074	4.1	085	7.6	67
1500	15.5	*****	**	095	4.0	086	7.0	49
1800	15.0	*****	**	094	2.9	097	5.1	13
2100	6.9	*****	**	054	2.0	079	3.2	1
2400	6.1	*****	**	036	1.6	013	3.8	1

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DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.4	*****	**	016	1.9	011	3.2	2
0600	3.8	*****	**	033	1.5	020	2.5	7
0900	8.6	*****	**	110	1.4	107	3.2	59
1200	11.7	*****	**	244	3.2	263	7.0	42
1500	12.0	*****	**	251	3.9	264	7.0	27
1800	11.1	*****	**	262	3.1	266	6.3	8
2100	7.9	*****	**	270	.5	270	2.5	1
2400	7.1	*****	**	309	.6	276	1.9	1

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.4	*****	**	074	.8	013	1.9	1
0600	5.9	*****	**	081	.9	085	2.5	3
0900	6.0	*****	**	090	2.6	086	4.4	10
1200	8.4	*****	**	074	2.1	087	4.4	25
1500	9.1	*****	**	046	.8	003	2.5	18
1800	8.6	*****	**	123	1.6	117	3.2	9
2100	7.1	*****	**	178	.6	228	2.5	1
2400	6.7	*****	**	297	.2	275	2.5	1

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.9	*****	**	078	1.3	058	3.2	1
0600	5.8	*****	**	068	1.9	069	3.8	5
0900	6.0	*****	**	083	3.9	085	7.0	9
1200	8.5	*****	**	072	4.0	082	6.3	29
1500	9.0	*****	**	052	2.6	072	5.1	18
1800	5.7	*****	**	264	1.5	245	5.7	4
2100	4.7	*****	**	268	1.9	266	3.2	1
2400	4.1	*****	**	275	2.1	270	3.8	1

DAY 31

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.5	*****	**	271	1.0	288	2.5	1
0600	3.5	*****	**	036	.1	117	1.9	6
0900	6.8	*****	**	110	.8	118	1.9	35
1200	8.5	*****	**	309	1.1	291	5.1	38
1500	8.6	*****	**	265	2.9	276	6.3	44
1800	7.7	*****	**	283	1.9	268	3.8	6
2100	5.6	*****	**	282	1.1	299	3.8	1
2400	5.1	*****	**	200	.3	208	1.9	1

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MONTHLY SUMMARY FOR WATANA WEATHER STATION
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DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	15.8	4.8	10.3	032	1.8	2.2	031	8.3	NNE	**	*****	0.0	7368	1
2	17.9	5.7	11.8	064	1.3	1.7	056	7.0	ENE	**	*****	0.0	6608	2
3	19.4	5.1	12.3	298	.8	2.0	246	7.0	W	**	*****	0.0	7160	3
4	20.1	5.3	12.7	275	1.3	2.2	246	7.0	N	**	*****	0.0	7239	4
5	11.1	6.0	8.6	002	2.1	2.1	356	3.2	N	**	*****	0.0	465	5
6	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	6
7	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	7
8	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	8
9	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	9
10	11.0	5.6	8.3	270	2.1	2.2	261	5.7	W	**	*****	9.8	3002	10
11	15.7	5.1	10.4	276	1.3	1.7	266	4.4	W	**	*****	0.0	5803	11
12	19.2	2.3	10.8	319	.6	1.7	269	4.4	WNW	**	*****	0.0	6853	12
13	19.5	5.6	12.6	276	1.5	2.2	251	6.3	WNW	**	*****	0.0	6675	13
14	14.6	7.5	11.1	275	2.0	2.1	276	7.0	W	**	*****	7.0	3045	14
15	13.3	5.5	9.4	265	2.2	2.4	263	6.3	W	**	*****	1.0	4283	15
16	14.0	4.1	9.1	261	2.7	3.0	237	9.5	W	**	*****	0.0	6370	16
17	10.3	4.7	7.5	267	1.7	1.8	251	6.3	W	**	*****	4.6	2860	17
18	15.0	3.2	9.1	294	.9	1.7	262	7.0	N	**	*****	0.0	4850	18
19	17.0	1.8	9.4	304	1.0	2.1	242	6.3	N	**	*****	0.0	6308	19
20	18.7	6.6	12.7	054	1.2	1.6	077	5.7	E	**	*****	0.0	6053	20
21	18.1	7.1	12.6	298	1.0	1.7	281	7.0	WNW	**	*****	0.0	4553	21
22	19.3	3.6	11.5	289	1.3	1.9	239	7.6	WNW	**	*****	0.0	5815	22
23	13.1	8.5	10.8	264	1.7	1.7	276	5.7	W	**	*****	2.8	2848	23
24	14.1	7.3	10.7	257	1.0	1.7	260	6.3	W	**	*****	.8	3433	24
25	14.4	6.3	10.4	269	2.0	2.2	263	5.1	W	**	*****	1.6	4055	25
26	15.3	5.4	10.4	294	1.4	1.8	297	6.3	W	**	*****	0.0	3968	26
27	16.1	3.0	9.6	066	2.4	2.7	085	7.6	ENE	**	*****	0.0	5820	27
28	13.0	2.3	7.7	270	1.0	2.2	263	7.0	W	**	*****	0.0	4573	28
29	9.5	5.1	7.3	089	1.0	1.4	086	4.4	E	**	*****	6.2	2345	29
30	9.4	4.1	6.8	059	1.1	2.5	085	7.0	ENE	**	*****	18.4	1888	30
31	9.2	3.2	6.2	275	.9	1.4	276	6.3	W	**	*****	6.0	3798	31
MONTH	20.1	1.8	10.0	301	.7	2.0	237	9.5	W	**	*****	58.2	128035	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 5.7
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 8.9
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 7.6
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 7.0

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

**** SEE NOTES AT THE BACK OF THIS REPORT ****

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August, 1982

DIRECTION	VELOCITY (M/S) 0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.74	10.24	.77	0.00	0.00	0.00	0.00	11.75
NNE	.80	5.75	1.05	0.00	0.00	0.00	0.00	7.59
NE	1.05	3.41	1.00	0.00	0.00	0.00	0.00	5.46
ENE	1.17	3.87	1.59	0.00	0.00	0.00	0.00	6.63
E	1.14	3.41	.88	0.00	0.00	0.00	0.00	5.43
ESE	.74	3.53	.17	0.00	0.00	0.00	0.00	4.44
SE	.54	1.88	.03	0.00	0.00	0.00	0.00	2.45
SSE	.54	.74	0.00	0.00	0.00	0.00	0.00	1.28
S	.31	.85	0.00	0.00	0.00	0.00	0.00	1.17
SSW	.26	1.19	.06	0.00	0.00	0.00	0.00	1.51
SW	.54	2.36	.82	0.00	0.00	0.00	0.00	3.73
WSW	1.11	5.01	4.07	.03	0.00	0.00	0.00	10.21
W	1.05	13.48	5.29	0.00	0.00	0.00	0.00	19.82
WNW	1.45	8.99	1.93	0.00	0.00	0.00	0.00	12.37
NW	1.19	2.08	.06	0.00	0.00	0.00	0.00	3.33
NNW	.60	1.82	.09	0.00	0.00	0.00	0.00	2.50
CALM								.34
TOTAL	13.23	68.60	17.80	.03	0.00	0.00	0.00	100.00

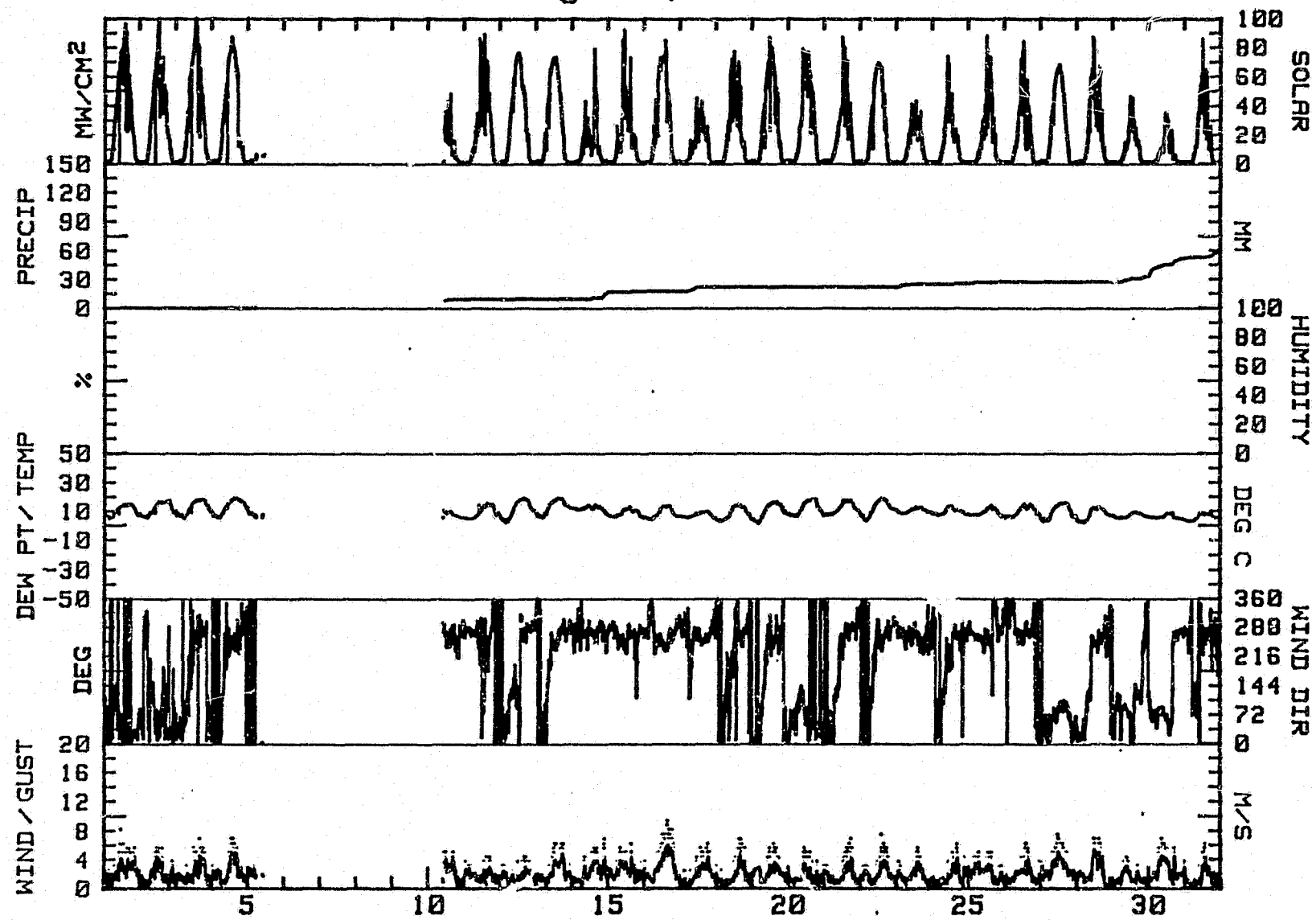
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
3516 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

August, 1982

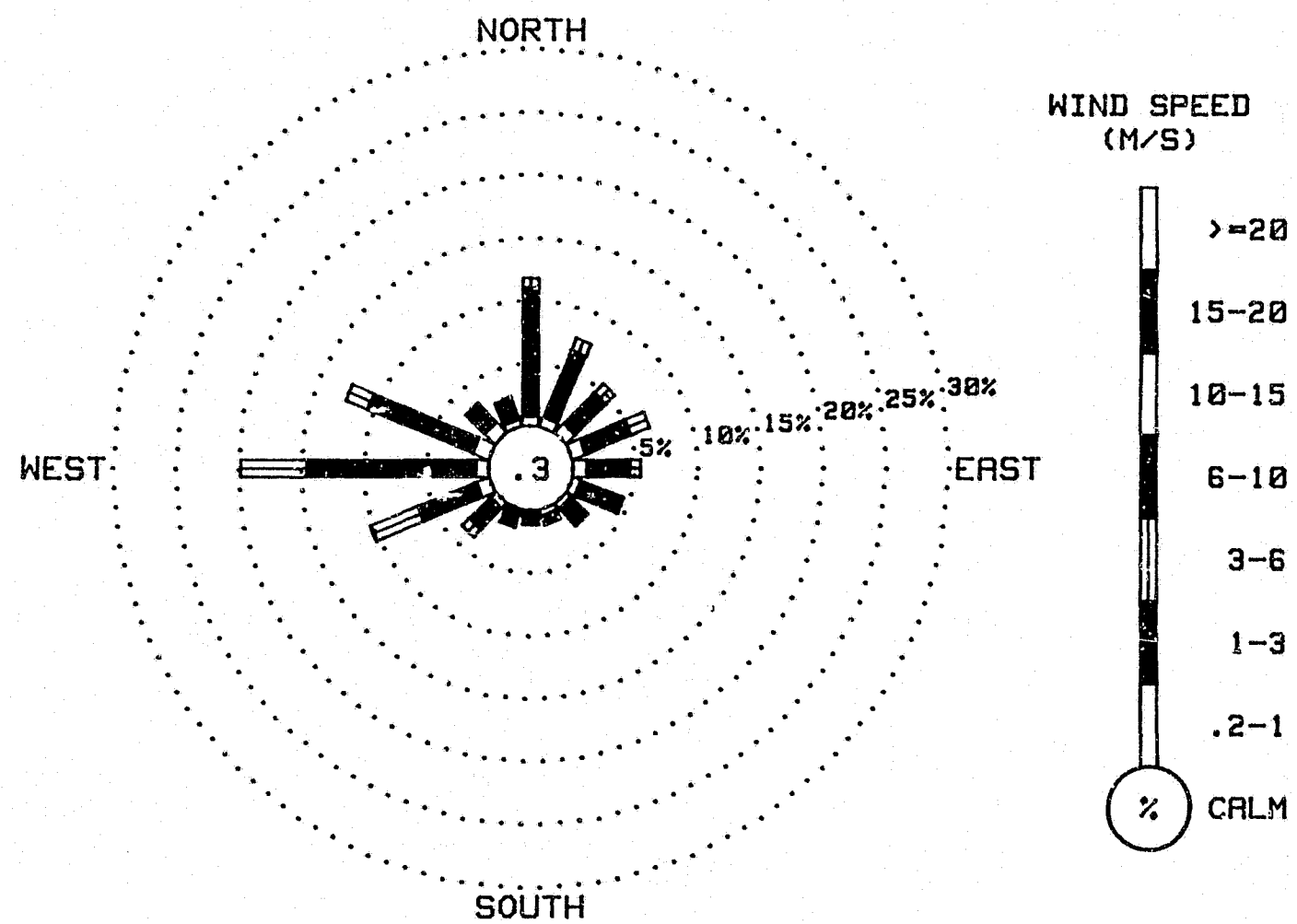


R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

August, 1982



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1982

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE
1	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	.6	0.0	0.0	.6	2
3	.4	.4	.6	.4	0.0	.2	0.0	0.0	0.0	1.4	.2	.2	.6	.6	2.8	.2	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	3
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
5	0.0	0.0	.2	.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	.8	6
7	.6	1.0	.6	.2	.4	.2	0.0	0.0	.2	0.0	.6	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	7
8	.2	0.0	0.0	.2	0.0	.6	.2	.4	0.0	.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8
9	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.4	0.0	9
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	6.4	2.8	.6	.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	.2	.6	1.4	12
13	.8	1.6	2.2	2.0	1.8	1.8	1.8	1.2	1.4	1.8	1.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.6	.2	13
14	.6	.2	.2	.2	1.0	.2	.8	.8	.2	.2	0.0	0.0	0.0	0.0	.2	.4	.8	.8	1.2	1.0	.6	.6	1.0	1.6	14
15	1.8	.6	2.6	1.2	1.0	.4	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	15
16	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	16
17	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18
19	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	.2	.4	.2	.2	0.0	.4	.4	1.0	.6	.8	0.0	.4	0.0	0.0	0.0	19
20	0.0	0.0	0.0	.2	.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	1.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21
22	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	0.0	0.0	1.0	.2	0.0	0.0	.4	.6	.2	0.0	26
27	0.0	0.0	0.0	0.0	.2	.2	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	.2	.8	.6	28
29	.4	.2	.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.6	.6	1.0	1.6	.6	.2	29
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	1.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	30

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1982

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.3	*****	**	094	.8	062	1.9	1
0600	3.8	*****	**	065	.5	357	1.9	5
0900	6.2	*****	**	115	.8	093	2.5	22
1200	10.0	*****	**	139	1.0	114	1.9	54
1500	10.4	*****	**	113	1.7	145	5.1	30
1800	9.4	*****	**	032	1.5	043	4.4	6
2100	4.3	*****	**	006	1.8	026	3.2	1
2400	3.0	*****	**	356	1.6	351	2.5	1

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.2	*****	**	059	.9	358	2.5	2
0600	2.6	*****	**	080	.9	082	2.5	5
0900	7.3	*****	**	291	.2	259	2.5	53
1200	10.6	*****	**	230	2.5	247	7.0	35
1500	10.7	*****	**	253	4.1	253	7.0	47
1800	5.4	*****	**	246	1.9	278	5.7	5
2100	3.8	*****	**	038	.8	300	3.8	1
2400	3.8	*****	**	052	.6	352	1.9	1

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.4	*****	**	070	.7	111	1.9	1
0600	3.9	*****	**	040	.4	102	2.5	4
0900	6.0	*****	**	024	1.0	359	3.2	15
1200	6.7	*****	**	311	1.4	283	3.2	27
1500	4.9	*****	**	258	2.0	251	5.7	14
1800	7.1	*****	**	127	.8	155	1.9	12
2100	4.3	*****	**	340	.5	302	1.9	1
2400	2.8	*****	**	002	1.0	004	2.5	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.2	*****	**	003	1.6	001	3.2	1
0600	1.8	*****	**	003	1.5	005	3.2	4
0900	6.0	*****	**	081	.6	017	1.9	38
1200	8.5	*****	**	140	1.6	138	4.4	63
1500	10.1	*****	**	132	1.5	115	4.4	22
1800	8.6	*****	**	087	1.4	104	4.4	5
2100	4.4	*****	**	037	1.0	088	4.4	1
2400	2.6	*****	**	014	1.4	008	2.5	1

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.6	*****	**	053	3.3	047	6.3	1
0600	4.7	*****	**	059	4.2	069	8.3	3
0900	7.3	*****	**	078	6.5	079	10.2	21
1200	9.6	*****	**	082	6.0	084	10.2	11
1500	13.4	*****	**	069	5.0	077	10.2	29
1800	11.8	*****	**	092	7.7	094	14.0	4
2100	11.1	*****	**	084	6.5	088	13.3	1
2400	11.2	*****	**	088	6.8	097	11.4	1

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	10.0	*****	**	080	5.5	087	9.5	1
0600	8.8	*****	**	084	5.1	082	10.2	5
0900	11.4	*****	**	056	2.7	072	5.7	39
1200	13.9	*****	**	087	3.6	077	8.3	30
1500	12.9	*****	**	081	4.1	083	8.3	16
1800	11.8	*****	**	089	2.5	101	5.1	5
2100	6.8	*****	**	053	1.2	095	5.1	1
2400	6.0	*****	**	267	2.1	282	5.7	1

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.0	*****	**	264	1.8	259	3.8	1
0600	5.2	*****	**	264	2.5	260	4.4	5
0900	7.6	*****	**	272	2.2	249	5.7	27
1200	8.6	*****	**	250	4.3	254	7.0	25
1500	9.7	*****	**	275	4.2	275	7.0	22
1800	8.5	*****	**	275	3.9	287	6.3	7
2100	6.5	*****	**	278	2.1	275	5.7	1
2400	5.9	*****	**	282	1.7	271	3.8	1

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.2	*****	**	286	1.5	295	2.5	2
0600	5.0	*****	**	273	1.4	264	3.8	2
0900	5.3	*****	**	274	2.4	271	4.4	10
1200	6.8	*****	**	263	2.7	264	4.4	20
1500	7.0	*****	**	252	2.8	252	4.4	6
1800	6.0	*****	**	265	1.7	237	3.2	3
2100	5.8	*****	**	278	.5	261	1.3	1
2400	5.1	*****	**	239	.4	215	2.5	2

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.9	*****	**	129	.5	135	1.9	1
0600	5.0	*****	**	254	.3	218	1.9	4
0900	6.1	*****	**	112	.6	182	1.9	11
1200	8.0	*****	**	107	1.8	103	4.4	36
1500	8.8	*****	**	081	4.4	077	7.0	19
1800	8.3	*****	**	086	5.1	087	8.3	2
2100	5.9	*****	**	102	1.6	088	6.3	1
2400	5.1	*****	**	022	.8	072	1.9	2

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1982

DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.2	*****	**	003	1.4	359	2.5	1
0600	3.9	*****	**	022	.9	047	2.5	4
0900	5.9	*****	**	055	1.4	048	3.2	16
1200	7.4	*****	**	074	2.6	067	4.4	27
1500	8.3	*****	**	080	1.9	065	3.2	17
1800	8.5	*****	**	104	1.2	075	2.5	8
2100	4.1	*****	**	017	1.3	006	2.5	1
2400	3.7	*****	**	347	1.1	342	2.5	1

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.6	*****	**	043	.4	103	1.9	1
0600	1.7	*****	**	098	.8	107	1.3	3
0900	2.4	*****	**	111	1.1	113	2.5	18
1200	5.7	*****	**	239	1.6	258	7.6	21
1500	1.9	*****	**	259	4.0	255	8.9	4
1800	2.7	*****	**	259	2.3	245	6.3	3
2100	2.1	*****	**	272	1.7	256	3.8	1
2400	1.2	*****	**	282	1.2	271	4.4	1

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.9	*****	**	314	.9	305	2.5	1
0600	.9	*****	**	314	.4	323	1.9	8
0900	2.8	*****	**	104	1.0	113	3.2	38
1200	6.7	*****	**	095	3.2	084	7.0	50
1500	7.3	*****	**	087	4.3	089	6.3	21
1800	6.9	*****	**	079	4.4	084	7.0	2
2100	3.7	*****	**	089	2.2	080	7.0	2
2400	3.0	*****	**	074	5.3	076	10.8	2

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.6	*****	**	068	5.0	070	8.3	2
0600	3.2	*****	**	053	4.0	063	7.0	2
0900	3.3	*****	**	056	4.0	054	6.3	7
1200	6.7	*****	**	057	3.2	062	5.7	11
1500	11.3	*****	**	076	4.6	055	8.9	38
1800	10.1	*****	**	105	3.5	119	8.9	2
2100	7.1	*****	**	264	3.0	258	5.7	1
2400	5.8	*****	**	273	2.2	274	4.4	2

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.7	*****	**	290	.7	236	2.5	2
0600	5.3	*****	**	128	.5	127	2.5	2
0900	6.0	*****	**	117	.9	121	1.9	8
1200	6.8	*****	**	110	1.3	129	2.5	16
1500	7.4	*****	**	085	1.1	106	2.5	10
1800	6.7	*****	**	083	2.4	087	5.7	2
2100	7.0	*****	**	074	4.4	073	7.0	2
2400	7.2	*****	**	063	4.1	066	7.0	2

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.0	*****	**	050	3.0	063	5.7	2
0600	8.4	*****	**	053	3.7	062	7.0	3
0900	*****	*****	**	***	****	069	7.6	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	7.9	*****	**	330	.8	330	3.2	21
1800	*****	*****	**	277	1.6	277	3.2	2
2100	*****	*****	**	295	1.1	295	2.5	1
2400	*****	*****	**	329	.9	330	1.9	1

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	287	1.3	286	3.2	1
0600	*****	*****	**	018	.7	049	2.5	2
0900	*****	*****	**	063	1.9	061	4.4	18
1200	*****	*****	**	071	4.8	076	8.3	27
1500	10.9	*****	**	088	4.9	090	7.6	6
1800	10.5	*****	**	032	2.7	079	5.7	2
2100	9.6	*****	**	104	5.0	111	8.9	1
2400	6.0	*****	**	186	1.2	132	8.9	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.3	*****	**	295	1.1	275	3.2	1
0600	5.2	*****	**	026	.4	317	1.0	2
0900	6.0	*****	**	279	.7	272	3.2	10
1200	7.8	*****	**	255	.5	275	2.5	16
1500	7.4	*****	**	260	1.0	252	2.5	9
1800	5.3	*****	**	255	2.9	251	5.7	1
2100	4.3	*****	**	273	2.1	268	5.1	1
2400	3.3	*****	**	260	.6	243	5.1	1

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.6	*****	**	082	.5	091	1.9	1
0600	2.8	*****	**	069	1.0	103	1.9	3
0900	5.0	*****	**	079	1.3	084	3.8	22
1200	*****	*****	**	134	1.0	114	3.8	40
1500	6.4	*****	**	261	2.3	238	4.4	9
1800	5.1	*****	**	268	1.0	234	2.5	1
2100	4.3	*****	**	356	.5	008	1.9	1
2400	2.9	*****	**	348	.9	303	2.5	1

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	061	2.9	080	7.6	1
0600	6.1	*****	**	086	5.4	092	8.9	2
0900	*****	*****	**	080	6.4	088	11.4	20
1200	5.1	*****	**	084	7.6	083	11.4	16
1500	5.5	*****	**	249	1.9	208	10.2	6
1800	4.5	*****	**	053	.5	273	4.4	1
2100	4.3	*****	**	354	.1	121	1.9	1
2400	3.4	*****	**	282	1.6	276	3.2	1

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.9	*****	**	009	1.0	028	2.5	1
0600	.7	*****	**	026	1.2	356	3.2	2
0900	3.0	*****	**	002	.4	022	2.5	32
1200	6.5	*****	**	253	3.0	244	6.3	57
1500	4.3	*****	**	265	3.3	248	7.6	12
1800	2.7	*****	**	269	2.1	278	5.7	1
2100	1.1	*****	**	289	1.4	306	2.5	1
2400	-.6	*****	**	337	1.0	288	2.5	1

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.9	*****	**	009	1.8	003	3.2	1
0600	-3.7	*****	**	***	****	***	****	3
0900	*****	*****	**	009	.5	019	2.5	36
1200	6.5	*****	**	220	1.3	253	3.2	50
1500	*****	*****	**	266	1.9	271	4.4	34
1800	3.0	*****	**	278	1.1	226	5.1	2
2100	-.5	*****	**	008	1.8	001	3.2	1
2400	-2.4	*****	**	010	1.7	000	3.2	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.4	*****	**	036	1.5	019	2.5	1
0600	-3.9	*****	**	057	1.7	064	3.2	3
0900	1.6	*****	**	077	1.9	087	5.7	34
1200	7.0	*****	**	085	4.2	075	7.0	52
1500	6.0	*****	**	090	3.6	093	5.7	16
1800	5.2	*****	**	077	2.8	080	5.1	1
2100	3.4	*****	**	073	1.6	081	3.8	1
2400	1.7	*****	**	030	1.2	007	2.5	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.4	*****	**	008	2.0	007	3.2	1
0600	-1.0	*****	**	025	1.4	009	2.5	2
0900	4.6	*****	**	086	1.2	069	5.1	32
1200	9.1	*****	**	072	4.1	078	7.0	24
1500	9.9	*****	**	091	3.2	080	5.7	12
1800	7.6	*****	**	073	.9	090	3.8	1
2100	5.2	*****	**	300	1.0	293	2.5	1
2400	4.4	*****	**	026	.5	013	1.3	1

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.6	*****	**	061	.2	058	1.3	1
0600	1.6	*****	**	288	.5	310	1.9	1
0900	3.3	*****	**	078	1.2	090	2.5	17
1200	*****	*****	**	045	2.5	045	5.1	11
1500	4.4	*****	**	339	1.0	259	3.8	26
1800	2.4	*****	**	280	1.9	280	3.8	1
2100	1.6	*****	**	273	1.8	254	5.1	1
2400	1.0	*****	**	287	1.4	275	3.2	1

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.4	*****	**	289	1.5	305	2.5	1
0600	1.3	*****	**	288	1.7	289	2.5	2
0900	3.0	*****	**	276	1.5	266	3.2	14
1200	*****	*****	**	270	3.4	271	6.3	53
1500	*****	*****	**	262	3.9	269	7.0	16
1800	*****	*****	**	265	2.1	248	4.4	1
2100	-.2	*****	**	007	1.8	009	3.2	1
2400	-1.6	*****	**	053	1.6	035	2.5	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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DAY 28

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.5	*****	**	078	1.8	087	3.2	1
0600	.4	*****	**	065	3.2	062	6.3	2
0900	2.2	*****	**	072	5.1	081	8.9	22
1200	2.3	*****	**	081	5.9	083	9.5	18
1500	2.8	*****	**	086	5.6	091	9.5	5
1800	2.0	*****	**	083	4.5	082	8.3	1
2100	.8	*****	**	078	4.8	086	7.6	1
2400	.8	*****	**	060	4.0	068	6.3	1

DAY 29

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.0	*****	**	050	3.0	054	5.1	1
0600	1.5	*****	**	053	3.2	071	6.3	1
0900	2.5	*****	**	058	4.1	060	6.3	10
1200	4.7	*****	**	077	4.2	081	7.0	32
1500	3.2	*****	**	091	4.7	092	7.6	11
1800	1.8	*****	**	084	2.9	081	5.1	1
2100	*****	*****	**	102	1.3	099	2.5	1
2400	.2	*****	**	025	.5	047	1.9	1

DAY 30

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.4	*****	**	295	.3	289	1.9	1
0600	-.5	*****	**	***	0.0	***	0.0	1
0900	.1	*****	**	271	.9	269	2.5	8
1200	1.1	*****	**	274	1.8	267	3.2	25
1500	2.9	*****	**	266	2.4	261	3.8	14
1800	.5	*****	**	235	.1	282	3.8	1
2100	.1	*****	**	091	.7	127	1.9	1
2400	-.5	*****	**	006	.2	002	1.9	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1982

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	11.1	2.6	6.9	058	.7	1.4	145	5.1	N	**	*****	.2	3498	1
2	11.3	1.2	6.3	256	.7	1.9	247	7.0	E	**	*****	2.2	3938	2
3	7.1	2.1	4.6	337	.4	1.1	251	5.7	N	**	*****	8.2	2098	3
4	10.5	.7	5.6	059	.8	1.6	138	4.4	N	**	*****	0.0	4485	4
5	13.6	2.9	8.3	079	5.6	5.8	094	14.0	E	**	*****	.8	2090	5
6	14.5	5.9	10.2	078	2.8	3.5	082	10.2	E	**	*****	1.2	2930	6
7	9.9	5.1	7.5	269	2.8	2.9	254	7.0	W	**	*****	4.4	2865	7
8	7.4	4.9	6.2	266	1.6	1.8	271	4.4	W	**	*****	2.2	1490	8
9	8.8	4.6	6.7	089	1.7	2.1	087	8.3	E	**	*****	4.6	2265	9
10	8.5	3.4	6.0	050	1.2	1.5	067	4.4	N	**	*****	0.0	2220	10
11	6.6	.6	3.6	257	1.1	1.9	255	8.9	W	**	*****	12.0	1695	11
12	7.6	-.6	3.5	081	2.4	2.8	076	10.8	E	**	*****	2.6	3743	12
13	12.1	1.4	6.8	063	2.3	3.7	055	8.9	ENE	**	*****	18.6	2195	13
14	7.8	5.2	6.5	079	1.7	2.0	073	7.0	ENE	**	*****	12.6	1185	14
15	9.1	6.6	7.7	054	3.5	3.6	069	7.6	NE	**	*****	7.6	542	15
16	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	16
17	7.9	6.0	7.0	296	1.1	1.3	330	3.2	WNW	**	*****	0.0	908	17
18	11.4	6.0	8.7	078	2.1	3.2	111	8.9	E	**	*****	0.0	2305	18
19	8.1	2.6	5.4	269	1.1	1.5	251	5.7	W	**	*****	4.8	1410	19
20	7.3	2.4	4.9	353	.1	1.3	238	4.4	W	**	*****	.6	2145	20
21	10.2	2.1	6.2	079	2.4	3.9	088	11.4	E	**	*****	1.6	1413	21
22	6.5	-1.1	2.7	286	1.2	1.9	248	7.6	W	**	*****	1.0	2720	22
23	6.7	-4.1	1.3	325	.8	1.7	226	5.1	N	**	*****	0.0	3958	23
24	7.9	-5.6	1.2	073	2.2	2.3	075	7.0	E	**	*****	0.0	2960	24
25	10.2	-1.0	4.6	058	1.4	1.9	078	7.0	E	**	*****	0.0	2745	25
26	5.2	.9	3.1	326	.6	1.5	045	5.1	WNW	**	*****	2.8	1798	26
27	6.3	-2.0	2.2	285	1.6	2.2	269	7.0	W	**	*****	.6	2755	27
28	3.1	-4.3	-.6	076	4.3	4.4	083	9.5	ENE	**	*****	2.0	1590	28
29	4.7	.1	2.4	070	2.8	3.0	092	7.6	NE	**	*****	5.8	1730	29
30	2.9	-1.1	.9	274	.6	1.0	261	3.8	W	**	*****	4.4	1568	30
MONTH	14.5	-5.6	5.0	062	.9	2.4	094	14.0	E	**	*****	100.8	67240	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 10.8
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 9.5
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 11.4
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 10.2

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

**** SEE NOTES AT THE BACK OF THIS REPORT ****

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1982

DIRECTION	VELOCITY (M/S) 0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	1.48	7.01	.04	0.00	0.00	0.00	0.00	8.53
NNE	1.14	3.33	.08	0.00	0.00	0.00	0.00	4.55
NE	1.25	3.52	2.99	0.00	0.00	0.00	0.00	7.77
ENE	1.33	4.09	8.30	.72	0.00	0.00	0.00	14.44
E	1.93	5.15	7.84	2.39	0.00	0.00	0.00	17.32
ESE	1.82	4.09	.83	.08	0.00	0.00	0.00	6.82
SE	.87	1.74	.15	0.00	0.00	0.00	0.00	2.77
SSE	.30	.57	0.00	0.00	0.00	0.00	0.00	.87
S	.38	.30	.04	0.00	0.00	0.00	0.00	.72
SSW	.53	.38	.04	0.00	0.00	0.00	0.00	.95
SW	.49	.72	.15	0.00	0.00	0.00	0.00	1.36
WSW	.27	2.61	2.92	.15	0.00	0.00	0.00	5.95
W	1.06	8.87	2.88	.04	0.00	0.00	0.00	12.85
WNW	1.52	5.99	.53	0.00	0.00	0.00	0.00	8.03
NW	1.52	1.21	0.00	0.00	0.00	0.00	0.00	2.73
NNW	1.33	1.17	0.00	0.00	0.00	0.00	0.00	2.50
CALM								1.86
TOTAL	17.20	50.78	26.79	3.37	0.00	0.00	0.00	100.00

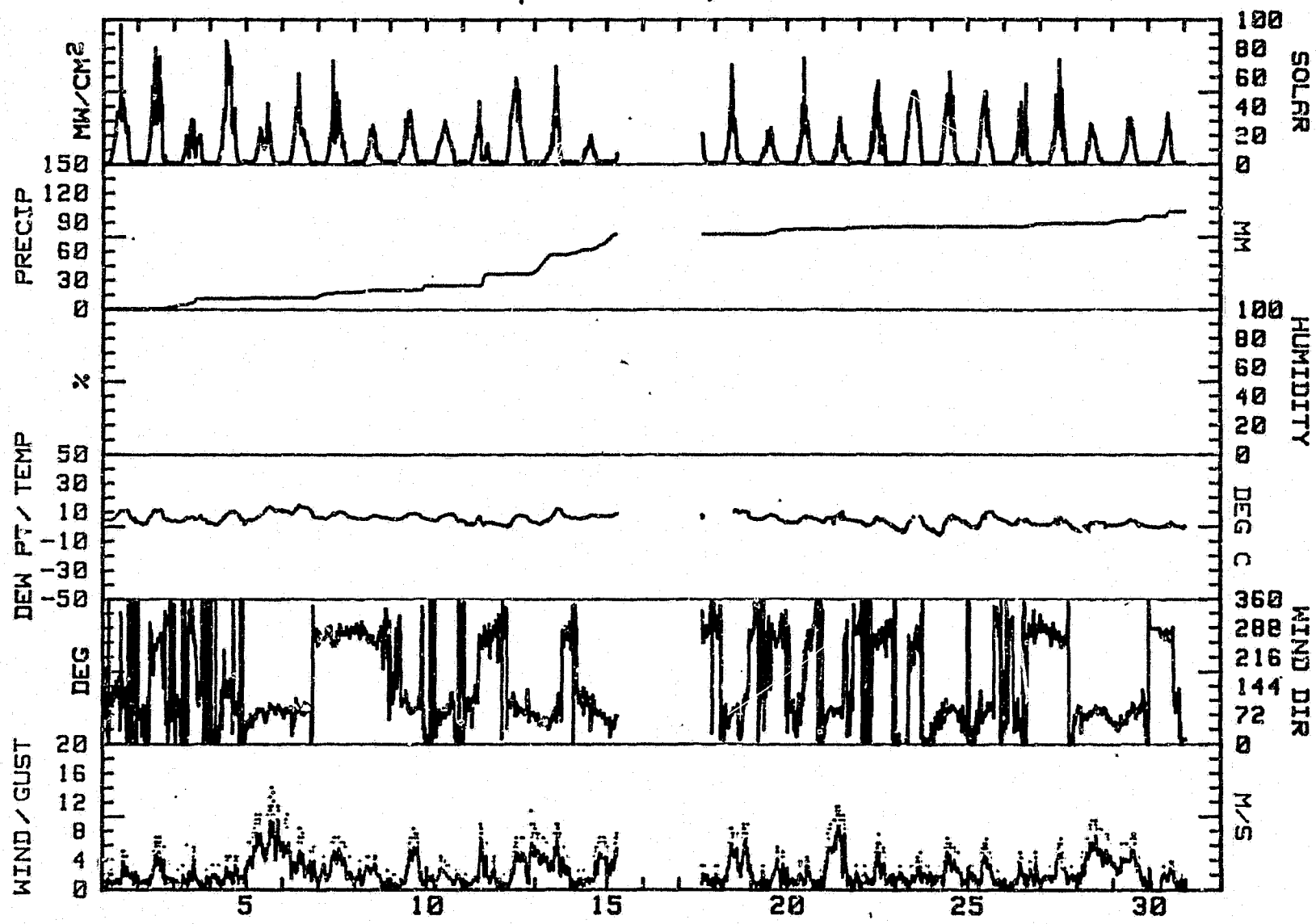
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2639 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

September, 1982



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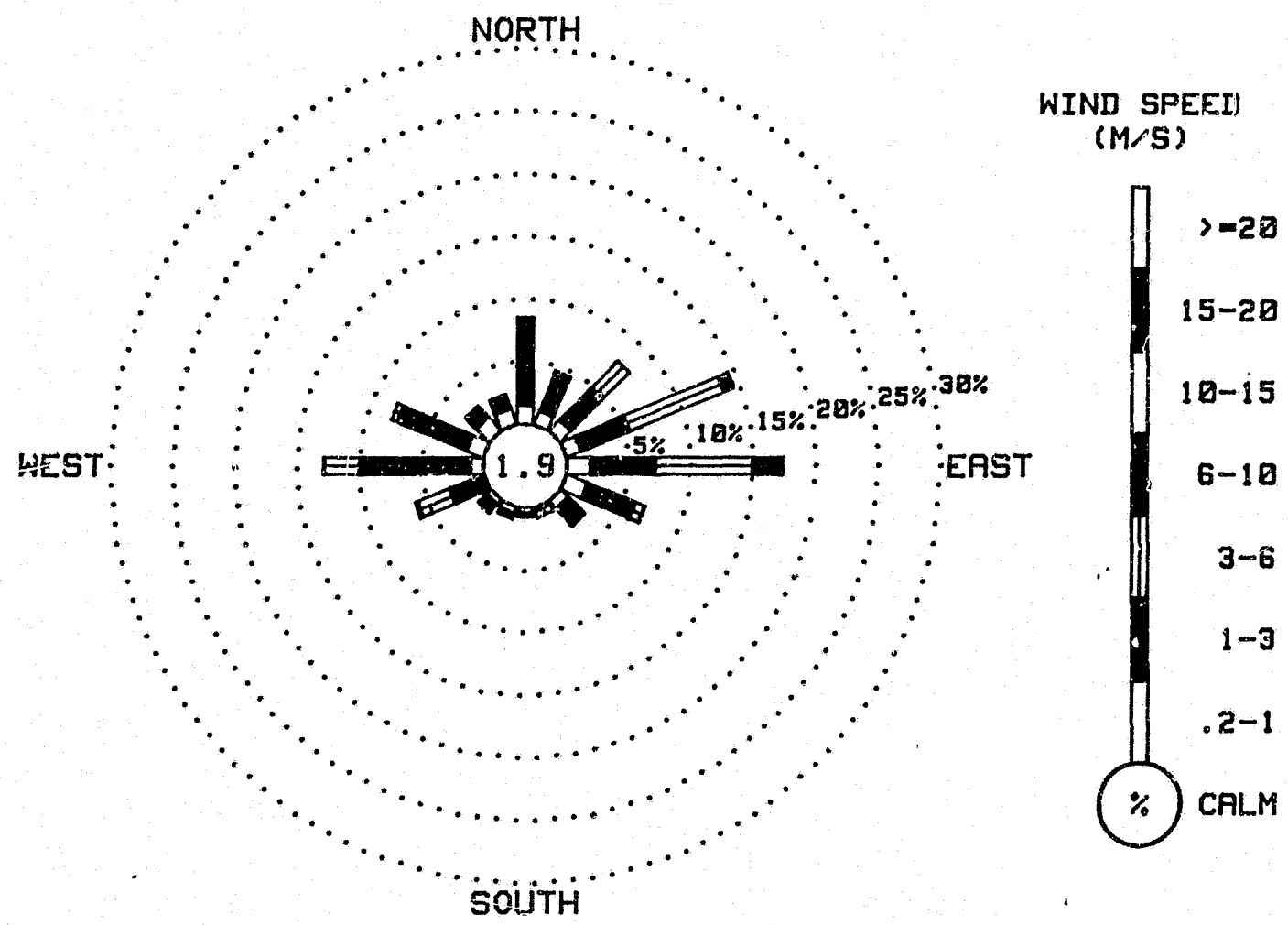
SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

September, 1982



WIND ROSE PLOT

** Missing or bad data that has been deleted for various reasons (see STATION HISTORY, DATA COMPUTATION STANDARDS, or INTERPRETING DATA for an explanation).