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PROCESSED CLIMATIC DATA OCTOBER 1982 - SEPTEMBER 1983

VOLUME II
DENALI STATION
(No. 0620)

R&M CONSULTANTS, INC.
ENGINEERS GEOLOGISTS PLANNERS SURVEYORS

UNDER CONTRACT TO

ARZA-EBASCO
SITNA JOINT VENTURE

FINAL REPORT

JUNE 1984
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SUSITNA HYDROELECTRIC PROJECT

PROCESSED CLIMATIC DATA
OCTOBER 1982 - SEPTEMBER 1983

VOLUME 2
DENALI STATION (No. 0620)

Report by

R&M Consultants, Inc.

Under Contract to
Harza-Ebasco Susitna Joint Venture

Prepared for
Alaska Power Authority

Final Report
June 1984

3 3755 000 36665 8

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TASK 4 - HYDROLOGY

PROCESSED CLIMATIC DATA (1983)
OCTOBER 1982 - SEPTEMBER 1983

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SUSITNA HYDROELECTRIC PROJECT

PROCESSED CLIMATIC DATA - DENALI 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.

I. BACKGROUND

A. Purpose

The Denali climate site was chosen to represent the high plateau at the base of the Alaska Range.

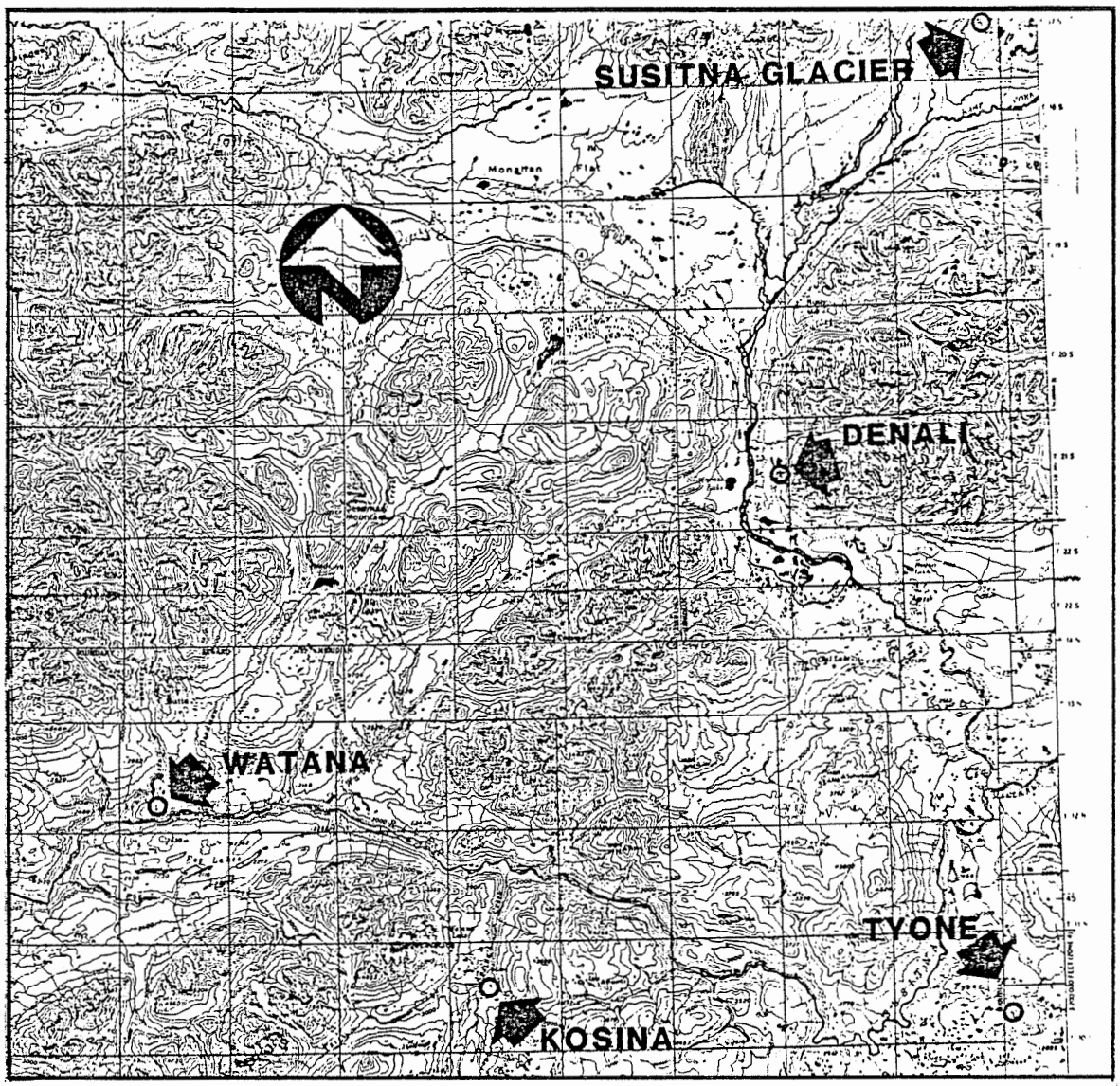
B. History of Denali Station (No. 0620)

The station in on the left bank of the Susitna River within one mile of the river (see figure I-1 for location). It is also near the Susina Lodge and the Denali Highway making Denali the only project climate station accessible by auto (summer months only). Denali Station is at Susitna River Mile 289.5.

Winds at Denali blow primarily north and south due to its location in a corridor formed by the Clearwater Mountains to the east and the buttes to the west. The station lies on an open tundra area. The elevation of the Denali climate station is 2,700 feet above mean sea level. The station was installed on July 17, 1980.

Previous data reports for this station are:

Report	Period Covered
1. Processed Climatic Data Volume 2 Denali Station March 1982 (R&M Consultants)	July 1980 - Sept. 1981
2. Processed Climatic Data Volume 2 Denali Station December 1982 (R&M Consultants)	Oct. 1981 - Sept. 1982



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

CLIMATE STATIONS
UPPER SUSITNA BASIN

Station Location

Figure I-1

PREPARED BY:

R&M CONSULTANTS, INC.
ENGINEERS GEOLOGISTS PLANNERS SURVEYORS

PREPARED FOR:

HARZA-EBASCO
SUSITNA JOINT VENTURE

II. ANNUAL DATA SUMMARIES

DENALI STATION (No. 0620)

SUMMARY OF CLIMATE DATA RECORDED AT DENALI STATION (NO. 620)
WATER YEAR 1983

Month	Temperature			Wind						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)	P'val. Dir. (True)					
OCT	M	M	M	M	M	M	M	M	M	M	M	M	M	OCT
NOV	M	M	M	M	M	M	M	M	M	M	M	M	M	NOV
DEC	M	M	M	M	M	M	M	M	M	M	M	M	M	DEC
JAN	M	M	M	M	M	M	M	M	M	M	M	M	M	JAN
FEB	0.7	-31.6	-14.1	M	M	M	M	M	M	M	M	M	36,403M	FEB
MAR	1.8M	-26.7M	-11.8M	M	M	M	M	M	M	M	M	M	90,588M	MAR
APR	12.5	-22.2	-2.3	166M	0.4M	2.9M	138M	23.5M	NNW(M)	M	M	0.8	154,391	APR
MAY	21.4	-5.2	4.7	210M	0.5M	2.1M	160M	17.1M	NNW(M)	M	M	7.6	166,505	MAY
JUN	25.6M	2.4M	10.3M	306M	0.6M	2.7M	163M	13.3M	NNW(M)	M	M	12.8M	190,115M	JUN
JUL	22.7	3.7	11.9	306M	0.8M	2.8M	158M	12.1M	NNW(M)	M	M	23.8	173,718M	JUL
AUG	19.6M	-1.6M	8.4M	025M	0.4M	2.7M	155M	16.5M	NNE(M)	M	M	36.4	110,843M	AUG
SEP	10.3M	-17.1M	1.3M	M	M	M	M	M	M	M	M	12.2	76,201M	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 DENALI STATION (NO. 620)
WATER YEAR 1982

Month	Temperature Max. (°C)	Temperature Min. (°C)	Temperature Mean (°C)	Wind Res. Dir. (°True)	Wind Res. Speed (m/sec)	Wind Avg. Speed (m/sec)	Wind Max. Gust Dir. (°True)	Wind Max. Gust Speed (m/sec)	Wind P'val. Dir. (True)	Mean RH (%)	Mean DP (°C)	Precip. (mm)	Total Solar Energy (WH/m2)	Month
OCT	6.8	-16.1	-2.8	037M	0.5M	2.9	150	19.7	N(M)	M*	M*	M	45,347	OCT
NOV	6.6M	-29.4M	-12.9M	201	0.1	2.1	130	23.5	N	54M	-20.6M	M	22,772M	NOV
DEC	5.7	-41.7	-16.5	171	0.2	2.1	139	31.7	N	M*	M*	M	12,391	DEC
JAN	-11.4	-42.4	-25.2	016	0.4	2.3	185	19.0	N	M*	M*	M	18,622	JAN
FEB	3.7M	-48.9M	-18.7M	005M	1.9M	3.3M	350M	17.8M	N(M)	M*	M*	M	37,233M	FEB
MAR	2.4M	-28.3M	-11.5M	106M	0.4M	3.3M	150M	19.0M	N(M)	M*	M*	M	82,666M	MAR
APR	6.8	-25.6	-5.9	004	1.1	3.3	150	18.4	N	M*	M*	1.0	146,382	APR
MAY	14.8M	-10.2M	2.5M	331M	0.7M	2.4M	164M	14.0M	N(M)	M*	M*	6.2	178,601M	MAY
JUN	23.9M	-1.3M	9.1M	173M	0.7M	3.2M	185M	17.8M	N(M)	M*	M*	16.8M	M	JUN
JUL	M	M	M	M	M	M	M	M	M	M	M	M	M	JUL
AUG	M	M	M	M	M	M	M	M	M	M	M	M	M	AUG
SEP	M	M	M	M	M	M	M	M	M	M	M	M	M	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.

s12/o9

SUMMARY OF CLIMATE DATA RECORDED AT DENALI STATION (NO. 620)
WATER YEAR 1981

Month	Temperature Max. (°C)	Temperature Min. (°C)	Temperature Mean (°C)	Wind Res. Dir. (°True)	Wind Res. Speed (m/sec)	Wind Avg. Speed (m/sec)	Wind Max. Gust Dir. (°True)	Wind Max. Gust Speed (m/sec)	Wind P'val. Dir. (True)	Mean RH (%)	Mean DP (°C)	Precip. (mm)	Total Solar Energy (WH/m2)	Month
OCT	M	M	M	M	M	M	M	M	M	M	M	M	M	OCT
NOV	3.5M	-27.8M	-9.0M	M	M	M	M	M	M	M	M	M	17,818M	NOV
DEC	5.7	-43.3	-28.8	M	M	M	M	M	M	M	M	M	13,929	DEC
JAN	6.7	-20.2	-5.5	M	M	M	M	M	M	M	M	M	14,260	JAN
FEB	4.0M	-33.9M	-10.6M	154M	0.5M	2.6M	132M	22.2M	N(M)	72M	-15.3M	M	31,456M	FEB
MAR	8.5M	-20.1M	-5.6M	322M	0.4M	3.1M	132M	31.1M	N(M)	60M	-12.3M	M	81,698M	MAR
APR	8.1M	-21.4M	-6.2M	353M	1.4M	2.3M	013M	12.1M	N(M)	56M	-13.2M	M	159,863M	APR
MAY	20.6	-2.7	7.1	293	0.3	2.7	150	19.0	N	58M	-0.7M	8.0	159,450	MAY
JUN	21.2	-0.3	9.0	325	0.4	2.7	182	14.0	N	M*	M*	43.0	164,888	JUN
JUL	17.2	1.3	9.9	302	0.4	2.1	146	14.6	N	M*	M*	76.0	104,301	JUL
AUG	24.5	-4.5	9.4	148	1.2	3.4	140	22.2	N	M*	M*	63.2	113,631	AUG
SEP	15.5	-14.2	3.2	023	0.6	2.4	161	19.0	N	M*	M*	8.4	74,770	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.

SUMMARY OF CLIMATE DATA RECORDED AT DENALI STATION (NO. 620)
WATER YEAR 1980

Month	Temperature			Wind										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)	P'val. Dir. (True)	Mean RH (%)	Mean DP (°C)	Precip. (mm)	Total Solar Energy (WH/m2)	
OCT														OCT
NOV														NOV
DEC														DEC
JAN														JAN
FEB						STATION INSTALLED 7/18/80								FEB
MAR														MAR
APR														APR
MAY														MAY
JUN														JUN
JUL	M	M	M	M	M	M	M	M	M	M	M	M	M	JUL
AUG	23.3M	-1.2M	9.3M	263M	0.3M	2.4M	142M	15.9M	S(M)	M*	M*	36.8M	91,529M	AUG
SEP	M	M	M	M	M	M	M	M	M	M	M	M	M	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/cm^2

   Gust: 0 through 99.9 m/sec

   Battery: 9 through 14.5 volts

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

   Temperature: ±1°C
   Wind Speed: ±0.5 meters per second
   Wind Direction: ±1% of full scale
   Relative Humidity: ±6%

Precipitation: ±1% up to 76.2 mm/hr, ±5% from 76.2 mm/hr to 254 mm/hr

Solar Radiation: ±5mw cm^{-2}

Tape Recorder Error Rate: 1 bit in 10^7

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

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

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 Denali 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 ±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 mW/cm^2 on every reading will cause the computed daily total energy to be high by 240 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 DENALI Station Data

1. **General** - The station was not installed from June 29 to December 3, 1982, because it was used as a replacement for other stations which were undergoing factory maintenance. Thus, no data prior to December 3 are contained in this report. All data except precipitation were lost from August 28 - September 2, 1983, when the unit 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** - All relative humidity data for the year were considered unreliable and deleted except for a few days in January. Those days' records are poor to fair, but the data were retained there as **indicators**.

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) or 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** - The wind rose and wind frequency table for September were not valid since the anemometer failed to function reliably nearly all month. They have been deleted.

s4/gg4

TABLE IV.1

SUSITNA HYDROELECTRIC PROJECT - CLIMATE DATA PROCESSING

APPROXIMATE PERCENTAGES OF USABLE DATA

Station: Denali

Water Year: 1983

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	YEAR
Temperature	0	0	45	65	100	97	100	100	99+	99+	92	95	74
Wind Speed	0	0	0	0	0	70	99+	99	99+	99+	92	5	47
Wind Direction	0	0	45	65	99	97	98	99	99+	99+	92	5	66
Relative Humidity	0	0	0	15	0	0	0	0	0	0	0	0	1
Precipitation	0	0	0	0	0	0	100	100	99+	100	100	100	50(1)
Solar Radiation	0	0	45	0	91	97	100	100	99+	99+	92	95	68
Peak Gust	0	0	0	0	0	70	99+	99	99+	99+	92	5	47
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

Unit not installed @ site until 12/2/82

(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

DENALI STATION, WATER YEAR 1983

No data for October

(see INTERPRETATION OF DATA)

No data for November

(see INTERPRETATION OF DATA)

No precipitation data for December

(See INTERPRETATION OF DATA).

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SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

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

DAY 02

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

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	-32.9	*****	**	***	****	***	****	7
1500	-35.0	*****	**	***	****	***	****	1
1800	-33.9	*****	**	***	****	***	****	1
2100	-31.1	*****	**	***	****	***	****	1
2400	-30.3	*****	**	***	****	***	****	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-30.3	*****	**	***	****	***	****	1
0600	-26.1	*****	**	***	****	***	****	1
0900	-30.5	*****	**	***	****	***	****	2
1200	-27.4	*****	**	***	****	***	****	8
1500	-28.4	*****	**	***	****	***	****	1
1800	-30.3	*****	**	***	****	***	****	1
2100	-30.7	*****	**	***	****	***	****	1
2400	-27.9	*****	**	***	****	***	****	1

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-26.1	*****	**	***	****	***	****	1
0600	-23.2	*****	**	***	****	***	****	1
0900	-20.2	*****	**	***	****	***	****	1
1200	-17.0	*****	**	***	****	***	****	3
1500	-16.9	*****	**	***	****	***	****	1
1800	-15.6	*****	**	***	****	***	****	1
2100	-17.1	*****	**	***	****	***	****	1
2400	-17.1	*****	**	***	****	***	****	1

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-18.1	*****	**	***	****	***	****	1
0600	-19.8	*****	**	***	****	***	****	1
0900	-20.2	*****	**	***	****	***	****	1
1200	-19.2	*****	**	***	****	***	****	7
1500	-19.9	*****	**	***	****	***	****	1
1800	-18.9	*****	**	***	****	***	****	1
2100	-13.0	*****	**	***	****	***	****	1
2400	-4.4	*****	**	***	****	***	****	1

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.7	*****	**	***	****	***	****	1
0600	.8	*****	**	***	****	***	****	1
0900	.9	*****	**	***	****	***	****	1
1200	2.1	*****	**	***	****	***	****	3
1500	-.2	*****	**	***	****	***	****	1
1800	.9	*****	**	***	****	***	****	1
2100	.1	*****	**	***	****	***	****	1
2400	-.7	*****	**	***	****	***	****	1

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.4	*****	**	***	****	***	****	1
0600	-3.2	*****	**	***	****	***	****	1
0900	-2.6	*****	**	***	****	***	****	1
1200	-2.9	*****	**	***	****	***	****	3
1500	-2.5	*****	**	***	****	***	****	1
1800	-.1	*****	**	***	****	***	****	1
2100	0.0	*****	**	***	****	***	****	1
2400	-.5	*****	**	***	****	***	****	1

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.4	*****	**	***	****	***	****	1
0600	-3.5	*****	**	***	****	***	****	1
0900	-9.6	*****	**	***	****	***	****	1
1200	-8.6	*****	**	***	****	***	****	7
1500	-14.3	*****	**	***	****	***	****	1
1800	-14.3	*****	**	***	****	***	****	1
2100	-16.4	*****	**	***	****	***	****	1
2400	-18.5	*****	**	***	****	***	****	1

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DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-23.9	*****	**	***	****	***	****	1
0600	-26.0	*****	**	***	****	***	****	1
0900	-21.9	*****	**	***	****	***	****	1
1200	-21.4	*****	**	***	****	***	****	6
1500	-22.8	*****	**	***	****	***	****	1
1800	-26.3	*****	**	***	****	***	****	1
2100	-25.7	*****	**	***	****	***	****	1
2400	-21.8	*****	**	***	****	***	****	1

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-21.8	*****	**	***	****	***	****	1
0600	-20.4	*****	**	***	****	***	****	1
0900	-15.9	*****	**	***	****	***	****	1
1200	-10.5	*****	**	***	****	***	****	2
1500	-10.2	*****	**	***	****	***	****	1
1800	-9.1	*****	**	***	****	***	****	1
2100	-12.9	*****	**	***	****	***	****	1
2400	-12.0	*****	**	***	****	***	****	1

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.3	*****	**	***	****	***	****	1
0600	-9.3	*****	**	***	****	***	****	1
0900	-9.2	*****	**	***	****	***	****	1
1200	-10.3	*****	**	***	****	***	****	5
1500	-10.6	*****	**	***	****	***	****	1
1800	-8.3	*****	**	***	****	***	****	1
2100	-9.1	*****	**	***	****	***	****	1
2400	-10.8	*****	**	***	****	***	****	1

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.4	*****	**	***	****	***	****	0
0600	-5.6	*****	**	***	****	***	****	1
0900	-7.6	*****	**	***	****	***	****	1
1200	-5.2	*****	**	***	****	***	****	3
1500	-7 1	*****	**	***	****	***	****	1
1800	-3.4	*****	**	***	****	***	****	1
2100	-6.8	*****	**	***	****	***	****	1
2400	-7.3	*****	**	***	****	***	****	0

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.1	*****	**	***	****	***	****	1
0600	-6.9	*****	**	***	****	***	****	1
0900	-11.9	*****	**	***	****	***	****	1
1200	-12.2	*****	**	***	****	***	****	3
1500	-13.1	*****	**	***	****	***	****	1
1800	-11.8	*****	**	***	****	***	****	1
2100	-13.6	*****	**	***	****	***	****	1
2400	-16.1	*****	**	***	****	***	****	1

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.6	*****	**	***	****	***	****	1
0600	-9.8	*****	**	***	****	***	****	1
0900	-5.6	*****	**	***	****	***	****	1
1200	-5.3	*****	**	***	****	***	****	4
1500	-8.2	*****	**	***	****	***	****	1
1800	-10.4	*****	**	***	****	***	****	1
2100	-13.4	*****	**	***	****	***	****	1
2400	-16.0	*****	**	***	****	***	****	1

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-17.5	*****	**	***	****	***	****	1
0600	-15.4	*****	**	***	****	***	****	1
0900	-15.2	*****	**	***	****	***	****	1
1200	-13.0	*****	**	***	****	***	****	2
1500	-15.1	*****	**	***	****	***	****	1
1800	-16.3	*****	**	***	****	***	****	1
2100	-13.9	*****	**	***	****	***	****	1
2400	-14.4	*****	**	***	****	***	****	1

DAY 17

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

DAY 18

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

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DAY 19

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

DAY 20

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

DAY 21

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

DAY 22

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

DAY 23

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

DAY 24

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

DAY 25

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

DAY 26

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

DAY 27

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

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DAY 28

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

DAY 29

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

DAY 30

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

DAY 31

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

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	1
2	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	2
3	-27.2M	-35.4M	-31.3M	***	****	****	***	****	***	**	*****	****	462M	3
4	-24.3	-32.0	-28.2	***	****	****	***	****	***	**	*****	****	460	4
5	-15.4	-28.1	-21.8	***	****	****	***	****	***	**	*****	****	315	5
6	-4.4	-21.9	-13.2	***	****	****	***	****	***	**	*****	****	370	6
7	2.7	-7.7	-2.5	***	****	****	***	****	***	**	*****	****	318	7
8	.6	-5.0	-2.2	***	****	****	***	****	***	**	*****	****	335	8
9	-1.0	-20.7	-10.9	***	****	****	***	****	***	**	*****	****	428	9
10	-18.6	-27.4	-23.0	***	****	****	***	****	***	**	*****	****	378	10
11	-8.8	-25.8	-17.3	***	****	****	***	****	***	**	*****	****	265	11
12	-7.6	-12.6	-10.1	***	****	****	***	****	***	**	*****	****	355	12
13	-3.4	-10.9	-7.2	***	****	****	***	****	***	**	*****	****	300	13
14	-5.5	-16.8	-11.2	***	****	****	***	****	***	**	*****	****	303	14
15	-5.2	-16.3	-10.8	***	****	****	***	****	***	**	*****	****	318	15
16	-12.9	-17.7	-15.3	***	****	****	***	****	***	**	*****	****	298	16
17	-7.8M	-15.3M	-11.6M	***	****	****	***	****	***	**	*****	****	240M	17
18	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	18
19	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	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	2.7M	-35.4M	-14.4M	***	****	****	***	****	***	**	*****	****	5142M	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS ***
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL ***
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL ***
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS ***

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.

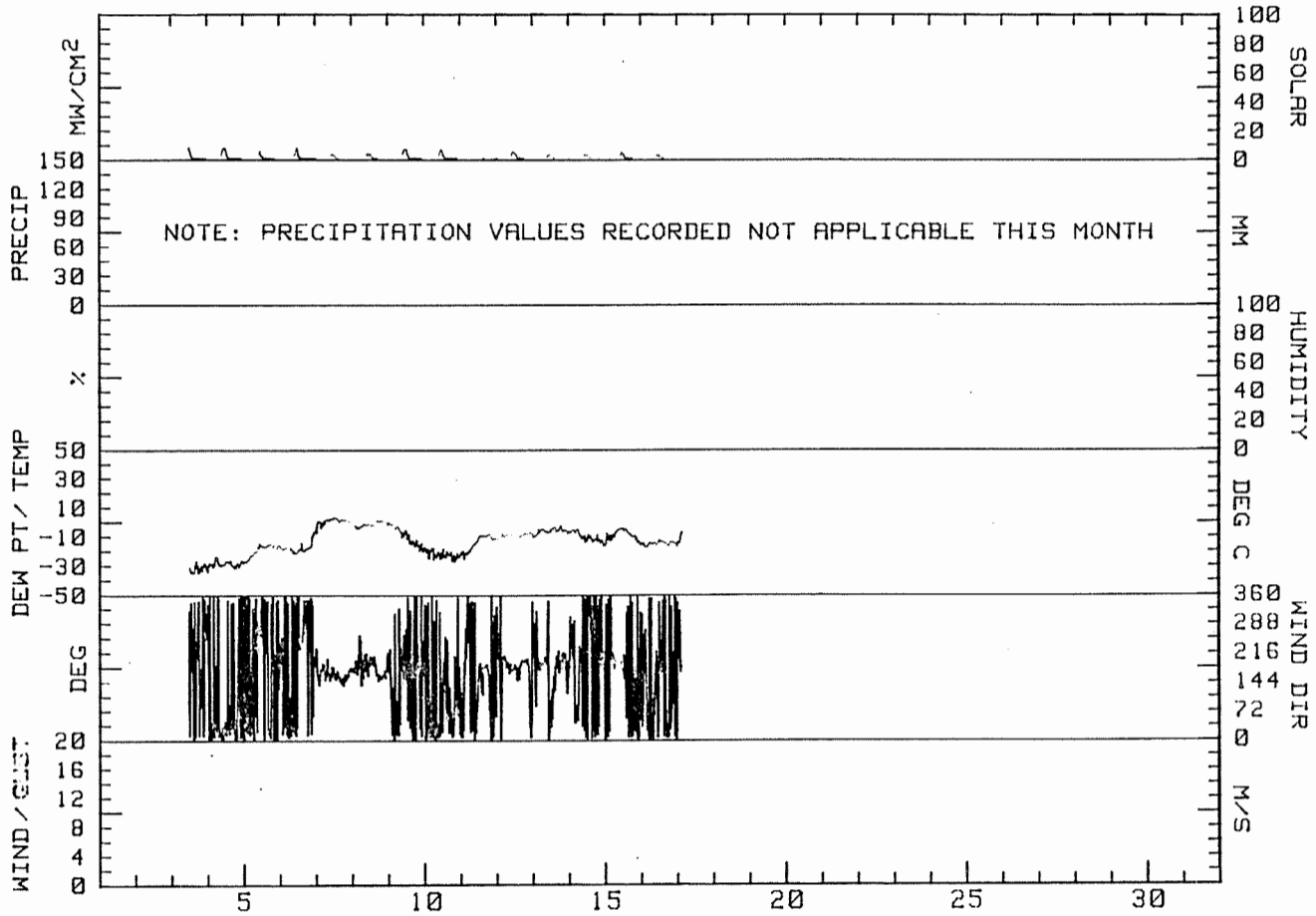
**** SEE NOTES AT THE BACK OF THIS REPORT ****

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

December, 1982



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CALM								0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

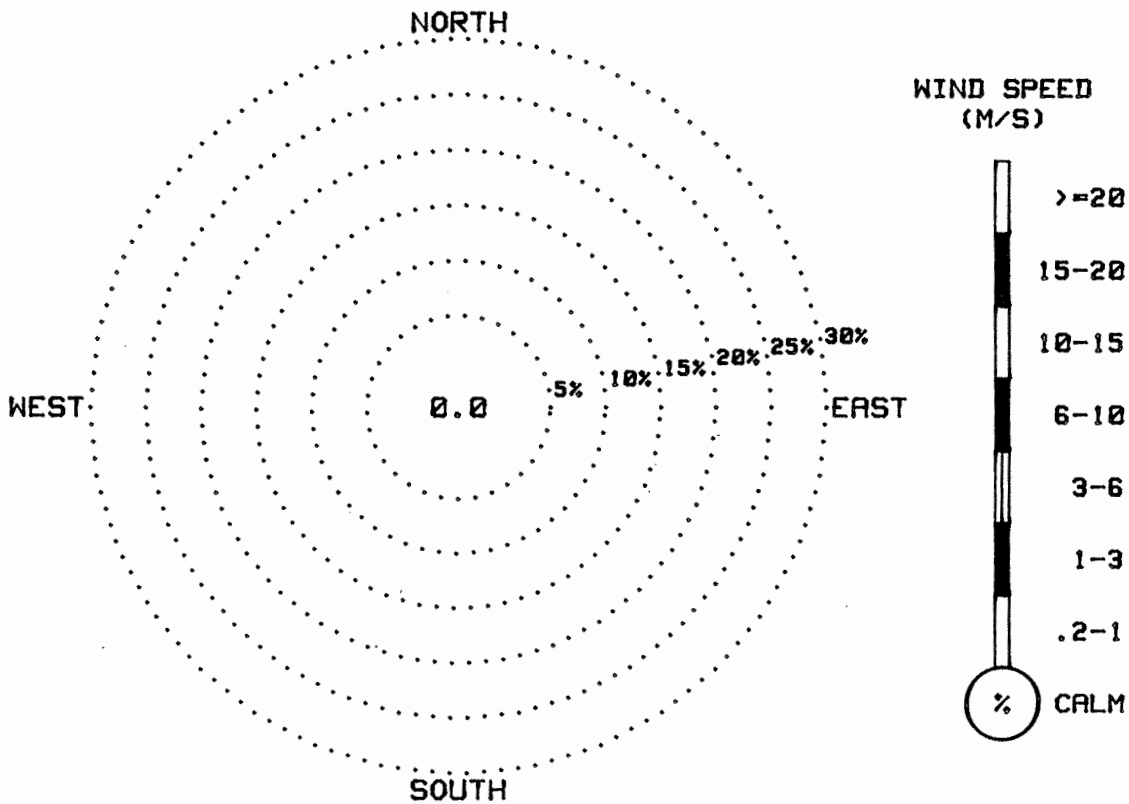
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
0 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

December, 1982



WIND ROSE PLOT

No precipitation data for January

(See INTERPRETATION OF DATA).

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

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

DAY 02

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

DAY 03

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

DAY 04

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

DAY 05

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

DAY 06

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

DAY 07

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

DAY 08

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

DAY 09

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

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 10

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

DAY 11

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

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	-27.0	-30.5	72	***	****	***	****	***
1800	-30.2	-32.6	79	***	****	***	****	***
2100	-32.0	-34.8	76	***	****	***	****	***
2400	-32.8	-35.8	74	***	****	***	****	***

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-33.3	-36.4	73	***	****	***	****	***
0600	-33.2	-36.5	72	***	****	***	****	***
0900	-35.4	-38.9	70	***	****	***	****	***
1200	-31.0	-33.7	77	***	****	***	****	***
1500	-31.3	-34.1	76	***	****	***	****	***
1800	-30.9	-33.6	77	***	****	***	****	***
2100	-29.4	-31.7	80	***	****	***	****	***
2400	-28.8	-31.2	80	***	****	***	****	***

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-31.5	-34.3	76	***	****	***	****	***
0600	-32.2	-35.0	76	***	****	***	****	***
0900	-29.3	-31.5	81	***	****	***	****	***
1200	-26.5	-27.9	88	***	****	***	****	***
1500	-23.6	*****	**	***	****	***	****	***
1800	-19.3	*****	**	***	****	***	****	***
2100	-19.7	*****	**	***	****	***	****	***
2400	-19.5	*****	**	***	****	***	****	***

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-23.2	*****	**	***	****	***	****	***
0600	-22.1	*****	**	***	****	***	****	***
0900	-23.9	*****	**	***	****	***	****	***
1200	-20.8	*****	**	***	****	***	****	***
1500	-21.1	*****	**	***	****	***	****	***
1800	-17.8	*****	**	***	****	***	****	***
2100	-17.9	*****	**	***	****	***	****	***
2400	-18.5	*****	**	***	****	***	****	***

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.9	*****	**	***	****	***	****	***
0600	-12.5	*****	**	***	****	***	****	***
0900	-14.5	*****	**	***	****	***	****	***
1200	-13.5	*****	**	***	****	***	****	***
1500	-12.7	*****	**	***	****	***	****	***
1800	-10.0	*****	**	***	****	***	****	***
2100	-12.4	*****	**	***	****	***	****	***
2400	-14.3	*****	**	***	****	***	****	***

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.5	*****	**	***	****	***	****	***
0600	-12.0	*****	**	***	****	***	****	***
0900	-11.8	*****	**	***	****	***	****	***
1200	-10.6	*****	**	***	****	***	****	***
1500	-10.7	*****	**	***	****	***	****	***
1800	-12.8	*****	**	***	****	***	****	***
2100	-12.4	*****	**	***	****	***	****	***
2400	-12.9	*****	**	***	****	***	****	***

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.8	*****	**	***	****	***	****	***
0600	-7.5	*****	**	***	****	***	****	***
0900	-11.6	*****	**	***	****	***	****	***
1200	-11.6	*****	**	***	****	***	****	***
1500	-10.4	*****	**	***	****	***	****	***
1800	-11.8	*****	**	***	****	***	****	***
2100	-7.2	*****	**	***	****	***	****	***
2400	-6.6	*****	**	***	****	***	****	***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.7	*****	**	***	****	***	****	***
0600	-11.2	*****	**	***	****	***	****	***
0900	-6.7	*****	**	***	****	***	****	***
1200	-8.6	*****	**	***	****	***	****	***
1500	-12.4	*****	**	***	****	***	****	***
1800	-12.6	*****	**	***	****	***	****	***
2100	-11.7	*****	**	***	****	***	****	***
2400	-10.0	*****	**	***	****	***	****	***

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.5	*****	**	***	****	***	****	***
0600	-8.9	*****	**	***	****	***	****	***
0900	-11.0	*****	**	***	****	***	****	***
1200	-10.7	*****	**	***	****	***	****	***
1500	-11.1	*****	**	***	****	***	****	***
1800	-14.9	*****	**	***	****	***	****	***
2100	-15.1	*****	**	***	****	***	****	***
2400	-18.1	*****	**	***	****	***	****	***

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.6	*****	**	***	****	***	****	***
0600	-17.8	*****	**	***	****	***	****	***
0900	-16.3	*****	**	***	****	***	****	***
1200	-16.7	*****	**	***	****	***	****	***
1500	-19.5	*****	**	***	****	***	****	***
1800	-18.2	*****	**	***	****	***	****	***
2100	-17.8	*****	**	***	****	***	****	***
2400	-19.5	*****	**	***	****	***	****	***

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-17.7	*****	**	***	****	***	****	***
0600	-21.2	*****	**	***	****	***	****	***
0900	-20.0	*****	**	***	****	***	****	***
1200	-20.7	*****	**	***	****	***	****	***
1500	-19.8	*****	**	***	****	***	****	***
1800	-18.3	*****	**	***	****	***	****	***
2100	-22.8	*****	**	***	****	***	****	***
2400	-23.2	*****	**	***	****	***	****	***

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-23.4	*****	**	***	****	***	****	***
0600	-25.2	*****	**	***	****	***	****	***
0900	-25.3	*****	**	***	****	***	****	***
1200	-20.0	-22.3	82	***	****	***	****	***
1500	-21.3	-24.0	79	***	****	***	****	***
1800	-21.1	-22.2	91	***	****	***	****	***
2100	-25.7	-27.4	86	***	****	***	****	***
2400	-20.7	-24.4	72	***	****	***	****	***

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.9	-18.4	50	***	****	***	****	***
0600	-12.3	-19.9	53	***	****	***	****	***
0900	-13.5	-21.1	53	***	****	***	****	***
1200	-14.7	-22.9	50	***	****	***	****	***
1500	-18.7	-23.8	64	***	****	***	****	***
1800	-18.4	-22.2	72	***	****	***	****	***
2100	-17.4	-21.9	68	***	****	***	****	***
2400	-17.5	-22.6	64	***	****	***	****	***

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-17.4	-24.1	56	***	****	***	****	***
0600	-21.9	-25.3	74	***	****	***	****	***
0900	-23.3	-26.9	72	***	****	***	****	***
1200	-20.7	-25.2	67	***	****	***	****	***
1500	-21.9	-25.9	70	***	****	***	****	***
1800	-23.1	-25.6	80	***	****	***	****	***
2100	-21.6	-24.3	79	***	****	***	****	***
2400	-20.6	-23.3	79	***	****	***	****	***

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-21.1	-22.0	93	***	****	***	****	***
0600	-16.9	-19.1	83	***	****	***	****	***
0900	-11.5	-14.0	82	***	****	***	****	***
1200	-9.5	-11.4	86	***	****	***	****	***
1500	-12.2	*****	**	***	****	***	****	***
1800	-16.0	*****	**	***	****	***	****	***
2100	-16.1	*****	**	***	****	***	****	***
2400	-15.8	*****	**	***	****	***	****	***

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-19.3	*****	**	***	****	***	****	***
0600	-18.0	*****	**	***	****	***	****	***
0900	-18.4	*****	**	***	****	***	****	***
1200	-16.7	*****	**	***	****	***	****	***
1500	-15.7	*****	**	***	****	***	****	***
1800	-10.8	*****	**	***	****	***	****	***
2100	-9.0	*****	**	***	****	***	****	***
2400	-9.4	*****	**	***	****	***	****	***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.1	*****	**	***	****	***	****	***
0600	-10.7	*****	**	***	****	***	****	***
0900	-10.1	*****	**	***	****	***	****	***
1200	-8.3	*****	**	***	****	***	****	***
1500	-11.4	*****	**	***	****	***	****	***
1800	-11.0	*****	**	***	****	***	****	***
2100	-13.0	*****	**	***	****	***	****	***
2400	-13.9	*****	**	***	****	***	****	***

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.7	*****	**	***	****	***	****	***
0600	-19.3	*****	**	***	****	***	****	***
0900	-20.4	*****	**	***	****	***	****	***
1200	-17.6	*****	**	***	****	***	****	***
1500	-17.3	*****	**	***	****	***	****	***
1800	-18.7	*****	**	***	****	***	****	***
2100	-22.2	*****	**	***	****	***	****	***
2400	-21.0	*****	**	***	****	***	****	***

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-21.6	*****	**	***	****	***	****	***
0600	-21.5	*****	**	***	****	***	****	***
0900	-19.5	*****	**	***	****	***	****	***
1200	-10.1	*****	**	***	****	***	****	***
1500	-10.6	*****	**	***	****	***	****	***
1800	-10.1	*****	**	***	****	***	****	***
2100	-10.6	*****	**	***	****	***	****	***
2400	-12.3	*****	**	***	****	***	****	***

DAY 31

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.7	*****	**	***	****	***	****	***
0600	-7.8	*****	**	***	****	***	****	***
0900	-11.0	*****	**	***	****	***	****	***
1200	-11.3	*****	**	***	****	***	****	***
1500	-10.9	*****	**	***	****	***	****	***
1800	-11.7	*****	**	***	****	***	****	***
2100	-11.3	*****	**	***	****	***	****	***
2400	-8.3	*****	**	***	****	***	****	***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR DENALI 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
2	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	2
3	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	3
4	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	4
5	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	5
6	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	6
7	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	7
8	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	8
9	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	9
10	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	10
11	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	11
12	-25.9M	-32.8M	-29.4M	***	****	****	***	****	***	77M	-32.4M	****	******	12
13	-28.3	-36.0	-32.2	***	****	****	***	****	***	75	-35.1	****	******	13
14	-17.6	-32.9	-25.3	***	****	****	***	****	***	80M	-32.5M	****	******	14
15	-14.7	-24.4	-19.6	***	****	****	***	****	***	**	*****	****	******	15
16	-8.3	-18.2	-13.3	***	****	****	***	****	***	**	*****	****	******	16
17	-7.6	-14.8	-11.2	***	****	****	***	****	***	**	*****	****	******	17
18	-5.8	-14.4	-10.1	***	****	****	***	****	***	**	*****	****	******	18
19	-6.7	-13.6	-10.2	***	****	****	***	****	***	**	*****	****	******	19
20	-8.2	-19.1	-13.7	***	****	****	***	****	***	**	*****	****	******	20
21	-12.6	-23.3	-18.0	***	****	****	***	****	***	**	*****	****	******	21
22	-17.3	-24.7	-21.0	***	****	****	***	****	***	**	*****	****	******	22
23	-16.5	-27.5	-22.0	***	****	****	***	****	***	83M	-24.4M	****	******	23
24	-8.6	-20.0	-14.3	***	****	****	***	****	***	59	-21.9	****	******	24
25	-13.5	-24.4	-19.0	***	****	****	***	****	***	71	-24.7	****	******	25
26	-9.5	-21.6	-15.6	***	****	****	***	****	***	83M	-16.9M	****	******	26
27	-8.3	-19.4	-13.9	***	****	****	***	****	***	**	*****	****	******	27
28	-5.8	-14.2	-10.0	***	****	****	***	****	***	**	*****	****	******	28
29	-12.8	-22.8	-17.8	***	****	****	***	****	***	**	*****	****	******	29
30	-8.0	-23.1	-15.6	***	****	****	***	****	***	**	*****	****	******	30
31	-6.5	-13.6	-10.1	***	****	****	***	****	***	**	*****	****	******	31
MONTH	-5.8M	-36.0M	-17.1M	***	****	****	***	****	***	74M	-26.8M	****	******	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS ***
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL ***
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL ***
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS ***

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.

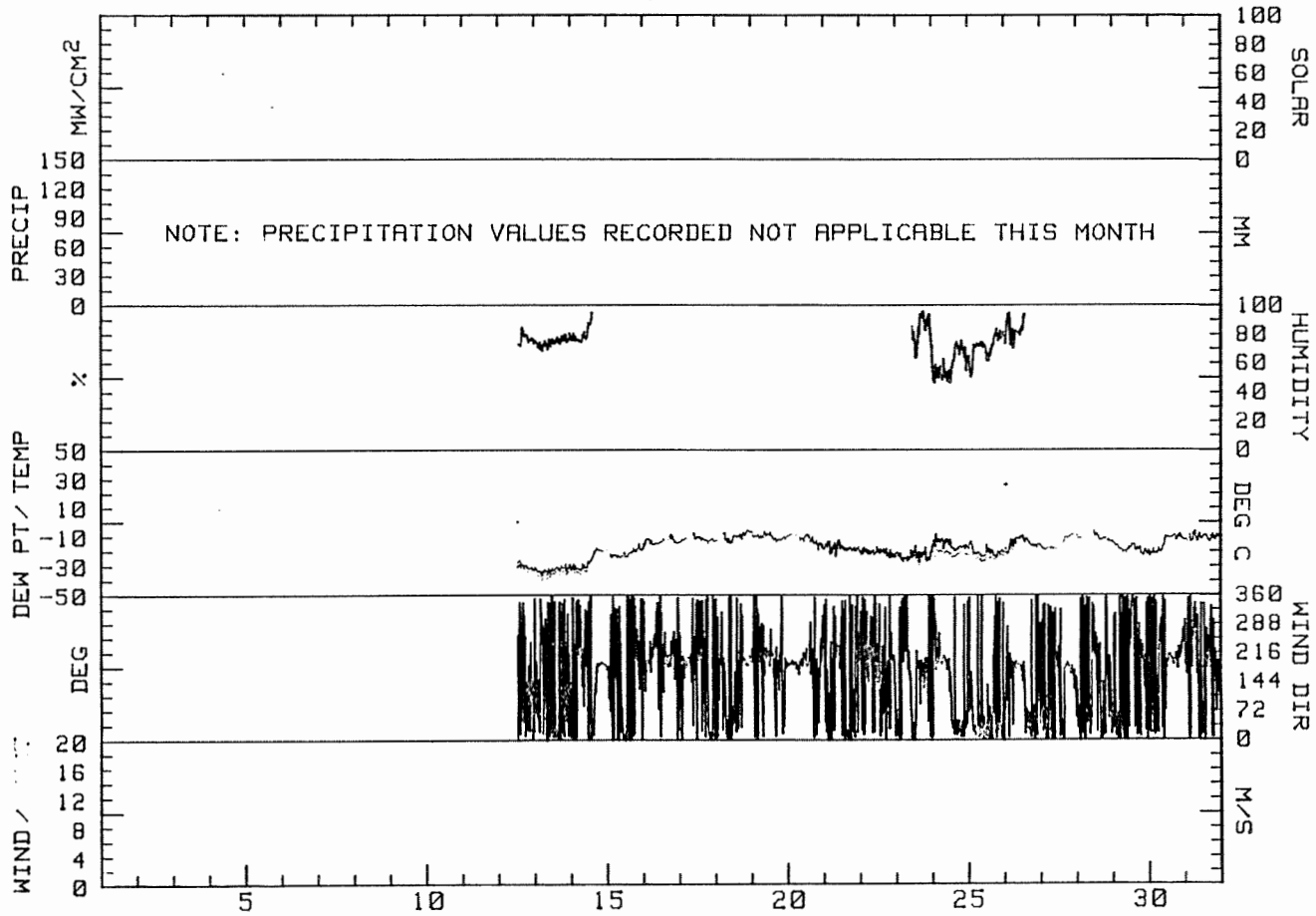
**** SEE NOTES AT THE BACK OF THIS REPORT ****

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

January, 1983



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CALM								0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

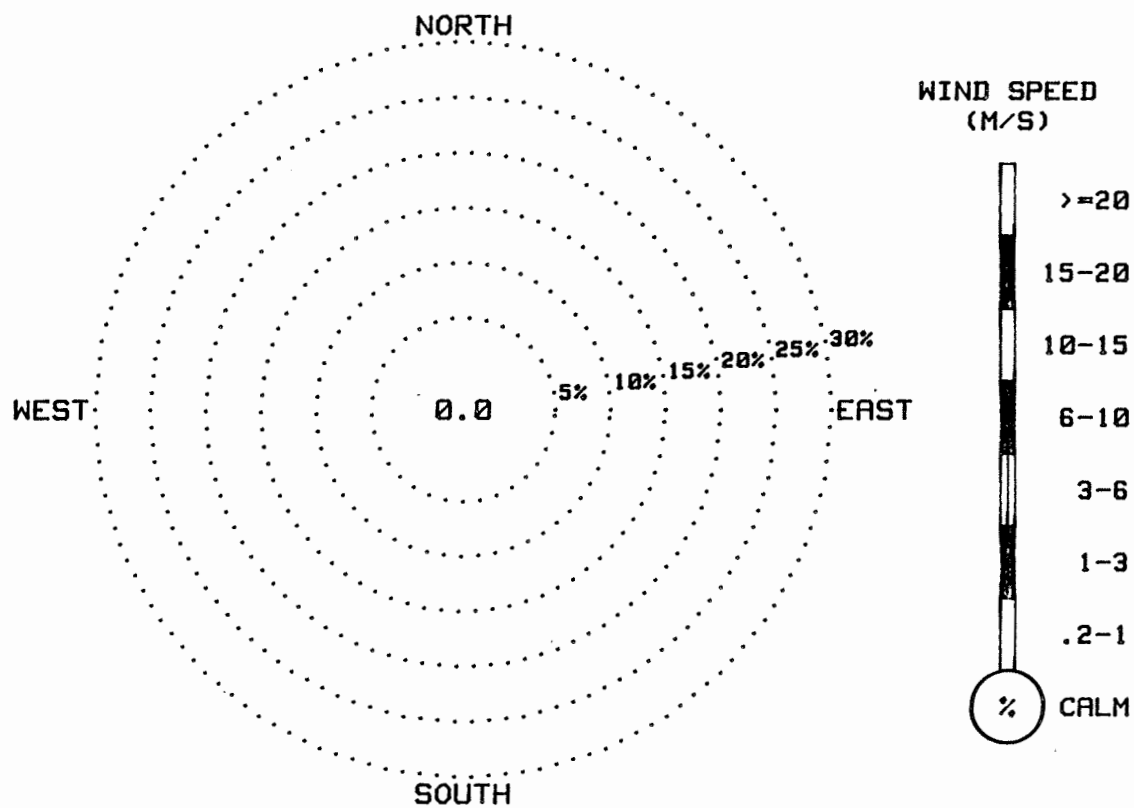
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
0 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

January, 1983



WIND ROSE PLOT

No precipitation data for February

(See INTERPRETATION OF DATA).

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.3	*****	**	***	****	***	****	***
0600	-8.6	*****	**	***	****	***	****	***
0900	-4.7	*****	**	***	****	***	****	***
1200	-3.3	*****	**	***	****	***	****	***
1500	-4.3	*****	**	***	****	***	****	***
1800	-7.0	*****	**	***	****	***	****	***
2100	-6.8	*****	**	***	****	***	****	***
2400	-10.8	*****	**	***	****	***	****	***

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.9	*****	**	***	****	***	****	***
0600	-7.5	*****	**	***	****	***	****	***
0900	-9.1	*****	**	***	****	***	****	***
1200	-5.2	*****	**	***	****	***	****	***
1500	-6.7	*****	**	***	****	***	****	***
1800	-7.5	*****	**	***	****	***	****	***
2100	-6.5	*****	**	***	****	***	****	***
2400	-7.2	*****	**	***	****	***	****	***

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.1	*****	**	***	****	***	****	***
0600	-4.9	*****	**	***	****	***	****	***
0900	-6.4	*****	**	***	****	***	****	***
1200	-5.1	*****	**	***	****	***	****	***
1500	-4.8	*****	**	***	****	***	****	***
1800	-6.7	*****	**	***	****	***	****	1
2100	-8.8	*****	**	***	****	***	****	1
2400	-7.9	*****	**	***	****	***	****	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.9	*****	**	***	****	***	****	1
0600	-6.1	*****	**	***	****	***	****	1
0900	-5.8	*****	**	***	****	***	****	3
1200	-5.2	*****	**	***	****	***	****	13
1500	-4.8	*****	**	***	****	***	****	3
1800	-9.2	*****	**	***	****	***	****	1
2100	-8.4	*****	**	***	****	***	****	1
2400	-10.1	*****	**	***	****	***	****	1

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.6	*****	**	***	****	***	****	1
0600	-8.4	*****	**	***	****	***	****	1
0900	-12.7	*****	**	***	****	***	****	6
1200	-8.0	*****	**	***	****	***	****	10
1500	-5.0	*****	**	***	****	***	****	3
1800	-5.1	*****	**	***	****	***	****	1
2100	-6.6	*****	**	***	****	***	****	1
2400	-5.6	*****	**	***	****	***	****	1

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.8	*****	**	***	****	***	****	1
0600	-9.3	*****	**	***	****	***	****	1
0900	-9.8	*****	**	***	****	***	****	3
1200	-7.2	*****	**	***	****	***	****	15
1500	-4.2	*****	**	***	****	***	****	3
1800	-4.3	*****	**	***	****	***	****	1
2100	-7.6	*****	**	***	****	***	****	1
2400	-6.7	*****	**	***	****	***	****	1

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.5	*****	**	***	****	***	****	1
0600	-4.6	*****	**	***	****	***	****	1
0900	-7.1	*****	**	***	****	***	****	4
1200	-4.4	*****	**	***	****	***	****	18
1500	-4.7	*****	**	***	****	***	****	3
1800	-5.7	*****	**	***	****	***	****	1
2100	-5.7	*****	**	***	****	***	****	1
2400	-6.7	*****	**	***	****	***	****	1

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.6	*****	**	***	****	***	****	0
0600	-7.0	*****	**	***	****	***	****	1
0900	-7.0	*****	**	***	****	***	****	3
1200	-5.7	*****	**	***	****	***	****	8
1500	-6.3	*****	**	***	****	***	****	3
1800	-6.9	*****	**	***	****	***	****	1
2100	-7.5	*****	**	***	****	***	****	1
2400	-9.9	*****	**	***	****	***	****	1

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RHH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.9	*****	**	***	****	***	****	1
0600	-10.3	*****	**	***	****	***	****	1
0900	-10.1	*****	**	***	****	***	****	5
1200	-10.1	*****	**	***	****	***	****	12
1500	-10.8	*****	**	***	****	***	****	5
1800	-13.0	*****	**	***	****	***	****	1
2100	-12.5	*****	**	***	****	***	****	1
2400	-12.4	*****	**	***	****	***	****	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.8	*****	**	***	****	***	****	1
0600	-12.5	*****	**	***	****	***	****	1
0900	-12.4	*****	**	***	****	***	****	6
1200	-13.0	*****	**	***	****	***	****	10
1500	-13.7	*****	**	***	****	***	****	5
1800	-16.8	*****	**	***	****	***	****	1
2100	-16.8	*****	**	***	****	***	****	1
2400	-20.2	*****	**	***	****	***	****	1

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-23.6	*****	**	***	****	***	****	1
0600	-22.7	*****	**	***	****	***	****	1
0900	-21.0	*****	**	***	****	***	****	5
1200	-20.1	*****	**	***	****	***	****	25
1500	-15.9	*****	**	***	****	***	****	10
1800	-16.9	*****	**	***	****	***	****	1
2100	-15.7	*****	**	***	****	***	****	1
2400	-20.2	*****	**	***	****	***	****	1

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.7	*****	**	***	****	***	****	1
0600	-22.4	*****	**	***	****	***	****	1
0900	-22.7	*****	**	***	****	***	****	6
1200	-19.4	*****	**	***	****	***	****	15
1500	-19.1	*****	**	***	****	***	****	6
1800	-23.7	*****	**	***	****	***	****	1
2100	-25.3	*****	**	***	****	***	****	1
2400	-26.4	*****	**	***	****	***	****	1

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-26.0	*****	**	***	****	***	****	1
0600	-28.0	*****	**	***	****	***	****	1
0900	-28.0	*****	**	***	****	***	****	6
1200	-25.6	*****	**	***	****	***	****	27
1500	-24.5	*****	**	***	****	***	****	13
1800	-27.4	*****	**	***	****	***	****	1
2100	-27.7	*****	**	***	****	***	****	1
2400	-27.3	*****	**	***	****	***	****	1

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-28.2	*****	**	***	****	***	****	1
0600	-30.3	*****	**	***	****	***	****	1
0900	-28.7	*****	**	***	****	***	****	6
1200	-23.0	*****	**	***	****	***	****	31
1500	-22.7	*****	**	***	****	***	****	15
1800	-26.0	*****	**	***	****	***	****	1
2100	-27.1	*****	**	***	****	***	****	1
2400	-26.3	*****	**	***	****	***	****	1

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-27.5	*****	**	***	****	***	****	1
0600	-28.5	*****	**	***	****	***	****	1
0900	-27.1	*****	**	***	****	***	****	6
1200	-21.3	*****	**	***	****	***	****	31
1500	-19.0	*****	**	***	****	***	****	16
1800	-24.3	*****	**	***	****	***	****	1
2100	-25.7	*****	**	***	****	***	****	1
2400	-25.5	*****	**	***	****	***	****	1

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-24.9	*****	**	***	****	***	****	1
0600	-30.0	*****	**	***	****	***	****	1
0900	-29.5	*****	**	***	****	***	****	6
1200	-21.7	*****	**	***	****	***	****	32
1500	-19.8	*****	**	***	****	***	****	17
1800	-25.0	*****	**	***	****	***	****	1
2100	-23.7	*****	**	***	****	***	****	1
2400	-27.5	*****	**	***	****	***	****	1

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-28.3	*****	**	***	****	***	****	1
0600	-30.5	*****	**	***	****	***	****	1
0900	-28.3	*****	**	***	****	***	****	6
1200	-18.7	*****	**	***	****	***	****	32
1500	-19.3	*****	**	***	****	***	****	17
1800	-26.1	*****	**	***	****	***	****	1
2100	-26.9	*****	**	***	****	***	****	1
2400	-28.7	*****	**	***	****	***	****	1

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-28.6	*****	**	***	****	***	****	1
0600	-27.9	*****	**	***	****	***	****	1
0900	-20.0	*****	**	***	****	***	****	4
1200	-16.3	*****	**	***	****	***	****	17
1500	-15.4	*****	**	***	****	***	****	7
1800	-14.5	*****	**	***	****	***	****	1
2100	-18.5	*****	**	***	****	***	****	1
2400	-17.3	*****	**	***	****	***	****	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.6	*****	**	***	****	***	****	1
0600	-11.1	*****	**	***	****	***	****	1
0900	-8.5	*****	**	***	****	***	****	13
1200	-4.9	*****	**	***	****	***	****	34
1500	-8.7	*****	**	***	****	***	****	15
1800	-14.8	*****	**	***	****	***	****	1
2100	-17.1	*****	**	***	****	***	****	1
2400	-17.7	*****	**	***	****	***	****	1

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-16.9	*****	**	***	****	***	****	0
0600	-15.8	*****	**	***	****	***	****	1
0900	-12.1	*****	**	***	****	***	****	7
1200	-10.6	*****	**	***	****	***	****	20
1500	-9.6	*****	**	***	****	***	****	15
1800	-12.2	*****	**	***	****	***	****	1
2100	-12.1	*****	**	***	****	***	****	1
2400	-15.7	*****	**	***	****	***	****	1

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-16.7	*****	**	***	****	***	****	1
0600	-16.3	*****	**	***	****	***	****	1
0900	-15.6	*****	**	***	****	***	****	10
1200	-12.8	*****	**	***	****	***	****	41
1500	-6.1	*****	**	***	****	***	****	11
1800	-9.5	*****	**	***	****	***	****	1
2100	-7.1	*****	**	***	****	***	****	1
2400	-7.7	*****	**	***	****	***	****	1

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.9	*****	**	***	****	***	****	1
0600	-10.1	*****	**	***	****	***	****	1
0900	-11.8	*****	**	***	****	***	****	7
1200	-7.1	*****	**	***	****	***	****	38
1500	-7.7	*****	**	***	****	***	****	17
1800	-11.7	*****	**	***	****	***	****	1
2100	-17.4	*****	**	***	****	***	****	1
2400	-16.0	*****	**	***	****	***	****	1

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-17.2	*****	**	***	****	***	****	1
0600	-18.1	*****	**	***	****	***	****	1
0900	-22.1	*****	**	***	****	***	****	7
1200	-16.8	*****	**	***	****	***	****	32
1500	-16.0	*****	**	***	****	***	****	16
1800	-11.1	*****	**	***	****	***	****	1
2100	-10.3	*****	**	***	****	***	****	1
2400	-10.1	*****	**	***	****	***	****	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.8	*****	**	***	****	***	****	1
0600	-7.4	*****	**	***	****	***	****	1
0900	-6.5	*****	**	***	****	***	****	8
1200	-4.6	*****	**	***	****	***	****	21
1500	-3.5	*****	**	***	****	***	****	13
1800	-5.6	*****	**	***	****	***	****	1
2100	-7.5	*****	**	***	****	***	****	1
2400	-9.3	*****	**	***	****	***	****	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.1	*****	**	***	****	***	****	1
0600	-15.5	*****	**	***	****	***	****	1
0900	-15.7	*****	**	***	****	***	****	8
1200	-9.1	*****	**	***	****	***	****	34
1500	-8.9	*****	**	***	****	***	****	21
1800	-13.0	*****	**	***	****	***	****	1
2100	-15.0	*****	**	***	****	***	****	1
2400	-15.1	*****	**	***	****	***	****	1

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.7	*****	**	***	****	***	****	1
0600	-12.2	*****	**	***	****	***	****	1
0900	-9.0	*****	**	***	****	***	****	10
1200	-6.8	*****	**	***	****	***	****	41
1500	-7.3	*****	**	***	****	***	****	16
1800	-7.3	*****	**	***	****	***	****	1
2100	-14.3	*****	**	***	****	***	****	1
2400	-14.5	*****	**	***	****	***	****	1

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.1	*****	**	***	****	***	****	1
0600	-15.9	*****	**	***	****	***	****	1
0900	-14.4	*****	**	***	****	***	****	13
1200	-10.7	*****	**	***	****	***	****	32
1500	-9.5	*****	**	***	****	***	****	11
1800	-9.7	*****	**	***	****	***	****	1
2100	-11.4	*****	**	***	****	***	****	1
2400	-10.9	*****	**	***	****	***	****	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.9	*****	**	***	****	***	****	1
0600	-10.9	*****	**	***	****	***	****	1
0900	-10.1	*****	**	***	****	***	****	10
1200	-7.0	*****	**	***	****	***	****	18
1500	-5.9	*****	**	***	****	***	****	10
1800	-9.6	*****	**	***	****	***	****	1
2100	-8.7	*****	**	***	****	***	****	1
2400	-11.1	*****	**	***	****	***	****	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR DENALI 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 DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	.7	-14.2	-6.8	***	****	****	***	****	***	**	*****	****	******	1
2	-4.2	-11.8	-8.0	***	****	****	***	****	***	**	*****	****	******	2
3	-3.7	-11.0	-7.4	***	****	****	***	****	***	**	*****	****	240M	3
4	-4.6	-11.9	-8.3	***	****	****	***	****	***	**	*****	****	698	4
5	-4.4	-14.2	-9.3	***	****	****	***	****	***	**	*****	****	803	5
6	-3.6	-11.6	-7.6	***	****	****	***	****	***	**	*****	****	743	6
7	-3.2	-8.1	-5.7	***	****	****	***	****	***	**	*****	****	850	7
8	-5.3	-9.9	-7.6	***	****	****	***	****	***	**	*****	****	578	8
9	-9.2	-14.0	-11.6	***	****	****	***	****	***	**	*****	****	770	9
10	-11.9	-22.4	-17.2	***	****	****	***	****	***	**	*****	****	873	10
11	-13.7	-24.9	-19.3	***	****	****	***	****	***	**	*****	****	1378	11
12	-15.7	-26.8	-21.3	***	****	****	***	****	***	**	*****	****	948	12
13	-22.8	-30.0	-26.4	***	****	****	***	****	***	**	*****	****	1555	13
14	-19.2	-31.6	-25.4	***	****	****	***	****	***	**	*****	****	1758	14
15	-16.7	-31.2	-24.0	***	****	****	***	****	***	**	*****	****	1775	15
16	-17.5	-31.4	-24.5	***	****	****	***	****	***	**	*****	****	1845	16
17	-17.6	-31.4	-24.5	***	****	****	***	****	***	**	*****	****	1895	17
18	-14.5	-31.0	-22.8	***	****	****	***	****	***	**	*****	****	1220	18
19	-4.9	-19.1	-12.0	***	****	****	***	****	***	**	*****	****	1995	19
20	-8.3	-19.1	-13.7	***	****	****	***	****	***	**	*****	****	1663	20
21	-5.5	-18.6	-12.1	***	****	****	***	****	***	**	*****	****	1988	21
22	-5.0	-18.1	-11.6	***	****	****	***	****	***	**	*****	****	2130	22
23	-8.9	-22.1	-15.5	***	****	****	***	****	***	**	*****	****	1975	23
24	-3.3	-12.5	-7.9	***	****	****	***	****	***	**	*****	****	1298	24
25	-8.3	-17.6	-13.0	***	****	****	***	****	***	**	*****	****	2080	25
26	-6.6	-15.8	-11.2	***	****	****	***	****	***	**	*****	****	2170	26
27	-8.4	-17.2	-12.8	***	****	****	***	****	***	**	*****	****	1863	27
28	-3.8	-11.4	-7.6	***	****	****	***	****	***	**	*****	****	1318	28
MONTH	.7	-31.6	-14.1	***	****	****	***	****	***	**	*****	****	36403M	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS ***
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL ***
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL ***
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS ***

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.

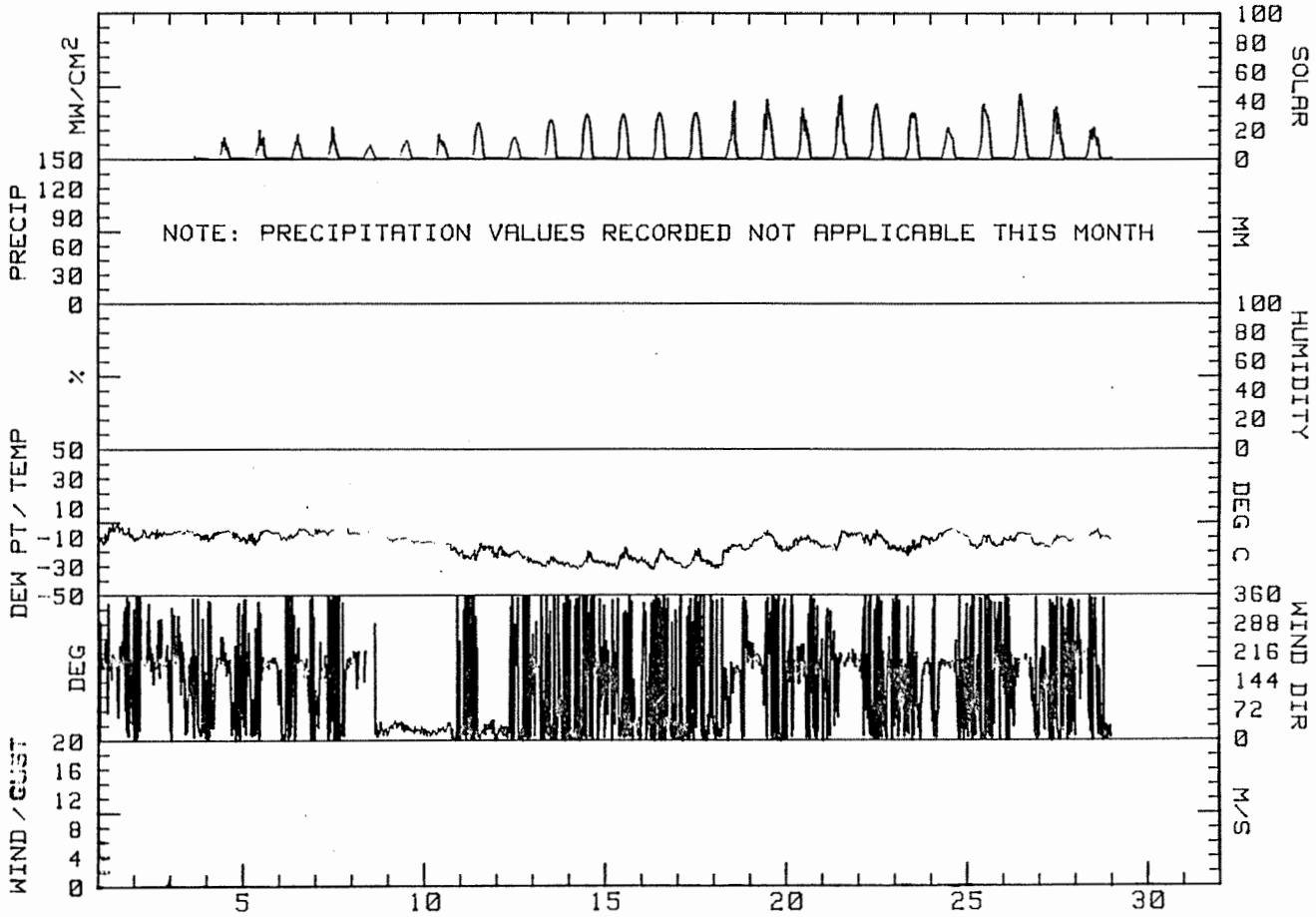
**** SEE NOTES AT THE BACK OF THIS REPORT ****

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

February, 1983



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DIRECTION	VELOCITY (M/S) 0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CALM								
100 DD.DD								
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT

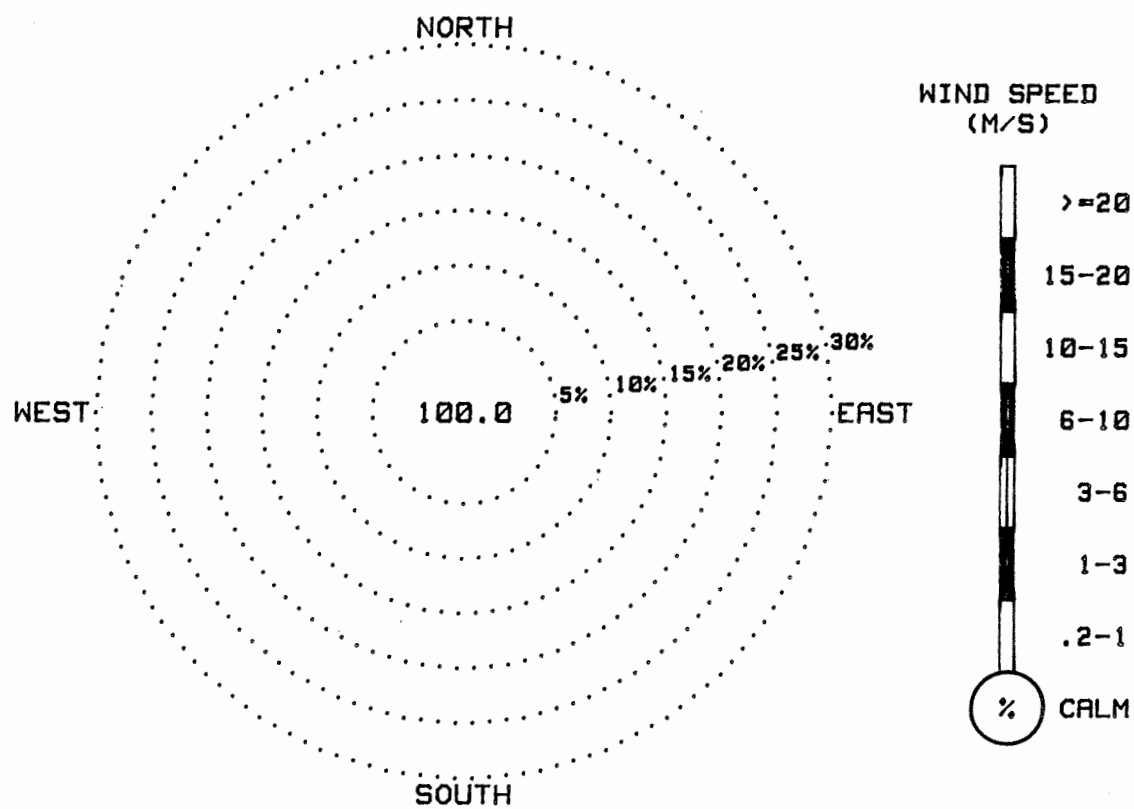
1 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

February, 1983



WIND ROSE PLOT

No precipitation data for March

(See INTERPRETATION OF DATA).

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.4	*****	**	***	****	***	****	1
0600	-15.0	*****	**	***	****	***	****	1
0900	-15.1	*****	**	***	****	***	****	12
1200	-11.5	*****	**	***	****	***	****	18
1500	-10.2	*****	**	***	****	***	****	8
1800	-10.9	*****	**	***	****	***	****	1
2100	-13.9	*****	**	***	****	***	****	1
2400	-16.2	*****	**	***	****	***	****	1

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.0	*****	**	***	****	***	****	1
0600	-17.5	*****	**	***	****	***	****	1
0900	-15.7	*****	**	***	****	***	****	7
1200	-11.8	*****	**	***	****	***	****	24
1500	-13.5	*****	**	***	****	***	****	15
1800	-18.0	*****	**	***	****	***	****	1
2100	-20.2	*****	**	***	****	***	****	1
2400	-23.2	*****	**	***	****	***	****	1

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-25.8	*****	**	***	****	***	****	1
0600	-22.5	*****	**	***	****	***	****	1
0900	-18.5	*****	**	***	****	***	****	8
1200	-14.0	*****	**	***	****	***	****	13
1500	-14.4	*****	**	***	****	***	****	7
1800	-15.4	*****	**	***	****	***	****	1
2100	-16.6	*****	**	***	****	***	****	1
2400	-16.4	*****	**	***	****	***	****	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-16.7	*****	**	***	****	***	****	1
0600	-18.2	*****	**	***	****	***	****	0
0900	-18.2	*****	**	***	****	***	****	9
1200	-15.7	*****	**	***	****	***	****	31
1500	-15.7	*****	**	***	****	***	****	8
1800	-16.0	*****	**	***	****	***	****	1
2100	-16.2	*****	**	***	****	***	****	1
2400	-16.7	*****	**	***	****	***	****	1

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-19.5	*****	**	***	****	***	****	1
0600	-18.1	*****	**	***	****	***	****	1
0900	-16.9	*****	**	***	****	***	****	10
1200	-12.6	*****	**	***	****	***	****	16
1500	-10.6	*****	**	***	****	***	****	8
1800	-10.5	*****	**	***	****	***	****	1
2100	-12.1	*****	**	***	****	***	****	1
2400	-18.0	*****	**	***	****	***	****	1

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-18.9	*****	**	***	****	***	****	1
0600	-20.6	*****	**	***	****	***	****	1
0900	-16.0	*****	**	***	****	***	****	11
1200	-11.2	*****	**	***	****	***	****	29
1500	-12.0	*****	**	***	****	***	****	15
1800	-14.4	*****	**	***	****	***	****	1
2100	-16.1	*****	**	***	****	***	****	1
2400	-16.7	*****	**	***	****	***	****	1

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-17.9	*****	**	***	****	***	****	1
0600	-18.4	*****	**	***	****	***	****	1
0900	-19.2	*****	**	***	****	***	****	10
1200	-14.3	*****	**	***	****	***	****	35
1500	-12.6	*****	**	***	****	***	****	17
1800	-14.4	*****	**	***	****	***	****	1
2100	-16.1	*****	**	***	****	***	****	1
2400	-18.9	*****	**	***	****	***	****	1

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-21.0	*****	**	***	****	***	****	1
0600	-22.2	*****	**	***	****	***	****	1
0900	-21.9	*****	**	***	****	***	****	13
1200	-14.7	*****	**	***	****	***	****	34
1500	-13.7	*****	**	***	****	***	****	22
1800	-17.7	*****	**	***	****	***	****	1
2100	-23.3	*****	**	***	****	***	****	1
2400	-24.4	*****	**	***	****	***	****	1

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-26.7	*****	**	***	****	***	****	1
0600	-25.8	*****	**	***	****	***	****	1
0900	-26.1	*****	**	***	****	***	****	25
1200	-14.1	*****	**	***	****	***	****	34
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

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DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	-13.4	*****	**	343M	.9M	353M	1.9M	26
1500	-12.3	*****	**	344	1.5	339	3.2	15
1800	-13.8	*****	**	343	2.1	339	3.8	1
2100	-13.5	*****	**	345	1.8	345	3.2	1
2400	-8.8	*****	**	314	.8	257	7.0	1

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.6	*****	**	158	4.5	166	8.9	1
0600	-9.2	*****	**	334	.6	149	7.0	1
0900	-10.2	*****	**	089	.6	167	5.1	32
1200	-3.7	*****	**	167	3.4	162	8.3	43
1500	-1.7	*****	**	176	4.5	175	8.3	25
1800	-4.3	*****	**	200	2.3	181	7.0	1
2100	-5.2	*****	**	182	3.2	199	8.3	0
2400	-2.1	*****	**	183	2.0	172	7.6	1

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.0	*****	**	177	3.4	165	9.5	1
0600	-7.6	*****	**	136	.9	115	3.2	1
0900	-4.4	*****	**	002	1.0	331	4.4	15
1200	-2.6	*****	**	219	.1	207	3.8	57
1500	1.1	*****	**	003	.6	357	3.2	23
1800	-1.9	*****	**	345	1.6	333	3.2	1
2100	-6.7	*****	**	109	.4	030	2.5	1
2400	-12.5	*****	**	341	1.0	335	3.2	1

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.6	*****	**	327	1.1	333	3.8	1
0600	-14.9	*****	**	299	.4	004	2.5	1
0900	-13.4	*****	**	182	.5	183	2.5	22
1200	-3.0	*****	**	334	.4	356	1.9	52
1500	-5.4	*****	**	342	1.5	339	3.2	26
1800	-7.4	*****	**	345	1.4	349	3.8	1
2100	-10.9	*****	**	337	1.0	351	3.8	1
2400	-12.6	*****	**	058	.4	113	3.2	1

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.2	*****	**	342	.1	354	2.5	1
0600	-14.8	*****	**	158	.3	154	1.9	1
0900	-10.1	*****	**	343	.7	358	1.9	30
1200	-8.4	*****	**	318	.2	352	1.9	47
1500	-7.3	*****	**	335	1.0	344	1.9	21
1800	-8.4	*****	**	339	1.3	344	3.2	1
2100	-9.7	*****	**	017	.3	163	1.9	1
2400	-11.5	*****	**	253	.3	179	2.5	1

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.4	*****	**	312	.3	357	2.5	1
0600	-13.4	*****	**	334	.9	029	3.2	1
0900	-8.6	*****	**	353	1.5	293	5.1	18
1200	-2.0	*****	**	158	.9	165	5.7	31
1500	-1.7	*****	**	176	3.8	178	5.1	15
1800	-4.2	*****	**	198	1.1	195	3.2	1
2100	-5.0	*****	**	072	.6	347	2.5	1
2400	-3.9	*****	**	139	.9	187	3.2	1

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.6	*****	**	351	.5	332	2.5	1
0600	-9.6	*****	**	337	.4	348	2.5	1
0900	-8.7	*****	**	298	.6	268	2.5	32
1200	-3.0	*****	**	349	1.3	039	1.9	42
1500	-5.1	*****	**	347	2.2	350	3.8	26
1800	-8.4	*****	**	348	3.2	340	4.4	1
2100	-10.1	*****	**	349	3.4	340	5.7	1
2400	-9.6	*****	**	351	3.1	341	5.7	0

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.9	*****	**	338	1.7	336	3.8	1
0600	-12.3	*****	**	340	1.0	352	3.2	1
0900	-11.2	*****	**	306	.6	239	1.9	35
1200	-6.5	*****	**	327	.8	329	1.9	57
1500	-5.7	*****	**	342	1.8	342	3.2	29
1800	-10.1	*****	**	343	2.1	339	3.2	1
2100	-13.3	*****	**	355	.9	357	3.8	1
2400	-14.2	*****	**	016	.3	006	1.9	1

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-16.5	*****	**	039	.3	012	1.9	0
0600	-18.5	*****	**	322	.2	197	1.9	1
0900	-10.6	*****	**	298	.3	188	1.9	32
1200	-11.6	*****	**	326	1.3	324	3.2	47
1500	-5.6	*****	**	337	1.6	330	3.2	32
1800	-12.3	*****	**	341	2.1	350	3.8	1
2100	-13.3	*****	**	349	1.2	349	3.2	1
2400	-15.7	*****	**	070	.4	016	2.5	1

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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-16.6	*****	**	053	.1	177	2.5	1
0600	-18.1	*****	**	203	.2	329	1.9	1
0900	-15.3	*****	**	192	.2	192	1.3	32
1200	-7.5	*****	**	356	.6	029	1.9	47
1500	-9.1	*****	**	335	1.5	344	3.2	34
1800	-12.6	*****	**	315	1.2	336	2.5	1
2100	-12.1	*****	**	334	1.1	330	3.8	1
2400	-16.1	*****	**	359	.8	311	3.2	1

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.8	*****	**	333	.9	355	3.2	1
0600	-13.4	*****	**	349	.6	348	2.5	1
0900	-9.0	*****	**	332	.8	359	2.5	22
1200	-4.7	*****	**	024	1.4	090	5.1	45
1500	-4.6	*****	**	175	3.6	160	7.6	30
1800	-8.7	*****	**	201	1.4	201	4.4	1
2100	-11.0	*****	**	326	.6	342	2.5	1
2400	-13.3	*****	**	360	.7	010	2.5	1

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.5	*****	**	224	.2	010	1.9	1
0600	-14.3	*****	**	348	.7	129	1.9	1
0900	-10.4	*****	**	358	.6	014	1.9	39
1200	-4.8	*****	**	347	1.1	349	2.5	45
1500	-3.7	*****	**	350	1.6	357	2.5	30
1800	-9.5	*****	**	260	.8	186	3.8	2
2100	-11.7	*****	**	000	1.1	014	2.5	1
2400	-12.2	*****	**	344	1.0	342	2.5	1

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.7	*****	**	031	.5	006	2.5	1
0600	-16.5	*****	**	175	.4	149	1.9	2
0900	-13.8	*****	**	005	.4	040	1.9	36
1200	-8.1	*****	**	354	.9	339	2.5	57
1500	-3.4	*****	**	346	1.5	342	2.5	30
1800	-9.4	*****	**	331	1.3	336	1.9	2
2100	-10.9	*****	**	339	1.0	311	2.5	1
2400	-14.5	*****	**	219	.3	341	1.9	1

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.5	*****	**	266	.1	044	1.9	1
0600	-17.5	*****	**	013	.5	029	2.5	2
0900	-14.1	*****	**	316	.4	251	2.5	38
1200	-6.4	*****	**	342	.8	027	1.9	59
1500	-7.5	*****	**	345	1.3	342	2.5	31
1800	-11.8	*****	**	334	1.4	353	2.5	2
2100	-15.1	*****	**	340	1.5	335	3.2	1
2400	-15.1	*****	**	012	.3	320	1.9	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-17.5	*****	**	195	.1	054	1.9	1
0600	-17.7	*****	**	003	.3	000	1.9	2
0900	-15.6	*****	**	135	.2	173	1.9	25
1200	-8.7	*****	**	326	.3	021	1.9	44
1500	-5.3	*****	**	347	.9	005	2.5	21
1800	-9.0	*****	**	344	1.5	004	3.2	2
2100	-9.5	*****	**	334	1.7	342	3.2	1
2400	-10.1	*****	**	352	.8	013	2.5	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.5	*****	**	349	1.0	339	2.5	1
0600	-13.7	*****	**	014	.3	004	2.5	3
0900	-11.9	*****	**	042	.1	040	1.9	39
1200	-4.1	*****	**	332	.2	348	1.9	57
1500	-6.4	*****	**	334	1.2	344	3.2	32
1800	-10.4	*****	**	350	2.3	350	4.4	2
2100	-12.6	*****	**	349	1.9	354	3.2	1
2400	-13.4	*****	**	319	.5	337	2.5	1

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.4	*****	**	341	.7	218	3.2	1
0600	-16.8	*****	**	099	.3	119	1.9	2
0900	-10.1	*****	**	336	.2	346	1.9	40
1200	-4.8	*****	**	339	1.3	325	2.5	62
1500	-5.0	*****	**	183	4.9	176	10.8	31
1800	-7.7	*****	**	174	5.4	170	9.5	2
2100	-10.5	*****	**	165	5.9	160	9.5	1
2400	-11.7	*****	**	151	3.6	158	8.9	1

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.5	*****	**	336	.7	288	5.7	1
0600	-13.8	*****	**	065	1.4	125	8.9	3
0900	-11.8	*****	**	016	2.0	025	5.1	39
1200	-6.5	*****	**	162	2.3	168	8.9	57
1500	-4.3	*****	**	182	4.9	187	9.5	34
1800	-6.9	*****	**	187	5.6	172	12.7	2
2100	-9.2	*****	**	199	2.2	201	8.9	1
2400	-10.2	*****	**	160	1.2	171	5.1	1

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DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.5	*****	**	012	1.0	127	5.7	1
0600	-17.2	*****	**	342	1.4	334	2.5	3
0900	-14.0	*****	**	316	.3	324	2.5	34
1200	-9.6	*****	**	244	.5	349	2.5	56
1500	-7.2	*****	**	346	2.1	342	3.8	33
1800	-10.3	*****	**	351	2.5	340	3.8	3
2100	-12.9	*****	**	358	2.0	350	3.8	1
2400	-17.4	*****	**	344	1.6	337	3.2	1

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-17.1	*****	**	354	.6	359	2.5	1
0600	-17.5	*****	**	178	.3	214	2.5	3
0900	-13.4	*****	**	285	.1	029	2.5	41
1200	-6.2	*****	**	343	1.2	015	2.5	60
1500	-2.0	*****	**	338	1.2	341	2.5	35
1800	-8.7	*****	**	333	1.7	344	3.8	3
2100	-13.4	*****	**	344	1.8	358	3.2	1
2400	-14.3	*****	**	003	.6	354	2.5	1

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.6	*****	**	022	.1	347	2.5	1
0600	-15.6	*****	**	128	.0	201	1.9	4
0900	-9.8	*****	**	175	.2	170	1.9	41
1200	-6.0	*****	**	336	.7	354	1.9	63
1500	-6.0	*****	**	337	1.6	340	3.2	36
1800	-7.5	*****	**	342	2.1	345	3.2	3
2100	-10.3	*****	**	355	1.2	347	3.2	1
2400	-13.7	*****	**	360	.5	338	1.9	1

DAY 31

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.8	*****	**	346	1.3	348	2.5	1
0600	-12.3	*****	**	337	.4	218	5.1	3
0900	-7.3	*****	**	339	1.5	342	3.2	26
1200	-2.4	*****	**	345	1.3	343	2.5	67
1500	-2.5	*****	**	347	2.4	346	3.8	39
1800	-5.7	*****	**	345	2.7	347	3.8	4
2100	-9.2	*****	**	355	2.2	353	4.4	1
2400	-12.1	*****	**	006	.8	083	2.5	1

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DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	-7.7	-18.4	-13.1	***	****	****	***	****	***	**	*****	****	1320	1
2	-11.5	-23.2	-17.4	***	****	****	***	****	***	**	*****	****	1515	2
3	-12.6	-26.2	-19.4	***	****	****	***	****	***	**	*****	****	983	3
4	-12.5	-19.7	-16.1	***	****	****	***	****	***	**	*****	****	1313	4
5	-10.1	-20.0	-15.1	***	****	****	***	****	***	**	*****	****	1178	5
6	-10.1	-20.6	-15.4	***	****	****	***	****	***	**	*****	****	1865	6
7	-9.4	-20.9	-15.2	***	****	****	***	****	***	**	*****	****	2158	7
8	-11.7	-26.4	-19.1	***	****	****	***	****	***	**	*****	****	2333	8
9	-10.7M	-26.7M	-18.7M	***	****	****	***	****	***	**	*****	****	3129M	9
10	-8.8M	-14.3M	-11.6M	340M	1.5M	1.7M	257M	7.0M	NNW (M)	**	*****	****	2085M	10
11	-1.7	-13.4	-7.6	174	2.4	3.3	166	8.9	SSE	**	*****	****	2713	11
12	1.8	-12.5	-5.4	126	.1	1.6	165	9.5	NNW	**	*****	****	2318	12
13	-.8	-16.2	-8.5	338	.7	1.2	333	3.8	NNW	**	*****	****	3193	13
14	-4.2	-17.1	-10.7	336	.4	.9	344	3.2	NNW	**	*****	****	2890	14
15	-.9	-15.0	-8.0	172	.5	1.7	165	5.7	S	**	*****	****	2573	15
16	-3.0	-10.6	-6.8	347	1.8	2.0	340	5.7	NNW	**	*****	****	3033	16
17	-5.1	-16.0	-10.6	340	1.1	1.4	336	3.8	NNW	**	*****	****	3610	17
18	-4.9	-21.6	-13.3	342	.8	1.3	350	3.8	NNW	**	*****	****	3330	18
19	-6.4	-19.7	-13.1	335	.6	1.0	330	3.8	NNW	**	*****	****	3388	19
20	-3.4	-16.4	-9.9	244	.1	1.5	160	7.6	N	**	*****	****	3285	20
21	-.9	-15.1	-8.0	341	.7	1.1	186	3.8	N	**	*****	****	3578	21
22	-3.3	-16.6	-10.0	344	.6	1.0	006	2.5	NNW	**	*****	****	3703	22
23	-4.7	-18.0	-11.4	341	.8	1.0	335	3.2	NNW	**	*****	****	3855	23
24	-3.9	-19.8	-11.9	343	.7	1.0	004	3.2	NNW	**	*****	****	3178	24
25	.1	-14.3	-7.1	346	.9	1.3	350	4.4	NNW	**	*****	****	3923	25
26	-3.7	-17.0	-10.4	170	2.2	3.0	176	10.8	S	**	*****	****	3868	26
27	-3.6	-15.9	-9.8	175	1.6	3.2	172	12.7	S	**	*****	****	3933	27
28	-6.3	-17.8	-12.1	348	1.3	1.7	127	5.7	NNW	**	*****	****	3888	28
29	-1.6	-20.0	-10.8	341	.8	1.3	344	3.8	NNW	**	*****	****	4258	29
30	-2.1	-17.8	-10.0	345	.7	1.1	340	3.2	NNW	**	*****	****	4333	30
31	-1.8	-16.9	-9.4	348	1.6	1.8	218	5.1	NNW	**	*****	****	3870	31
MONTH	1.8M	-26.7M	-11.8M	335M	.4M	1.6M	172M	12.7M	NNW (M)	**	*****	****	90588M	

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

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

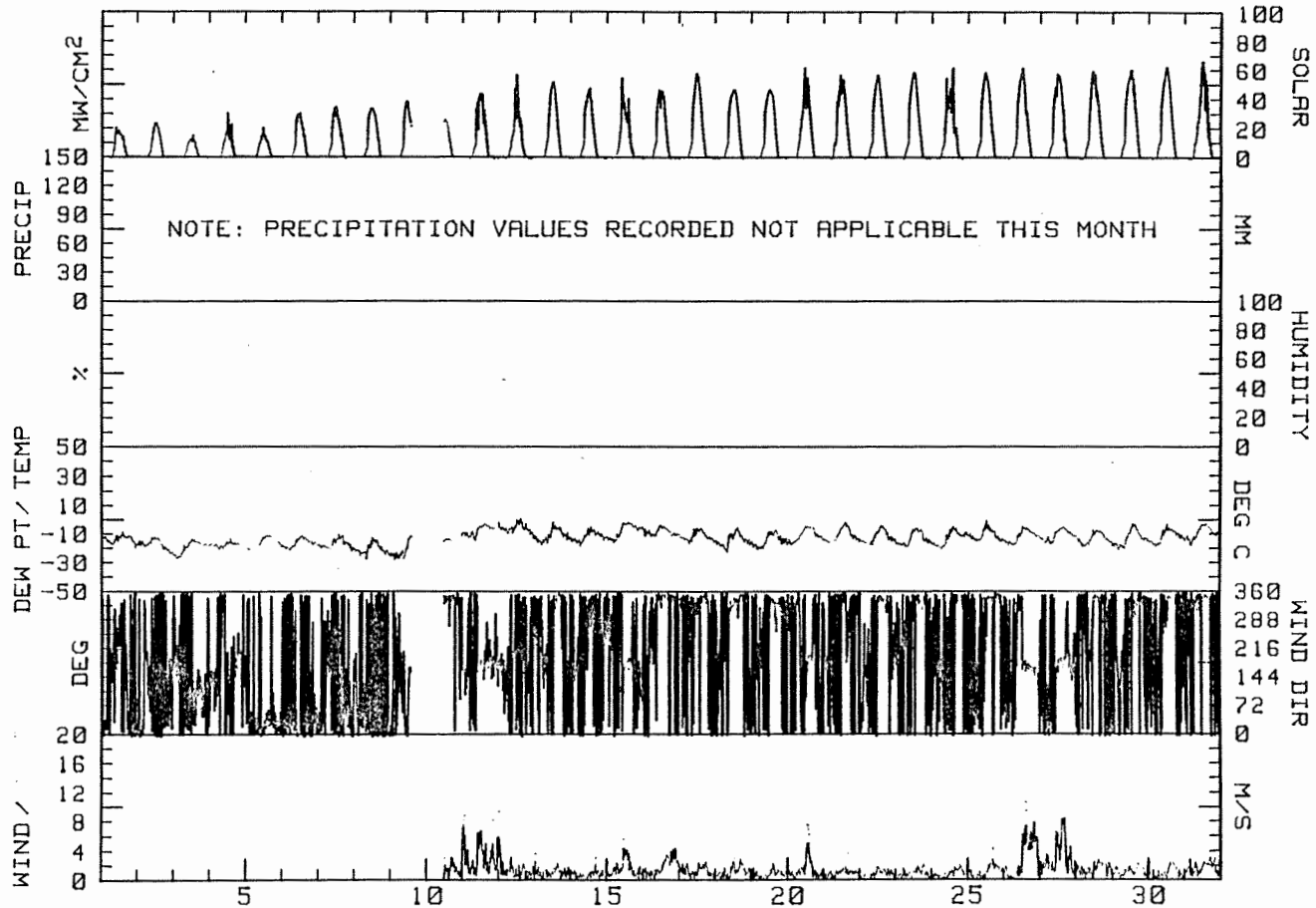
**** SEE NOTES AT THE BACK OF THIS REPORT ****

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

March, 1983



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	5.13	13.69	.68	0.00	0.00	0.00	0.00	19.50
NNE	3.29	3.58	0.00	0.00	0.00	0.00	0.00	6.87
NE	1.79	.97	0.00	0.00	0.00	0.00	0.00	2.76
ENE	1.26	.53	0.00	0.00	0.00	0.00	0.00	1.79
E	1.06	.48	0.00	0.00	0.00	0.00	0.00	1.55
ESE	1.35	.73	.05	0.00	0.00	0.00	0.00	2.13
SE	.87	1.02	.24	0.00	0.00	0.00	0.00	2.13
SSE	1.50	1.64	1.74	.82	0.00	0.00	0.00	5.71
S	1.98	2.66	2.71	1.02	0.00	0.00	0.00	8.37
SSW	1.40	1.94	.73	.15	0.00	0.00	0.00	4.21
SW	1.35	1.06	0.00	0.00	0.00	0.00	0.00	2.42
WSW	1.40	.53	.10	0.00	0.00	0.00	0.00	2.03
W	1.16	.48	0.00	0.00	0.00	0.00	0.00	1.64
WNW	2.08	1.55	0.00	0.00	0.00	0.00	0.00	3.63
NW	3.14	4.02	0.00	0.00	0.00	0.00	0.00	7.16
NNW	4.21	22.74	1.11	0.00	0.00	0.00	0.00	28.06
CALM								.05
TOTAL	32.99	57.62	7.35	1.98	0.00	0.00	0.00	100.00

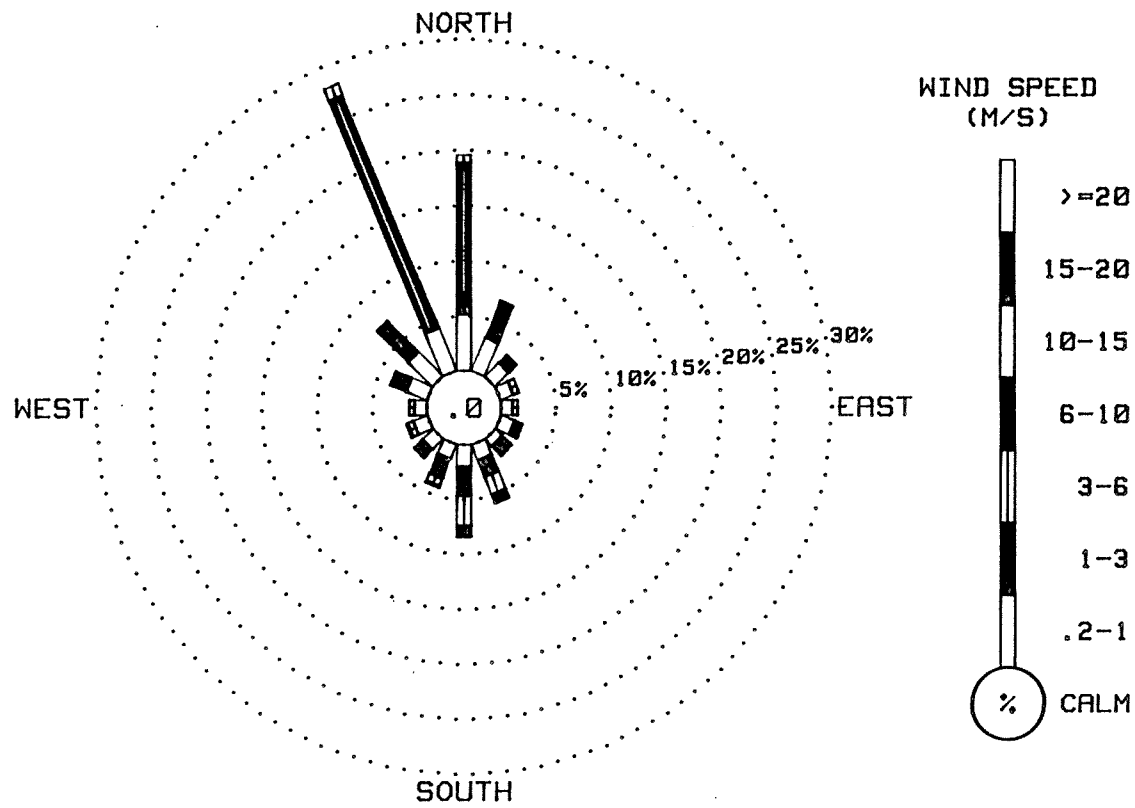
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2067 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

March, 1983



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR DENALI WEATHER STATION
DATA TAKEN DURING April, 1983

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

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

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.0	*****	**	235	.2	227	3.2	1
0600	-16.8	*****	**	019	.2	201	2.5	4
0900	-5.1	*****	**	054	.1	169	1.9	41
1200	-3.6	*****	**	339	1.7	325	3.2	60
1500	-3.1	*****	**	344	2.2	346	3.8	38
1800	-4.2	*****	**	343	3.3	343	5.1	4
2100	-10.5	*****	**	342	3.7	342	5.7	1
2400	-14.1	*****	**	321	1.5	324	3.2	1

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-16.0	*****	**	319	1.1	324	2.5	1
0600	-16.5	*****	**	328	1.1	337	3.8	4
0900	-10.6	*****	**	184	.6	260	2.5	45
1200	-.7	*****	**	288	.8	295	2.5	66
1500	-3.3	*****	**	346	2.9	344	5.1	39
1800	-5.1	*****	**	348	2.6	342	5.1	4
2100	-6.6	*****	**	343	1.4	346	3.2	1
2400	-9.5	*****	**	034	.7	070	2.5	1

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.6	*****	**	333	.1	169	2.5	1
0600	-14.5	*****	**	182	.9	178	2.5	5
0900	-7.8	*****	**	187	.7	197	3.8	44
1200	1.0	*****	**	187	3.6	190	6.3	63
1500	1.9	*****	**	171	3.8	154	12.1	42
1800	1.5	*****	**	157	3.7	145	13.3	6
2100	3.1	*****	**	114	3.8	135	21.6	1
2400	3.5	*****	**	137	9.3	138	23.5	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.3	*****	**	214	3.5	162	18.4	1
0600	3.5	*****	**	150	5.0	154	20.3	4
0900	.9	*****	**	099	2.6	144	17.8	20
1200	1.4	*****	**	236	1.4	248	4.4	32
1500	1.3	*****	**	282	2.0	282	4.4	22
1800	-2.8	*****	**	168	4.0	121	16.5	2
2100	-2.1	*****	**	246M	5.8M	257M	17.8M	1
2400	-4.4	*****	**	***	****	***	****	1

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.1	*****	**	171M	8.4M	152M	13.3M	1
0600	-7.5	*****	**	176	5.8	185	10.8	6
0900	-3.4	*****	**	165	5.4	186	10.8	49
1200	-.2	*****	**	150	7.0	161	10.8	62
1500	.1	*****	**	157	5.4	141	9.5	48
1800	-1.6	*****	**	195	1.0	192	6.3	4
2100	-4.6	*****	**	159	.7	205	4.4	1
2400	-5.9	*****	**	212	.9	166	5.7	1

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.9	*****	**	150	.8	184	3.8	1
0600	-9.5	*****	**	138	.9	173	3.2	5
0900	-6.0	*****	**	331	.7	332	2.5	53
1200	-1.7	*****	**	193	.6	196	3.8	67
1500	-1.7	*****	**	187	3.8	184	7.0	43
1800	-4.4	*****	**	330	.6	219	3.2	5
2100	-10.8	*****	**	351	.9	334	2.5	1
2400	-9.3	*****	**	359	.3	001	2.5	1

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.7	*****	**	282	.5	276	3.2	1
0600	-10.2	*****	**	196	.2	287	2.5	7
0900	-5.3	*****	**	183	.2	076	1.3	38
1200	-.9	*****	**	228	.5	175	1.3	72
1500	-2.4	*****	**	295	.7	335	2.5	47
1800	-7.6	*****	**	346	2.6	344	3.8	6
2100	-11.0	*****	**	345	2.7	011	5.1	1
2400	-13.5	*****	**	004	1.4	006	3.2	0

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.7	*****	**	340	1.7	346	3.8	1
0600	-14.8	*****	**	345	1.6	331	3.2	6
0900	-10.3	*****	**	298	.4	202	3.2	51
1200	-5.0	*****	**	272	.3	253	1.9	66
1500	-4.9	*****	**	346	2.0	334	3.2	32
1800	-6.1	*****	**	345	2.4	347	3.8	4
2100	-6.9	*****	**	344	.9	289	2.5	0
2400	-8.0	*****	**	162	.8	174	3.2	1

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.3	*****	**	286	.1	322	1.3	0
0600	-8.2	*****	**	183	.8	225	5.1	6
0900	-4.2	*****	**	210	.6	196	2.5	41
1200	-3.3	*****	**	212	1.1	230	2.5	41
1500	-2.8	*****	**	275	.5	310	3.2	45
1800	-6.9	*****	**	344	2.6	344	3.8	7
2100	-11.7	*****	**	004	1.8	343	3.2	1
2400	-10.2	*****	**	012	2.1	018	4.4	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.5	*****	**	003	2.6	001	4.4	1
0600	-11.3	*****	**	017	3.7	026	5.7	7
0900	-8.7	*****	**	011	3.7	006	6.3	50
1200	-7.4	*****	**	359	4.4	358	6.3	68
1500	-6.7	*****	**	360	4.6	002	6.3	45
1800	-11.1	*****	**	357	3.2	354	5.1	7
2100	-16.7	*****	**	351	3.2	341	5.1	1
2400	-18.3	*****	**	340	2.2	341	5.1	1

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-18.9	*****	**	151	.3	189	2.5	1
0600	-20.1	*****	**	347	.7	030	2.5	7
0900	-14.2	*****	**	223	.8	296	2.5	49
1200	-7.0	*****	**	185	2.7	185	5.7	46
1500	-7.2	*****	**	285	2.6	306	6.3	36
1800	-6.5	*****	**	268	3.2	231	8.3	6
2100	-4.3	*****	**	186	3.6	222	12.7	1
2400	-4.2	*****	**	140	8.2	141	16.5	1

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.6	*****	**	152	8.5	146	15.2	1
0600	-4.6	*****	**	159	6.1	141	14.0	7
0900	-3.4	*****	**	170	4.1	153	12.1	26
1200	.7	*****	**	228	1.9	197	6.3	58
1500	1.3	*****	**	205	2.4	186	8.3	46
1800	-.3	*****	**	238	.5	164	3.8	7
2100	-3.2	*****	**	162	1.9	141	5.7	1
2400	-4.1	*****	**	164	1.6	148	4.4	1

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.4	*****	**	350	.3	194	2.5	1
0600	-8.2	*****	**	336	2.2	335	5.1	9
0900	-5.2	*****	**	353	1.3	326	4.4	31
1200	-3.1	*****	**	342	1.1	345	2.5	36
1500	-2.5	*****	**	348	2.2	348	3.8	26
1800	-1.9	*****	**	333	.7	340	2.5	5
2100	-1.3	*****	**	***	****	***	****	1
2400	-.6	*****	**	***	****	***	****	1

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.8	*****	**	221M	5.0M	199M	8.9M	1
0600	-2.2	*****	**	***	****	***	****	8
0900	-.3	*****	**	181M	8.5M	177M	12.7M	57
1200	1.6	*****	**	185	7.3	182	10.2	73
1500	1.5	*****	**	221	3.6	199	6.3	49
1800	.1	*****	**	217	1.7	243	4.4	7
2100	1.3	*****	**	164	1.8	193	7.0	1
2400	-2.4	*****	**	176	3.9	165	12.7	1

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.7	*****	**	180	2.8	185	7.6	1
0600	-2.2	*****	**	178	4.5	173	9.5	10
0900	.2	*****	**	136	3.6	132	10.8	38
1200	.9	*****	**	161	6.0	155	12.7	45
1500	.3	*****	**	170	3.7	146	10.8	31
1800	-.8	*****	**	173	2.3	155	10.2	6
2100	-1.2	*****	**	145	5.0	156	11.4	1
2400	-2.5	*****	**	152	7.1	150	9.5	1

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.7	*****	**	***	****	***	****	1
0600	-3.6	*****	**	***	****	***	****	9
0900	-.1	*****	**	346	.8	349	1.9	54
1200	-.8	*****	**	342	4.3	339	7.6	62
1500	-.8	*****	**	338	5.3	337	7.0	38
1800	-2.8	*****	**	341	4.4	341	5.7	10
2100	-1.8	*****	**	009	3.6	021	7.6	1
2400	-3.7	*****	**	003	5.3	354	7.6	1

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.2	*****	**	014	3.2	350	5.1	1
0600	-8.2	*****	**	007	3.0	022	6.3	8
0900	-5.7	*****	**	338	1.2	337	4.4	58
1200	2.2	*****	**	308	.7	274	1.9	76
1500	.5	*****	**	210	2.1	185	7.0	38
1800	-.8	*****	**	223	2.3	226	4.4	5
2100	-2.7	*****	**	263	1.5	252	5.1	1
2400	-1.7	*****	**	155	5.3	161	11.4	1

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.9	*****	**	171	5.6	149	11.4	1
0600	-3.5	*****	**	216	.7	240	5.1	15
0900	-.8	*****	**	160	4.0	168	10.2	61
1200	.1	*****	**	158	6.7	156	11.4	68
1500	.7	*****	**	156	5.0	159	10.2	39
1800	.6	*****	**	147	2.4	129	9.5	11
2100	.1	*****	**	134	4.9	130	15.9	1
2400	-.4	*****	**	138	10.2	137	17.8	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.8	*****	**	137	9.0	144	20.3	1
0600	-1.6	*****	**	141	10.1	135	15.9	13
0900	-1.1	*****	**	151	9.8	140	14.0	35
1200	.3	*****	**	182	6.6	176	9.5	79
1500	1.2	*****	**	194	3.7	185	6.3	44
1800	0.0	*****	**	232	.5	233	2.5	10
2100	.1	*****	**	145	4.7	119	14.6	1
2400	-.7	*****	**	140	6.9	143	15.2	1

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.5	*****	**	178	4.1	162	14.0	1
0600	-2.5	*****	**	141	.5	168	4.4	8
0900	.1	*****	**	290	1.5	290	3.8	33
1200	3.6	*****	**	149	2.9	160	11.4	63
1500	4.1	*****	**	240	1.4	214	8.9	40
1800	2.0	*****	**	177	2.7	167	12.1	7
2100	.8	*****	**	163	4.3	169	11.4	1
2400	-2.2	*****	**	172	3.3	145	10.2	1

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.6	*****	**	062	.6	012	3.8	1
0600	-3.1	*****	**	135	.4	149	2.5	11
0900	2.7	*****	**	175	1.2	184	3.2	39
1200	3.0	*****	**	186	.9	159	7.6	76
1500	2.5	*****	**	179	3.8	167	7.6	47
1800	1.0	*****	**	242	1.0	173	5.7	11
2100	-.5	*****	**	192	.7	233	3.2	1
2400	-3.2	*****	**	348	.1	331	1.9	1

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.2	*****	**	195	2.2	197	5.1	1
0600	-2.6	*****	**	183	3.5	187	5.7	11
0900	1.7	*****	**	185	3.7	191	6.3	61
1200	5.0	*****	**	166	5.6	167	10.8	82
1500	4.0	*****	**	175	5.4	166	9.5	18
1800	2.8	*****	**	187	3.6	177	6.3	10
2100	.7	*****	**	203	1.5	177	4.4	1
2400	-.7	*****	**	175	1.3	209	3.8	1

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.6	*****	**	171	1.3	186	3.2	1
0600	-.2	*****	**	164	1.2	168	3.2	14
0900	2.1	*****	**	189	2.5	178	5.7	39
1200	3.5	*****	**	189	5.4	188	7.6	54
1500	4.0	*****	**	205	3.3	192	5.1	55
1800	2.7	*****	**	227	1.0	253	2.5	7
2100	.8	*****	**	325	.1	213	1.9	1
2400	.3	*****	**	051	.3	025	1.9	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.8	*****	**	178	.2	169	2.5	1
0600	-1.7	*****	**	116	.5	113	1.9	8
0900	1.6	*****	**	346	1.1	343	4.4	63
1200	3.9	*****	**	343	2.7	339	4.4	80
1500	4.3	*****	**	341	5.6	339	8.9	55
1800	4.9	*****	**	348	4.8	344	8.3	13
2100	1.2	*****	**	344	1.7	347	5.1	1
2400	-2.2	*****	**	348	1.3	340	3.2	0

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.7	*****	**	355	1.0	341	2.5	1
0600	-2.2	*****	**	243	.3	160	3.2	8
0900	5.3	*****	**	171	.8	166	5.7	63
1200	7.9	*****	**	223	1.3	181	4.4	77
1500	8.9	*****	**	248	1.2	206	3.2	55
1800	6.6	*****	**	000	1.9	027	4.4	13
2100	2.2	*****	**	356	1.7	333	4.4	1
2400	-.1	*****	**	349	2.4	342	4.4	1

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.1	*****	**	343	2.5	339	3.8	1
0600	-.7	*****	**	340	2.8	327	5.7	10
0900	2.3	*****	**	338	2.8	313	5.1	62
1200	4.6	*****	**	348	2.5	338	5.1	78
1500	4.5	*****	**	349	3.0	341	5.1	55
1800	3.8	*****	**	346	3.3	347	4.4	13
2100	-.1	*****	**	357	2.3	358	4.4	1
2400	.1	*****	**	001	3.5	006	6.3	1

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.3	*****	**	005	1.9	024	4.4	1
0600	1.6	*****	**	005	2.2	015	4.4	12
0900	2.1	*****	**	002	3.6	019	5.7	62
1200	4.9	*****	**	350	3.0	346	5.1	79
1500	6.0	*****	**	357	3.1	350	4.4	55
1800	3.7	*****	**	002	2.7	358	3.8	13
2100	-.5	*****	**	013	2.4	015	4.4	1
2400	-1.1	*****	**	342	2.6	349	4.4	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.2	*****	**	353	1.7	336	4.4	1
0600	-2.0	*****	**	319	.6	229	1.9	14
0900	1.7	*****	**	210	.8	188	2.5	62
1200	5.4	*****	**	215	.6	204	2.5	42
1500	6.7	*****	**	231	.3	200	1.9	31
1800	3.9	*****	**	336	.9	347	2.5	12
2100	1.8	*****	**	349	1.2	322	2.5	1
2400	1.6	*****	**	336	1.5	341	3.8	1

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.9	*****	**	333	.8	311	1.9	1
0600	.6	*****	**	359	.9	338	1.9	7
0900	1.3	*****	**	350	1.8	346	2.5	29
1200	3.3	*****	**	347	2.1	341	3.8	40
1500	5.4	*****	**	358	2.5	002	4.4	41
1800	1.6	*****	**	011	2.8	358	4.4	8
2100	3.4	*****	**	358	3.2	357	5.7	1
2400	2.3	*****	**	006	3.8	350	6.3	1

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.0	*****	**	007	3.9	001	7.6	1
0600	2.0	*****	**	004	4.1	004	6.3	21
0900	3.1	*****	**	359	5.5	002	7.6	65
1200	4.3	*****	**	338	5.9	339	8.9	82
1500	4.3	*****	**	343	4.9	325	7.0	58
1800	4.1	*****	**	345	3.4	343	5.7	16
2100	1.6	*****	**	008	1.5	332	3.2	1
2400	-1.1	*****	**	352	1.6	354	3.2	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR DENALI 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 %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	-1.1	-16.8	-9.0	340	1.6	1.9	342	5.7	NNW	**	*****	0.0	4305	1
2	-.7	-16.5	-8.6	339	1.2	1.6	344	5.1	NNW	**	*****	0.0	4683	2
3	3.8	-14.5	-5.4	151	2.9	3.8	138	23.5	S	**	*****	0.0	4735	3
4	4.5	-4.4	.1	195M	2.1M	4.0M	154M	20.3M	WSW(M)	**	*****	0.0	2440	4
5	.8	-8.8	-4.0	166M	4.1M	4.5M	152M	13.3M	SSE(M)	**	*****	0.0	4065	5
6	1.3	-10.9	-4.8	186	.4	1.6	184	7.0	S	**	*****	0.0	5048	6
7	.8	-13.9	-6.6	335	.8	1.4	011	5.1	NNW	**	*****	0.0	4655	7
8	.8	-16.9	-8.1	340	1.0	1.5	346	3.8	NNW	**	*****	0.0	4870	8
9	2.7	-11.7	-4.5	339	.6	1.4	225	5.1	NNW	**	*****	0.0	4615	9
10	-6.7	-18.6	-12.7	001	3.4	3.5	006	6.3	N	**	*****	0.0	5410	10
11	-4.2	-22.2	-13.2	188	1.5	3.2	141	16.5	SW	**	*****	0.0	3783	11
12	4.3	-5.0	-.4	168	3.1	3.8	146	15.2	SSE	**	*****	0.0	4235	12
13	-.6	-9.9	-5.3	344M	1.3M	1.8M	335M	5.1M	NNW(M)	**	*****	0.0	3398	13
14	1.9	-2.9	-.5	190M	4.1M	5.0M	177M	12.7M	S (M)	**	*****	.2	5690	14
15	2.1	-3.0	-.5	161	3.9	4.3	155	12.7	SSE	**	*****	.2	4030	15
16	.1	-4.2	-2.1	350	4.0	3.1	339	7.6	NNW	**	*****	0.0	5368	16
17	4.6	-8.2	-1.8	241	.2	2.6	161	11.4	NNE	**	*****	0.0	5550	17
18	2.4	-4.1	-.9	152	4.8	5.4	137	17.8	SSE	**	*****	0.0	5628	18
19	3.1	-2.2	.5	152	6.0	6.5	144	20.3	SE	**	*****	0.0	5908	19
20	5.7	-4.1	.8	176	2.2	3.0	162	14.0	S	**	*****	0.0	5015	20
21	4.2	-5.0	-.4	181	.9	1.6	159	7.6	S	**	*****	0.0	6093	21
22	5.0	-4.2	.4	180	3.3	3.5	167	10.8	S	**	*****	0.0	6340	22
23	5.4	-1.8	1.8	191	1.7	2.0	188	7.6	S	**	*****	0.0	5070	23
24	5.7	-2.4	1.7	346	2.1	2.5	339	8.9	NNW	**	*****	0.0	6920	24
25	12.5	-2.5	5.0	329	.7	1.7	166	5.7	N	**	*****	0.0	6805	25
26	6.4	-3.5	1.5	348	2.8	2.9	006	6.3	NNW	**	*****	0.0	6773	26
27	6.5	-3.3	1.6	359	2.7	2.8	019	5.7	N	**	*****	0.0	6865	27
28	7.8	-4.7	1.6	326	.6	1.2	336	4.4	NNW	**	*****	0.0	5055	28
29	5.4	.2	2.8	358	2.2	2.3	350	6.3	N	**	*****	.4	4015	29
30	4.4	-2.8	.8	353	3.8	3.9	339	8.9	N	**	*****	0.0	7028	30
MONTH	12.5	-22.2	-2.3	166M	.4M	2.9M	138M	23.5M	NNW(M)	**	*****	.8	154391	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 20.3
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 19.7
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 19.7
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 17.1

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.

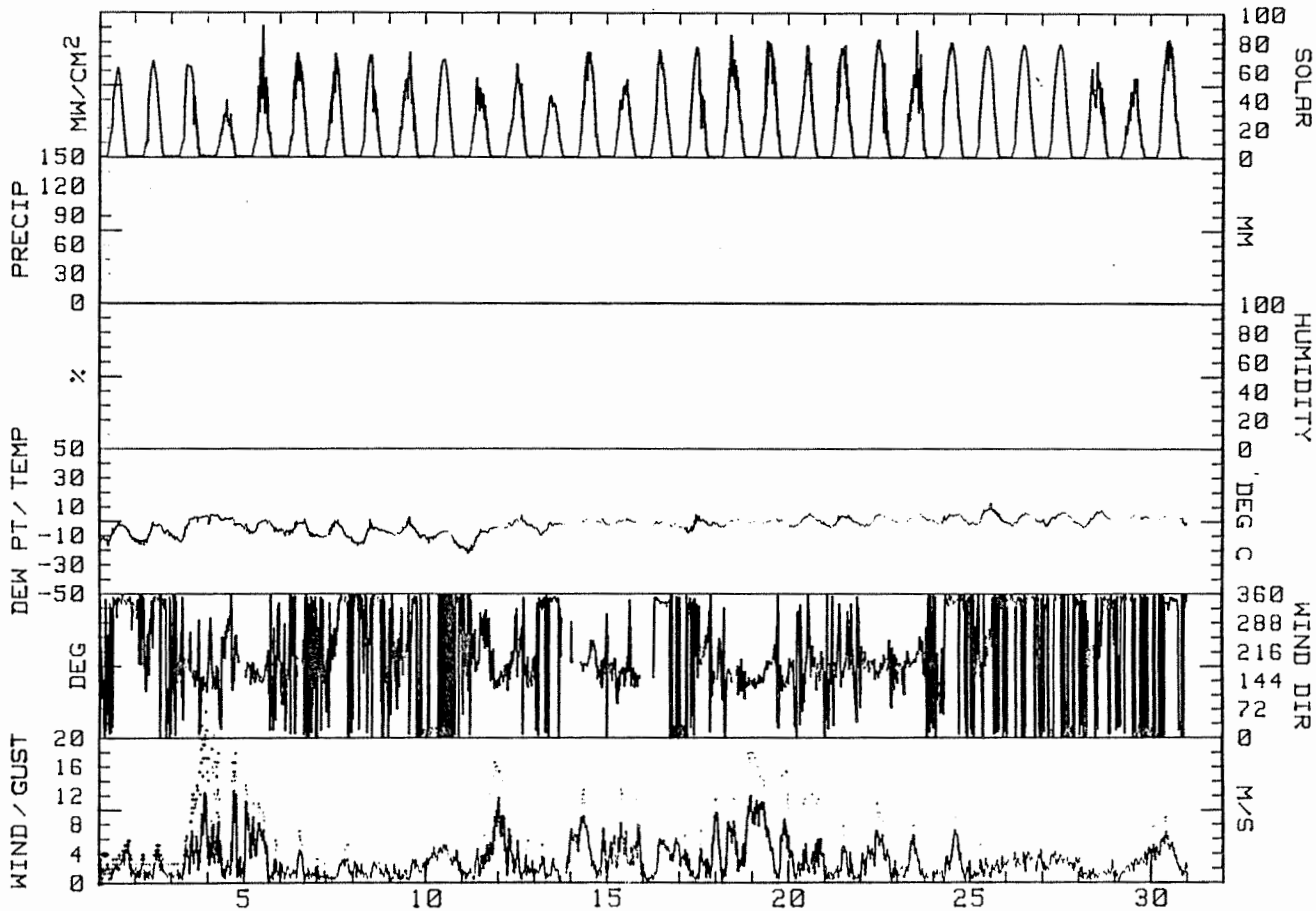
**** SEE NOTES AT THE BACK OF THIS REPORT ****

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

April, 1983



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	1.33	8.24	5.79	.11	0.00	0.00	0.00	15.47
NNE	1.19	3.17	1.55	0.00	0.00	0.00	0.00	5.90
NE	.65	.58	.22	0.00	0.00	0.00	0.00	1.44
ENE	.90	.29	.04	0.00	0.00	0.00	0.00	1.22
E	.72	.50	.04	0.00	0.00	0.00	0.00	1.26
ESE	.86	.68	.29	.11	0.00	0.00	0.00	1.94
SE	.72	1.22	1.66	2.37	1.12	0.00	0.00	7.09
SSE	.83	2.48	3.38	3.45	.29	0.00	0.00	10.44
S	1.44	3.60	5.25	2.12	0.00	0.00	0.00	12.41
SSW	1.44	3.09	2.02	.25	0.00	0.00	0.00	6.80
SW	.83	2.59	.72	.04	0.00	0.00	0.00	4.17
WSW	1.08	1.80	.50	.04	.18	0.00	0.00	3.60
W	.86	1.19	.18	0.00	0.00	0.00	0.00	2.23
WNW	.58	1.37	.29	.04	0.00	0.00	0.00	2.27
NW	.83	2.70	.29	0.00	0.00	0.00	0.00	3.81
NNW	1.73	11.37	5.97	.61	0.00	0.00	0.00	19.68
CALM								.25
TOTAL	15.98	44.87	28.18	9.14	1.58	0.00	0.00	100.00

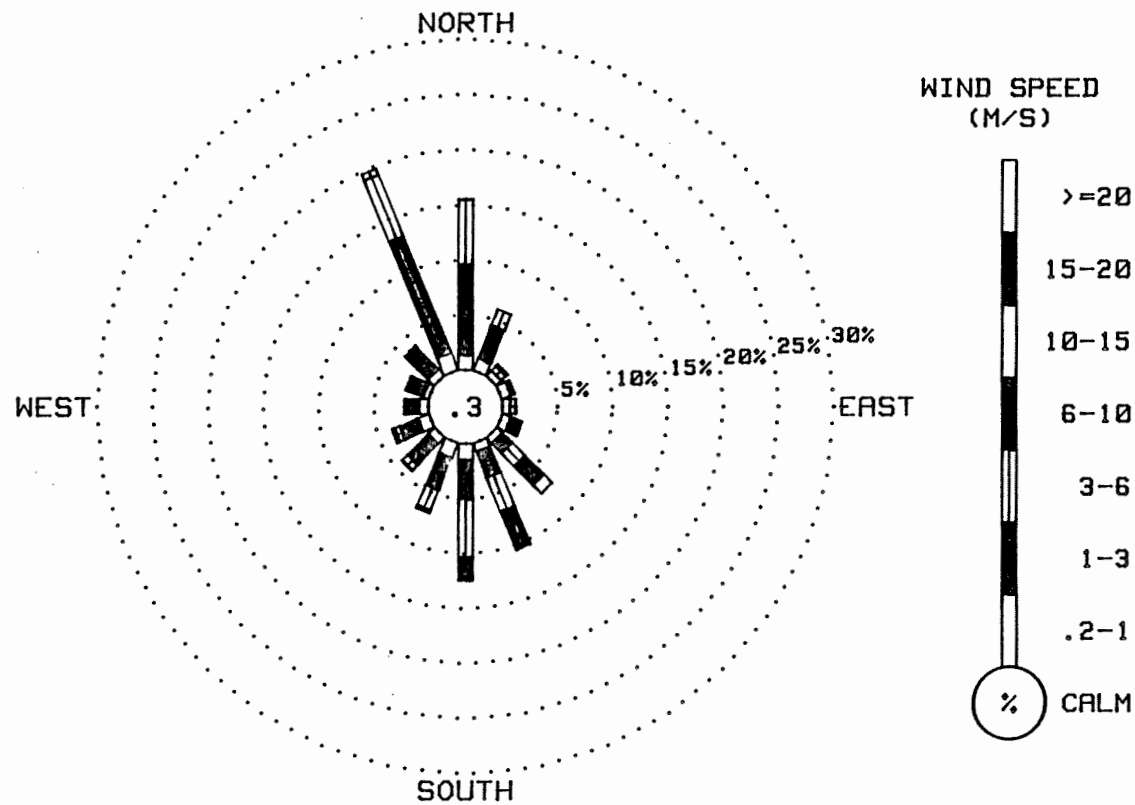
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2779 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

April, 1983



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR DENALI WEATHER STATION
DATA TAKEN DURING May, 1983

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

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

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DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.3	*****	**	099	.1	094	2.5	1
0600	-2.6	*****	**	226	.2	228	1.9	24
0900	3.0	*****	**	033	.1	339	2.5	61
1200	4.6	*****	**	196	3.9	183	8.3	78
1500	5.5	*****	**	204	3.5	185	7.0	44
1800	4.5	*****	**	222	1.1	234	2.5	11
2100	2.6	*****	**	057	.4	166	1.3	1
2400	.9	*****	**	175	.2	147	1.9	1

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.0	*****	**	157	3.3	138	9.5	1
0600	.7	*****	**	190	1.3	191	6.3	8
0900	2.3	*****	**	326	1.2	274	4.4	31
1200	4.4	*****	**	357	1.0	029	5.7	29
1500	2.5	*****	**	259	1.7	270	5.7	30
1800	1.3	*****	**	187	.4	089	4.4	11
2100	.3	*****	**	275M	.9M	307M	3.8M	1
2400	-.6	*****	**	***	***	***	***	1

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.3	*****	**	***	****	***	****	1
0600	-1.1	*****	**	183M	1.1M	186M	3.2M	9
0900	.5	*****	**	196	2.0	184	3.8	30
1200	2.1	*****	**	221	1.5	250	2.5	62
1500	1.8	*****	**	261	2.6	266	4.4	62
1800	1.7	*****	**	247	1.2	269	3.2	12
2100	-1.1	*****	**	332	.7	267	1.9	1
2400	-3.3	*****	**	346	2.0	338	3.8	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.7	*****	**	351	.7	356	2.5	1
0600	-1.3	*****	**	169	.3	196	1.9	24
0900	.3	*****	**	323	.4	015	2.5	43
1200	3.1	*****	**	239	.8	224	2.5	58
1500	2.3	*****	**	227	1.0	170	4.4	61
1800	1.3	*****	**	260	1.1	333	3.8	24
2100	-.6	*****	**	187	.8	239	2.5	1
2400	-.9	*****	**	129	.8	164	1.9	1

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.4	*****	**	088	.6	042	2.5	1
0600	-.5	*****	**	068	.5	126	1.9	31
0900	2.8	*****	**	143	.5	024	1.9	68
1200	5.5	*****	**	233	1.3	248	3.2	74
1500	3.8	*****	**	339	3.1	343	5.7	58
1800	2.9	*****	**	340	3.5	341	5.1	15
2100	.9	*****	**	330	1.1	339	3.2	1
2400	-1.0	*****	**	243	.4	218	3.8	1

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.5	*****	**	359	.6	351	1.9	1
0600	.1	*****	**	051	.2	122	1.9	13
0900	2.6	*****	**	308	.4	348	1.9	36
1200	4.8	*****	**	251	.5	000	2.5	44
1500	5.8	*****	**	335	1.1	327	3.8	45
1800	4.6	*****	**	237	.6	342	2.5	17
2100	1.1	*****	**	160	.2	185	2.5	1
2400	-1.3	*****	**	354	1.9	334	3.8	1

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.9	*****	**	330	1.3	351	3.2	1
0600	-.9	*****	**	343	2.8	342	7.0	22
0900	2.9	*****	**	347	4.9	348	7.0	64
1200	5.4	*****	**	354	4.3	350	6.3	78
1500	6.0	*****	**	350	3.7	350	5.7	46
1800	6.3	*****	**	359	2.6	347	5.1	15
2100	2.8	*****	**	338	.5	319	2.5	1
2400	0.0	*****	**	297	.2	182	2.5	1

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.5	*****	**	331	1.3	338	2.5	1
0600	1.8	*****	**	336	.9	320	2.5	23
0900	6.7	*****	**	102	.1	156	1.9	67
1200	8.2	*****	**	343	1.2	329	3.2	83
1500	7.7	*****	**	347	2.6	348	4.4	59
1800	7.1	*****	**	348	2.8	344	3.8	17
2100	2.1	*****	**	360	1.3	344	3.2	1
2400	.9	*****	**	345	.3	246	3.2	1

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.9	*****	**	355	.4	007	1.9	1
0600	.9	*****	**	249	.3	206	2.5	28
0900	4.2	*****	**	259	.5	249	2.5	35
1200	8.1	*****	**	209	1.1	224	3.2	86
1500	9.3	*****	**	231	1.7	197	3.8	60
1800	7.0	*****	**	221	2.1	205	4.4	13
2100	4.3	*****	**	306	.1	261	2.5	1
2400	.9	*****	**	063	.6	059	1.9	1

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DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.9	*****	**	155	1.3	164	3.2	1
0600	-.5	*****	**	180	1.7	190	4.4	27
0900	5.1	*****	**	183	4.5	177	7.6	68
1200	6.7	*****	**	196	4.7	190	7.6	77
1500	8.5	*****	**	210	3.5	212	6.3	62
1800	7.7	*****	**	273	1.2	209	3.8	24
2100	.9	*****	**	339	2.2	340	3.8	1
2400	-1.1	*****	**	344	.9	003	3.8	1

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.3	*****	**	336	1.3	309	3.8	1
0600	2.6	*****	**	331	1.0	331	3.2	26
0900	6.1	*****	**	208	1.4	225	3.8	68
1200	8.6	*****	**	219	2.3	221	4.4	84
1500	8.0	*****	**	278	1.5	262	6.3	44
1800	7.7	*****	**	343	3.6	337	5.7	25
2100	4.3	*****	**	347	3.1	342	5.1	1
2400	2.2	*****	**	321	.5	002	3.8	1

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.2	*****	**	054	.3	286	2.5	1
0600	3.3	*****	**	208	.9	191	3.8	18
0900	6.6	*****	**	215	2.1	190	7.0	53
1200	6.4	*****	**	196	4.0	181	8.3	42
1500	6.4	*****	**	203	2.5	191	5.1	22
1800	5.4	*****	**	218	1.1	193	2.5	10
2100	2.6	*****	**	028	.3	024	1.9	1
2400	2.4	*****	**	034	.5	113	1.9	1

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.3	*****	**	030	.2	068	1.9	1
0600	3.7	*****	**	231	.2	262	1.3	22
0900	8.1	*****	**	204	.9	228	5.7	68
1200	10.3	*****	**	214	2.6	221	5.1	62
1500	9.4	*****	**	196	2.4	184	5.7	29
1800	7.6	*****	**	189	2.6	179	5.1	7
2100	5.1	*****	**	161	.7	184	3.2	1
2400	4.1	*****	**	162	.6	158	3.2	1

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.1	*****	**	002	.3	274	1.9	1
0600	5.0	*****	**	167	1.8	167	4.4	19
0900	6.6	*****	**	186	4.2	187	7.0	27
1200	8.5	*****	**	191	3.5	190	5.7	58
1500	9.3	*****	**	249	2.7	246	6.3	49
1800	8.9	*****	**	355	1.3	285	3.8	14
2100	6.0	*****	**	197	1.0	241	5.7	1
2400	5.4	*****	**	175	1.2	111	5.7	1

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.4	*****	**	322	1.6	292	5.1	1
0600	5.1	*****	**	010	1.0	320	3.2	30
0900	6.5	*****	**	348	2.8	341	5.1	29
1200	8.9	*****	**	340	2.3	339	5.1	38
1500	9.7	*****	**	299	2.1	317	5.1	36
1800	9.8	*****	**	218	1.4	171	5.7	21
2100	6.2	*****	**	189	.5	144	3.2	1
2400	3.4	*****	**	115	.4	078	3.8	1

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.3	*****	**	156	1.5	170	7.0	2
0600	2.6	*****	**	193	4.6	195	8.3	22
0900	8.4	*****	**	177	5.3	166	10.2	82
1200	6.8	*****	**	162	4.3	175	11.4	35
1500	3.2	*****	**	190	2.4	165	9.5	15
1800	3.0	*****	**	233	1.6	275	3.8	5
2100	1.6	*****	**	217	1.1	228	2.5	1
2400	1.2	*****	**	069	.4	020	1.9	1

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.4	*****	**	200	.7	242	2.5	1
0600	1.2	*****	**	109	.4	097	1.9	13
0900	3.0	*****	**	180	.9	196	3.2	22
1200	4.6	*****	**	144	.5	276	3.2	36
1500	4.6	*****	**	238	.6	253	5.7	31
1800	3.3	*****	**	263	2.1	264	7.0	4
2100	2.6	*****	**	294	.6	266	5.1	1
2400	1.3	*****	**	178	.8	235	3.8	0

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.8	*****	**	087	.4	266	3.8	1
0600	1.6	*****	**	069	.3	117	2.5	15
0900	4.5	*****	**	214	1.2	247	5.1	55
1200	5.4	*****	**	253	1.6	262	5.1	39
1500	3.0	*****	**	153	1.6	159	7.0	26
1800	3.4	*****	**	064	1.0	286	3.8	12
2100	2.1	*****	**	091	.4	024	3.8	1
2400	2.1	*****	**	170	.1	197	2.5	1

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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.4	*****	**	167	.3	227	2.5	1
0600	1.7	*****	**	208	.6	284	2.5	20
0900	5.8	*****	**	034	.3	005	2.5	96
1200	6.8	*****	**	340	1.1	346	3.2	34
1500	7.6	*****	**	269	1.5	276	5.1	24
1800	7.8	*****	**	338	2.0	264	6.3	24
2100	5.3	*****	**	319	1.3	281	5.1	1
2400	4.3	*****	**	001	1.2	350	5.7	1

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.4	*****	**	132	1.3	077	5.1	1
0600	5.0	*****	**	168	.8	178	5.7	14
0900	6.4	*****	**	236	3.9	233	9.5	22
1200	8.7	*****	**	252	4.6	229	8.9	54
1500	10.4	*****	**	275	5.1	259	8.9	87
1800	6.8	*****	**	318	4.5	298	8.3	11
2100	5.5	*****	**	345	3.6	340	6.3	2
2400	3.3	*****	**	356	1.5	007	3.2	1

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.5	*****	**	339	1.4	331	3.8	1
0600	5.8	*****	**	179	.8	248	2.5	18
0900	4.5	*****	**	273	3.2	273	6.3	7
1200	8.5	*****	**	261	4.1	263	10.8	78
1500	7.2	*****	**	258	5.8	252	9.5	29
1800	6.4	*****	**	259	3.3	265	5.7	18
2100	4.7	*****	**	266	2.3	252	7.0	1
2400	3.1	*****	**	154	.3	003	4.4	1

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.5	*****	**	168	1.3	237	3.8	1
0600	3.4	*****	**	147	1.3	083	3.8	10
0900	5.1	*****	**	249	1.2	312	3.8	34
1200	7.9	*****	**	203	2.0	169	7.0	62
1500	6.1	*****	**	173	3.3	164	8.3	26
1800	5.1	*****	**	184	2.6	167	5.7	9
2100	3.0	*****	**	215	1.0	226	4.4	1
2400	2.3	*****	**	183	.4	250	4.4	1

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.9	*****	**	021	.6	040	1.9	1
0600	.8	*****	**	197	.5	238	3.2	9
0900	3.7	*****	**	278	.1	298	3.2	53
1200	4.9	*****	**	160	2.1	188	5.1	50
1500	7.1	*****	**	049	.7	166	10.2	42
1800	7.0	*****	**	155	3.1	165	8.3	7
2100	5.6	*****	**	142	4.4	158	11.4	2
2400	4.2	*****	**	138	5.0	143	12.7	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.4	*****	**	129	2.6	119	8.9	2
0600	3.6	*****	**	193	2.0	156	8.3	20
0900	5.4	*****	**	153	2.6	141	8.3	24
1200	6.9	*****	**	179	.2	143	6.3	42
1500	9.6	*****	**	051	1.0	346	3.8	76
1800	8.7	*****	**	348	1.9	002	5.1	22
2100	3.2	*****	**	340	3.3	331	5.1	2
2400	2.8	*****	**	360	2.6	346	5.1	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.0	*****	**	004	2.0	353	5.1	2
0600	3.2	*****	**	348	2.3	354	3.8	22
0900	9.0	*****	**	355	3.0	345	5.1	53
1200	11.8	*****	**	339	1.5	298	7.6	64
1500	11.1	*****	**	205	1.7	163	7.6	34
1800	5.8	*****	**	055	.9	047	6.3	7
2100	4.7	*****	**	211	.7	167	4.4	2
2400	2.6	*****	**	185	1.7	241	6.3	1

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.5	*****	**	220	.5	184	4.4	2
0600	3.8	*****	**	182	1.5	191	3.2	18
0900	3.5	*****	**	179	2.8	173	7.0	11
1200	3.2	*****	**	186	3.0	168	7.6	27
1500	6.6	*****	**	242	.7	244	5.1	27
1800	7.6	*****	**	025	.9	062	3.2	22
2100	5.1	*****	**	280	.5	223	9.5	1
2400	3.9	*****	**	052	1.1	078	4.4	1

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.7	*****	**	358	1.2	319	3.2	2
0600	3.7	*****	**	343	1.8	342	3.8	24
0900	7.0	*****	**	358	1.2	347	3.2	60
1200	8.6	*****	**	274	.8	218	3.8	36
1500	9.3	*****	**	220	1.5	140	7.6	42
1800	8.2	*****	**	186	3.3	190	6.3	14
2100	7.0	*****	**	185	2.5	203	4.4	1
2400	5.4	*****	**	151	1.7	165	5.1	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.9	*****	**	182	1.9	166	5.7	1
0600	5.1	*****	**	086	.3	175	1.9	11
0900	8.3	*****	**	015	.5	283	2.5	28
1200	13.9	*****	**	322	.9	171	5.7	74
1500	12.7	*****	**	118	2.5	144	10.2	12
1800	10.9	*****	**	036	1.6	127	8.9	14
2100	9.4	*****	**	073	1.1	122	11.4	1
2400	5.8	*****	**	301	.8	009	7.0	1

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.7	*****	**	010	.9	343	3.2	2
0600	7.1	*****	**	135	.6	185	3.2	11
0900	12.5	*****	**	115	1.5	128	9.5	35
1200	14.3	*****	**	145	4.0	160	17.1	32
1500	16.0	*****	**	172	4.1	185	15.9	33
1800	15.7	*****	**	151	7.0	148	17.1	11
2100	14.1	*****	**	146	5.0	148	12.1	2
2400	14.2	*****	**	135	7.0	135	13.3	1

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.1	*****	**	185	2.2	140	9.5	3
0600	12.3	*****	**	163	1.2	172	3.8	42
0900	17.9	*****	**	183	4.0	180	7.0	85
1200	14.9	*****	**	165	3.3	177	11.4	16
1500	18.9	*****	**	017	.8	037	6.3	26
1800	20.4	*****	**	310	.9	290	3.2	18
2100	14.3	*****	**	048	.3	312	2.5	2
2400	11.0	*****	**	187	1.1	207	5.7	1

DAY 31

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.4	*****	**	175	1.5	223	6.3	2
0600	7.4	*****	**	296	1.6	257	7.6	6
0900	8.7	*****	**	244	.8	237	6.3	34
1200	10.7	*****	**	191	2.3	136	13.3	10
1500	13.9	*****	**	139	5.0	130	17.1	83
1800	12.2	*****	**	160	7.1	151	13.3	15
2100	10.2	*****	**	160	6.7	153	11.4	2
2400	5.2	*****	**	157	3.5	143	9.5	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR DENALI 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 DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	6.1	-5.2	.5	200	1.0	1.7	183	8.3	SSW	**	*****	0.0	6735	1
2	5.0	-.8	2.1	218M	.5M	1.7M	138M	9.5M	W (M)	**	*****	1.2	3540	2
3	3.1	-3.7	-.3	254M	1.0M	1.4M	266M	4.4M	W (M)	**	*****	0.0	5605	3
4	3.8	-4.5	-.4	229	.4	1.1	170	4.4	SW	**	*****	0.0	5198	4
5	5.5	-3.0	1.3	334	.8	1.6	343	5.7	NNW	**	*****	0.0	7088	5
6	6.5	-2.4	2.1	330	.5	1.2	327	3.8	N	**	*****	0.0	5500	6
7	6.8	-3.3	1.8	348	2.5	2.8	342	7.0	NNW	**	*****	0.0	6803	7
8	8.8	-1.7	3.6	346	1.3	1.5	348	4.4	NNW	**	*****	0.0	7570	8
9	9.8	-2.8	3.5	229	.6	1.3	205	4.4	SW	**	*****	0.0	6715	9
10	9.2	-1.6	3.8	203	1.6	2.7	177	7.6	S	**	*****	0.0	7553	10
11	10.2	-2.5	3.9	312	1.1	2.2	262	6.3	NNW	**	*****	0.0	7473	11
12	7.4	[illegible].3	3.9	203	1.2	1.8	181	8.3	SSW	**	*****	0.0	4560	12
13	11.3	1.0	6.2	195	1.2	1.5	228	5.7	SSW	**	*****	0.0	5903	13
14	9.8	2.5	6.2	198	1.4	2.2	187	7.0	S	**	*****	0.0	5303	14
15	10.7	1.8	6.3	324	1.0	1.9	171	5.7	NNW	**	*****	0.0	6318	15
16	8.4	1.0	4.7	182	2.4	2.9	175	11.4	S	**	*****	2.0	4553	16
17	5.9	.4	3.2	219	.5	1.4	264	7.0	SSW	**	*****	1.8	3220	17
18	5.7	1.2	3.5	170	.3	1.6	159	7.0	W	**	*****	0.0	3905	18
19	9.0	-1.6	3.7	321	.7	1.6	264	6.3	N	**	*****	0.0	5898	19
20	11.1	3.3	7.2	283	2.0	3.5	233	9.5	NNW	**	*****	0.0	5383	20
21	8.5	1.8	5.2	263	2.4	3.0	263	10.8	WSW	**	*****	0.0	4038	21
22	8.7	2.2	5.5	186	1.5	2.0	164	9.3	SSE	**	*****	.8	4783	22
23	8.5	.6	4.6	143	1.8	2.5	143	12.7	SE	**	*****	1.6	4735	23
24	9.6	1.1	5.4	046	.4	2.5	119	8.9	NNW	**	*****	0.0	5093	24
25	13.1	.1	6.6	343	.7	2.4	298	7.6	N	**	*****	0.0	6223	25
26	7.7	2.4	5.1	185	.8	1.9	223	9.5	S	**	*****	.2	3785	26
27	9.6	0.0	4.8	207	.6	2.1	140	7.6	NNW	**	*****	0.0	4803	27
28	13.9	3.4	8.7	087	.4	1.9	122	11.4	E	**	*****	0.0	4000	28
29	16.1	5.0	10.6	145	3.5	4.0	160	17.1	SE	**	*****	0.0	4430	29
30	21.4	7.7	14.6	177	1.2	2.4	177	11.4	S	**	*****	0.0	5753	30
31	15.0	4.3	9.7	164	3.1	4.2	130	17.1	SSE	**	*****	0.0	4043	31
MONTH	21.4	-5.2	4.7	210M	.5M	2.1M	160M	17.1M	NNW(M)	**	*****	7.6	166505	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 10.2
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 10.8
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 11.4
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 7.6

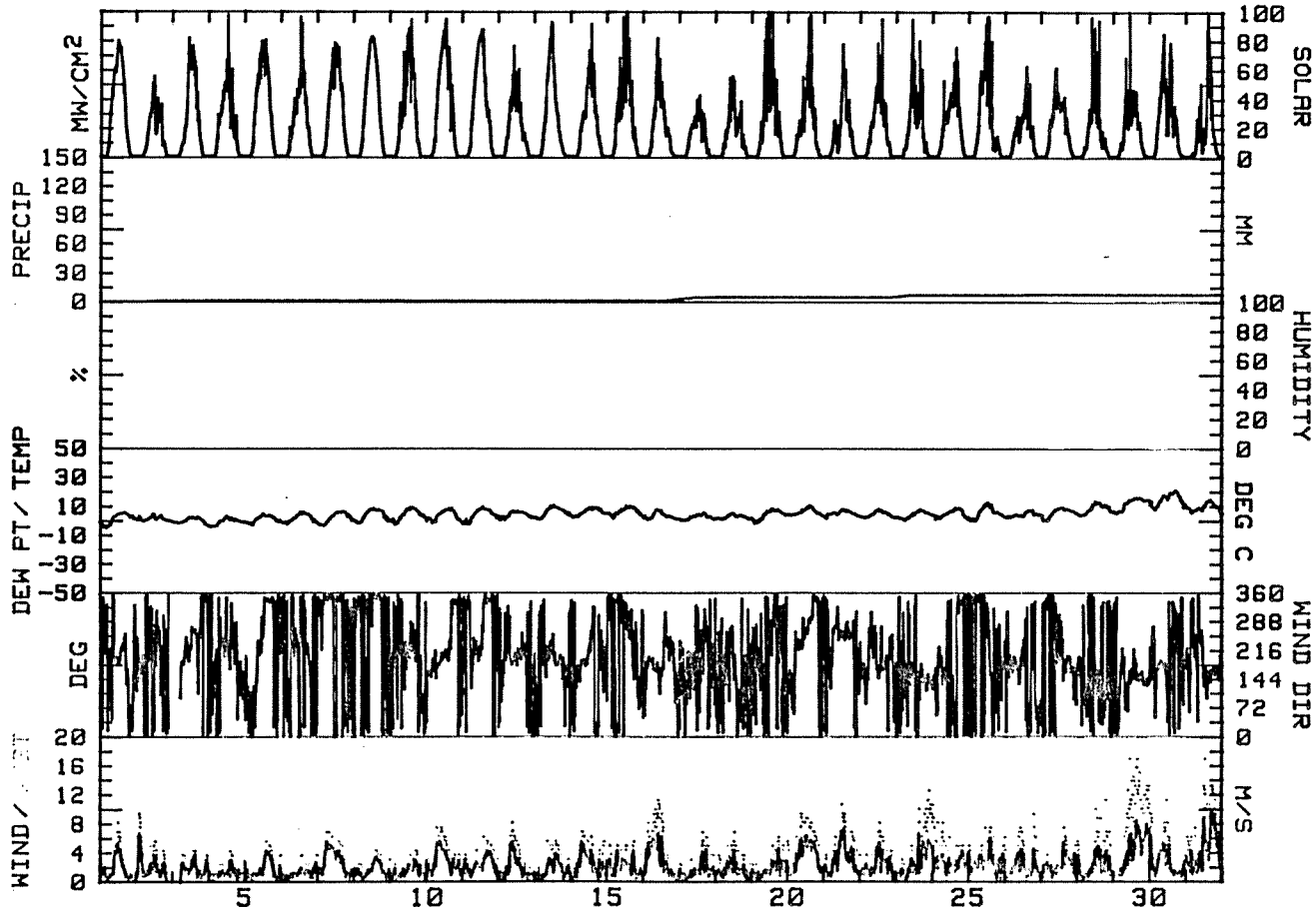
NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

May, 1983



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DIRECTION	VELOCITY (M/S) 0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	1.80	5.81	1.36	0.00	0.00	0.00	0.00	8.96
NNE	1.56	3.50	.14	0.00	0.00	0.00	0.00	5.20
NE	1.43	2.17	.17	0.00	0.00	0.00	0.00	3.77
ENE	.92	1.32	.17	0.00	0.00	0.00	0.00	2.41
E	1.32	1.43	.20	0.00	0.00	0.00	0.00	2.95
ESE	1.46	1.83	.27	0.00	0.00	0.00	0.00	3.57
SE	1.29	1.80	1.94	.85	0.00	0.00	0.00	5.87
SSE	1.43	3.84	2.34	1.05	0.00	0.00	0.00	8.66
S	1.26	4.79	4.31	.27	0.00	0.00	0.00	10.63
SSW	1.29	5.64	2.44	0.00	0.00	0.00	0.00	9.37
SW	1.12	5.94	.98	.03	0.00	0.00	0.00	8.08
WSW	.54	3.36	1.36	.27	0.00	0.00	0.00	5.53
W	.78	3.12	1.43	.10	0.00	0.00	0.00	5.43
WNW	.68	2.44	.71	0.00	0.00	0.00	0.00	3.84
NW	1.12	2.61	.10	0.00	0.00	0.00	0.00	3.84
NNW	1.49	6.59	3.43	0.00	0.00	0.00	0.00	11.51
CALM								.37
TOTAL	19.49	56.20	21.36	2.58	0.00	0.00	0.00	100.00

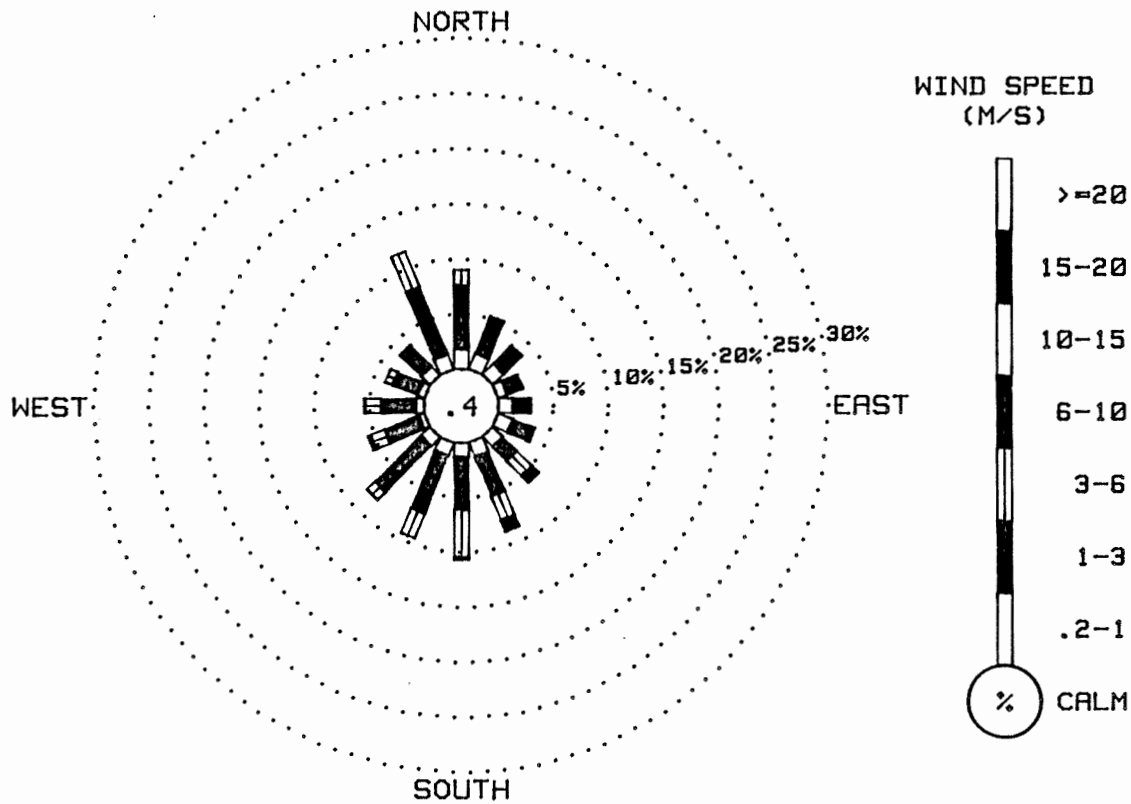
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2945 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
2976 WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 15 MINUTE DATA.

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

May, 1983



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR DENALI WEATHER STATION
DATA TAKEN DURING June 1983

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

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

R & M CONSULTANTS, INC.

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DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.9	*****	**	138	1.2	148	3.8	3
0600	6.2	*****	**	146	1.2	110	2.5	34
0900	11.9	*****	**	325	.5	247	5.7	89
1200	12.6	*****	**	167	4.3	172	10.2	38
1500	16.2	*****	**	188	3.9	174	8.3	75
1800	15.3	*****	**	307	1.6	206	6.3	25
2100	11.0	*****	**	013	2.5	013	5.7	2
2400	7.6	*****	**	351	3.3	355	7.0	1

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.5	*****	**	354	3.0	008	6.3	3
0600	9.2	*****	**	344	2.3	338	4.4	13
0900	14.5	*****	**	342	2.4	337	4.4	31
1200	17.2	*****	**	279	1.6	336	7.0	7
1500	10.7	*****	**	163	4.1	163	13.3	6
1800	10.7	*****	**	338	2.0	122	5.7	12
2100	7.1	*****	**	205	.9	182	4.4	1
2400	6.1	*****	**	170	1.7	177	6.3	1

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.4	*****	**	207	3.8	202	8.3	1
0600	4.6	*****	**	245	.2	230	5.1	11
0900	4.2	*****	**	181	3.3	199	5.7	14
1200	4.4	*****	**	236	2.2	155	5.7	31
1500	5.2	*****	**	269	3.1	265	8.3	17
1800	5.4	*****	**	266	3.0	264	8.3	15
2100	4.2	*****	**	318	1.6	281	6.3	2
2400	3.5	*****	**	306	1.4	297	5.1	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.8	*****	**	284	1.8	276	5.1	1
0600	2.7	*****	**	307	.9	359	4.4	7
0900	4.0	*****	**	316	1.8	300	5.7	17
1200	6.6	*****	**	281	4.1	275	7.6	29
1500	8.5	*****	**	273	4.8	279	7.0	51
1800	7.3	*****	**	271	4.5	277	7.6	21
2100	5.0	*****	**	271	4.5	275	7.6	2
2400	4.4	*****	**	347	1.4	286	6.3	1

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.3	*****	**	261	.7	274	5.7	2
0600	5.1	*****	**	322	1.1	012	2.5	14
0900	8.3	*****	**	341	3.6	324	7.0	75
1200	10.9	*****	**	338	4.7	329	7.6	89
1500	12.1	*****	**	345	3.3	357	5.7	34
1800	10.4	*****	**	267	4.1	273	8.9	21
2100	8.1	*****	**	282	2.4	270	7.6	1
2400	5.9	*****	**	006	1.9	009	4.4	1

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.5	*****	**	360	1.9	006	4.4	2
0600	5.6	*****	**	354	3.9	340	8.3	18
0900	7.4	*****	**	342	6.2	339	10.8	60
1200	8.5	*****	**	346	6.5	349	10.2	91
1500	9.7	*****	**	348	6.9	351	10.2	72
1800	9.4	*****	**	357	6.7	353	10.8	27
2100	6.1	*****	**	003	6.4	014	10.2	3
2400	3.5	*****	**	340	3.3	357	6.3	1

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.9	*****	**	004	3.1	339	5.1	3
0600	5.4	*****	**	002	3.2	006	5.7	36
0900	7.7	*****	**	001	3.1	338	6.3	58
1200	11.4	*****	**	350	3.8	346	7.0	88
1500	12.7	*****	**	328	4.0	316	7.6	72
1800	11.1	*****	**	350	5.4	345	8.9	24
2100	8.5	*****	**	355	5.1	343	8.3	3
2400	7.1	*****	**	001	4.5	353	7.6	1

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.6	*****	**	003	2.8	355	7.0	3
0600	5.6	*****	**	333	1.4	324	3.2	11
0900	9.4	*****	**	032	.8	096	3.8	81
1200	11.9	*****	**	014	1.9	344	7.0	54
1500	11.1	*****	**	342	3.0	348	7.0	30
1800	9.2	*****	**	338	5.0	334	8.3	9
2100	6.0	*****	**	343	3.8	333	7.6	2
2400	5.2	*****	**	024	2.1	017	4.4	1

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.2	*****	**	013	2.1	012	5.1	2
0600	5.3	*****	**	355	2.7	347	5.7	20
0900	5.1	*****	**	352	2.9	332	5.1	27
1200	6.3	*****	**	357	3.2	342	6.3	35
1500	9.4	*****	**	012	2.7	344	8.3	41
1800	9.3	*****	**	335	4.5	330	8.9	13
2100	6.5	*****	**	337	4.4	325	8.3	3
2400	4.0	*****	**	009	3.4	005	6.3	1

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DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.4	*****	**	002	2.3	001	5.1	2
0600	6.8	*****	**	005	2.0	008	4.4	32
0900	9.5	*****	**	357	3.6	343	6.3	38
1200	11.9	*****	**	341	2.5	321	5.7	31
1500	13.3	*****	**	329	1.3	030	5.1	81
1800	6.5	*****	**	163	6.6	161	11.4	13
2100	5.8	*****	**	178	2.4	171	7.0	2
2400	4.9	*****	**	163	1.2	158	2.5	1

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.2	*****	**	190	1.1	205	3.8	2
0600	6.0	*****	**	171	2.3	173	6.3	15
0900	7.8	*****	**	158	4.0	172	7.6	37
1200	10.6	*****	**	165	2.9	146	5.7	67
1500	9.0	*****	**	266	3.4	227	8.3	41
1800	7.9	*****	**	345	3.9	344	7.0	14
2100	5.5	*****	**	177	1.8	176	5.7	2
2400	5.3	*****	**	179	2.0	178	6.3	1

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.7	*****	**	166	1.2	170	5.1	2
0600	5.4	*****	**	180	3.1	170	6.3	14
0900	7.7	*****	**	182	3.9	183	6.3	48
1200	11.1	*****	**	184	4.1	179	7.0	96
1500	12.2	*****	**	202	2.7	203	7.0	78
1800	7.7	*****	**	341	2.7	336	7.0	7
2100	8.0	*****	**	045	1.9	041	5.1	2
2400	8.2	*****	**	133	.7	356	2.5	1

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.1	*****	**	171	.9	141	3.8	4
0600	7.9	*****	**	194	1.5	172	3.2	36
0900	11.6	*****	**	330	.2	192	3.2	77
1200	14.1	*****	**	218	1.2	224	6.3	99
1500	15.6	*****	**	250	2.6	236	5.1	49
1800	13.9	*****	**	221	2.1	206	5.1	18
2100	11.7	*****	**	218	.8	200	3.8	2
2400	7.7	*****	**	189	1.6	248	7.6	1

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.5	*****	**	179	1.2	217	5.1	3
0600	8.0	*****	**	187	1.8	193	5.1	26
0900	10.4	*****	**	179	4.6	175	7.0	71
1200	12.7	*****	**	166	4.2	157	8.9	35
1500	11.8	*****	**	145	3.3	144	9.5	74
1800	11.4	*****	**	334	.9	294	6.3	16
2100	7.9	*****	**	249	.9	246	7.0	3
2400	4.1	*****	**	014	.6	349	2.5	1

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.4	*****	**	283	.5	317	1.9	2
0600	6.5	*****	**	331	1.5	346	2.5	17
0900	*****	*****	**	***	****	332	1.9	****
1200	12.3	*****	**	349	2.0	338	5.1	49
1500	10.9	*****	**	189	2.7	177	7.6	25
1800	8.2	*****	**	310	1.7	262	5.1	2
2100	6.8	*****	**	349	.3	324	4.4	1
2400	6.5	*****	**	056	1.3	070	3.8	1

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.3	*****	**	039	.1	148	2.5	2
0600	7.2	*****	**	165	.9	233	3.8	22
0900	9.5	*****	**	257	3.2	257	7.0	94
1200	11.9	*****	**	266	2.5	241	6.3	42
1500	13.0	*****	**	353	2.2	345	5.1	34
1800	12.7	*****	**	350	2.0	020	5.1	16
2100	9.6	*****	**	274	3.1	275	6.3	3
2400	7.7	*****	**	005	1.3	002	4.4	1

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.8	*****	**	350	1.0	320	3.2	3
0600	9.1	*****	**	351	2.5	345	4.4	29
0900	13.4	*****	**	359	3.6	008	5.7	76
1200	15.8	*****	**	336	2.9	348	6.3	115
1500	17.8	*****	**	338	2.9	306	7.0	90
1800	15.8	*****	**	345	3.8	339	7.0	31
2100	11.6	*****	**	351	3.2	351	6.3	3
2400	6.5	*****	**	012	1.8	012	3.2	1

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.4	*****	**	345	1.4	347	3.2	3
0600	9.6	*****	**	360	2.8	351	5.7	36
0900	16.3	*****	**	002	1.3	006	4.4	76
1200	19.1	*****	**	333	1.6	307	6.3	111
1500	20.4	*****	**	351	2.0	355	5.1	92
1800	18.9	*****	**	317	1.5	319	7.0	12
2100	15.3	*****	**	160	.8	126	3.8	3
2400	12.0	*****	**	104	1.5	169	12.1	1

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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.6	*****	**	008	1.7	069	3.8	3
0600	13.6	*****	**	334	.5	341	3.2	45
0900	16.3	*****	**	242	3.0	240	5.7	76
1200	15.3	*****	**	264	3.7	282	7.0	25
1500	11.1	*****	**	246	.2	257	6.3	19
1800	12.4	*****	**	116	.2	170	5.1	22
2100	10.8	*****	**	317	1.8	279	3.8	3
2400	7.7	*****	**	357	.6	253	2.5	1

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.2	*****	**	344	1.8	333	3.8	3
0600	8.5	*****	**	358	2.1	358	4.4	13
0900	12.4	*****	**	357	3.8	352	6.3	73
1200	16.4	*****	**	356	2.9	008	5.1	92
1500	18.2	*****	**	318	2.3	349	5.1	95
1800	17.8	*****	**	052	3.7	022	7.6	29
2100	13.1	*****	**	301	.4	121	6.3	3
2400	9.4	*****	**	153	.7	145	5.1	1

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.6	*****	**	121	.4	210	3.2	3
0600	9.2	*****	**	346	1.8	351	3.8	15
0900	14.0	*****	**	353	2.5	341	5.7	35
1200	18.1	*****	**	004	2.1	007	4.4	76
1500	20.5	*****	**	327	1.8	307	5.1	74
1800	19.5	*****	**	335	2.8	336	5.7	27
2100	14.6	*****	**	235	1.9	266	5.7	2
2400	12.5	*****	**	131	1.4	156	4.4	1

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	10.2	*****	**	203	1.1	241	5.7	4
0600	12.7	*****	**	339	1.2	328	4.4	34
0900	16.1	*****	**	359	3.0	340	5.1	74
1200	19.0	*****	**	315	2.0	345	5.1	41
1500	14.8	*****	**	051	2.0	106	7.6	12
1800	17.5	*****	**	052	.6	344	5.7	16
2100	15.5	*****	**	319	.7	278	5.7	3
2400	12.4	*****	**	155	1.4	199	3.8	1

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.5	*****	**	173	1.1	212	3.2	3
0600	12.4	*****	**	168	.7	118	3.8	36
0900	14.6	*****	**	242	3.0	242	6.3	83
1200	18.1	*****	**	244	4.1	247	7.6	95
1500	17.3	*****	**	256	4.5	261	7.0	52
1800	17.4	*****	**	267	4.0	259	7.6	27
2100	13.8	*****	**	289	1.3	275	5.1	3
2400	6.6	*****	**	328	1.3	269	5.1	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.5	*****	**	014	.5	335	3.8	3
0600	11.9	*****	**	166	.5	142	2.5	38
0900	17.2	*****	**	163	1.8	178	5.7	77
1200	21.0	*****	**	177	4.4	172	8.9	92
1500	23.2	*****	**	176	5.0	169	9.5	73
1800	22.8	*****	**	180	4.4	165	8.3	30
2100	17.0	*****	**	187	2.0	172	5.1	3
2400	9.5	*****	**	354	3.0	001	6.3	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.5	*****	**	336	.6	318	2.5	3
0600	13.6	*****	**	176	2.0	171	4.4	38
0900	19.3	*****	**	196	1.2	204	3.2	76
1200	23.9	*****	**	180	3.9	186	8.3	91
1500	25.6	*****	**	180	4.3	196	8.9	72
1800	24.2	*****	**	175	4.0	161	8.3	35
2100	18.1	*****	**	173	2.3	150	7.0	2
2400	12.9	*****	**	124	1.7	136	5.7	1

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	11.5	*****	**	135	1.7	165	6.3	1
0600	9.9	*****	**	227	1.6	251	6.3	18
0900	11.9	*****	**	250	3.0	251	6.3	15
1200	17.9	*****	**	212	.6	216	5.1	103
1500	18.7	*****	**	182	3.8	182	7.6	12
1800	19.3	*****	**	153	3.4	160	7.6	27
2100	11.8	*****	**	224	2.9	257	7.6	3
2400	8.5	*****	**	171	2.1	195	5.7	0

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.0	*****	**	152	.8	160	4.4	3
0600	7.7	*****	**	336	1.7	000	4.4	3
0900	8.9	*****	**	173	1.9	151	5.1	9
1200	10.4	*****	**	161	1.0	160	2.5	28
1500	10.7	*****	**	198	1.6	205	3.2	10
1800	10.4	*****	**	181	1.1	169	3.2	4
2100	9.8	*****	**	161	1.5	164	8.3	1
2400	8.5	*****	**	159	2.6	173	5.7	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.5	*****	**	186	3.2	176	5.7	1
0600	9.1	*****	**	186	3.0	185	6.3	10
0900	10.8	*****	**	225	2.1	246	4.4	25
1200	14.4	*****	**	179	4.1	184	7.0	44
1500	15.5	*****	**	168	4.8	172	8.3	35
1800	10.8	*****	**	209	2.9	259	8.3	6
2100	9.8	*****	**	210	1.0	253	4.4	3
2400	8.1	*****	**	141	.7	128	1.9	1

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.3	*****	**	338	1.5	348	2.5	4
0600	10.3	*****	**	351	2.4	353	5.1	36
0900	14.0	*****	**	348	2.5	344	5.1	41
1200	15.1	*****	**	186	.5	171	5.7	26
1500	12.1	*****	**	157	4.4	160	8.3	12
1800	12.3	*****	**	181	3.3	169	5.1	29
2100	11.2	*****	**	235	.7	203	3.8	2
2400	8.9	*****	**	186	.9	211	3.8	1

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.0	*****	**	167	1.4	187	3.8	3
0600	9.4	*****	**	177	.6	165	1.9	19
0900	14.1	*****	**	347	.6	038	2.5	84
1200	16.6	*****	**	348	.9	324	3.8	36
1500	19.0	*****	**	324	1.7	343	5.1	71
1800	18.8	*****	**	329	3.9	334	7.0	34
2100	14.2	*****	**	343	3.8	338	7.6	4
2400	12.7	*****	**	008	3.3	355	5.7	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR DENALI 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	16.4	2.9	9.7	171	.4	2.8	172	10.2	S	**	*****	0.0	8285	1
2	19.1	4.8	12.0	318	.5	2.8	163	13.3	NNW	**	*****	2.4	3270	2
3	6.2	3.5	4.9	243	1.7	2.7	202	8.3	W	**	*****	2.6	2748	3
4	8.9	2.4	5.7	283	2.8	3.2	275	7.6	W	**	*****	0.0	3790	4
5	12.5	3.9	8.2	321	2.2	3.0	273	8.9	NNW	**	*****	0.0	7143	5
6	9.9	3.5	6.7	351	5.2	5.3	339	10.8	N	**	*****	0.0	8213	6
7	13.4	3.0	8.2	353	4.0	4.1	345	8.9	N	**	*****	0.0	8950	7
8	13.0	4.3	8.7	352	2.5	2.8	334	8.3	NNW	**	*****	0.0	5543	8
9	9.6	3.8	6.7	353	3.1	3.4	330	8.9	N	**	*****	0.0	4453	9
10	14.2	2.8	8.5	029	.2	2.9	161	11.4	N	**	*****	0.0	5500	10
11	11.2	3.9	7.6	191	1.3	3.0	227	8.3	S	**	*****	.2	5290	11
12	12.9	4.0	8.5	181	1.4	2.9	179	7.0	S	**	*****	.4	6350	12
13	16.1	4.6	10.4	216	1.2	1.8	248	7.6	SSW	**	*****	0.0	8060	13
14	15.4	4.1	9.8	173	1.7	2.6	144	9.5	S	**	*****	.2	5635	14
15	12.8M	4.2M	8.5M	324M	.6M	1.8M	177M	7.6M	NNW(M)	**	*****	2.2M	4340M	15
16	14.5	5.6	10.1	294	1.2	2.3	257	7.0	W	**	*****	.2	6280	16
17	17.8	2.8	10.3	349	2.7	2.8	306	7.0	NNW	**	*****	0.0	8328	17
18	21.3	3.1	12.2	356	1.1	2.1	169	12.1	N	**	*****	0.0	8815	18
19	17.0	5.9	11.5	285	1.0	2.1	282	7.0	WSW	**	*****	1.0	5670	19
20	19.2	3.7	11.5	001	1.8	2.5	022	7.6	N	**	*****	0.0	8060	20
21	20.5	7.4	14.0	340	1.1	2.1	341	5.7	N	**	*****	0.0	6845	21
22	19.6	8.2	13.9	359	.7	1.9	106	7.6	NNW	**	*****	0.0	6355	22
23	18.6	6.5	12.6	254	2.1	2.7	247	7.6	WSW	**	*****	0.0	8190	23
24	23.4	6.0	14.7	177	1.8	2.9	169	9.5	S	**	*****	0.0	9395	24
25	25.6	6.9	16.3	175	2.3	2.7	196	8.9	S	**	*****	0.0	8995	25
26	20.6	8.5	14.6	193	1.9	2.7	182	7.6	SSE	**	*****	.2	5738	26
27	11.1	6.1	8.6	172	1.1	1.9	164	8.3	SSE	**	*****	3.0	1673	27
28	16.1	7.1	11.6	187	2.6	3.0	172	8.3	S	**	*****	.4	5113	28
29	15.8	4.1	10.0	191	.4	2.3	160	8.3	NNW	**	*****	0.0	4673	29
30	19.6	7.7	13.7	342	1.5	2.2	338	7.6	NNW	**	*****	0.0	8418	30
MONTH	25.6M	2.4M	10.3M	306M	.6M	2.7M	163M	13.3M	NNW(M)	**	*****	12.8M	190115M	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 10.2
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 12.1
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 9.5
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 8.9

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

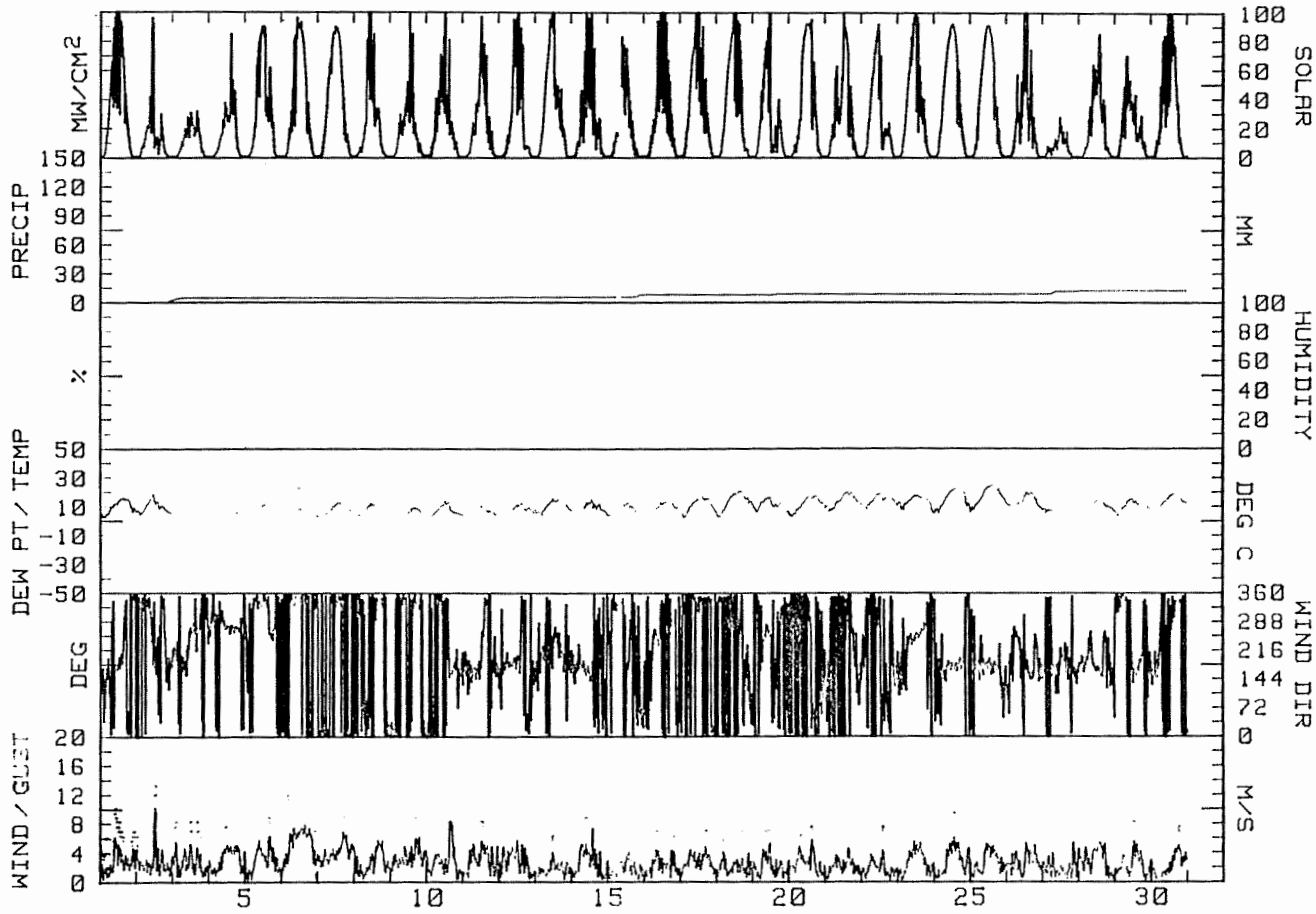
**** SEE NOTES AT THE BACK OF THIS REPORT ****

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

June, 1983



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.52	8.08	6.17	1.05	0.00	0.00	0.00	15.82
NNE	.59	3.87	1.25	.10	0.00	0.00	0.00	5.82
NE	.45	2.13	.28	0.00	0.00	0.00	0.00	2.86
ENE	.56	1.08	.28	0.00	0.00	0.00	0.00	1.92
E	.35	.66	.14	0.00	0.00	0.00	0.00	1.15
ESE	.49	1.08	.10	0.00	0.00	0.00	0.00	1.67
SE	.98	2.33	.28	.03	0.00	0.00	0.00	3.62
SSE	.98	4.67	3.07	.56	0.00	0.00	0.00	9.27
S	.63	5.16	7.00	0.00	0.00	0.00	0.00	12.79
SSW	.63	3.73	1.15	0.00	0.00	0.00	0.00	5.51
SW	.49	2.09	.66	0.00	0.00	0.00	0.00	3.24
WSW	.24	2.02	3.00	.03	0.00	0.00	0.00	5.30
W	.17	2.65	3.62	.03	0.00	0.00	0.00	6.48
WNW	.35	2.06	.59	0.00	0.00	0.00	0.00	3.00
NW	.31	3.69	.80	0.00	0.00	0.00	0.00	4.81
NNW	.45	8.08	7.07	1.15	0.00	0.00	0.00	16.76
CALM								0.00
TOTAL	8.19	53.38	35.47	2.96	0.00	0.00	0.00	100.00

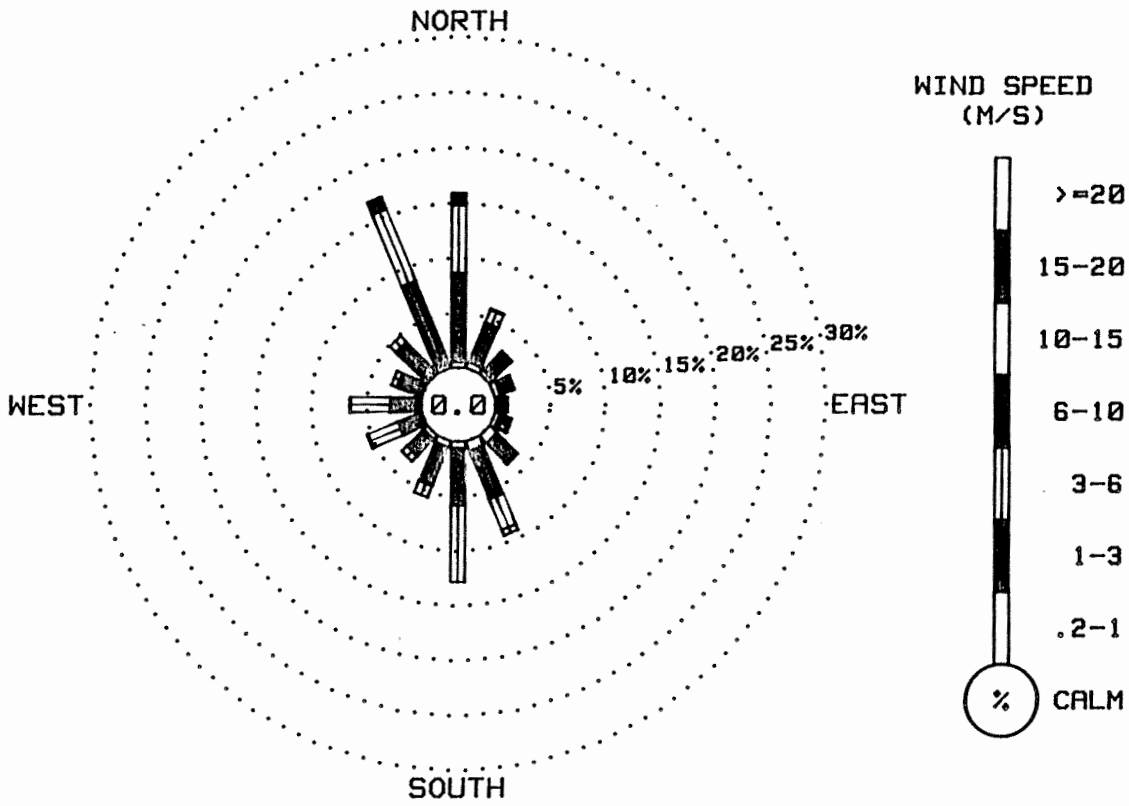
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2870 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

June, 1983



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR DENALI WEATHER STATION
DATA TAKEN DURING July, 1983

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

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

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	11.7	*****	**	001	3.1	003	5.7	1
0600	12.7	*****	**	359	2.0	347	4.4	3
0900	12.9	*****	**	293	.8	011	2.5	8
1200	16.4	*****	**	343	1.7	341	3.8	64
1500	14.4	*****	**	266	3.3	256	8.3	29
1800	11.1	*****	**	262	6.1	260	10.2	13
2100	9.9	*****	**	278	5.0	271	9.5	1
2400	9.3	*****	**	287	3.7	317	8.3	1

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.1	*****	**	252	.9	275	7.0	1
0600	8.5	*****	**	100	1.3	109	5.7	7
0900	10.2	*****	**	186	1.1	083	3.8	26
1200	13.2	*****	**	252	1.6	265	3.8	36
1500	15.2	*****	**	259	1.9	235	4.4	50
1800	14.1	*****	**	336	2.4	333	5.1	10
2100	11.9	*****	**	282	3.2	277	6.3	2
2400	10.9	*****	**	292	1.7	282	7.6	1

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	11.1	*****	**	345	1.4	009	5.1	2
0600	11.4	*****	**	339	1.7	332	5.1	13
0900	11.1	*****	**	345	2.5	008	5.7	26
1200	14.1	*****	**	349	2.9	354	5.1	51
1500	16.9	*****	**	346	4.0	352	6.3	53
1800	16.1	*****	**	350	4.4	351	7.0	16
2100	14.4	*****	**	353	3.6	351	6.3	3
2400	12.1	*****	**	358	3.1	354	5.7	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	11.7	*****	**	011	2.7	003	4.4	2
0600	13.4	*****	**	004	3.4	343	6.3	19
0900	16.5	*****	**	345	5.6	345	8.3	55
1200	19.1	*****	**	342	5.6	346	8.3	26
1500	20.3	*****	**	333	3.5	340	7.0	21
1800	14.1	*****	**	193	2.3	212	7.6	2
2100	13.4	*****	**	163	.9	157	3.8	2
2400	10.8	*****	**	233	1.1	280	6.3	0

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	10.5	*****	**	303	2.3	284	6.3	1
0600	10.7	*****	**	326	3.0	336	6.3	6
0900	13.3	*****	**	341	3.8	335	5.7	35
1200	17.3	*****	**	351	4.4	351	7.6	85
1500	21.7	*****	**	352	3.6	008	5.7	77
1800	19.6	*****	**	334	3.9	338	7.0	18
2100	17.2	*****	**	230	.6	168	4.4	2
2400	13.3	*****	**	191	1.9	264	5.7	1

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	12.1	*****	**	172	.9	165	3.8	3
0600	11.8	*****	**	337	.9	359	4.4	6
0900	14.6	*****	**	268	1.0	264	5.1	50
1200	14.4	*****	**	265	3.1	264	5.7	19
1500	16.7	*****	**	255	3.6	255	8.9	87
1800	10.5	*****	**	258	4.2	253	10.2	2
2100	9.4	*****	**	249	1.9	269	8.3	1
2400	8.6	*****	**	132	1.5	102	6.3	1

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.6	*****	**	152	1.2	105	3.2	1
0600	9.0	*****	**	168	1.1	184	3.2	10
0900	12.5	*****	**	183	.8	173	2.5	40
1200	14.6	*****	**	269	.3	323	4.4	44
1500	15.4	*****	**	172	1.9	168	5.7	29
1800	15.7	*****	**	188	3.9	186	6.3	14
2100	13.1	*****	**	203	2.4	199	4.4	3
2400	7.6	*****	**	000	1.4	337	4.4	1

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.6	*****	**	176	.2	278	3.2	3
0600	10.1	*****	**	170	2.0	149	7.0	40
0900	13.4	*****	**	172	5.5	156	10.8	41
1200	15.2	*****	**	165	4.6	158	12.1	29
1500	15.4	*****	**	163	5.6	160	11.4	41
1800	15.2	*****	**	169	4.8	165	9.5	21
2100	12.3	*****	**	158	4.3	163	10.2	3
2400	10.4	*****	**	154	4.6	151	8.3	1

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	10.0	*****	**	151	4.8	153	8.9	2
0600	8.6	*****	**	165	6.8	177	10.2	11
0900	8.7	*****	**	153	4.4	135	8.3	13
1200	10.6	*****	**	123	2.1	131	8.3	20
1500	12.4	*****	**	216	.3	157	7.6	33
1800	13.6	*****	**	338	3.3	336	5.1	31
2100	9.9	*****	**	348	2.1	344	4.4	1
2400	6.2	*****	**	175	.8	235	5.1	1

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DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.2	*****	**	167	.6	129	2.5	2
0600	9.4	*****	**	157	1.4	157	3.8	19
0900	11.6	*****	**	275	1.1	258	3.8	36
1200	15.3	*****	**	318	2.9	342	5.7	94
1500	15.5	*****	**	259	4.4	256	7.6	29
1800	12.9	*****	**	298	1.5	331	7.0	19
2100	11.1	*****	**	292	2.4	277	6.3	2
2400	11.6	*****	**	286	3.2	277	7.6	1

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	11.0	*****	**	343	5.0	333	8.9	2
0600	11.9	*****	**	356	3.0	336	7.0	16
0900	13.0	*****	**	358	4.4	352	7.6	29
1200	14.4	*****	**	338	5.0	349	9.5	23
1500	13.9	*****	**	322	4.2	329	8.9	34
1800	10.3	*****	**	180	5.0	185	8.9	16
2100	7.9	*****	**	179	3.5	179	7.6	2
2400	7.4	*****	**	002	.6	317	1.9	1

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.4	*****	**	159	.9	184	2.5	2
0600	11.4	*****	**	231	.8	260	5.1	35
0900	14.4	*****	**	331	4.3	324	9.5	74
1200	16.6	*****	**	333	5.5	325	8.9	91
1500	17.8	*****	**	337	6.3	338	9.5	71
1800	15.5	*****	**	341	5.5	341	8.9	12
2100	12.7	*****	**	350	3.2	339	7.6	2
2400	8.6	*****	**	222	.6	264	6.3	1

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.9	*****	**	138	1.5	172	5.1	2
0600	10.2	*****	**	228	.9	264	3.8	12
0900	8.5	*****	**	340	.9	256	7.0	24
1200	11.2	*****	**	348	3.5	009	5.7	48
1500	10.6	*****	**	338	3.0	349	6.3	14
1800	9.2	*****	**	332	2.7	270	9.5	10
2100	9.8	*****	**	290	2.1	271	7.6	2
2400	8.2	*****	**	011	2.0	014	4.4	1

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.2	*****	**	342	1.1	033	6.3	2
0600	10.2	*****	**	277	1.3	283	3.8	33
0900	11.1	*****	**	255	1.5	269	5.1	24
1200	13.4	*****	**	298	1.4	265	5.1	70
1500	13.7	*****	**	264	4.7	261	7.6	36
1800	13.2	*****	**	246	4.7	240	7.6	25
2100	10.7	*****	**	247	3.3	255	8.9	1
2400	11.6	*****	**	137	1.6	140	5.7	1

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	11.2	*****	**	006	1.2	338	5.7	1
0600	11.2	*****	**	082	.4	204	3.2	7
0900	13.8	*****	**	269	1.1	253	7.0	37
1200	13.8	*****	**	285	2.4	263	7.0	36
1500	17.2	*****	**	017	2.8	313	7.0	80
1800	15.3	*****	**	292	2.8	247	7.0	18
2100	12.2	*****	**	352	3.2	346	8.9	2
2400	8.9	*****	**	353	1.3	349	3.8	1

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.5	*****	**	020	.4	319	2.5	2
0600	10.8	*****	**	323	1.0	342	2.5	34
0900	15.9	*****	**	321	.7	251	3.2	52
1200	16.5	*****	**	263	2.4	262	7.6	49
1500	17.8	*****	**	270	3.2	264	7.0	39
1800	17.0	*****	**	260	4.4	269	7.6	34
2100	13.6	*****	**	271	1.4	164	7.6	2
2400	12.2	*****	**	329	1.6	313	5.1	1

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	10.4	*****	**	331	1.4	325	5.7	1
0600	11.2	*****	**	014	3.4	005	6.3	28
0900	12.7	*****	**	001	3.6	009	7.0	48
1200	12.7	*****	**	346	4.4	345	8.3	50
1500	8.5	*****	**	011	.2	165	8.9	7
1800	9.7	*****	**	340	.6	278	7.0	7
2100	7.7	*****	**	099	.3	055	1.9	1
2400	6.7	*****	**	012	.7	015	2.5	1

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.5	*****	**	009	1.7	027	3.2	1
0600	5.5	*****	**	017	2.1	017	3.2	6
0900	6.3	*****	**	360	3.1	355	5.1	21
1200	7.9	*****	**	345	3.9	339	5.7	38
1500	10.9	*****	**	345	4.5	339	7.0	38
1800	11.1	*****	**	337	4.2	316	7.6	20
2100	9.1	*****	**	004	3.3	328	7.0	1
2400	6.4	*****	**	009	2.1	004	3.8	1

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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.3	*****	**	022	2.0	027	3.2	1
0600	9.1	*****	**	021	2.4	034	4.4	18
0900	12.4	*****	**	009	3.1	012	5.1	81
1200	15.1	*****	**	350	3.4	347	5.7	82
1500	11.8	*****	**	328	2.6	279	7.6	20
1800	14.3	*****	**	342	.8	047	5.7	26
2100	12.8	*****	**	323	.8	317	3.2	1
2400	8.5	*****	**	156	.2	001	2.5	1

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.1	*****	**	109	.5	231	1.9	1
0600	9.2	*****	**	151	1.1	160	3.2	10
0900	13.2	*****	**	219	.3	166	3.8	91
1200	12.8	*****	**	004M	2.1M	322M	7.0M	50
1500	14.3	*****	**	286	.4	335	5.7	20
1800	13.0	*****	**	158	1.9	161	8.3	35
2100	10.3	*****	**	172	1.6	182	3.8	1
2400	8.8	*****	**	021	1.2	034	3.2	1

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.8	*****	**	005	1.4	352	3.2	1
0600	8.8	*****	**	004	2.0	343	3.8	13
0900	12.0	*****	**	002	2.9	354	4.4	63
1200	12.0	*****	**	357	3.2	342	6.3	27
1500	16.7	*****	**	016	1.1	073	5.7	82
1800	15.3	*****	**	087	2.1	061	7.6	22
2100	11.5	*****	**	193	2.0	180	4.4	2
2400	6.6	*****	**	330	.5	331	4.4	1

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.9	*****	**	341	2.2	334	4.4	2
0600	7.7	*****	**	332	2.2	340	3.8	24
0900	14.4	*****	**	349	2.7	357	5.1	71
1200	17.8	*****	**	347	4.0	351	6.3	90
1500	18.9	*****	**	341	3.3	346	5.7	53
1800	16.8	*****	**	296	3.2	269	8.3	11
2100	12.0	*****	**	173	4.7	174	10.8	1
2400	7.7	*****	**	179	3.1	182	8.3	1

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.3	*****	**	169	4.1	169	10.8	1
0600	6.2	*****	**	174	5.7	176	11.4	10
0900	8.0	*****	**	181	4.0	174	8.3	27
1200	10.1	*****	**	173	2.7	182	6.3	32
1500	12.3	*****	**	176	2.9	165	8.3	45
1800	12.7	*****	**	148	1.0	164	6.3	21
2100	8.8	*****	**	253	1.8	255	4.4	1
2400	8.4	*****	**	150	1.4	196	5.7	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.0	*****	**	166	1.2	133	2.5	1
0600	8.9	*****	**	198	.5	199	3.2	15
0900	11.8	*****	**	335	2.2	334	3.8	26
1200	14.4	*****	**	253	1.5	268	5.7	53
1500	15.3	*****	**	217	2.1	166	5.1	52
1800	15.0	*****	**	236	2.7	214	5.7	22
2100	11.0	*****	**	257	1.2	254	5.7	1
2400	10.0	*****	**	290	1.2	276	6.3	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.5	*****	**	299	.5	287	5.1	1
0600	9.3	*****	**	349	1.8	342	3.8	29
0900	13.4	*****	**	128	.1	176	3.8	68
1200	16.5	*****	**	203	2.2	201	5.7	86
1500	19.0	*****	**	192	1.8	194	4.4	68
1800	15.6	*****	**	261	3.5	262	6.3	19
2100	12.7	*****	**	322	1.5	021	7.6	1
2400	11.0	*****	**	305	2.6	276	8.9	1

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.0	*****	**	003	1.1	348	3.2	1
0600	8.4	*****	**	343	2.0	345	3.8	22
0900	13.1	*****	**	323	1.5	258	4.4	50
1200	17.3	*****	**	270	2.4	260	5.7	75
1500	15.8	*****	**	263	4.4	257	7.0	44
1800	13.6	*****	**	267	4.7	270	8.3	10
2100	11.5	*****	**	314	1.6	293	4.4	1
2400	9.1	*****	**	342	1.4	318	5.7	1

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.0	*****	**	011	1.7	013	3.8	1
0600	8.9	*****	**	002	2.2	340	3.8	26
0900	13.6	*****	**	351	3.4	349	5.7	66
1200	19.3	*****	**	346	2.9	337	5.7	85
1500	19.6	*****	**	222	2.6	190	6.3	69
1800	19.2	*****	**	285	1.4	234	5.7	23
2100	13.3	*****	**	342	2.7	334	4.4	1
2400	11.6	*****	**	005	1.1	020	3.2	1

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DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.9	*****	**	335	1.9	349	3.8	1
0600	8.8	*****	**	341	1.7	355	3.8	20
0900	16.7	*****	**	355	.8	338	3.8	66
1200	21.0	*****	**	207	.7	211	5.7	85
1500	22.2	*****	**	237	3.1	229	6.3	69
1800	19.9	*****	**	263	4.6	266	8.3	22
2100	15.7	*****	**	287	3.1	274	7.6	2
2400	13.7	*****	**	019	2.0	011	5.1	1

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	11.9	*****	**	321	2.1	307	8.9	1
0600	12.9	*****	**	002	.9	296	7.0	25
0900	15.6	*****	**	351	2.0	358	4.4	69
1200	18.3	*****	**	093	.3	167	7.6	90
1500	16.1	*****	**	164	7.7	165	11.4	34
1800	14.1	*****	**	162	6.6	159	10.2	5
2100	10.2	*****	**	216	1.7	174	7.0	1
2400	9.4	*****	**	185	1.4	187	4.4	0

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.2	*****	**	230	1.4	255	4.4	1
0600	9.2	*****	**	275	2.1	264	5.7	2
0900	9.7	*****	**	227	1.5	246	3.8	8
1200	11.0	*****	**	215	2.6	215	5.7	24
1500	10.5	*****	**	186	3.2	204	6.3	13
1800	10.6	*****	**	227	1.3	262	5.1	17
2100	9.3	*****	**	268	.7	288	3.8	0
2400	8.6	*****	**	053	.3	139	3.8	0

DAY 31

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.2	*****	**	125	.9	083	3.2	1
0600	9.0	*****	**	106	.8	097	3.2	10
0900	11.6	*****	**	340	1.6	343	5.7	39
1200	12.5	*****	**	347	3.6	340	5.1	32
1500	15.0	*****	**	344	3.3	341	5.7	73
1800	13.4	*****	**	351	2.5	338	5.7	10
2100	11.6	*****	**	007	2.7	004	5.1	1
2400	9.7	*****	**	041	1.2	042	2.5	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR DENALI 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	17.1	9.2	13.2	292	2.6	3.3	260	10.2	W	**	*****	.2	4448	1
2	15.6	8.1	11.9	276	1.1	2.1	282	7.6	W	**	*****	2.0	4425	2
3	17.0	9.4	13.2	349	3.0	3.1	351	7.0	N	**	*****	.4	5120	3
4	21.0	10.5	15.8	342	2.1	3.4	345	8.3	NNW	**	*****	.8	4735	4
5	22.3	9.8	16.1	332	2.3	3.2	351	7.6	NNW	**	*****	0.0	6873	5
6	18.5	8.6	13.6	253	1.6	2.6	253	10.2	W	**	*****	1.6	5335	6
7	16.6	7.6	12.1	184	1.2	1.9	186	6.3	SSW	**	*****	0.0	4543	7
8	16.3	5.6	11.0	164	3.9	4.1	158	12.1	SSE	**	*****	0.0	6763	8
9	13.6	6.2	9.9	152	1.5	3.4	177	10.2	SSE	**	*****	.2	4095	9
10	17.0	5.5	11.3	279	1.7	2.6	256	7.6	W	**	*****	0.0	5998	10
11	15.7	7.2	11.5	332	1.7	4.0	349	9.5	NNW	**	*****	0.0	3533	11
12	18.3	7.6	13.0	334	2.9	3.6	324	9.5	NNW	**	*****	0.0	8548	12
13	12.8	7.8	10.3	335	1.4	2.6	270	9.5	N	**	*****	0.0	4228	13
14	14.9	6.9	10.9	257	2.0	2.7	255	8.9	W	**	*****	0.0	5808	14
15	17.8	8.6	13.2	333	1.4	2.5	346	8.9	NNE	**	*****	0.0	5233	15
16	18.2	6.1	12.2	279	1.7	2.4	262	7.6	W	**	*****	0.0	6478	16
17	14.8	6.7	10.8	358	1.7	2.6	165	8.9	N	**	*****	2.4	4365	17
18	12.2	5.3	8.8	354	3.0	3.2	316	7.6	N	**	*****	1.8	4135	18
19	16.6	4.4	10.5	358	1.7	2.3	279	7.6	NNE	**	*****	0.0	6780	19
20	15.3	7.8	11.6	127M	.3M	1.8M	161M	8.3M	S(M)	**	*****	2.0	4785M	20
21	16.7	6.5	11.6	012	1.2	2.6	061	7.6	N	**	*****	0.0	6275	21
22	19.9	3.7	11.8	318	1.2	3.3	174	10.8	NNW	**	*****	.4	7310	22
23	12.8	6.1	9.5	176	2.7	3.4	176	11.4	S	**	*****	2.6	4118	23
24	16.6	6.9	11.8	249	1.1	2.1	276	6.3	SW	**	*****	0.0	5988	24
25	19.0	4.1	11.6	272	1.1	2.4	276	8.9	W	**	*****	0.0	7868	25
26	17.5	5.3	11.4	292	2.0	2.6	270	8.3	W	**	*****	0.0	7065	26
27	20.3	4.2	12.3	339	1.6	2.5	190	6.3	NNW	**	*****	0.0	7848	27
28	22.7	5.0	13.9	289	1.5	2.6	266	8.3	W	**	*****	0.0	7895	28
29	18.7	9.0	13.9	172	1.5	3.4	165	11.4	SSE	**	*****	.2	6360	29
30	11.9	8.6	10.3	224	1.4	2.1	204	6.3	W	**	*****	4.2	2050	30
31	15.8	8.2	12.0	360	1.7	2.3	343	5.7	NNW	**	*****	5.0	4718	31
MONTH	22.7	3.7	11.9	306M	.8M	2.8M	158M	12.1M	NNW(M)	**	*****	23.8	173718M	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 8.9
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 9.5
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 9.5
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 8.3

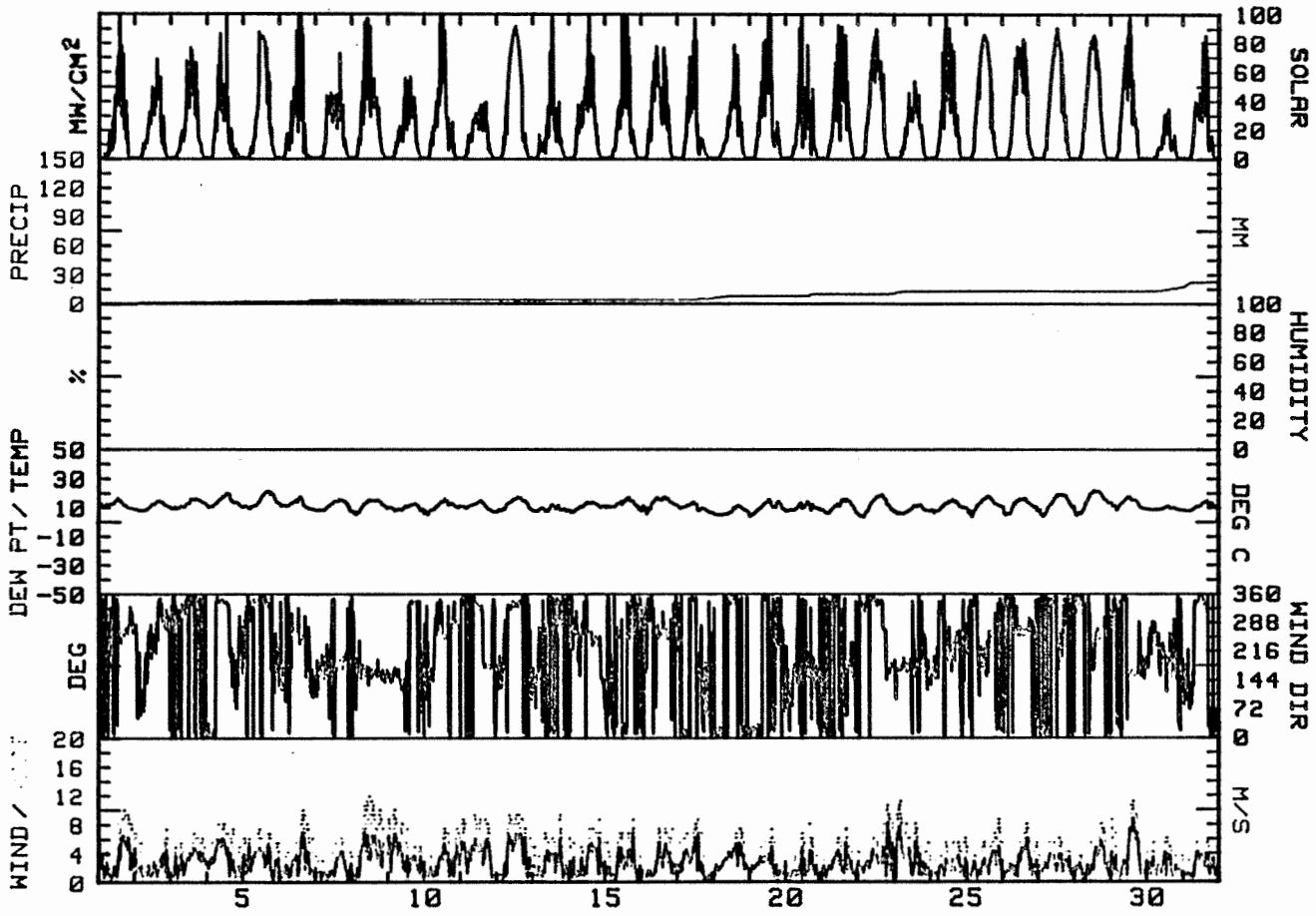
NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

July, 1983



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.60	6.99	6.35	0.00	0.00	0.00	0.00	13.94
NNE	.64	5.54	1.44	0.00	0.00	0.00	0.00	7.63
NE	.47	1.65	.34	0.00	0.00	0.00	0.00	2.45
ENE	.47	1.08	.20	0.00	0.00	0.00	0.00	1.75
E	.44	.91	.10	0.00	0.00	0.00	0.00	1.44
ESE	.67	1.11	.07	0.00	0.00	0.00	0.00	1.85
SE	.81	2.15	.40	0.00	0.00	0.00	0.00	3.36
SSE	.57	3.73	2.69	1.71	0.00	0.00	0.00	8.70
S	.50	3.73	3.09	.60	0.00	0.00	0.00	7.93
SSW	.40	2.96	.94	0.00	0.00	0.00	0.00	4.30
SW	.13	2.22	.57	0.00	0.00	0.00	0.00	2.92
WSW	.24	2.49	2.62	.24	0.00	0.00	0.00	5.58
W	.37	3.43	6.42	.40	0.00	0.00	0.00	10.62
WNW	.20	2.72	1.31	0.00	0.00	0.00	0.00	4.23
NW	.30	3.09	1.11	.07	0.00	0.00	0.00	4.57
NNW	.81	7.53	9.21	1.11	0.00	0.00	0.00	18.65
CALM								.07
TOTAL	7.63	51.31	36.86	4.13	0.00	0.00	0.00	100.00

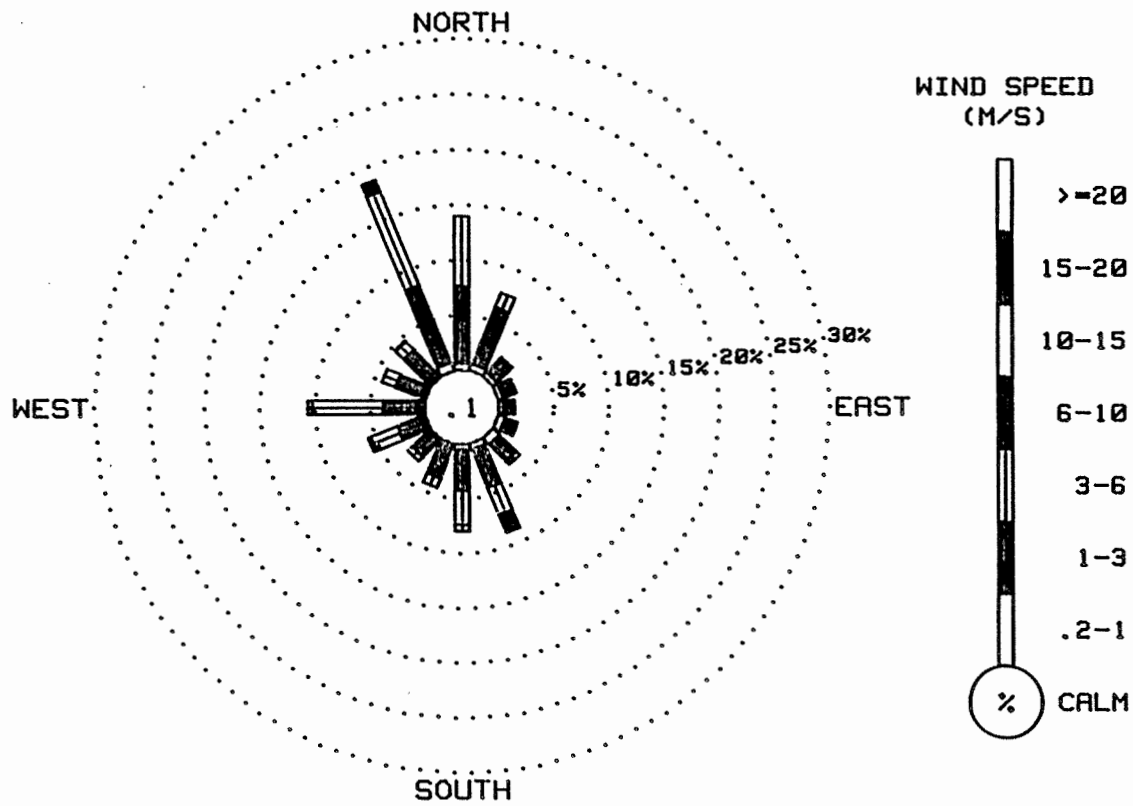
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2976 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
2976 WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 15 MINUTE DATA.

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

July, 1983



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR DENALI WEATHER STATION
DATA TAKEN DURING August, 1983

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

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

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	10.2	*****	**	025	1.6	040	3.2	1
0600	11.8	*****	**	017	2.3	012	4.4	20
0900	13.6	*****	**	349	3.2	340	6.3	33
1200	15.3	*****	**	340	4.9	331	8.3	30
1500	16.6	*****	**	329	5.0	328	7.6	52
1800	16.4	*****	**	325	4.5	323	7.0	25
2100	12.7	*****	**	001	2.1	331	6.3	1
2400	9.4	*****	**	024	.9	027	2.5	1

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.2	*****	**	016	1.8	040	3.8	1
0600	11.1	*****	**	021	2.2	024	3.8	23
0900	14.2	*****	**	014	3.2	357	6.3	64
1200	17.4	*****	**	346	3.6	330	6.3	86
1500	17.6	*****	**	340	3.9	323	8.3	82
1800	15.6	*****	**	347	4.3	336	8.3	21
2100	11.9	*****	**	349	3.4	330	8.3	1
2400	8.2	*****	**	020	2.0	039	3.8	1

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.5	*****	**	016	1.9	018	3.2	1
0600	10.4	*****	**	352	1.6	315	3.8	24
0900	14.3	*****	**	008	2.5	004	4.4	64
1200	17.3	*****	**	353	2.7	346	5.1	81
1500	19.5	*****	**	002	3.3	358	6.3	63
1800	19.0	*****	**	360	3.5	004	7.0	13
2100	14.1	*****	**	357	2.1	354	4.4	1
2400	15.1	*****	**	123	.6	137	4.4	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	12.7	*****	**	144	1.0	140	3.2	1
0600	13.8	*****	**	105	1.1	090	5.7	7
0900	10.0	*****	**	294	1.3	289	7.6	10
1200	10.3	*****	**	071	.6	114	5.7	12
1500	10.6	*****	**	069	.9	127	4.4	11
1800	10.7	*****	**	159	1.2	174	3.8	8
2100	9.1	*****	**	207	1.1	195	3.2	1
2400	9.4	*****	**	338	.6	349	4.4	1

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.0	*****	**	171	2.7	175	7.0	1
0600	9.4	*****	**	163	3.6	156	8.3	5
0900	10.1	*****	**	156	4.6	149	9.5	21
1200	9.8	*****	**	194	2.0	148	7.6	17
1500	9.8	*****	**	338	.4	151	7.0	13
1800	8.7	*****	**	204	1.0	183	3.2	6
2100	7.7	*****	**	186	1.3	176	3.2	1
2400	7.6	*****	**	048	.1	305	1.9	1

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.2	*****	**	201	.3	117	1.9	1
0600	7.3	*****	**	260	.7	182	3.2	8
0900	11.0	*****	**	187	2.9	188	5.7	81
1200	13.2	*****	**	169	4.9	166	8.3	63
1500	13.3	*****	**	184	4.0	186	7.0	27
1800	10.3	*****	**	174	2.1	170	5.1	11
2100	10.2	*****	**	189	.7	139	2.5	1
2400	10.1	*****	**	029	.3	011	2.5	1

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.3	*****	**	163	.7	205	2.5	1
0600	8.9	*****	**	177	.8	176	4.4	15
0900	11.7	*****	**	182	4.4	170	8.3	49
1200	14.8	*****	**	160	5.0	162	8.3	54
1500	14.9	*****	**	143	5.2	153	10.8	15
1800	13.7	*****	**	137	6.2	136	13.3	8
2100	12.1	*****	**	135	8.8	134	15.9	1
2400	10.4	*****	**	139	10.4	139	15.9	1

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.5	*****	**	139	10.9	139	14.6	1
0600	9.4	*****	**	138	10.6	133	15.9	4
0900	8.8	*****	**	138	8.0	139	13.3	10
1200	10.8	*****	**	135	6.9	139	15.2	14
1500	12.5	*****	**	146	10.2	155	16.5	48
1800	13.0	*****	**	154	8.2	155	15.2	9
2100	12.1	*****	**	135	5.0	134	15.9	1
2400	10.3	*****	**	154	6.6	156	12.1	1

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.4	*****	**	179	3.4	161	6.3	1
0600	8.1	*****	**	186	2.5	184	5.1	5
0900	8.8	*****	**	026	.9	023	3.2	12
1200	10.9	*****	**	007	.8	303	2.5	23
1500	11.6	*****	**	131	.8	194	3.8	28
1800	10.9	*****	**	347	1.4	351	5.1	13
2100	9.3	*****	**	010	1.6	341	3.8	1
2400	8.7	*****	**	036	1.0	028	4.4	1

R & M CONSULTANTS, INC.

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DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.1	*****	**	024	1.0	076	5.1	1
0600	6.7	*****	**	308	.7	240	3.2	8
0900	11.1	*****	**	360	1.6	012	3.8	64
1200	12.6	*****	**	356	1.8	022	4.4	28
1500	15.1	*****	**	251	2.9	257	5.7	63
1800	14.2	*****	**	263	2.9	257	5.7	17
2100	9.6	*****	**	295	.8	077	5.7	1
2400	9.4	*****	**	033	1.1	021	3.2	1

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.6	*****	**	355	2.5	342	4.4	1
0600	5.0	*****	**	350	2.9	000	4.4	17
0900	11.2	*****	**	340	3.0	336	4.4	60
1200	15.1	*****	**	343	1.6	349	4.4	71
1500	16.4	*****	**	273	2.0	288	5.7	38
1800	13.8	*****	**	262	3.8	257	6.3	15
2100	10.7	*****	**	270	3.9	265	8.9	1
2400	8.5	*****	**	038	1.9	028	9.5	1

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.1	*****	**	096	1.2	121	4.4	0
0600	8.1	*****	**	078	.7	076	3.2	11
0900	9.9	*****	**	245	.9	188	3.2	18
1200	9.6	*****	**	318	.9	280	3.8	11
1500	11.1	*****	**	176	1.4	202	5.1	53
1800	8.7	*****	**	279	.9	238	5.7	12
2100	7.4	*****	**	155	1.0	154	3.8	1
2400	6.7	*****	**	031	.1	122	3.2	1

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.4	*****	**	174	2.5	183	7.0	1
0600	3.4	*****	**	166	1.8	143	5.7	3
0900	4.3	*****	**	085	1.2	122	4.4	10
1200	5.1	*****	**	341	2.8	342	6.3	16
1500	8.2	*****	**	339	1.9	345	3.8	49
1800	7.9	*****	**	316	1.9	297	4.4	10
2100	6.2	*****	**	013	.4	321	3.8	1
2400	4.9	*****	**	170	.3	250	2.5	1

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.6	*****	**	165	1.6	185	3.8	1
0600	3.0	*****	**	201	2.2	247	5.7	6
0900	3.9	*****	**	280	.5	248	4.4	10
1200	6.9	*****	**	322	1.8	330	3.8	32
1500	6.3	*****	**	332	3.7	338	6.3	11
1800	5.6	*****	**	343	.6	251	7.0	2
2100	3.9	*****	**	036	2.7	045	4.4	1
2400	2.9	*****	**	028	2.1	030	3.8	1

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.4	*****	**	023	2.4	022	4.4	1
0600	3.7	*****	**	006	1.7	352	3.2	8
0900	5.6	*****	**	343	1.7	001	3.2	13
1200	5.2	*****	**	277	2.2	269	5.1	12
1500	4.9	*****	**	232	1.1	245	3.8	13
1800	4.6	*****	**	003	2.2	352	5.1	4
2100	4.0	*****	**	012	2.3	001	4.4	1
2400	4.3	*****	**	060	.6	057	1.9	1

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.5	*****	**	023	1.3	032	3.8	1
0600	4.9	*****	**	017	2.4	032	3.8	9
0900	7.2	*****	**	023	3.0	023	5.1	26
1200	11.0	*****	**	010	3.0	354	6.3	77
1500	13.0	*****	**	342	4.4	342	7.6	57
1800	12.4	*****	**	337	3.9	324	7.0	15
2100	8.5	*****	**	000	2.0	342	5.1	1
2400	3.9	*****	**	067	.7	023	2.5	1

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.3	*****	**	045	.7	093	3.2	1
0600	1.8	*****	**	106	.4	035	1.9	7
0900	9.4	*****	**	117	.6	124	2.5	58
1200	13.1	*****	**	030	.9	009	3.2	68
1500	10.4	*****	**	214	1.7	155	8.3	49
1800	9.6	*****	**	213	2.2	187	5.1	10
2100	6.2	*****	**	006	1.8	342	4.4	1
2400	5.8	*****	**	019	2.6	019	6.3	1

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.2	*****	**	028	2.3	021	3.2	1
0600	6.1	*****	**	027	3.0	026	5.1	7
0900	10.2	*****	**	013	4.3	019	6.3	58
1200	11.9	*****	**	349	3.9	350	8.3	26
1500	13.9	*****	**	338	3.6	351	6.3	56
1800	12.2	*****	**	325	4.2	320	7.0	14
2100	8.3	*****	**	009	2.4	350	5.7	1
2400	4.3	*****	**	007	1.1	349	2.5	1

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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.1	*****	**	342	1.6	326	3.2	1
0600	.6	*****	**	332	1.0	332	3.8	8
0900	8.9	*****	**	338	1.4	302	3.8	57
1200	13.6	*****	**	349	1.6	342	5.1	74
1500	15.6	*****	**	186	1.5	202	4.4	56
1800	13.6	*****	**	234	2.0	219	5.1	12
2100	11.1	*****	**	277	2.0	285	5.1	1
2400	9.4	*****	**	098	1.0	111	5.1	1

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.4	*****	**	010	.4	050	3.8	1
0600	6.7	*****	**	147	.4	192	3.8	4
0900	7.1	*****	**	188	1.9	162	7.6	15
1200	6.5	*****	**	277	1.0	228	4.4	10
1500	5.9	*****	**	337	.9	314	2.5	5
1800	5.4	*****	**	035	1.3	045	3.8	2
2100	4.5	*****	**	046	.9	033	4.4	1
2400	4.4	*****	**	118	.2	099	1.9	1

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.4	*****	**	004	.1	278	3.2	1
0600	4.3	*****	**	359	1.3	000	3.2	7
0900	6.3	*****	**	151	.7	176	4.4	18
1200	7.7	*****	**	188	3.9	180	7.0	27
1500	8.5	*****	**	179	4.2	182	7.0	18
1800	7.9	*****	**	168	2.4	171	5.7	4
2100	6.8	*****	**	208	.2	173	3.2	1
2400	6.3	*****	**	031	.4	017	1.9	1

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.9	*****	**	019	.4	054	1.3	1
0600	6.2	*****	**	169	.6	176	1.9	4
0900	8.1	*****	**	186	2.3	183	4.4	21
1200	10.1	*****	**	184	3.7	183	6.3	36
1500	10.1	*****	**	218	1.3	179	5.1	11
1800	8.3	*****	**	141	.5	222	3.2	2
2100	6.8	*****	**	173	.6	257	3.2	1
2400	4.5	*****	**	359	1.8	354	5.7	1

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.2	*****	**	021	2.1	018	5.1	1
0600	4.2	*****	**	026	1.7	032	3.2	2
0900	5.6	*****	**	005	2.3	014	3.8	21
1200	7.3	*****	**	357	1.7	358	3.8	24
1500	9.4	*****	**	167	.8	157	6.3	22
1800	7.6	*****	**	157	4.7	158	8.3	4
2100	4.8	*****	**	173	.6	229	8.9	1
2400	3.1	*****	**	196	.2	158	2.5	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.3	*****	**	173	1.7	182	4.4	1
0600	.7	*****	**	186	2.0	190	5.7	2
0900	2.5	*****	**	138	1.0	077	3.8	8
1200	5.9	*****	**	148	.4	129	3.2	40
1500	5.4	*****	**	167	2.0	171	5.1	17
1800	5.3	*****	**	328	1.5	313	4.4	4
2100	2.6	*****	**	350	.9	321	3.8	1
2400	1.5	*****	**	352	4.5	344	8.3	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.2	*****	**	347	4.9	358	7.0	0
0600	.7	*****	**	012	3.0	352	6.3	2
0900	1.7	*****	**	012	2.8	009	5.7	17
1200	2.5	*****	**	356	4.1	358	7.0	18
1500	4.2	*****	**	348	5.1	347	8.9	16
1800	5.2	*****	**	351	4.2	350	9.5	5
2100	5.2	*****	**	356	4.4	352	8.3	0
2400	5.0	*****	**	000	3.7	352	7.6	1

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.9	*****	**	359	2.9	006	6.3	1
0600	4.2	*****	**	360	2.3	334	5.1	9
0900	7.7	*****	**	349	2.5	341	5.7	44
1200	10.0	*****	**	341	2.1	349	5.1	36
1500	11.5	*****	**	125	.7	145	6.3	47
1800	9.4	*****	**	192	1.1	191	3.8	7
2100	6.5	*****	**	020	1.8	328	4.4	1
2400	5.3	*****	**	021	2.6	022	4.4	1

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.4	*****	**	024	2.5	027	3.8	1
0600	6.9	*****	**	019	2.8	025	5.1	9
0900	10.8	*****	**	009	2.7	350	7.0	54
1200	13.0	*****	**	350	5.7	336	10.8	76
1500	12.7	*****	**	338	6.5	338	9.5	38
1800	12.0	*****	**	346	5.3	341	8.3	10
2100	7.7	*****	**	006	2.5	016	5.7	1
2400	4.1	*****	**	011	2.1	021	3.8	1

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DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.3	*****	**	339	1.6	311	3.8	1
0600	2.9	*****	**	143	.4	158	1.9	6
0900	8.5	*****	**	163	.5	163	3.2	45
1200	*****	*****	**	172M	1.9M	188M	5.1M	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 29

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

DAY 30

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

DAY 31

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

R & M CONSULTANTS, INC.

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MONTHLY SUMMARY FOR DENALI WEATHER STATION
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DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	17.0	8.0	12.5	346	2.9	3.1	331	8.3	NNW	**	*****	0.0	5530	1
2	18.7	6.8	12.8	357	2.9	3.3	323	8.3	NNE	**	*****	0.0	7903	2
3	19.6	4.4	12.0	003	2.1	2.4	004	7.0	N	**	*****	0.0	7198	3
4	14.6	8.8	11.7	137	.3	1.4	289	7.6	SE	**	*****	1.0	1563	4
5	11.1	7.3	9.2	171	1.8	2.4	149	9.5	SSE	**	*****	2.4	2268	5
6	14.3	6.9	10.6	181	1.8	2.3	166	8.3	S	**	*****	.6	4595	6
7	14.9	8.2	11.6	146	5.0	5.3	134	15.9	SE	**	*****	.2	3705	7
8	13.1	8.7	10.9	142	8.2	8.4	155	16.5	SE	**	*****	1.6	2540	8
9	12.1	7.8	10.0	128	.2	1.8	161	6.3	NNE	**	*****	1.2	2830	9
10	15.3	5.9	10.6	309	.9	1.9	257	5.7	NNE	**	*****	0.0	6550	10
11	17.0	2.6	9.8	315	1.9	2.9	028	9.5	NNW	**	*****	0.0	6810	11
12	12.5	6.7	9.6	177	.2	1.4	238	5.7	ESE	**	*****	1.8	2890	12
13	9.8	3.3	6.6	336	.2	2.0	183	7.0	NNW	**	*****	4.6	2880	13
14	7.4	2.9	5.2	347	.7	2.4	251	7.0	NNE	**	*****	.8	2395	14
15	5.9	2.9	4.4	353	1.2	1.9	269	5.1	N	**	*****	.4	1813	15
16	13.0	3.2	8.1	002	2.4	2.7	342	7.6	NNE	**	*****	0.0	5910	16
17	13.1	-.5	6.3	023	.2	1.8	155	8.3	NNE	**	*****	0.0	5140	17
18	14.3	2.6	8.5	359	2.9	3.2	350	8.3	NNE	**	*****	0.0	5860	18
19	16.2	-1.6	7.3	301	.7	1.9	342	5.1	NNW	**	*****	0.0	6310	19
20	10.6	4.3	7.5	026	.1	1.5	162	7.6	NNE	**	*****	3.6	1335	20
21	9.3	3.4	6.4	177	1.2	2.0	180	7.0	S	**	*****	2.6	2298	21
22	10.4	4.4	7.4	186	.8	1.8	183	6.3	S	**	*****	1.4	2245	22
23	9.4	3.0	6.2	066	.5	2.3	229	8.9	NNE	**	*****	2.6	2653	23
24	7.1	.3	3.7	286	.0	2.2	344	8.3	S	**	*****	2.8	2445	24
25	5.3	.6	3.0	356	4.0	4.1	350	9.5	N	**	*****	6.0	2038	25
26	11.5	3.2	7.4	003	1.5	2.4	006	6.3	NNE	**	*****	.4	3580	26
27	13.2	3.4	8.3	357	3.6	3.9	336	10.8	NNE	**	*****	0.0	5823	27
28	12.5M	1.8M	7.2M	185M	.1M	1.4M	188M	5.1M	S(M)	**	*****	0.0	3740M	28
29	*****	*****	*****	***	****	****	***	****	***	**	*****	.2	******	29
30	*****	*****	*****	***	****	****	***	****	***	**	*****	2.2	******	30
31	*****	*****	*****	***	****	****	***	****	***	**	*****	0.0	******	31
MONTH	19.6M	-1.6M	8.4M	025M	.4M	2.7M	155M	16.5M	NNE(M)	**	*****	36.4	110843M	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 15.2
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 14.6
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 15.9
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 14.0

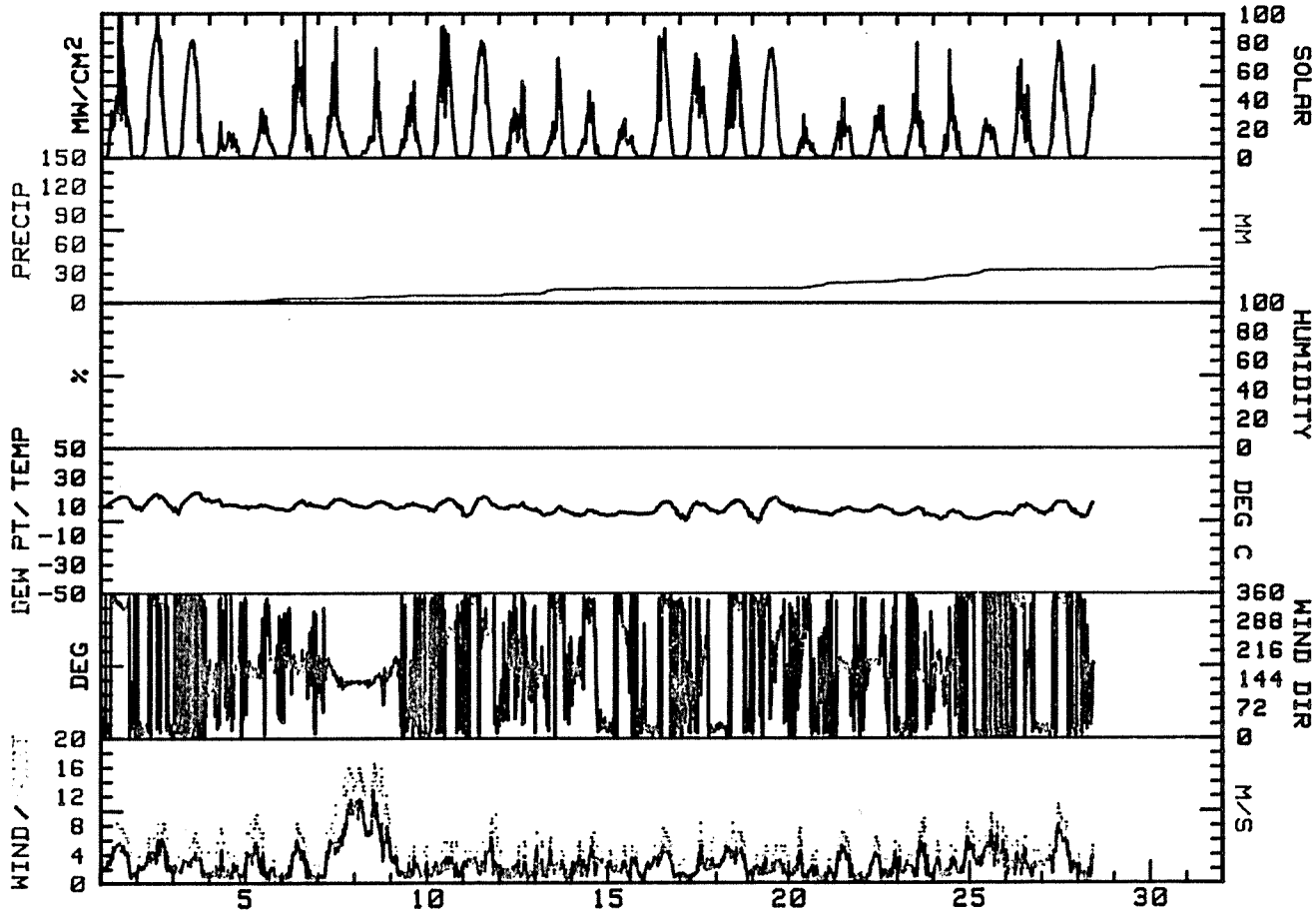
NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

August, 1983



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

	VELOCITY (M/S)							
DIRECTION	0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.65	8.01	5.96	.11	0.00	0.00	0.00	14.72
NNE	1.52	11.92	2.31	0.00	0.00	0.00	0.00	15.75
NE	1.33	3.34	.11	0.00	0.00	0.00	0.00	4.78
ENE	.87	1.78	.08	0.00	0.00	0.00	0.00	2.73
E	.76	1.29	.08	0.00	0.00	0.00	0.00	2.13
ESE	1.29	1.75	.11	0.00	0.00	0.00	0.00	3.15
SE	.99	1.75	.65	2.09	1.29	0.00	0.00	6.76
SSE	1.18	2.20	3.00	.76	.23	0.00	0.00	7.36
S	.87	4.55	4.17	0.00	0.00	0.00	0.00	9.60
SSW	.76	2.28	.83	0.00	0.00	0.00	0.00	3.87
SW	.57	1.10	.30	0.00	0.00	0.00	0.00	1.97
WSW	.42	1.63	.80	0.00	0.00	0.00	0.00	2.85
W	.30	1.90	1.02	.08	0.00	0.00	0.00	3.30
WNW	.42	1.44	.15	0.00	0.00	0.00	0.00	2.01
NW	.87	2.62	1.25	.11	0.00	0.00	0.00	4.86
NNW	.83	6.34	6.11	.83	0.00	0.00	0.00	14.12
CALM								.04
TOTAL	13.62	53.89	26.95	3.98	1.52	0.00	0.00	100.00

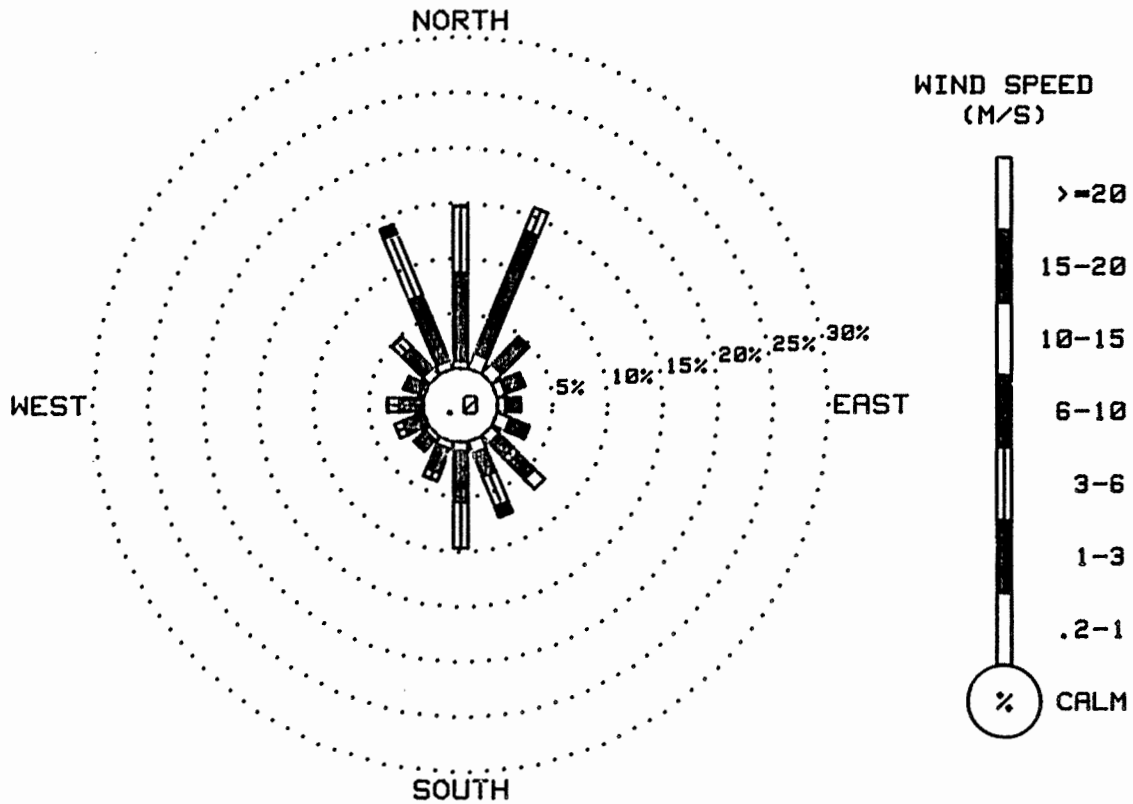
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2635 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
2976 WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 15 MINUTE DATA.

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

August, 1983



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR DENALI WEATHER STATION
DATA TAKEN DURING September, 1983

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

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

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

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

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	7.0	*****	**	336M	4.1M	355M	8.3M	47
1800	5.8	*****	**	327	3.8	329	7.0	8
2100	1.0	*****	**	352	2.2	356	4.4	1
2400	-.9	*****	**	023	.4	016	1.9	1

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.4	*****	**	158	1.1	133	3.8	1
0600	.3	*****	**	176	.5	190	5.1	5
0900	5.5	*****	**	102	.2	172	3.2	30
1200	7.8	*****	**	170	3.2	162	7.0	57
1500	9.1	*****	**	174	3.6	157	7.0	47
1800	8.0	*****	**	184	2.0	170	4.4	7
2100	3.7	*****	**	346	2.3	350M	6.3M	1
2400	2.3	*****	**	***	****	***	****	1

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.9	*****	**	***	***	***	***	1
0600	1.7	*****	**	***	***	***	***	5
0900	3.9	*****	**	***	***	***	***	37
1200	4.3	*****	**	***	***	***	***	43
1500	4.1	*****	**	***	***	***	***	24
1800	2.8	*****	**	***	***	***	***	3
2100	1.9	*****	**	***	***	***	***	1
2400	1.8	*****	**	***	***	***	***	1

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.9	*****	**	***	****	***	****	1
0600	-1.5	*****	**	***	****	***	****	6
0900	2.0	*****	**	***	****	***	****	23
1200	4.5	*****	**	***	****	***	****	30
1500	5.2	*****	**	***	****	***	****	39
1800	4.3	*****	**	***	****	***	****	6
2100	2.5	*****	**	***	****	***	****	1
2400	1.8	*****	**	***	****	***	****	1

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.7	*****	**	***	****	***	****	1
0600	.7	*****	**	***	****	***	****	6
0900	2.6	*****	**	***	****	***	****	44
1200	5.7	*****	**	***	****	***	****	63
1500	6.3	*****	**	***	****	***	****	42
1800	4.4	*****	**	***	****	***	****	6
2100	1.4	*****	**	***	****	***	****	1
2400	-.5	*****	**	***	****	***	****	1

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.3	*****	**	***	****	***	****	1
0600	-.8	*****	**	***	****	***	****	4
0900	3.2	*****	**	***	****	***	****	38
1200	6.0	*****	**	***	****	***	****	16
1500	7.5	*****	**	***	****	***	****	18
1800	6.2	*****	**	***	****	***	****	2
2100	4.3	*****	**	***	****	***	****	1
2400	3.3	*****	**	***	****	***	****	1

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.7	*****	**	***	****	***	****	1
0600	1.7	*****	**	***	****	***	****	2
0900	3.0	*****	**	***	****	***	****	17
1200	7.6	*****	**	***	****	***	****	75
1500	6.9	*****	**	***	****	***	****	16
1800	4.9	*****	**	***	****	***	****	3
2100	3.6	*****	**	***	****	***	****	1
2400	3.8	*****	**	***	****	***	****	1

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.0	*****	**	***	****	***	****	1
0600	4.0	*****	**	***	****	***	****	2
0900	5.4	*****	**	***	****	***	****	20
1200	8.1	*****	**	***	****	***	****	37
1500	8.1	*****	**	***	****	***	****	14
1800	7.7	*****	**	***	****	***	****	4
2100	5.2	*****	**	***	****	***	****	1
2400	4.3	*****	**	***	****	***	****	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 10

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.2	*****	**	***	****	***	****	0
0600	2.6	*****	**	***	****	***	****	2
0900	4.8	*****	**	***	****	***	****	22
1200	8.6	*****	**	***	****	***	****	18
1500	7.5	*****	**	***	****	***	****	14
1800	8.2	*****	**	***	****	***	****	3
2100	2.6	*****	**	***	****	***	****	1
2400	.6	*****	**	***	****	***	****	1

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.8	*****	**	***	****	***	****	1
0600	-2.3	*****	**	***	****	***	****	4
0900	3.7	*****	**	***	****	***	****	24
1200	9.3	*****	**	***	****	***	****	38
1500	9.8	*****	**	***	****	***	****	18
1800	8.6	*****	**	***	****	***	****	2
2100	5.9	*****	**	***	****	***	****	1
2400	5.2	*****	**	***	****	***	****	1

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.1	*****	**	***	****	***	****	1
0600	3.1	*****	**	***	****	***	****	2
0900	5.9	*****	**	***	****	***	****	13
1200	8.9	*****	**	***	****	***	****	34
1500	9.5	*****	**	***	****	***	****	19
1800	7.2	*****	**	***	****	***	****	1
2100	4.9	*****	**	***	****	***	****	1
2400	3.4	*****	**	***	****	***	****	1

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.9	*****	**	***	****	***	****	1
0600	1.0	*****	**	***	****	***	****	3
0900	5.6	*****	**	***	****	***	****	16
1200	7.8	*****	**	***	****	***	****	33
1500	7.8	*****	**	***	****	***	****	17
1800	6.7	*****	**	***	****	***	****	2
2100	6.3	*****	**	***	****	***	****	1
2400	4.6	*****	**	***	****	***	****	1

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.8	*****	**	***	****	***	****	1
0600	3.9	*****	**	***	****	***	****	1
0900	3.7	*****	**	***	****	***	****	10
1200	6.3	*****	**	***	****	***	****	29
1500	4.3	*****	**	***	****	***	****	4
1800	2.7	*****	**	***	****	***	****	1
2100	2.3	*****	**	***	****	***	****	1
2400	1.8	*****	**	***	****	***	****	1

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.7	*****	**	***	****	***	****	1
0600	-1.6	*****	**	***	****	***	****	2
0900	.8	*****	**	***	****	***	****	15
1200	3.3	*****	**	***	****	***	****	63
1500	5.3	*****	**	***	****	***	****	36
1800	3.5	*****	**	***	****	***	****	2
2100	.6	*****	**	***	****	***	****	1
2400	.5	*****	**	***	****	***	****	1

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.1	*****	**	***	****	***	****	1
0600	-.1	*****	**	***	****	***	****	3
0900	2.9	*****	**	***	****	***	****	38
1200	6.1	*****	**	***	****	***	****	58
1500	7.7	*****	**	***	****	***	****	35
1800	4.2	*****	**	***	****	***	****	2
2100	.5	*****	**	***	****	***	****	1
2400	-1.6	*****	**	***	****	***	****	1

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.7	*****	**	***	****	***	****	1
0600	-4.2	*****	**	***	****	***	****	3
0900	.3	*****	**	***	****	***	****	41
1200	7.0	*****	**	***	****	***	****	57
1500	9.0	*****	**	***	****	***	****	33
1800	5.8	*****	**	***	****	***	****	2
2100	3.9	*****	**	***	****	***	****	1
2400	-2.9	*****	**	***	****	***	****	1

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.0	*****	**	***	****	***	****	1
0600	-4.5	*****	**	***	****	***	****	3
0900	.8	*****	**	***	****	***	****	39
1200	7.0	*****	**	***	****	***	****	50
1500	7.8	*****	**	***	****	***	****	30
1800	5.5	*****	**	***	****	***	****	1
2100	1.9	*****	**	***	****	***	****	1
2400	2.9	*****	**	***	****	***	****	1

R & M CONSULTANTS, INC.

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DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.3	*****	**	***	****	***	****	1
0600	1.1	*****	**	***	****	***	****	3
0900	4.3	*****	**	***	****	***	****	14
1200	5.0	*****	**	***	****	***	****	26
1500	6.2	*****	**	***	****	***	****	15
1800	5.1	*****	**	***	****	***	****	1
2100	2.1	*****	**	***	****	***	****	1
2400	.5	*****	**	***	****	***	****	1

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.1	*****	**	***	****	***	****	1
0600	2.7	*****	**	***	****	***	****	1
0900	5.1	*****	**	***	****	***	****	13
1200	7.2	*****	**	***	****	***	****	9
1500	7.7	*****	**	***	****	***	****	7
1800	7.5	*****	**	***	****	***	****	1
2100	7.8	*****	**	***	****	***	****	1
2400	5.3	*****	**	***	****	***	****	1

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.0	*****	**	***	****	***	****	1
0600	4.8	*****	**	***	****	***	****	1
0900	5.8	*****	**	***	****	***	****	5
1200	6.7	*****	**	***	****	***	****	8
1500	6.8	*****	**	***	****	***	****	10
1800	5.2	*****	**	***	****	***	****	1
2100	3.9	*****	**	***	****	***	****	1
2400	3.3	*****	**	***	****	***	****	1

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.2	*****	**	***	****	***	****	1
0600	2.8	*****	**	***	****	***	****	1
0900	4.3	*****	**	***	****	***	****	12
1200	5.1	*****	**	***	****	***	****	20
1500	4.6	*****	**	***	****	***	****	3
1800	.4	*****	**	***	****	***	****	1
2100	-2.2	*****	**	***	****	***	****	1
2400	-4.4	*****	**	***	****	***	****	1

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.1	*****	**	***	****	***	****	1
0600	-6.7	*****	**	***	****	***	****	1
0900	-5.6	*****	**	***	****	***	****	22
1200	-5.9	*****	**	***	****	***	****	29
1500	-5.5	*****	**	***	****	***	****	16
1800	-7.2	*****	**	***	****	***	****	1
2100	-7.8	*****	**	***	****	***	****	1
2400	-8.3	*****	**	***	****	***	****	1

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.7	*****	**	***	****	***	****	1
0600	-9.9	*****	**	***	****	***	****	1
0900	-8.8	*****	**	***	****	***	****	16
1200	-7.9	*****	**	***	****	***	****	31
1500	-7.9	*****	**	***	****	***	****	17
1800	-8.6	*****	**	***	****	***	****	1
2100	-8.8	*****	**	***	****	***	****	0
2400	-9.2	*****	**	***	****	***	****	1

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.9	*****	**	***	****	***	****	1
0600	-10.0	*****	**	***	****	***	****	2
0900	-8.4	*****	**	***	****	***	****	29
1200	-5.9	*****	**	***	****	***	****	49
1500	-5.2	*****	**	***	****	***	****	27
1800	-8.0	*****	**	***	****	***	****	1
2100	-12.0	*****	**	***	****	***	****	1
2400	-11.7	*****	**	***	****	***	****	1

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.4	*****	**	***	****	***	****	1
0600	-15.8	*****	**	***	****	***	****	2
0900	-11.8	*****	**	***	****	***	****	34
1200	-6.9	*****	**	***	****	***	****	49
1500	-5.6	*****	**	***	****	***	****	26
1800	-8.4	*****	**	***	****	***	****	1
2100	-11.9	*****	**	***	****	***	****	1
2400	-11.3	*****	**	***	****	***	****	1

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.9	*****	**	***	****	***	****	1
0600	-15.0	*****	**	***	****	***	****	2
0900	-9.7	*****	**	***	****	***	****	36
1200	-5.0	*****	**	***	****	***	****	43
1500	-4.0	*****	**	***	****	***	****	17
1800	-4.6	*****	**	***	****	***	****	1
2100	-5.8	*****	**	***	****	***	****	1
2400	-5.0	*****	**	***	****	***	****	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.3	*****	**	***	****	***	****	1
0600	-3.0	*****	**	***	****	***	****	1
0900	-1.3	*****	**	***	****	***	****	10
1200	.3	*****	**	***	****	***	****	18
1500	.7	*****	**	***	****	***	****	7
1800	-.4	*****	**	***	****	***	****	1
2100	-.7	*****	**	***	****	***	****	1
2400	.1	*****	**	***	****	***	****	1

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.1	*****	**	***	****	***	****	1
0600	.1	*****	**	***	****	***	****	1
0900	.6	*****	**	***	****	***	****	8
1200	4.1	*****	**	***	****	***	****	18
1500	6.3	*****	**	***	****	***	****	10
1800	7.2	*****	**	***	****	***	****	1
2100	6.0	*****	**	***	****	***	****	1
2400	7.4	*****	**	***	****	***	****	1

DAY 30

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.7	*****	**	***	****	***	****	1
0600	3.4	*****	**	***	****	***	****	1
0900	5.0	*****	**	***	****	***	****	15
1200	6.1	*****	**	***	****	***	****	12
1500	5.4	*****	**	***	****	***	****	7
1800	4.1	*****	**	***	****	***	****	1
2100	3.4	*****	**	***	****	***	****	0
2400	3.4	*****	**	***	****	***	****	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR DENALI 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 %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	*****	*****	*****	***	****	****	***	****	***	**	*****	.8	******	1
2	7.4M	-.9M	3.3M	339M	2.4M	2.6M	355M	8.3M	NNW(M)	**	*****	0.0	4336M	2
3	9.4	-.6	4.4	173M	1.5M	2.2M	162M	7.0M	S (M)	**	*****	0.0	3845	3
4	5.3	.4	2.9	***	****	****	***	****	***	**	*****	0.0	3900	4
5	5.4	-1.5	2.0	***	****	****	***	****	***	**	*****	0.0	3260	5
6	6.6	-.9	2.9	***	****	****	***	****	***	**	*****	0.0	4765	6
7	8.0	-.9	3.6	***	****	****	***	****	***	**	*****	0.0	2685	7
8	7.6	1.1	4.4	***	****	****	***	****	***	**	*****	.6	2365	8
9	9.3	2.6	6.0	***	****	****	***	****	***	**	*****	0.0	2655	9
10	10.0	.1	5.1	***	****	****	***	****	***	**	*****	0.0	3163	10
11	10.3	-2.5	3.9	***	****	****	***	****	***	**	*****	0.0	2715	11
12	10.1	2.4	6.3	***	****	****	***	****	***	**	*****	0.0	1948	12
13	8.0	.1	4.1	***	****	****	***	****	***	**	*****	0.0	2175	13
14	7.4	.6	4.0	***	****	****	***	****	***	**	*****	1.2	1525	14
15	6.0	-2.5	1.8	***	****	****	***	****	***	**	*****	0.0	3435	15
16	8.0	-2.0	3.0	***	****	****	***	****	***	**	*****	0.0	3990	16
17	9.4	-4.5	2.5	***	****	****	***	****	***	**	*****	0.0	3968	17
18	7.9	-5.2	1.4	***	****	****	***	****	***	**	*****	0.0	3130	18
19	6.8	.1	3.5	***	****	****	***	****	***	**	*****	.2	1825	19
20	9.3	.7	5.0	***	****	****	***	****	***	**	*****	5.2	1245	20
21	7.3	3.3	5.3	***	****	****	***	****	***	**	*****	.8	1080	21
22	5.2	-4.4	.4	***	****	****	***	****	***	**	*****	1.4	1225	22
23	-4.8	-8.3	-6.6	***	****	****	***	****	***	**	*****	0.0	2293	23
24	-7.6	-10.0	-8.8	***	****	****	***	****	***	**	*****	0.0	1935	24
25	-5.0	-12.7	-8.9	***	****	****	***	****	***	**	*****	0.0	3200	25
26	-5.5	-17.1	-11.3	***	****	****	***	****	***	**	*****	0.0	3263	26
27	-3.7	-15.7	-9.7	***	****	****	***	****	***	**	*****	0.0	2720	27
28	.7	-4.8	-2.1	***	****	****	***	****	***	**	*****	0.0	1293	28
29	7.4	- .8	3.3	***	****	****	***	****	***	**	*****	1.0	1038	29
30	7.3	3.3	5.3	***	****	****	***	****	***	**	*****	1.0	1228	30
MONTH	10.3M	-17.1M	1.3M	241M	.1M	.9M	355M	8.3M	SM	**	*****	12.2	76201M	

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

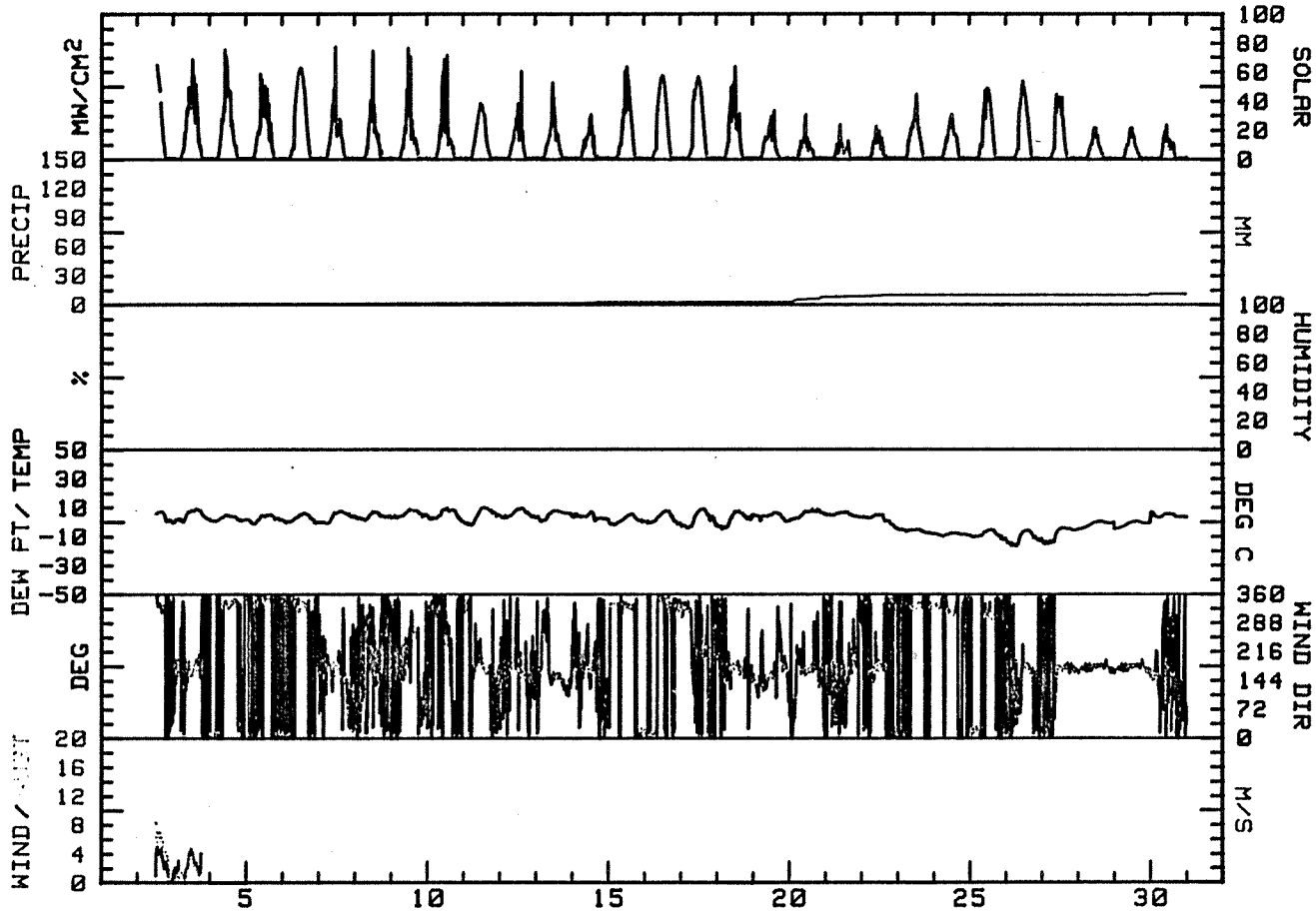
NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DENALI WEATHER STATION

September, 1983



No wind frequency table or wind rose for September

(see INTERPRETATION OF DATA)