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**PROCESSED CLIMATIC DATA
OCTOBER 1982 - SEPTEMBER 1983**

**VOLUME VI
SHERMAN STATION
(No. 0665)**

R&M
R&M CONSULTANTS, INC.
ENGINEERS GEOLOGISTS PLANNERS SURVEYORS

UNDER CONTRACT TO

HARZA-EBASCO
SUSITNA JOINT VENTURE

FINAL REPORT

JUNE 1984
DOCUMENT No. 1093

ALASKA POWER AUTHORITY

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SUSITNA HYDROELECTRIC PROJECT

**PROCESSED CLIMATIC DATA
OCTOBER 1982 - SEPTEMBER 1983**

**VOLUME 6
SHERMAN STATION (No. 0665)**

Report by

R&M Consultants, Inc.

Under Contract to
Harza-Ebasco Susitna Joint Venture

Prepared for
Alaska Power Authority

Final Report
June 1984

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NOTICE

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SUSITNA PROJECT OFFICE**

ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT

TASK 4 - HYDROLOGY

PROCESSED CLIMATIC DATA (1983)
OCTOBER 1982 - SEPTEMBER 1983

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ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT

PROCESSED CLIMATIC DATA - SHERMAN STATION
OCTOBER 1982 - SEPTEMBER 1983

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Acknowledgments

These climatic data were collected under contract to Acres American, Incorporated (through February 1983) and under contract to Harza-Ebasco Joint Venture (after February) for the Alaska Power Authority's Susitna Hydroelectric Feasibility Study. The data recorders are Model 5100 Weather Wizards manufactured by Meteorology Research, Incorporated (MRI), now part of Belfort Instrument Company. All sensors were supplied by MRI or were replacements obtained from MRI's suppliers. 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, Len Story, Bob Butera, Carl Schoch, and Jeff Coffin, using computer programs developed by Mark Holmstrand. The computer hardware used was a Hewlett-Packard 9845B system. Review comments were provided by Khalid Jawed of Harza-Ebasco.

ADDENDUM

Subsequent to preparation of the final report and prior to publication, adjustments were made to some of this station's humidity data. Data were adjusted for the months where the RH sensor was seriously out of calibration. The revised mean daily values for both relative humidity and dewpoint are presented in the following table.

June 1984

ADDENDUM

Revised RH and Dewpoint Data

STATION: SHERMAN

YEAR: 1983

DAY	* April		* May		June		July		August		September		DAY
	MEAN RH %	MEAN DP DEG C	MEAN RH %	MEAN DP DEG C	MEAN RH %	MEAN DP DEG C	MEAN RH %	MEAN DP DEG C	MEAN RH %	MEAN DP DEG C	MEAN RH %	MEAN DP DEG C	
1	**	*****	**	*****	**	*****	73	8.2	39	3.1	84	7.1	1
2	**	*****	**	*****	**	*****	56	3.8	6	-17.6	28	-4.3	2
3	**	*****	**	*****	**	*****	26	-2.6	3	-25.6	38	-.3	3
4	**	*****	**	*****	**	*****	53	6.6	69	7.8	32	-4.8	4
5	**	*****	**	*****	**	*****	38	4.8	**	*****	27	-5.9	5
6	**	*****	**	*****	**	*****	66	7.5	38	.7	20	-9.4	6
7	**	*****	**	*****	**	*****	**	*****	65	6.0	38	-1.5	7
8	**	*****	**	*****	**	*****	53	3.8	75	7.1	51	2.5	8
9	**	*****	**	*****	**	*****	39	1.4	42	.0	45	1.4	9
10	**	*****	**	*****	**	*****	35	-.4	20	-6.7	44	1.5	10
11	**	*****	**	*****	**	*****	44	2.0	28	-2.8	40	.5	11
12	**	*****	**	*****	**	*****	58	5.1	60	5.1	44	.5	12
13	**	*****	**	*****	**	*****	69	7.4	52	1.2	55	2.4	13
14	**	*****	**	*****	39	-.9	37	2.1	37	-5.3	80	3.0	14
15	**	*****	**	*****	31	-2.4	25	-.2	38	-2.7	44	-1.6	15
16	**	*****	**	*****	26	-5.3	36	2.7	16	-9.6	29	-4.8	16
17	**	*****	**	*****	8	-10.4	65	7.0	36	-1.9	33	-3.7	17
18	**	*****	**	*****	5	-24.2	19	-7.5	4	-24.7	41	-2.9	18
19	**	*****	**	*****	36	.7	13	-13.5	5	-25.5	43	-1.5	19
20	**	*****	**	*****	20	-8.2	36	1.0	61	3.4	86	3.5	20
21	**	*****	**	*****	20	-4.8	23	-3.6	61	4.2	76	7.3	21
22	**	*****	**	*****	22	-3.6	26	-2.3	51	3.6	84	2.9	22
23	**	*****	**	*****	15	-10.0	56	4.0	42	-.4	36	-13.5	23
24	**	*****	**	*****	11	-10.1	42	2.5	58	-1.2	32	-16.9	24
25	**	*****	**	*****	11	-14.2	26	-2.8	38	-5.5	27	-17.4	25
26	**	*****	**	*****	35	1.0	36	1.2	50	1.9	29	-15.0	26
27	**	*****	**	*****	63	7.9	16	-6.3	**	*****	36	-12.2	27
28	**	*****	**	*****	23	-3.5	20	-5.6	**	*****	79	-3.8	28
29	**	*****	**	*****	41	2.4	30	.5	68	5.6	**	*****	29
30	**	*****	**	*****	17	-5.5	63	7.3	57	3.7	75	4.2	30
31	**	*****	**	*****			55	7.6	48	2.5			31
MONTH			**	*****	23	-5.8	43	1.4	42	-2.6	43	-2.8	MONTH

* NOTE: Data for April and May were not changed.

I. BACKGROUND

A. Purpose

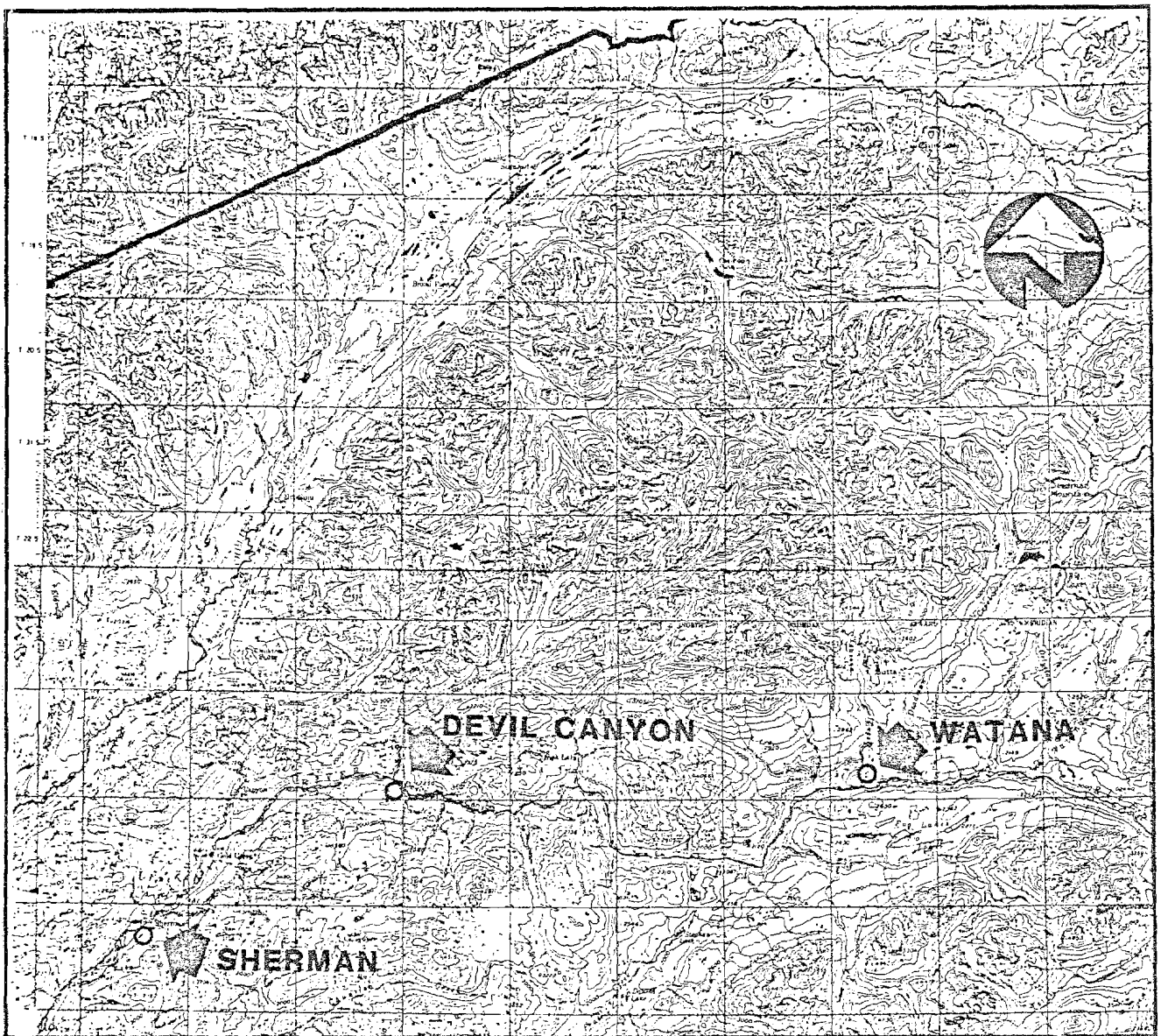
The Sherman climate station was installed to provide climatic data for groundwater studies in sloughs below Gold Creek. The station from Tyone River was relocated to a site near Sherman on the Alaska Railroad.

B. History of Sherman Station (No. 0665)

The station sits in a grass-filled clearing on the floodplain of the Susitna River at Susitna River Mile 129.5 (see Figure I-1 for location). 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. The station began recording on May 15, 1982.

The only previous data report for this station is:

Report	Period Covered
1. Processed Climatic Data Volume 7 Sherman Station December 1982 (R&M Consultants)	May 1982 - Sept. 1982



TALKEETNA MTS. AND HEALY QUADRANGLES APPROX. SCALE 1" = 11 MILES

CLIMATE STATIONS

UPPER SUSITNA BASIN



Figure I-1

PREPARED BY:

R&M
R&M CONSULTANTS, INC.
 ENGINEERS GEOLOGISTS PLANNERS SURVEYORS

PREPARED FOR:

HARZA-EBASCO
 SUSITNA JOINT VENTURE

II. ANNUAL DATA SUMMARIES

SHERMAN STATION (No. 0665)

SUMMARY OF CLIMATE DATA RECORDED AT SHERMAN STATION (NO. 665)
WATER YEAR 1983

Month	Temperature			Wind					P'val. Dir. (True)	Mean RH (%)	Mean DP (°C)	Precip. (mm)	Total Solar Energy (WH/m2)	Month
	Max. (°C)	Min. (°C)	Mean (°C)	Res. Dir. (°True)	Res. Speed (m/sec)	Avg. Speed (m/sec)	Max. Gust Dir. (°True)	Max. Gust Speed (m/sec)						
OCT	7.8M	-24.6M	-3.5M	M	M	M	M	M	M	M	M	M	30,135M	OCT
NOV	M	M	M	M	M	M	M	M	M	M	M	M	M	NOV
DEC	4.0M	-26.6M	-8.7M	059M	0.9M	0.9M	046M	6.3M	ENE(M)	M	M	M	7,187M	DEC
JAN	M	M	M	M	M	M	M	M	M	M	M	M	M	JAN
FEB	M	M	M	M	M	M	M	M	M	M	M	M	M	FEB
MAR	M	M	M	M	M	M	M	M	M	M	M	M	M	MAR
APR	19.4	-11.7	2.1	M	M	M	M	M	M	M	M	67.4	123,282	APR
MAY	18.2M	-3.7M	6.9M	217M	0.3M	0.1M	184M	7.0M	SSW(M)	M	M	19.4M	131,075M	MAY
JUN	M	M	M	M	M	M	M	M	M	M	M	M	M	JUN
JUL	24.6	3.5	13.9	214	0.5	0.5	218	6.3	SSW	M	M	54.2	147,129	JUL
AUG	25.7M	-1.2M	10.7M	210M	0.2M	0.7M	214M	8.9M	SW(M)	M	M	61.6	102,256M	AUG
SEP	16.5	-11.6	4.6	050	0.3	0.8	051	9.5	NE	M	M	20.8	74,033	SEP
Annual	M	M	M	M	M	M	M	M	M	M	M	M	M	Annual

Note: Refer to Section III of report for explanation of symbols used.

SUMMARY OF CLIMATE DATA RECORDED AT SHERMAN STATION (NO. 665)
WATER YEAR 1982

Month	Temperature			Wind					P'val. Dir. (True)	Mean RH (%)	Mean DP (°C)	Precip. (mm)	Total Solar Energy (WH/m2)	Month
	Max. (°C)	Min. (°C)	Mean (°C)	Res. Dir. (°True)	Res. Speed (m/sec)	Avg. Speed (m/sec)	Max. Gust Dir. (°True)	Max. Gust Speed (m/sec)						
OCT														OCT
NOV														NOV
DEC														DEC
JAN														JAN
FEB														FEB
MAR														MAR
APR														APR
MAY	M	M	M	M	M	M	M	M	M	M	M	M	M	MAY
JUN	27.9	-1.2	10.7	224	0.5	0.6	226	8.3	SW	M*	M*	101.2	146,985	JUN
JUL	29.6	1.6	12.8	219	0.7	0.9	245	7.0	SSW	M*	M*	171.0	142,307	JUL
AUG	24.3	0.1	11.6	202	0.2	0.6	216	5.7	SSW	M*	M*	94.0	132,158	AUG
SEP	-17.0	-5.1	7.1	163M	0.1M	0.6M	220M	10.2M	ENE(M)	M*	M*	232.2	57,356	SEP
Annual	M	M	M	M	M	M	M	M	M	M	M	M	M	Annual

* Months when RH values were reported in the annual report but where subsequent review indicated the data were unusable.

Note: Refer to Section III of report for explanation of symbols used.

III. REPORT PREPARATION

A. DESCRIPTION OF SYMBOLS USED IN ANNUAL AND MONTHLY SUMMARIES

Annual Summary

Blank entries for monthly values indicate the station had not yet been installed at the site or that it had been removed prior to that month. Installation and removal dates are noted on the table as well.

M Insufficient or partial data. M follows average and/or total values if 1-9 daily values were missing data for all or part of the day. M appears alone for the month if 10 or more daily values were missing or contained missing data. Parentheses surround the M where other letters may cause confusion (i.e. in prevailing direction). M follows average and/or total values for the year if any month was missing data. M appears alone for the year if any month was missing enough data to require it to have an M alone or if three or more months were missing any data.

Monthly Summaries

Blank entries for three-hourly, daily, or monthly values (generally just for relative humidity or dewpoint) indicate the R.H. and D.P. data have been deleted for the period. For further explanation, refer to the section "Interpretation of Data."

M Insufficient or partial data. M follows average and/or total values if any readings for the period were missing and would have been required for determination of the table value. M follows the summary values for the month if 1-9 daily values had M's appended to them or had asterisks in their place. M appears alone in place of the monthly values if all daily values had blank entries or asterisks. Parentheses surround the M where other letters may cause confusion (i.e in prevailing direction).

**** Erroneous or missing data (may be from 2 to 6 asterisks, depending on number of digits possible in the value). Appears in place of the value if all readings required for determination of the table value were missing.

- A dash in the hourly precipitation table indicates the volume for that hour is not known, but the cumulative total of precipitation over the interval of consecutive dashed hours is included in the next hour where a value is reported. Similarly, a dash for precipitation in the monthly summary table indicates the volume for that day is not known, but the cumulative total over the interval of consecutive dashed days is included in the next day where a value is reported.

B. DATA COMPUTATION STANDARDS (CLIMATE)

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 (current and preceding) consecutive hourly readings. When either of these hourly precipitation readings is invalid, no value is reported for the current hour.

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 month 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 Centigrade.
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 centigrade, or when either the temperature or R.H. reading is invalid.
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 data ranges assumed valid, based on reasonable expectations for the parameters in south-central Alaska; data outside these ranges are not used:

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

Temperature: -50 through +35 °C

Wind Speed: 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. Precipitation during recording interval (15 or 30 minutes) should not exceed 30 mm.

Solar: 0 through 150 milliwatts/cm²

Gust: 0 through 99.9 m/sec

Battery: 9 through 14.5 volts

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

Temperature: ±1°C

Wind Speed: ±0.5 meters per second

Wind Direction: ±1% of full scale

Relative Humidity: ±6%

Precipitation: $\pm 1\%$ 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 10^7

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

DIRECTION	COMPASS HEADING
North	350 through 11
North-Northeast	12 through 34
Northeast	35 through 56
East-Northeast	57 through 79
East	80 through 101
East-Southeast	102 through 124
Southeast	125 through 146
South-Southeast	147 through 169
South	170 through 191
South-Southwest	192 through 214
Southwest	215 through 236
West-Southwest	237 through 259
West	260 through 281
West-Northwest	282 through 304
Northwest	305 through 326
North-Northwest	327 through 349

IV. INTERPRETATION OF DATA

A. GENERAL - Notes on Interpreting Data

1. General

- a. Many of the sensors or the methods of measuring various parameters have peculiarities that affect how the data should be interpreted. The user is encouraged to become familiar with the methods of summation for each parameter and each table. These are described in the section "Data Computation Standards."
- b. The estimates of usable data for the current year in Table IV.1 at the end of this section were prepared by reviewing the published summary tables for each month. Precipitation estimates came from the hourly table; estimates for usable percentages of temperature, relative humidity, and solar radiation data were based on the 3-hour summaries; wind estimates came from comparison with the other parameters and a cursory review of the raw-data printout; and usable longwave radiation estimates were from the raw data.
- c. An enhancement that has been added to this year's series of reports is use of symbols to indicate where data are missing from parameter totals or averages in the summary tables. This is intended to assist the data user in evaluating the quality of the data.

Estimates that are below 90% are reported to the nearest 5%, estimates above 90% are to the nearest 1%. If the data are nearly all good, except for infrequent "bugs," this is

indicated by a "99 + " value. If the estimate is quite rough, this is denoted by a "±" after the value.

2. **Precipitation** - Precipitation data for most stations are reported for April through September only. The stations do not have heaters in their precipitation sensors (tipping buckets), so they are unable to record precipitation when the temperature is below freezing. The sensors are calibrated to tip for 0.2 mm of rainfall and not for snowfall. The sub-freezing temperatures may cause a loss or a delay of the recorded precipitation. Winds frequently blow snow away from or out of (or occasionally into) the collector, and snow collected in the bucket may not be melted and recorded until the next occurrence of warm weather, possibly days or weeks later. The months of October through March very often have sub-freezing temperatures on nearly every day of the month, so their precipitation records have been omitted. It should be noted that even in the months where precipitation data are reported (i.e. April through September), the occurrence of sub-freezing temperatures could affect the timing and the recorded amount of precipitation. The user should exercise caution and make note of the concurrent temperatures in interpreting the precipitation records.

An exception to the normal system of recording winter precipitation is at the Watana Station (No. 0650). That site is equipped with a Wyoming wind gage to eliminate the effects of the wind on the snow, and it also has an AC-powered heater on the precipitation bucket to melt snow that falls into it. The Watana data are thus published for the whole year. Details on the Watana data are included in "Notes on Interpreting Watana Station Data," in the Watana report.

3. **Relative Humidity and Dewpoint** - The relative humidity (R.H.) sensors used are printed circuit elements which sense changes in R.H. by changes in impedance. The sensors, manufactured by Phys-Chem Research Corporation, have chemically-treated surfaces which degrade with time, and are thus very difficult to keep in calibration. Many of the months throughout the year (and at all stations) therefore display significant variations in R.H. patterns. Though the data are generally of poor quality throughout the 1983 year, they are believed to be useful as **indicators** of the true humidity and have for that reason been left in the report.

When the calibration of the R.H. sensor is too high, readings near the top end (i.e. approaching 100%) may go "over the top" and be read as, say, 110% (if the calibration is high by 10 points). Having only two digits in which to record the R.H., the Weather Wizard will report this as "10," which will drastically affect the computation of instantaneous dewpoint, average R.H., and average dewpoint values. The graphical plot of R.H. will also be misleading, with periodic "spikes" down to very low values. Each plot may be interpreted, however, by mentally adjusting the entire plot downward an appropriate amount to keep the maximum values at 100%. The approximate amount of such adjustment for each month is noted in the following section, "Notes on Interpreting Sherman Station Data". Because the R.H. and dewpoint values in the monthly summary tables are numerical averages, they are not easily interpreted and have been deleted for the days when RH was "overtopped". Values in the three-hour summaries have been retained since they are instantaneous readings; they should, however, be adjusted by the same amount indicated for the plots.

An additional consideration with respect to dewpoint is the fact that it is not computed when the reported wind speed falls below

1 m/sec, due to inadequate aspiration of the R.H. sensor. This typically causes elimination of at least one dewpoint value on nearly every day of data-collection. However, to avoid undue congestion in the table, daily values have not been individually noted as containing missing records; only the monthly average has been so designated. The same applies to R.H.

4. **Solar Radiation** - Daily and monthly solar radiation values are the cumulative total energy, computed from all valid readings for the period. Either the daily or monthly value can be significantly above or below the true energy value if there are large segments of missing readings (i.e. from the period of very low intensity at night or the period of very high intensity at mid-day). A check should be made, therefore, of the "Usable Data" table and of the graphical plot to get a feel for the frequency and timing of lost solar radiation data. Caution should be used when a significant amount of data is missing.

Another frequent concern in the processing of solar data is the presence of non-zero minimum values. Since the sensors have a stated accuracy of $\pm 1\%$ of the full-scale value of 140 mW/cm^2 , they often record a reading of 0 (during night) as 1 or even 2 mW/cm^2 . This also can bias the daily or monthly totals, making the computed energy much higher than the true solar energy. This type of error in the data is difficult to adjust automatically, but the user can compensate for it in his interpretation by reviewing the instantaneous radiation readings printed in the 3-hour summary tables. If the 3-hour values never drop below 1, even in the winter time, the sensor is very likely reading high. An error of $+1 \text{ mW/cm}^2$ on every reading will cause the computed daily total energy to be high by $240 \text{ watt-hr./cm}^2$. The user can adjust the numbers used accordingly.

5. **Wind Speed and Direction** - The wind frequency summary table in each month's report notes the number of wind observations used in preparing the table. Since data for this year have all been recorded at 15-minute intervals, there were 4 readings recorded per hour and 96 readings per day. This gives a maximum possible number of observations for each month as follows (dependent on the number of days in the month):

Month	Max. Possible # of Observations
October, December, January, March May, July, August (31 days)	2976
November, April, June, September (30 days)	2880
February (28 days)	2688
February in leap years (29 days)	2784

B. Notes on Interpreting SHERMAN Station Data

1. **General** - All data were lost for technical reasons during the following periods:

October 26 to November 12, 1982
November 15 to November 23, 1982
January 19 to February 7, 1983
February 13 to March 8, 1983
March 8 to March 10, 1983
May 25 to June 14, 1983

In addition, all data except precipitation and solar were lost from August 26-28, 1983, when the station was pulled for annual maintenance.

2. **Precipitation** - Data are presented for April, despite the occurrence of sub-freezing temperatures on several days. This may give errors in the reporting of the timing or the amount of precipitation, and the user should be aware of this in interpreting and applying the data.
3. **Relative Humidity** - As discussed in the preceding section of general notes, many of the R.H. data for the year were considered unreliable or required some "judgment" in their use. Due to calibration problems with the R.H. sensors, some of the data should be adjusted prior to application. The amount of adjustment for each month applicable is listed below, and an example of the interpretation is explained afterward. The data were all bad for October through May and have been deleted.

Month	Adjustment to Graphical R.H. Values
June	-20 R.J. Points
July	-20
August	-20
September	-10

Example: In September, the readings peak over the top at about "110 percent" in the graphical plot (The plot does not go to 110, but readings of "10" are equivalent to 110 percent). This value is assumed to correspond to a **true** R.H. of 100 percent. Therefore, 10 points should be subtracted from all the plotted R.H. values. Values from 0-10 should be read as 100-110 (and therefore adjusted to 90-100). The graphical plot may thus be interpreted semi-quantitatively. The numerical values (daily averages), however, are more difficult to interpret and have been deleted from the tables.

4. **Solar Radiation** - The minimum (nightly) value for solar radiation intensity is generally 1 and frequently 2 mw/cm^2 throughout the year. As explained in the General Notes (Section IV.A), this gives daily totals that are too high by 240 (for high by 1) and 480 (for high by 2) watt-hours per day. Inspection should be made of the night-time values in the 3-hour tables (to see whether "1" or "2" appears in place of "0"), and then the daily and monthly totals should be adjusted accordingly.
5. **Wind Speed and Direction** - Freezing of the wind vane was a problem in October and November. Wind direction data were lost nearly every night (when the temperature dropped) for several days. After replacement of the bearings in the anemometer during annual maintenance at the end of August, the reported wind speeds appeared lower than would be expected. It was suspected that the new bearings may have been too stiff, so the wind speed data for September are considered only fair.

TABLE IV.1

SUSITNA HYDROELECTRIC PROJECT - CLIMATE DATA PROCESSINGAPPROXIMATE PERCENTAGES OF USABLE DATA

Station: Sherman

Water Year: 1983

	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>YEAR</u>
Temperature	80	35	99	60	20	70	100	80	55	100	90	100	74
Wind Speed	80	30	90	40	20	70	94	80	55	100	90	100±	71
Wind Direction	50	20	85	40	20	70	95	80	55	100	90	100±	67
Relative Humidity	0	35	0	0	0	0	0	0	55	100	90	100	32
Precipitation	0	0	0	0	0	0	100	80	55	100	99	100	44(1)
Solar Radiation	80	35	99	60	20	70	100	80	55	100	90	100	74
Peak Gust	80	30	90	40	20	70	94	80	55	100	90	100±	71
Longwave	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

(1) Maximum possible recovery percentage is 50% for the year since precipitation bucket is not heated and measurement of sub-freezing precipitation (generally during Oct. - Mar.) is not possible.

V. MONTHLY CLIMATIC DATA SUMMARIES

SHERMAN STATION, WATER YEAR 1983

No precipitation data for October

(See INTERPRETATION OF DATA).

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING October, 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	DEG.	M/S	MW	
0300	2.5	*****	**	219	.3	210	2.5	2	0300	.1	*****	**	067	.2	021	1.3	2
0600	1.8	*****	**	080	.3	079	1.3	2	0600	.1	*****	**	105	.1	089	1.3	2
0900	3.0	*****	**	040	.3	072	1.3	10	0900	2.0	*****	**	087	.2	334	1.3	12
1200	4.0	*****	**	051	.7	059	1.9	13	1200	6.4	*****	**	046	.8	043	1.9	26
1500	4.5	*****	**	028	.8	042	1.9	8	1500	6.8	*****	**	015	.4	349	2.5	14
1800	2.1	*****	**	123	.0	112	.6	2	1800	2.4	*****	**	115	.4	088	1.9	2
2100	.5	*****	**	105	.2	049	1.3	2	2100	-.8	*****	**	100	.2	086	.6	2
2400	.2	*****	**	125	.2	093	1.3	2	2400	-.5	*****	**	095M	.2M	097M	.6M	2

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	DEG.	M/S	MW	
0300	-2.6	*****	**	090	.6	105	1.9	2	0300	-5.0	*****	**	100	.2	100	1.3	2
0600	-4.9	*****	**	076	.5	087	1.3	2	0600	-1.4	*****	**	087	.7	089	2.5	2
0900	.2	*****	**	069	.5	084	1.3	30	0900	1.7	*****	**	104	1.3	109	4.4	33
1200	6.6	*****	**	078	1.2	096	3.8	38	1200	5.4	*****	**	072	2.0	067	5.1	37
1500	7.3	*****	**	064	1.7	077	3.8	22	1500	5.0	*****	**	059	2.7	047	7.6	22
1800	-.5	*****	**	067	1.1	069	3.8	2	1800	1.1	*****	**	060	2.6	066	6.3	2
2100	-3.0	*****	**	083	.3	091	1.3	2	2100	.6	*****	**	046	1.9	048	5.7	2
2400	-4.8	*****	**	089	.3	102	1.3	2	2400	-.3	*****	**	042	2.0	038	5.1	2

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	DEG.	M/S	MW	
0300	0.0	*****	**	025	.6	020	1.9	2	0300	*****	*****	**	304	.8	304	1.3	***
0600	1.2	*****	**	053	.4	071	3.2	2	0600	-1.4	*****	**	***	***	***	***	1
0900	.3	*****	**	072	1.5	062	4.4	5	0900	-.6	*****	**	***	***	***	***	5
1200	*****	*****	**	***	***	076	3.2	***	1200	.9	*****	**	248	.3	272	1.3	12
1500	*****	*****	**	***	***	018M	1.3M	***	1500	1.1	*****	**	055	.7	066	2.5	7
1800	*****	*****	**	***	***	***	***	***	1800	-.6	*****	**	055M	.9M	027M	3.2M	1
2100	*****	*****	**	***	***	***	***	***	2100	-1.3	*****	**	***	***	***	***	1
2400	*****	*****	**	***	***	***	***	***	2400	-1.1	*****	**	***	***	***	***	1

R & M CONSULTANTS, INC.

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

DAY 10

DAY 11

DAY 12

STATION 1									STATION 2									STATION 3								
HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	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	DEG.	M/S	MW									
0300	-7	*****	**	***	****	***	****	1	0300	-2.9	*****	**	***	****	***	****	0									
0600	-7	*****	**	***	****	***	****	1	0600	-2.5	*****	**	***	****	***	****	1									
0900	-6	*****	**	207M	2.1M	211M	3.8M	10	0900	-1.2	*****	**	***	****	***	****	10									
1200	-9	*****	**	211	2.3	219	5.1	13	1200	.7	*****	**	053M	.9M	042M	3.8M	12									
1500	-9	*****	**	220M	2.3M	231M	4.4M	6	1500	.3	*****	**	058	2.0	043	5.7	3									
1800	-1.8	*****	**	***	****	***	****	1	1800	.1	*****	**	067	1.6	048	4.4	1									
2100	-3.1	*****	**	***	****	***	****	1	2100	-2	*****	**	068	.8	084	2.5	1									
2400	-3.5	*****	**	***	****	***	****	1	2400	.2	*****	**	021	.3	047	1.3	1									

DAY 13

DAY 14

DAY 15

HOOR	DEW	WIND	WIND	GUST	MAX.	HOOR	DEW	WIND	WIND	GUST	MAX.	HOOR	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	DEG.	M/S	MW
0300	-9	*****	**	047M	.9M	031M	2.5M	1	0300	-4.1	*****	**	***	****	***	****	0
0600	-1.3	*****	**	***	****	***	****	1	0600	-6.8	*****	**	***	****	***	****	1
0900	-1.4	*****	**	***	****	***	****	2	0900	-5.3	*****	**	***	****	***	****	3
1200	-9	*****	**	059M	.7M	050M	1.9M	5	1200	0.0	*****	**	053M	.6M	041M	1.9M	8
1500	-1.5	*****	**	313M	.2M	214M	3.2M	2	1500	.1	*****	**	078	1.4	072	3.8	4
1800	-2.3	*****	**	***	****	***	****	0	1800	-3.4	*****	**	105M	.7M	113M	1.9M	0
2100	-3.2	*****	**	***	****	***	****	0	2100	-6.9	*****	**	***	****	***	****	0
2400	-4.7	*****	**	***	****	***	****	0	2400	-11.5	*****	**	***	****	***	****	1
0300	-13.0	*****	**	***	****	***	****	0	0300	-13.3	*****	**	***	****	***	****	1
0600	-12.8	*****	**	***	****	***	****	3	0600	-3.2	*****	**	065M	.6M	028M	2.5M	35
0900	0.9	*****	**	031	1.0	040	2.5	13	0900	-8.7	*****	**	100M	.5M	094M	2.5M	1
1200	-9.2	*****	**	***	****	***	****	0	1200	-9.2	*****	**	***	****	***	****	0
1500	-7.2	*****	**	***	****	***	****	1	1500	-7.2	*****	**	***	****	***	****	1

DAY 16

DAY 17

DAY 18

0000Z												0600Z												1200Z											
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.	SPD.	DIR.	SPD.	DIR.	SPD.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	SPD.	DIR.	SPD.	DIR.	SPD.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	SPD.	DIR.	SPD.		
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	DEG.	M/S		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	DEG.	M/S		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S		
0300	-5.8	*****	**	***	****	***	****	***	****	***	****	1	0300	-1.1	*****	**	***	****	***	****	***	****	***	****	1	0300	-9.9	*****	**	***	****	***	****	***	****
0600	-5.3	*****	**	***	****	***	****	***	****	***	****	0	0600	-1.5	*****	**	***	****	***	****	***	****	***	****	0	0600	-10.7	*****	**	***	****	***	****	***	****
0900	-3.5	*****	**	***	****	***	****	***	****	***	****	3	0900	-4	*****	**	***	****	***	****	***	****	***	****	2	0900	-7.6	*****	**	***	****	***	****	***	****
1200	-1.5	*****	**	***	****	***	****	***	****	***	****	2	1200	2.2	*****	**	038	.4	043	1.3	10	1200	-1.3	*****	**	024M	.3M	292M	1.3M	34					
1500	-8	*****	**	***	****	***	****	***	****	***	****	2	1500	5.0	*****	**	018	.5	026	1.9	11	1500	-1	*****	**	117	.1	046	1.9	18					
1800	-1.2	*****	**	***	****	***	****	***	****	***	****	0	1800	-2.8	*****	**	215M	.1M	259M	1.9M	0	1800	-3.7	*****	**	189M	.4M	248M	1.3M	0					
2100	-1.1	*****	**	***	****	***	****	***	****	***	****	0	2100	-5.8	*****	**	***	****	***	****	***	****	***	****	0	2100	-3.8	*****	**	***	****	***	****	***	****
2400	-1.1	*****	**	***	****	***	****	***	****	***	****	1	2400	-8.0	*****	**	***	****	***	****	***	****	***	****	1	2400	-3.4	*****	**	***	****	***	****	***	****

R & M CONSULTANTS, INC.

SUSTINA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING October, 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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	
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.	
0300	-3.2	*****	**	***	****	***	0300	-6.7	*****	**	***	****	***	0300	-7.3	*****	**	***	****	***
0600	-2.9	*****	**	***	****	***	0600	-5.8	*****	**	***	****	***	0600	-8.2	*****	**	***	****	***
0900	-2.0	*****	**	***	****	***	0900	-3.7	*****	**	***	****	***	0900	-8.6	*****	**	***	****	***
1200	-.6	*****	**	***	****	***	1200	-.7	*****	**	***	****	***	1200	-3.3	*****	**	215M	1.2M	198M
1500	.4	*****	**	***	****	***	1500	-1.7	*****	**	***	****	***	1500	-4.3	*****	**	081	3.3	084
1800	-1.6	*****	**	***	****	***	1800	-8.1	*****	**	***	****	***	1800	-6.2	*****	**	059	2.7	062
2100	-2.5	*****	**	***	****	***	2100	-10.9	*****	**	***	****	***	2100	-7.3	*****	**	059	2.7	056
2400	-4.2	*****	**	***	****	***	2400	-12.6	*****	**	***	****	***	2400	-7.2	*****	**	059	2.5	062

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.
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.
0300	-7.9	*****	**	054	1.9	054	0300	-8.6	*****	**	105	1.4	110	0300	-13.4	*****	**	064	.6
0600	-7.2	*****	**	048	2.3	057	0600	-10.1	*****	**	077	1.6	114	0600	-11.6	*****	**	048	.8
0900	-6.0	*****	**	041	2.5	044	0900	-8.0	*****	**	084	1.5	109	0900	-11.4	*****	**	076	.5
1200	-2.3	*****	**	058	2.9	053	1200	-3.0	*****	**	090	2.1	074	1200	-5.3	*****	**	098	.5
1500	-2.5	*****	**	067	3.0	070	1500	-3.4	*****	**	070	2.4	055	1500	-5.0	*****	**	084	1.4
1800	-6.9	*****	**	054	2.7	056	1800	-7.8	*****	**	096	1.5	092	1800	-14.3	*****	**	090	.5
2100	-8.3	*****	**	069	1.2	065	2100	-13.4	*****	**	055	1.1	072	2100	-17.8	*****	**	078	.4
2400	-8.0	*****	**	102	1.1	107	2400	-15.5	*****	**	047	.8	053	2400	-18.5	*****	**	075	.3

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	
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.	
0300	-19.2	*****	**	086	.3	124	1	0300	-22.5	*****	**	077	.5	077	2.5	1	0300	*****	*****	**
0600	-18.2	*****	**	089	.3	070	0	0600	*****	*****	**	***	****	125M	1.3	***	0600	*****	*****	**
0900	-12.6	*****	**	102	.2	198	7	0900	*****	*****	**	***	****	***	****	***	0900	*****	*****	**
1200	-6.8	*****	**	073	.1	085	18	1200	*****	*****	**	***	****	***	****	***	1200	*****	*****	**
1500	-7.7	*****	**	188	.4	211	11	1500	*****	*****	**	***	****	***	****	***	1500	*****	*****	**
1800	-16.9	*****	**	095	.3	074	1	1800	*****	*****	**	***	****	***	****	***	1800	*****	*****	**
2100	-19.4	*****	**	075	.5	087	1	2100	*****	*****	**	***	****	***	****	***	2100	*****	*****	**
2400	-21.5	*****	**	075	.4	088	1	2400	*****	*****	**	***	****	***	****	***	2400	*****	*****	**

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
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
0300	*****	*****	**	***	****	***	0300	*****	*****	**	***	****	***	0300	*****	*****	**	***	****	***
0600	*****	*****	**	***	****	***	0600	*****	*****	**	***	****	***	0600	*****	*****	**	***	****	***
0900	*****	*****	**	***	****	***	0900	*****	*****	**	***	****	***	0900	*****	*****	**	***	****	***
1200	*****	*****	**	***	****	***	1200	*****	*****	**	***	****	***	1200	*****	*****	**	***	****	***
1500	*****	*****	**	***	****	***	1500	*****	*****	**	***	****	***	1500	*****	*****	**	***	****	***
1800	*****	*****	**	***	****	***	1800	*****	*****	**	***	****	***	1800	*****	*****	**	***	****	***
2100	*****	*****	**	***	****	***	2100	*****	*****	**	***	****	***	2100	*****	*****	**	***	****	***
2400	*****	*****	**	***	****	***	2400	*****	*****	**	***	****	***	2400	*****	*****	**	***	****	***

DAY 31

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

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

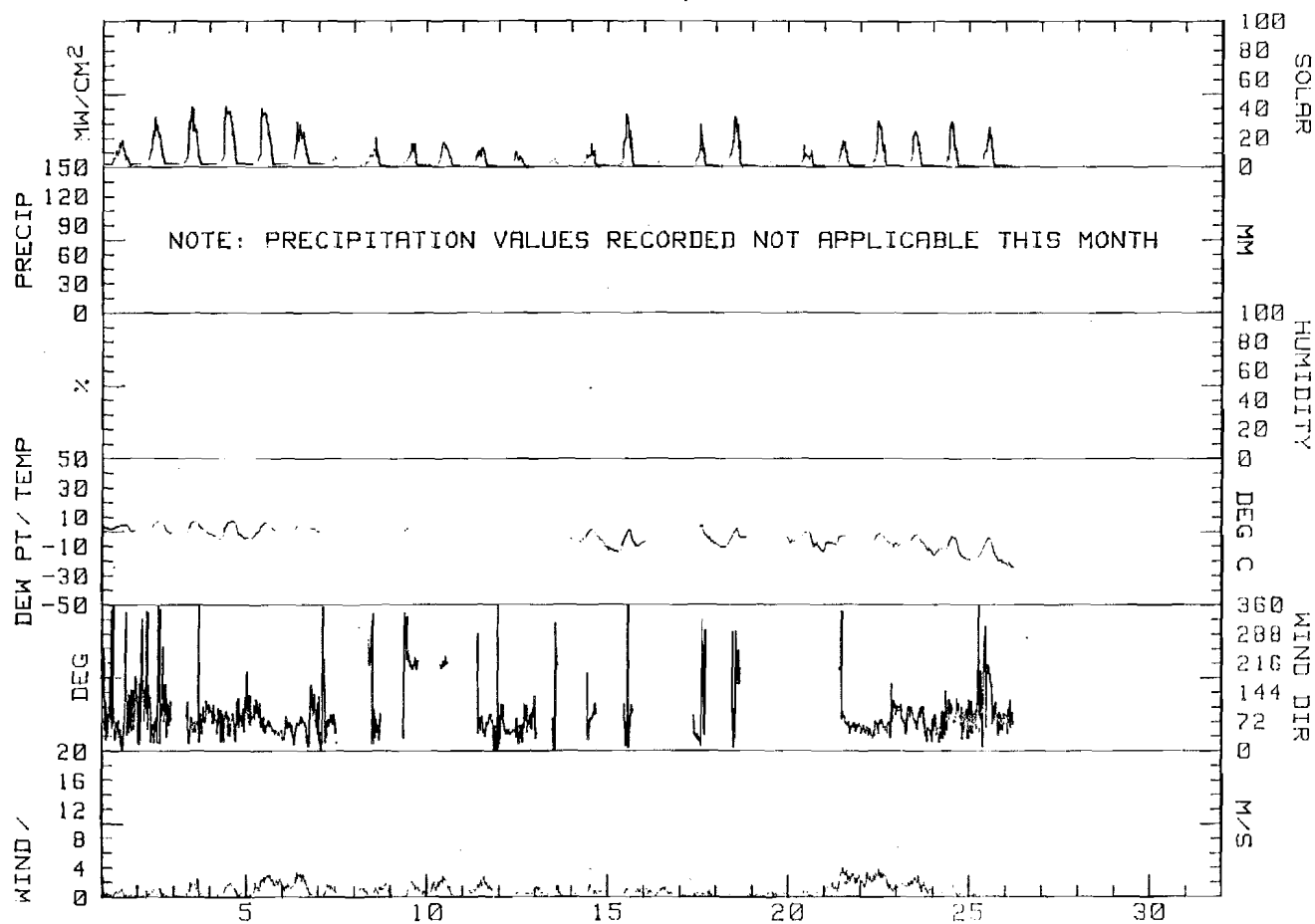
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQ	DAY
1	4.5	-1.1	2.2	059	.2	.4	210	2.5	ENE	**	*****	****	1308	1
2	7.6	-1.0	3.3	064M	.3M	.4M	349M	2.5M	ESE(M)	**	*****	****	2088	2
3	7.4	-1.8	2.8	067M	.9M	.7M	050M	4.4M	ESE(M)	**	*****	****	2350	3
4	7.8	-5.2	1.3	073	.8	.8	096	3.8	ENE	**	*****	****	2733	4
5	6.1	-5.9	.1	063	1.6	1.7	047	7.6	NE	**	*****	****	2750	5
6	5.6	-1.1	2.3	060	1.4	1.5	075	6.3	ENE	**	*****	****	1920	6
7	1.8M	-8M	.5M	061M	.8M	1.0M	062M	4.4M	ESE(M)	**	*****	****	755M	7
8	1.8M	-1.6M	.1M	048M	.4M	1.0M	027M	3.2M	ESE(M)	**	*****	****	855M	8
9	2.4	-2.2	.1	216M	1.1M	.8M	212M	3.8M	SSW(M)	**	*****	****	763	9
10	-1.4	-3.5	-2.0	214M	2.3M	1.2M	219M	5.1M	SSW(M)	**	*****	****	1020	10
11	2.0	-3.3	-.7	060M	1.1M	1.1M	043M	5.7M	ESE(M)	**	*****	****	765	11
12	2.0	.1	1.1	060	.4	.4	047	1.9	NE	**	*****	****	538	12
13	.5	-5.2	-2.4	031M	.4M	.6M	214M	3.2M	NE(M)	**	*****	****	345	13
14	1.3	-11.5	-5.1	079M	1.0M	.7M	072M	3.8M	E(M)	**	*****	****	623	14
15	1.2	-14.3	-6.6	048M	.7M	.6M	028M	2.5M	E(M)	**	*****	****	1500	15
16	-.8	-7.5	-4.2	***	***	.7M	***	***	***	**	*****	****	293	16
17	5.0	-8.4	-1.7	026M	.3M	.4M	026M	1.9M	NNE(M)	**	*****	****	835	17
18	2.4	-11.0	-4.3	153M	.1M	.4M	046M	1.9M	S(M)	**	*****	****	1540	18
19	.8	-4.2	-1.7	***	***	.3M	***	***	***	**	*****	****	243	19
20	.7	-13.8	-6.6	***	***	.6M	***	***	***	**	*****	****	630	20
21	-2.8	-12.8	-7.8	067M	2.3M	2.2M	084M	7.6M	ESE(M)	**	*****	****	893	21
22	-1.5	-10.6	-6.1	058	2.1	2.3	057	7.0	NE	**	*****	****	1485	22
23	-2.0	-15.5	-8.8	080	1.5	1.6	055	6.3	E	**	*****	****	1240	23
24	-3.4	-19.4	-11.4	076	.6	.7	081	3.8	E	**	*****	****	1323	24
25	-4.3	-21.5	-12.9	096	.2	.4	124	1.3	E	**	*****	****	1193	25
26	-20.8M	-24.6M	-22.7M	079M	.5M	.5M	077M	2.5M	ESE(M)	**	*****	****	153M	26
27	*****	*****	*****	***	***	***	***	***	***	**	*****	****	*****	27
28	*****	*****	*****	***	***	***	***	***	***	**	*****	****	*****	28
29	*****	*****	*****	***	***	***	***	***	***	**	*****	****	*****	29
30	*****	*****	*****	***	***	***	***	***	***	**	*****	****	*****	30
31	*****	*****	*****	***	***	***	***	***	***	**	*****	****	*****	31
MONTH	7.8M	-24.6M	-3.5M	068M	.8M	.5M	047M	7.6M	ESE(M)	**	*****	****	30135M	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 5.1
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 5.1
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 5.7
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 5.1

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

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

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



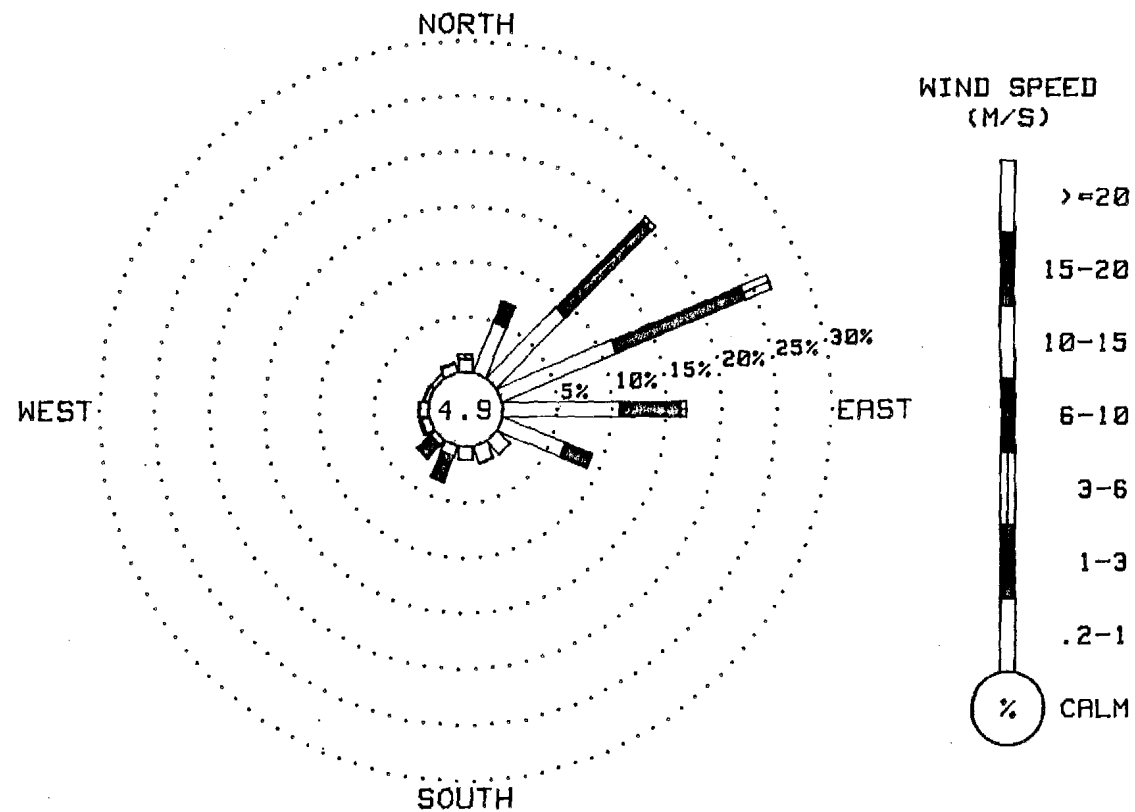
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING October, 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	1.20	.42	0.00	0.00	0.00	0.00	0.00	1.62
NNE	4.94	1.97	0.00	0.00	0.00	0.00	0.00	6.91
NE	8.96	11.00	.49	0.00	0.00	0.00	0.00	20.45
ENE	11.35	12.62	2.54	0.00	0.00	0.00	0.00	26.52
E	10.72	5.43	.63	0.00	0.00	0.00	0.00	16.78
ESE	6.28	2.61	0.00	0.00	0.00	0.00	0.00	8.89
SE	1.69	0.00	0.00	0.00	0.00	0.00	0.00	1.69
SSE	1.55	.07	0.00	0.00	0.00	0.00	0.00	1.62
S	1.13	0.00	0.00	0.00	0.00	0.00	0.00	1.13
SSW	.99	2.26	.14	0.00	0.00	0.00	0.00	3.39
SW	.63	1.55	0.00	0.00	0.00	0.00	0.00	2.19
WSW	.78	.14	0.00	0.00	0.00	0.00	0.00	.92
W	.85	0.00	.07	0.00	0.00	0.00	0.00	.92
WNW	.49	.07	0.00	0.00	0.00	0.00	0.00	.56
NW	.49	0.00	0.00	0.00	0.00	0.00	0.00	.49
NNW	.85	.07	.07	0.00	0.00	0.00	0.00	.99
CALM								4.94
TOTAL	52.89	38.22	3.95	0.00	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1418 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

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



WIND ROSE PLOT

No precipitation data for November

(See INTERPRETATION OF DATA) .

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

R & M CONSULTANTS, INC.

SUSTNA HYDROELECTRIC PROJECT

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

DAY 10

DAY 11

DAY 12

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							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 DEG. M/S MW							DEG C DEG C % DEG. M/S DEG. M/S MW							DEG C DEG C % DEG. M/S DEG. M/S MW							DEG C DEG C % DEG. M/S DEG. M/S MW							DEG C DEG C % DEG. M/S DEG. M/S MW							DEG C DEG C % DEG. M/S DEG. M/S 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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.							
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							
0300	-5.1	*****	48	***	****	***	0300	-3.3	*****	44	***	****	***	1	0300	-12.0	*****	36	***	****	***	****	***	****	0
0600	-5.4	*****	44	***	****	***	0600	-2.7	*****	44	***	****	***	1	0600	-14.8	*****	30	***	****	***	****	***	****	1
0900	-5.1	*****	45	***	****	***	0900	-3.3	*****	44	***	****	***	1	0900	-16.5	*****	23	092M	.2M	092M	1.3M	1		
1200	-2.4	*****	32	006	.4	352	1.9	3	1200	-1.8	*****	40	***	2	1200	*****	*****	**	***	*****	038	.6	***		
1500	-3.5	*****	42	061	.1	040	1.3	1	1500	-3.2	*****	42	***	1	1500	*****	*****	**	***	*****	***	*****	***		
1800	-3.9	*****	46	083	.2	062	1.9	1	1800	-8.7	*****	39	***	1	1800	*****	*****	**	***	*****	***	*****	***		
2100	-3.0	*****	47	066M	.1M	039M	1.3M	1	2100	-8.0	*****	42	***	1	2100	*****	*****	**	***	*****	***	*****	***		
2400	-2.8	*****	46	***	****	***	2400	-10.5	*****	39	***	****	***	1	2400	*****	*****	**	***	*****	***	*****	***		

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

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING November, 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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
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
0300	*****	*****	**	***	***	***	0300	*****	*****	**	***	***	***	0300	*****	*****	**	***	***	***
0600	*****	*****	**	***	***	***	0600	*****	*****	**	***	***	***	0600	*****	*****	**	***	***	***
0900	*****	*****	**	***	***	***	0900	*****	*****	**	***	***	***	0900	*****	*****	**	***	***	***
1200	*****	*****	**	***	***	***	1200	*****	*****	**	***	***	***	1200	*****	*****	**	***	***	***
1500	*****	*****	**	***	***	***	1500	*****	*****	**	***	***	***	1500	*****	*****	**	***	***	***
1800	*****	*****	**	***	***	***	1800	*****	*****	**	***	***	***	1800	*****	*****	**	***	***	***
2100	*****	*****	**	***	***	***	2100	*****	*****	**	***	***	***	2100	*****	*****	**	***	***	***
2400	*****	*****	**	***	***	***	2400	*****	*****	**	***	***	***	2400	*****	*****	**	***	***	***

DAY 22

DAY 23

DAY 24

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							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 DEG. M/S MW							DEG C DEG C % DEG. M/S DEG. M/S MW							DEG C DEG C % DEG. M/S DEG. M/S MW							DEG C DEG C % DEG. M/S DEG. M/S MW							DEG C DEG C % DEG. M/S DEG. M/S MW							DEG C DEG C % DEG. M/S DEG. M/S MW						
0300 ***** ** *** **							0300 ***** ** *** **							0300 ***** 46 058 .5 053 1.3 1							0300 ***** 46 066 .5 049 1.3 1							0300 ***** 41 072 .5 057 1.3 1							0300 ***** 43 070 .4 064 1.3 3						
0600 ***** ** *** **							0600 ***** ** *** **							0600 ***** 46 066 .5 049 1.3 1							0600 ***** 41 072 .5 057 1.3 1							0600 ***** 43 073 .6 084 1.3 1							0600 ***** 41 075 .6 077 1.3 1						
0900 ***** ** *** **							0900 ***** ** *** **							0900 ***** 41 072 .5 057 1.3 1							0900 ***** 43 073 .6 084 1.3 1							0900 ***** 41 075 .6 077 1.3 1							0900 ***** 39 077 .6 088 1.3 1						
1200 ***** ** *** **							1200 ***** ** *** **							1200 ***** 43 070 .4 064 1.3 3							1200 ***** 41 075 .6 077 1.3 1							1200 ***** 39 077 .6 088 1.3 1							1200 ***** 39 085 .6 076 1.3 1						
1500 ***** ** *** **							1500 ***** ** *** **							1500 ***** 43 073 .6 084 1.3 1							1500 ***** 41 075 .6 077 1.3 1							1500 ***** 39 077 .6 088 1.3 1							1500 ***** 39 085 .6 076 1.3 1						
1800 ***** ** *** **							1800 ***** ** *** **							1800 ***** 43 073 .6 084 1.3 1							1800 ***** 41 075 .6 077 1.3 1							1800 ***** 39 077 .6 088 1.3 1							1800 ***** 39 085 .6 076 1.3 1						
2100 ***** ** *** **							2100 ***** ** *** **							2100 ***** 43 073 .6 084 1.3 1							2100 ***** 41 075 .6 077 1.3 1							2100 ***** 39 077 .6 088 1.3 1							2100 ***** 39 085 .6 076 1.3 1						
2400 ***** ** *** **							2400 ***** ** *** **							2400 ***** 43 073 .6 084 1.3 1							2400 ***** 41 075 .6 077 1.3 1							2400 ***** 39 077 .6 088 1.3 1							2400 ***** 39 085 .6 076 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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	
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	
0300	-10.1	*****	41	079	.6	082	1.3	0	0300	-9.2	*****	29	059	.9	063	1.9	0	0300	-10.3	*****	39
0600	-7.9	*****	42	054	.8	067	1.9	1	0600	-8.0	*****	16	039	1.0	042	2.5	1	0600	-9.0	*****	41
0900	-5.8	*****	38	032	.7	060	2.5	1	0900	-7.2	-33.7	10	041	1.0	036	2.5	1	0900	-10.3	*****	39
1200	-2.6	*****	32	090	.6	068	1.9	4	1200	-6.1	-6.9	94	045	.9	061	2.5	3	1200	-7.8	*****	32
1500	-1.4	-21.0	21	088	.6	091	3.2	1	1500	-6.6	-6.9	98	038	1.0	044	3.2	1	1500	-8.1	*****	39
1800	-4.8	*****	29	030	1.0	028	2.5	1	1800	-9.1	*****	27	049	.8	031	1.9	1	1800	-13.5	*****	34
2100	-7.0	*****	33	036	1.1	037	2.5	1	2100	-7.2	*****	26	047	.9	033	2.5	1	2100	-14.0	*****	33
2400	-10.3	*****	39	073	.8	052	1.9	1	2400	-8.1	*****	37	073	.6	064	1.3	1	2400	-16.5	*****	27

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

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	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	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW				
0300	-16.6	*****	25	072	.3	079	1.3	0	0300	-11.1	-23.7	35	***	***	***	***	1	0300	-9.0	*****	39	***	***	***	***	0			
0600	-18.3	*****	20	059	.2	037	1.3	0	0600	-9.2	-21.7	36	***	***	***	***	1	0600	-9.5	*****	37	***	***	***	***	0			
0900	-19.0	*****	17	078	.4	084	1.3	1	0900	-7.8	-18.6	42	***	***	***	***	0	0900	-9.9	*****	37	***	***	***	***	1			
1200	-16.1	*****	19	071	.4	080	1.9	4	1200	-6.1	*****	43	***	***	***	***	1	1200	-9.2	*****	30	***	***	***	***	1			
1500	-18.1	*****	16	078	.4	071	1.3	1	1500	-5.3	*****	43	***	***	***	***	0	1500	-12.8	*****	33	***	***	***	***	0			
1800	-20.1	*****	10	057	.1	039	1.3	1	1800	-5.1	*****	44	***	***	***	***	1	1800	-11.7	*****	33	***	***	***	***	1			
2100	-17.4	-35.5	19	044M	.2M	028M	1.5M	0	2100	-6.2	*****	41	***	***	***	***	0	2100	-10.8	*****	34	***	***	***	***	0			
2400	-14.6	-29.9	26	***	***	***	***	1	2400	-7.8	*****	41	***	***	***	***	1	2400	-12.0	-26.9	28	***	***	***	***	0			

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

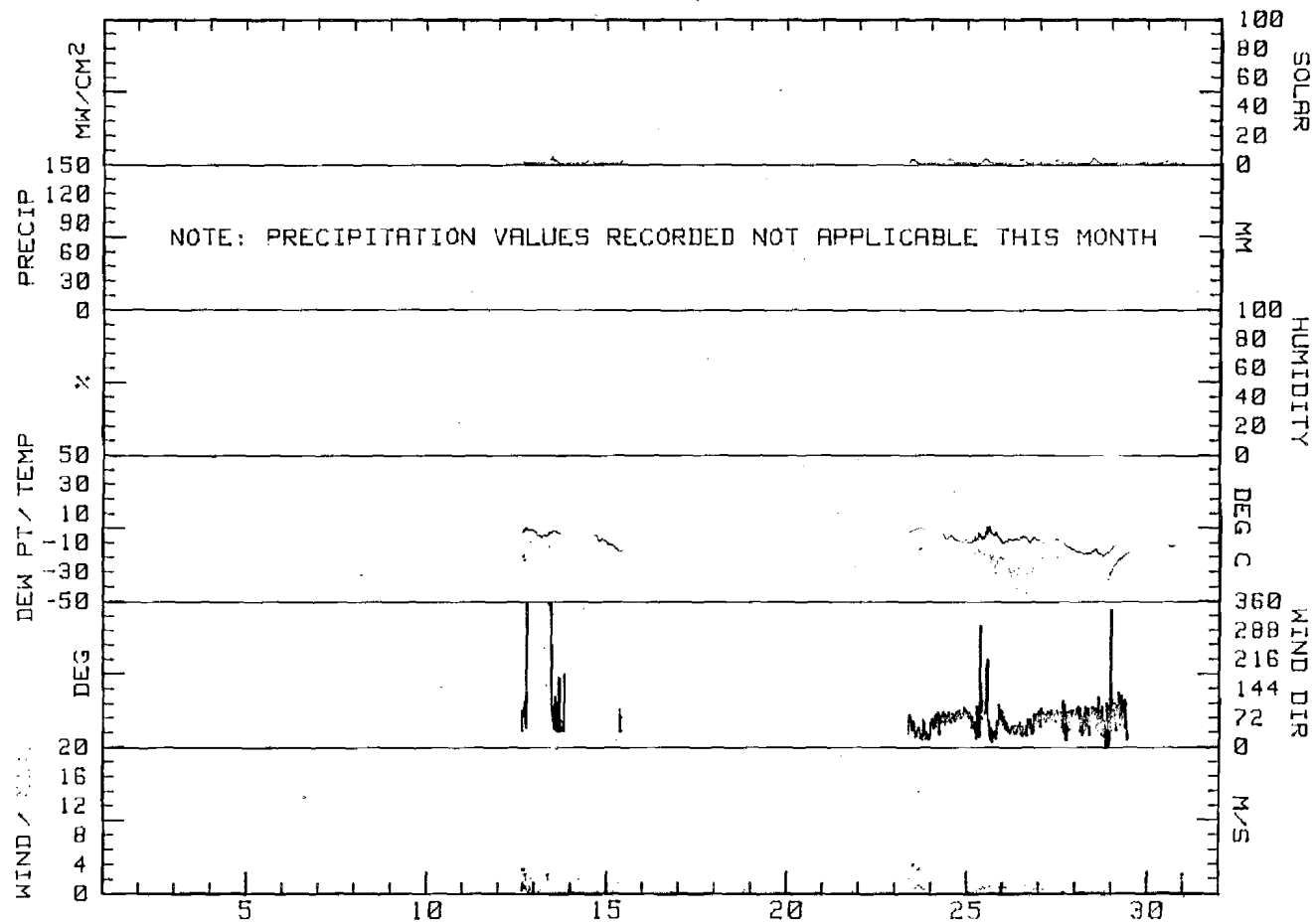
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SGH	DAY
1	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	1
2	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	2
3	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	3
4	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	4
5	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	5
6	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	6
7	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	7
8	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	8
9	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	9
10	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	10
11	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	11
12	0.0	-3.1	-1.6	080M	.9M	.7M	078M	3.2M	E (M) **	***	***	****	178	12
13	-2.1	-7.1	-4.6	035M	.2M	.3M	352M	1.9M	ENE (M) **	***	***	****	278	13
14	-1.8	-10.6	-6.2	***	***	.2M	***	***	***	**	*****	****	233	14
15	-10.1	-16.9	-13.5	092M	.1M	.2M	092M	1.3M	E (M) **	***	***	****	171	15
16	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	16
17	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	17
18	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	18
19	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	19
20	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	20
21	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	21
22	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	22
23	0.0	-3.2	-1.6	038M	.6M	.6M	061M	3.8M	NNE (M) **	***	***	****	275	23
24	-.5	-10.7	-5.6	073	.5	.5	053	1.3	ENE	**	*****	****	268	24
25	.8	-10.9	-5.1	056	.7	.8	091	3.2	ENE	**	***	****	273	25
26	-5.3	-10.5	-7.9	048	.9	.9	044	3.2	NE	**	***	****	270	26
27	-7.5	-16.5	-12.0	075	.6	.6	073	1.9	ENE	**	***	****	245	27
28	-14.6	-20.1	-17.4	068M	.3M	.3M	080M	1.9M	ENE (M) **	***	***	****	260	28
29	-4.9	-14.3	-9.6	***	***	***	***	***	***	**	***	****	190	29
30	-7.8	-13.0	-10.4	***	***	***	***	***	***	**	***	****	160	30
MONTH	.8M	-20.1M	-7.9M	059M	.6M	.4M	061M	3.8M	ENE (M) **	***	***	****	2799M	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 1.3
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 1.3
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 1.3
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
SHERMAN WEATHER STATION
November, 1982



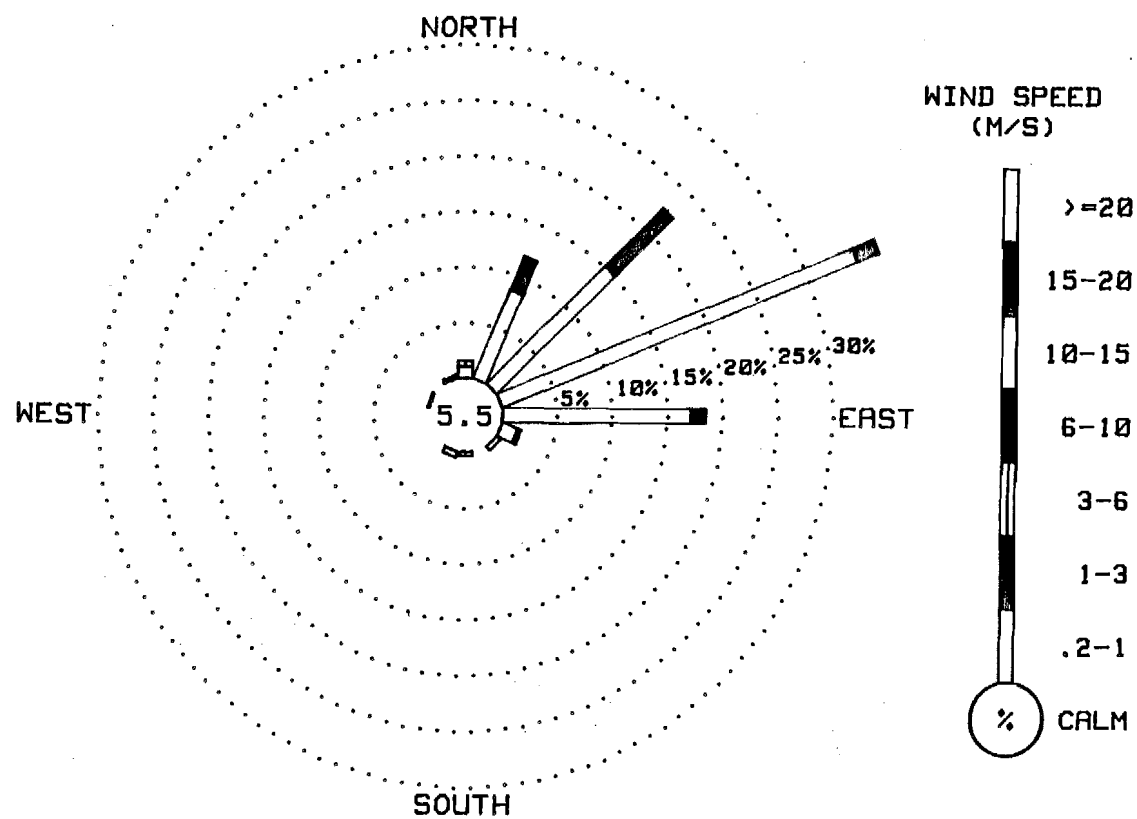
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

DIRECTION	VELOCITY (M/S)							TOTAL
	0.2	1.0	3.0	6.0	10.0	15.0	20.0	
	TO 1.0	TO 3.0	TO 6.0	TO 10.0	TO 15.0	TO 20.0	OR GREATER	
N	1.02	.51	0.00	0.00	0.00	0.00	0.00	1.54
NNE	8.53	3.24	0.00	0.00	0.00	0.00	0.00	11.77
NE	15.02	7.34	0.00	0.00	0.00	0.00	0.00	22.36
ENE	34.64	2.05	0.00	0.00	0.00	0.00	0.00	36.69
E	17.06	1.37	0.00	0.00	0.00	0.00	0.00	18.43
ESE	1.54	.34	0.00	0.00	0.00	0.00	0.00	1.88
SE	.51	0.00	0.00	0.00	0.00	0.00	0.00	.51
SSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S	.34	0.00	0.00	0.00	0.00	0.00	0.00	.34
SSW	.51	0.00	0.00	0.00	0.00	0.00	0.00	.51
SW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WNW	.17	0.00	0.00	0.00	0.00	0.00	0.00	.17
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	.34	0.00	0.00	0.00	0.00	0.00	0.00	.34
CALM								5.46
TOTAL	79.69	14.85	0.00	0.00	0.00	0.00	0.00	100.00

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

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



WIND ROSE PLOT

No precipitation data for December

(See INTERPRETATION OF DATA).

R & M CONSULTANTS, INC.

SUSTNA HYDROELECTRIC PROJECT

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

DAY 01

DAY 02

DAY 03

HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	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	DEG.	M/S	MW	
0300	-12.5	*****	**	142	M1.7	M106	M3.2	0	0300	-17.4	*****	**	032	1.2	029	4.4	0
0600	-13.0	*****	**	***	***	***	***	1	0600	-18.2	*****	**	027	1.7	041	3.8	0
0900	-13.5	*****	**	***	***	***	***	1	0900	-18.4	*****	**	044	1.5	027	3.8	1
1200	-13.9	*****	**	***	***	***	***	2	1200	-19.9	*****	**	086	.9	069	1.9	2
1500	-14.3	*****	**	***	***	***	***	1	1500	-18.5	*****	**	077	.9	073	2.5	1
1800	-15.6	*****	**	***	***	***	***	0	1800	-20.3	*****	**	058	1.0	051	1.9	1
2100	-14.9	*****	**	***	***	***	***	1	2100	-19.4	*****	**	037	1.4	031	3.2	1
2400	-17.7	*****	**	043	M .8	M101	M2.5	1	2400	-19.3	*****	**	049	1.3	044	2.5	1
0300	-21.9	*****	**	073	1.2	069	2.5	1	0300	-21.9	*****	**	073	1.2	069	2.5	1
0600	-23.4	*****	**	077	1.2	080	2.5	1	0600	-23.4	*****	**	077	1.2	080	2.5	1
0900	-21.3	*****	**	082	1.0	069	2.5	1	0900	-21.3	*****	**	082	1.0	069	2.5	1
1200	-15.6	*****	**	051	.9	030	3.2	2	1200	-15.6	*****	**	051	.9	030	3.2	2
1500	*****	*****	**	***	***	022	M3.2	***	1500	*****	*****	**	***	***	022	M3.2	***
1800	*****	*****	**	***	***	***	***	***	1800	*****	*****	**	***	***	***	***	***
2100	-18.3	*****	**	041	M .9	M060	M1.9	0	2100	-18.3	*****	**	041	M .9	M060	M1.9	0
2400	-14.5	*****	**	048	.8	043	2.5	1	2400	-14.5	*****	**	048	.8	043	2.5	1

DAY 04

DAY 05

DAY 06

HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	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	DEG.	M/S	MW	
0300	-16.8	*****	**	040	1.2	045	3.2	1	0300	-9.9	*****	**	034	1.0	022	2.5	1
0600	-17.1	*****	**	037	1.0	045	3.2	1	0600	-7.4	*****	**	042	1.3	031	3.2	1
0900	-17.8	*****	**	036	1.1	039	3.2	1	0900	-6.5	*****	**	068	2.0	051	3.8	1
1200	-15.2	*****	**	047	1.3	050	3.8	4	1200	-4.7	*****	**	065	1.8	056	3.8	3
1500	-13.4	*****	**	041	1.1	053	3.2	1	1500	-4.6	*****	**	056	1.6	073	3.2	0
1800	-13.7	*****	**	060	1.2	067	3.2	1	1800	-4.6	*****	**	055	1.6	051	3.8	1
2100	-14.4	*****	**	041	1.4	029	3.2	1	2100	-3.1	*****	**	047	1.6	048	3.8	1
2400	-14.2	*****	**	050	1.0	020	3.2	1	2400	-3.8	*****	**	076	1.5	083	4.4	0
0300	-2.7	*****	**	049	1.3	035	3.2	1	0300	-2.7	*****	**	049	1.3	035	3.2	1
0600	-4.7	*****	**	033	1.3	041	3.2	0	0600	-4.7	*****	**	033	1.3	041	3.2	0
0900	-8.1	*****	**	034	1.2	036	3.2	1	0900	-8.1	*****	**	034	1.2	036	3.2	1
1200	-5.6	*****	**	035	1.3	032	3.2	4	1200	-5.6	*****	**	035	1.3	032	3.2	4
1500	-3.7	*****	**	062	1.4	072	3.8	1	1500	-3.7	*****	**	062	1.4	072	3.8	1
1800	-3.8	*****	**	080	1.7	082	3.2	1	1800	-3.8	*****	**	080	1.7	082	3.2	1
2100	-1.0	*****	**	064	1.7	063	5.1	1	2100	-1.0	*****	**	064	1.7	063	5.1	1
2400	.1	*****	**	064	1.8	047	5.1	1	2400	.1	*****	**	064	1.8	047	5.1	1

DAY 07

DAY 08

DAY 09

HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	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	DEG.	M/S	MW	
0300	.9	*****	**	060	2.3	052	5.7	1	0300	-.1	*****	**	***	***	***	***	0
0600	1.3	*****	**	054	2.4	046	6.3	1	0600	-.1	*****	**	***	***	***	***	1
0900	2.8	*****	**	053	2.4	043	5.1	1	0900	.1	*****	**	***	***	***	***	1
1200	3.5	*****	**	054	2.0	061	5.1	3	1200	.2	*****	**	***	***	***	***	2
1500	2.6	*****	**	052	1.5	045	5.1	0	1500	0.0	*****	**	***	***	***	***	1
1800	-.8	*****	**	074	.3	078	1.3	0	1800	-.3	*****	**	***	***	***	***	0
2100	-.8	*****	**	134	.1	208	1.3	1	2100	.2	*****	**	***	***	***	***	1
2400	-.4	*****	**	070	.1	114	.6	1	2400	.9	*****	**	***	***	***	***	1
0300	.1	*****	**	213	M1.6	M178	M6.3	1	0300	.1	*****	**	213	M1.6	M178	M6.3	1
0600	-3.5	*****	**	218	1.4	229	5.1	1	0600	-3.5	*****	**	218	1.4	229	5.1	1
0900	-4.2	*****	**	093	.2	127	1.3	1	0900	-4.2	*****	**	093	.2	127	1.3	1
1200	-4.3	*****	**	053	.6	084	3.2	2	1200	-4.3	*****	**	053	.6	084	3.2	2
1500	-4.7	*****	**	033	.8	014	2.5	0	1500	-4.7	*****	**	033	.8	014	2.5	0
1800	-9.1	*****	**	075	.7	092	1.9	1	1800	-9.1	*****	**	075	.7	092	1.9	1
2100	-13.6	*****	**	046	.5	067	1.3	1	2100	-13.6	*****	**	046	.5	067	1.3	1
2400	-14.9	*****	**	085	.6	063	1.3	1	2400	-14.9	*****	**	085	.6	063	1.3	1

R & M CONSULTANTS, INC.

SUSTITNA HYDROELECTRIC PROJECT

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

DAY 10

DAY 11

DAY 12

HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	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	DEG.	M/S	MW	
0300	-16.4	*****	**	086	.6	088	1.3	1	0300	-8.7	*****	**	056	1.2	030	3.8	1
0600	-17.7	*****	**	078	.7	075	1.9	0	0600	-5.3	*****	**	061	1.6	079	3.8	1
0900	-18.7	*****	**	077M	.7M	061M	1.3M	1	0900	-6.3	*****	**	064	1.6	072	3.8	1
1200	-17.9	*****	**	083M	.4M	041M	1.3M	3	1200	-2.7	*****	**	065	1.6	034	3.8	2
1500	-17.2	*****	**	183M	.4M	191M	1.3M	1	1500	-4.1	*****	**	071	1.4	071	3.2	0
1800	-13.4	*****	**	056M	.8M	056M	1.9M	1	1800	-5.4	*****	**	071	1.6	054	3.8	1
2100	-5.3	*****	**	098	1.1	111	3.2	1	2100	-5.9	*****	**	065	1.6	057	3.8	1
2400	-6.4	*****	**	094	1.1	103	3.2	1	2400	-5.3	*****	**	055	1.6	038	3.8	1

DAY 13

DAY 14

DAY 15

HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	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	DEG.	M/S	MW	
0300	-2.8	*****	**	043	1.0	052	3.2	1	0300	-3.2	*****	**	052	.9	025	2.5	1
0600	-3.4	*****	**	064	.5	051	1.9	1	0600	-4.9	*****	**	037	1.1	030	2.5	1
0900	-6.4	*****	**	069	.6	060	1.3	1	0900	-8.9	*****	**	033	1.2	032	2.5	0
1200	-4.5	*****	**	070	.7	084	1.9	3	1200	-4.2	*****	**	045	1.2	054	3.2	3
1500	.1	*****	**	088	1.0	098	3.2	1	1500	-3.2	*****	**	018	1.1	335	4.4	1
1800	1.1	*****	**	061	1.2	088	3.2	1	1800	-6.1	*****	**	072	.8	060	2.5	0
2100	.1	*****	**	059	.9	088	2.5	1	2100	-5.0	*****	**	077	1.2	067	2.5	1
2400	-2.5	*****	**	048	.7	088	1.9	1	2400	-4.4	*****	**	020	1.1	014	3.2	1

DAY 16

DAY 17

DAY 18

HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	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	DEG.	M/S	MW	
0300	-3.3	*****	**	047	1.1	027	2.5	1	0300	-4.0	*****	**	071	.4	051	1.3	0
0600	-5.9	*****	**	059	.9	086	1.9	0	0600	-3.7	*****	**	064	.4	036	1.3	1
0900	-6.7	*****	**	060	.9	074	1.9	1	0900	-3.4	*****	**	058	.6	036	1.3	0
1200	-3.6	*****	**	052	.8	053	1.9	3	1200	-3.1	*****	**	072	.5	086	1.9	3
1500	-2.9	*****	**	058	.9	059	1.9	1	1500	-5.0	*****	**	062	.5	075	1.9	1
1800	-1.4	*****	**	032	1.0	029	3.2	0	1800	-8.6	*****	**	058	.4	061	1.3	1
2100	-2.5	*****	**	038	1.0	032	2.5	1	2100	-11.6	*****	**	056	.4	094	1.3	1
2400	-5.0	*****	**	042	.8	045	1.9	1	2400	-13.9	*****	**	047	.3	050	1.3	1

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING December, 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.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	TEMP.	POINT	RH	DIR.	SPD.
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S
0300	-20.3	*****	**	043	.3	026	1.3	1	0300	-11.6	*****	**	032	1.1	002	2.5	1
0600	-18.5	*****	**	056	.2	053	1.3	1	0600	-10.9	*****	**	079	.9	076	1.9	1
0900	-16.0	*****	**	063	.6	063	1.3	1	0900	-10.7	*****	**	071	.9	077	1.9	1
1200	-11.9	*****	**	059	.7	052	1.9	2	1200	-8.4	*****	**	046	.9	026	2.5	4
1500	-7.9	*****	**	035	1.2	043	3.8	0	1500	-10.0	*****	**	029	1.2	012	3.8	1
1800	-5.0	*****	**	037	1.5	052	4.4	0	1800	-15.0	*****	**	053	1.0	036	1.9	0
2100	-6.2	*****	**	040	1.6	069	4.4	0	2100	-15.4	*****	**	066	.9	065	1.9	1
2400	-9.4	*****	**	020	1.4	020	3.2	1	2400	-15.2	*****	**	076	1.0	057	2.5	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.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S
0300	-22.3	*****	**	079	.9	088	1.9	1	0300	-16.8	*****	**	064	.7	058	1.9	0
0600	-22.6	*****	**	084	1.0	090	2.5	0	0600	-13.7	*****	**	055	.7	031	2.5	1
0900	-23.3	*****	**	046	.3	007	1.3	1	0900	-11.8	*****	**	033	.9	023	2.5	0
1200	-24.8	*****	**	074	.6	085	1.9	3	1200	-14.0	*****	**	048	.8	045	1.9	4
1500	-24.6	*****	**	061	.5	053	2.5	1	1500	-18.2	*****	**	063	.7	056	1.9	1
1800	-25.0	*****	**	068	.6	073	1.3	1	1800	-19.4	*****	**	059	.9	058	1.9	1
2100	-22.9	*****	**	069	.6	079	1.3	1	2100	-20.3	*****	**	060	.9	063	1.9	0
2400	-21.1	*****	**	069	.7	060	1.3	1	2400	-20.0	*****	**	056	1.0	038	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.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S
0300	-9.8	*****	**	047	.7	020	2.5	0	0300	-5.9	*****	**	043	1.2	061	3.8	0
0600	-16.3	*****	**	062	.6	059	1.3	0	0600	-4.8	*****	**	039	1.3	049	3.2	1
0900	-14.0	*****	**	055	.5	056	1.9	0	0900	-4.0	*****	**	068	1.4	066	3.2	1
1200	-10.1	*****	**	068	.7	038	1.9	3	1200	-2.3	*****	**	071	1.4	064	3.8	3
1500	-10.9	*****	**	042	.8	076	1.9	1	1500	-2.2	*****	**	070	1.1	061	2.5	1
1800	-11.7	*****	**	068	.8	062	1.9	1	1800	-2.1	*****	**	093	1.0	078	2.5	1
2100	-10.3	*****	**	070	.9	076	1.9	0	2100	-1.7	*****	**	040	1.3	056	2.5	1
2400	-8.4	*****	**	063	.8	068	1.9	1	2400	-3.1	*****	**	020	1.0	000	3.2	1

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.									
DEC C	DEC C	%	DEC.	M/S	DEC.	M/S	DEC C	DEC C	%	DEC.	M/S	DEC.	M/S	DEC C	DEC C	%	DEC.	M/S	DEC.	M/S									
0300	.1	*****	**	***	****	***	0300	.1	*****	**	087	.5	066	1.9	0300	1.3	*****	**	222	.8	212	1.9							
0600	.1	*****	**	***	****	***	0600	.5	*****	**	089	.2	234	2.5	0600	.9	*****	**	223	.8	226	2.5							
0900	.1	*****	**	***	****	***	0900	.2	*****	**	023	.3	036	1.3	0900	.7	*****	**	226	.7	229	1.9							
1200	.2	*****	**	040M	.5M	040M	1.3M	1200	.6	*****	**	044	.5	102	3.2	1200	.2	*****	**	211	.0	188	1.9						
1500	.1	*****	**	079M	.3M	092M	1.9M	1500	.4	*****	**	152	.3	159	1.3	1500	-.4	*****	**	072	.2	035	1.3						
1800	.2	*****	**	048M	.3M	051M	1.9M	1800	.1	*****	**	171	.1	116	.6	1800	-.9	*****	**	***	****	***	****						
2100	.2	*****	**	082M	.3M	110M	1.3M	2100	.1	*****	**	165	.1	267	1.3	2100	-2.6	*****	**	***	****	***	****						
2400	.3	*****	**	062	.6	077	1.9	2400	.9	*****	**	198	.3	223	1.9	2400	-5.6	*****	**	***	****	***	****						

DAY 31

HOUR	DEW	WIND	WIND	GUST	MAX.	
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
DEC C	DEC C	%	DEC.	M/S	DEC.	M/S
0300	-6.4	*****	**	***	****	***
0600	-6.2	*****	**	***	****	***
0900	-5.0	*****	**	***	****	***
1200	-4.2	*****	**	***	****	***
1500	-3.8	*****	**	***	****	***
1800	-3.2	*****	**	***	****	***
2100	-2.9	*****	**	***	****	***
2400	-3.7	*****	**	***	****	***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

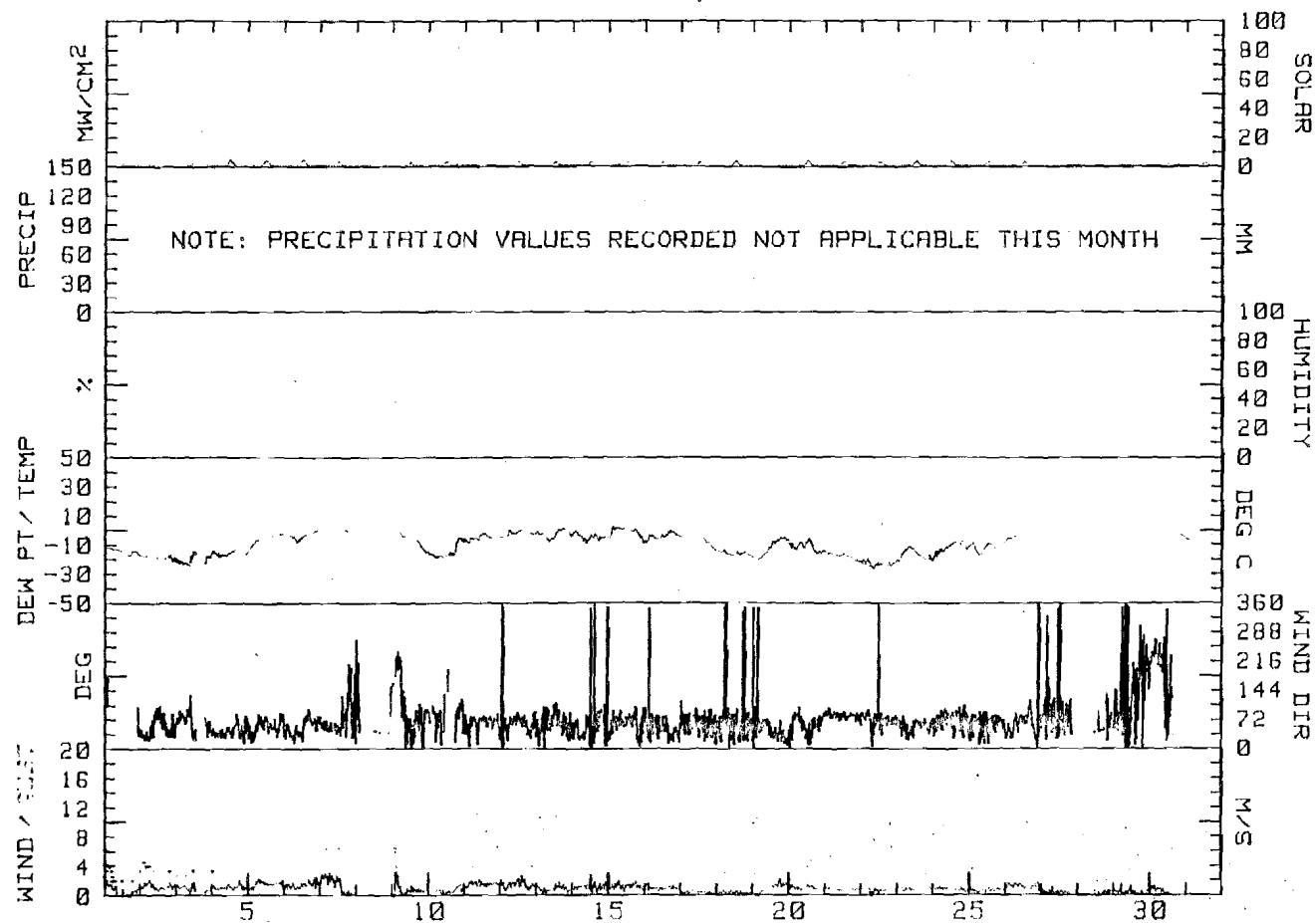
	MAX.	MIN.	MEAN	RES.	RES.	AVG.	MAX.	MAX.	P'VAL	MEAN	MEAN		DAY'S		
DAY	TEMP.	TEMP.	TEMP.	WIND	WIND	WIND	GUST	GUST	DIR.	RH	DP	PRECIP	SOLAR	DAY	
	DEG C	DEG C	DEG C	DIR.	SPD.	SPD.	DIR.	SPD.	DIR.	%	DEG C	MM	ENERGY		
				DEG	M/S	M/S	DEG	M/S					WH/SQH		
1	-12.1	-18.0	-15.1	071M	.7M	.6M	106M	3.2M	NE	M	**	*****	****	203	1
2	-16.8	-21.9	-19.4	047	1.2	1.3	029	4.4	NNE	**	*****	****	220	2	
3	-14.5M	-24.5M	-19.5M	054M	1.0M	1.0M	030M	3.2M	ENE	M	**	*****	****	227M	3
4	-13.4	-18.2	-15.8	044	1.2	1.2	050	3.8	NE	**	*****	****	303	4	
5	-2.3	-14.0	-8.2	057	1.5	1.6	083	4.4	NE	**	*****	****	275	5	
6	.4	-9.2	-4.4	055	1.4	1.5	063	5.1	ENE	**	*****	****	263	6	
7	4.0	-1.1	1.5	056	1.4	1.4	046	6.3	NE	**	*****	****	243	7	
8	.9	-.4	.3	***	***	***	***	***	***	**	*****	****	200	8	
9	1.3	-15.8	-7.3	101M	.2M	.8M	178M	6.3M	E	(M)	**	*****	****	203	9
10	-5.1	-19.4	-12.3	087M	.7M	.7M	111M	3.2M	E	(M)	**	*****	****	258	10
11	-2.4	-8.7	-5.6	064	1.5	1.6	030	3.8	ENE	**	*****	****	230	11	
12	.4	-5.7	-2.7	059	1.4	1.5	042	4.4	ENE	**	*****	****	270	12	
13	1.1	-7.6	-3.3	063	.8	.9	052	3.2	ENE	**	*****	****	240	13	
14	-.2	-8.9	-4.6	043	1.0	1.2	335	4.4	ENE	**	*****	****	258	14	
15	2.2	-8.7	-3.3	063	1.2	1.3	065	3.8	ENE	**	*****	****	240	15	
16	-.3	-8.9	-4.6	048	.9	1.0	029	3.2	NE	**	*****	****	238	16	
17	-2.8	-14.1	-8.5	062	.4	.4	086	1.9	ENE	**	*****	****	234	17	
18	-13.4	-18.9	-16.2	055	.3	.4	075	1.9	ENE	**	*****	****	255	18	
19	-4.5	-21.1	-12.8	039	.9	1.0	052	4.4	NNE	**	*****	****	228	19	
20	-6.3	-16.4	-11.4	056	.9	1.0	012	3.8	ENE	**	*****	****	263	20	
21	-14.9	-22.7	-18.8	082	.8	.8	088	1.9	E	**	*****	****	240	21	
22	-19.9	-26.6	-23.3	072	.6	.7	090	2.5	ENE	**	*****	****	248	22	
23	-11.2	-22.1	-16.7	054	.8	.8	031	2.5	ENE	**	*****	****	258	23	
24	-8.0	-19.4	-13.7	069	.8	.9	056	2.5	ENE	**	*****	****	228	24	
25	-8.4	-17.5	-13.0	060	.7	.8	020	2.5	ENE	**	*****	****	203	25	
26	-1.4	-7.5	-4.5	055	1.1	1.2	061	3.8	ENE	**	*****	****	248	26	
27	.1	-4.3	-2.1	068M	.4M	.4M	082M	1.9M	ENE	(M)	**	*****	****	171	27
28	.4	.1	.3	063M	.4M	.2M	092M	1.9M	NE	(M)	**	*****	****	173	28
29	.9	.1	.5	092	.2	.4	102	3.2	NE	**	*****	****	173	29	
30	1.5	-5.6	-2.1	221M	.5M	.6M	226M	2.5M	SW	(M)	**	*****	****	223	30
31	-2.5	-6.7	-4.6	***	***	***	***	***	***	**	*****	****	165	31	
MONTH	4.0M	-26.6M	-8.7M	059M	.9M	.9M	046M	6.3M	ENE	(M)	**	*****	****	7187M	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 5.7
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 5.1
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 4.4
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&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
SHERMAN WEATHER STATION
December, 1982



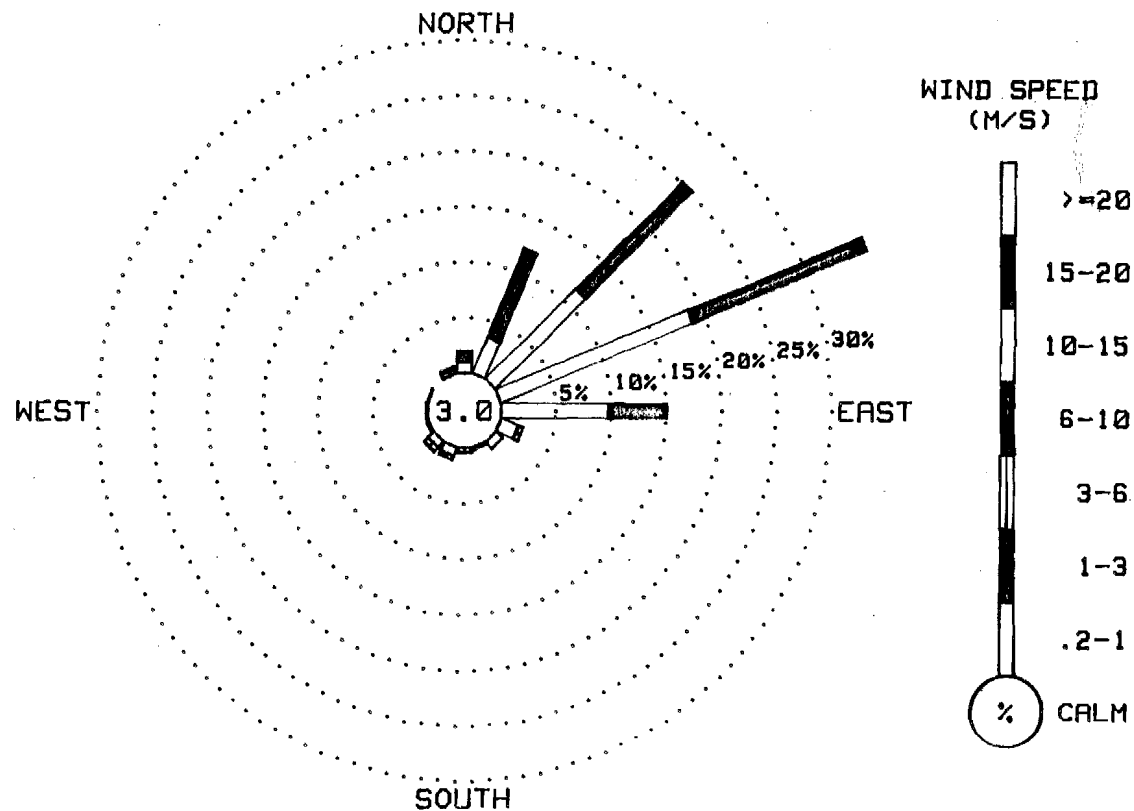
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

DIRECTION	VELOCITY (M/S)							TOTAL
	0.2	1.0	3.0	6.0	10.0	15.0	20.0	
	TO 1.0	TO 3.0	TO 6.0	TO 10.0	TO 15.0	TO 20.0	OR GREATER	
N	1.03	.95	0.00	0.00	0.00	0.00	0.00	1.98
NNE	3.48	8.63	0.00	0.00	0.00	0.00	0.00	12.11
NE	11.48	13.53	.08	0.00	0.00	0.00	0.00	25.09
ENE	18.76	16.98	0.00	0.00	0.00	0.00	0.00	35.73
E	9.70	5.30	0.00	0.00	0.00	0.00	0.00	15.00
ESE	1.70	.44	0.00	0.00	0.00	0.00	0.00	2.14
SE	.87	0.00	0.00	0.00	0.00	0.00	0.00	.87
SSE	.28	0.00	0.00	0.00	0.00	0.00	0.00	.28
S	.36	.08	0.00	0.00	0.00	0.00	0.00	.44
SSW	.79	.32	0.00	0.00	0.00	0.00	0.00	1.11
SW	.71	.47	.04	0.00	0.00	0.00	0.00	1.23
WSW	.08	.08	0.00	0.00	0.00	0.00	0.00	.16
W	.20	0.00	0.00	0.00	0.00	0.00	0.00	.20
WNW	.08	0.00	0.00	0.00	0.00	0.00	0.00	.08
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	.40	.24	0.00	0.00	0.00	0.00	0.00	.63
CALM								2.97
TOTAL	49.90	47.01	.12	0.00	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2527 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

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



No precipitation data for January

(See INTERPRETATION OF DATA).

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING January, 1983

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
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
0300	-3.3	*****	**	***	****	***	0300	-1.5	*****	**	***	****	***	0300	-5.6	*****	**	***	****	***
0600	-3.3	*****	**	***	****	***	0600	-.2	*****	**	***	****	***	0600	-4.2	*****	**	***	****	***
0900	-2.9	*****	**	***	****	***	0900	-1.2	*****	**	***	****	***	0900	-4.4	*****	**	***	****	***
1200	-1.4	*****	**	***	****	***	1200	-2.6	*****	**	***	****	***	1200	-4.3	*****	**	***	****	***
1500	-2.5	*****	**	***	****	***	1500	-5.3	*****	**	***	****	***	1500	-4.2	*****	**	***	****	***
1800	-1.8	*****	**	***	****	***	1800	-4.6	*****	**	***	****	***	1800	-4.7	*****	**	***	****	***
2100	-3.0	*****	**	***	****	***	2100	-4.3	*****	**	***	****	***	2100	-5.5	*****	**	***	****	***
2400	-3.3	*****	**	***	****	***	2400	-5.1	*****	**	***	****	***	2400	-7.1	*****	**	***	****	***

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
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
0300	-10.1	*****	**	***	****	***	0300	-20.5	*****	**	***	****	***	0300	-16.0	*****	**	***	****	***
0600	-15.9	*****	**	***	****	***	0600	-24.7	*****	**	***	****	***	0600	-16.0	*****	**	***	****	***
0900	-16.1	*****	**	***	****	***	0900	-24.9	*****	**	***	****	***	0900	-15.9	*****	**	***	****	***
1200	-16.2	*****	**	***	****	***	1200	-21.0	*****	**	***	****	***	1200	-15.1	*****	**	***	****	***
1500	-14.0	*****	**	***	****	***	1500	-21.4	*****	**	***	****	***	1500	-14.5	*****	**	***	****	***
1800	-15.1	*****	**	***	****	***	1800	-24.1	*****	**	***	****	***	1800	-14.5	*****	**	057	3.2	062
2100	-19.4	*****	**	***	****	***	2100	-23.9	*****	**	***	****	***	2100	-15.5	*****	**	059	3.4	049
2400	-19.8	*****	**	***	****	***	2400	-21.9	*****	**	***	****	***	2400	-16.1	*****	**	066	3.6	062

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
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
0300	-17.1	*****	**	066	2.8	068	6.3	0300	-26.9	*****	**	***	****	0300	-23.7	*****	**	063	1.6	046
0600	-17.2	*****	**	067	2.8	069	5.7	0600	-26.5	*****	**	***	****	0600	-24.6	*****	**	032	1.0	021
0900	-18.0	*****	**	051	2.7	051	7.0	0900	-31.4	*****	**	090M	4.4M081M	0900	-22.8	*****	**	036	.8	023
1200	-19.2	*****	**	082	2.0	087	3.8	1200	-28.7	*****	**	085	.2	1200	-22.5	*****	**	023	1.0	031
1500	-22.7	*****	**	052	1.8	058	4.4	1500	-19.0	*****	**	065	1.5	1500	-22.0	*****	**	030	1.4	034
1800	-21.2	*****	**	035	1.5	022	3.8	1800	-19.5	*****	**	054	3.4	1800	-22.4	*****	**	037	1.5	035
2100	-25.3	*****	**	042	1.8	055	4.4	2100	-18.5	*****	**	055	3.6	2100	-23.3	*****	**	031	1.4	032
2400	-29.5	*****	**	068M	.7M	043M	1.9M	2400	-20.4	*****	**	073	1.8	2400	-21.4	*****	**	025	1.4	051

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING January, 1983

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.	SPD.	DIR.	GUST	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	MW
0300	-23.6	*****	**	076	.6	075	3.2	1	0300	-14.6	*****	**	011	1.3	033	4.4	1
0600	-26.4	*****	**	112	.5	089	1.9	1	0600	-12.8	*****	**	076	3.7	087	8.3	2
0900	-25.9	*****	**	188	.4	165	1.3	1	0900	-12.5	*****	**	067	5.2	075	10.8	2
1200	-20.2	*****	**	037	.5	053	3.8	4	1200	-12.7	*****	**	063	5.4	069	12.1	5
1500	-17.8	*****	**	071	1.5	090	5.1	1	1500	-13.7	*****	**	063	5.3	064	10.8	2
1800	-18.5	*****	**	054	2.4	053	5.7	1	1800	-13.4	*****	**	063	5.8	068	11.4	2
2100	-22.4	*****	**	039	1.8	056	4.4	1	2100	-13.1	*****	**	061	4.4	055	10.2	2
2400	-21.1	*****	**	015	1.2	009	3.8	1	2400	-14.3	*****	**	059	3.4	065	7.0	2

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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	MW
0300	-17.7	*****	**	067	2.1	086	5.1	1	0300	-17.6	*****	**	023	1.4	020	3.2	1
0600	-16.9	*****	**	055	2.2	066	5.1	1	0600	-17.6	*****	**	070	1.3	066	2.5	1
0900	-15.1	*****	**	078	2.3	074	4.4	1	0900	-15.9	*****	**	043	1.4	030	3.2	1
1200	-14.8	*****	**	073	2.4	077	7.6	6	1200	-9.8	*****	**	029	1.0	355	3.2	6
1500	-15.0	*****	**	072	2.4	079	5.7	2	1500	-11.2	*****	**	071	1.3	073	3.2	1
1800	-16.2	*****	**	077	1.9	081	4.4	1	1800	-14.1	*****	**	065	.6	039	1.9	1
2100	-17.1	*****	**	082	2.1	080	4.4	1	2100	-12.3	*****	**	055	.9	047	2.5	1
2400	-17.5	*****	**	028	1.6	036	4.4	1	2400	-10.7	*****	**	051	1.3	071	4.4	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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	MW
0300	-2.1	*****	**	068	1.6	054	5.1	1	0300	-3.8	*****	**	209	.5	215	2.5	1
0600	-3.1	*****	**	041	1.3	046	3.2	1	0600	-4.6	*****	**	250	.4	207	1.9	1
0900	-3.7	*****	**	035	1.4	029	3.2	1	0900	-5.3	*****	**	066	.3	350	1.3	1
1200	-4.0	*****	**	012	1.1	350	2.5	4	1200	-4.5	*****	**	078	.3	048	1.3	2
1500	-3.0	*****	**	034	.7	035	1.9	1	1500	-10.0	*****	**	057	.5	021	1.9	1
1800	-4.7	*****	**	055	.4	040	1.9	1	1800	-12.5	*****	**	077	.6	089	1.3	1
2100	-4.6	*****	**	069	.2	356	1.3	1	2100	-10.4	*****	**	041	.7	023	2.5	0
2400	-3.8	*****	**	218	.2	197	1.9	1	2400	-8.7	*****	**	051	.9	066	2.5	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING January, 1983

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
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
0300	-2.9	*****	**	044	.7	063 2.5 1	0300	*****	*****	**	***	*****	***	0300	*****	*****	**	***	*****	***
0600	*****	*****	**	***	*****	227M 3.7M	0600	*****	*****	**	***	*****	***	0600	*****	*****	**	***	*****	***
0900	*****	*****	**	***	*****	***	0900	*****	*****	**	***	*****	***	0900	*****	*****	**	***	*****	***
1200	*****	*****	**	***	*****	***	1200	*****	*****	**	***	*****	***	1200	*****	*****	**	***	*****	***
1500	-4.4	*****	**	213M	1.4M	197M 1.9M 1	1500	*****	*****	**	***	*****	***	1500	*****	*****	**	***	*****	***
1800	-5.8	*****	**	051	.1	278 .6 0	1800	*****	*****	**	***	*****	***	1800	*****	*****	**	***	*****	***
2100	-5.9	*****	**	058	.3	090 1.3 0	2100	*****	*****	**	***	*****	***	2100	*****	*****	**	***	*****	***
2400	*****	*****	**	***	*****	081M 1.3M	2400	*****	*****	**	***	*****	***	2400	*****	*****	**	***	*****	***

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
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
0300	*****	*****	**	***	*****	***	0300	*****	*****	**	***	*****	***	0300	*****	*****	**	***	*****	***
0600	*****	*****	**	***	*****	***	0600	*****	*****	**	***	*****	***	0600	*****	*****	**	***	*****	***
0900	*****	*****	**	***	*****	***	0900	*****	*****	**	***	*****	***	0900	*****	*****	**	***	*****	***
1200	*****	*****	**	***	*****	***	1200	*****	*****	**	***	*****	***	1200	*****	*****	**	***	*****	***
1500	*****	*****	**	***	*****	***	1500	*****	*****	**	***	*****	***	1500	*****	*****	**	***	*****	***
1800	*****	*****	**	***	*****	***	1800	*****	*****	**	***	*****	***	1800	*****	*****	**	***	*****	***
2100	*****	*****	**	***	*****	***	2100	*****	*****	**	***	*****	***	2100	*****	*****	**	***	*****	***
2400	*****	*****	**	***	*****	***	2400	*****	*****	**	***	*****	***	2400	*****	*****	**	***	*****	***

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
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
0300	*****	*****	**	***	*****	***	0300	*****	*****	**	***	*****	***	0300	*****	*****	**	***	*****	***
0600	*****	*****	**	***	*****	***	0600	*****	*****	**	***	*****	***	0600	*****	*****	**	***	*****	***
0900	*****	*****	**	***	*****	***	0900	*****	*****	**	***	*****	***	0900	*****	*****	**	***	*****	***
1200	*****	*****	**	***	*****	***	1200	*****	*****	**	***	*****	***	1200	*****	*****	**	***	*****	***
1500	*****	*****	**	***	*****	***	1500	*****	*****	**	***	*****	***	1500	*****	*****	**	***	*****	***
1800	*****	*****	**	***	*****	***	1800	*****	*****	**	***	*****	***	1800	*****	*****	**	***	*****	***
2100	*****	*****	**	***	*****	***	2100	*****	*****	**	***	*****	***	2100	*****	*****	**	***	*****	***
2400	*****	*****	**	***	*****	***	2400	*****	*****	**	***	*****	***	2400	*****	*****	**	***	*****	***

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING January, 1983

DAY 28

DAY 29

DAY 30

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
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
0300	*****	*****	**	***	****	***	0300	*****	*****	**	***	****	***	0300	*****	*****	**	***	****	***
0600	*****	*****	**	***	****	***	0600	*****	*****	**	***	****	***	0600	*****	*****	**	***	****	***
0900	*****	*****	**	***	****	***	0900	*****	*****	**	***	****	***	0900	*****	*****	**	***	****	***
1200	*****	*****	**	***	****	***	1200	*****	*****	**	***	****	***	1200	*****	*****	**	***	****	***
1500	*****	*****	**	***	****	***	1500	*****	*****	**	***	****	***	1500	*****	*****	**	***	****	***
1800	*****	*****	**	***	****	***	1800	*****	*****	**	***	****	***	1800	*****	*****	**	***	****	***
2100	*****	*****	**	***	****	***	2100	*****	*****	**	***	****	***	2100	*****	*****	**	***	****	***
2400	*****	*****	**	***	****	***	2400	*****	*****	**	***	****	***	2400	*****	*****	**	***	****	***

DAY 31

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

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING January, 1983

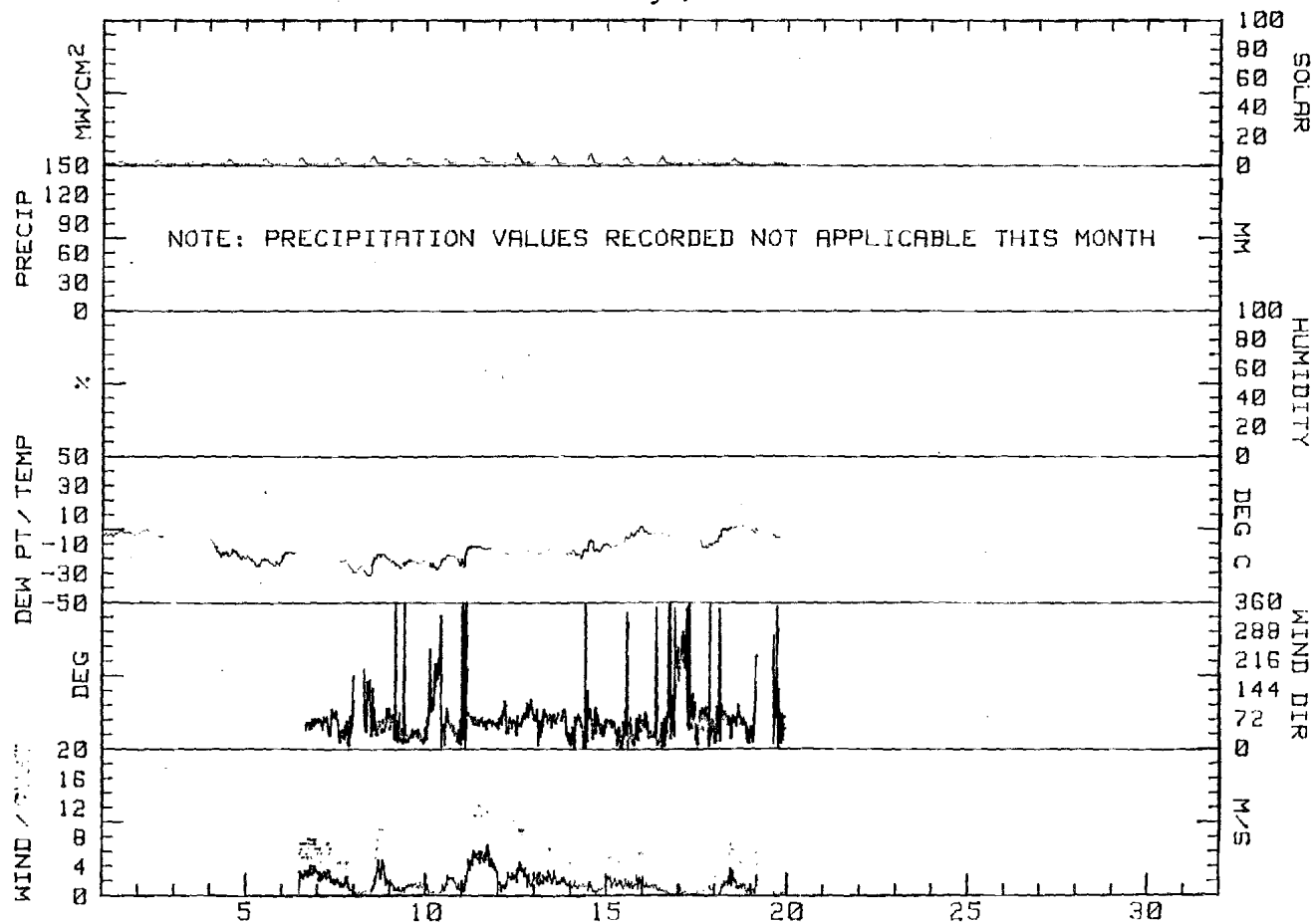
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	-1.9	-5.6	-3.0	***	***	***	***	***	***	***	***	***	206	1
2	0.0	-5.8	-2.9	***	***	***	***	***	***	***	***	***	220	2
3	-3.9	-7.1	-5.5	***	***	***	***	***	***	***	***	***	188	3
4	-6.9	-20.8	-13.9	***	***	***	***	***	***	***	***	***	268	4
5	-18.0	-25.8	-21.9	***	***	***	***	***	***	***	***	***	278	5
6	-14.3	-20.0	-17.2	061M	3.4M	3.1M	062M	7.6M	ENE(M)	***	***	***	330	6
7	-16.3	-29.5	-22.9	058M	2.0M	2.1M	051M	7.0M	ENE(M)	***	***	***	323	7
8	-16.8	-32.2	-24.5	060M	1.8M	1.5M	052M	8.9M	NE(M)	***	***	***	358	8
9	-20.5	-27.0	-23.8	035	1.2	1.3	046	3.8	NNE	***	***	***	355	9
10	-17.7	-27.8	-22.8	054	.9	1.2	053	5.7	NE	***	***	***	348	10
11	-11.9	-25.9	-18.9	062	4.2	4.4	069	12.1	ENE	***	***	***	528	11
12	-14.2	-17.6	-15.9	068	2.4	2.5	056	8.9	ENE	***	***	***	438	12
13	-14.3	-17.9	-16.1	068	2.1	2.2	077	7.6	ENE	***	***	***	393	13
14	-7.9	-20.7	-14.3	050	1.1	1.2	071	4.4	ENE	***	***	***	405	14
15	1.6	-13.5	-6.0	047	1.7	1.8	070	5.7	ENE	***	***	***	345	15
16	.7	-5.0	-2.2	043	.8	.9	054	5.1	NE	***	***	***	333	16
17	-3.4	-13.4	-8.4	062	.3	.6	215	2.5	ENE	***	***	***	228	17
18	2.3	-9.4	-3.6	066	1.3	1.4	065	7.0	ENE	***	***	***	275	18
19	0.0M	-6.2	-3.1	070M	.2M	.6M	227M	5.7M	ENE(M)	***	***	***	171M	19
20	****	****	****	***	***	***	***	***	***	***	***	***	****	20
21	****	****	****	***	***	***	***	***	***	***	***	***	****	21
22	****	****	****	***	***	***	***	***	***	***	***	***	****	22
23	****	****	****	***	***	***	***	***	***	***	***	***	****	23
24	****	****	****	***	***	***	***	***	***	***	***	***	****	24
25	****	****	****	***	***	***	***	***	***	***	***	***	****	25
26	****	****	****	***	***	***	***	***	***	***	***	***	****	26
27	****	****	****	***	***	***	***	***	***	***	***	***	****	27
28	****	****	****	***	***	***	***	***	***	***	***	***	****	28
29	****	****	****	***	***	***	***	***	***	***	***	***	****	29
30	****	****	****	***	***	***	***	***	***	***	***	***	****	30
31	****	****	****	***	***	***	***	***	***	***	***	***	****	31
MONTH	2.3M	-32.2M	-13.0M	059M	1.6M	1.8M	069M	12.1M	ENE(M)	***	***	***	5998M	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 8.3
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 8.9
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 10.2
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
SHERMAN WEATHER STATION
January, 1983



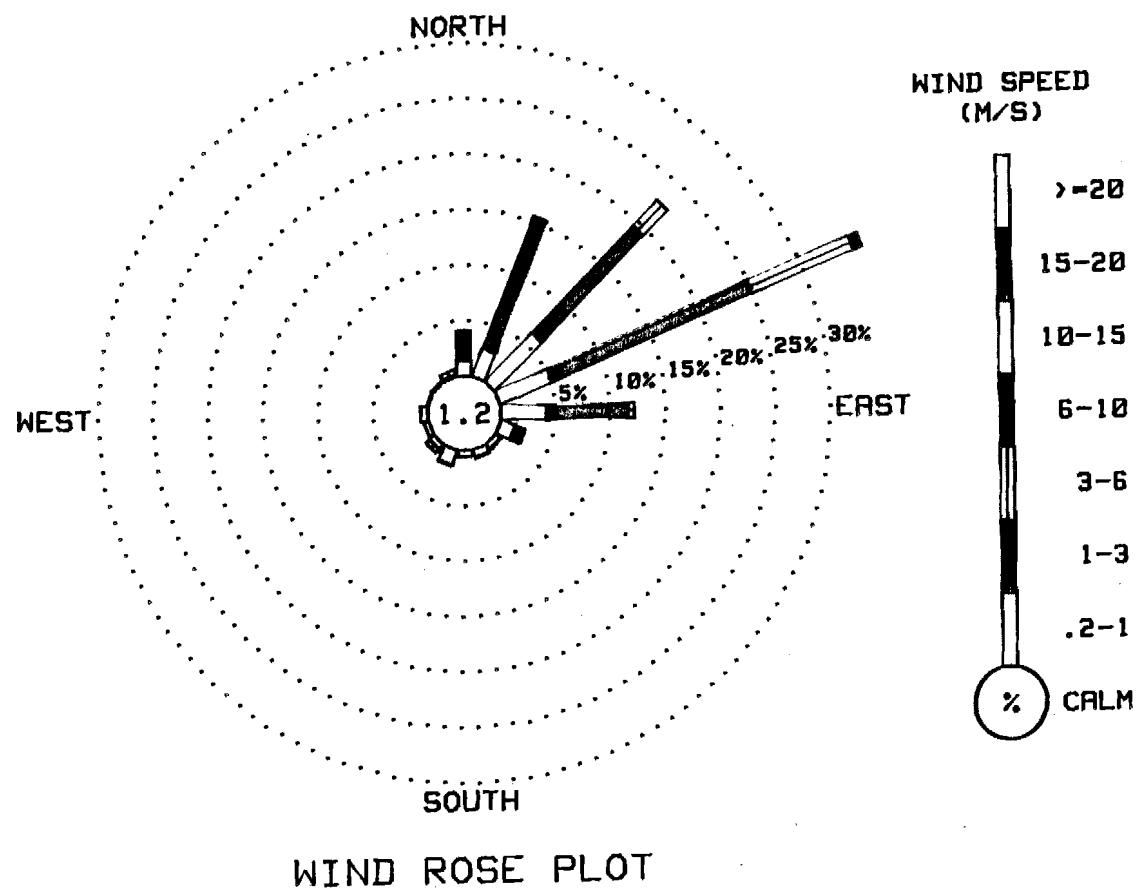
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING January, 1983

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 GREATER	
	1.0	3.0	6.0	10.0	15.0	20.0		
N	1.40	2.64	0.00	0.00	0.00	0.00	0.00	4.05
NNE	2.73	12.56	.17	0.00	0.00	0.00	0.00	15.45
NE	6.12	13.31	3.14	0.00	0.00	0.00	0.00	22.56
ENE	5.12	19.75	10.08	.74	0.00	0.00	0.00	35.70
E	4.13	7.44	.58	0.00	0.00	0.00	0.00	12.15
ESE	1.40	.91	0.00	0.00	0.00	0.00	0.00	2.31
SE	.58	.08	0.00	0.00	0.00	0.00	0.00	.66
SSE	.74	.08	0.00	0.00	0.00	0.00	0.00	.83
S	.58	0.00	0.00	0.00	0.00	0.00	0.00	.58
SSW	1.40	.08	0.00	0.00	0.00	0.00	0.00	1.49
SW	.58	.41	0.00	0.00	0.00	0.00	0.00	.99
WSW	.41	0.00	0.00	0.00	0.00	0.00	0.00	.41
W	.66	0.00	0.00	0.00	0.00	0.00	0.00	.66
WNW	.08	0.00	0.00	0.00	0.00	0.00	0.00	.08
NW	.17	0.00	0.00	0.00	0.00	0.00	0.00	.17
NNW	.17	.50	0.00	0.00	0.00	0.00	0.00	.66
CALM								1.24
TOTAL	26.28	57.77	13.97	.74	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1210 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
SHERMAN WEATHER STATION
January, 1983



No precipitation data for February

(See INTERPRETATION OF DATA) .

R & M CONSULTANTS, INC.,

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING February, 1983

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.						
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						
0300	-21.5	*****	**	085	.7	100	1.9	1	0300	-21.8	*****	**	054	.5	044	2.5	1	0300	-24.6	*****	**	073	.4	141	1.9	1
0600	-19.9	*****	**	087	.8	095	3.2	1	0600	-24.4	*****	**	067	.5	081	1.9	1	0600	-23.5	*****	**	049	.5	023	1.9	1
0900	-20.5	*****	**	044	.3	355	1.3	3	0900	-25.3	*****	**	038	.4	052	1.3	3	0900	-25.2	*****	**	055	.5	033	1.3	3
1200	-14.0	*****	**	083	.4	052	1.3	17	1200	-15.3	*****	**	034	.3	108	1.9	27	1200	-15.6	*****	**	068	.3	353	1.9	26
1500	-10.1	*****	**	177	.3	236	1.9	9	1500	-13.2	*****	**	078	.7	098	2.5	10	1500	-12.7	*****	**	063	.1	048	1.9	10
1800	-16.8	*****	**	036	.2	049	1.3	1	1800	-21.5	*****	**	058	.4	056	1.3	1	1800	-21.9	*****	**	085	.3	056	.6	1
2100	-21.1	*****	**	074	.4	060	1.3	1	2100	-23.2	*****	**	051	.6	050	1.9	0	2100	-26.2	*****	**	059	.4	104	1.3	0
2400	-23.3	*****	**	057	.4	063	1.9	1	2400	-22.2	*****	**	071	.7	076	1.9	1	2400	-27.8	*****	**	046	.4	011	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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	
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	
0300	-28.7	*****	**	041	.4	027	1.3	1	0300	*****	*****	**	***	***	0300	*****	*****	**	***	***	***
0600	-26.0	*****	**	039	.3	033	1.3	1	0600	*****	*****	**	***	***	0600	*****	*****	**	***	***	***
0900	-20.3	*****	**	032	.4	025	1.3	4	0900	*****	*****	**	***	***	0900	*****	*****	**	***	***	***
1200	*****	*****	**	***	***	042M	1.3	***	1200	*****	*****	**	***	***	1200	*****	*****	**	***	***	***
1500	*****	*****	**	***	***	***	***	***	1500	*****	*****	**	***	***	1500	*****	*****	**	***	***	***
1800	*****	*****	**	***	***	***	***	***	1800	*****	*****	**	***	***	1800	*****	*****	**	***	***	***
2100	*****	*****	**	***	***	***	***	***	2100	*****	*****	**	***	***	2100	*****	*****	**	***	***	***
2400	*****	*****	**	***	***	***	***	***	2400	*****	*****	**	***	***	2400	*****	*****	**	***	***	***

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	MAX.	RAD	
	DEG C	DEG C	%	DEG.	M/S	DEG.		DEG C	DEG C	%	DEG.	M/S	DEG.		DEG C	DEG C	%	DEG.	M/S	DEG.	GUST	MAX.	MW	
0300	*****	*****	**	***	***	***	0300	*****	*****	**	***	***	***	***	0300	*****	*****	**	***	***	***	***	***	***
0600	*****	*****	**	***	***	***	0600	*****	*****	**	***	***	***	***	0600	*****	*****	**	***	***	***	***	***	***
0900	*****	*****	**	***	***	***	0900	*****	*****	**	***	***	***	***	0900	*****	*****	**	***	***	***	***	***	***
1200	*****	*****	**	***	***	***	1200	*****	*****	**	***	***	***	***	1200	*****	*****	**	***	***	***	***	***	***
1500	*****	*****	**	***	***	***	1500	*****	*****	**	***	***	***	***	1500	*****	*****	**	***	***	***	***	***	***
1800	*****	*****	**	***	***	***	1800	*****	*****	**	***	***	***	***	1800	*****	*****	**	***	***	***	***	***	***
2100	*****	*****	**	***	***	***	2100	*****	*****	**	***	***	***	***	2100	*****	*****	**	***	***	***	***	***	***
2400	*****	*****	**	***	***	***	2400	*****	*****	**	***	***	***	***	2400	*****	*****	**	***	***	***	***	***	***

R & M CONSULTANTS, INC.

SUSTITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING February, 1983

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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	*****	*****	**	***	****	***	****	***	0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***	0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***	0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***	1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***	1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***	1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***	2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***	2400	*****	*****	**	***	****	***	****	***

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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	*****	*****	**	***	****	***	****	***	0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***	0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***	0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***	1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***	1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***	1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***	2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***	2400	*****	*****	**	***	****	***	****	***

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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	*****	*****	**	***	****	***	****	***	0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***	0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***	0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***	1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***	1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***	1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***	2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***	2400	*****	*****	**	***	****	***	****	***

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING February, 1983

DAY 28

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

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING February, 1983

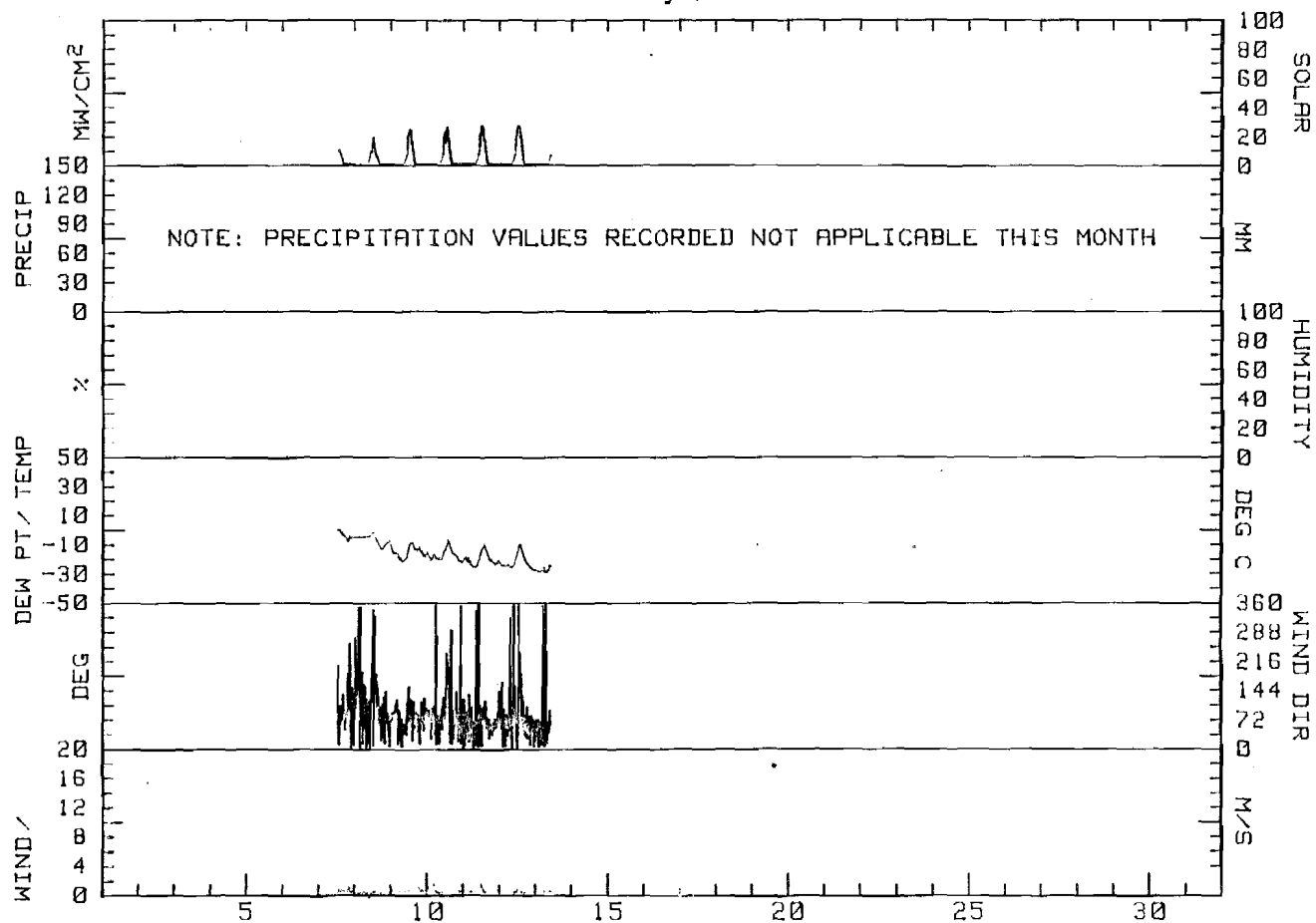
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SDH	DAY
1	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	1
2	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	2
3	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	3
4	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	4
5	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	5
6	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	6
7	-1.1	-8.3	-4.2	089	.4	.6	073	2.5	E (M)	**	*****	****	652	7
8	-1.9	-13.6	-7.8	072	.2	.3	047	3.2	E	**	*****	****	733	8
9	-9.0	-21.9	-15.5	076	.5	.6	045	2.5	E	**	*****	****	1135	9
10	-7.5	-23.3	-15.4	078	.4	.5	095	3.2	ENE	**	*****	****	1118	10
11	-10.1	-26.1	-18.1	059	.5	.6	044	2.5	NE	**	*****	****	1215	11
12	-10.5	-28.0	-19.3	060	.3	.5	141	1.9	ENE	**	*****	****	1305	12
13	-24.7	-29.6	-27.2	043	.4	.4	027	1.3	ENE (M)	**	*****	****	398	13
14	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	14
15	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	15
16	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	16
17	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	17
18	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	18
19	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	19
20	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	20
21	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	21
22	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	22
23	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	23
24	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	24
25	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	25
26	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	26
27	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	27
28	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	28
MONTH	-1.1	-29.6	-15.3	069	.4	.5	047	3.2	ENE (M)	**	*****	****	6555	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 1.3
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 1.3
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 2.5
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 1.9

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

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

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
SHERMAN WEATHER STATION
February, 1983



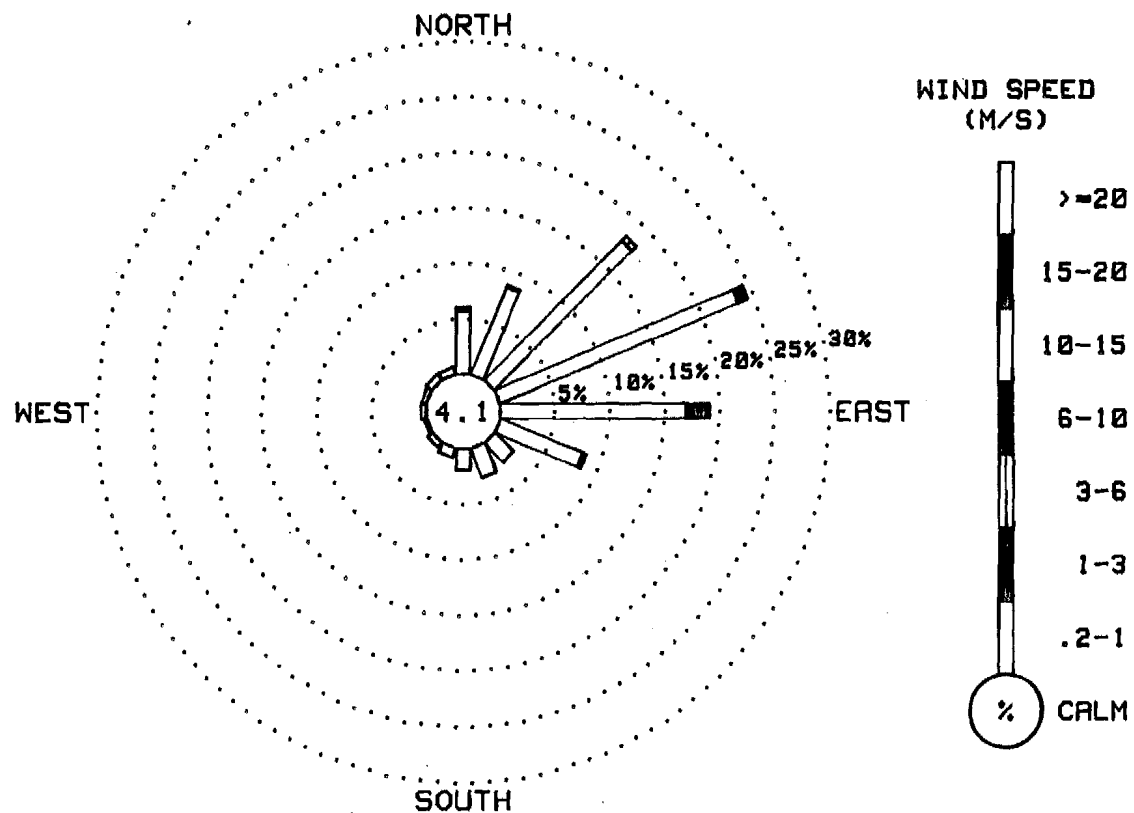
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING February, 1983

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	5.64	.35	0.00	0.00	0.00	0.00	0.00	6.00
NNE	8.47	.18	0.00	0.00	0.00	0.00	0.00	8.64
NE	17.64	.53	0.00	0.00	0.00	0.00	0.00	18.17
ENE	23.46	.88	0.00	0.00	0.00	0.00	0.00	24.34
E	16.93	2.12	0.00	0.00	0.00	0.00	0.00	19.05
ESE	8.11	.35	0.00	0.00	0.00	0.00	0.00	8.47
SE	2.47	0.00	0.00	0.00	0.00	0.00	0.00	2.47
SSE	2.82	0.00	0.00	0.00	0.00	0.00	0.00	2.82
S	1.94	0.00	0.00	0.00	0.00	0.00	0.00	1.94
SSW	.88	0.00	0.00	0.00	0.00	0.00	0.00	.88
SW	.53	0.00	0.00	0.00	0.00	0.00	0.00	.53
WSW	.18	0.00	0.00	0.00	0.00	0.00	0.00	.18
W	.53	0.00	0.00	0.00	0.00	0.00	0.00	.53
WNW	.53	0.00	0.00	0.00	0.00	0.00	0.00	.53
NW	.71	0.00	0.00	0.00	0.00	0.00	0.00	.71
NNW	.71	0.00	0.00	0.00	0.00	0.00	0.00	.71
CALM								4.06
TOTAL	91.53	4.41	0.00	0.00	0.00	0.00	0.00	100.00

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

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
SHERMAN WEATHER STATION
February, 1983



No precipitation data for March

(See INTERPRETATION OF DATA).

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING March, 1983

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	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	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	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	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	*****	*****	**	***	****	***	*****	***	0300	*****	*****	**	***	****	***	*****	***
0600	*****	*****	**	***	****	***	*****	***	0600	*****	*****	**	***	****	***	*****	***
0900	*****	*****	**	***	****	***	*****	***	0900	*****	*****	**	***	****	***	*****	***
1200	*****	*****	**	***	****	***	*****	***	1200	*****	*****	**	***	****	***	*****	***
1500	*****	*****	**	***	****	***	*****	***	1500	*****	*****	**	***	****	***	*****	***
1800	*****	*****	**	***	****	***	*****	***	1800	*****	*****	**	***	****	***	*****	***
2100	*****	*****	**	***	****	***	*****	***	2100	*****	*****	**	***	****	***	*****	***
2400	*****	*****	**	***	****	***	*****	***	2400	*****	*****	**	***	****	***	*****	***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING March, 1983

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.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	TEMP.	POINT	RH	DIR.	SPD.	
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S	
0300	*****	*****	**	***	****	***	0300	-7.7	*****	**	051	.8	0300	-6.9	*****	**	073	.8
0600	*****	*****	**	***	****	***	0600	-7.5	*****	**	070	.6	0600	-5.0	*****	**	071	.9
0900	*****	*****	**	***	****	***	0900	-2.3	*****	**	058	.6	0900	-.6	*****	**	030	1.0
1200	-4.2	*****	**	047M	.7M	024M	1200	.9	*****	**	037	1.4	1200	5.5	*****	**	040	1.2
1500	-3.3	*****	**	070	2.0	075	1500	-3.9	*****	**	062	1.8	1500	7.7	*****	**	074	1.7
1800	-5.3	*****	**	074	1.7	074	1800	-1.9	*****	**	069	1.1	1800	2.6	*****	**	065	1.1
2100	-6.7	*****	**	047	1.0	070	2100	-2.5	*****	**	054	.8	2100	-3.3	*****	**	061	.8
2400	-7.6	*****	**	036	.7	008	2400	-4.2	*****	**	048	.8	2400	-5.5	*****	**	088	1.0

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	MAX.				
	DEG C	DEG C	%	DEG.	M/S	DEG.		DEG C	DEG C	%	DEG.	M/S	DEG.		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW				
0300	-7.6	*****	**	090	.8	082	1.9	0	0300	-8.2	*****	**	066	.7	038	1.9	1	0300	-1.8	*****	**	072	.5	082	1.9	1
0600	-8.9	*****	**	062	.5	084	1.3	1	0600	-9.5	*****	**	077	.9	070	3.2	1	0600	-1.7	*****	**	057	.5	054	1.3	1
0900	-2.4	*****	**	088	.6	073	2.5	27	0900	-5.4	*****	**	067	.7	075	1.9	18	0900	.6	*****	**	074	.7	069	1.9	10
1200	5.8	*****	**	030	1.0	359	2.5	40	1200	4.4	*****	**	041	.9	031	3.2	29	1200	6.8	*****	**	056	1.1	010	3.8	53
1500	8.0	*****	**	066	1.6	076	4.4	26	1500	5.1	*****	**	076	1.7	075	3.8	18	1500	7.0	*****	**	058	.9	090	2.5	24
1800	-.6	*****	**	070	1.3	070	3.8	1	1800	1.1	*****	**	069	1.0	069	3.2	1	1800	1.4	*****	**	130	.1	098	1.3	1
2100	-5.0	*****	**	067	.7	062	1.9	0	2100	-2.1	*****	**	078	.6	092	1.3	1	2100	-4.8	*****	**	081	.3	004	1.3	1
2400	-7.9	*****	**	077	.8	076	1.9	1	2400	-2.3	*****	**	072	.6	086	1.3	0	2400	-8.5	*****	**	058	.3	060	1.3	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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	MAX.				
	DEG C	DEG C	%	DEG.	M/S	DEG.		DEG C	DEG C	%	DEG.	M/S	DEG.		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW				
0300	-9.5	*****	**	058	.4	113	1.3	1	0300	-10.2	*****	**	082	.5	094	1.3	0	0300	-12.1	*****	**	082	.8	090	1.9	1
0600	-9.2	*****	**	021	.3	088	1.3	1	0600	-13.4	*****	**	090	.8	093	1.9	1	0600	-15.7	*****	**	060	.4	061	1.3	1
0900	-3.3	*****	**	074	.5	065	1.3	29	0900	-5.9	*****	**	097	.6	108	1.9	32	0900	-6.3	*****	**	091	.5	092	1.3	35
1200	6.0	*****	**	070	.7	075	2.5	42	1200	3.3	*****	**	076	.7	096	2.5	44	1200	4.7	*****	**	063	1.0	094	4.4	44
1500	6.5	*****	**	069	1.9	076	4.4	28	1500	6.2	*****	**	063	1.5	077	3.8	29	1500	5.8	*****	**	065	2.2	069	5.1	30
1800	.5	*****	**	054	1.4	055	4.4	1	1800	-1.4	*****	**	071	1.2	084	4.4	1	1800	-7.7	*****	**	050	1.3	050	3.8	1
2100	-4.2	*****	**	086	.6	113	1.3	1	2100	-7.1	*****	**	071	.5	050	1.9	1	2100	-7.5	*****	**	082	.6	082	1.9	1
2400	-8.1	*****	**	088	.8	093	1.9	1	2400	-9.7	*****	**	077	.6	076	1.9	1	2400	-9.4	*****	**	082	.8	093	1.9	0

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING March, 1983

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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	-12.7	*****	**	091	.7	084	1.9	1	0300	-5.4	*****	**	***	***	034	1.9	1
0600	-14.5	*****	**	074	.6	041	1.3	1	0600	-7.9	*****	**	***	***	041	1.9	1
0900	-6.6	*****	**	089	.5	083	1.3	34	0900	-.1	*****	**	***	***	072	1.3	30
1200	3.9	*****	**	067	.4	044	3.2	44	1200	4.2	*****	**	***	***	100	3.8	45
1500	5.1	*****	**	081	1.7	078	4.4	30	1500	5.2	*****	**	***	***	079	4.4	30
1800	-8	*****	**	065	1.5	064	4.4	2	1800	.9	*****	**	***	***	080	3.8	2
2100	-5.3	*****	**	071	.7	086	1.9	1	2100	-8	*****	**	***	***	067	3.2	1
2400	-3.3	*****	**	049	.8	061	2.5	1	2400	-1.6	*****	**	***	***	050	2.5	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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	-13.2	*****	**	058	.4	028	1.3	1	0300	-14.0	*****	**	063	.4	055	1.3	0
0600	-14.9	*****	**	048	.3	041	1.3	1	0600	-14.4	*****	**	048	.4	349	1.3	1
0900	-4.2	*****	**	068	.2	056	1.3	34	0900	-1.4	*****	**	078	.6	086	1.9	38
1200	5.5	*****	**	185	.4	205	2.5	45	1200	3.9	*****	**	071	1.3	061	3.8	47
1500	7.1	*****	**	080	1.6	085	3.8	31	1500	5.4	*****	**	075	1.4	079	4.4	32
1800	.5	*****	**	064	1.3	066	3.8	2	1800	-1.6	*****	**	049	.9	086	2.5	2
2100	-7.5	*****	**	082	.5	129	1.3	1	2100	-7.6	*****	**	082	.5	112	1.3	1
2400	-10.3	*****	**	067	.6	045	1.3	1	2400	-10.9	*****	**	067	.6	074	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	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	-2.6	*****	**	043	.6	056	1.9	1	0300	-6.2	*****	**	037	.9	020	1.9	1
0600	-7.5	*****	**	058	.6	046	1.9	2	0600	-7.5	*****	**	047	.9	044	1.9	2
0900	.7	*****	**	071	1.1	071	3.2	33	0900	1.1	*****	**	060	1.2	051	3.2	34
1200	4.3	*****	**	065	2.4	074	5.1	49	1200	4.4	*****	**	050	3.0	049	7.6	45
1500	4.5	*****	**	078	2.6	081	5.7	34	1500	4.4	*****	**	040	3.0	040	7.6	27
1800	1.6	*****	**	052	2.2	055	5.1	3	1800	1.1	*****	**	051	2.8	032	5.7	3
2100	-8	*****	**	083	.9	074	2.5	1	2100	.1	*****	**	061	2.3	062	5.7	1
2400	-4.2	*****	**	030	1.0	060	2.5	1	2400	-1.4	*****	**	055	2.0	053	5.7	1

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING March, 1983

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	%	DEG.	M/S	DEG.	M/S	MM		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MM
0300	-9.9	*****	**	066	.9	064	1.9	0	0300	-9.3	*****	**	078	1.1	078	3.2	1
0600	-6.9	*****	**	057	.9	049	1.9	2	0600	-10.7	*****	**	092	.8	080	1.9	3
0900	-.3	*****	**	041	1.2	075	3.8	34	0900	-2.1	*****	**	092	.9	093	1.9	39
1200	3.9	*****	**	082	2.4	077	5.1	49	1200	5.7	*****	**	056	1.2	071	4.4	51
1500	5.7	*****	**	069	2.5	060	5.1	35	1500	6.6	*****	**	070	2.0	090	3.8	36
1800	1.9	*****	**	064	2.0	072	4.4	3	1800	3.0	*****	**	089	1.4	100	3.8	4
2100	-4.2	*****	**	073	.8	079	2.5	1	2100	-3.6	*****	**	083	.7	069	2.5	1
2400	-6.8	*****	**	044	.9	035	1.9	1	2400	-8.2	*****	**	067	.7	040	1.9	1

DAY 31

HOUR	DEW		WIND		WIND		GUST MAX.	
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	-6.0	*****	**	078	.9	073	1.9	0
0600	-6.1	*****	**	081	.7	076	1.9	2
0900	-.1	*****	**	061	.6	074	1.9	25
1200	6.1	*****	**	047	.9	055	3.8	42
1500	8.1	*****	**	077	1.2	074	3.2	34
1800	4.3	*****	**	029	.8	025	3.2	4
2100	-3.8	*****	**	078	.4	085	1.3	1
2400	-6.3	*****	**	076	.5	036	1.9	1

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING March, 1983

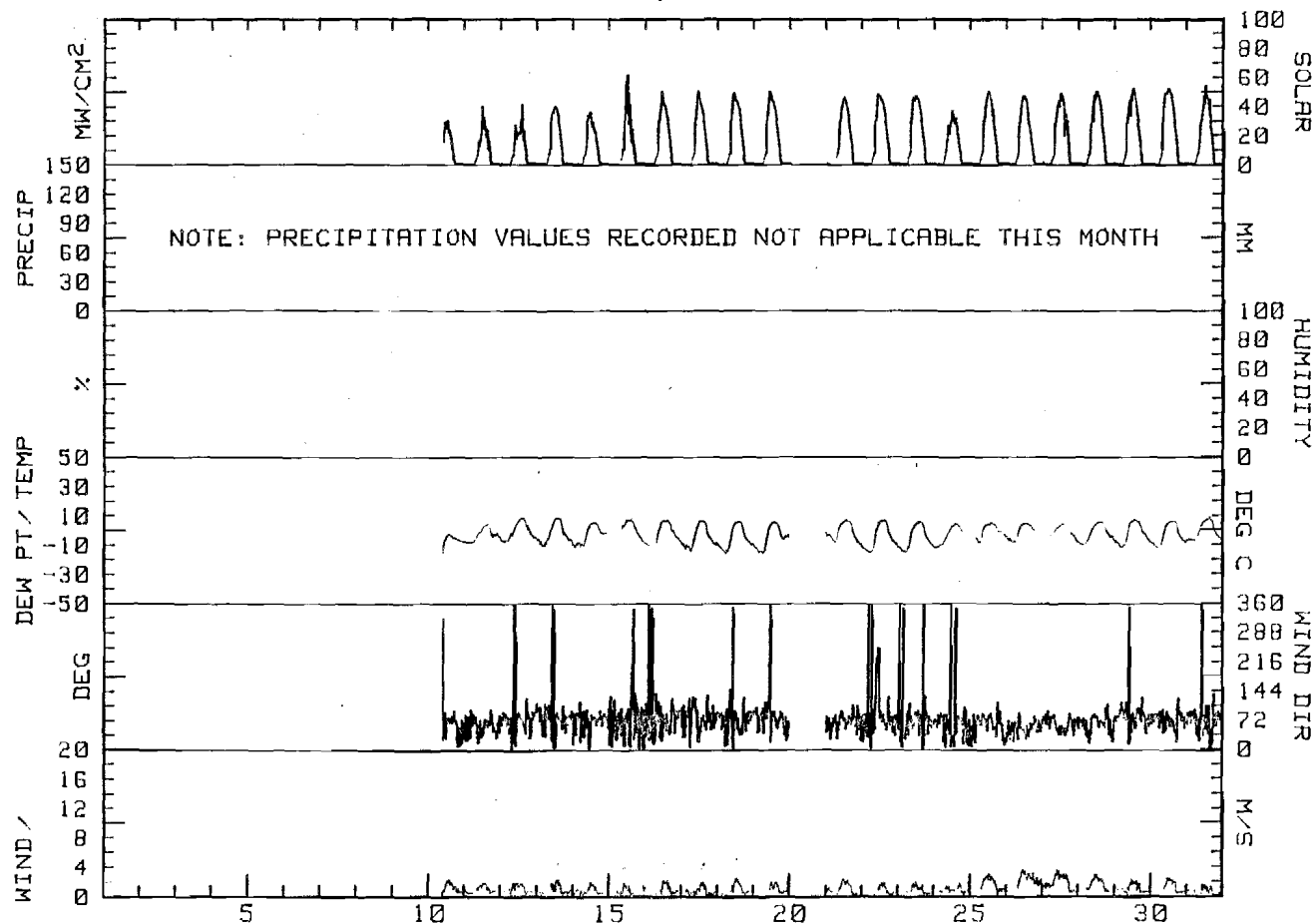
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	1
2	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	2
3	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	3
4	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	4
5	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	5
6	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	6
7	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	7
8	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	8
9	*****	*****	*****	***	****	****	***	****	***	**	*****	****	*****	9
10	-2.6M	-15.1M	-8.9M	061M	1.2M	1.3M	074M	4.4M	ENE(M)	**	*****	****	2556M	10
11	4.4	-7.8	-1.7	056	1.0	1.0	053	3.8	ENE	**	*****	****	1913	11
12	8.6	-8.3	.2	063	1.0	1.2	062	4.4	ENE	**	*****	****	1980	12
13	8.6	-10.5	-1.0	068	.9	1.0	076	4.4	ENE	**	*****	****	2798	13
14	5.3	-11.2	-3.0	069	.9	.9	075	3.8	ENE	**	*****	****	2270	14
15	8.5	-8.5	0.0	065	.5	.7	010	3.8	E	**	*****	****	2468	15
16	6.8	-10.4	-1.8	068	.8	.9	076	4.4	ENE	**	*****	****	3080	16
17	6.4	-13.9	-3.8	076	.8	.8	084	4.4	ENE	**	*****	****	3255	17
18	6.0	-15.7	-4.9	069	.9	1.0	069	5.1	E	**	*****	****	3355	18
19	5.9	-15.8	-5.0	073	.8	.9	078	4.4	E	**	*****	****	3423	19
20	5.3	-8.5	-1.6	***	****	1.2	079	4.4	***	**	*****	****	3220	20
21	7.1	-10.3	-1.6	069	1.1	1.1	072	4.4	ENE	**	*****	****	3423	21
22	7.1	-15.0	-4.0	075	.6	.7	085	3.8	ENE	**	*****	****	3528	22
23	5.9	-14.8	-4.5	068	.7	.8	079	4.4	ENE	**	*****	****	3618	23
24	4.7	-11.9	-3.6	052	.8	.9	067	3.8	ENE	**	*****	****	2533	24
25	5.2	-8.0	-1.4	063	1.4	1.5	081	5.7	ENE	**	*****	****	3695	25
26	5.1	-8.3	-1.6	050	2.0	2.0	049	7.6	NE	**	*****	****	3435	26
27	4.3	-7.9	-1.8	059	1.9	1.9	052	7.0	ENE	**	*****	****	3663	27
28	5.8	-9.9	-2.1	065	1.4	1.5	077	5.1	ENE	**	*****	****	3798	28
29	7.6	-11.7	-2.1	077	1.1	1.1	071	4.4	E	**	*****	****	3958	29
30	6.5	-12.1	-2.8	072	1.2	1.2	077	5.1	ENE	**	*****	****	4228	30
31	10.0	-8.0	1.0	065	.7	.8	055	3.8	ENE	**	*****	****	3553	31
MONTH	10.0M	-15.8M	-2.6M	065M	1.0M	1.1M	049M	7.6M	ENE(M)	**	*****	****	6974M	

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

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
SHERMAN WEATHER STATION
March, 1983



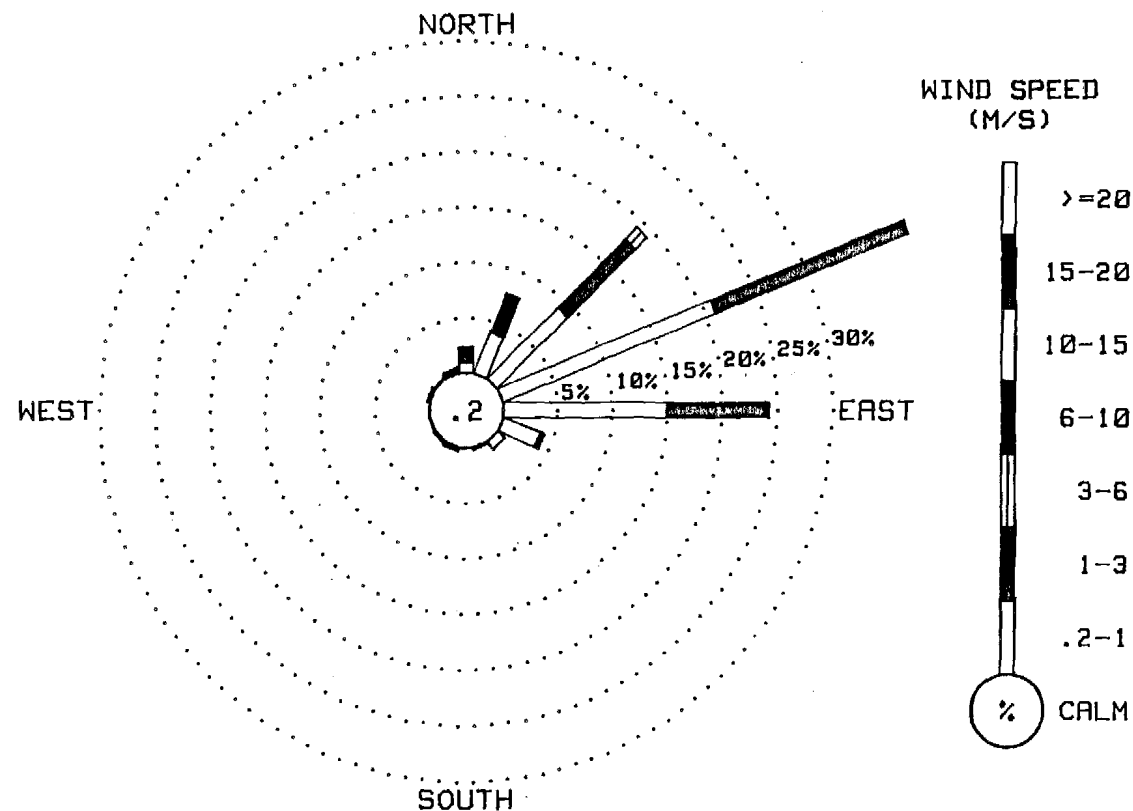
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING March, 1983

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	.96	1.31	0.00	0.00	0.00	0.00	0.00	2.27
NNE	4.04	3.54	.15	0.00	0.00	0.00	0.00	7.73
NE	9.09	8.59	1.52	0.00	0.00	0.00	0.00	19.19
ENE	20.91	18.64	.20	0.00	0.00	0.00	0.00	39.75
E	14.90	9.09	.20	0.00	0.00	0.00	0.00	24.19
ESE	3.69	.35	0.00	0.00	0.00	0.00	0.00	4.04
SE	.91	0.00	0.00	0.00	0.00	0.00	0.00	.91
SSE	.15	.05	0.00	0.00	0.00	0.00	0.00	.20
S	.05	0.00	0.00	0.00	0.00	0.00	0.00	.05
SSW	.25	.05	0.00	0.00	0.00	0.00	0.00	.30
SW	.15	0.00	0.00	0.00	0.00	0.00	0.00	.15
WSW	.05	0.00	0.00	0.00	0.00	0.00	0.00	.05
W	0.00	.05	0.00	0.00	0.00	0.00	0.00	.05
WNW	.20	.10	0.00	0.00	0.00	0.00	0.00	.30
NW	.15	0.00	0.00	0.00	0.00	0.00	0.00	.15
NNW	.20	.30	0.00	0.00	0.00	0.00	0.00	.51
CALM								.15
TOTAL	55.71	42.07	2.07	0.00	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1980 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.
 SUSITNA HYDROELECTRIC PROJECT
 SHERMAN WEATHER STATION
 March, 1983



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R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING April, 1983

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.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	TEMP.	POINT	RH	DIR.	SPD.
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S
0300	-8.9	*****	**	080	.7	088	1.3	0	0300	-7.9	*****	**	084	.6	073	1.9	1
0600	-9.9	*****	**	083	.7	087	1.3	3	0600	-7.9	*****	**	076	1.0	071	2.5	3
0900	-6.6	*****	**	050	.9	018	2.5	41	0900	.1	*****	**	044	1.0	086	2.5	43
1200	7.7	*****	**	054	1.3	082	4.4	53	1200	8.6	*****	**	037	1.4	058	4.4	54
1500	8.7	*****	**	071	1.6	061	3.8	37	1500	9.1	*****	**	081	2.4	082	5.7	38
1800	4.7	*****	**	074	1.3	085	3.2	4	1800	5.7	*****	**	080	1.4	066	3.8	4
2100	-2.5	*****	**	077	.5	059	1.3	0	2100	-2.9	*****	**	113	.1	229	1.9	1
2400	-6.0	*****	**	080	1.0	071	1.9	1	2400	-7.1	*****	**	065	.3	079	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.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S
0300	4.7	*****	**	067	1.3	083	3.8	1	0300	-8.8	*****	**	***	***	***	***	0
0600	2.2	*****	**	057	.9	057	3.8	3	0600	-2.0	*****	**	***	***	***	***	6
0900	6.7	*****	**	070	.7	068	3.8	17	0900	.7	*****	**	022M	.7M	352M	3.2M	15
1200	6.9	*****	**	050	2.7	056	6.3	22	1200	1.8	*****	**	121	.1	047	3.2	22
1500	2.4	*****	**	042	1.1	228	6.3	13	1500	3.6	*****	**	052	.9	077	3.2	35
1800	1.5	*****	**	223	4.2	212	10.2	3	1800	.5	*****	**	209	.5	213	3.2	3
2100	.9	*****	**	223	2.5	224	7.0	0	2100	-7.7	*****	**	302M	.1M	328M	1.3M	1
2400	-5.5	*****	**	115	.2	172	1.3	1	2400	-2.1	*****	**	***	***	***	***	0

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.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S
0300	-2.4	*****	**	***	***	***	***	1	0300	-4.2	*****	**	***	***	***	***	0
0600	-2.0	*****	**	***	***	***	***	7	0600	-3.1	*****	**	***	***	***	***	4
0900	2.5	*****	**	075M	.2M	066M	1.9M	48	0900	1.3	*****	**	***	***	047M	.6M	34
1200	6.0	*****	**	074	.2	064	2.5	58	1200	3.0	*****	**	220M	.5M	231M	3.2M	38
1500	5.7	*****	**	177	.2	159	2.5	41	1500	4.0	*****	**	236	1.1	223	4.4	50
1800	2.9	*****	**	201M	.1M	165M	1.9M	6	1800	1.8	*****	**	231	.8	231	3.2	4
2100	-2.5	*****	**	***	***	***	***	1	2100	.4	*****	**	221M	.3M	204M	2.5M	0
2400	-3.9	*****	**	***	***	***	***	1	2400	-1.3	*****	**	247M	1.2M	256M	4.4M	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING April, 1983

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.	SPD.	DIR.	GUST	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	-9.7	*****	**	098	.6	085	1.3	1	0300	-11.1	*****	**	069	.6	071	1.3	1
0600	-9.4	*****	**	093	.6	096	1.3	6	0600	-9.2	*****	**	064	.6	055	1.9	6
0900	-2.9	*****	**	044	.8	021	2.5	49	0900	-4.4	*****	**	058	1.5	040	3.2	30
1200	1.9	*****	**	064	1.5	069	3.8	62	1200	-2.8	*****	**	059	1.9	077	4.4	32
1500	1.8	*****	**	128	2.0	120	4.4	44	1500	-3.4	*****	**	052	2.2	035	5.1	18
1800	-9	*****	**	132	1.4	154	3.8	7	1800	-4.0	*****	**	059	1.7	051	4.4	3
2100	-6.2	*****	**	090	.4	027	1.9	1	2100	-4.2	*****	**	073	1.2	079	2.5	0
2400	-7.3	*****	**	064	.7	079	2.5	1	2400	-4.3	*****	**	024	.9	052	3.2	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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	-8	*****	**	***	***	***	***	1	0300	-9	*****	**	165	.1	186	1.3	0
0600	-3.3	*****	**	***	***	***	***	4	0600	-1	*****	**	005	.1	303	.6	2
0900	2.6	*****	**	075M	.4M	064M	1.9M	34	0900	3.4	*****	**	346	.1	045	1.3	25
1200	6.0	*****	**	072	1.2	046	3.2	46	1200	3.3	*****	**	229	1.1	218	3.8	43
1500	6.9	*****	**	068	1.4	077	3.2	36	1500	3.2	*****	**	221	2.3	229	4.4	17
1800	4.6	*****	**	131	.9	140	3.2	6	1800	1.8	*****	**	215	1.7	222	4.4	2
2100	.4	*****	**	099	.3	074	1.3	0	2100	.2	*****	**	181	.2	232	1.9	0
2400	-8	*****	**	052	.1	141	.6	0	2400	.4	*****	**	223	1.0	209	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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	.1	*****	**	***	***	***	***	1	0300	-3.7	*****	**	081	.5	079	1.3	1
0600	.4	*****	**	047M	.2M	053M	1.3M	4	0600	-3.5	*****	**	092	.3	101	1.3	12
0900	3.1	*****	**	044	.5	087	1.9	29	0900	3.5	*****	**	196	.5	223	2.5	52
1200	6.8	*****	**	062	1.6	034	4.4	51	1200	4.3	*****	**	215	2.1	216	4.4	32
1500	7.4	*****	**	072	2.1	076	4.4	36	1500	3.8	*****	**	235	2.2	231	5.1	24
1800	5.8	*****	**	064	2.1	059	5.1	8	1800	.6	*****	**	225	1.9	226	5.1	3
2100	2.8	*****	**	065	1.4	065	3.8	1	2100	-4	*****	**	219	.7	212	2.5	0
2400	-1.7	*****	**	079	.7	086	1.9	0	2400	-6	*****	**	209	.8	213	1.9	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING April, 1983

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.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	TEMP.	POINT	RH	DIR.	SPD.
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S
0300	1.3	*****	**	075	.8	056	2.5	0	0300	-4.2	*****	**	155	.2	193	1.3	1
0600	.3	*****	**	199	1.3	206	4.4	8	0600	-2.0	*****	**	085	.2	011	2.5	9
0900	1.7	*****	**	217	1.8	228	4.4	27	0900	4.7	*****	**	057	1.0	068	3.2	35
1200	4.8	*****	**	220	1.8	238	4.4	50	1200	7.8	*****	**	060	2.0	077	5.1	55
1500	6.4	*****	**	259	.9	272	3.2	42	1500	9.9	*****	**	065	1.7	072	3.8	54
1800	3.8	*****	**	360	.6	348	3.8	8	1800	7.1	*****	**	086	1.1	079	3.8	10
2100	0.0	*****	**	096	.5	115	2.5	1	2100	3.1	*****	**	077	.6	125	3.2	1
2400	-3.3	*****	**	095	.3	035	1.3	1	2400	-2.2	*****	**	100	.4	091	1.3	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.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S
0300	-1.6	*****	**	068	.3	333	1.3	1	0300	.6	*****	**	120	.1	102	.6	1
0600	.1	*****	**	062	.2	158	1.3	7	0600	1.6	*****	**	301M	.1M	306M	.6M	7
0900	5.6	*****	**	332	.0	081	1.9	32	0900	4.0	*****	**	218	.1	265	.6	20
1200	5.2	*****	**	241	.6	245	1.9	36	1200	5.1	*****	**	224	1.0	212	3.2	31
1500	8.1	*****	**	227	.7	201	2.5	35	1500	6.6	*****	**	215	.8	217	3.2	35
1800	5.5	*****	**	201	.4	169	4.4	8	1800	4.8	*****	**	329	.3	199	1.9	10
2100	1.7	*****	**	199	.3	201	1.3	1	2100	1.3	*****	**	063	.5	070	1.9	1
2400	.9	*****	**	184	.1	173	1.3	0	2400	1.2	*****	**	074	.6	057	1.9	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.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S
0300	-5.5	*****	**	077	.5	055	1.9	1	0300	-3.3	*****	**	060	.4	055	1.3	1
0600	1.3	*****	**	084	.5	081	1.9	19	0600	-9.9	*****	**	052	.3	083	1.3	19
0900	11.5	*****	**	120	.3	057	1.9	52	0900	11.6	*****	**	122	.1	126	1.3	53
1200	14.9	*****	**	215	1.2	228	3.2	67	1200	12.4	*****	**	293	.5	032	1.9	66
1500	16.2	*****	**	207	.8	180	2.5	49	1500	12.5	*****	**	302	1.3	305	3.2	49
1800	12.1	*****	**	230	.9	196	3.8	15	1800	10.8	*****	**	290	.9	301	2.5	15
2100	1.2	*****	**	156	.2	171	1.3	1	2100	.8	*****	**	156	.2	196	1.3	1
2400	-1.6	*****	**	047	.4	037	1.9	1	2400	-1.6	*****	**	069	.3	092	1.3	0

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING April, 1983

DAY 28

DAY 29

DAY 30

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.									
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									
0300	-2.5	*****	**	048	.2	093	1.3	1	0300	1.0	*****	**	060	.1	065	.6	1	0300	-1.2	*****	**								
0600	0.0	*****	**	025	.2	351	1.3	14	0600	2.1	*****	**	320	.0	055	.6	4	0600	1.3	*****	**								
0900	7.6	*****	**	057	.3	296	1.3	30	0900	5.6	*****	**	308	.1	297	.6	29	0900	10.8	*****	**								
1200	8.8	*****	**	219	1.3	212	5.1	53	1200	7.7	*****	**	052	.4	067	1.9	52	1200	12.1	*****	**								
1500	6.6	*****	**	224	2.0	241	4.4	26	1500	8.9	*****	**	195	.3	130	1.9	39	1500	13.7	*****	**								
1800	5.4	*****	**	212	1.4	206	2.5	7	1800	9.6	*****	**	198	.3	200	2.5	21	1800	11.5	*****	**								
2100	1.8	*****	**	197	.6	203	2.5	1	2100	1.2	*****	**	211	.1	289	1.3	0	2100	1.1	*****	**								
2400	1.3	*****	**	097	.1	146	.6	1	2400	.1	*****	**	086	.4	102	1.3	0	2400	-1.8	*****	**								

SUSITNA

SUSITNA WEATHER STATION

APRIL 1983

MONTHLY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING April, 1983

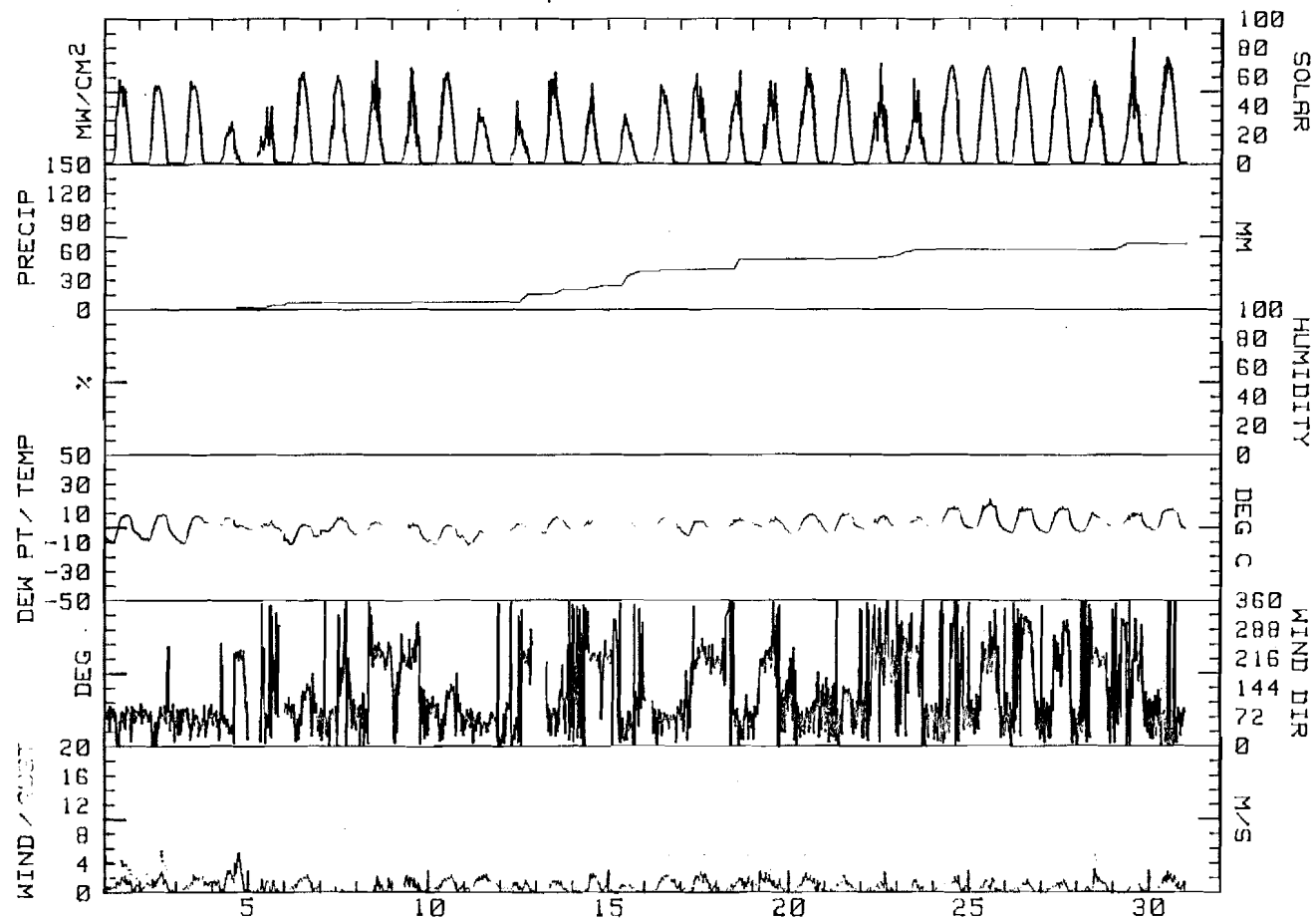
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH Z	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	9.2	-10.1	-5	070	1.0	1.1	082	4.4	E	**	*****	0.0	4243	1
2	9.6	-8.8	.4	069	1.0	1.1	082	5.7	ENE	**	*****	0.0	4435	2
3	8.3	-10.7	-1.2	063	1.2	1.2	065	4.4	ENE	**	*****	0.0	4500	3
4	7.6	-5	3.6	135	.2	1.9	212	10.2	NE	**	*****	2.2	1903	4
5	5.1	-2.4	1.4	053M	.2M	.6M	352M	3.2M	ENE(M)	**	*****	2.6	2065	5
6	9.5	-4.9	2.3	042	.2	.4M	169M	3.8M	ENE	**	*****	1.6	3850	6
7	7.5	-4.5	1.5	104M	.1M	.2M	064M	2.5M	ENE(M)	**	*****	0.0	4528	7
8	4.4	-5.4	-5	235M	.8M	.8M	223M	4.4M	SW(M)	**	*****	0.0	3908	8
9	3.7	-9.5	-2.9	217M	.8M	1.0M	208M	3.8M	SSW(M)	**	*****	.6	3155	9
10	2.6	-11.3	-4.4	096	.8	1.1	120	4.4	E	**	*****	0.0	4948	10
11	-1.9	-11.7	-6.8	057	1.3	1.4	035	5.1	ENE	**	*****	0.0	2727	11
12	3.4	-4.3	-5	039M	.1M	.7M	030M	3.2M	NNE(M)	**	*****	8.4	2070	12
13	7.4	-3.8	1.8	084M	.7M	.6M	046M	3.2M	E(M)	**	*****	4.0	4438	13
14	5.1	-.9	2.1	220	.8	.9	229	4.4	SW	**	*****	5.0	2715	14
15	4.5	0.0	2.3	041	.3	.5	211	2.5	NNE	**	*****	14.2	2175	15
16	7.6	-1.7	3.0	066M	1.3M	1.1M	059M	5.1M	ENE(M)	**	*****	1.8	3900	16
17	5.1	-5.3	-.1	218	.9	1.2	231	5.1	SSW	**	*****	.2	4218	17
18	7.0	-1.3	2.9	052M	.6M	.8M	020M	5.1M	ENE(M)	**	*****	11.0	3580	18
19	7.5	-3.3	2.1	210	.5	1.2	206	4.4	SSW	**	*****	0.0	3908	19
20	9.9	-4.3	2.8	071	.9	1.1	077	5.1	E	**	*****	0.0	5030	20
21	10.1	-4.5	2.8	093	.6	.8	031	3.8	ENE	**	*****	0.0	5143	21
22	8.8	-2.2	3.3	214	.2	.5	169	4.4	S	**	*****	3.4	3503	22
23	7.6	.5	4.1	200M	.1M	.5M	212M	3.2M	SW(M)	**	*****	6.4	3148	23
24	15.1	.1	7.6	023	.5	.9	001	4.4	ENE	**	*****	0.0	6030	24
25	19.4	-1.6	8.9	183	.3	.7	196	3.8	E	**	*****	0.0	6008	25
26	14.3	-3.7	5.3	315	.3	.6	305	3.2	WNW	**	*****	0.0	6028	26
27	14.8	-3.7	5.6	225	.1	.7	166	3.2	NE	**	*****	0.0	6113	27
28	10.5	-2.9	3.8	215	.6	.8	212	5.1	SSW	**	*****	0.0	4195	28
29	10.6	.1	5.4	156	.1	.4	200	2.5	ENE	**	*****	6.0	4245	29
30	13.7	-2.0	5.9	042	1.0	1.2	007	5.1	ENE	**	*****	0.0	6580	30
MONTH	19.4	-11.7	2.1	084M	.3M	.9M	212M	10.2M	ENE(M)	**	*****	67.4	123282	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 9.5
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 8.9
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 8.9
 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
SHERMAN WEATHER STATION
April, 1983



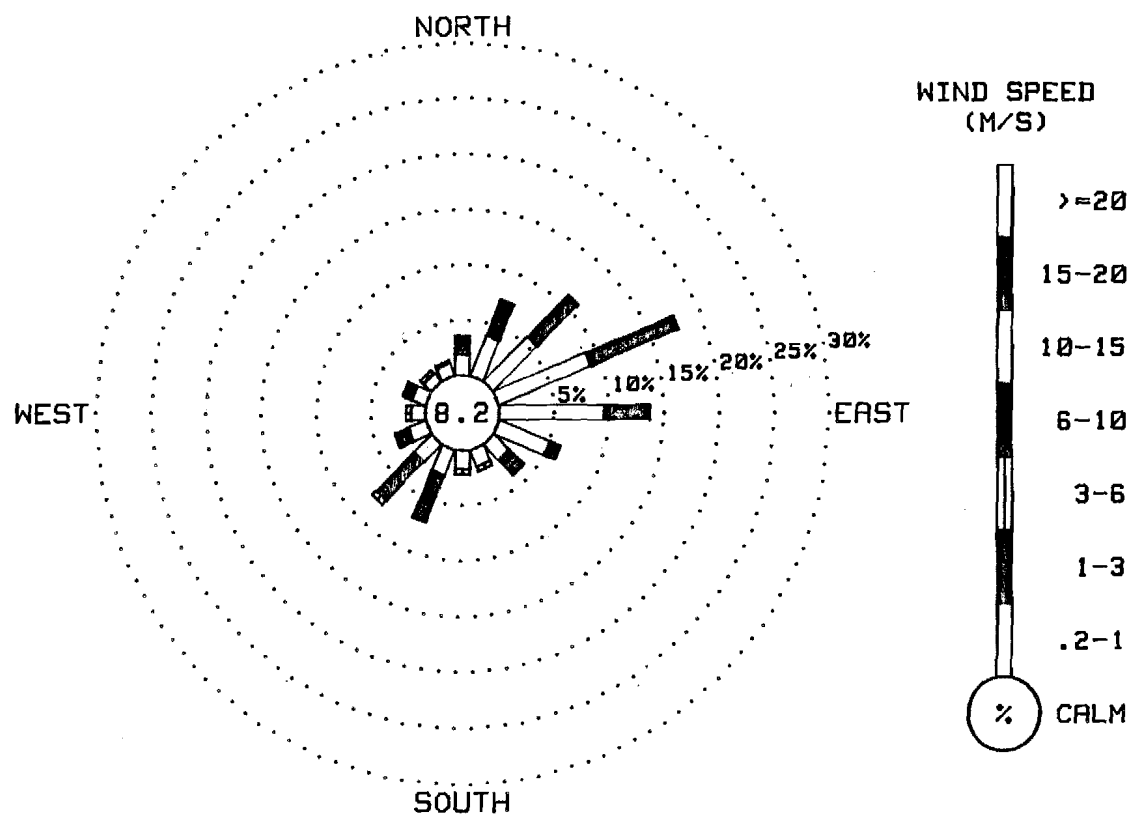
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING April, 1983

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	1.91	1.64	0.00	0.00	0.00	0.00	0.00	3.55
NNE	3.90	3.44	0.00	0.00	0.00	0.00	0.00	7.34
NE	5.66	5.04	.19	0.00	0.00	0.00	0.00	10.89
ENE	9.06	8.52	.04	0.00	0.00	0.00	0.00	17.62
E	9.51	4.09	.04	0.00	0.00	0.00	0.00	13.64
ESE	5.04	.96	0.00	0.00	0.00	0.00	0.00	6.00
SE	1.99	1.87	0.00	0.00	0.00	0.00	0.00	3.86
SSE	1.60	.46	0.00	0.00	0.00	0.00	0.00	2.06
S	1.68	.50	0.00	0.00	0.00	0.00	0.00	2.18
SSW	2.48	4.43	.08	0.00	0.00	0.00	0.00	6.99
SW	2.25	4.85	.50	0.00	0.00	0.00	0.00	7.60
WSW	1.76	1.30	0.00	0.00	0.00	0.00	0.00	3.06
W	1.30	.50	0.00	0.00	0.00	0.00	0.00	1.80
WNW	1.38	.92	0.00	0.00	0.00	0.00	0.00	2.29
NW	.95	.42	0.00	0.00	0.00	0.00	0.00	1.41
NNW	1.26	.25	0.00	0.00	0.00	0.00	0.00	1.49
CALM								8.22
TOTAL	51.78	39.17	.84	0.00	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2617 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
SHERMAN WEATHER STATION
April, 1983



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING May, 1983

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	DEG.	M/S	MW	
0300	-3.6	*****	**	069	.6	075	1.3	1	0300	1.1	*****	**	077	.0	107	.6	0
0600	-.2	*****	**	062	.2	065	1.3	18	0600	2.3	*****	**	230	.1	277	1.3	9
0900	9.0	*****	**	359	.4	009	1.9	44	0900	4.4	*****	**	239	.4	244	1.9	28
1200	14.4	*****	**	070	1.4	087	3.8	69	1200	6.9	*****	**	233	1.1	258	2.5	54
1500	13.4	*****	**	146	1.4	154	3.8	38	1500	7.3	*****	**	218	2.1	216	5.1	34
1800	8.9	*****	**	224	.6	259	2.5	8	1800	3.8	*****	**	230	2.2	232	5.1	9
2100	3.2	*****	**	206	1.0	204	4.4	1	2100	2.6	*****	**	208	1.9	217	4.4	1
2400	1.7	*****	**	166	.1	132	.6	0	2400	2.2	*****	**	200	1.2	201	3.2	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	DEG.	M/S	MW	
0300	-1.6	*****	**	061	.2	057	.6	1	0300	.4	*****	**	102	.2	171	1.3	0
0600	1.6	*****	**	066	.2	094	1.3	16	0600	2.6	*****	**	042	.2	077	1.9	24
0900	7.5	*****	**	052	1.1	087	3.2	34	0900	9.1	*****	**	057	1.1	049	2.5	60
1200	10.1	*****	**	054	1.9	067	4.4	62	1200	10.9	*****	**	112	1.4	131	3.8	72
1500	10.1	*****	**	037	1.9	028	5.1	30	1500	9.7	*****	**	357	1.3	347	5.7	36
1800	8.5	*****	**	055	1.5	014	4.4	10	1800	9.0	*****	**	344	1.4	331	4.4	22
2100	1.9	*****	**	209	1.3	210	5.1	1	2100	2.0	*****	**	066	.5	020	3.8	0
2400	0.0	*****	**	102	.2	068	1.3	1	2400	-7	*****	**	069	.3	092	1.3	0

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	DEG.	M/S	MW	
0300	-1.9	*****	**	081	.3	081	1.3	1	0300	-2.1	*****	**	066	.3	065	1.3	1
0600	2.3	*****	**	106	.5	086	1.9	26	0600	2.2	*****	**	083	.3	116	1.3	17
0900	11.3	*****	**	055	.8	038	2.5	58	0900	11.8	*****	**	007	.4	054	1.9	59
1200	13.6	*****	**	081	1.1	073	3.8	73	1200	15.9	*****	**	138	.3	019	1.9	73
1500	14.8	*****	**	014	1.4	347	5.1	55	1500	14.9	*****	**	274	.9	189	3.2	54
1800	12.7	*****	**	352	1.9	345	4.4	21	1800	15.5	*****	**	313	1.3	303	3.2	22
2100	2.5	*****	**	088	.5	095	2.5	1	2100	3.4	*****	**	210	.8	213	3.8	1
2400	-.8	*****	**	051	.2	018	1.3	1	2400	-.1	*****	**	059	.3	064	1.3	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING May, 1983

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.	
	DEG C	DEG C	%	DEG.	M/S	DEG.		DEG C	DEG C	%	DEG.	M/S	DEG.		DEG C	DEG C	%	DEG.	M/S	DEG.	
0300	-5	*****	**	071	.3	113	1.3	1	0300	0.0	*****	**	111	.3	136	1.3	1	0300	2.7	*****	**
0600	3.7	*****	**	058	.1	090	1.3	21	0600	3.9	*****	**	097	.4	099	1.3	25	0600	5.4	*****	**
0900	10.4	*****	**	254	.6	234	3.2	59	0900	10.8	*****	**	075	.7	103	2.5	52	0900	13.4	*****	**
1200	12.4	*****	**	197	2.0	181	4.4	65	1200	16.4	*****	**	075	.5	052	2.5	73	1200	12.7	*****	**
1500	13.1	*****	**	242	1.5	293	5.1	38	1500	14.5	*****	**	311	1.4	316	3.8	55	1500	14.2	*****	**
1800	13.5	*****	**	281	1.1	281	3.8	24	1800	14.6	*****	**	310	1.5	315	3.8	25	1800	12.9	*****	**
2100	4.0	*****	**	265	.2	317	2.5	1	2100	9.6	*****	**	246	.3	243	3.2	1	2100	6.3	*****	**
2400	1.2	*****	**	087	.3	118	1.3	1	2400	4.4	*****	**	170	.3	228	2.5	1	2400	3.9	*****	**

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.						
	DEG C	DEG C	%	DEG.	M/S	DEG.		DEG C	DEG C	%	DEG.	M/S	DEG.		DEG C	DEG C	%	DEG.	M/S	DEG.						
0300	2.6	*****	**	088	.2	125	1.3	1	0300	2.7	*****	**	101	.2	157	1.3	1	0300	.7	*****	**	083	.2	163	1.3	1
0600	5.8	*****	**	075	.2	046	1.3	17	0600	5.8	*****	**	085	.2	049	1.3	11	0600	4.0	*****	**	089	.2	137	1.3	7
0900	13.4	*****	**	099	.7	111	2.5	59	0900	9.1	*****	**	062	.3	069	1.9	29	0900	9.8	*****	**	025	.4	013	2.5	32
1200	16.1	*****	**	042	.7	017	3.8	73	1200	14.2	*****	**	333	.6	356	3.2	55	1200	12.3	*****	**	239	1.2	234	3.8	55
1500	15.4	*****	**	321	1.7	307	3.8	47	1500	15.0	*****	**	250	1.3	335	3.8	33	1500	13.1	*****	**	246	1.1	252	3.8	44
1800	13.4	*****	**	311	.8	314	3.8	10	1800	11.4	*****	**	216	2.5	195	5.7	13	1800	13.8	*****	**	233	.9	184	3.2	24
2100	6.1	*****	**	181	.4	234	1.3	1	2100	4.5	*****	**	199	.9	220	4.4	1	2100	4.4	*****	**	224	.2	298	2.5	1
2400	3.4	*****	**	131	.1	152	.6	1	2400	1.4	*****	**	127	.1	136	1.3	1	2400	1.8	*****	**	098	.2	119	1.3	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.						
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						
0300	.1	*****	**	084	.2	080	1.3	1	0300	3.4	*****	**	028	.1	017	1.3	1	0300	4.0	*****	**	199	.5	211	2.5	1
0600	3.4	*****	**	077	.4	018	1.3	12	0600	5.1	*****	**	252	.1	281	1.3	10	0600	5.0	*****	**	077	.2	233	1.3	15
0900	10.7	*****	**	042	.2	042	1.9	35	0900	8.3	*****	**	303	.5	340	1.9	31	0900	8.2	*****	**	210	1.3	204	3.2	40
1200	13.6	*****	**	254	1.5	219	4.4	47	1200	8.6	*****	**	232	1.9	245	5.7	23	1200	8.8	*****	**	246	2.1	292	5.1	49
1500	11.7	*****	**	226	2.6	218	5.1	26	1500	10.7	*****	**	219	2.2	225	5.7	31	1500	11.4	*****	**	211	2.0	225	6.3	65
1800	8.1	*****	**	254	1.6	256	3.8	7	1800	6.7	*****	**	210	1.9	184	7.0	7	1800	10.2	*****	**	228	2.0	223	5.1	11
2100	5.1	*****	**	197	.1	227	1.3	1	2100	4.8	*****	**	194	.3	239	2.5	1	2100	6.4	*****	**	223	1.1	230	3.8	1
2400	4.0	*****	**	117	.1	144	.6	1	2400	5.1	*****	**	172	.3	207	2.5	1	2400	3.6	*****	**	147	.1	263	1.9	1

R & M CONSULTANTS, INC.

SUSTITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING May, 1983

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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	MW
0300	1.8	*****	**	108	.2	156	1.3	1	0300	3.8	*****	**	197	.6	208	2.5	1
0600	4.5	*****	**	063	.1	295	1.3	9	0600	7.8	*****	**	219	.7	275	3.2	30
0900	9.3	*****	**	025	.6	355	1.9	67	0900	11.9	*****	**	201	1.5	226	3.8	68
1200	12.0	*****	**	208	1.3	199	4.4	39	1200	14.9	*****	**	242	2.2	236	5.7	59
1500	11.9	*****	**	231	1.9	225	4.4	27	1500	16.3	*****	**	252	2.9	234	6.3	66
1800	12.3	*****	**	222	1.3	213	3.8	20	1800	15.1	*****	**	245	2.5	249	5.7	16
2100	8.3	*****	**	210	.4	240	2.5	1	2100	9.5	*****	**	259	.7	260	3.8	1
2400	5.7	*****	**	109	.3	157	1.3	1	2400	8.5	*****	**	222	.3	206	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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	MW
0300	5.2	*****	**	202	.4	212	2.5	1	0300	4.3	*****	**	207	.6	207	2.5	1
0600	6.8	*****	**	056	.1	064	1.3	9	0600	6.0	*****	**	214	.2	223	2.5	14
0900	8.9	*****	**	209	1.7	198	3.8	38	0900	10.2	*****	**	205	1.7	199	3.8	52
1200	11.0	*****	**	208	1.8	214	4.4	29	1200	11.6	*****	**	226	1.0	250	3.8	44
1500	14.5	*****	**	278	.8	282	4.4	65	1500	11.9	*****	**	176	.9	186	3.8	15
1800	9.0	*****	**	258	2.3	272	5.7	12	1800	10.2	*****	**	218	2.0	227	5.1	8
2100	6.1	*****	**	185	.4	178	1.9	1	2100	7.7	*****	**	206	1.2	186	4.4	1
2400	6.0	*****	**	196	.5	176	1.9	0	2400	6.8	*****	**	085	.4	051	3.2	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	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	MW
0300	-1.9	*****	**	102	.2	145	.6	1	0300	*****	*****	**	***	***	***	***	***
0600	*****	*****	**	***	***	119	.6	***	0600	*****	*****	**	***	***	***	***	***
0900	*****	*****	**	***	***	***	***	***	0900	*****	*****	**	***	***	***	***	***
1200	*****	*****	**	***	***	***	***	***	1200	*****	*****	**	***	***	***	***	***
1500	*****	*****	**	***	***	***	***	***	1500	*****	*****	**	***	***	***	***	***
1800	*****	*****	**	***	***	***	***	***	1800	*****	*****	**	***	***	***	***	***
2100	*****	*****	**	***	***	***	***	***	2100	*****	*****	**	***	***	***	***	***
2400	*****	*****	**	***	***	***	***	***	2400	*****	*****	**	***	***	***	***	***

R & M CONSULTANTS, INC.
SUSTITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING May, 1983

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.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	TEMP.	POINT	RH	DIR.	SPD.
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S
0300	*****	*****	**	***	****	***	0300	*****	*****	**	***	****	***	0300	*****	*****	**
0600	*****	*****	**	***	****	***	0600	*****	*****	**	***	****	***	0600	*****	*****	**
0900	*****	*****	**	***	****	***	0900	*****	*****	**	***	****	***	0900	*****	*****	**
1200	*****	*****	**	***	****	***	1200	*****	*****	**	***	****	***	1200	*****	*****	**
1500	*****	*****	**	***	****	***	1500	*****	*****	**	***	****	***	1500	*****	*****	**
1800	*****	*****	**	***	****	***	1800	*****	*****	**	***	****	***	1800	*****	*****	**
2100	*****	*****	**	***	****	***	2100	*****	*****	**	***	****	***	2100	*****	*****	**
2400	*****	*****	**	***	****	***	2400	*****	*****	**	***	****	***	2400	*****	*****	**

DAY 31

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

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING May, 1983

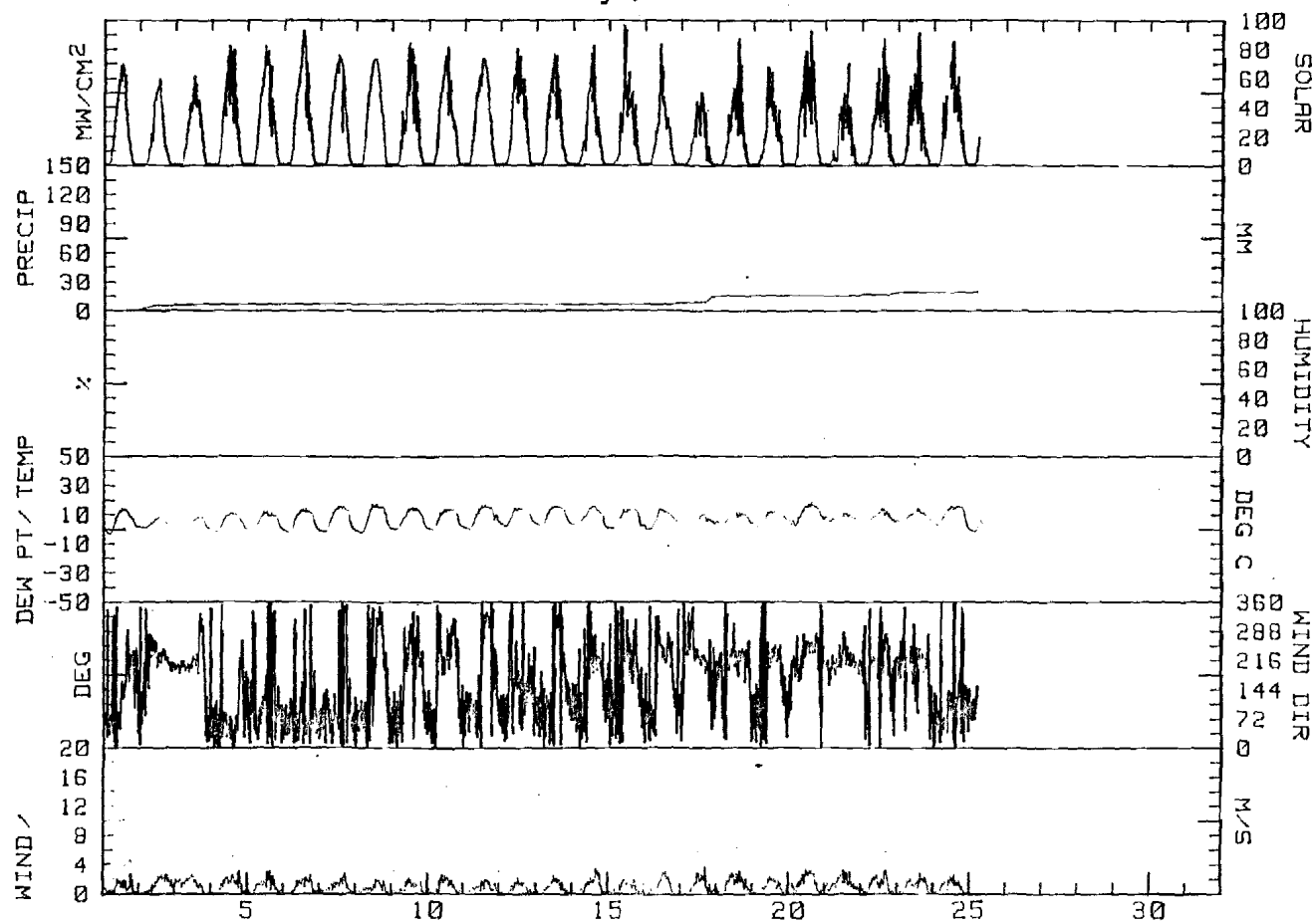
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	14.4	-3.7	5.4	127	.3	.8	204	4.4	ENE	**	*****	.6	5418	1
2	8.2	1.1	4.7	219M	1.1M	1.2M	216M	5.1M	SW(M)	**	*****	5.0	4123	2
3	8.8	-.1	4.4	208	1.1	1.3	214	4.4	SSW	**	*****	.8	4618	3
4	11.9	-1.6	5.2	056	.7	1.1	028	5.1	ENE	**	*****	0.0	5820	4
5	12.3	-.8	5.8	043	.5	1.0	347	5.7	E	**	*****	0.0	6433	5
6	14.3	-2.2	6.1	058	.8	.9	350	5.7	ENE	**	*****	0.0	7015	6
7	15.4	-2.2	6.6	040	.6	.9	347	5.1	E	**	*****	0.0	6853	7
8	16.9	-2.5	7.2	308	.2	.8	213	3.8	NE	**	*****	0.0	6955	8
9	15.0	-.5	7.3	244	.4	.8	263	4.4	SSW	**	*****	0.0	5903	9
10	14.0	-.8	6.6	233	.5	.9	293	5.1	SW	**	*****	0.0	6283	10
11	16.8	-.8	8.0	341	.2	.8	316	3.8	ESE	**	*****	0.0	6765	11
12	14.5	2.2	8.4	127	.4	.7	136	3.8	ESE	**	*****	0.0	5783	12
13	16.4	2.4	9.4	001	.2	.8	017	3.8	ESE	**	*****	0.0	5783	13
14	16.1	.9	8.5	223	.5	1.0	195	5.7	SSW	**	*****	.2	4833	14
15	14.2	.3	7.3	237	.3	.8	234	3.8	E	**	*****	0.0	4793	15
16	13.6	-.3	6.7	238	.6	1.0	218	5.1	WSW	**	*****	1.0	4183	16
17	10.8	3.1	7.0	222	.8	1.0	184	7.0	SW	**	*****	7.0	3528	17
18	11.4	2.7	7.1	222	1.1	1.3	225	6.3	SW	**	*****	.6	4838	18
19	12.7	1.6	7.2	216	.5	.9	199	4.4	SW	**	*****	0.0	4285	19
20	18.2	1.8	10.0	237	1.3	1.5	234	6.3	WSW	**	*****	0.0	6615	20
21	11.1	4.6	7.9	216	1.3	1.4	253	6.3	SSW	**	*****	1.4	3365	21
22	14.5	5.1	9.8	227	.9	1.2	272	5.7	SSW	**	*****	2.0	5068	22
23	14.4	4.1	9.3	206	.9	1.2	227	5.1	SSW	**	*****	.4	4973	23
24	16.4M	-.1M	8.2M	078M	.6M	1.0M	090M	5.1M	SE(M)	**	*****	0.0	5889M	24
25	1.8M	-2.2M	-.2M	105M	.2M	.2M	145M	.6M	ESE(M)	**	*****	.4M	960M	25
26	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	26
27	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	27
28	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	28
29	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	29
30	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	30
31	*****	*****	*****	***	***	***	***	***	***	**	*****	***	*****	31
MONTH	18.2M	-3.7M	6.9M	217M	.3M	.1M	184M	7.0M	SSW(M)	**	*****	19.4M	131075M	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 3.8
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 3.2
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 5.7
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&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
SHERMAN WEATHER STATION
May, 1983



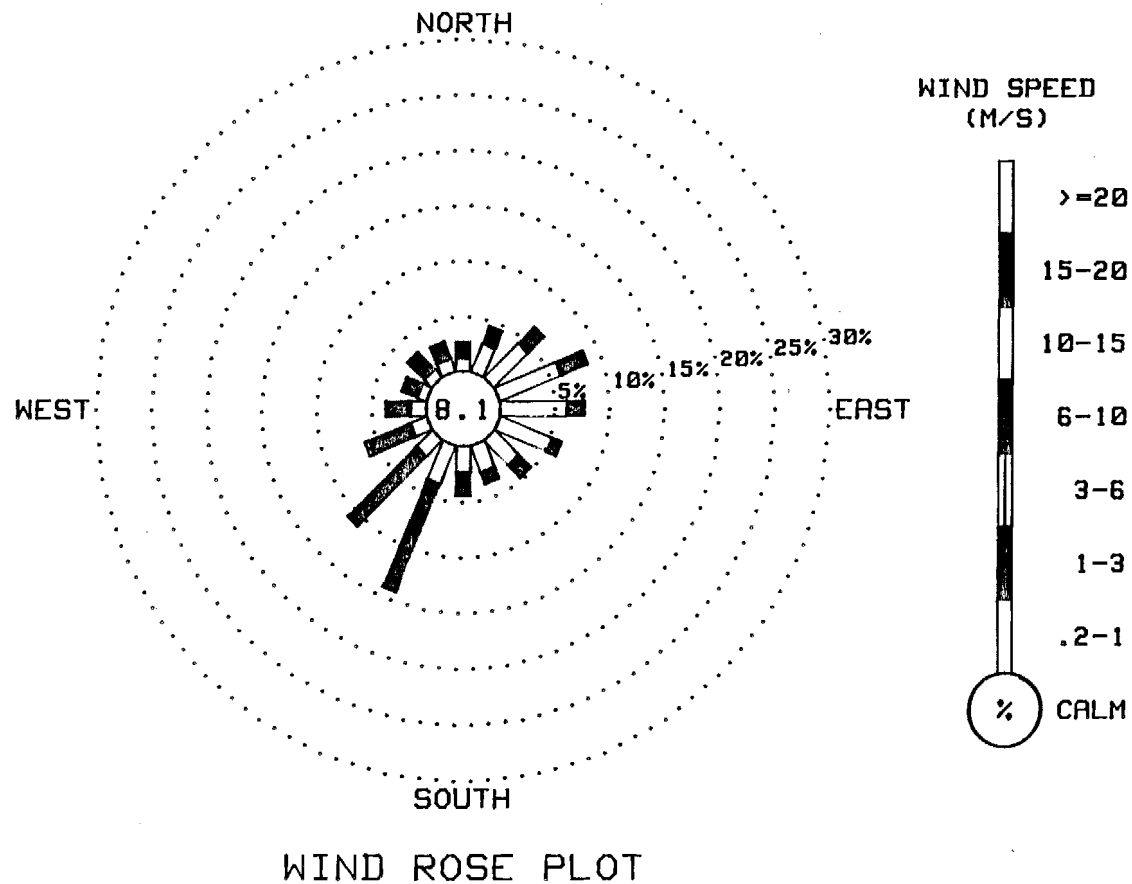
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING May, 1983

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	1.17	1.43	.04	0.00	0.00	0.00	0.00	2.64
NNE	2.76	1.68	0.00	0.00	0.00	0.00	0.00	4.45
NE	4.36	2.03	0.00	0.00	0.00	0.00	0.00	6.39
ENE	6.00	2.59	0.00	0.00	0.00	0.00	0.00	8.60
E	6.09	1.60	0.00	0.00	0.00	0.00	0.00	7.69
ESE	5.18	.86	0.00	0.00	0.00	0.00	0.00	6.05
SE	3.15	1.56	0.00	0.00	0.00	0.00	0.00	4.71
SSE	2.55	1.08	0.00	0.00	0.00	0.00	0.00	3.63
S	2.33	2.07	.04	0.00	0.00	0.00	0.00	4.45
SSW	3.67	10.24	.22	0.00	0.00	0.00	0.00	14.13
SW	2.03	8.60	.22	0.00	0.00	0.00	0.00	10.84
WSW	1.64	4.02	.39	0.00	0.00	0.00	0.00	6.05
W	1.47	2.12	.13	0.00	0.00	0.00	0.00	3.71
WNW	.95	1.47	.04	0.00	0.00	0.00	0.00	2.46
NW	.99	2.20	0.00	0.00	0.00	0.00	0.00	3.20
NNW	1.25	1.60	.04	0.00	0.00	0.00	0.00	2.89
CALM								8.12
TOTAL	45.62	45.14	1.12	0.00	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2315 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
SHERMAN WEATHER STATION
May, 1983



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R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING June, 1983

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

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING June, 1983

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.
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
0300	*****	*****	**	***	****	***	0300	*****	*****	**	***	****	***	0300	*****	*****	**	***	****	***
0600	*****	*****	**	***	****	***	0600	*****	*****	**	***	****	***	0600	*****	*****	**	***	****	***
0900	*****	*****	**	***	****	***	0900	*****	*****	**	***	****	***	0900	*****	*****	**	***	****	***
1200	*****	*****	**	***	****	***	1200	*****	*****	**	***	****	***	1200	*****	*****	**	***	****	***
1500	*****	*****	**	***	****	***	1500	*****	*****	**	***	****	***	1500	*****	*****	**	***	****	***
1800	*****	*****	**	***	****	***	1800	*****	*****	**	***	****	***	1800	*****	*****	**	***	****	***
2100	*****	*****	**	***	****	***	2100	*****	*****	**	***	****	***	2100	*****	*****	**	***	****	***
2400	*****	*****	**	***	****	***	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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
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
0300	*****	*****	**	***	****	***	0300	*****	*****	**	***	****	***	0300	6.6	*****	14	138	.1	069
0600	*****	*****	**	***	****	***	0600	*****	*****	**	***	****	***	0600	9.5	*****	89	071	.1	065
0900	*****	*****	**	***	****	***	0900	*****	*****	**	***	****	***	0900	13.2	*****	64	227	.1	215
1200	*****	*****	**	***	****	***	1200	*****	*****	**	***	****	***	1200	13.2	*****	68	219	.7	245
1500	*****	*****	**	***	****	***	1500	14.6	8.8	68	060M	.7M	265M	1500	16.8	4.8	45	214	1.1	245
1800	*****	*****	**	***	****	***	1800	16.5	2.8	40	336	.9	308	1800	15.2	4.2	48	240	1.9	264
2100	*****	*****	**	***	****	***	2100	10.7	*****	89	226	1.2	224	2100	10.1	*****	93	238	.7	246
2400	*****	*****	**	***	****	***	2400	7.9	*****	9	196	.4	213	2400	7.7	*****	13	182	.2	171

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.
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
0300	6.2	*****	16	138	.2	105	0300	1.7	*****	16	097	.2	075	0300	3.6	*****	18	102	.2	103
0600	8.9	*****	7	099	.1	030	0600	8.4	*****	77	099	.2	024	0600	11.9	*****	62	068	.3	038
0900	13.1	5.6	60	207	1.0	236	0900	17.7	4.9	43	031	.4	312	0900	20.6	4.1	34	351	1.1	344
1200	15.8	2.8	42	229	1.8	197	1200	19.6	1.0	29	303	.7	284	1200	23.7	.0	21	050	.8	061
1500	17.0	1.7	36	219	1.8	218	1500	21.7	-1.6	21	247	.8	191	1500	24.9	-3.6	15	226	1.5	210
1800	15.5	*****	46	228	1.1	246	1800	21.4	-1.9	21	282	.4	200	1800	24.0	-.4	20	233	1.5	224
2100	9.1	*****	2	237	.2	205	2100	10.8	*****	88	299	.2	259	2100	16.4	*****	66	231	.5	245
2400	3.5	*****	15	097	.1	082	2400	4.3	*****	14	100	.2	079	2400	11.2	*****	5	073	.2	036

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING June, 1983

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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	MW
0300	7.9	*****	11	116	.3	083	1.3	3	0300	5.4	*****	17	107	.2	069	1.3	3
0600	13.0	9.8	81	193	.2	221	1.9	10	0600	10.0	*****	90	051	.3	023	1.9	18
0900	15.3	7.9	61	216	1.8	219	4.4	37	0900	16.9	5.2	46	204	.4	204	3.2	66
1200	18.2	8.2	52	210	1.6	257	3.8	80	1200	19.4	3.8	36	225	1.2	271	3.2	36
1500	20.4	5.9	39	223	2.0	230	5.1	72	1500	22.0	4.4	32	220	1.4	225	3.2	64
1800	17.3	7.9	54	236	2.0	255	5.1	18	1800	21.2	1.4	27	235	1.5	219	3.8	28
2100	14.2	7.3	63	215	1.5	212	5.1	3	2100	15.9	*****	50	235	.7	260	3.8	3
2400	5.4	*****	14	166	.2	228	1.3	1	2400	12.0	7.0	71	217	1.1	215	3.8	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	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	MW
0300	9.4	*****	2	203	.6	205	2.5	3	0300	8.5	*****	14	137	.2	157	1.3	1
0600	14.4	*****	59	134	.1	194	1.3	31	0600	12.7	*****	79	168	.3	198	1.9	4
0900	17.7	5.9	46	198	1.5	196	3.2	66	0900	15.9	8.0	59	119	.2	140	1.9	43
1200	20.7	5.8	38	216	2.0	218	3.8	79	1200	18.8	4.1	38	208	1.4	184	3.2	61
1500	20.9	5.6	37	228	1.9	242	4.4	63	1500	21.7	1.3	26	229	1.5	251	3.8	66
1800	21.4	5.6	36	232	1.2	240	4.4	32	1800	20.3	1.6	29	225	1.5	230	3.2	22
2100	15.7	*****	84	215	.5	214	1.9	2	2100	15.6	*****	57	238	.8	268	3.8	3
2400	9.9	*****	4	099	.1	065	1.3	0	2400	9.7	*****	2	136	.2	224	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	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	MW
0300	5.1	*****	16	112	.2	116	1.3	2	0300	10.9	*****	97	199	.9	192	3.2	1
0600	12.2	*****	75	104	.2	109	1.3	31	0600	11.8	*****	1	155	.1	190	1.3	8
0900	20.4	*****	39	043	.6	099	1.9	67	0900	13.7	*****	83	006	.4	036	1.9	18
1200	25.0	6.6	31	165	.7	220	3.2	75	1200	18.3	8.0	51	314	.4	380	2.5	55
1500	26.3	2.2	21	214	2.1	227	5.1	66	1500	18.9	7.6	48	230	1.2	211	3.8	31
1800	24.2	2.3	24	227	2.1	236	5.7	31	1800	16.7	9.0	60	231	1.8	238	4.4	16
2100	17.9	4.0	40	213	2.1	216	7.0	2	2100	14.3	*****	78	215	1.1	229	3.8	1
2400	14.4	5.2	54	220	1.9	236	5.1	1	2400	7.7	*****	13	128	.2	191	1.3	0

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING June, 1983

DAY 28

DAY 29

DAY 30

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			
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW			
0300	10.5	*****	12	131	.1	163	.6	1	0300	5.9	*****	15	116	.2	136	.6	2	0300	9.1	*****	15	124	.2	093	1.3	2
0600	12.1	*****	94	029	.2	099	1.3	18	0600	9.2	*****	4	110	.3	116	1.3	18	0600	10.8	*****	9	029	.2	055	1.3	13
0900	17.5	*****	48	023	.6	005	1.9	69	0900	19.1	*****	44	008	.6	019	2.5	72	0900	15.1	*****	72	003	.5	002	1.9	38
1200	20.4	5.1	37	185	.7	196	3.2	75	1200	18.3	7.7	50	226	1.7	221	4.4	47	1200	19.4	*****	45	212	.2	300	2.5	40
1500	19.5	5.5	40	213	1.8	206	3.8	29	1500	13.8	*****	0	209	.9	219	3.8	12	1500	21.8	5.1	34	220	1.0	203	2.5	67
1800	16.0	*****	66	221	1.5	236	6.3	16	1800	13.0	*****	0	208	.7	206	2.5	7	1800	21.5	*****	36	237	.7	260	2.5	27
2100	12.6	*****	3	202	.1	222	1.9	2	2100	11.9	*****	4	219	.2	222	1.3	3	2100	14.8	*****	0	041	.1	035	1.3	2
2400	6.1	*****	13	130	.1	120	.6	0	2400	9.8	*****	10	105	.1	116	.6	1	2400	9.8	*****	5	092	.2	070	1.3	0

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING June, 1983

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 GREATER	
	1.0	3.0	6.0	10.0	15.0	20.0		
N	2.60	.63	0.00	0.00	0.00	0.00	0.00	3.23
NNE	2.92	.19	0.00	0.00	0.00	0.00	0.00	3.11
NE	3.23	.06	0.00	0.00	0.00	0.00	0.00	3.30
ENE	3.99	.19	0.00	0.00	0.00	0.00	0.00	4.17
E	5.14	.13	0.00	0.00	0.00	0.00	0.00	5.26
ESE	6.02	.13	0.00	0.00	0.00	0.00	0.00	6.15
SE	3.61	.06	0.00	0.00	0.00	0.00	0.00	3.68
SSE	3.23	.06	0.00	0.00	0.00	0.00	0.00	3.30
S	3.36	1.65	0.00	0.00	0.00	0.00	0.00	5.01
SSW	4.50	12.62	0.00	0.00	0.00	0.00	0.00	17.12
SW	3.87	14.20	0.00	0.00	0.00	0.00	0.00	18.07
WSW	2.16	6.66	0.00	0.00	0.00	0.00	0.00	8.81
W	.95	.89	0.00	0.00	0.00	0.00	0.00	1.84
WNW	1.40	.63	0.00	0.00	0.00	0.00	0.00	2.03
NW	1.14	.38	0.00	0.00	0.00	0.00	0.00	1.52
NNW	1.52	.63	0.00	0.00	0.00	0.00	0.00	2.16
CALM								11.22
TOTAL	49.65	39.12	0.00	0.00	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1577 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING June, 1983

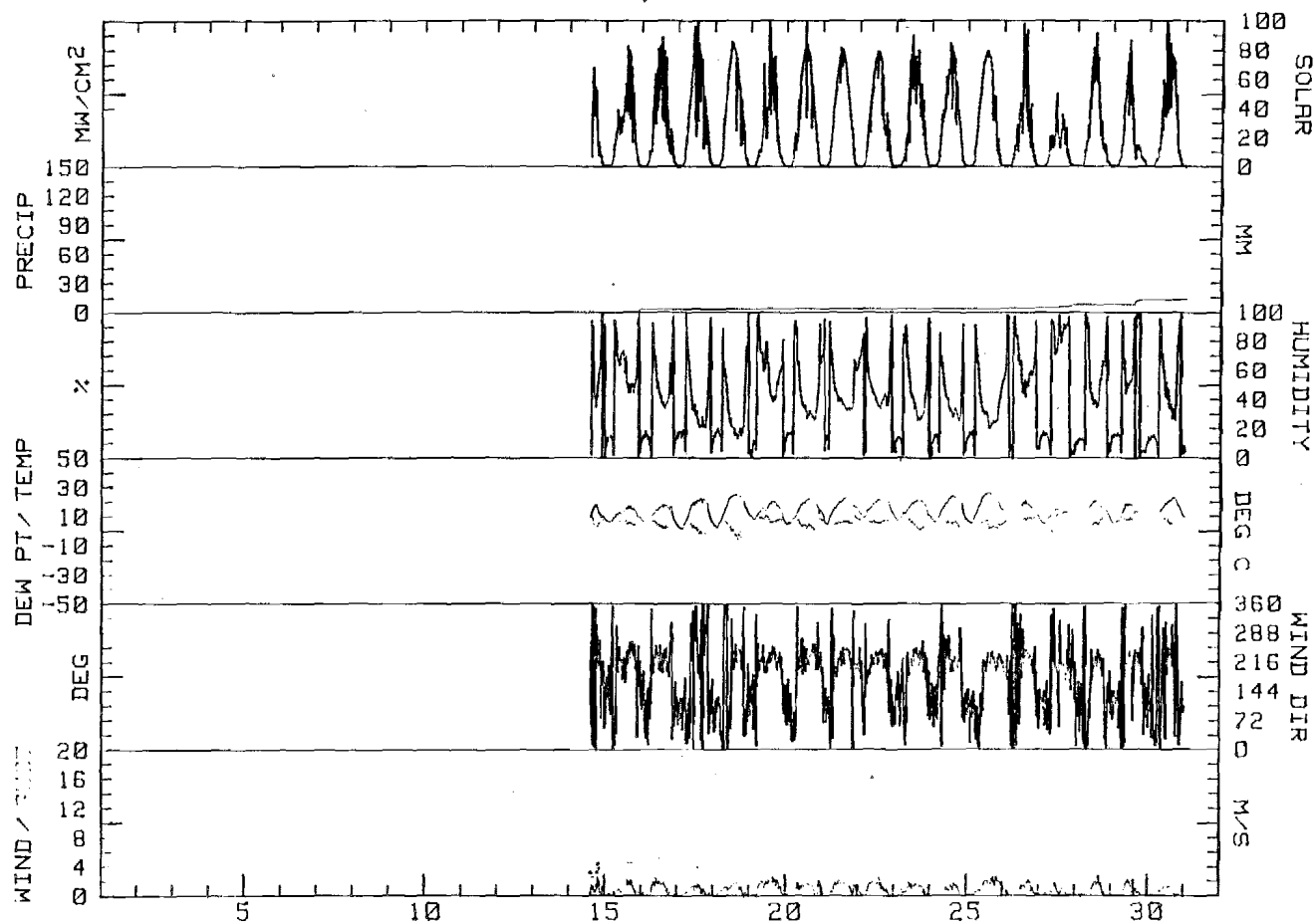
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	****	****	****	***	****	****	***	****	***	**	****	****	*****	1
2	****	****	****	***	****	****	***	****	***	**	****	****	*****	2
3	****	****	****	***	****	****	***	****	***	**	****	****	*****	3
4	****	****	****	***	****	****	***	****	***	**	****	****	*****	4
5	****	****	****	***	****	****	***	****	***	**	****	****	*****	5
6	****	****	****	***	****	****	***	****	***	**	****	****	*****	6
7	****	****	****	***	****	****	***	****	***	**	****	****	*****	7
8	****	****	****	***	****	****	***	****	***	**	****	****	*****	8
9	****	****	****	***	****	****	***	****	***	**	****	****	*****	9
10	****	****	****	***	****	****	***	****	***	**	****	****	*****	10
11	****	****	****	***	****	****	***	****	***	**	****	****	*****	11
12	****	****	****	***	****	****	***	****	***	**	****	****	*****	12
13	****	****	****	***	****	****	***	****	***	**	****	****	*****	13
14	17.9M	7.9M	12.9M	253M	.3M	.9M	224M	4.4M	SW(M)			0.0M	5046M	14
15	17.0	6.3	11.7	226	.6	.7	245	4.4	SW			3.4	5495	15
16	18.4	3.5	11.0	219	.7	.9	197	5.1	SW			0.0	6435	16
17	22.3	1.1	11.7	295	.1	.7	284	3.8	E			0.0	7858	17
18	25.2	2.4	13.8	250	.2	.9	224	4.4	FSE			0.0	8273	18
19	20.7	5.4	13.1	217	1.1	1.3	230	5.1	SW			.6	6210	19
20	22.4	4.6	13.5	223	.7	1.0	219	3.8	SW			0.0	7805	20
21	23.2	4.3	13.8	219	.9	1.2	221	4.4	SSW			0.0	8100	21
22	21.9	9.0	15.5	216	.9	1.1	242	4.4	SW			0.0	7250	22
23	21.7	7.1	14.4	215	.7	.9	251	3.8	SW			0.0	6808	23
24	24.6	5.8	15.2	218	.5	.6	220	3.8	SW			0.0	7303	24
25	26.6	5.1	15.9	211	1.0	1.3	216	7.0	SW			0.0	8005	25
26	21.1	7.7	14.4	226	.6	.9	238	4.4	SSW			.8	4865	26
27	15.6	4.8	10.2	196	.3	.5	201	3.2	SSW			3.2	3000	27
28	21.2	6.1	13.7	210	.4	.7	236	6.3	SSW			.2	6063	28
29	19.1	4.1	11.6	213	.3	.7	221	4.4	SW			4.8	4473	29
30	23.1	9.1	16.1	229	.1	.5	300	2.5	NNE			.2	6720	30
MONTH	26.6M	1.1M	13.4M	219M	.6M	.9M	216M	7.0M	SW(M) M	M	M	13.2M	109706M	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 4.4
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 5.1
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 5.7
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 3.2

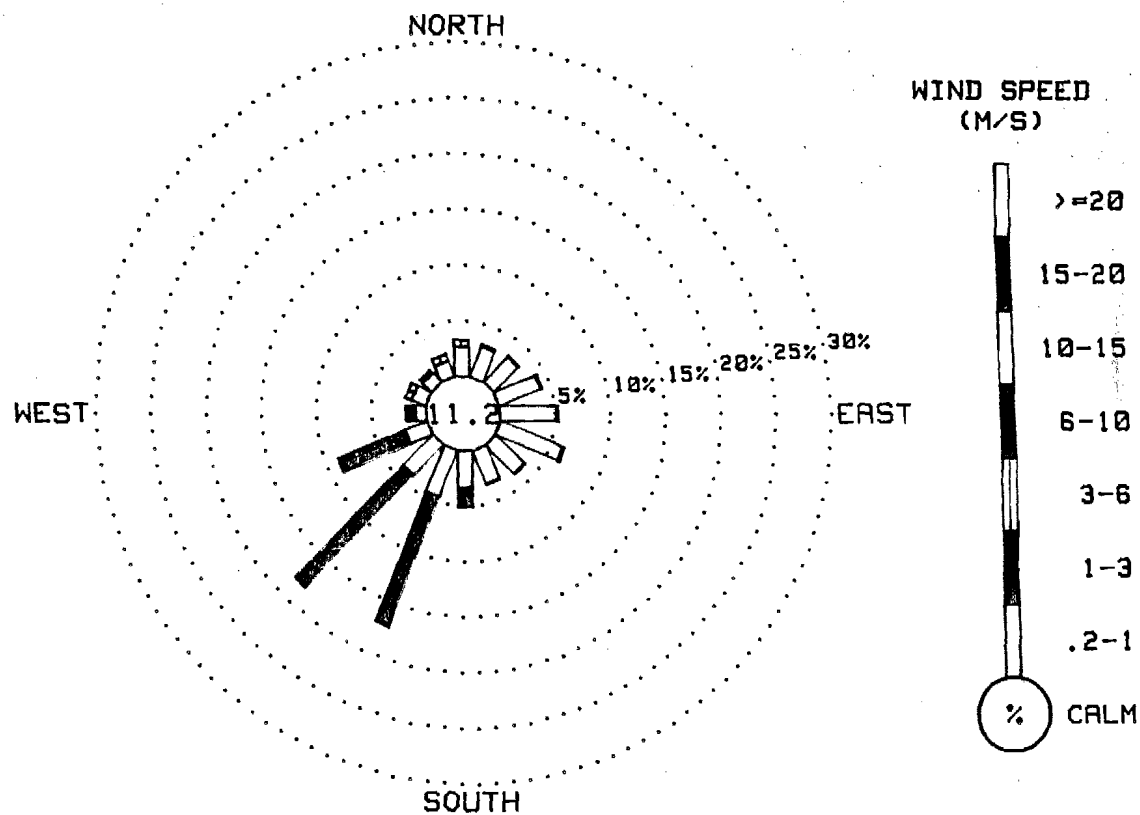
NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
SHERMAN WEATHER STATION
June, 1983



R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
SHERMAN WEATHER STATION
June, 1983



SUSTINA HYDROELECTRIC PROJECT

DATA TAKEN DURING July, 1983

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

[illegible]

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING July, 1983

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.	SPD.	DIR.	GUST	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	11.1	*****	93	189	.6	203	1.9	1	0300	8.1	*****	12	113	.2	194	1.3	2
0600	11.9	*****	90	195	.7	188	1.9	12	0600	11.2	*****	87	110	.1	146	.6	21
0900	15.6	7.4	58	196	1.4	214	4.4	50	0900	13.6	6.8	63	201	1.2	206	3.2	27
1200	18.4	5.2	42	215	1.4	235	3.2	83	1200	15.4	6.4	55	220	1.5	204	3.8	47
1500	20.0	4.8	37	220	1.4	211	3.8	61	1500	16.9	7.3	53	218	1.9	207	5.1	72
1800	19.5	3.5	35	233	1.6	245	3.8	13	1800	15.8	8.1	60	222	1.8	242	4.4	13
2100	15.4	7.5	59	213	.9	203	3.2	1	2100	13.4	9.1	75	220	1.7	230	4.4	2
2400	12.2	*****	83	209	1.2	220	3.2	1	2400	11.8	8.8	82	225	1.3	224	3.8	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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	11.0	10.7	98	208	.9	213	2.5	1	0300	8.9	*****	15	058	.2	107	1.9	1
0600	11.1	*****	6	177	.3	191	2.5	3	0600	10.7	*****	3	083	.2	130	1.3	15
0900	12.8	11.0	89	183	.5	200	2.5	18	0900	14.9	*****	71	332	.4	323	1.3	57
1200	15.7	10.7	72	202	1.4	194	3.2	46	1200	16.5	9.8	64	219	1.3	211	3.8	34
1500	13.8	*****	91	202	.5	218	3.2	24	1500	19.4	8.1	48	219	.9	229	3.8	64
1800	14.5	*****	86	051	.7	072	2.5	8	1800	16.9	*****	68	233	.9	226	4.4	24
2100	10.2	*****	4	324	.3	272	2.5	1	2100	13.3	*****	3	098	.2	213	1.9	1
2400	9.0	*****	14	103	.2	016	1.9	1	2400	12.3	*****	8	139	.3	196	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.	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	DEG.	M/S	MW	
0300	8.2	*****	15	124	.2	087	1.3	1	0300	10.2	*****	10	175	.2	203	1.9	1
0600	11.5	*****	85	093	.1	077	.6	12	0600	12.6	*****	2	162	.1	237	1.3	7
0900	16.5	9.3	62	304	.3	298	1.9	40	0900	12.5	11.2	92	203	1.2	192	3.8	22
1200	18.7	7.8	49	205	1.8	196	3.8	76	1200	12.4	11.0	91	217	.9	212	3.2	21
1500	18.7	8.7	52	237	1.8	231	3.8	37	1500	14.3	10.6	78	204	1.5	212	3.8	29
1800	17.1	*****	70	239	1.2	239	3.8	7	1800	14.4	10.7	78	209	1.3	220	3.2	15
2100	14.4	*****	98	207	.5	214	1.9	1	2100	12.0	*****	3	206	.9	210	2.5	1
2400	12.3	*****	93	185	.5	205	3.2	1	2400	10.2	*****	9	209	.3	211	1.9	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING July, 1983

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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	4.3	*****	15	103	.2	096	1.3	1	0300	9.8	*****	12	070	.2	055	1.3	1
0600	9.6	*****	75	085	.2	124	1.3	24	0600	11.4	*****	8	087	.1	075	1.3	8
0900	17.0	*****	45	109	.3	353	1.9	50	0900	14.9	9.3	69	225	.3	212	3.8	34
1200	21.0	.7	26	038	.8	045	3.8	84	1200	17.5	7.9	53	230	1.5	210	4.4	75
1500	22.6	-.2	22	047	1.1	053	4.4	66	1500	20.3	7.3	43	237	1.8	247	4.4	73
1800	19.1	1.9	32	320	1.0	238	5.1	32	1800	16.8	8.6	58	244	1.8	237	4.4	7
2100	15.3	8.6	64	219	1.2	204	5.1	1	2100	13.1	*****	76	231	1.0	228	4.4	1
2400	9.6	*****	10	230	.3	219	1.9	1	2400	6.8	*****	7	112	.1	303	1.3	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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	4.3	*****	15	102	.2	076	1.3	1	0300	10.9	*****	85	209	1.2	220	3.8	1
0600	7.6	*****	7	114	.2	107	1.3	25	0600	10.2	*****	92	147	.3	126	1.9	4
0900	16.1	8.2	59	165	.3	245	3.2	61	0900	11.0	9.7	92	037	.3	050	2.5	12
1200	21.3	6.3	38	218	1.5	217	3.2	75	1200	12.0	*****	89	028	.6	043	1.9	20
1500	22.6	5.8	34	220	1.9	244	4.4	59	1500	12.8	9.5	80	211	.7	212	3.2	27
1800	21.6	5.0	34	226	1.8	239	5.1	26	1800	12.7	*****	84	191	1.0	193	2.5	10
2100	16.6	9.1	61	219	1.6	204	5.7	1	2100	11.0	*****	99	174	.4	185	1.9	1
2400	14.4	8.0	65	209	1.4	205	3.2	0	2400	9.1	*****	6	131	.0	166	.6	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	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	5.6	*****	16	113	.2	122	1.3	1	0300	6.8	*****	15	096	.1	055	.6	1
0600	7.8	*****	10	114	.2	134	1.3	13	0600	10.4	*****	88	067	.1	020	1.3	30
0900	15.5	*****	57	081	.2	112	1.3	39	0900	15.8	7.9	59	213	.4	194	3.2	48
1200	16.8	6.9	52	200	1.8	207	3.2	36	1200	17.2	7.6	53	212	1.8	208	4.4	43
1500	18.9	4.6	39	226	1.3	222	3.8	47	1500	17.5	7.9	53	214	1.9	207	4.4	34
1800	17.8	*****	46	217	1.5	211	3.8	18	1800	15.3	*****	64	236	1.5	227	3.8	4
2100	11.2	*****	96	205	.2	243	2.5	1	2100	12.4	*****	99	211	.2	207	1.9	1
2400	7.7	*****	10	101	.1	134	.6	0	2400	10.3	*****	2	082	.1	104	.6	1

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING July, 1983

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	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	5.6	*****	15	100	.2	065	1.3	1	0300	7.7	*****	4	162	.0	221	1.9	1
0600	10.2	*****	97	118	.2	127	1.3	18	0600	11.8	*****	76	129	.1	232	.6	17
0900	17.5	*****	55	120	.3	188	1.3	58	0900	17.4	*****	50	115	.3	093	1.9	47
1200	22.3	7.2	38	194	1.0	224	4.4	73	1200	21.2	8.1	43	206	1.6	232	4.4	68
1500	24.0	3.8	27	224	2.1	217	5.1	58	1500	20.3	8.3	46	234	2.1	236	5.1	47
1800	22.8	3.7	29	232	1.8	223	5.1	25	1800	17.0	8.7	58	231	2.2	205	5.7	15
2100	15.0	*****	73	228	.8	245	3.8	1	2100	14.2	*****	75	211	1.2	224	3.8	0
2400	13.6	*****	77	212	1.0	221	3.2	1	2400	12.1	*****	99	176	.3	222	1.3	1

DAY 31

HOUR	DEW	WIND	WIND	GUST	MAX.			
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	10.8	*****	12	130	.0	133	.6	0
0600	12.0	*****	9	346	.0	150	.6	9
0900	14.9	*****	74	007	.4	017	1.3	36
1200	14.6	*****	82	027	.8	047	2.5	17
1500	17.4	*****	66	015	.3	014	1.9	36
1800	17.1	12.1	72	257	.7	225	2.5	16
2100	14.6	*****	90	222	.8	219	2.5	1
2400	9.9	*****	0	204	.2	208	1.3	1

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING July, 1983

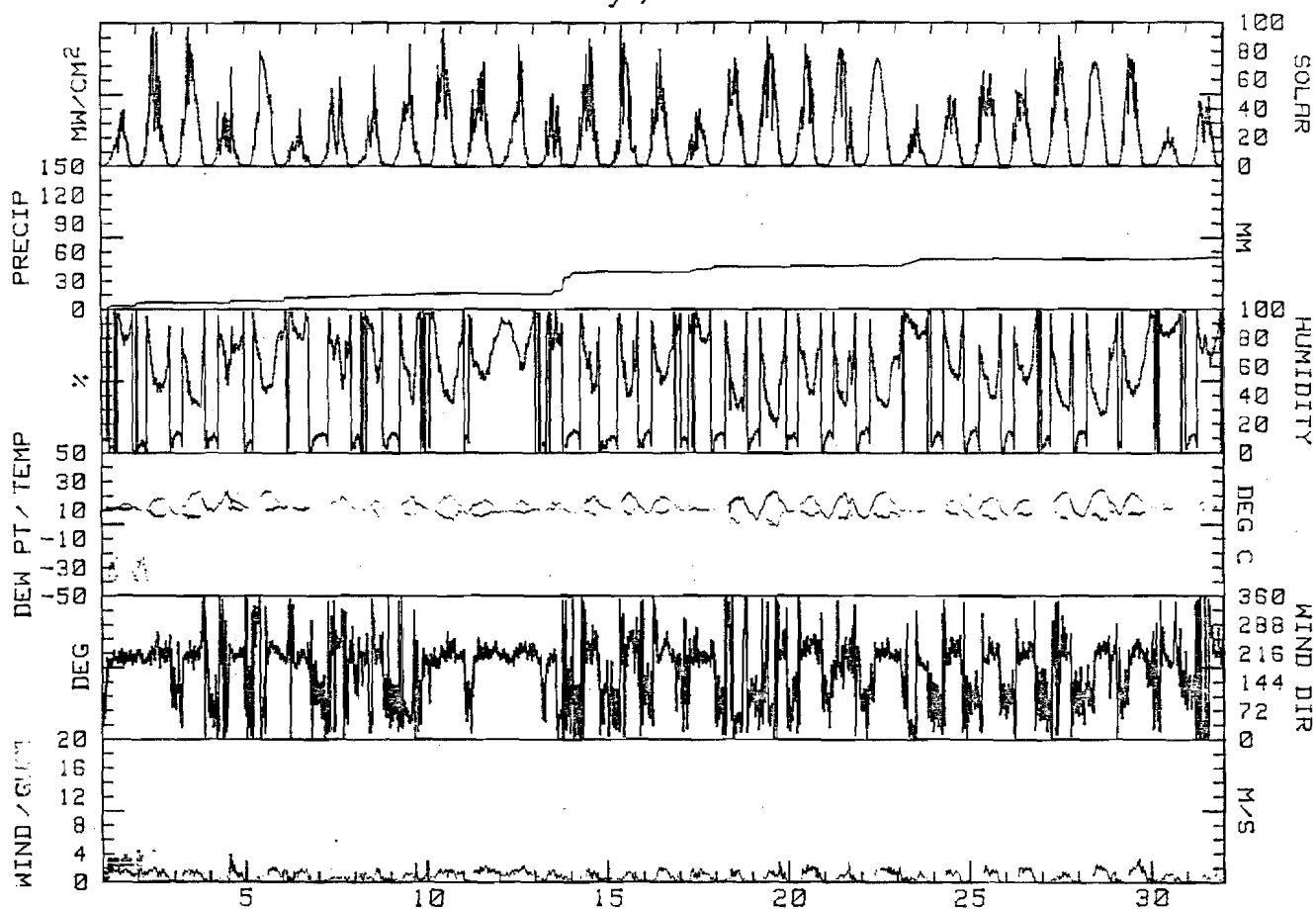
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	15.4	9.8	12.6	202	1.1	1.2	220	4.4	SSW			4.6	2525	1
2	19.3	8.7	14.0	214	1.1	1.1	227	4.4	SSW			2.6	5480	2
3	23.5	7.4	15.5	212	.7	.8	216	3.2	SSW			0.0	7153	3
4	23.8	9.2	16.5	215	.5	.8	218	6.3	SW			2.8	3073	4
5	23.7	11.8	17.8	232	.6	.9	217	4.4	SW			0.0	6438	5
6	15.4	10.1	12.8	206	.8	.9	194	3.8	SSW			3.6	1855	6
7	19.5	9.8	14.7	282	.1	.4	309	1.9	WSW			1.2	3795	7
8	17.0	8.7	12.9	203	.4	.7	200	3.8	SSW			1.2	3005	8
9	20.1	8.0	14.1	090	.3	.7	181	4.4	ENE			1.2	4445	9
10	20.8	10.3	15.6	211	1.1	1.2	214	4.4	SSW			0.0	6565	10
11	18.5	7.0	12.8	216	1.2	1.3	207	5.1	SSW			0.0	5380	11
12	17.6	10.7	14.2	217	1.3	1.4	223	5.1	SSW			0.0	4418	12
13	15.7	8.8	12.3	192	.3	.8	194	3.2	SSW			17.6	2655	13
14	20.1	8.5	14.3	218	.3	.7	226	4.4	SSW			5.2	5040	14
15	22.4	10.8	16.6	239	.2	.5	228	3.2	WSW			.2	5190	15
16	19.8	7.9	13.9	221	.7	.9	196	3.8	SSW			0.0	4995	16
17	14.7	10.1	12.4	206	.8	.8	192	3.8	SSW			5.2	2605	17
18	19.2	8.3	13.8	029	.3	.5	048	4.4	ENE			.2	5510	18
19	23.3	3.5	13.4	021	.1	.8	238	5.1	E			0.0	7590	19
20	20.3	6.8	13.6	234	.8	.9	210	4.4	WSW			.8	5478	20
21	22.1	4.5	13.3	204	.4	.6	184	5.1	S			.2	6360	21
22	22.8	4.2	13.5	214	1.0	1.2	204	5.7	SSW			0.0	7295	22
23	14.4	9.1	11.8	190	.3	.6	220	3.8	SSW			6.8	2120	23
24	17.4	7.6	12.5	221	.5	.6	198	3.2	SSW			0.0	3813	24
25	19.2	5.1	12.2	205	.6	.7	222	3.8	SSW			0.0	5198	25
26	18.0	5.8	11.9	218	.7	.8	208	4.4	SSW			0.0	4500	26
27	22.9	7.4	15.2	236	.2	.5	210	3.2	SW			0.0	6355	27
28	24.6	5.6	15.1	215	.8	1.0	217	5.1	SW			0.0	6843	28
29	22.0	6.8	14.4	218	.9	1.1	205	5.7	SW			0.0	5955	29
30	14.6	10.9	12.8	207	.4	.5	208	2.5	SSW			.6	1800	30
31	18.4	9.9	14.2	299	.1	.4	047	2.5	N			1.0	3698	31
MONTH	24.6	3.5	13.9	214	.5	.5	218	6.3	SSW	M	M	54.2	147129	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 1.3
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 5.7
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 5.1
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 6.3

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.

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R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
SHERMAN WEATHER STATION
July, 1983



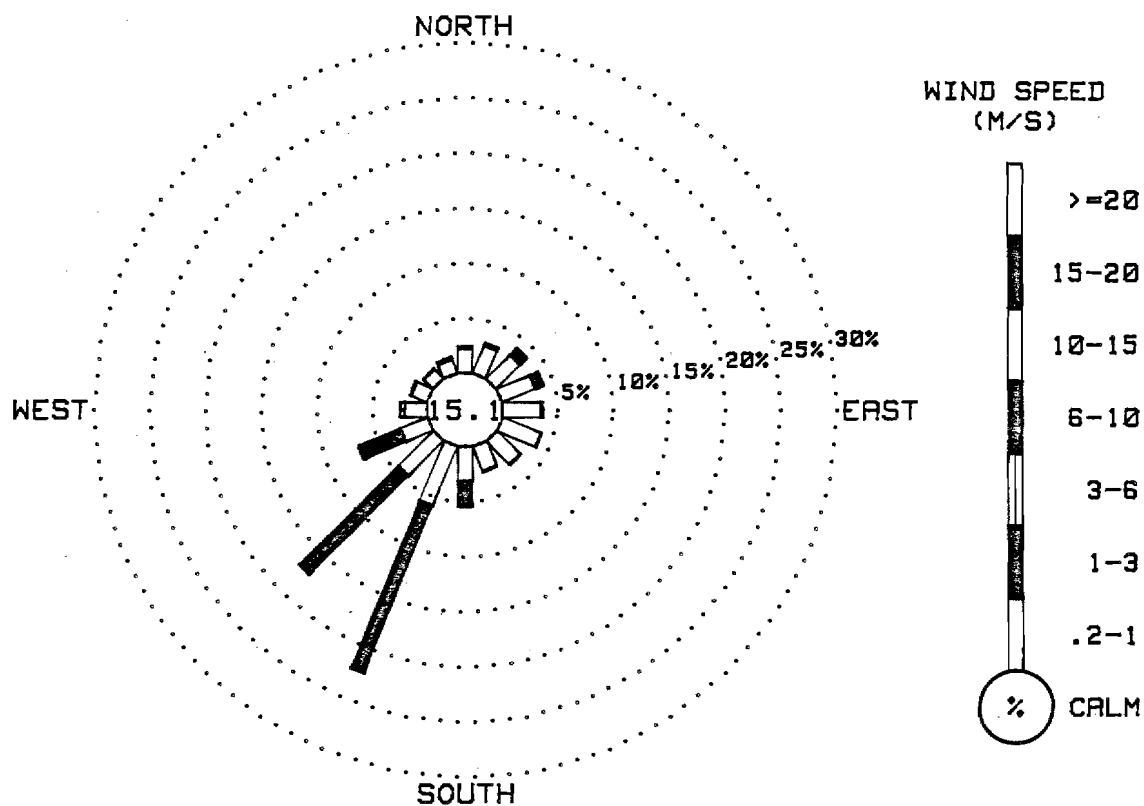
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING July, 1983

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	2.22	.17	0.00	0.00	0.00	0.00	0.00	2.39
NNE	2.72	.20	0.00	0.00	0.00	0.00	0.00	2.92
NE	3.06	.84	0.00	0.00	0.00	0.00	0.00	3.90
ENE	3.26	.74	0.00	0.00	0.00	0.00	0.00	4.00
E	3.43	.20	0.00	0.00	0.00	0.00	0.00	3.63
ESE	3.80	.03	0.00	0.00	0.00	0.00	0.00	3.83
SE	2.99	.03	0.00	0.00	0.00	0.00	0.00	3.03
SSE	2.42	.07	0.00	0.00	0.00	0.00	0.00	2.49
S	3.13	2.32	0.00	0.00	0.00	0.00	0.00	5.45
SSW	5.82	16.37	.03	0.00	0.00	0.00	0.00	22.22
SW	4.47	12.57	.10	0.00	0.00	0.00	0.00	17.14
WSW	2.66	4.17	0.00	0.00	0.00	0.00	0.00	6.82
W	2.05	.47	0.00	0.00	0.00	0.00	0.00	2.52
WNW	1.61	.13	0.00	0.00	0.00	0.00	0.00	1.75
NW	1.21	.07	0.00	0.00	0.00	0.00	0.00	1.28
NNW	1.38	.20	0.00	0.00	0.00	0.00	0.00	1.58
CALM								15.06
TOTAL	46.22	38.59	.13	0.00	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2975 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
SHERMAN WEATHER STATION
July, 1983



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSTINA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR SHERMAN WEATHER STATION

DATA TAKEN DURING August, 1983

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

[illegible]

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING August, 1983

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.	SPD.	DIR.	GUST	RAD
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	*****	16	103	.2	106	1.3	1	0300	4.2	*****	15	111	.1	134	.6	0
0600	5.1	*****	18	097	.2	090	1.3	10	0600	5.6	*****	15	120	.2	109	1.3	9
0900	11.6	*****	79	068	.3	021	1.3	24	0900	12.9	*****	69	043	.1	047	1.3	18
1200	16.1	4.8	47	211	.5	242	3.2	39	1200	16.6	6.7	52	207	.9	211	3.2	42
1500	18.4	3.7	38	277	1.0	317	3.2	56	1500	18.0	4.5	41	233	1.3	251	3.2	42
1800	17.1	*****	40	252	1.0	240	3.2	20	1800	16.1	*****	72	234	.7	240	2.5	11
2100	7.7	*****	1	310	.1	255	1.3	1	2100	11.2	*****	94	241	.2	316	4.4	0
2400	5.5	*****	12	125	.1	122	.6	0	2400	9.2	*****	5	113	.1	080	.6	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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	8.0	*****	96	210	.7	220	5.1	0	0300	6.6	-39.1	1	354	.1	015	2.5	0
0600	7.9	*****	1	193	.2	205	1.9	8	0600	6.4	*****	99	021	.3	030	1.9	6
0900	9.7	*****	84	014	.3	061	1.3	17	0900	8.3	*****	79	209	.6	183	2.5	18
1200	11.0	*****	77	260	.5	253	3.2	27	1200	12.2	3.5	55	047	.4	075	1.9	75
1500	11.9	6.5	69	231	1.2	225	3.8	25	1500	14.8	.9	39	286	.7	219	3.2	67
1800	10.3	*****	92	202	.7	228	3.8	2	1800	11.9	*****	68	205	.3	232	2.5	22
2100	8.9	*****	97	054	.1	106	2.5	0	2100	3.9	*****	5	017	.0	314	1.3	0
2400	6.6	*****	3	090	.2	079	4.4	0	2400	.7	*****	10	126	.2	130	1.3	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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	4.1	*****	14	108	.2	087	1.3	1	0300	1.8	*****	14	107	.1	105	.6	1
0600	3.5	*****	16	069	.3	064	1.9	14	0600	4.7	*****	15	116	.2	118	1.3	15
0900	9.2	*****	75	052	.6	085	1.9	50	0900	9.0	*****	82	092	.3	078	1.3	32
1200	16.1	3.8	44	262	.7	240	3.2	64	1200	13.0	5.7	61	207	1.5	189	3.8	40
1500	17.5	.9	33	220	1.6	218	3.8	49	1500	16.1	3.8	44	049	.1	125	3.8	55
1800	15.9	*****	42	219	1.3	223	3.2	12	1800	16.4	*****	54	356	.6	330	2.5	20
2100	6.4	*****	0	194	.2	220	1.9	0	2100	5.7	*****	0	056	.2	072	1.3	0
2400	3.4	*****	13	106	.1	147	.6	1	2400	2.8	*****	14	095	.3	109	1.3	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING August, 1983

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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	.4	*****	13	111	.4	089	1.9	1	0300	5.9	*****	13	099	.1	103	1.3	0
0600	2.8	*****	9	202	.3	117	1.3	16	0600	6.8	*****	17	076	.2	042	1.3	3
0900	12.3	*****	57	049	.5	017	2.5	48	0900	9.4	*****	4	104	.2	123	1.3	16
1200	19.2	*****	27	055	.7	015	2.5	62	1200	10.3	8.7	90	222	.5	247	5.7	12
1500	20.2	-1.1	24	211	1.1	255	3.8	49	1500	11.0	7.2	77	223	2.4	210	7.6	14
1800	16.3	*****	48	236	1.1	244	3.8	9	1800	9.8	*****	91	217	2.2	214	8.9	2
2100	7.3	*****	98	186	.1	232	1.3	0	2100	9.0	*****	97	189	.4	202	1.9	0
2400	6.8	*****	9	133	.1	129	.6	1	2400	9.5	*****	89	280	.4	262	3.8	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	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	8.5	*****	9	***	0.0	096	.6	1	0300	7.1	*****	2	042	.3	352	1.9	1
0600	8.7	*****	13	140	.0	042	.6	3	0600	6.6	*****	7	086	.2	079	1.3	6
0900	11.5	*****	84	275	.2	341	1.3	20	0900	9.5	*****	81	026	.3	026	1.3	22
1200	12.9	9.7	81	208	.9	200	3.2	23	1200	12.7	*****	61	041	.6	028	1.9	34
1500	14.8	8.6	66	240	1.5	249	4.4	29	1500	11.9	5.4	64	227	.5	210	3.2	12
1800	10.9	*****	90	232	1.3	245	3.8	6	1800	10.8	*****	85	285	.1	210	1.9	6
2100	9.3	*****	98	088	.2	069	1.3	0	2100	7.7	*****	95	175	.1	228	1.3	0
2400	8.4	*****	6	075	.1	014	1.3	0	2400	6.7	*****	5	125	.1	163	.6	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	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	-1	*****	11	130	.1	091	1.3	1	0300	6.5	*****	4	222	.3	237	1.9	1
0600	0.0	*****	16	110	.2	158	1.3	4	0600	6.7	*****	10	047	.2	030	1.3	4
0900	7.7	*****	83	064	.5	054	1.9	31	0900	10.6	6.6	76	211	.2	217	2.5	34
1200	12.9	1.5	46	045	1.0	076	5.1	38	1200	*****	*****	**	***	***	211m	3.2	***
1500	11.9	2.9	54	051	1.9	061	5.7	16	1500	*****	*****	**	***	***	***	***	1500
1800	9.5	*****	84	061	.9	073	2.5	7	1800	*****	*****	**	***	***	***	***	1800
2100	5.8	*****	3	086	.2	097	1.3	1	2100	*****	*****	**	***	***	***	***	2100
2400	6.1	*****	7	099	.2	048	.6	1	2400	*****	*****	**	***	***	***	***	2400

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING August, 1983

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	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW										
0300	*****	*****	**	***	***	***	***	***	0300	*****	*****	**	***	***	***	***	***	0300	11.1	9.7	91	219	1.7	210	4.4	1
0600	*****	*****	**	***	***	***	***	***	0600	*****	*****	**	***	***	***	***	***	0600	11.9	9.6	86	221	2.0	214	5.7	2
0900	*****	*****	**	***	***	***	***	***	0900	*****	*****	**	***	***	***	***	***	0900	11.7	9.1	84	225	2.3	230	6.3	17
1200	*****	*****	**	***	***	***	***	***	1200	*****	*****	**	***	***	***	***	***	1200	13.6	9.9	78	226	2.2	235	6.3	57
1500	*****	*****	**	***	***	***	***	***	1500	11.6	*****	85	254M	.4M	255M	2.5M	7	1500	14.0	7.8	66	228	2.3	231	5.7	17
1800	*****	*****	**	***	***	***	***	***	1800	11.2	9.6	90	252	.5	330	3.8	2	1800	12.8	6.9	67	224	2.0	202	5.1	5
2100	*****	*****	**	***	***	***	***	***	2100	10.6	*****	93	201	.8	193	2.5	1	2100	8.6	*****	96	278	.3	228	4.4	1
2400	*****	*****	**	***	***	***	***	***	2400	11.5	10.1	91	222	.6	217	3.8	1	2400	7.9	*****	94	022	.4	041	1.9	1

DAY 31

HOUR	DEW	WIND	WIND	GUST	MAX.			
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	7.7	*****	99	340	.3	357	1.3	0
0600	7.6	*****	98	003	.3	325	1.3	1
0900	9.1	*****	90	350	.3	353	1.3	11
1200	10.9	*****	84	353	.4	014	1.3	24
1500	12.7	8.0	73	232	.4	177	2.5	30
1800	12.5	*****	73	210	1.0	190	3.2	6
2100	5.1	*****	1	200	.3	192	1.9	0
2400	6.1	*****	3	219	.1	219	.6	1

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING August, 1983

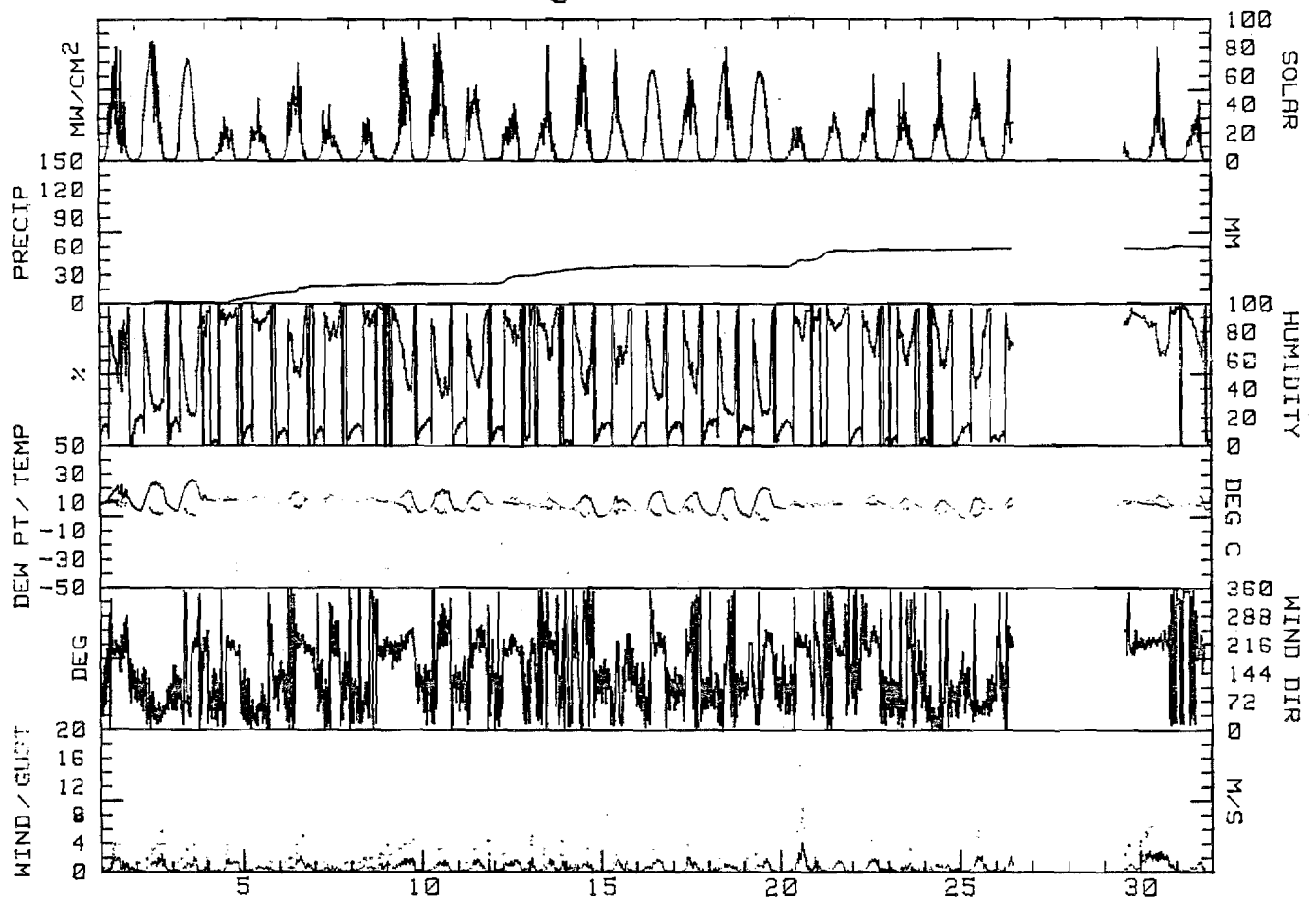
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	22.2	6.2	14.2	201	.6	.7	189	3.8	SSW			.6	4653	1
2	24.4	4.3	14.4	053	.7	.7	041	5.7	NE			1.8	6683	2
3	25.7	4.1	14.9	172	.1	.6	233	3.8	SW			0.0	6565	3
4	14.1	11.1	12.6	200	.4	.6	234	3.8	SSW			3.0	1800	4
5	14.9	9.5	12.2	040	.3	.4	025	1.9	ENE	**	*****	6.2	2288	5
6	17.3	9.4	13.4	222	.4	.8	235	5.1	SW			6.8	4170	6
7	15.4	9.4	12.4	126	.0	.3	017	1.9	E			.8	2003	7
8	13.4	10.2	11.8	130	.1	.5	185	2.5	SSW			.8	1503	8
9	18.1	3.0	10.6	221	.8	1.0	258	4.4	SW			.6	4423	9
10	19.2	2.9	11.1	248	.2	.6	242	3.2	ESE			.2	5455	10
11	18.4	3.4	10.9	220	.4	.5	316	4.4	SSW			.4	4113	11
12	14.2	8.5	11.4	200	.6	.7	234	3.8	SSW			8.4	2510	12
13	13.6	6.6	10.1	221	.3	.7	220	5.1	SW			5.4	2795	13
14	15.3	.7	8.0	299	.1	.6	219	3.2	N			2.4	4608	14
15	14.5	.5	7.5	152	.1	.5	198	3.2	ESE			1.6	3493	15
16	18.2	3.1	10.7	215	.3	.7	218	3.8	SW			.2	5578	16
17	17.3	1.8	9.6	155	.1	.6	189	3.8	E			0.0	4130	17
18	20.4	.6	10.5	091	.2	.5	167	2.5	E			0.0	5590	18
19	20.7	-.2	10.3	193	.2	.6	255	3.8	SW			0.0	5490	19
20	11.4	5.8	8.6	217	.7	.9	214	8.9	SW			7.0	1628	20
21	11.8	7.9	9.9	210	.3	.6	206	3.2	SSW			9.8	2310	21
22	15.4	8.3	11.9	228	.4	.6	249	4.4	SSW			.6	2708	22
23	13.2	6.3	9.8	047	.1	.4	210	3.2	ENE			.2	2663	23
24	11.9	1.7	6.8	039	.3	.5	038	2.5	NE			.2	2743	24
25	13.6	-1.2	6.2	059	.6	.7	061	5.7	ENE			1.4	3133	25
26	13.2M	6.0M	9.6M	222M	.4M	.7M	211M	3.2M	SW(M)			.2	3309M	26
27	*****	*****	*****	***	****	****	***	****	***	**	*****	0.0	*****	27
28	*****	*****	*****	***	****	****	***	****	***	**	*****	0.0	*****	28
29	11.7M	10.5M	11.1M	224M	.5M	.7M	330M	3.8M	SSW(M)			.2M	781M	29
30	15.2	7.9	11.6	226	1.5	1.8	230	6.3	SW			2.0	2945	30
31	14.8	5.1	10.0	263	.1	.5	190	3.2	SW			.8	2193	31
MONTH	25.7M	-1.2M	10.7M	210M	.2M	.7M	214M	8.9M	SW(M)	M	M	61.6M	102256M	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 7.0
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 7.6
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 7.6
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 6.3

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
SHERMAN WEATHER STATION
August, 1983



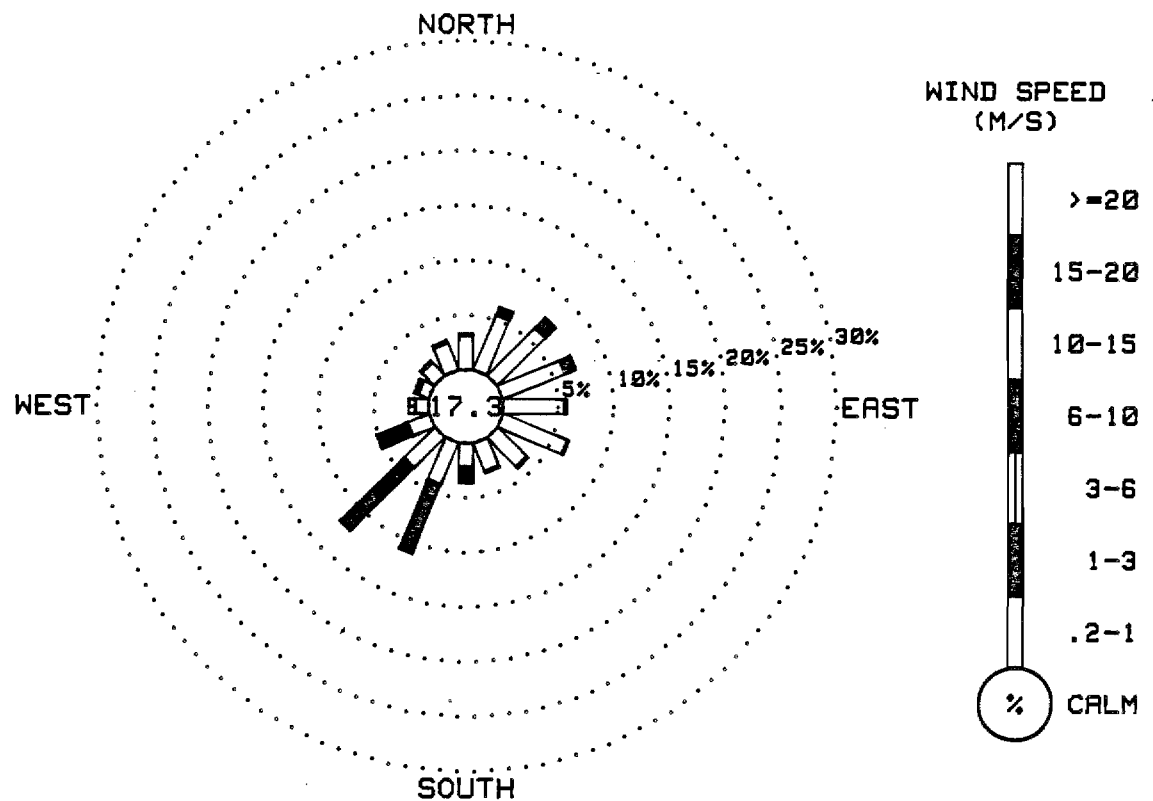
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING August, 1983

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	3.10	.15	0.00	0.00	0.00	0.00	0.00	3.25
NNE	5.41	.71	0.00	0.00	0.00	0.00	0.00	6.12
NE	6.15	1.27	0.00	0.00	0.00	0.00	0.00	7.42
ENE	6.08	1.01	0.00	0.00	0.00	0.00	0.00	7.09
E	5.52	.22	0.00	0.00	0.00	0.00	0.00	5.74
ESE	6.27	.15	0.00	0.00	0.00	0.00	0.00	6.42
SE	3.69	.22	0.00	0.00	0.00	0.00	0.00	3.92
SSE	2.76	.15	0.00	0.00	0.00	0.00	0.00	2.91
S	2.16	1.45	0.00	0.00	0.00	0.00	0.00	3.62
SSW	4.14	6.68	.11	0.00	0.00	0.00	0.00	10.93
SW	3.92	8.02	.15	0.00	0.00	0.00	0.00	12.09
WSW	2.13	2.98	0.00	0.00	0.00	0.00	0.00	5.11
W	1.19	.63	0.00	0.00	0.00	0.00	0.00	1.83
WNW	1.08	.41	0.00	0.00	0.00	0.00	0.00	1.49
NW	1.64	.22	0.00	0.00	0.00	0.00	0.00	1.86
NNW	2.65	.22	0.00	0.00	0.00	0.00	0.00	2.87
CALM								17.34
TOTAL	57.89	24.51	.26	0.00	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2681 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
SHERMAN WEATHER STATION
August, 1983



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING September, 1983

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
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
0300	6.5	*****	4	219	.1	219	0300	6.0	*****	1	043	.4	051	0300	.7	*****	7	084	.3	056
0600	7.4	*****	4	218	.1	213	0600	4.3	*****	5	055	.3	102	0600	.5	*****	3	073	.2	099
0900	9.2	*****	95	199	.9	199	0900	9.2	*****	70	073	.3	090	0900	4.8	*****	85	045	.3	075
1200	10.8	9.2	90	188	1.0	167	1200	13.5	-.3	39	070	.7	053	1200	11.1	*****	60	019	.5	340
1500	10.1	*****	90	237	.3	281	1500	14.9	-1.0	34	035	.9	045	1500	14.8	*****	46	014	.6	026
1800	9.4	*****	95	251	.1	184	1800	10.4	*****	67	043	.6	049	1800	10.3	*****	70	290	.5	320
2100	8.7	*****	94	028	.6	038	2100	0.0	*****	5	355	.1	355	2100	.7	*****	3	020	.1	297
2400	7.3	*****	96	044	.5	063	2400	0.0	*****	7	004	.2	355	2400	-1.5	*****	6	103	.2	049

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
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
0300	-2.0	*****	99	114	.3	103	0300	-3.3	*****	97	072	.2	083	0300	-2.6	*****	99	051	.2	075
0600	.7	*****	99	087	.4	105	0600	-3.3	*****	98	063	.2	062	0600	-2.5	*****	0	067	.2	070
0900	5.7	*****	85	077	.3	062	0900	3.9	*****	75	091	.3	088	0900	7.1	*****	68	070	.4	101
1200	11.6	-.3	44	054	.6	094	1200	12.7	-1.4	38	022	.8	344	1200	12.7	-4.1	31	099	.7	106
1500	11.5	*****	41	061	1.0	048	1500	13.7	-2.0	34	210	1.1	195	1500	15.0	*****	27	083	.8	084
1800	8.0	*****	75	049	.4	063	1800	8.9	*****	70	254	.6	237	1800	8.2	*****	58	305	.6	244
2100	.3	*****	1	053	.2	053	2100	-.5	*****	1	306	.2	306	2100	-1.0	*****	1	339	.2	339
2400	-1.9	*****	4	053	.2	050	2400	-2.8	*****	99	306	.2	306	2400	-3.1	*****	99	339	.3	339

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.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.
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
0300	-2.9	*****	99	339	.2	339	0300	4.2	*****	5	044	.2	071	0300	5.0	*****	4	006	.2	006
0600	-.8	*****	3	346	.2	017	0600	4.4	*****	2	332	.2	322	0600	5.1	*****	2	006	.2	006
0900	3.5	*****	82	079	.3	092	0900	7.1	*****	93	015	.2	052	0900	7.4	*****	94	011	.2	006
1200	10.8	1.3	52	040	.7	001	1200	10.8	*****	70	336	.5	334	1200	14.0	5.7	57	268	.3	188
1500	14.3	2.5	45	211	.7	192	1500	12.4	*****	60	210	.8	248	1500	13.4	3.8	52	234	1.9	222
1800	9.3	*****	74	226	1.0	238	1800	10.2	*****	71	229	.7	227	1800	7.9	*****	83	223	.8	229
2100	5.7	*****	94	185	.2	192	2100	6.3	*****	95	211	.2	211	2100	6.1	*****	97	199	.1	206
2400	4.0	*****	5	174	.2	204	2400	5.8	*****	4	341	.1	236	2400	5.5	*****	97	126	.2	133

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING September, 1983

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.	SPD.	DIR.	GUST	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	4.3	*****	3	328	.2	328	1.3	1	0300	2.4	*****	6	277	.1	277	.6	0
0600	5.3	*****	4	327	.3	328	1.3	1	0600	2.6	*****	6	277	.1	277	.6	2
0900	6.9	*****	98	023	.2	081	1.3	10	0900	7.7	*****	90	043	.1	052	1.3	22
1200	8.8	*****	91	027	.4	052	1.9	14	1200	14.3	4.6	52	339	.7	333	2.5	33
1500	14.1	4.4	52	061	.2	051	1.9	40	1500	15.5	*****	45	328	.5	315	1.9	20
1800	8.5	*****	85	296	.6	326	1.9	3	1800	10.5	*****	81	220	.4	255	3.2	2
2100	2.7	*****	2	277	.1	277	.6	0	2100	6.0	*****	95	214	.2	214	1.3	1
2400	1.0	*****	8	277	.2	277	.6	1	2400	4.7	*****	1	214	.2	214	.6	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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	2.9	*****	3	236	.2	236	.6	1	0300	1.1	*****	4	067	.5	057	1.3	1
0600	3.5	*****	4	078	.1	251	1.3	1	0600	2.3	*****	0	063	.4	056	1.3	2
0900	6.6	*****	93	056	.1	087	1.3	16	0900	7.4	4.7	83	201	.7	232	2.5	10
1200	9.1	*****	79	345	.4	330	1.3	26	1200	5.7	4.5	92	201	1.6	203	3.8	10
1500	12.9	4.1	55	070	1.0	071	3.2	41	1500	5.9	*****	94	204	.2	231	3.2	10
1800	9.4	*****	74	050	.7	042	3.2	2	1800	5.2	*****	95	198	.2	292	1.9	2
2100	4.4	*****	0	028	.2	043	.6	0	2100	3.8	*****	0	176	.6	178	2.5	0
2400	1.8	*****	2	062	.3	057	1.3	0	2400	3.4	*****	3	254	.2	277	1.3	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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	-3.5	*****	99	020	.2	063	1.3	1	0300	-4.1	*****	2	027	.2	044	1.3	0
0600	-4.8	*****	0	077	.2	086	1.3	2	0600	-5.1	*****	99	071	.2	040	1.3	2
0900	2.6	*****	82	099	.3	050	1.3	35	0900	2.1	*****	84	096	.3	112	1.3	41
1200	12.7	.0	42	028	.7	020	2.5	50	1200	11.3	.9	49	112	.6	053	2.5	48
1500	15.6	-2.0	30	061	1.2	042	3.2	36	1500	12.6	-1.1	39	213	2.1	224	4.4	34
1800	8.0	*****	56	335	.6	249	4.4	2	1800	5.7	*****	74	233	1.2	247	3.8	2
2100	-4	*****	1	022	.2	008	1.3	0	2100	-1.5	*****	4	259	.2	259	.6	1
2400	-3.0	*****	1	357	.3	083	1.3	1	2400	-3.4	*****	99	259	.2	259	1.3	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING September, 1983

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
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	-1.2	*****	1	114	.2	093	1.3	0	0300	5.1	*****	3	044	.6	045	2.5	1
0600	-1.7	*****	2	077	.2	044	1.3	1	0600	5.1	*****	3	044	.4	054	1.3	1
0900	4.0	*****	91	357	.2	358	1.3	8	0900	6.9	*****	98	040	.4	026	1.9	13
1200	11.1	1.6	52	027	.7	045	5.1	21	1200	8.5	*****	95	034	.6	045	1.9	11
1500	11.9	1.2	48	028	1.9	028	5.1	13	1500	8.7	*****	0	031	.4	012	1.3	4
1800	11.1	1.3	51	029	1.8	030	4.4	1	1800	8.2	*****	1	006	.4	029	1.3	1
2100	9.5	2.9	63	045	1.5	049	6.3	1	2100	7.6	*****	2	021	.3	006	1.3	1
2400	5.7	*****	96	069	.9	050	4.4	1	2400	6.9	*****	3	028	.2	045	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	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	5.7	*****	4	357	.2	353	1.3	0	0300	.1	*****	94	043	.3	047	1.9	0
0600	5.2	*****	3	333	.2	333	1.3	1	0600	-9	*****	91	***	0.0	***	0.0	1
0900	6.9	*****	2	333	.2	333	.6	6	0900	1.1	*****	67	097	.2	120	1.9	11
1200	8.9	8.1	95	261	.2	211	3.2	17	1200	1.6	-4.9	62	075	.6	083	2.5	16
1500	8.5	5.9	84	219	1.4	207	4.4	4	1500	2.8	-8.3	44	048	1.6	068	5.1	27
1800	5.0	3.8	92	051	.9	028	3.2	1	1800	-4	-11.9	42	053	2.4	039	7.6	2
2100	.4	-40.7	2	028	.9	019	3.2	1	2100	-2.1	-12.8	44	053	2.7	052	7.0	1
2400	.3	*****	98	039	.9	029	3.2	0	2400	-2.2	-13.5	42	056	3.6	048	8.9	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	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	-2.6	-14.2	41	049	2.8	040	7.6	1	0300	-10.2	*****	91	079	.6	069	1.9	0
0600	-3.0	-14.5	41	049	2.4	041	7.0	2	0600	-11.6	*****	91	073	.7	078	1.3	1
0900	-.8	-13.2	39	065	2.6	059	7.0	30	0900	-3.3	-11.5	53	069	.7	070	2.5	31
1200	1.7	-13.0	33	055	3.4	034	7.6	45	1200	1.6	-11.0	39	076	2.0	057	5.1	43
1500	2.7	-13.3	30	044	2.5	048	5.7	30	1500	3.9	-11.1	33	062	2.0	071	4.4	29
1800	-1.0	*****	40	038	1.2	039	4.4	1	1800	-1.0	*****	51	046	1.0	061	3.8	1
2100	-7.0	*****	77	101	.5	113	2.5	1	2100	-5.9	*****	71	084	.6	114	1.3	1
2400	-9.2	*****	81	072	.7	084	1.3	1	2400	-8.4	*****	86	055	.7	043	1.9	1

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING September, 1983

DAY 28

DAY 29

DAY 30

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			
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW			
0300	-9	****	96	037	.8	039	1.9	0	0300	.7	****	2	071	.5	081	1.3	1	0300	2.4	****	4	297	.3	331	1.9	1
0600	-7	****	98	021	.7	028	1.3	0	0600	.8	****	4	080	.4	073	1.3	1	0600	2.6	****	5	268	.1	037	1.3	1
0900	.3	-3	96	017	.6	358	1.9	4	0900	.3	****	3	065	.3	034	1.3	2	0900	5.2	****	4	029	.3	333	1.3	11
1200	1.4	****	96	020	.8	015	2.5	10	1200	1.8	****	1	065	.5	059	1.3	5	1200	8.3	7.1	92	232	.2	190	2.5	14
1500	1.7	****	97	025	.6	034	1.3	5	1500	3.2	****	0	065	.6	081	1.3	4	1500	9.8	6.2	78	214	2.2	212	5.7	12
1800	.2	****	3	050	.5	030	1.9	0	1800	2.8	****	2	059	.4	021	1.3	1	1800	8.2	6.2	87	214	1.7	212	4.4	1
2100	.3	****	4	065	.5	058	1.3	0	2100	2.4	****	2	047	.3	339	1.9	1	2100	8.0	5.3	83	222	1.7	239	5.1	1
2400	.6	****	4	059	.4	063	1.3	1	2400	2.6	****	4	007	.2	254	1.3	0	2400	7.5	4.6	82	227	2.6	236	7.0	0

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING September, 1983

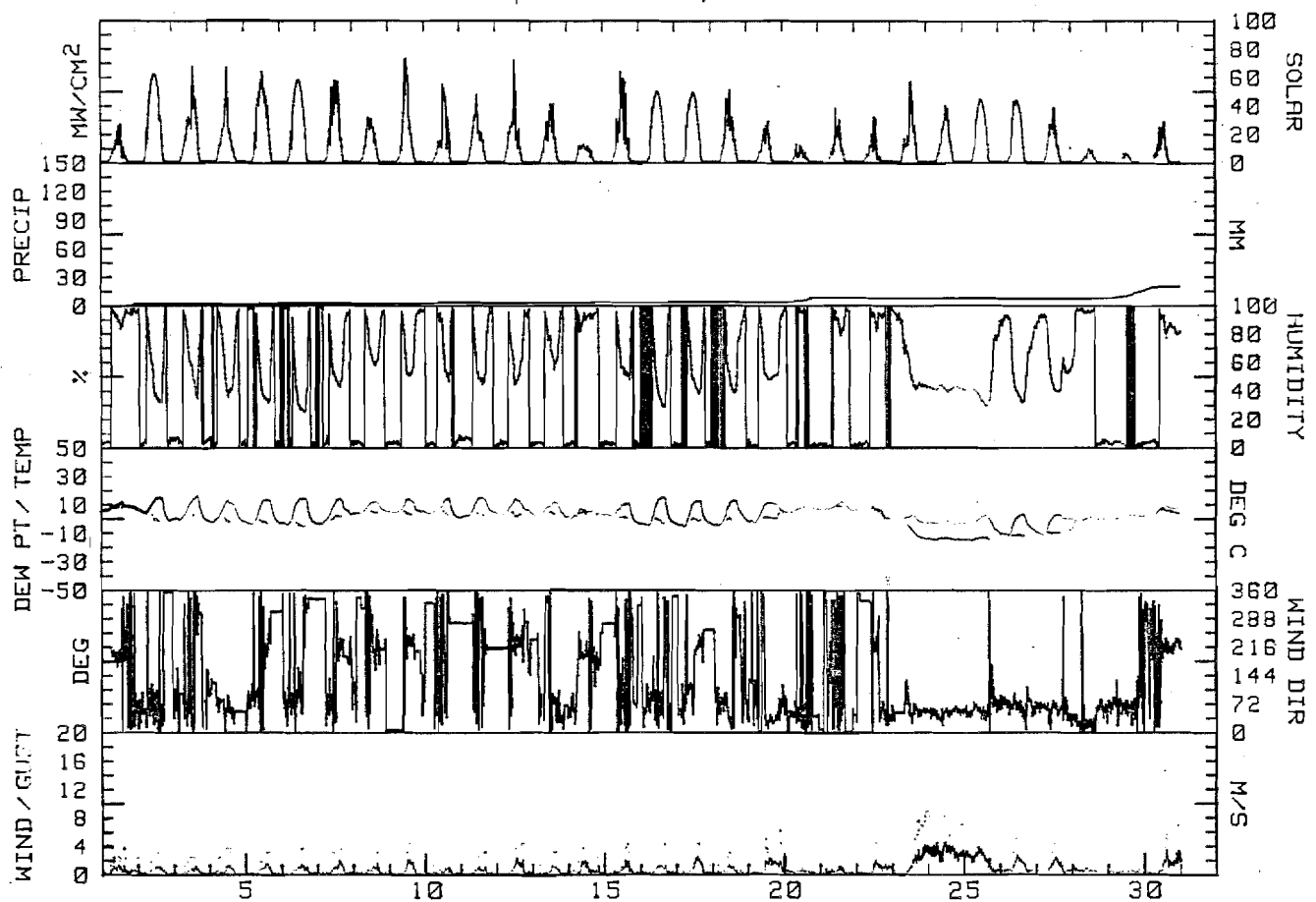
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH Z	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SDH	DAY
1	12.4	5.8	9.1	190	.2	.6	281	3.8	SSW			2.8	1370	1
2	15.3	-.9	7.2	046	.4	.5	045	3.2	N			0.0	5145	2
3	16.5	-1.5	7.5	023	.2	.5	340	2.5	ENE			0.0	3290	3
4	13.1	-2.3	5.4	066	.4	.4	094	3.8	NE			0.0	2763	4
5	14.2	-3.6	5.3	269	.1	.5	195	3.2	NW			0.0	4348	5
6	15.0	-4.3	5.4	052	.2	.5	084	3.8	NNW			0.0	4625	6
7	14.7	-3.7	5.5	215	.1	.6	192	3.8	NNW			0.0	3553	7
8	12.8	3.8	8.3	258	.2	.4	227	3.2	SSW			.2	2093	8
9	14.6	4.7	9.7	236	.3	.6	222	4.4	N			.2	3210	9
10	15.0	.9	8.0	337	.2	.4	052	1.9	NNW			.4	2468	10
11	15.5	1.0	8.3	294	.2	.3	255	3.2	SSW			0.0	2398	11
12	14.8	3.3	9.1	229	.5	.6	245	4.4	SW			0.0	2388	12
13	12.9	1.5	7.2	051	.3	.4	071	3.2	ENE			0.0	2230	13
14	7.5	.1	3.8	186	.3	.7	203	3.8	S			.6	1113	14
15	11.9	-3.7	4.1	005	.3	.5	026	4.4	W			0.0	2953	15
16	15.7	-4.8	5.5	037	.4	.6	249	4.4	NNW			0.0	3815	16
17	12.8	-5.1	3.9	209	.4	.7	224	4.4	WSW			0.0	3698	17
18	13.5	-4.8	4.4	032	.3	.5	027	3.2	E			0.0	2530	18
19	12.0	-3.0	4.5	039	.9	1.0	049	6.3	NNE			0.0	1430	19
20	8.8	5.0	6.9	033	.4	.4	045	2.5	NE			3.8	690	20
21	12.2	5.9	9.1	013	.2	.4	104	2.5	N			0.0	1533	21
22	9.8	.3	5.1	016	.2	.7	207	4.4	NNW			.4	1108	22
23	3.4	-2.6	.4	055	1.4	1.5	048	8.9	NE	46	-10.3	0.0	2335	23
24	-.6	-3.4	-2.0	050	3.2	3.3	051	9.5	NE	42	-13.6	0.0	2205	24
25	3.7	-9.2	-2.8	054	2.0	2.1	040	7.6	NE	37	-13.6	0.0	3283	25
26	3.9	-11.6	-3.9	067	1.0	1.1	057	5.1	ENE	39	-11.2	0.0	3085	26
27	3.6	-11.1	-3.8	059	1.0	1.0	067	4.4	ENE	46	-9.0	0.0	1948	27
28	1.8	-.9	.5	034	.6	.6	015	2.5	NNE			.2	598	28
29	3.4	.2	1.8	063	.4	.5	339	1.9	ENE	**	*****	8.0	473	29
30	10.2	2.3	6.3	223	1.0	1.3	236	7.0	SW			4.2	1363	30
MONTH	16.5	-11.6	4.6	050	.3	.8	051	9.5	NE	M	M	20.8	74033	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 8.3
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 8.3
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 7.0
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 8.9

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

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

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
SHERMAN WEATHER STATION
September, 1983



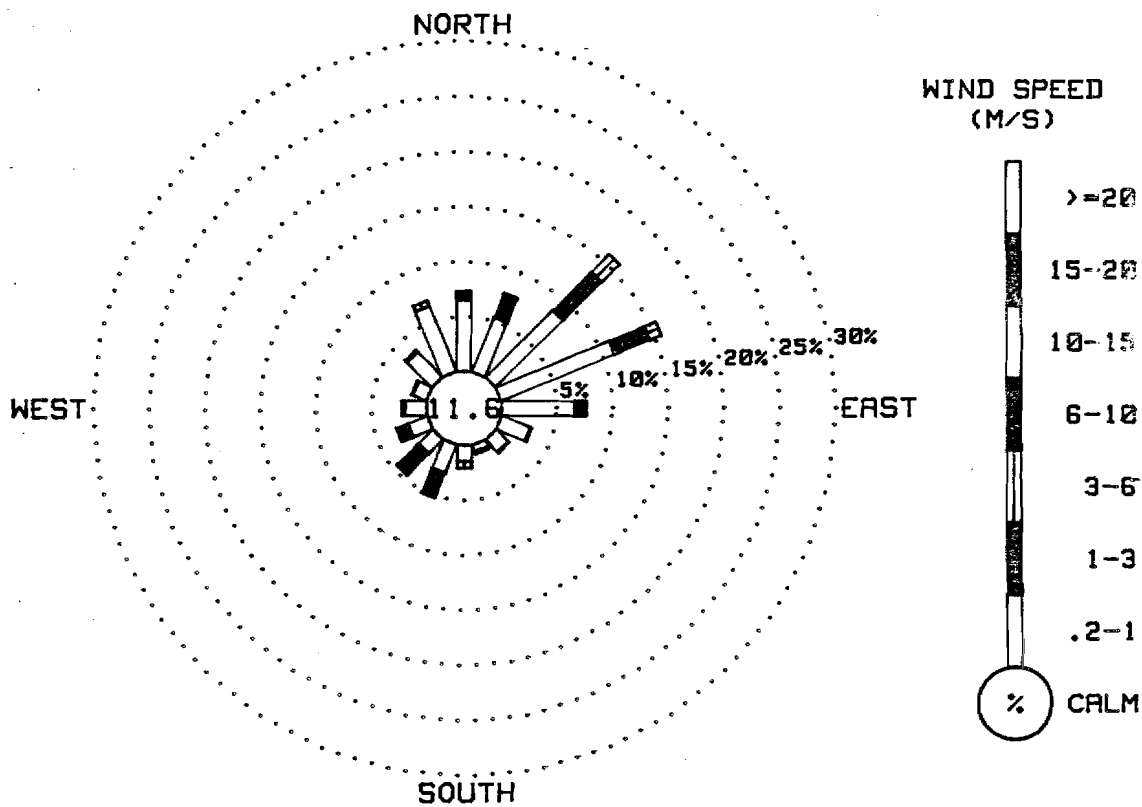
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR SHERMAN WEATHER STATION
DATA TAKEN DURING September, 1983

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	6.49	.76	0.00	0.00	0.00	0.00	0.00	7.26
NNE	5.31	2.26	.14	0.00	0.00	0.00	0.00	7.71
NE	8.58	4.93	2.22	0.00	0.00	0.00	0.00	15.73
ENE	11.04	3.40	1.11	0.00	0.00	0.00	0.00	15.56
E	6.60	1.01	0.00	0.00	0.00	0.00	0.00	7.60
ESE	2.85	.14	0.00	0.00	0.00	0.00	0.00	2.99
SE	1.60	.10	0.00	0.00	0.00	0.00	0.00	1.70
SSE	.63	.24	0.00	0.00	0.00	0.00	0.00	.87
S	1.46	.63	0.00	0.00	0.00	0.00	0.00	2.08
SSW	2.74	2.40	.03	0.00	0.00	0.00	0.00	5.17
SW	1.81	2.60	.17	0.00	0.00	0.00	0.00	4.58
WSW	1.91	1.08	0.00	0.00	0.00	0.00	0.00	2.99
W	1.98	.28	0.00	0.00	0.00	0.00	0.00	2.26
WNW	1.35	.14	0.00	0.00	0.00	0.00	0.00	1.49
NW	3.23	.24	0.00	0.00	0.00	0.00	0.00	3.47
NNW	6.39	.56	0.00	0.00	0.00	0.00	0.00	6.94
CALM								11.60
TOTAL	63.96	20.76	3.68	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
September, 1983



WIND ROSE PLOT