

HARLA-EBASCO

Susitna Joint Venture  
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# SUSITNA HYDROELECTRIC PROJECT

## PROCESSED CLIMATIC DATA

### MAY 1982 THRU SEPTEMBER 1982

### VOLUME 7

### 0665 - SHERMAN STATION

DECEMBER 1982

PREPARED BY:



PREPARED FOR:



ALASKA POWER AUTHORITY

ALASKA POWER AUTHORITY  
SUSITNA HYDROELECTRIC PROJECT

**TASK 3 - HYDROLOGY**

**PROCESSED CLIMATIC DATA**

**VOLUME 7**  
**0665 - SHERMAN STATION**  
**MAY 1982 - SEPTEMBER 1982**

**DECEMBER 1982**

**Prepared for:**

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ALASKA POWER AUTHORITY  
SUSITNA HYDROELECTRIC PROJECT

TASK 3 - HYDROLOGY

PROCESSED CLIMATIC DATA

OCTOBER 1981 - SEPTEMBER 1982

VOLUME INDEX

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ALASKA POWER AUTHORITY  
SUSITNA HYDROELECTRIC PROJECT

SHERMAN 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 SHERMAN STATION (0665)

An intensive groundwater study in sloughs below Gold Creek was begun in the spring of 1982. To provide climate data for the study, the Tyone climate station was relocated at Sherman. On May 15, 1982, the Sherman climate station began recording.

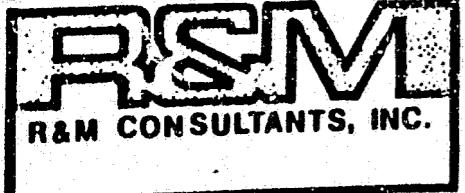
The new station sits in a grass-filled clearing on the floodplain of the Susitna River at Susitna River Mile 129.5. It lies between the Susitna River and the Alaska Railroad tracks - 2,200 feet from the main stem of the Susitna and 700 feet northwest of the tracks. The elevation of the Sherman climate station is 600 feet above mean sea level.

Relative humidity data from September 21 through 31 were lost. The remainder of the data is clean with 100 percent retrieval.

There are no previous data reports for this station.



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



## SHERMAN 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 preceding 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:**  $\pm 1^\circ\text{C}$

**Wind Speed:**  $\pm 0.5$  meters per second

**Wind Direction:**  $\pm 1\%$  of full scale

**Relative Humidity:**  $\pm 6\%$

**Precipitation:**  $\pm 1\%$  up to 76.2 mm/hr,  $\pm 5\%$  from 76.2 mm/hr to 254 mm/hr

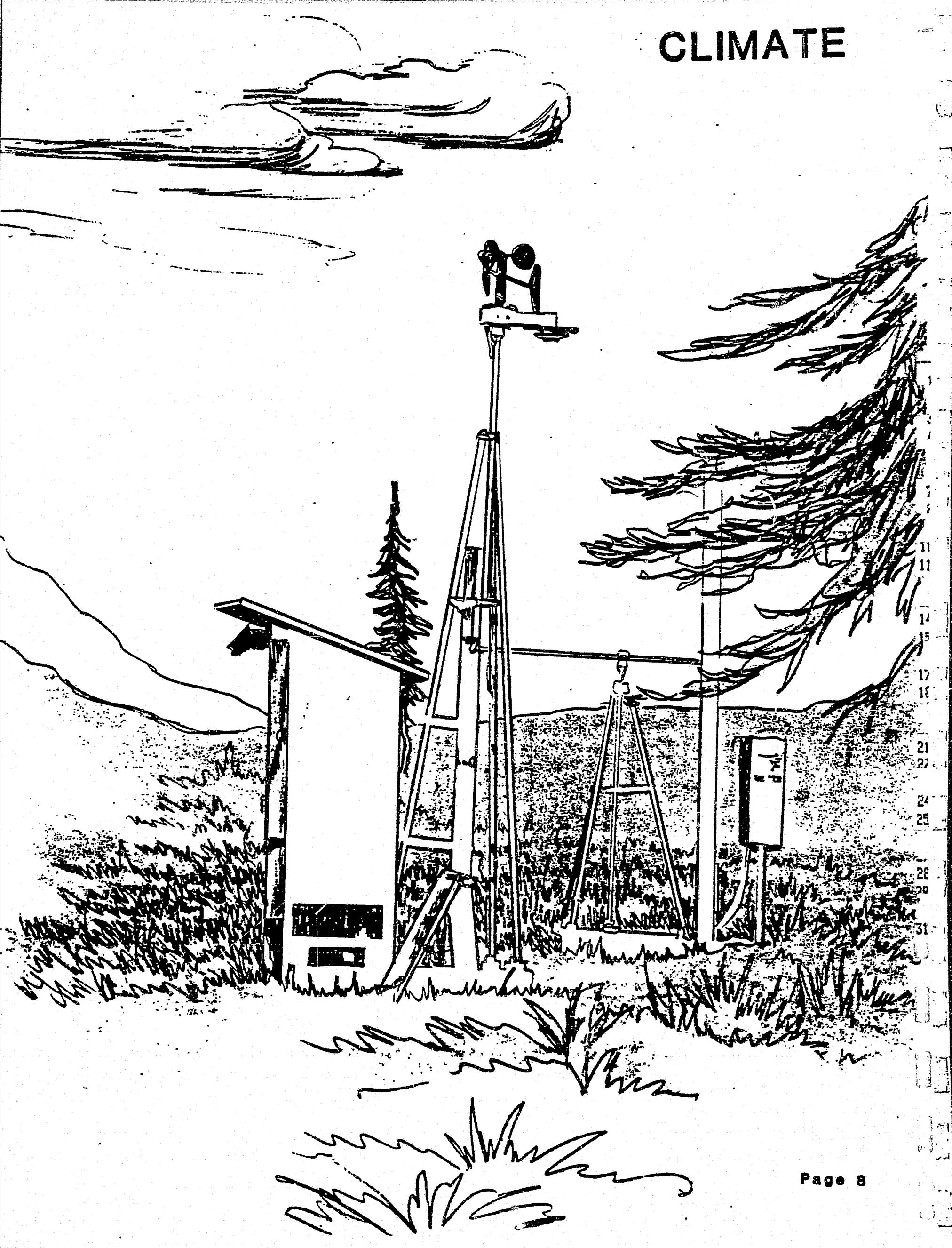
**Solar Radiation:**  $\pm 5\text{mw cm}^{-2}$

**Tape Recorder Error Rate:** 1 bit in 10<sup>7</sup>

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

<u>DIRECTION</u>	<u>COMPASS HEADING</u>
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.

## SUSTAINABLE HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR SHERMAN 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

R & M CONSULTANTS, INC.  
SUSIETNA HYDRO ELECTRIC PROJECT

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

DAY 01

DAY 02

DAY 03

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

DAY 04

DAY 05

DAY 06

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

DAY 07

DAY 08

DAY 09

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

## R &amp; M CONSULTANTS, INC.

## SUSITNA HYDROELECTRIC PROJECT

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

DAY 10

DAY 11

DAY 12

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S DEG. MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S DEG. MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S DEG. MW

0300	*****	*****	**	***	***	***	***	0300	*****	*****	**	***	***	***	***	***	***	***
0600	*****	*****	**	***	***	***	***	0600	*****	*****	**	***	***	***	***	***	***	***
0900	*****	*****	**	***	***	***	***	0900	*****	*****	**	***	***	***	***	***	***	***
1200	*****	*****	**	***	***	***	***	1200	*****	*****	**	***	***	***	***	***	***	***
1500	*****	*****	**	***	***	***	***	1500	*****	*****	**	***	***	***	***	***	***	***
1800	*****	*****	**	***	***	***	***	1800	*****	*****	**	***	***	***	***	***	***	***
2100	*****	*****	**	***	***	***	***	2100	*****	*****	**	***	***	***	***	***	***	***
2400	*****	*****	**	***	***	***	***	2400	*****	*****	**	***	***	***	***	***	***	***

DAY 13

DAY 14

DAY 15

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S DEG. MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S DEG. MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S DEG. MW

0300	*****	*****	**	***	***	***	***	0300	*****	*****	**	***	***	***	***	***	***	***
0600	*****	*****	**	***	***	***	***	0600	*****	*****	**	***	***	***	***	***	***	***
0900	*****	*****	**	***	***	***	***	0900	*****	*****	**	***	***	***	***	***	***	***
1200	*****	*****	**	***	***	***	***	1200	*****	*****	**	***	***	***	11.6	****	8	046 .4
1500	*****	*****	**	***	***	***	***	1500	*****	*****	**	***	***	***	1500	11.4	-21.9	8 256 1.0
1800	*****	*****	**	***	***	***	***	1800	*****	*****	**	***	***	***	1800	11.7	-20.3	9 231 .9
2100	*****	*****	**	***	***	***	***	2100	*****	*****	**	***	***	***	2100	2.4	****	23 271 .4
2400	*****	*****	**	***	***	***	***	2400	*****	*****	**	***	***	***	2400	-1.7	****	50 041 .2

DAY 16

DAY 17

DAY 18

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S DEG. MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S DEG. MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S DEG. MW

0300	-3.1	****	60	046	.2	052	.6	1	0300	-1.4	****	44	056	.6	051	1.9	1	0300	0.0	****	58	048	.2	055	1.3	1
0600	1.7	****	25	068	.1	044	.6	27	0600	3.9	-20.4	15	083	.7	067	2.5	34	0600	3.0	****	54	066	.1	066	1.3	10
0900	9.3	****	9	034	.5	041	1.9	64	0900	10.2	-27.6	5	139	.3	193	2.5	35	0900	5.6	-9.2	34	244	.6	204	1.9	34
1200	12.3	-26.1	5	056	1.7	064	4.4	86	1200	12.3	-26.1	5	175	1.6	148	6.3	89	1200	8.9	-21.2	10	213	.9	197	2.5	35
1500	13.3	-27.4	4	059	2.0	035	5.7	68	1500	9.7	8.4	92	215	2.6	194	6.3	29	1500	10.3	-22.7	8	053	.0	164	3.2	31
1800	12.3	-26.1	5	024	2.1	019	5.1	27	1800	10.5	-27.4	5	172	.7	184	3.8	21	1800	6.4	-12.3	25	196	2.0	199	5.7	10
2100	3.2	****	20	026	1.0	023	4.4	3	2100	4.4	-9.5	36	192	.4	205	5.1	2	2100	4.3	-8.9	38	188	1.8	209	4.4	1
2400	-.9	****	41	042	.3	035	1.3	1	2400	-4	****	57	068	.2	192	1.3	1	2400	2.2	****	47	194	1.1	177	3.8	1

## R &amp; M CONSULTANTS, INC.

## SUSITTNA HYDROELECTRIC PROJECT

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

DAY 19

DAY 20

DAY 21

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.			
NDNG TEMP.	POINT RH	DIR. SPD.	DIR. GUST	RAD	NDNG TEMP.	POINT RH	DIR. SPD.	DIR. GUST	RAD	NDNG TEMP.	POINT RH	DIR. SPD.	DIR. GUST	RAD
DEG C	DEG C	%	DEG. M/S	MW	DEG C	DEG C	%	DEG. M/S	MW	DEG C	DEG C	%	DEG. M/S	MW

0300	-7 ****	64	096	.2	159	1.3	1	0300	-1.2 ****	55	069	.3	032	1.9	1	0300	-4 ****	69	139	.2	139	1.3	1
0600	3.8 ****	39	026	.3	040	1.3	26	0600	3.0 ****	30	045	.5	354	1.9	22	0600	4.4 -12.7	28	164	.1	184	3.2	17
0900	10.0 -23.0	8	029	1.4	023	3.8	67	0900	9.0 -21.2	10	212	.5	205	4.4	54	0900	8.0 -19.8	12	192	2.2	177	4.4	49
1200	10.5 -27.4	5	059	1.6	030	4.4	61	1200	10.1 -21.6	9	207	3.2	202	7.0	42	1200	10.2 -22.8	9	219	2.1	221	4.4	41
1500	11.4 -20.6	9	161	1.1	215	7.6	48	1500	9.2 -17.9	13	172	3.2	160	6.3	38	1500	12.1 -21.4	8	242	1.0	309	4.4	80
1800	10.2 ****	8	340	1.0	337	3.8	16	1800	8.2 -21.8	10	164	3.1	143	7.6	11	1800	11.0 -18.5	11	296	2.2	305	5.7	30
2100	2.6 ****	30	250	.3	234	1.9	2	2100	3.7 ****	45	168	.7	160	5.7	1	2100	3.5 ****	17	255	.6	281	3.2	3
2400	-1.4 ****	56	042	.3	049	1.3	1	2400	1.6 ****	55	081	.4	075	1.9	1	2400	-2.0 ****	46	051	.4	073	1.9	1

DAY 22

DAY 23

DAY 24

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.			
NDNG TEMP.	POINT RH	DIR. SPD.	DIR. GUST	RAD	NDNG TEMP.	POINT RH	DIR. SPD.	DIR. GUST	RAD	NDNG TEMP.	POINT RH	DIR. SPD.	DIR. GUST	RAD
DEG C	DEG C	%	DEG. M/S	MW	DEG C	DEG C	%	DEG. M/S	MW	DEG C	DEG C	%	DEG. M/S	MW

0300	-3.9 ****	58	053	.3	036	.6	1	0300	-1.5 ****	48	047	.4	031	1.3	2	0300	-3 ****	39	035	.4	018	1.9	2
0600	2.6 -19.4	18	048	.4	030	1.9	37	0600	5.5 -18.4	16	033	.7	063	1.9	34	0600	3.5 ****	25	055	.2	349	1.3	10
0900	11.5 -26.7	5	020	.7	098	2.5	65	0900	11.9 -20.2	9	020	1.9	026	6.3	65	0900	9.9 ****	12	344	.5	354	1.9	23
1200	13.6 -27.2	4	236	.7	287	3.8	81	1200	14.5 -26.6	4	041	2.6	026	6.3	87	1200	13.6 -21.8	7	007	1.2	024	5.1	69
1500	14.6 -26.5	4	142	1.6	142	4.4	68	1500	15.1 -26.1	4	075	2.3	030	5.7	50	1500	12.7 -22.4	7	189	2.2	181	7.0	47
1800	13.1 -8.8	21	187	1.8	185	4.4	19	1800	14.4 -26.6	4	357	2.1	323	5.7	23	1800	11.5 -21.8	8	181	3.0	167	7.0	18
2100	5.4 ****	13	198	.9	186	4.4	3	2100	6.1 ****	10	001	.8	339	3.8	2	2100	9.0 ****	15	199	1.7	193	5.7	3
2400	.8 ****	33	079	.3	190	1.3	1	2400	.4 ****	30	045	.3	070	1.3	2	2400	7.4 ****	26	157	.3	178	1.3	2

DAY 25

DAY 26

DAY 27

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.			
NDNG TEMP.	POINT RH	DIR. SPD.	DIR. GUST	RAD	NDNG TEMP.	POINT RH	DIR. SPD.	DIR. GUST	RAD	NDNG TEMP.	POINT RH	DIR. SPD.	DIR. GUST	RAD
DEG C	DEG C	%	DEG. M/S	MW	DEG C	DEG C	%	DEG. M/S	MW	DEG C	DEG C	%	DEG. M/S	MW

0300	4.5 ****	64	179	.2	186	4.4	1	0300	2.0 ****	76	047	.3	037	1.3	1	0300	3.3 ****	86	051	.2	074	1.3	1
0600	5.1 ****	67	120	.2	175	1.9	4	0600	4.3 ****	64	114	.1	024	1.3	7	0600	4.3 ****	92	274	.0	241	1.3	4
0900	7.2 -7.4	35	028	1.0	026	2.5	19	0900	8.1 -2.9	27	301	.1	221	1.9	17	0900	7.2 -3.1	48	014	.7	350	3.2	19
1200	7.8 -6.1	37	193	.5	177	3.2	25	1200	9.5 -14.5	17	197	1.9	188	3.8	24	1200	11.8 -16.8	12	334	.8	314	3.2	45
1500	7.4 -6.5	37	192	2.2	213	5.1	53	1500	10.2 -15.4	11	201	1.5	187	3.8	20	1500	10.1 -11.3	21	188	2.2	179	5.7	21
1800	10.1 ****	24	291	.3	136	2.5	13	1800	10.1 -14.6	16	216	1.4	238	3.8	16	1800	8.5 ****	36	203	1.9	201	5.7	13
2100	5.4 ****	53	316	.1	314	1.9	1	2100	6.3 ****	56	216	.7	231	3.2	1	2100	5.9 ****	64	216	.6	235	1.9	1
2400	2.1 ****	68	107	.4	111	1.9	1	2400	2.7 ****	75	062	.3	065	1.3	0	2400	4.3 ****	78	166	.1	288	1.3	1

## R &amp; M CONSULTANTS, INC.

## SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.						
NDNG TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	NDNG TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	NDNG TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD		
	DEG C	DEG C	%	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW
0300	4.3	*****	94	205	.2	224	1.9	1	0300	5.4	-12.2	27	200	1.5	201	3.2	2	0300	4.2	*****	88	128	.1
0600	5.4	-2.4	57	217	1.3	228	2.5	10	0600	5.8	-11.9	27	195	1.7	193	3.8	6	0600	6.0	*****	71	061	.1
0900	6.9	-3.7	47	204	1.5	200	3.2	33	0900	6.1	-10.7	29	209	1.8	215	3.8	11	0900	8.5	-7.8	31	016	.3
1200	7.3	-5.2	41	232	2.2	278	6.3	77	1200	10.0	-16.4	14	226	1.6	232	4.4	48	1200	12.1	-13.0	16	227	.4
1500	8.0	-9.1	29	232	2.7	229	8.3	49	1500	10.2	-21.5	9	241	2.5	225	4.4	16	1500	15.3	-22.2	6	336	1.4
1800	9.9	-14.8	16	250	1.5	240	3.2	10	1800	9.5	-15.9	15	242	2.4	250	4.4	11	1800	15.3	*****	7	227	.8
2100	7.9	*****	20	216	.8	239	3.2	3	2100	6.4	*****	45	212	1.4	252	3.8	1	2100	7.9	*****	22	296	.6
2400	6.3	*****	27	201	.9	200	2.5	2	2400	4.8	*****	74	195	.2	195	1.9	1	2400	1.1	*****	62	092	.2

DAY 31

HOUR	DEW	WIND	WIND	GUST	MAX.
NDNG TEMP.	POINT	RH	DIR.	SPD.	GUST RAD
	DEG C	DEG C	%	DEG. M/S	MW
0300	0.0	*****	80	079	.3
0600	7.1	-15.0	19	083	.6
0900	16.4	-19.7	7	049	1.2
1200	19.2	-28.1	2	080	1.9
1500	20.0	-27.6	2	070	1.4
1800	19.2	-28.1	2	359	1.8
2100	13.2	*****	8	019	.9
2400	2.0	*****	43	090	.3

061	1.3	2
059	3.2	31
049	1.2	097
072	5.7	82
091	4.4	64
035	5.1	31
341	4.4	3
143	1.3	1

R & M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT

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

DAY	MAX. DEG C	MIN. DEG C	MEAN DEG C	RES. DIR.	RES. SPD. M/S	Avg. WIND DIR.	MAX. GUST SPD. M/S	MAX. P'VAL DIR.	MEAN RH %	MEAN DEG C	DAY'S PRECIP MM	SOLAR ENERGY WH/SDM	
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	*****	*****	*****	***	****	***	***	***	**	*****	***	*****	14
15	12.7	-1.8	5.5	253	.5	.8	295	4.4	W	17	-19.4	0.0	7080
16	13.9	-3.4	5.3	043	.9	1.0	035	5.7	NE	22	-25.0	0.0	8150
17	12.6	-1.8	5.4	176	.6	1.3	148	6.3	SSW	23	-21.4	0.0	6988
18	11.4	-6	5.4	198	.7	1.1	199	5.7	SSW	34	-15.1	.2	4478
19	12.1	-1.7	5.2	046	.4	1.1	215	7.6	NNE	26	-23.2	0.0	6795
20	10.6	-1.6	4.5	175	1.2	1.7	143	7.6	S	29	-19.8	0.0	4990
21	12.2	-2.0	5.1	233	.7	1.4	305	5.7	S	27	-19.9	0.0	6700
22	14.9	-3.9	5.5	165	.4	1.1	142	4.4	S	19	-25.1	0.0	7715
23	15.8	-1.5	7.2	033	1.3	1.5	026	6.3	NNE	16	-24.9	0.0	7945
24	14.7	-8	7.0	184	.6	1.4	181	7.0	SSW	18	-21.5	0.0	5008
25	11.1	2.1	6.6	178	.2	.9	213	5.1	S	45	-6.6	2.4	3155
26	10.5	1.1	5.8	202	.6	.9	188	3.8	SSW	41	-14.7	.2	2880
27	12.3	2.6	7.5	205	.4	.9	179	5.7	SSW	54	-9.6	1.2	3015
28	11.2	3.4	7.3	225	1.3	1.4	229	8.3	SW	42	-7.6	2.8	4458
29	10.8	4.8	7.8	220	1.5	1.7	232	4.4	SSW	27	-14.3	.4	3460
30	16.0	1.1	8.8	302	.2	.9	142	3.8	N	39	-17.2	.2	5933
31	20.9	-1.0	10.0	052	.9	1.2	072	5.7	E	23	-22.1	0.0	8378
MONTH	20.9	-3.9	6.4	193	.3	1.2	229	8.3	SSW	30	-18.1	7.4	97125

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS      6.3  
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL      5.7  
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL      3.2  
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS      3.2

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 &amp; M CONSULTANTS, INC.

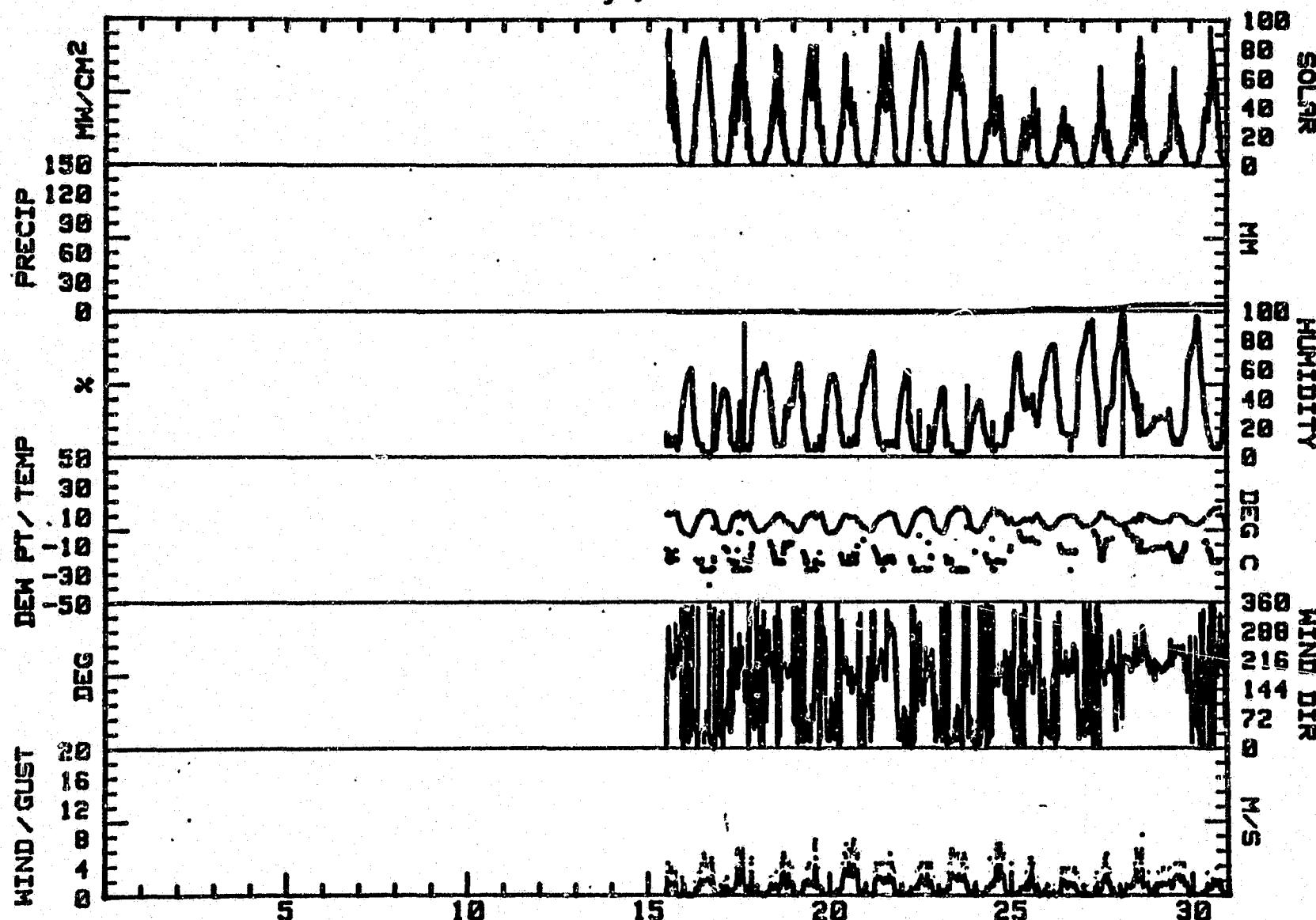
## SUSITNA HYDROELECTRIC PROJECT

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

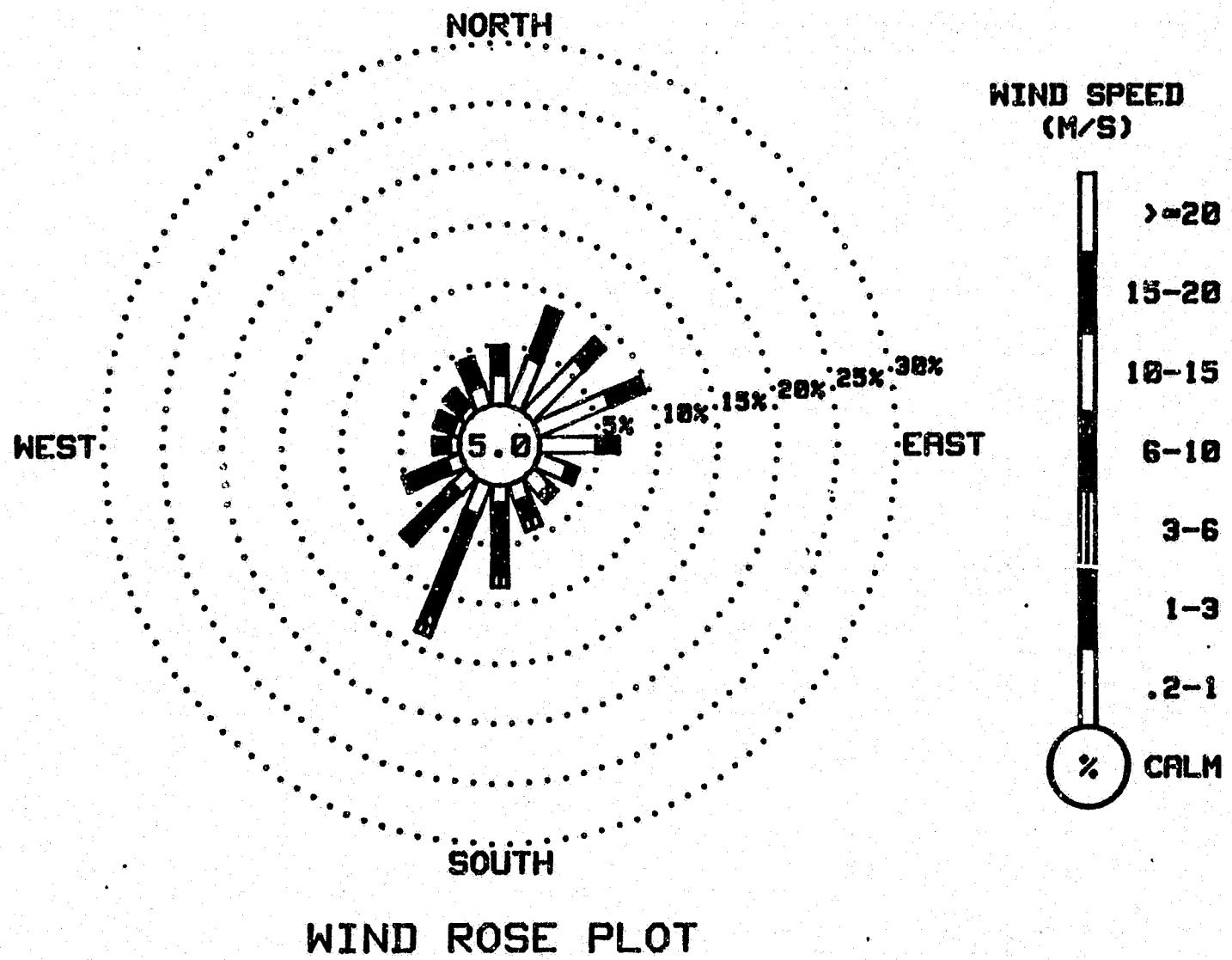
DIRECTION	VELOCITY (M/S)							TOTAL
	0.2	1.0	3.0	6.0	10.0	15.0	20.0	
	TO	TO	TO	TO	TO	TO	OR	
1.0	3.0	6.0	10.0	15.0	20.0	20.0	GREATER	
N	2.52	2.33	0.00	0.00	0.00	0.00	0.00	4.85
NNE	4.28	4.28	.13	0.00	0.00	0.00	0.00	8.69
NE	6.11	2.39	0.00	0.00	0.00	0.00	0.00	8.50
ENE	6.49	3.02	0.00	0.00	0.00	0.00	0.00	9.51
E	4.79	1.76	.06	0.00	0.00	0.00	0.00	6.61
ESE	2.64	.88	0.00	0.00	0.00	0.00	0.00	3.53
SE	1.95	.63	.19	0.00	0.00	0.00	0.00	2.77
SSE	1.57	1.64	.94	0.00	0.00	0.00	0.00	4.16
S	1.51	5.98	.94	0.00	0.00	0.00	0.00	8.44
SSW	2.77	10.01	.88	0.00	0.00	0.00	0.00	13.67
SW	1.76	5.54	.44	0.00	0.00	0.00	0.00	7.75
WSW	1.32	3.72	.13	0.00	0.00	0.00	0.00	5.16
W	.88	1.26	.06	0.00	0.00	0.00	0.00	2.20
WNW	.76	1.57	0.00	0.00	0.00	0.00	0.00	2.33
NW	.76	1.83	0.00	0.00	0.00	0.00	0.00	2.58
NNW	1.83	2.46	0.00	0.00	0.00	0.00	0.00	4.28
CALM	-----	-----	-----	-----	-----	-----	-----	4.97
TOTAL	41.94	49.31	3.78	0.00	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT  
1588 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT  
SHERMAN WEATHER STATION  
May, 1982



R&M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT  
SHERMAN WEATHER STATION  
May, 1982



R & M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT

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

PRECIPITATION VALUES ARE IN MILLIMETERS

DATE	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				
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	0.0	1		
2	1.2	1.2	1.8	1.0	1.8	1.8	2.2	2.4	2.2	.6	.2	.4	.2	.2	0.0	.4	0.0	1.6	.2	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	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	0.0	4		
5	1.0	1.2	1.2	1.6	.8	.8	0.0	.4	.2	.4	0.0	0.0	.2	.2	.4	.2	0.0	.2	.4	.8	.6	.6	.4	.4	.4	.4	5	
6	.6	1.8	1.0	.6	.2	.2	0.0	0.0	.2	0.0	0.0	1.0	.6	.4	.4	.4	.8	.6	.2	.2	.6	.4	.2	0.0	0.0	0.0	6	
7	0.0	.4	.2	0.0	0.0	0.0	0.0	0.0	0.0	1.8	.8	1.4	1.0	0.0	0.0	0.0	.2	0.0	0.0	.6	.2	.2	0.0	0.0	0.0	0.0	7	
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	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	.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	9		
10	0.0	0.0	0.0	0.0	0.0	0.0	.4	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	.4	1.0	.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0	10	
11	.2	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	11	
12	.4	.2	0.0	.2	0.0	0.0	.2	.2	0.0	0.0	0.0	0.0	.8	1.2	.6	0.0	0.0	0.0	0.0	.2	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	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	0.0	14		
15	0.0	0.0	0.0	0.0	.8	2.2	2.2	2.6	1.0	1.0	1.0	.8	.2	.2	0.0	.2	0.0	0.0	0.0	0.0	.4	0.0	0.0	0.0	0.0	0.0	15	
16	.2	.4	.6	.4	1.0	.8	.5	.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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	.2	.2	.8	.4	0.0	0.0	0.0	.2	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	0.0	19		
20	0.0	.2	.8	1.0	1.0	1.2	1.2	.6	.6	.6	.2	.2	.2	.4	.6	.2	.2	.2	0.0	.4	0.0	.2	0.0	.4	0.0	0.0	20	
21	.2	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	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	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	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	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	.8	1.2	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	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	0.0	27		
28	0.0	0.0	.2	.2	0.0	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	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	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	1.2	1.0	0.0	1.8	2.4	.8	1.8	.2	0.0	0.0	

R & M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

DAY 02

DAY 03

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.						
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD				
DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW

0300	-2 ****	60	076	.4	103	1.3	2	0300	7.0 ****	73	154	.2	180	1.3	1	0300	3.7 ****	81	055	.5	064	1.9	1	
0600	7.8 ****	10	092	.3	036	1.9	33	0600	7.1 ****	69	166	.3	105	1.3	3	0600	6.3 ****	59	076	.2	155	1.3	17	
0900	16.3 -21.4	6	193	.5	236	3.2	67	0900	7.7	-5	56	236	.5	208	2.5	18	0900	10.7 -22.4	8	007	.8	324	3.2	66
1200	19.4 -21.1	5	218	2.4	213	5.1	63	1200	8.6	-7	52	217	1.9	213	3.8	12	1200	12.7 -20.9	8	256	1.1	186	3.8	27
1500	19.1 -28.2	2	236	2.9	239	7.6	44	1500	9.4	.3	53	202	.7	219	3.2	18	1500	13.9 -21.5	7	263	1.2	258	3.2	46
1800	16.4 -21.4	6	235	3.1	214	7.0	19	1800	7.9 ****	57	043	1.1	034	3.8	6	1800	15.3 ****	7	288	.7	320	3.2	31	
2100	12.0 ****	11	217	1.2	240	6.3	2	2100	6.4 ****	59	060	.6	020	2.5	1	2100	5.9 ****	30	318	.5	324	1.9	3	
2400	8.3 ****	47	185	.2	225	1.9	1	2400	3.7 ****	75	064	.5	074	1.9	1	2400	1.0 ****	61	260	.3	216	1.3	1	

DAY 04

DAY 05

DAY 06

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.						
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD				
DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW

0300	-1.2 ****	69	110	.2	188	1.3	2	0300	6.0 ****	90	152	.0	162	.6	1	0300	6.4 ****	92	094	.2	112	.6	1	
0600	6.5 ****	19	077	.3	136	1.3	31	0600	6.6 ****	89	041	.1	054	1.3	3	0600	7.7 ****	2	035	.3	002	1.9	13	
0900	13.6 -20.3	8	026	1.8	034	3.2	54	0900	7.6 ****	63	055	.2	044	1.3	12	0900	9.9 ****	50	028	.7	034	1.9	21	
1200	15.8 -21.8	6	253	1.5	239	5.7	54	1200	9.5	-3.5	40	024	.9	026	1.9	27	1200	10.6 ****	52	000	.4	012	2.5	18
1500	16.5 -19.6	7	234	2.9	252	6.3	48	1500	10.0 ****	38	327	.3	012	1.9	24	1500	11.3 ****	44	321	.6	326	1.3	22	
1800	12.4 -19.8	9	237	3.2	226	8.3	12	1800	9.0 ****	50	090	.2	182	1.9	6	1800	10.4	3.0	60	229	.9	212	2.5	12
2100	7.4 ****	46	248	1.8	248	5.7	1	2100	7.3 ****	69	095	.1	106	.6	1	2100	8.3 ****	64	221	1.2	220	2.5	1	
2400	6.2 ****	73	148	.2	185	1.3	1	2400	6.8 ****	83	133	.1	201	1.3	1	2400	6.5 ****	80	228	.2	235	1.3	1	

DAY 07

DAY 08

DAY 09

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.						
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD				
DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW

0300	5.0 ****	93	111	.0	107	.6	1	0300	4.3 ****	89	116	.2	041	.6	2	0300	5.1 ****	72	109	.2	081	1.3	2		
0600	7.8 ****	78	030	.3	040	-1.3	14	0600	5.9 ****	67	044	.5	017	1.9	8	0600	8.1 ****	43	088	.3	136	1.3	11		
0900	9.7 ****	51	017	.8	037	1.9	13	0900	10.8	-4.2	35	360	.5	283	2.5	66	0900	10.5 ****	38	074	.5	077	1.9	28	
1200	9.2	2.1	61	.1	237	1.9	11	1200	15.9	-20.1	7	253	.8	339	2.5	62	1200	13.6	-4.7	28	008	1.0	346	2.5	49
1500	11.3	-2.3	39	226	1.2	251	3.2	25	1500	17.1	-20.9	6	211	2.0	199	4.4	36	1500	13.7 ****	24	204	.1	070	2.5	18
1800	11.6 ****	41	225	1.4	250	3.8	22	1800	13.3	-11.3	17	226	1.9	232	5.1	28	1800	13.9 ****	21	333	.2	212	2.5	11	
2100	7.6 ****	64	218	1.0	232	5.1	2	2100	9.2 ****	43	234	.8	213	2.5	3	2100	11.0 ****	47	068	.2	059	1.3	2		
2400	5.7 ****	81	120	.1	017	.6	1	2400	4.5 ****	76	089	.2	094	1.3	1	2400	7.4 ****	64	092	.3	052	1.3	1		

## R &amp; M CONSULTANTS, INC.

S S L J S I T N A HYDROCELL ECOTEC CO PROJECCT

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

DAY 10

DAY 11

DAY 12

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.															
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST RAD										
DEG C	DEG C	%	DEG C	DEG C	DEG C	DEG C	DEG C	DEG C	DEG C	M/S	M/S	M/S	M/S	M/S	M/S	M/S										
0300	7.6	*****	64	083	.4	104	1.3	2	0300	6.9	*****	8	067	.2	105	1.9	1	0300	6.0	*****	95	099	.2	096	1.3	1
0600	10.0	*****	54	061	.5	039	1.9	14	0600	7.6	*****	1	037	.2	006	1.9	6	0600	7.8	*****	62	029	.5	042	1.9	10
0900	12.7	*****	47	346	.3	340	1.9	22	0900	9.8	*****	48	322	.3	348	1.3	24	0900	10.6	-4.4	35	268	.5	222	1.9	35
1200	16.1	-6.3	21	273	.4	064	1.9	43	1200	12.9	-9.6	20	221	1.2	210	3.2	50	1200	12.6	*****	18	011	.4	327	2.5	25
1500	14.1	-5.7	25	237	1.5	228	7.0	15	1500	13.8	-12.5	15	224	1.4	229	3.8	35	1500	8.0	-1.0	53	218	1.0	212	6.3	11
1800	10.0	1.1	54	215	1.5	207	4.4	6	1800	13.2	-16.8	11	210	1.6	223	3.2	16	1800	9.8	*****	34	174	.1	201	3.2	12
2100	9.1	*****	71	193	.2	221	1.9	1	2100	10.1	*****	27	214	.9	208	3.2	2	2100	5.1	*****	69	229	.5	241	3.2	2
2400	6.9	*****	83	084	.1	206	1.9	1	2400	7.2	*****	68	091	.1	093	1.9	1	2400	.3	*****	93	090	.3	055	1.3	0

DAY 13

DAY 14

DAY 15

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.															
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST RAD										
DEG C	DEG C	%	DEG C	DEG C	DEG C	DEG C	DEG C	DEG C	DEG C	M/S	M/S	M/S	M/S	M/S	M/S	M/S										
0300	.9	*****	98	104	.2	115	.6	2	0300	3.3	*****	75	090	.2	039	1.3	2	0300	6.4	-5	61	212	1.4	232	3.2	1
0600	4.4	*****	60	079	.3	053	1.9	21	0600	7.6	*****	33	151	.2	141	1.3	22	0600	6.0	-7	62	198	1.2	207	3.2	3
0900	10.5	*****	18	039	.7	048	1.9	27	0900	13.0	-16.9	11	212	1.4	209	3.8	66	0900	6.2	-4.0	48	216	1.2	196	3.2	17
1200	13.4	-27.3	4	206	.8	174	2.5	49	1200	16.4	-27.5	3	210	2.1	218	4.4	71	1200	6.6	-3.4	49	224	1.1	214	2.5	22
1500	14.0	*****	4	221	1.0	247	2.5	24	1500	16.4	.4	34	224	2.3	219	5.1	45	1500	7.8	-4.1	43	221	1.3	221	3.2	20
1800	13.9	-27.0	4	234	.9	246	3.2	18	1800	12.6	-13.4	15	238	3.1	241	6.3	29	1800	7.7	-1.8	51	193	1.2	210	2.5	8
2100	6.8	*****	53	217	.4	205	2.5	3	2100	9.4	-9.3	26	236	2.6	243	7.0	3	2100	7.0	*****	57	198	.7	204	1.9	1
2400	3.8	*****	68	108	.2	128	1.3	1	2400	8.0	-8.2	31	216	1.4	229	3.8	1	2400	6.0	*****	71	187	.5	194	1.9	1

DAY 16

DAY 17

DAY 18

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.															
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST RAD										
DEG C	DEG C	%	DEG C	DEG C	DEG C	DEG C	DEG C	DEG C	DEG C	M/S	M/S	M/S	M/S	M/S	M/S	M/S										
0300	6.7	2.8	76	229	.2	217	1.9	1	0300	5.4	*****	80	099	.2	160	.6	2	0300	1.9	*****	84	098	.3	099	1.3	2
0600	6.4	-8	60	211	1.4	195	3.2	7	0600	8.1	*****	55	025	.2	056	1.3	15	0600	9.9	-8.4	27	086	.7	084	2.5	30
0900	7.2	-2.6	50	222	1.0	223	2.5	15	0900	11.8	-11.1	19	200	.9	184	3.2	51	0900	18.0	-26.4	3	044	1.1	048	3.2	45
1200	9.1	-4.2	39	212	1.3	195	3.2	32	1200	15.5	-20.4	7	196	1.4	210	3.2	53	1200	18.8	-28.4	2	047	2.0	051	5.1	35
1500	8.6	-4.4	40	231	1.7	253	4.4	17	1500	18.7	-28.4	2	279	1.1	289	3.2	66	1500	15.0	-12.4	14	068	1.4	043	4.4	13
1800	9.1	*****	40	201	1.3	187	3.2	6	1800	18.2	-28.8	2	315	1.0	271	3.2	33	1800	11.4	*****	54	048	.6	037	3.2	10
2100	8.4	-2.3	47	208	.7	183	1.9	2	2100	10.4	*****	39	342	.4	013	2.5	3	2100	10.2	*****	70	310	.1	280	1.9	2
2400	6.1	*****	71	142	.2	202	2.5	1	2400	3.5	*****	82	078	.3	085	1.3	0	2400	8.6	*****	89	156	.1	017	1.3	1

## R &amp; M CONSULTANTS, INC.

## S S L J E S I T T N A HYDROCELL PROJECT

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

DAY 19

DAY 20

DAY 21

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.													
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST												
DEG C	% DEG.	M/S	MW	DEG C	% DEG.	M/S	DEG C	% DEG.	M/S	MW	DEG C	% DEG.												
0300	7.8	****	10	126	.1	047	1.3	2 0300	7.7	-3	57	227	1.9	229	4.4	1 0300	7.0	1.1	66	201	.6	206	2.5	1
0600	8.6	****	60	021	.4	011	1.3	15 0600	7.4	****	62	212	1.2	223	3.8	4 0600	7.7	-3	57	202	1.0	198	2.5	10
0900	14.7	-5.8	24	069	.4	136	3.2	90 0900	7.7	-3.9	44	224	1.2	246	4.4	15 0900	10.8	-7.1	28	209	1.4	225	3.8	25
1200	18.3	-20.0	6	230	1.3	216	3.2	88 1200	8.1	-3.8	43	244	1.6	235	4.4	22 1200	12.8	-15.0	13	227	1.7	216	4.4	32
1500	18.4	****	6	237	1.0	235	3.2	40 1500	8.2	-2.5	47	243	1.5	262	4.4	18 1500	15.6	-22.0	6	230	2.2	245	5.1	82
1800	17.2	-19.1	7	228	1.0	232	5.1	13 1800	8.2	-1.1	52	210	1.2	206	3.2	10 1800	14.4	-17.0	10	231	2.1	221	5.1	38
2100	13.1	-10.7	18	227	2.1	241	5.1	4 2100	7.5	****	64	189	.6	180	2.5	2 2100	8.0	****	46	231	.8	228	3.8	3
2400	9.8	-4.0	38	231	2.7	237	6.3	1 2400	7.1	****	71	193	.2	216	1.3	1 2400	5.2	****	82	105	.2	176	1.3	0

DAY 22

DAY 23

DAY 24

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.													
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST												
DEG C	% DEG.	M/S	MW	DEG C	% DEG.	M/S	MW	DEG C	% DEG.	M/S	MW													
0300	5.2	****	99	129	.1	165	.6	3 0300	6.8	****	73	188	.1	190	1.3	2 0300	3.1	****	93	088	.2	082	.6	2
0600	10.1	****	31	090	.1	039	1.3	30 0600	11.4	****	39	311	.1	292	1.3	26 0600	11.5	****	25	101	.2	093	1.3	30
0900	14.7	****	11	325	.6	011	1.9	57 0900	14.6	-11.0	16	306	.6	282	1.9	40 0900	19.4	-19.2	6	284	.2	224	2.5	66
1200	16.5	-21.3	6	214	1.4	205	3.8	34 1200	20.5	-18.4	6	242	.9	202	3.2	99 1200	25.0	-30.4	0	213	1.1	234	2.5	82
1500	17.5	-20.6	6	219	1.6	216	3.8	41 1500	22.4	-28.8	1	215	1.0	238	3.2	67 1500	26.1	-29.7	0	218	1.8	217	3.8	66
1800	16.7	-21.2	6	220	2.0	217	5.1	22 1800	21.7	-29.3	1	228	1.6	219	3.8	35 1800	25.6	****	0	225	1.3	219	3.8	34
2100	13.5	****	18	223	1.2	236	3.2	4 2100	11.3	****	45	245	.6	217	3.2	2 2100	13.2	****	42	319	.3	301	1.9	2
2400	9.8	****	51	225	.3	214	1.3	1 2400	5.4	****	93	101	.2	161	.6	0 2400	8.4	****	97	100	.2	112	1.3	1

DAY 25

DAY 26

DAY 27

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.													
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST												
DEG C	% DEG.	M/S	MW	DEG C	% DEG.	M/S	MW	DEG C	% DEG.	M/S	MW													
0300	5.0	****	98	093	.2	062	1.3	2 0300	6.3	****	1	104	.2	099	1.3	2 0300	4.3	****	96	090	.2	073	1.3	2
0600	11.6	****	39	092	.2	062	1.3	25 0600	11.3	****	82	097	.1	065	1.3	17 0600	12.6	****	28	095	.2	080	1.3	32
0900	20.1	-11.4	11	024	.7	033	2.5	66 0900	19.8	****	14	266	.3	234	1.9	73 0900	20.8	****	9	036	.5	057	1.9	41
1200	27.6	****	55	044	.9	035	2.5	84 1200	24.6	****	0	277	.6	225	3.2	82 1200	25.9	****	0	348	.4	330	1.9	69
1500	21.5	-8.2	13	202	1.2	213	3.8	12 1500	24.3	-30.8	0	218	1.5	207	3.8	36 1500	22.0	-29.1	1	214	.9	233	5.1	26
1800	23.7	-20.2	4	265	.1	192	3.8	22 1800	24.3	-30.8	0	245	1.2	222	3.8	34 1800	17.0	****	25	219	2.2	221	5.7	11
2100	14.9	****	59	218	.5	206	2.5	3 2100	12.7	****	54	274	.2	279	1.9	2 2100	13.5	****	50	227	.5	246	2.5	2
2400	8.7	****	99	122	.1	163	.6	1 2400	6.2	****	91	105	.2	041	1.3	1 2400	13.0	****	53	152	.3	231	1.9	1

## R. &amp; M CONSULTANTS, INC.

## SUSSETNA HYDRO ELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S MW

0300	11.1 ****	73	201	.9	210	4.4	1	0300	8.5 ****	39	208	1.0	209	2.5	2	0300	7.9 ****	60	168	.3	183	2.5	3			
0600	13.1 ****	54	124	.3	154	1.9	17	0600	9.7 ****	35	093	.2	161	1.3	16	0600	9.9 ****	47	076	.4	081	1.3	12			
0900	14.4 ****	25	200	1.0	204	4.4	20	0900	12.3 ****	18	235	.5	199	2.5	27	0900	16.1 ****	19	029	.6	053	1.9	40			
1200	13.6	-8.4	21	221	2.0	265	5.1	18	1200	14.9 ****	10	004	.3	311	1.9	47	1200	20.0	-20.7	5	028	1.5	034	5.1	65	
1500	13.7	-8.3	21	221	2.1	217	4.4	28	1500	17.5	-26.7	3	237	.9	213	3.2	71	1500	12.7	1.6	47	274	.2	224	6.3	10
1800	13.8	-9.5	19	235	1.3	252	4.4	15	1800	18.4 ****	2	311	1.0	320	2.5	34	1800	11.6 ****	54	208	.9	215	2.5	4		
2100	12.5	-11.2	18	219	1.1	221	3.2	2	2100	11.8 ****	29	340	.5	337	2.5	2	2100	10.0 ****	73	175	.1	356	1.9	1		
2400	7.9 ****	44	210	.9	228	3.8	1	2400	11.5 ****	29	133	.3	117	3.8	2	2400	7.5 ****	0	161	.2	215	1.3	1			

## R &amp; M CONSULTANTS, INC.

## SUSITNA HYDROELECTRIC PROJECT

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

DAY	RES.			RES.			AVG.	MAX.	MAX.				DAY'S SOLAR ENERGY WH/SQM
	MAX. DEG C	MIN. DEG C	MEAN DEG C	WIND DIR.	WIND SPD. M/S	WIND SPD. M/S	GUST DIR.	GUST P'VAL M/S	MEAN RH %	MEAN DEG C	DP MM	PRECIP MM	
1	20.0	-4	9.8	224	1.2	1.5	239	7.6 SW	18	-21.7	0.0	6800	1
2	9.7	3.0	6.4	176	.2	.9	213	3.8 SW	59	-1.0	19.4	1898	2
3	15.3	.6	8.0	293	.4	.9	186	3.8 NW	34	-19.1	0.0	6685	3
4	16.6	-1.2	7.7	241	1.0	1.5	226	8.3 NSW	28	-19.4	1.0	5920	4
5	10.4	6.0	8.2	036	.2	.4	026	1.9 NE	65	-2.1	12.0	2298	5
6	11.5	6.4	9.0	269	.2	.6	012	2.5 SW	61	2.2	10.4	2388	6
7	11.6	5.7	8.7	231	.3	.7	232	5.1 SW	58	-5	6.8	2573	7
8	17.2	4.3	10.8	226	.5	1.0	232	5.1 SW	43	-15.8	.2	5645	8
9	14.6	4.5	9.6	048	.2	.5	346	2.5 ENE	44	-4.1	.4	5380	9
10	17.7	6.9	12.3	226	.5	.8	228	7.0 SW	49	-5.2	3.8	2965	10
11	13.9	6.1	10.0	218	.5	.9	229	3.8 SSW	31	-11.3	1.0	3853	11
12	13.8	.3	7.1	241	.1	.7	212	6.3 SSW	55	-3.2	4.2	3380	12
13	14.6	.6	7.6	205	.2	.6	246	3.2 SW	37	-21.2	0.0	4705	13
14	17.2	2.9	10.1	224	1.6	1.7	243	7.0 SW	30	-14.7	0.0	6813	14
15	8.3	5.9	7.1	208	1.0	1.1	232	3.2 SSW	53	-3.8	12.6	2205	15
16	9.2	5.9	7.6	214	.9	1.0	253	4.4 SSW	53	-2.5	4.4	2068	16
17	19.2	3.5	11.4	251	.3	.8	184	3.2 SSW	36	-19.4	0.0	6965	17
18	20.1	1.7	10.9	058	.7	.9	051	5.1 NE	43	-22.3	1.8	4558	18
19	20.9	7.7	14.3	230	.9	1.3	237	6.3 SW	23	-13.7	0.0	6740	19
20	9.5	7.0	8.3	225	1.1	1.2	229	4.4 SW	55	-1.5	10.8	2240	20
21	15.9	5.1	10.5	221	1.2	1.3	245	5.1 SW	37	-12.5	.4	5733	21
22	18.5	5.0	11.0	222	.8	1.0	217	5.1 SW	30	-19.2	0.0	6413	22
23	23.0	5.4	14.2	237	.5	.8	219	3.8 SW	30	-24.9	0.0	7355	23
24	26.4	3.1	14.8	219	.5	.8	207	3.8 SW	33	-25.0	0.0	8468	24
25	27.9	5.0	16.5	125	.1	.7	213	3.8 ENE	42	-13.8	2.0	7298	25
26	25.6	6.2	15.9	236	.4	.7	207	3.8 SW	28	-30.0	0.0	6833	26
27	25.9	3.9	14.9	213	.3	.8	221	5.7 SW	35	-19.6	0.0	5430	27
28	18.4	6.9	12.7	215	1.1	1.3	265	5.1 SSW	33	-8.7	.8	5455	28
29	18.0	7.2	13.0	257	.3	.8	117	3.8 SSW	23	-16.6	0.0	6103	29
30	20.0	7.2	13.6	057	.1	.8	224	6.3 NE	42	-11.8	9.2	3823	30
MONTH	27.9	-1.2	10.7	224	.5	.6	226	8.3 SW	40	-12.7	181.2	146985	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 7.0

GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 6.3

GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 5.7

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 \*\*\*\*

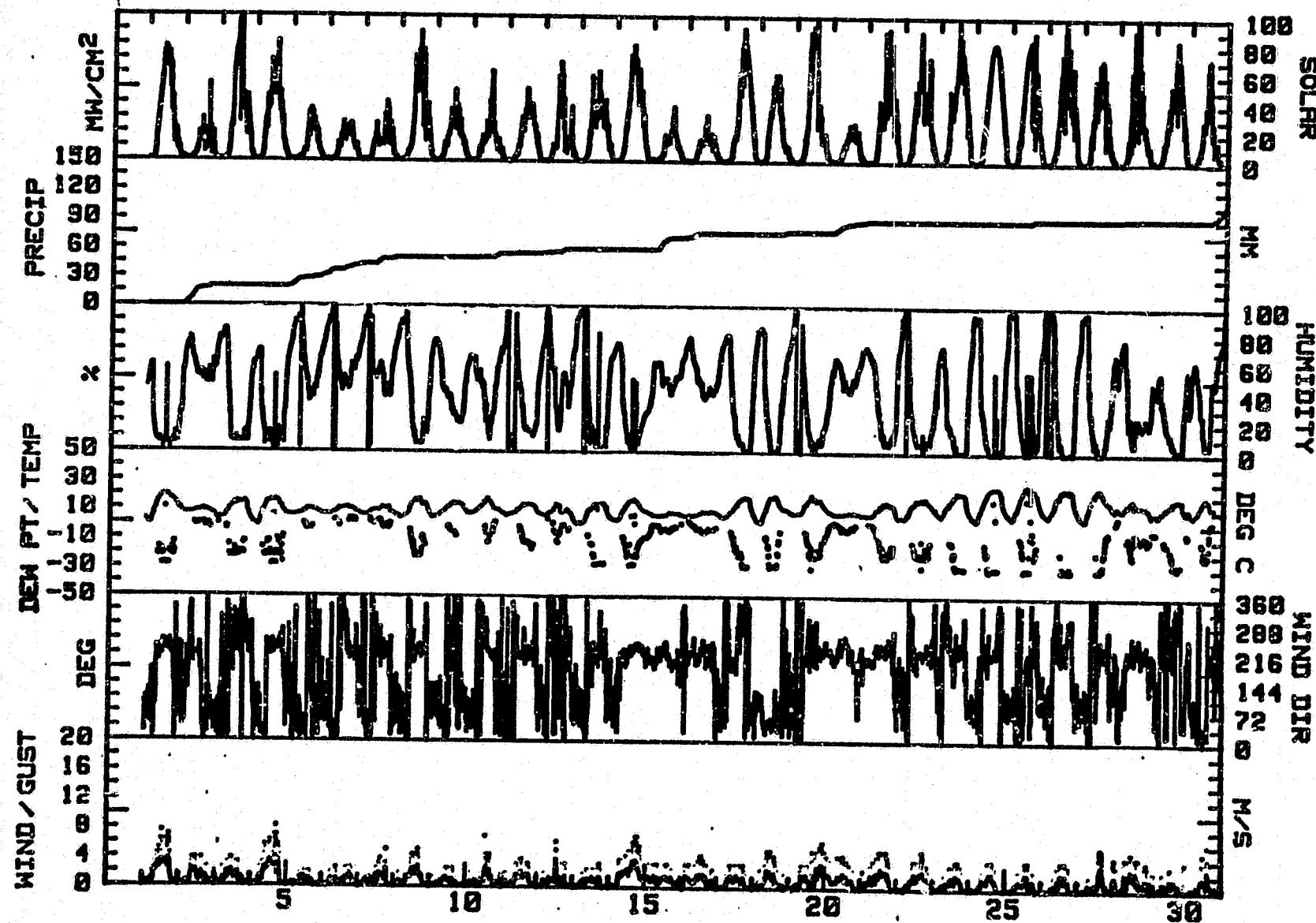
R & M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR SHERMAN WEATHER STATION  
DATA TAKEN DURING JUNE, 1982

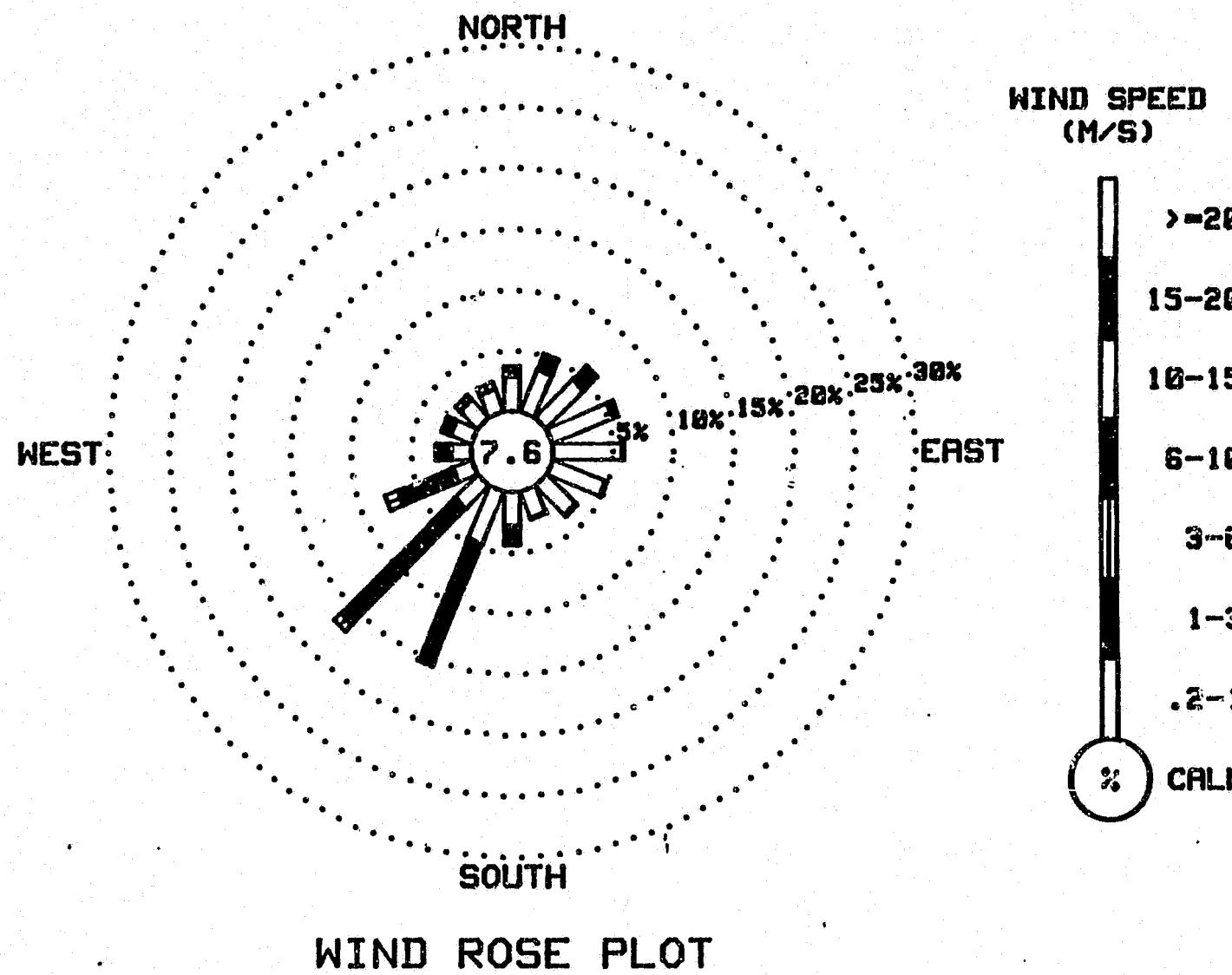
DIRECTION	VELOCITY (M/S)								TOTAL
	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER		
	1.0	3.0	6.0	10.0	15.0	20.0			
N	2.78	.87	0.00	0.00	0.00	0.00	0.00	0.00	3.65
NNE	3.68	1.39	0.00	0.00	0.00	0.00	0.00	0.00	5.07
NE	4.34	1.60	0.00	0.00	0.00	0.00	0.00	0.00	5.94
ENE	5.42	.45	0.00	0.00	0.00	0.00	0.00	0.00	5.87
E	5.76	.10	0.00	0.00	0.00	0.00	0.00	0.00	5.87
ESE	4.72	.10	0.00	0.00	0.00	0.00	0.00	0.00	4.83
SE	3.40	.17	0.00	0.00	0.00	0.00	0.00	0.00	3.58
SSE	2.33	.14	0.00	0.00	0.00	0.00	0.00	0.00	2.47
S	2.78	1.56	0.00	0.00	0.00	0.00	0.00	0.00	4.34
SSW	4.65	10.69	.14	0.00	0.00	0.00	0.00	0.00	15.49
SW	2.67	13.37	.76	0.00	0.00	0.00	0.00	0.00	16.81
WSW	1.70	4.90	1.15	0.00	0.00	0.00	0.00	0.00	7.74
W	1.67	1.28	0.00	0.00	0.00	0.00	0.00	0.00	2.95
WNW	1.91	.76	0.00	0.00	0.00	0.00	0.00	0.00	2.67
NW	2.05	.52	0.00	0.00	0.00	0.00	0.00	0.00	2.57
NNW	1.94	.59	0.00	0.00	0.00	0.00	0.00	0.00	2.53
CALM									7.64
TOTAL	51.81	38.51	2.05	0.00	0.00	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT  
2880 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT  
SHERMAN WEATHER STATION  
June, 1982



R&M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT  
SHERMAN WEATHER STATION  
June, 1982



R & M CONSULTANTS, INC.

## SUSTINA HYDROELECTRIC PROJECT

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

PRECIPITATION VALUES ARE IN MILLIMETERS

**HOUR ENDING**

## R &amp; M CONSULTANTS, INC.

## SUSSEX TNA HYDRO ELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION  
DATA TAKEN DURING July, 1982

DAY 01

DAY 02

DAY 03

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST
DEG C	% DEG.	M/S	MW	DEG C	% DEG.	M/S	DEG C	% DEG.	M/S	SPD.	M/S	RAD

0300	7.7	****	14	155	.1	225	1.3	1	0300	4.8	****	4	148	.2	170	1.3	2	0300	2.6	****	92	116	.2	113	1.3	2
0600	9.3	3.1	65	212	.9	202	3.2	15	0600	6.8	****	77	091	.1	183	1.3	11	0600	8.2	****	24	099	.3	117	1.3	30
0900	12.3	-12.1	17	227	1.2	200	3.8	45	0900	11.7	****	21	013	.6	007	1.9	31	0900	15.0	-19.2	8	029	.8	339	2.5	67
1200	13.6	-13.5	14	236	2.0	252	5.1	29	1200	15.3	****	7	195	.3	083	1.9	105	1200	19.9	-27.6	2	042	.7	059	3.2	72
1500	12.7	-11.8	17	205	1.7	233	5.7	43	1500	16.7	-19.5	7	210	1.3	204	3.8	42	1500	20.3	-27.4	2	219	1.9	216	5.1	66
1800	11.9	-13.2	16	240	1.9	248	5.7	15	1800	17.0	-27.1	3	241	1.3	217	3.8	38	1800	18.7	-28.4	2	225	2.0	227	4.4	10
2100	7.3	****	61	225	.7	245	7.0	2	2100	8.8	****	56	226	.4	255	1.9	2	2100	12.5	****	18	235	1.0	247	3.2	4
2400	6.0	****	80	128	.1	236	1.3	1	2400	3.6	****	68	132	.2	192	1.9	1	2400	6.3	****	48	210	.7	225	3.8	1

DAY 04

DAY 05

DAY 06

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST
DEG C	% DEG.	M/S	MW	DEG C	% DEG.	M/S	MW	DEG C	% DEG.	M/S	SPD.	M/S

0300	2.3	****	75	092	.2	122	1.3	2	0300	8.2	-3	55	149	.3	189	1.9	2	0300	8.3	****	63	122	.2	134	1.3	2
0600	8.4	****	47	081	.3	147	1.3	10	0600	9.5	****	47	155	.2	192	2.5	15	0600	10.9	****	28	062	.3	008	1.9	21
0900	17.3	-16.1	9	045	.6	020	2.5	66	0900	14.2	-19.8	8	162	.4	203	2.5	66	0900	17.5	-15.9	9	349	.2	240	2.5	81
1200	20.0	-20.7	5	234	1.5	237	5.1	90	1200	17.8	-20.4	6	196	1.0	212	4.4	93	1200	20.5	****	2	237	.7	215	2.5	58
1500	20.7	-20.2	5	240	2.3	239	6.3	80	1500	19.5	-27.9	2	220	2.1	242	4.4	89	1500	20.5	-27.2	2	236	1.4	225	3.8	73
1800	17.1	-19.2	7	232	2.2	204	5.7	18	1800	16.3	-19.8	7	228	1.6	237	4.4	13	1800	20.3	-27.4	2	205	1.2	213	2.5	35
2100	10.9	****	26	220	2.4	219	7.0	3	2100	12.7	****	22	217	.6	229	2.5	3	2100	12.9	****	30	229	.8	218	3.2	3
2400	5.8	****	69	149	.2	190	1.9	1	2400	9.6	****	51	044	.2	062	1.9	1	2400	5.5	****	72	083	.3	094	1.3	1

DAY 07

DAY 08

DAY 09

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST
DEG C	% DEG.	M/S	MW	DEG C	% DEG.	M/S	MW	DEG C	% DEG.	M/S	SPD.	M/S

0300	2.7	****	95	084	.2	068	1.3	2	0300	7.6	****	3	091	.2	138	1.3	2	0300	10.1	****	97	117	.2	147	1.3	1
0600	11.0	****	27	081	.3	030	1.2	32	0600	12.7	.0	42	198	1.6	208	5.1	15	0600	12.2	****	76	138	.1	096	.6	12
0900	20.0	****	8	003	.9	349	2.5	66	0900	17.8	-6.9	18	210	2.2	222	5.1	65	0900	16.8	-5.7	21	300	.3	201	1.9	63
1200	26.8	17.1	55	044	1.0	355	2.5	80	1200	18.4	-8.8	15	233	2.5	241	5.7	66	1200	18.3	-9.7	14	204	1.5	203	3.2	62
1500	29.5	****	54	054	1.1	082	3.2	62	1500	16.4	-5.4	22	245	2.9	237	7.0	21	1500	20.0	-15.5	8	219	1.4	244	3.2	36
1800	28.8	19.0	55	005	1.3	358	5.1	31	1800	14.3	-2.7	31	228	2.1	247	5.1	2	1800	19.1	-11.1	12	213	1.2	222	3.8	13
2100	17.1	****	29	042	.5	000	3.8	3	2100	11.9	****	62	199	1.1	207	4.4	1	2100	15.1	****	54	194	.2	210	1.9	2
2400	10.0	****	73	083	.4	057	1.9	1	2400	10.4	****	73	168	.2	199	1.3	0	2400	11.0	****	68	086	.1	110	1.3	1

## R &amp; M CONSULTANTS, INC.

## SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION  
DATA TAKEN DURING July, 1982

DAY 10

DAY 11

DAY 12

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	DIR.	GUST	RAD
DEG C	DEG C	%	DEG C	DEG C	%	DEG C	DEG C	DIR.	SPD.	DIR.	GUST	RAD
			M/S	M/S	MW							MW

0300	9.8	****	95	098	.1	132	.6	1 0300	10.6	6.6	76	191	1.2	195	2.5	1 0300	11.7	1.3	49	209	1.1	199	3.2	1
0600	11.9	****	73	045	.1	023	1.3	4 0600	11.4	6.2	70	199	1.1	195	2.5	12 0600	10.3	1.1	53	200	1.1	202	2.5	3
0900	14.0	3.1	48	216	.4	009	1.9	20 0900	12.7	2.5	50	205	1.4	217	3.2	18 0900	10.2	1.6	55	193	1.2	201	3.2	21
1200	15.1	.8	38	206	1.4	206	3.8	39 1200	15.4	-4.1	26	217	1.6	222	4.4	44 1200	11.8	1.7	50	194	1.8	200	4.4	23
1500	13.5	.4	41	231	2.0	227	4.4	6 1500	16.7	-4.6	23	236	1.7	222	3.8	47 1500	14.0	-1.7	34	211	1.7	218	4.4	32
1800	12.0	3.5	56	229	1.7	239	5.1	4 1800	15.2	-3.3	28	241	1.4	252	3.8	10 1800	13.6	****	45	209	1.2	219	3.8	8
2100	11.1	6.7	74	205	1.2	199	3.2	1 2100	13.6	****	42	215	.7	223	2.5	2 2100	11.9	****	49	206	.6	196	3.2	1
2400	10.9	7.1	77	193	1.0	194	2.5	1 2400	12.6	****	52	202	.5	242	1.9	1 2400	9.9	****	70	179	.2	198	1.3	1

DAY 13

DAY 14

DAY 15

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	DIR.	GUST	RAD
DEG C	DEG C	%	DEG C	DEG C	%	DEG C	DEG C	DIR.	SPD.	DIR.	GUST	RAD
			M/S	M/S	MW							MW

0300	9.3	****	98	166	.1	070	.6	1 0300	4.6	****	97	102	.1	133	.6	1 0300	7.6	3.8	67	205	1.3	208	3.2	1
0600	10.8	****	84	112	.0	075	.6	8 0600	9.2	****	76	072	.1	132	1.3	16 0600	10.2	1.6	55	201	1.2	208	3.2	16
0900	13.1	****	-50	007	.3	038	1.3	36 0900	16.1	-4.6	24	317	.2	247	2.5	34 0900	11.2	.6	48	200	1.5	218	3.8	37
1200	19.0	-11.2	12	313	.7	325	2.5	99 1200	14.5	-1.3	34	201	2.1	201	3.8	16 1200	14.4	-5.5	25	204	2.0	194	4.4	90
1500	19.3	****	11	000	.2	019	3.8	66 1500	19.5	-9.7	13	211	1.5	200	3.8	57 1500	14.4	-6.0	24	235	2.3	228	5.1	34
1800	19.1	****	12	252	.8	243	2.5	27 1800	14.8	****	46	215	.8	211	3.2	7 1800	11.8	-2.2	38	236	1.6	247	4.4	6
2100	12.1	****	65	220	.4	224	2.5	2 2100	13.1	****	43	212	.6	203	2.5	1 2100	9.8	****	69	211	.2	218	1.9	1
2400	7.7	****	94	151	.1	195	.6	1 2400	11.0	4.1	62	214	.8	216	3.2	1 2400	8.2	****	79	114	.1	143	.6	0

DAY 16

DAY 17

DAY 18

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	DIR.	GUST	RAD
DEG C	DEG C	%	DEG C	DEG C	%	DEG C	DEG C	DIR.	SPD.	DIR.	GUST	RAD
			M/S	M/S	MW							MW

0300	7.7	****	0	132	.1	095	.6	1 0300	8.5	****	76	199	.6	210	1.9	1 0300	9.7	****	11	029	.1	096	1.3	1
0600	9.4	****	94	038	.1	127	.6	7 0600	8.5	2.8	67	202	1.2	202	3.2	10 0600	9.4	4.5	71	201	.6	211	3.2	4
0900	11.9	****	48	033	.3	064	1.9	31 0900	10.9	-1.3	43	201	1.5	200	3.2	39 0900	10.3	3.2	61	196	1.2	196	2.5	21
1200	13.8	-1.1	36	224	.3	233	2.5	50 1200	15.1	-26.1	4	204	1.6	208	3.8	62 1200	12.2	1.8	49	223	1.2	206	2.5	21
1500	13.7	-5.1	27	237	1.9	214	4.4	36 1500	15.9	****	15	221	1.6	210	3.8	14 1500	15.1	****	27	271	.6	262	1.9	26
1800	11.1	1.1	50	229	1.6	237	4.4	12 1800	14.9	-3.1	29	223	1.3	248	3.8	13 1800	17.9	****	17	299	.6	324	1.9	32
2100	9.4	****	69	199	.9	202	2.5	1 2100	11.6	****	63	208	.6	203	2.5	1 2100	11.9	****	68	295	.6	224	1.9	2
2400	8.8	****	91	139	.1	217	1.3	1 2400	9.8	****	90	126	.1	060	.6	1 2400	6.2	****	0	081	.2	337	1.3	1

## R &amp; M CONSULTANTS, INC.

## SUSSETNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION  
DATA TAKEN DURING July, 1982

DAY 19

DAY 20

DAY 21

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S MW

0300	3.8 **** 11	089	.3	126	1.3	1	0300	5.2 **** 0	104	.2	116	1.3	1	0300	14.0 -1.7 34	206	1.2	206	3.2	2
0600	8.8 **** .68	087	.3	080	1.3	25	0600	11.8 **** 37	107	.2	125	.6	24	0600	12.5 **** 51	202	.9	195	2.5	5
0900	18.7 **** 16	213	.4	182	1.3	63	0900	19.9 **** 14	070	.3	122	1.3	60	0900	12.3 **** 50	195	.1	171	1.9	10
1200	24.9 -30.4 0	066	.4	032	2.5	80	1200	23.0 -18.5 5	212	1.6	199	5.1	77	1200	12.6 **** 61	287	.2	309	1.3	15
1500	26.6 16.9 55	056	.9	052	3.2	63	1500	25.0 -21.6 3	231	2.0	249	5.1	62	1500	14.7 3.5 47	226	.7	199	2.5	11
1800	24.6 **** 3	315	.1	155	3.2	31	1800	23.5 -18.2 5	241	1.8	244	4.4	31	1800	13.2 **** 63	218	.9	235	3.2	3
2100	12.8 **** 59	300	.4	318	1.3	2	2100	17.5 **** 15	220	1.2	208	5.7	3	2100	10.8 5.4 69	213	1.1	218	3.8	1
2400	7.5 **** 0	029	.1	252	1.3	1	2400	14.8 **** 34	195	.9	210	3.2	1	2400	9.8 4.2 68	212	1.1	198	3.2	1

DAY 22

DAY 23

DAY 24

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S MW

0300	9.9 **** 65	214	1.1	209	2.5	1	0300	9.5 **** 99	093	.1	044	.6	0	0300	10.5 5.1 69	226	1.7	235	4.4	1
0600	10.1 .1 50	231	1.6	227	4.4	8	0600	10.1 **** 7	094	.1	182	.6	3	0600	10.7 2.0 55	226	1.8	242	5.7	6
0900	11.1 -1.1 43	242	1.9	244	5.1	18	0900	11.3 5.9 69	233	.5	235	3.8	17	0900	12.2 .6 45	214	1.4	213	3.8	17
1200	13.1 -3.4 32	237	1.7	240	3.8	30	1200	11.8 6.4 69	224	1.8	239	4.4	11	1200	12.9 -.1 41	236	1.5	253	5.1	16
1500	12.9 **** 34	225	1.3	227	4.4	12	1500	13.4 3.8 52	235	2.1	246	5.7	11	1500	12.4 3.1 53	211	1.2	246	3.8	12
1800	11.6 2.4 53	239	.9	251	3.8	7	1800	13.2 3.3 51	237	1.7	244	5.7	6	1800	11.2 5.1 66	199	1.2	210	2.5	4
2100	10.2 **** 73	204	.9	225	3.2	1	2100	11.0 5.2 67	231	1.6	213	4.4	1	2100	10.9 **** 83	193	.4	209	2.5	1
2400	9.8 **** 78	183	.5	184	1.9	0	2400	11.3 5.0 65	214	1.2	231	4.4	1	2400	10.8 **** 81	196	.6	187	2.5	0

DAY 25

DAY 26

DAY 27

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	% DEG. M/S MW

0300	10.7 **** 87	190	.4	192	2.5	1	0300	10.4 **** 59	194	.9	209	2.5	1	0300	10.7 **** 4	048	.0	331	.6	1
0600	10.8 **** 4	055	.1	026	.6	3	0600	10.3 **** 71	159	.3	182	1.9	7	0600	11.7 **** 14	245	.1	123	.6	4
0900	11.3 6.5 72	206	.1	222	3.8	10	0900	12.1 **** 52	015	.2	359	1.3	11	0900	13.6 5.0 56	224	.7	202	3.2	26
1200	11.6 5.5 66	231	1.9	230	5.1	22	1200	13.7 **** 34	358	.5	343	1.9	27	1200	15.3 3.1 44	207	1.5	195	3.2	38
1500	12.8 4.8 58	222	1.7	238	4.4	15	1500	17.1 **** 22	033	.7	024	1.9	57	1500	16.7 1.0 35	207	1.5	203	3.8	24
1800	14.0 4.6 53	208	1.3	213	3.2	8	1800	15.8 **** 25	288	.3	355	2.5	10	1800	16.5 **** 42	224	.6	219	2.5	10
2100	12.8 4.5 57	215	.9	214	2.5	1	2100	12.7 **** 66	238	.1	213	1.3	1	2100	10.4 **** 79	065	.1	339	.6	1
2400	11.3 **** 61	213	.7	236	2.5	1	2400	11.2 **** 90	240	.0	101	.6	1	2400	10.5 **** 4	082	.2	086	1.3	1

## R &amp; M CONSULTANTS, INC.

## SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION  
DATA TAKEN DURING July, 1982

DAY 28

DAY 29

DAY 30

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.													
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD											
DEG C	% DEG C	X	DEG C	DEG C	% DEG C	X	DEG C	DEG C	% DEG C	M/S	M/S	MW	MW											
0300	7.7	****	10	081	.2	057	.6	1 0300	10.4	4.6	67	202	1.2	193	2.5	1 0300	11.3	****	7	171	.1	168	1.9	0
0600	10.8	****	97	090	.2	050	1.3	13 0600	10.9	****	66	238	.5	206	2.5	12 0600	11.1	****	77	190	.9	135	2.5	5
0900	14.8	****	49	001	.4	318	1.9	28 0900	12.7	3.9	55	266	.5	271	1.9	27 0900	11.4	4.7	63	204	1.1	220	3.8	24
1200	19.3	-5.7	18	270	.5	222	3.2	39 1200	13.0	2.8	50	220	1.6	220	4.4	39 1200	11.3	4.6	63	222	1.6	227	5.7	18
1500	19.7	-7.7	15	237	1.5	262	3.2	62 1500	12.7	3.9	55	226	1.8	226	3.8	20 1500	11.9	****	63	205	.6	222	2.5	17
1800	17.1	-2.7	26	227	1.1	228	3.2	8 1800	12.1	****	65	232	.7	214	3.2	7 1800	12.3	****	61	328	.4	294	1.9	12
2100	12.7	1.9	48	222	1.5	239	4.4	1 2100	11.4	****	70	212	.8	236	2.5	1 2100	10.9	****	85	048	.1	063	1.3	1
2400	11.5	4.8	63	202	1.2	209	3.2	1 2400	11.1	****	93	075	.1	197	1.3	1 2400	10.0	****	4	127	.3	089	1.3	0

DAY 31

HOUR	DEW	WIND	WIND GUST MAX.					
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD		
DEG C	% DEG C	X	DEG C	DEG C	% DEG C	M/S	M/S	MW
0300	8.8	****	13	071	.2	032	1.3	0
0600	10.2	****	5	193	.2	167	1.3	13
0900	14.7	-5.2	25	238	.8	214	2.5	69
1200	17.0	****	10	278	.4	243	2.5	48
1500	17.5	****	14	076	.5	052	1.9	24
1800	16.1	****	24	354	.3	339	3.2	20
2100	9.6	****	65	115	.1	251	1.3	1
2400	7.1	****	92	104	.2	067	1.3	1

## R &amp; M CONSULTANTS, INC.

## ESLUSITNA HYDROELECTRIC PROJECT

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

DAY	MAX. TEMP.			RES. WIND			AVG. WIND			MAX. GUST			MAX. P'VAL			DAY'S MEAN RH DP PRECIP			SOLAR ENERGY
	DEG C	DEG C	DEG C	DIR.	SPD. M/S	DIR.	SPD. M/S	DIR.	SPD. M/S	DIR.	SPD. M/S	Z	DEG C	MM	WH/SQM				
1	14.3	5.9	10.1	224	1.0	1.2	245	7.0	SW	32	-9.9	1.6	5283	1					
2	17.2	3.6	10.4	217	.3	.7	204	3.8	SSW	32	-19.6	.2	5740	2					
3	20.7	1.6	11.2	220	.5	1.0	216	5.1	SW	24	-25.5	0.0	8320	3					
4	21.5	2.3	11.9	228	.9	1.3	219	7.0	SW	30	-19.0	0.0	7173	4					
5	19.9	5.0	12.5	209	.7	1.1	212	4.4	SSW	28	-19.1	0.0	7458	5					
6	21.1	5.5	13.3	220	.4	.8	225	3.8	SW	26	-25.2	0.0	5948	6					
7	29.6	2.5	16.1	036	.6	.8	358	5.1	ENE	46	3.0	0.0	8283	7					
8	19.5	7.1	13.3	221	1.5	1.7	237	7.0	SSW	38	-4.4	.2	5235	8					
9	21.4	9.7	15.6	211	.5	.7	222	3.8	SSW	38	-11.4	0.0	5585	9					
10	15.6	9.4	12.5	215	.9	1.1	239	5.1	SSW	62	3.2	1.6	2173	10					
11	17.1	10.5	13.8	216	1.2	1.2	222	4.4	SSW	47	.7	.4	4348	11					
12	14.3	9.4	11.9	202	1.1	1.1	200	4.4	SSW	50	1.0	3.2	2505	12					
13	19.5	7.7	13.6	278	.2	.5	019	3.8	S	49	-11.8	.4	5508	13					
14	19.6	4.3	12.0	208	.7	.9	201	3.8	SSW	49	-3.0	1.8	4695	14					
15	14.6	8.2	11.4	215	1.2	1.3	228	5.1	SSW	51	-.5	2.2	4350	15					
16	14.8	7.6	11.1	225	.5	.8	214	4.4	SW	51	-1.8	7.6	4000	16					
17	18.2	8.2	13.2	209	1.0	1.1	208	3.8	SSW	50	-3.4	2.4	5610	17					
18	18.1	6.2	12.2	236	.4	.7	211	3.2	SSW	44	1.9	13.2	3995	18					
19	27.7	3.6	15.7	058	.2	.6	052	3.2	ENE	32	-14.0	0.0	7688	19					
20	25.0	4.9	15.0	220	.8	1.1	208	5.7	SW	23	-17.5	0.0	7395	20					
21	15.3	9.7	12.5	214	.7	.8	218	3.8	SSW	53	2.0	11.4	1735	21					
22	15.3	9.7	12.5	228	1.2	1.3	244	5.1	SW	52	-.1	11.6	2815	22					
23	13.9	9.5	11.7	229	1.1	1.2	246	5.7	SW	59	5.2	31.0	1643	23					
24	13.6	10.2	11.9	217	1.2	1.3	242	5.7	SSW	61	2.9	16.2	1903	24					
25	15.2	10.5	12.9	218	.8	1.0	230	5.1	SSW	63	4.6	33.6	2225	25					
26	17.1	8.5	12.8	348	.0	.5	209	2.5	N	51	-1.0	0.0	3055	26					
27	18.3	10.2	14.3	210	.5	.6	203	3.8	SSW	44	2.9	.2	3310	27					
28	21.1	7.0	14.1	228	.6	.9	239	4.4	SW	29	-2.6	.2	4450	28					
29	14.3	10.2	12.3	223	.9	1.0	220	4.4	SSW	63	3.9	8.4	3150	29					
30	12.7	10.0	11.4	210	.5	.7	227	5.7	SSW	60	3.6	23.6	1890	30					
31	18.8	7.1	13.0	239	.0	.5	339	3.2	ESE	30	-6.6	0.0	4843	31					
MONTH	29.6	1.6	12.8	219	.7	.9	245	7.0	SSW	44	-5.2	171.0	142307						

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 3.8

GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 2.5

GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 1.9

GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 1.3

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 \*\*\*\*

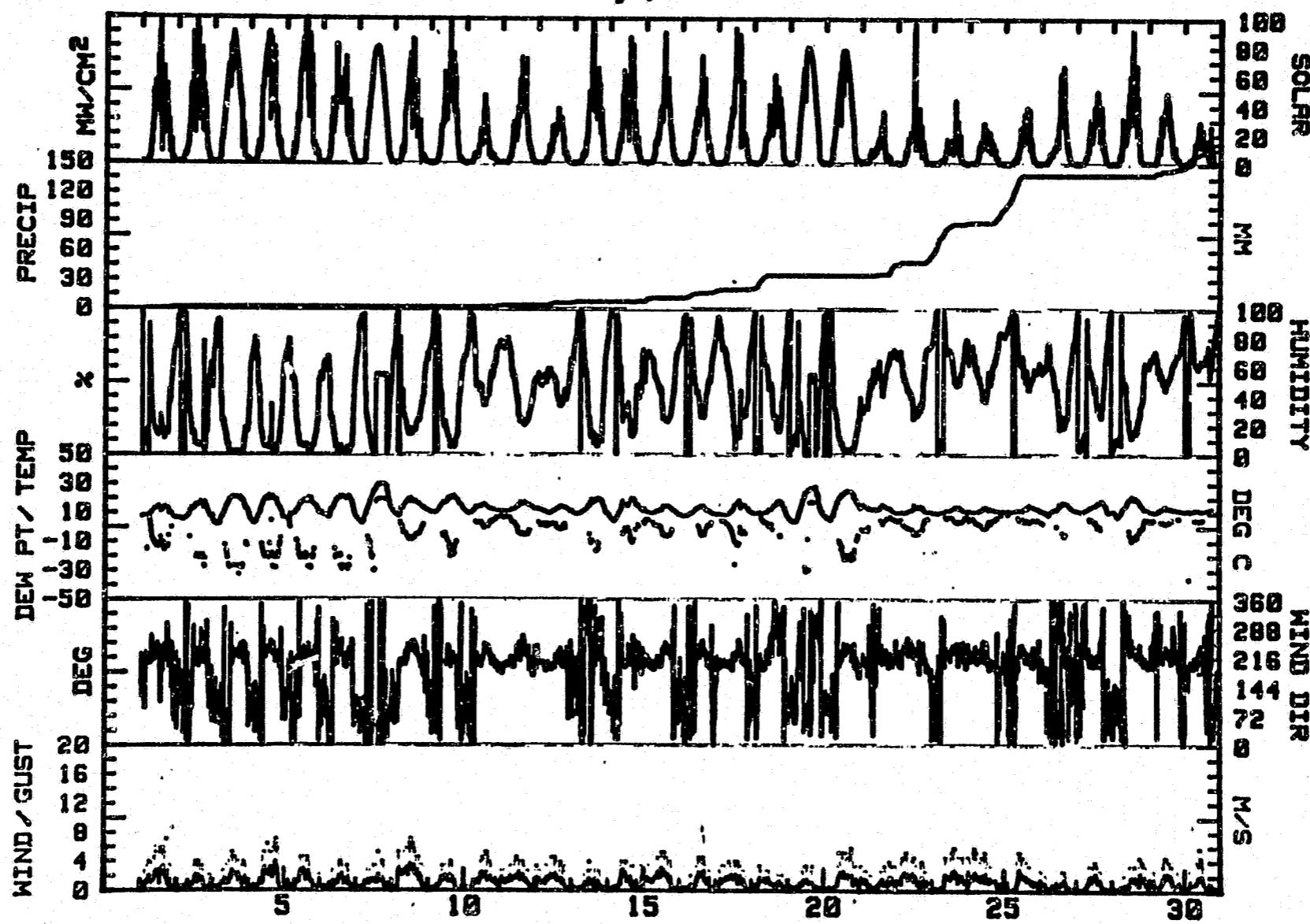
R & M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT

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

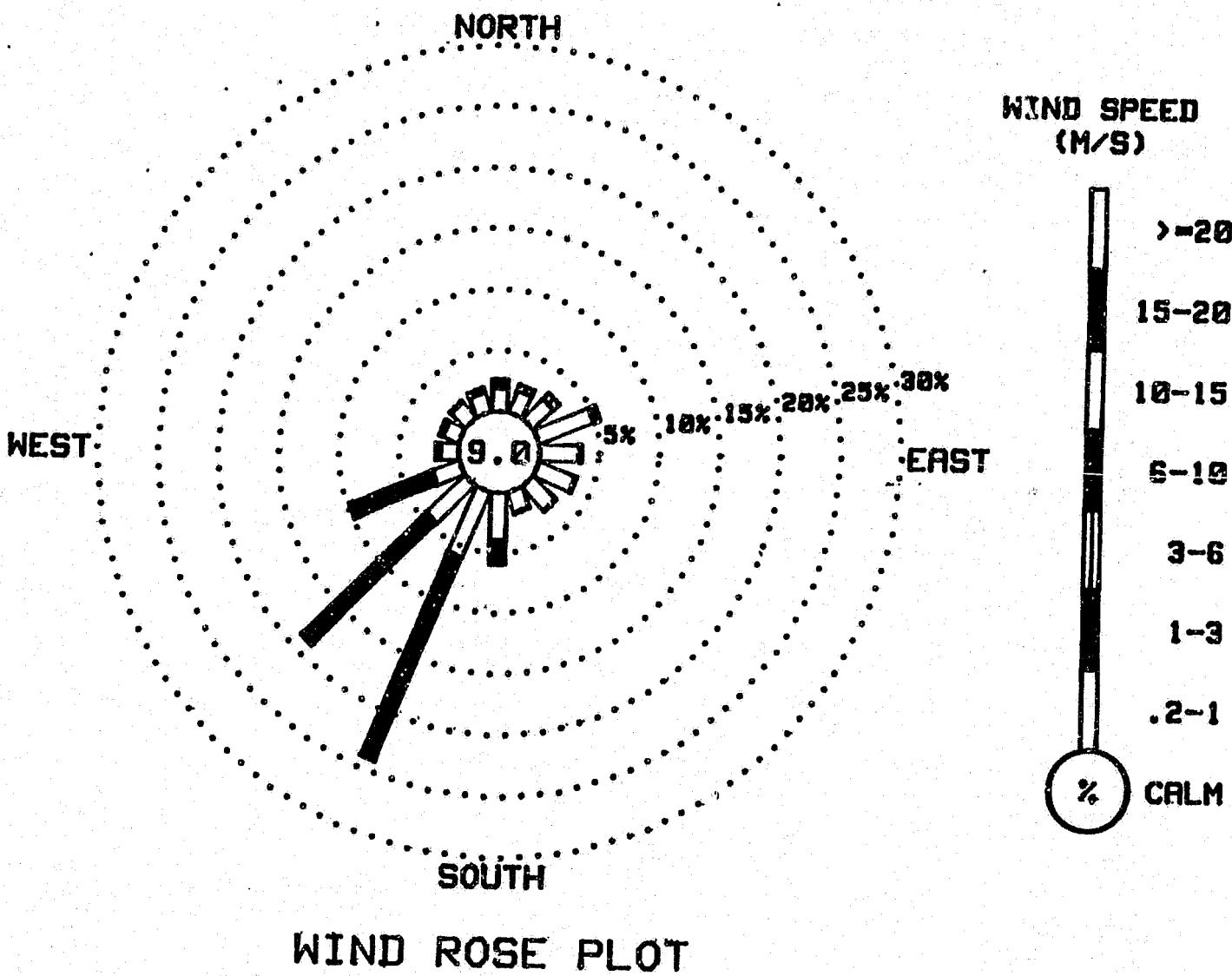
DIRECTION	VELOCITY (M/S)								TOTAL
	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER		
	1.0	3.0	6.0	10.0	15.0	20.0			
N	1.92	.71	0.00	0.00	0.00	0.00	0.00	0.00	2.62
NNE	1.95	.50	0.00	0.00	0.00	0.00	0.00	0.00	2.45
NE	2.32	.64	0.00	0.00	0.00	0.00	0.00	0.00	2.96
ENE	4.87	.47	0.00	0.00	0.00	0.00	0.00	0.00	5.34
E	3.29	.20	0.00	0.00	0.00	0.00	0.00	0.00	3.49
EEF	3.33	.03	0.00	0.00	0.00	0.00	0.00	0.00	3.36
SE	2.72	.03	0.00	0.00	0.00	0.00	0.00	0.00	2.76
SSE	1.75	.10	0.00	0.00	0.00	0.00	0.00	0.00	1.85
S	3.93	1.95	0.00	0.00	0.00	0.00	0.00	0.00	5.88
SSW	5.85	18.08	.07	0.00	0.00	0.00	0.00	0.00	23.99
SW	4.44	14.21	.17	0.00	0.00	0.00	0.00	0.00	18.82
WSW	2.39	6.99	.40	0.00	0.00	0.00	0.00	0.00	9.78
W	1.51	.40	0.00	0.00	0.00	0.00	0.00	0.00	1.92
WNW	1.48	.34	0.00	0.00	0.00	0.00	0.00	0.00	1.81
NW	1.75	.13	0.00	0.00	0.00	0.00	0.00	0.00	1.88
NNW	1.68	.44	0.00	0.00	0.00	0.00	0.00	0.00	2.12
CALM									8.97
TOTAL	45.16	45.23	.64	0.00	0.00	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT  
2976 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT  
SHERMAN WEATHER STATION  
July, 1982



R&M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT  
SHERMAN WEATHER STATION  
July, 1982



# R & M CONSULTANTS, INC.

## SUSTAINABLE HYDROELECTRIC PROJECT

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

PRECIPITATION VALUES ARE IN MILLIMETERS

## R &amp; M CONSULTANTS, INC.

## SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

DAY 02

DAY 03

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S

0300	3.7 **** 97	094	.3 082	1.3 1 0300	1.8 **** 93	183	.3 113	1.3 1 0300	2.1 **** 94	098	.2 065	1.3 1
0600	8.4 **** 42	092	.3 083	1.9 21 0600	6.7 **** 51	122	.3 091	1.9 21 0600	6.3 **** 56	103	.3 118	1.3 14
0900	16.5 **** 14	023	.7 027	2.5 59 0900	16.5 -12.1	13 028	1.0 030	2.5 57 0900	15.3 **** 20	094	.1 138	1.3 55
1200	18.7 -28.4	2 066	1.4 071	4.4 75 1200	20.4 -20.4	5 064	1.2 079	3.2 77 1200	21.2 -21.9	4 257	.6 216	2.5 76
1500	19.5 -27.9	2 052	1.4 057	4.4 58 1500	22.9 -29.1	1 050	1.2 011	3.8 81 1500	22.1 -29.9	1 217	1.4 204	3.2 59
1800	16.5 **** 7	047	1.4 038	4.4 23 1800	21.3 **** 1	009	.8 069	3.2 30 1800	21.2 **** 4	221	1.0 219	3.2 26
2100	6.4 **** 66	061	.5 043	2.5 1 2100	8.8 **** 69	030	.3 339	1.9 1 2100	9.7 **** 70	284	.1 246	1.3 1
2400	2.9 **** 90	087	.3 058	1.3 1 2400	4.0 **** 91	185	.2 111	.6 1 2400	5.0 **** 93	107	.2 108	.6 1

DAY 04

DAY 05

DAY 06

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S

0300	2.5 **** 97	100	.2 107	.6 0 0300	6.8 **** 5	106	.1 084	.6 1 0300	4.0 **** 5	091	.3 082	1.3 1
0600	8.3 **** 83	098	.1 112	.6 20 0600	7.7 **** 6	111	.1 143	.6 9 0600	9.1 **** 85	095	.4 096	1.3 19
0900	15.6 **** 23	031	.2 284	1.9 56 0900	15.7 -3.4	27 226	.4 231	2.5 34 0900	17.0 **** 16	010	.6 002	1.9 55
1200	20.8 -18.2	6 231	.9 217	2.5 73 1200	20.3 -9.1	13 216	1.5 197	3.2 72 1200	18.5 **** 22	006	.3 341	1.9 27
1500	22.4 -19.8	5 207	1.5 214	3.2 57 1500	18.7 -8.5	15 218	1.6 194	3.2 11 1500	24.2 **** 0	034	.3 286	2.5 75
1800	21.5 **** 8	226	1.1 218	3.2 24 1800	17.7 -7.7	17 221	.7 223	3.2 22 1800	19.5 **** 9	206	.3 222	3.2 11
2100	18.0 **** 72	220	.2 222	1.9 1 2100	11.2 **** 60	211	1.1 193	3.8 1 2100	9.7 **** 73	204	.2 184	1.3 1
2400	6.0 **** 95	135	.1 157	1.3 1 2400	6.3 **** 96	118	.2 179	1.3 1 2400	6.5 **** 99	117	.2 114	1.3 1

DAY 07

DAY 08

DAY 09

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S

0300	4.1 **** 5	089	.2 079	1.3 1 0300	2.9 **** 5	087	.4 070	1.3 0 0300	8.6 **** 12	138	.1 052	.6 0
0600	9.2 **** 89	101	.3 083	1.3 15 0600	6.3 **** 7	063	.4 058	1.9 15 0600	9.0 **** 14	170	.1 184	1.3 3
0900	15.3 **** 31	016	.3 339	1.9 41 0900	16.0 **** 27	029	.7 044	1.9 54 0900	10.3 **** 60	203	.5 201	1.9 15
1200	17.5 **** 28	243	.6 209	2.5 78 1200	18.1 -11.9	12 040	1.2 032	3.2 40 1200	12.9 -1.6	37	221	1.3 249
1500	12.1 1.7 49	228	1.9 253	5.1 3 1500	18.1 -16.9	8 042	1.1 030	3.2 15 1500	11.6 2.9	55	222	1.6 235
1800	18.5 4.0 64	218	1.3 204	3.8 4 1800	12.1 .8	46 219	1.1 219	3.8 4 1800	12.5 **** 55	196	.6 184	1.9 10
2100	9.3 **** 78	193	.2 205	1.9 1 2100	9.3 **** 75	209	.7 224	3.2 1 2100	10.4 **** 80	028	.8 343	1.3 0
2400	8.5 **** 6	055	.3 029	1.3 1 2400	8.5 **** 8	134	.1 102	.6 1 2400	9.6 **** 4	107	.2 127	1.9 0

## R &amp; M CONSULTANTS, INC.

## SUSITNA HYDROELECTRIC PROJECT

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

DAY 10

DAY 11

DAY 12

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.									
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	S/D.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD
DEG C	DEG C	Z	DEG. M/S	MW	DEG C	DEG C	Z	DEG. M/S	MW	DEG C	DEG C	Z	DEG. M/S	MW	DEG C	DEG C	Z	DEG. M/S	MW	

0300	9.8	****	99	192	.3	194	1.3	0	0300	6.9	****	13	127	.1	110	.6	0	0300	1.6	****	3	098	.2	081	.6	0
0600	9.9	****	6	105	.0	206	1.3	4	0600	8.0	****	13	047	.1	030	1.3	6	0600	3.4	****	7	123	.2	135	1.3	7
0900	10.2	3.5	63	215	.8	214	2.5	10	0900	13.1	****	24	243	.3	219	1.9	58	0900	13.1	****	24	084	.4	057	1.9	54
1200	12.1	-9	41	285	1.4	233	3.8	29	1200	15.3	****	15	082	.7	088	2.5	71	1200	20.0	****	6	228	.5	204	1.9	71
1500	11.1	****	53	220	1.2	216	5.7	18	1500	19.5	****	5	291	.6	267	2.5	55	1500	21.3	-21.8	4	217	1.4	227	3.2	53
1800	10.6	****	54	225	.8	240	2.5	8	1800	18.2	****	9	224	.8	224	2.5	22	1800	20.0	****	5	237	1.1	237	3.8	21
2100	8.7	****	83	151	.1	157	.6	1	2100	7.7	****	75	198	.6	231	2.5	1	2100	8.5	****	75	199	.1	210	1.3	0
2400	7.9	****	1	151	.1	151	1.3	0	2400	3.6	****	5	111	.3	097	1.3	1	2400	6.4	****	3	088	.3	090	1.3	1

DAY 13

DAY 14

DAY 15

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.									
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD
DEG C	DEG C	Z	DEG. M/S	MW	DEG C	DEG C	Z	DEG. M/S	MW	DEG C	DEG C	Z	DEG. M/S	MW						

0300	6.9	****	15	088	.3	045	1.3	1	0300	11.7	****	94	112	.2	113	1.3	1	0300	8.3	****	83	204	.2	236	3.2	1
0600	9.3	****	70	099	.2	094	.6	19	0600	11.8	****	6	154	.1	145	.6	2	0600	8.7	****	94	194	.0	161	.6	3
0900	16.9	****	20	192	.4	085	1.3	36	0900	13.9	****	72	293	.1	055	1.3	14	0900	10.4	1.5	54	250	.3	213	2.5	19
1200	19.9	-14.1	9	221	1.2	280	3.8	69	1200	13.3	****	63	306	.3	329	1.3	12	1200	14.8	-8.0	29	211	1.4	201	3.2	67
1500	21.9	-21.4	4	238	1.7	268	3.8	53	1500	16.1	****	40	328	.1	025	1.3	27	1500	16.1	****	16	226	1.1	281	3.2	30
1800	18.1	****	15	240	1.3	258	4.4	6	1800	14.1	****	56	293	.9	208	3.2	6	1800	13.2	-3.7	31	204	.9	205	3.2	5
2100	13.2	****	68	100	.1	104	1.3	1	2100	10.9	****	81	117	.2	133	1.9	1	2100	10.1	****	58	211	1.3	212	3.8	1
2400	12.5	****	79	081	.2	053	1.3	0	2400	9.9	****	63	205	.4	242	1.9	1	2400	9.4	****	61	207	.7	208	2.5	1

DAY 16

DAY 17

DAY 18

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.									
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD
DEG C	DEG C	Z	DEG. M/S	MW	DEG C	DEG C	Z	DEG. M/S	MW	DEG C	DEG C	Z	DEG. M/S	MW						

0300	7.8	****	79	180	.2	254	1.9	0	0300	8.9	****	62	215	.6	216	2.5	1	0300	6.8	****	7	100	.2	100	1.3	0
0600	8.8	****	68	034	.2	338	1.3	8	0600	8.7	****	79	117	.2	189	1.3	2	0600	7.8	****	7	101	.1	055	1.3	4
0900	12.9	-7.3	24	153	.4	198	2.5	52	0900	9.4	****	65	021	.5	058	1.3	7	0900	11.5	****	43	030	.4	057	1.3	27
1200	15.3	-7.6	28	221	2.1	223	4.4	68	1200	10.8	****	54	033	.6	033	1.9	16	1200	14.4	****	30	318	.2	088	1.3	25
1500	14.8	-7.4	21	222	2.4	221	5.7	51	1500	14.0	-3.4	30	103	.2	186	2.5	49	1500	15.6	****	28	336	.3	022	1.9	19
1800	13.5	-4.8	28	218	1.5	217	4.4	7	1800	14.3	****	28	199	.9	201	2.5	13	1800	15.5	****	37	339	.2	332	1.9	9
2100	11.2	****	51	198	.5	189	2.5	1	2100	8.6	****	79	025	.1	341	1.3	1	2100	6.1	****	92	073	.1	105	.6	0
2400	9.8	****	61	201	.4	200	1.9	1	2400	7.5	****	4	055	.3	051	1.9	1	2400	3.1	****	98	094	.2	109	.6	0

## R &amp; M CONSULTANTS, INC.

## SUSITNA HYDROELECTRIC PROJECT

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

DAY 19

DAY 20

DAY 21

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S MM	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S MM	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S MM

0300	3.6 ****	5	088	.1	028	1.3	0 0300	4.5 ****	6	092	.1	064	1.3	0 0300	3.3 ****	1	095	.1	108	.6	1
0600	5.7 ****	12	112	.2	103	1.3	5 0600	7.0 ****	8	101	.2	069	.6	8 0600	4.0 ****	6	123	.2	139	1.3	7
0900	11.1 ****	39	070	.5	048	1.9	33 0900	13.5 ****	32	057	.4	023	1.9	35 0900	13.7 ****	29	128	.2	131	1.3	46
1200	16.9 ****	17	054	.3	038	1.9	38 1200	20.3 ****	11	047	.7	054	2.5	71 1200	19.2 -8.1	15	198	1.4	191	3.8	64
1500	18.8 ****	13	055	.3	008	1.9	27 1500	22.9 ****	4	055	.7	046	2.5	52 1500	21.0 -28.0	5	224	1.5	227	3.8	49
1800	17.3 ****	18	307	.4	041	1.3	17 1800	20.7 ****	8	246	.7	242	1.9	16 1800	19.3 ****	11	242	1.2	232	3.2	16
2100	7.1 ****	89	324	.8	326	.6	0 2100	7.9 ****	86	186	.8	294	1.3	0 2100	8.0 ****	77	215	.3	225	1.9	1
2400	3.7 ****	2	099	.1	063	.6	1 2400	5.7 ****	3	094	.1	123	.6	1 2400	4.4 ****	0	101	.2	111	.6	0

DAY 22

DAY 23

DAY 24

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S MM	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S MM	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S MM

0300	2.1 ****	3	099	.2	108	1.3	1 0300	11.6	6.2	69	195	.7	193	1.9	1 0300	8.9 ****	17	104	.3	125	1.3	0
0600	4.1 ****	12	140	.8	109	.6	7 0600	11.7 ****	75	241	.3	203	1.9	3 0600	9.4 ****	21	072	.1	096	1.3	6	
0900	12.8 ****	29	106	.3	098	1.3	45 0900	13.4	5.1	57	222	.4	205	2.5	21 0900	13.7 ****	50	156	.1	091	1.3	21
1200	19.5 -9.7	13	220	1.0	204	3.2	66 1200	15.8	-2	34	208	1.4	247	3.2	39 1200	16.6 -3.6	25	229	1.0	215	3.2	33
1500	20.6 -20.2	5	217	1.3	249	3.8	49 1500	16.5	-1.7	29	224	1.3	262	3.2	26 1500	17.9 -6.1	19	224	1.5	225	3.8	54
1800	16.5 ****	29	232	.9	236	3.8	4 1800	13.8 ****	51	198	.9	206	2.5	5 1800	13.5 ****	40	224	1.2	221	3.2	7	
2100	12.7 ****	56	223	.4	230	1.9	1 2100	9.1 ****	90	107	.1	174	1.3	1 2100	11.4 ****	60	206	.8	198	3.2	1	
2400	11.1 ****	79	092	.1	088	.6	1 2400	9.1 ****	4	117	.1	188	1.9	1 2400	11.2	6.6	73	162	.2	205	2.5	1

DAY 25

DAY 26

DAY 27

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S MM	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S MM	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	Z DEG. M/S MM

0300	10.4 ****	69	197	.6	188	2.5	1 0300	8.2 ****	14	114	.2	116	.6	0 0300	.8 ****	3	092	.2	129	1.3	1	
0600	9.3 ****	77	178	.4	178	1.9	4 0600	8.6 ****	20	112	.2	096	.6	3 0600	.9 ****	7	103	.3	149	1.3	4	
0900	11.7 -4.4	46	247	.5	233	2.5	21 0900	12.1 ****	53	017	.2	003	1.3	22 0900	12.4 ****	27	097	.4	063	1.9	45	
1200	15.2 -3.8	27	206	1.5	208	3.2	62 1200	17.3 ****	19	293	.5	288	2.5	38 1200	19.4 -28.0	2	024	1.1	037	4.4	57	
1500	16.1 -9.0	17	197	1.2	195	3.2	43 1500	19.2	-8.1	15	284	.3	037	2.5	43 1500	20.7 -27.1	2	042	1.5	062	4.4	46
1800	14.8 ****	21	213	1.2	214	2.5	12 1800	18.4 ****	6	250	.9	230	3.2	13 1800	17.3 ****	6	003	.8	036	3.2	11	
2100	8.7 ****	75	207	.3	209	2.5	0 2100	5.6 ****	88	062	.1	306	1.3	0 2100	5.6 ****	83	273	.1	253	1.3	1	
2400	8.4 ****	1	118	.2	116	1.3	0 2400	2.3 ****	4	082	.3	071	1.3	1 2400	4.3 ****	99	125	.1	151	.6	1	

R & M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C DEG C Z	DEG. M/S	MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C DEG C Z	DEG. M/S	MW	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C DEG C Z	DEG. M/S	MW

0300	3.1 ****	2	100	.1	128	.6	0	0300	8.7 ****	12	077	.1	027	1.3	1	0300	8.5 ****	9	078	.6	092	.6	1
0600	6.8 ****	5	100	.1	099	1.3	2	0600	8.6 ****	15	096	.1	107	1.3	2	0600	8.6 ****	11	036	.3	113	1.3	1
0900	7.7 ****	95	066	.2	010	1.3	6	0900	10.1 ****	7	103	.1	097	.6	12	0900	8.8 ****	91	031	.3	103	1.3	4
1200	11.9 ****	45	044	.5	060	1.9	27	1200	10.8 ****	58	045	.3	033	1.3	22	1200	9.7 ****	69	025	.5	043	1.9	10
1500	16.3 -4.4	24	296	.2	286	2.5	44	1500	10.8 ****	59	013	.5	047	1.9	12	1500	9.7 ****	62	064	.5	057	1.9	13
1800	13.5 -4.3	29	225	.9	201	4.4	2	1800	10.3 ****	68	289	.4	257	1.3	3	1800	9.4 ****	67	347	.1	329	1.3	4
2100	9.1 ****	85	195	.4	231	4.4	1	2100	9.2 ****	81	239	.1	235	1.3	1	2100	6.8 ****	81	194	.1	723	.6	1
2400	8.9 ****	18	111	.2	109	.6	0	2400	8.6 ****	2	196	.0	244	.6	1	2400	6.9 ****	94	115	.1	162	1.3	1

DAY 31

HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C DEG C Z	DEG. M/S	MW

0300	6.8 ****	7	109	.1	076	1.3	1
0600	6.8 ****	87	043	.5	051	1.9	2
0900	8.4 ****	64	036	.5	063	1.9	20
1200	10.1 ****	58	032	.6	029	1.9	16
1500	12.9 -2.7	34	202	.4	196	2.5	51
1800	9.5 ****	66	219	.8	204	3.2	3
2100	7.7 ****	80	209	.4	281	1.9	0
2400	7.7 ****	98	065	.1	044	1.3	1

## R &amp; M CONSULTANTS, INC.

## SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR SHERMAN WEATHER STATION  
DATA TAKEN DURING August, 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 P'VAL SPD. M/S	MAX. P'VAL DIR. Z	MEAN RH	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	20.2	2.5	11.4	057	.7	.8	071	4.4	ENE	5	-23.1	0.0	6840	1
2	22.8	.9	11.9	058	.6	.7	011	3.8	NE	8	-21.8	0.0	7455	2
3	22.7	1.3	12.0	212	.3	.6	204	3.2	ESE	3	-24.4	0.0	6820	3
4	22.9	2.2	12.6	212	.4	.6	214	3.2	SW	6	-18.9	0.0	6590	4
5	22.0	5.7	13.9	212	.7	.8	193	3.8	SW	28	-6.9	.2	5450	5
6	24.3	3.5	13.9	056	.1	.5	222	3.2	E	10	-18.0	0.0	5045	6
7	17.8	4.1	11.0	216	.4	.7	253	5.1	E	42	-.3	9.6	3263	7
8	20.7	2.7	11.7	059	.2	.8	219	3.8	NNE	22	-8.9	9.2	4788	8
9	13.3	8.3	10.8	211	.5	.6	235	5.1	SSW	43	-.1	6.4	2378	9
10	13.2	7.9	10.6	210	.6	.6	216	5.7	SSW	51	1.2	4.6	2428	10
11	20.0	3.6	11.8	203	.1	.6	088	2.5	SW	9	-16.8	.2	5905	11
12	21.3	1.5	11.4	207	.3	.6	237	3.8	SW	5	-20.8	0.0	6178	12
13	22.0	5.6	13.8	220	.4	.7	250	4.4	E	7	-17.3	0.0	5970	13
14	16.3	9.9	13.1	200	.2	.4	208	3.2	SSW	37	1.0	2.4	1798	14
15	17.7	8.0	12.9	214	.7	.9	212	3.8	SSW	34	-3.9	2.0	4220	15
16	15.3	7.8	11.6	214	.9	1.1	221	5.7	SSW	22	-7.1	.4	5710	16
17	15.3	7.5	11.4	119	.1	.5	216	2.5	SSW	30	-3.3	4.0	2603	17
18	16.1	3.1	9.6	023	.1	.3	022	1.9	ESE	**	*****	6.0	2628	18
19	19.9	2.8	11.4	058	.2	.3	048	1.9	ESE	**	*****	0.0	3783	19
20	22.9	2.6	12.8	060	.2	.4	054	2.5	E	7	-18.7	0.0	5388	20
21	21.2	2.0	11.6	212	.5	.7	191	3.8	SW	12	-11.8	0.0	5530	21
22	21.3	1.8	11.6	212	.4	.6	249	3.8	SSW	9	-14.8	0.0	5140	22
23	17.8	8.6	12.8	209	.6	.7	247	3.2	SSW	40	1.0	1.2	2790	23
24	18.6	8.3	13.5	214	.5	.7	225	3.8	SW	30	-2.9	.2	3733	24
25	16.4	8.4	12.4	204	.7	.8	208	3.2	SSW	31	-4.2	1.2	3335	25
26	20.8	2.3	11.2	276	.1	.5	230	3.2	E	17	-7.9	1.0	4063	26
27	21.0	.1	10.6	041	.5	.4	037	4.4	NE	4	-23.6	0.0	4925	27
28	17.3	2.3	9.8	185	.1	.5	201	4.4	ENE	28	-4.2	3.2	2483	28
29	11.1	8.5	9.8	007	.1	.2	047	1.9	NE	**	*****	13.2	1788	29
30	16.2	6.6	8.5	042	.2	.3	043	1.9	NE	**	*****	27.2	1080	30
31	13.0	6.5	9.8	071	.1	.5	204	3.2	NE	44	-.9	7.8	2203	31
MONTH	24.3	.1	11.6	202	.2	.6	216	5.7	SSW	22	-10.2	94.0	132158	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS      3.2  
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL      2.5  
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL      3.8  
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS      2.5

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 \*\*\*\*

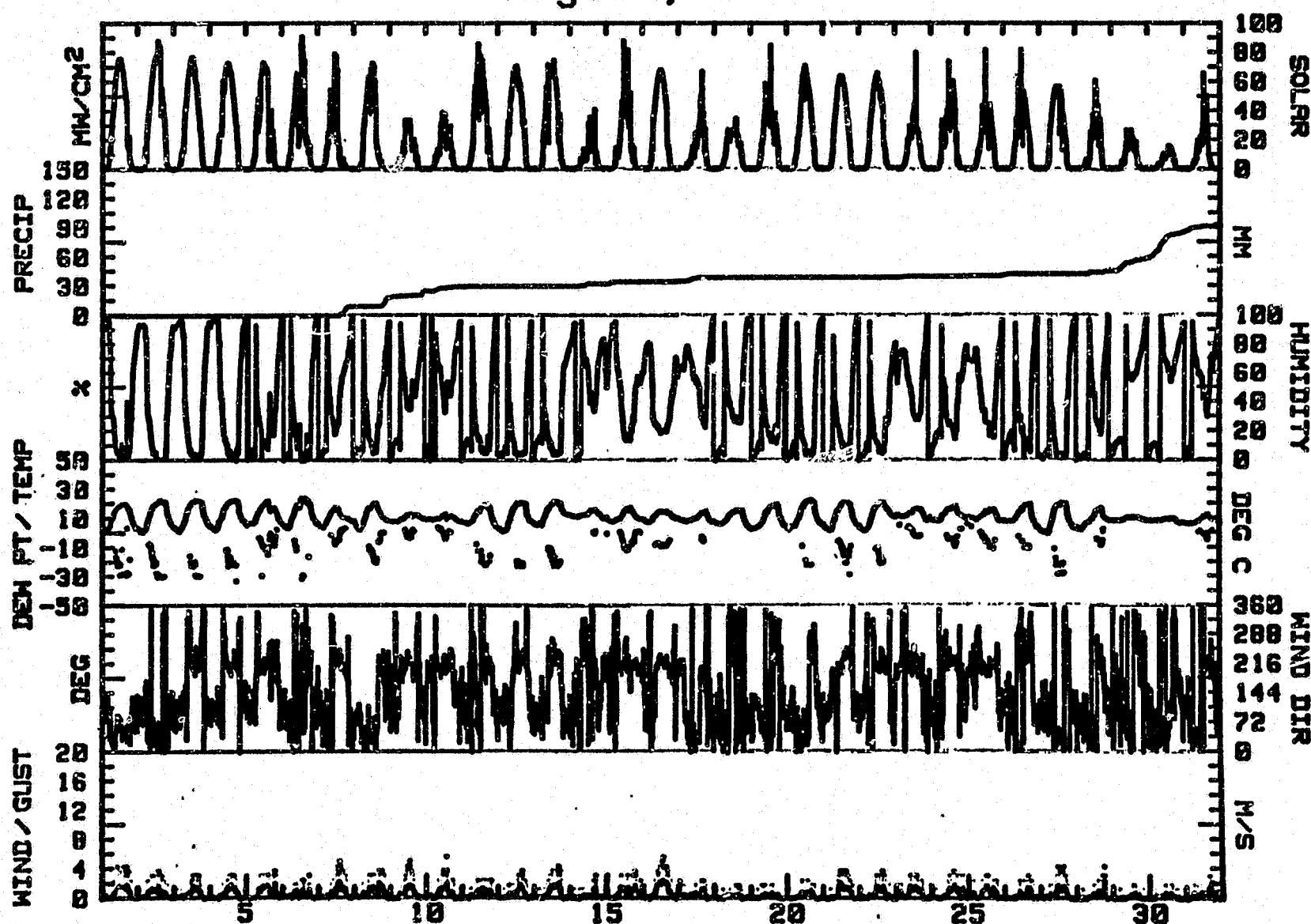
**R A M CONSULTANTS, INC.**  
**SUSITNA HYDROELECTRIC PROJECT**

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

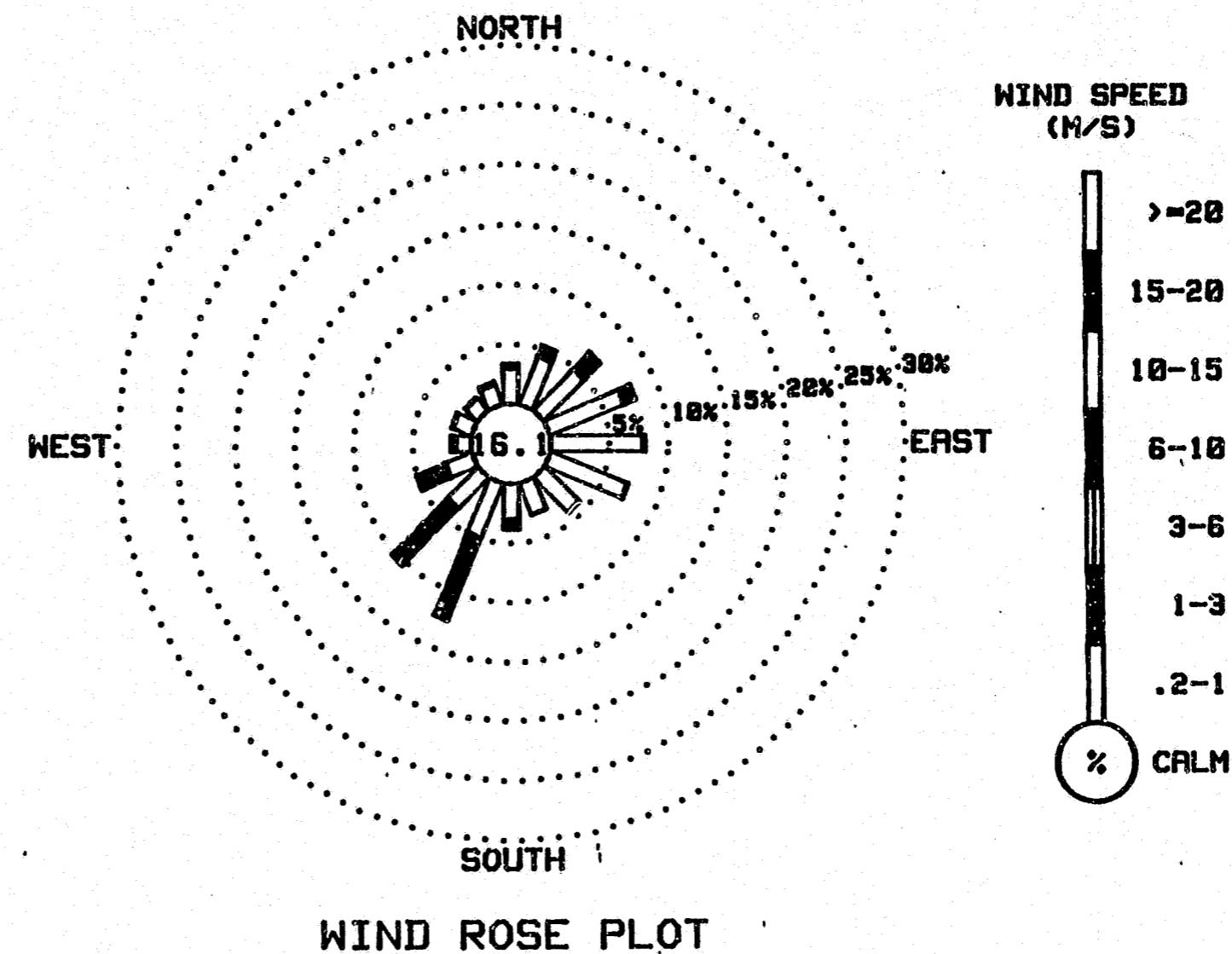
DIRECTION	VELOCITY (M/S)								TOTAL
	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER		
N	2.92	.37	0.00	0.00	0.00	0.00	0.00	3.29	
NNE	4.27	.94	0.00	0.00	0.00	0.00	0.00	5.21	
NE	4.84	1.88	0.00	0.00	0.00	0.00	0.00	6.72	
ENE	6.79	1.04	0.00	0.00	0.00	0.00	0.00	7.83	
E	7.83	.17	0.00	0.00	0.00	0.00	0.00	8.00	
ESE	7.06	.03	0.00	0.00	0.00	0.00	0.00	7.09	
SE	4.13	.03	0.00	0.00	0.00	0.00	0.00	4.17	
SSE	2.82	.03	0.00	0.00	0.00	0.00	0.00	2.86	
S	2.99	.84	0.00	0.00	0.00	0.00	0.00	3.83	
SSW	4.91	7.53	0.00	0.00	0.00	0.00	0.00	12.43	
SW	3.63	6.72	0.00	0.00	0.00	0.00	0.00	10.35	
WSW	2.42	2.62	0.00	0.00	0.00	0.00	0.00	5.04	
W	1.31	.44	0.00	0.00	0.00	0.00	0.00	1.75	
WNW	1.75	.10	0.00	0.00	0.00	0.00	0.00	1.85	
NW	1.44	.07	0.00	0.00	0.00	0.00	0.00	1.51	
NNW	1.78	.24	0.00	0.00	0.00	0.00	0.00	2.02	
CALM	-----	-----	-----	-----	-----	-----	-----	16.06	
TOTAL	60.89	23.05	0.00	0.00	0.00	0.00	0.00	100.00	

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT  
 2976 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT  
SHERMAN WEATHER STATION  
August, 1982



R&M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT  
SHERMAN WEATHER STATION  
August, 1982



## R &amp; M CONSULTANTS, INC.

## SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR SHERMAN 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	.2	2.0	1.2	0.0	1.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.0	0.0	0.0	0.0	0.0	0.0	1		
2	0.0	0.0	0.0	0.0	0.0	1.0	4.0	2.2	.2	0.0	.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	0.0	.6	2.6	2		
3	2.2	1.2	1.6	.2	.2	.2	0.0	.4	.8	.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	3		
4	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	0.0	4			
5	0.0	0.0	.4	.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	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	.2	.6	.8	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	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	0.2	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	0.0	0.0	0.0	0.0	9	
10	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	0.0	10	
11	0.0	0.0	0.0	.2	0.0	.4	1.4	.6	.8	1.8	.6	0.0	.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	.2	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	.6	.2	1.2	1.2		
13	1.2	2.2	2.2	1.8	1.8	1.6	3.0	2.2	1.8	1.6	1.0	1.0	1.6	.4	0.0	0.0	0.0	1.0	2.0	0.0	.5	.6	1.0	0.0	0.0	13	
14	.2	.2	.2	.4	.4	0.0	.2	0.0	0.0	.2	.2	0.0	0.0	0.0	.4	1.0	1.8	3.0	1.6	2.0	.2	1.8	2.4	2.8	0.0	14	
15	2.8	2.2	1.4	2.0	3.2	3.0	2.4	.6	0.0	0.0	0.0	0.0	0.0	9.0	0.0	0.0	1.2	4.0	5.2	1.6	0.0	0.0	0.2	0.0	0.0	15	
16	.2	.4	2.2	4.0	1.0	.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	.2	.6	1.0	1.0	0.0	16	
17	2.0	2.0	2.0	1.0	.2	.4	1.2	.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	17	
18	.2	0.0	.2	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	.2	.2	1.2	1.0	.8	1.6	2.2	.8	1.0	0.0	0.0	18	
19	0.0	0.0	0.0	0.0	.2	.6	.2	.2	.2	.8	1.4	1.0	2.4	1.6	1.2	.8	1.0	.6	1.4	.6	.4	1.4	2.4	0.0	19		
20	.2	.4	.6	.4	.4	0.0	.4	0.0	.2	0.0	0.0	0.0	.4	.8	.4	.2	.2	.2	0.0	.2	.2	0.0	.6	.2	0.0	20	
21	0.0	0.0	.2	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	.4	1.8	.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	21	
22	0.0	0.0	0.0	.2	.4	0.0	0.0	.2	1.2	1.0	1.6	.2	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	22	
23	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	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	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	0.0	25	
26	0.0	0.0	0.0	0.0	.2	.2	.6	.6	0.0	0.0	0.0	0.0	0.0	1.6	2.0	2.0	2.2	0.0	.4	.8	2.2	2.0	3.0	1.6	0.0	26	
27	1.0	.4	.6	.6	.4	.4	.4	.2	.2	0.0	.6	.2	1.0	.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	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	.2	.8	.8	.6	.4	.4	1.0	.8	.4	0.0	28	
29	.6	.8	.2	0.0	.2	0.0	.4	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	.6	1.2	1.6	1.4	29	
30	.6	.2	.2	.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	.4	.6	1.4	.4	.4	.2	.2	2.6	30	

## R &amp; M CONSULTANTS, INC.

## SUSTINA HYDRO ELECTRIC PROJECT

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

DAY 01

DAY 02

DAY 03

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.						
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD				
DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW

0300	7.7	****	7	096	.1	152	.6	0 0300	3.9	****	4	073	.1	356	.6	1 0300	6.9	****	87	027	.3	019	1.3	1
0600	7.7	****	10	347	.1	075	1.3	3 0600	5.3	****	7	248	.1	269	1.3	1 0600	6.8	****	84	052	.5	047	1.9	3
0900	10.2	****	51	049	.6	065	1.9	25 0900	7.7	****	4	094	.3	124	1.3	12 0900	7.1	****	65	048	.4	038	1.3	7
1200	13.1	****	29	039	.8	033	1.9	42 1200	11.0	-1.8	41	237	.2	106	1.9	29 1200	8.5	****	57	028	.4	045	1.3	16
1500	14.3	****	21	025	.6	005	2.5	25 1500	14.6	-11.8	15	215	1.2	218	2.5	43 1500	10.9	****	32	038	.7	043	2.5	18
1800	14.2	****	26	301	.4	287	1.9	11 1800	11.1	-7.8	26	251	1.0	220	3.2	7 1800	9.1	****	53	227	.3	207	1.9	4
2100	5.5	****	78	182	.8	186	5.7	1 2100	7.6	****	64	190	.4	176	2.5	1 2100	5.1	****	86	147	.1	235	.6	1
2400	4.8	****	0	103	.2	113	.6	1 2400	7.5	3.4	75	037	.4	352	1.9	1 2400	5.4	****	97	094	.1	052	.6	0

DAY 04

DAY 05

DAY 06

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.						
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD				
DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW

0300	5.1	****	5	088	.1	049	.6	1 0300	4.3	****	3	093	.3	087	1.9	0 0300	10.1	****	29	084	1.0	135	6.3	1
0600	5.2	****	7	089	.2	105	1.3	4 0600	5.6	****	4	029	.4	036	1.9	2 0600	5.2	****	77	086	.4	105	2.5	2
0900	8.1	****	51	041	.3	068	1.3	15 0900	10.9	-7.0	28	034	1.0	033	4.4	18 0900	14.5	-11.9	15	075	.3	068	3.2	15
1200	11.7	****	26	359	.1	193	1.9	44 1200	13.7	-11.0	17	038	1.6	041	4.4	31 1200	11.4	-4.4	33	156	.3	221	5.1	18
1500	13.5	****	13	224	.9	187	2.5	30 1500	15.9	-11.6	14	051	1.5	047	5.1	20 1500	12.0	-4.7	31	215	1.8	219	4.4	13
1800	10.0	****	37	214	.6	215	2.5	6 1800	14.6	****	19	068	.7	080	3.2	6 1800	10.6	****	38	215	1.3	207	4.4	2
2100	4.4	****	81	208	.0	271	.6	1 2100	13.4	-12.0	16	048	1.5	043	5.1	2 2100	9.6	****	55	210	.7	216	1.9	0
2400	2.4	****	97	082	.2	124	.6	1 2400	12.5	-9.3	21	088	.7	061	3.2	2 2400	9.0	****	62	188	.9	203	3.2	1

DAY 07

DAY 08

DAY 09

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.						
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD				
DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	MW

0300	8.5	****	64	189	.7	175	1.9	1 0300	6.9	****	1	086	.1	065	1.3	0 0300	7.0	****	94	184	.1	201	1.3	0
0600	8.5	4.2	74	190	.4	196	2.5	4 0600	6.8	****	5	041	.2	358	1.3	2 0600	7.1	****	1	106	.1	045	1.3	1
0900	10.1	.4	51	214	1.4	218	3.8	25 0900	10.4	-3.1	39	195	.4	194	3.2	18 0900	8.7	****	89	129	.1	139	.6	8
1200	13.7	-4.6	28	209	2.0	213	4.4	43 1200	11.2	-5.4	31	214	1.5	214	3.2	21 1200	10.7	****	50	348	.4	007	1.3	16
1500	14.3	-9.8	18	238	1.8	230	4.4	27 1500	11.3	-3.7	35	216	1.5	208	3.8	13 1500	12.9	****	29	268	.4	304	1.3	25
1800	10.7	****	48	220	.8	236	3.8	1 1800	10.3	****	39	209	1.0	210	3.2	2 1800	9.5	****	55	026	.1	345	1.3	2
2100	8.1	****	75	180	.0	169	.6	0 2100	8.5	****	54	199	.5	205	1.9	1 2100	6.7	****	82	172	.2	215	2.5	1
2400	7.5	****	91	136	.1	110	1.3	1 2400	7.3	****	79	082	.1	038	.6	1 2400	5.7	****	96	131	.2	123	1.3	1

## R &amp; M CONSULTANTS, INC.

## SALISBURY HYDRO ELECTRIC PROJECT

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

DAY 10

DAY 11

DAY 12

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.				
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST RAD
DEG C	DEG C	%	DEG. M/S	DEG. M/S	DEG C	DEG C	%	DEG. M/S	DEG. M/S	DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW

0300	6.2 ****	3	055	.2	050	1.3	1	0300	4.8 ****	99	096	.0	146	.6	0								
0600	5.2 ****	3	076	.1	109	1.3	3	0600	5.1 ****	0	093	.1	019	1.3	1	0600	0.0 ****	0	066	.4	066	1.3	2
0900	7.5 ****	76	040	.4	059	1.9	17	0900	6.0 ****	98	049	.3	010	1.9	2	0900	3.9 ****	45	051	.7	074	2.5	38
1200	11.8 ****	37	022	.4	021	2.5	27	1200	7.2 -5.6	40	344	.5	238	5.1	13	1200	10.2 ****	20	029	.7	347	2.5	28
1500	12.3 ****	27	315	.1	308	1.9	16	1500	7.7 ****	43	234	.7	236	4.4	27	1500	10.9 ****	9	042	.5	051	2.5	13
1800	9.8 ****	54	235	.4	223	1.9	2	1800	5.7 ****	64	036	.4	022	1.9	1	1800	6.9 ****	52	111	.1	155	1.9	1
2100	5.2 ****	80	149	.2	219	.6	1	2100	2.5 ****	85	136	.2	064	1.3	0	2100	5.1 ****	71	196	.2	210	1.9	1
2400	4.8 ****	93	122	.1	085	.6	0	2400	.1 ****	96	093	.4	141	1.3	1	2400	5.1 ****	79	050	.4	050	1.9	0

DAY 13

DAY 14

DAY 15

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.				
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST RAD
DEG C	DEG C	%	DEG. M/S	DEG. M/S	DEG C	DEG C	%	DEG. M/S	DEG. M/S	DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW

0300	4.8 ****	92	048	.4	061	1.9	1	0300	7.4 ****	89	225	.4	213	1.9	0	0300	7.5 ****	92	031	.5	020	1.9	1			
0600	4.4 ****	77	049	.6	055	2.5	1	0600	7.2 ****	0	067	.1	016	1.3	1	0600	7.6 ****	93	040	.3	320	1.9	1			
0900	5.5	.5	70	023	.7	031	2.5	6	0900	8.6 ****	98	029	.2	020	1.3	11	0900	10.5 ****	80	064	.3	147	1.3	20		
1200	6.2	.2	65	047	.8	012	2.5	6	1200	9.9 ****	62	052	.4	091	1.3	10	1200	15.3	-2	35	.2	024	.9	010	2.5	43
1500	8.6 ****	54	055	.9	065	2.5	15	1500	10.3 ****	63	029	.4	044	1.3	6	1500	16.6 ****	35	349	.6	339	2.5	17			
1800	8.2 ****	74	302	.3	352	1.9	1	1800	8.7 ****	78	061	.2	062	1.3	1	1800	11.8	3.1	55	217	1.0	209	3.2	0		
2100	7.8 ****	91	210	.2	273	1.9	1	2100	7.7 ****	83	051	.2	061	1.3	0	2100	10.7	3.1	59	214	1.2	215	3.2	1		
2400	8.3 ****	81	234	.6	221	1.9	0	2400	7.6 ****	89	049	.2	026	1.3	0	2400	8.0 ****	67	194	.7	220	5.1	0			

DAY 16

DAY 17

DAY 18

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.				
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST RAD
DEG C	DEG C	%	DEG. M/S	DEG. M/S	DEG C	DEG C	%	DEG. M/S	DEG. M/S	DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW

0300	8.7 ****	81	073	.1	235	1.9	1	0300	4.1 ****	80	057	.1	031	1.3	1	0300	3.9 ****	86	073	.2	013	1.3	1	
0600	7.6	-3.1	47	206	2.5	233	8.3	1	0600	3.4 ****	70	065	.4	065	3.2	1	0600	4.1 ****	88	059	.5	034	1.9	1
0900	8.1	-4.8	40	220	2.3	235	6.3	13	0900	4.7 ****	61	039	.4	049	1.9	16	0900	7.5 ****	51	035	.6	356	1.9	18
1200	10.2	-9.1	25	232	2.5	227	7.0	14	1200	7.1 ****	50	040	.7	042	1.9	11	1200	11.4 ****	32	011	.8	354	1.9	21
1500	11.1	-13.8	16	227	4.1	220	10.2	19	1500	8.2 ****	51	047	.4	000	1.9	11	1500	10.8 ****	49	020	.3	019	1.9	6
1800	8.5 ****	22	233	2.3	218	7.0	2	1800	6.9 ****	69	039	.2	355	1.3	1	1800	8.0 ****	69	083	.3	090	1.3	1	
2100	5.4 ****	66	153	.2	192	1.3	1	2100	3.7 ****	81	074	.4	094	1.3	0	2100	7.4 ****	82	238	.2	149	1.3	0	
2400	5.0 ****	76	076	.1	075	1.3	0	2400	4.2 ****	85	067	.4	072	1.9	1	2400	5.7 ****	85	233	.2	212	3.2	1	

## R &amp; M CONSULTANTS, INC.

## SUSSEX TNA HYDRO ELECTRIC PROJECT

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

DAY 19

DAY 20

DAY 21

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST
DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW

0300	6.3	****	89	070	.2	034	1.3	1	0300	6.3	****	83	101	.2	190	1.3	1	0300	5.8	****	87	050	.3	067	1.3	1
0600	6.4	****	90	108	.1	018	1.3	1	0600	6.3	****	86	082	.2	060	1.3	1	0600	5.1	****	89	049	.4	064	2.5	1
0900	8.1	****	90	093	.1	046	1.9	7	0900	7.7	****	65	044	.2	349	1.3	18	0900	7.3	****	84	049	.5	035	1.9	13
1200	9.4	****	64	119	.1	217	1.3	11	1200	9.0	2.54	240	.3	243	1.9	17	1200	8.9	****	**	284	.5	314	3.2	9	
1500	9.2	****	67	293	.2	243	1.3	4	1500	8.7	****	59	228	.6	234	1.9	8	1500	8.6	****	**	200	1.0	217	3.8	8
1800	8.5	****	71	249	.3	236	1.3	1	1800	7.4	****	71	000	.3	352	1.3	1	1800	7.8	****	**	208	1.1	199	3.2	3
2100	7.0	****	66	212	.7	224	3.8	0	2100	5.9	****	82	104	.2	050	.6	0	2100	6.3	****	**	096	.2	098	1.3	2
2400	6.5	****	75	181	.1	215	1.9	1	2400	5.6	****	87	101	.1	086	.6	1	2400	5.4	****	**	079	.3	096	1.3	3

DAY 22

DAY 23

DAY 24

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST
DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW

0300	5.1	****	**	085	.2	050	1.3	3	0300	-1	****	**	336	.2	336	.6	2	0300	-3.6	****	**	095	.4	086	1.3	2
0600	4.7	****	**	082	.1	033	1.9	3	0600	-6	****	**	335	.3	335	1.3	3	0600	-4.7	****	**	097	.4	092	1.3	3
0900	5.8	****	**	216	.9	200	2.5	7	0900	2.0	****	**	037	.7	075	2.5	32	0900	.4	****	**	083	.4	125	1.3	16
1200	5.9	****	**	248	.9	248	2.5	13	1200	9.2	****	**	049	.8	067	2.5	43	1200	8.6	****	**	037	.5	063	1.9	55
1500	10.2	****	**	346	.5	353	1.9	32	1500	11.6	****	**	083	.7	139	2.5	27	1500	9.8	****	**	017	.6	022	2.5	12
1800	2.9	****	**	241	.8	214	5.7	3	1800	3.2	****	**	007	.7	005	3.2	2	1800	5.8	****	**	229	.2	239	3.2	2
2100	.1	****	**	066	.2	283	1.3	2	2100	-2.5	****	**	092	.4	068	1.3	2	2100	.9	****	**	140	.2	142	1.3	2
2400	.1	****	**	071	.1	135	1.3	2	2400	-3.3	****	**	095	.3	041	1.3	2	2400	-4	****	**	091	.3	103	1.3	2

DAY 25

DAY 26

DAY 27

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	
NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG TEMP.	POINT RH	DIR.	SPD.	DIR.	GUST
DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW		DEG C	DEG C	%	DEG. M/S	DEG. M/S	MW

0300	-1.7	****	**	089	.2	110	1.3	2	0300	2.9	****	**	056	.2	098	1.3	2	0300	4.3	****	**	007	.3	357	1.3	2
0600	-2.9	****	**	074	.3	070	1.3	3	0600	3.1	****	**	066	.3	087	1.3	3	0600	5.1	****	**	207	.8	207	3.2	3
0900	3.4	****	**	113	.4	064	1.3	32	0900	5.0	****	**	037	.5	053	1.9	26	0900	4.6	****	**	193	.4	213	3.2	9
1200	10.2	****	**	031	.7	349	2.5	20	1200	8.1	****	**	062	.6	083	2.5	23	1200	5.6	****	**	020	.7	012	1.9	17
1500	11.1	****	**	294	.3	002	1.3	10	1500	5.4	****	**	229	.3	219	2.5	5	1500	8.6	****	**	042	.9	053	1.9	26
1800	7.3	****	**	232	1.1	218	3.8	2	1800	4.7	****	**	062	.3	359	1.9	2	1800	3.2	****	**	036	.3	057	1.9	2
2100	5.1	****	**	159	.2	273	1.3	2	2100	4.4	****	**	034	.2	146	1.3	2	2100	-7	****	**	103	.3	104	1.3	2
2400	3.4	****	**	095	.2	244	1.3	2	2400	4.3	****	**	020	.3	057	1.9	2	2400	-1.3	****	**	***	***	***	***	2

## R &amp; M CONSULTANTS, INC.

## SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.	HOUR	DEW	WIND	WIND GUST MAX.
NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	%	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	%	NDNG TEMP. POINT RH DIR. SPD. DIR. GUST RAD	DEG C	DEG C	%
	M/S	M/S	NW		M/S	M/S	NW		M/S	M/S	NW

0300	-2.2	****	**	***	***	***	***	2 0300	2.7	****	**	079	.4	066	.6	2 0300	3.0	****	**	210	1.5	211	3.2	2
0600	-2.7	****	**	***	***	***	***	3 0600	2.7	****	**	063	.5	068	1.3	2 0600	2.8	****	**	245	.9	242	3.2	2
0900	.4	****	**	088	.9	103	1.9	12 0900	4.8	****	**	027	.7	016	2.5	10 0900	4.2	****	**	247	.4	248	3.2	11
1200	5.3	****	**	076	.7	072	1.9	17 1200	8.3	****	**	059	1.0	070	2.5	22 1200	6.2	****	**	208	2.1	198	5.1	22
1500	6.2	****	**	055	.3	038	1.3	4 1500	9.4	****	**	048	1.6	036	3.8	11 1500	6.1	****	**	205	2.0	212	4.4	6
1800	4.1	****	**	065	.3	069	1.3	2 1800	6.3	****	**	061	.6	059	2.5	2 1800	4.9	****	**	215	.8	215	3.2	2
2100	3.7	****	**	050	.4	045	1.9	2 2100	5.1	****	**	217	.9	217	3.8	2 2100	3.6	****	**	143	.8	011	1.3	2
2400	2.8	****	**	047	.5	062	1.9	2 2400	4.0	****	**	210	1.6	208	4.4	1 2400	3.7	****	**	234	.1	237	1.9	2

R & M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT

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

DAY	RES.			Avg.	Max.	Max.	Day's							
	MAX. DEG C	MIN. DEG C	MEAN DEG C	WIND DIR. DEG	WIND SPD. M/S	GUST SPD. M/S	GUST P'VAL DIR. DEG	MEAN RH %	MEAN DEG C	SOLAR ENERGY WH/SQm				
1	16.6	3.9	10.3	045	.2	.5	186	5.7	NNE	36	-4.3	9.4	3155	1
2	14.7	3.7	9.2	223	.3	.6	220	3.2	SW	27	-7.5	11.5	2835	2
3	11.5	5.0	8.3	043	.2	.4	043	2.5	NE	50	-6	7.3	1845	3
4	13.8	1.8	7.8	202	.1	.4	187	2.5	SSW	16	-12.9	.2	3073	4
5	16.7	3.1	9.9	050	.9	1.0	047	5.1	NE	20	-9.9	1.0	2255	5
6	15.3	5.2	10.3	186	.5	1.1	135	6.3	SSW	32	-5.7	0.0	1578	6
7	14.3	7.5	10.9	214	.9	.9	213	4.4	SSW	40	-3.7	1.8	2615	7
8	11.9	6.4	9.2	208	.6	.7	208	3.8	SSW	33	-4.6	.2	1878	8
9	12.9	5.6	9.3	202	.0	.3	215	2.5	ESE	**	*****	.8	1718	9
10	12.6	4.8	8.7	037	.1	.3	021	2.5	NE	**	*****	.2	2030	10
11	7.9	-6	3.7	044	.1	.5	238	5.1	E	51	-3.2	7.6	1190	11
12	11.8	-4	5.7	048	.4	.5	074	2.5	NE	46	-7.6	3.6	2968	12
13	8.7	4.4	6.6	037	.3	.6	055	2.5	NNE	61	.2	28.6	978	-13
14	10.6	7.1	8.9	047	.2	.3	213	1.9	NNE	**	*****	19.0	940	14
15	17.0	7.3	12.2	246	.1	.8	220	5.1	NNE	48	1.6	29.8	2093	15
16	12.1	5.0	8.6	223	1.7	1.9	220	10.2	SW	33	-7.8	11.2	2313	16
17	8.2	2.5	5.4	053	.4	.4	065	3.2	NE	72	-1	9.4	1198	17
18	12.0	3.7	7.9	033	.3	.5	212	3.2	E	52	-1.4	10.0	1483	18
19	9.4	6.0	7.7	204	.1	.4	224	3.8	SW	62	.9	18.6	775	19
20	9.5	5.5	7.5	153	.0	.3	243	1.9	ENE	53	.1	6.0	1265	20
21	10.0	5.1	7.6	169	.1	.6	217	3.8	NE	**	*****	3.4	1291	21
22	10.2	-9	4.7	243	.2	.6	214	5.7	WSW	**	*****	5.0	2150	22
23	11.8	-3.3	4.3	054	.5	.6	005	3.2	E	**	*****	.2	3365	23
24	9.9	-5.1	2.4	070	.3	.5	239	3.2	E	**	*****	0.0	2418	24
25	11.1	-3.0	4.1	129	.1	.6	218	3.8	E	**	*****	0.0	2208	25
26	8.1	2.2	5.2	049	.3	.5	083	2.5	ENE	**	*****	19.4	1248	26
27	9.9	-1.4	4.3	058	.2	.7	207	3.2	NNE	**	*****	6.2	1770	27
28	7.3	-3.0	2.2	063	.5	.5	103	1.9	NE	**	*****	5.4	1340	28
29	9.4	2.6	6.0	074	.3	.9	208	4.4	ENE	**	*****	7.4	1605	29
30	7.2	2.5	4.9	015	1.0	1.1	198	5.1	SSW	**	*****	8.4	1785	30
MONTH	17.0	-5.1	7.1	13	.1	.6	220	10.2	ENE	35	-3.9	232.2	57356	

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 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 &amp; M CONSULTANTS, INC.

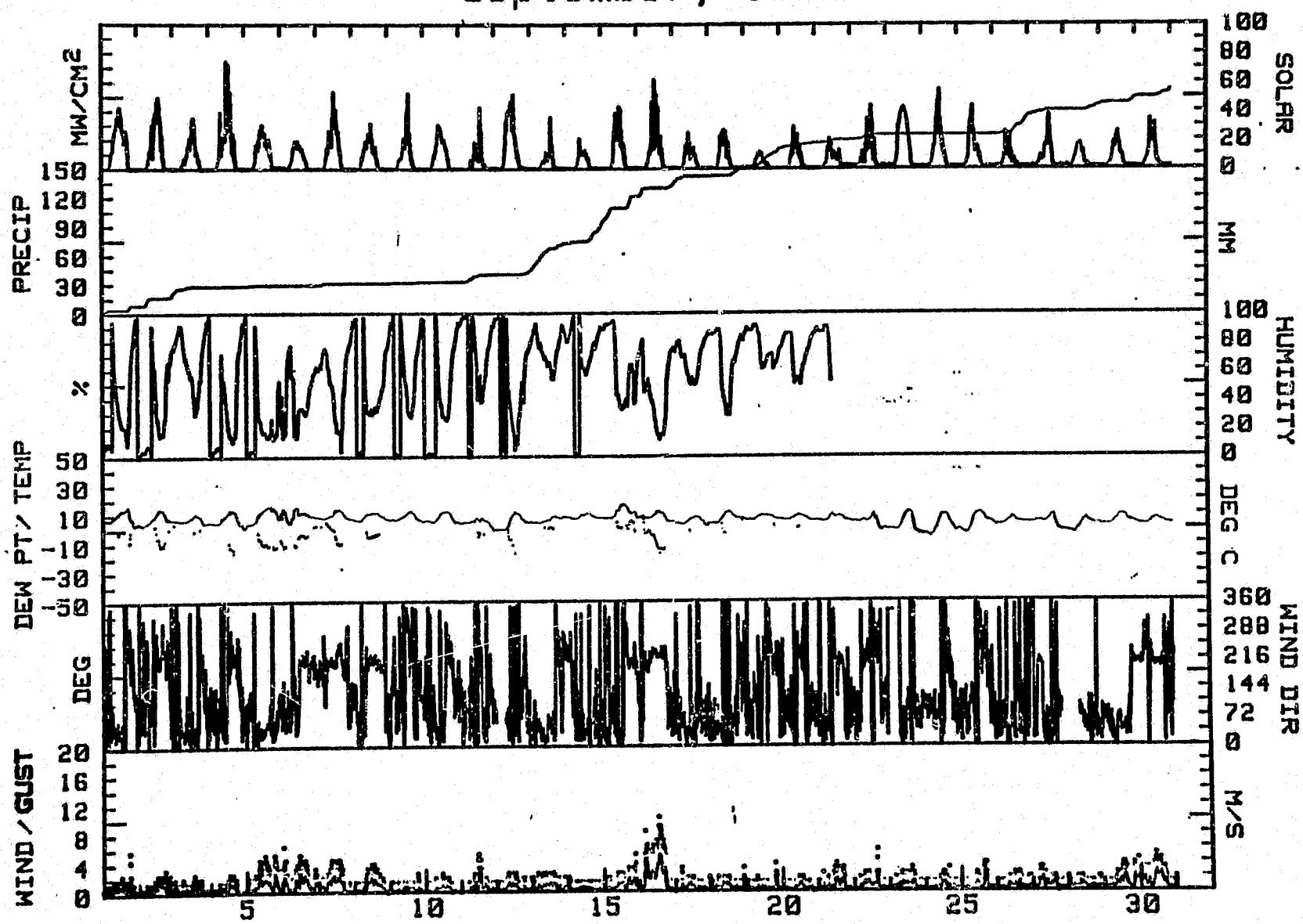
## SUSITNA HYDROELECTRIC PROJECT

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

DIRECTION	VELOCITY (M/S)								TOTAL
	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		
	1.0	3.0	6.0	10.0	15.0	20.0			
N	4.25	.65	0.00	0.00	0.00	0.00	0.00	0.00	4.90
NNE	8.39	1.37	0.00	0.00	0.00	0.00	0.00	0.00	9.76
NE	9.40	2.02	0.00	0.00	0.00	0.00	0.00	0.00	11.42
ENE	10.16	1.19	0.00	0.00	0.00	0.00	0.00	0.00	11.35
E	7.96	.47	0.00	0.00	0.00	0.00	0.00	0.00	8.43
ESE	6.05	.07	0.00	0.00	0.00	0.00	0.00	0.00	6.12
SE	3.57	.07	0.00	0.00	0.00	0.00	0.00	0.00	3.64
SSE	2.59	.07	0.00	0.00	0.00	0.00	0.00	0.00	2.67
S	2.63	.36	0.00	0.00	0.00	0.00	0.00	0.00	2.99
SSW	3.42	6.05	.07	0.00	0.00	0.00	0.00	0.00	9.55
SW	3.03	4.32	.61	0.00	0.00	0.00	0.00	0.00	7.96
WSW	2.20	1.51	.07	0.00	0.00	0.00	0.00	0.00	3.78
W	1.66	.14	0.00	0.00	0.00	0.00	0.00	0.00	1.80
WNW	1.73	.14	0.00	0.00	0.00	0.00	0.00	0.00	1.87
NW	1.22	.04	0.00	0.00	0.00	0.00	0.00	0.00	1.26
NNW	2.09	.40	0.00	0.00	0.00	0.00	0.00	0.00	2.49
CALM	-----	-----	-----	-----	-----	-----	-----	-----	10.01
TOTAL	70.35	18.88	.76	0.00	0.00	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  
SHERMAN WEATHER STATION  
September, 1982



R&M CONSULTANTS, INC.  
SUSITNA HYDROELECTRIC PROJECT  
SHERMAN WEATHER STATION  
September, 1982

