SUSITNA
HYDROELECTRIC PROJECT

FEDERAL ENERGY REGULATORY COMMISSION
PROJECT No. 7114

PROCESSED CLIMATIC DATA
OCTOBER 1983 - DECEMBER 1984

VOLUME 4
WATANA STATION
(No. 0650)

PREPARED BY

R&M CONSULTANTS, INC.
ENGINEERS GEOLOGISTS PLANNERS SURVEYORS

FINAL REPORT

UNDER CONTRACT TO

HARZA-EBASCO
SUSITNA JOINT VENTURE

JUNE 1985
DOCUMENT No. 2770

ALASKA POWER AUTHORITY

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Susitna File No. 4.2.2.1

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SUSITNA HYDROELECTRIC PROJECT

TASK 4 - HYDROLOGY

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VOLUME INDEX

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PROCESSED CLIMATIC DATA - WATANA STATION
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ACKNOWLEDGMENTS

These climatic data were collected under contract to Harza-Ebasco Susitna Joint Venture for the Alaska Power Authority on the Susitna Hydroelectric Project. Field maintenance and data collection were performed by the hydrology staff of R&M Consultants, Incorporated. Data reduction and processing were performed by Debbie Stephens, Len Story, Blair Parker, Jim Nelson and Jeff Coffin, using computer programs developed by Mark Holmstrand and revised by Bill Ashton.

1.0 BACKGROUND

1.1 Purpose

The Watana climate station was installed as the initial site for meteorologic data collection by R&M in the Susitna Basin because of its location near the Watana base camp. The data will be used as input to the DYRESM computer model, which predicts the temperature and sediment regimes of the proposed Watana Reservoir.

1.2 Station Description

The Watana climate station is located about 100 yards from the Watana base camp at 62°50'20" N latitude and 148°30'50" W longitude. It lies in an open, gradually sloping area at Susitna River Mile 184. Its estimated elevation is 2,300 feet above mean sea level (MSL). See Figures 1.1 and 1.2 for location.

The weather station is situated on the high plateau north of the river, characterized by open tundra with occasional black spruce groves. A slight rise or knoll to the north and west of the site may shelter the instruments from the prevailing wind direction. High mountains to the south shade the station for most of the day during December and January. These features rise to over 6,000 feet at a distance of 15 to 20 miles from the site and shade the instrument at sun angles below 3° from the horizontal (see Table 1.1 for angular elevations of terrain obstructions).

1.3 Methods of Data Collection

The climatic data at Watana are collected using a Model 5100 Weather Wizard Digital Weather Station, manufactured by Meteorology Research, Inc., now part of Belfort Instrument Company. The Weather Wizard measures, processes, and records several weather parameters, which are described below. A 12-volt power supply powers the station and is kept charged by

a solar panel. Data are recorded on a low-temperature cassette tape at 30-minute intervals. Fifteen-minute recording intervals were used prior to October 5, 1983. The station is visited approximately once per month for maintenance and repairs, and to retrieve the data tapes.

Recorded data include instantaneous values of temperature, relative humidity, solar radiation intensity, longwave radiation intensity, and battery voltage; the cumulative amount of precipitation measured since the last reset; and several wind parameters. Wind direction is sampled every 15 seconds and averaged over the recording interval. Wind speed is measured by counting each revolution of the cup anemometer and averaging the speed over the recording interval (15 or 30 minutes). The fastest 15-second average speed for the interval is reported as the peak gust.

The anemometer and wind vane are part of a sensor array mounted atop a 3.5-meter tripod adjacent to the recorder shelter. The sensor array also contains a short boom with a radiation shield for the temperature and relative humidity sensors. A solar radiation sensor and longwave radiation sensor are located on a separate platform 10 meters to the northwest from the main platform. The solar sensor is installed facing vertically upward atop a 1.5-meter tripod.

The tipping-bucket rain gage is mounted on a 0.6-meter post and plumbed vertically. It is installed within a Wyoming gage to reduce the effects of wind on the catch of rain and snow. Prior to December 1983, an electric heater was added as part of the gage to permit winter precipitation measurement. In recent winters, however, the power supply has not been available, so an accumulating gage has been installed through the winter.

Table 1.2 describes sensor types and performance characteristics for each parameter. The performance characteristics were provided by MRI. Conversion factors for the units are provided in the appendix. Longwave sensor characteristics were specified by Eppley Laboratory, Inc.

1.4 Station History

The Watana Station was installed on April 8, 1980. It was chosen as the initial experimental site for the Weather Wizards due to its proximity to the Watana base camp. This report covers the period from October 1983 to December 1984 only. There are three previous data reports for this station:

	Report	Period Covered
1.	Processed Climatic Data Volume 5 Watana Station (No. 0650) March 1982 (R&M Consultants)	April 1980 - September 1981
2.	Processed Climatic Data Volume 5 Watana Station (No. 0650) December 1982 (R&M Consultants)	October 1981 - September 1982
3.	Processed Climatic Data Volume IV Watana Station (No. 0650) June 1984 (R&M Consultants)	October 1982 - September 1983

Tables 1.3 through 1.6 list the inspection dates and maintenance performed for the station, significant data gaps, adjustments to raw data, and values that have been estimated where data are missing. Periods with more than one hour of missing data are shown on Table 1.4. Intermittent gaps in the wind data occur frequently in the winter and are not identified individually. The number of missing days for these cases is approximated by the total number of missing hours during the period. The beginning and ending dates for the data gaps and for the adjustments to raw data correlate with the inspection and maintenance dates. Relative humidity data for measurements with wind speeds less than 1.0 m/sec are not valid and thus not used in calculating the percentage of total observations for each month, which are tabulated in Table 2.2. However, these missing RH values do not constitute data gaps in Table 1.4.

TABLE 1.1. ANGULAR ELEVATIONS OF TERRAIN OBSTRUCTIONS AROUND WATANA WEATHER STATION

Azimuth(1) (True)	Elevation(2) (ft, MSL)	Vertical Angle(3)
7°	5510	3.5°
67°	5608	1.6°
83°	5060	1.8°
83°	5483	1.6°
121°	6255	2.8°
122°	5896	3.3°
125°	3141	1.3°
143°	5649	2.7°
175°	5304	3.1°
200°	5855	3.2°
208°	5440	2.4°
268°	4056	1.8°
305°	4728	2.7°
323°	5178	2.4°
334°	5505	3.1°
356°	4312	3.6°

NOTES:

(1) Azimuth angles are in degrees from true north.

(2) Elevations were obtained from U.S.G.S 1:250,000 scale maps. Points used were selected mountain peaks and other features surrounding the weather station. Elevation differences from the weather station at 2300 ft, msl. and horizontal distances were used to triangulate the vertical angles.

(3) Vertical angles are measured above the horizontal.

TABLE 1.2 DESCRIPTION OF METEOROLOGIC SENSORS

Sensor	Model #	Manufacturer	Description	Operable Range	Accuracy
Temperature	T5100	MRI	Linearized Thermistor	-30°C - +50°C	±1°C
Relative Humidity	PCRC-11 Electro-Humidity Sensor	Phys-Chemical Research Corp.	Exposed circuit element Senses changes in RH by changes in impedance	10% to 95%	±6%
Solar Radiation	RS 1008 Photo Voltaic Pyranometer	RHO Sigma Corp.	Temperature-Compensated Silicon Photovoltaic Cell	0 to 140 Milliwatts/cm²	±5mw/cm²
Longwave Radiation	PIR	Eppley Laboratory Inc.	Precision Infrared Radiometer (pyrgeometer)	0 to 700 Watts/m²	±1%
Precipitation	P5100	MRI	Tipping Bucket Rain Gage	0 to 99.8 mm	±1% up to 76.2 mm/hr ±5% from 76.2 mm/hr to 254 mm/hr
Wind Speed	5100	MRI	Cup Anemometer (vertical axis)	0 to 50 m/sec	±0.5 m/sec
Wind Direction	5100	MRI	Sensitive Vane driving a 360° Plastic Film Potentiometer	0 to 359°	±3.6°

TABLE 1.3. INSPECTION DATES AND MAINTENANCE
WATANA CLIMATE STATION
OCTOBER 1983 TO DECEMBER 1984

Inspection Date	Maintenance
10/17/83	Re-installed station. Connected precipiation, solar, and longwave sensors.
11/16/83	RH sensor calibrated.
12/02/83	Precipitation gage disconnected.
01/06/84	Longwave amp. removed.
02/22/84	RH sensor calibrated.
04/09/84	None.
05/22/84	Replaced longwave amp.
05/23/84	Connected precipitation gage.
05/24/84	None.
07/13/84	None.
08/25/84	Replaced RH sensor. Sensor array disconnected for 4 hours for annual maintenance.
08/26/84	RH sensor calibrated. Solar sensor removed.
08/27/84	None.
09/25/84	Removed preciptitation gage.
10/05/84	Installed new solar sensor. Removed longwave sensor. Installed new Weather Wizard.
11/02/84	None.
11/29/84	RH sensor calibrated.
12/13/84	Solar panel disconnected.

NOTE: Inspections noted where no maintenance was performed are dates when cassette tapes were replaced.

TABLE 1.4. EXPLANATION OF DATA GAPS
WATANA CLIMATE STATION
OCTOBER 1983 TO DECEMBER 1984

Period	Approximate No. of Missing Days by Parameter								Explanation
	Temp	RH	WS	WD	Precip	Solar	Gust	LW	
10/30 - 10/31/83				0.5					Frozen wind vane (intermittent)
12/5 - 5/22/84								170	WTA camp shut down for winter
4/1 - 5/23/84					53				Precipitation gage not connected
5/2 - 5/3/84				0.5					Frozen wind gage
7/14 - 7/21/84	7	7	7	7	7	7	7	7	Problem with electrical system
7/26 - 7/30/84	4	4	4	4	4	4	4	4	Problem with electrical system
8/1 - 8/6/84	5	5	5	5	5	5	5	5	Problem with electrical system
8/25/84	0.2	0.2	0.2	0.2			0.2		Sensor array disconnected for annual maintenance
8/26 - 10/5/84						40			Solar sensor removed
9/23 - 12/31/84								99	WTA camp shut down for winter
12/10 - 12/13/84	3	3	3	3		3	3		Battery low
12/14 - 12/17/84	3	3	3	3		3	3		Battery low
12/19 - 12/31/84	12	12	12	12		12	12		Battery died
Total	34.2	34.2	34.2	35.2	74.5	74.0	34.2	285	

NOTES:

(1) Precipitation data are reported for October and November, 1983 since the tipping bucket gage was heated. The gage was disconnected on 12/2/83.

(2) Precipitation data are not collected from December 1983 through March 1984 and October through December 1984. Collector is not designed for winter temperatures.

TABLE 1.5. ADJUSTMENTS MADE TO RAW DATA
WATANA CLIMATE STATION
OCTOBER 1983 TO DECEMBER 1984

Period	Solar Radiation Adjustment	RH Adjustment
10/1 - 10/31	-1 mw/cm^2	-12 RH Points
11/1 - 11/16	-1	-4
11/16 - 12/4	-1	+4
12/4 - 1/6	-1	+5
1/6 - 4/9	-1	
4/9 - 5/24	-1	+4
5/24 - 7/13	-1	-1
7/13 - 8/27	-1	-3
8/27 - 10/5		-10
10/18	-1	

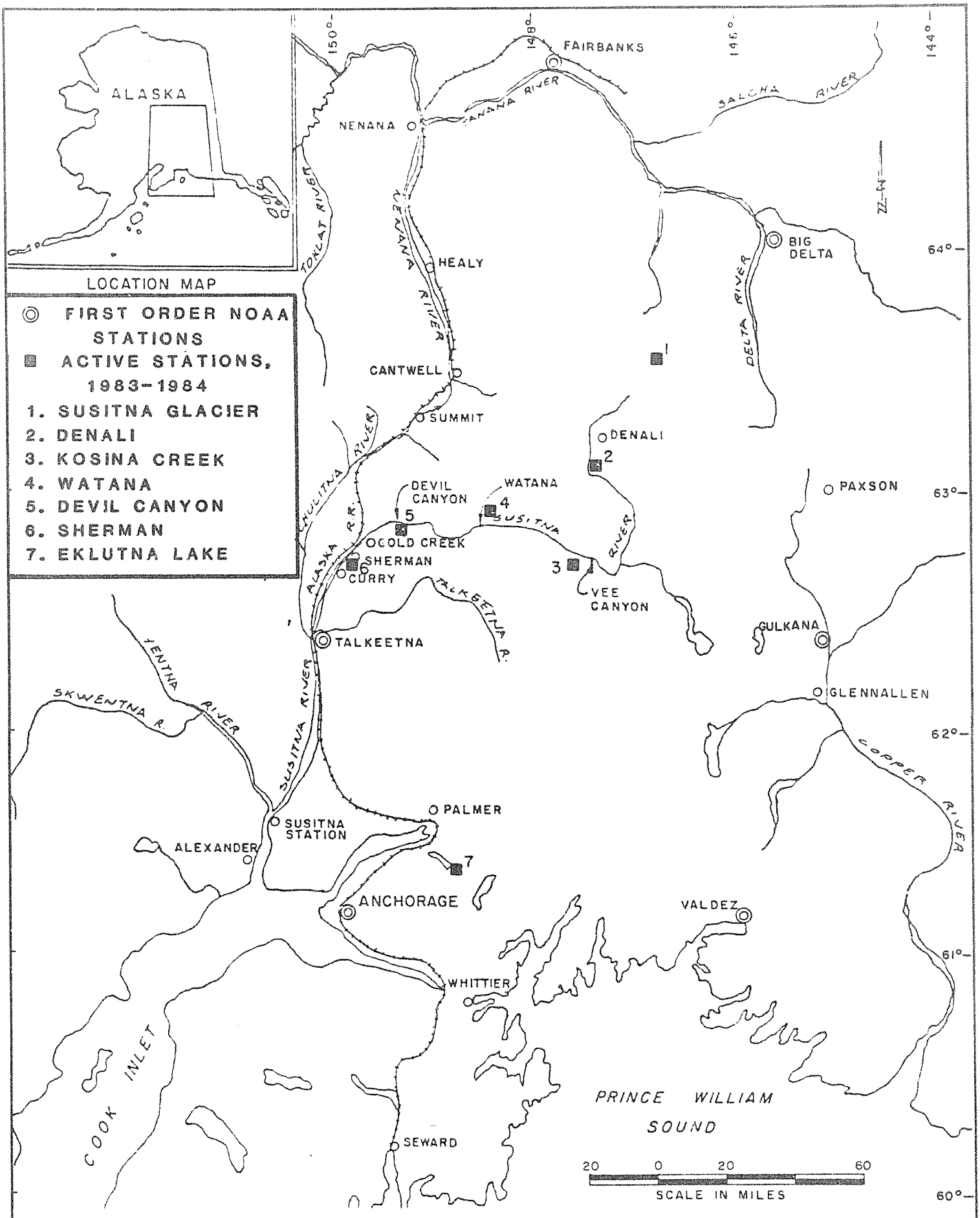
TABLE 1.6. ESTIMATED MISSING DATA
WATANA CLIMATE STATION
OCTOBER 1983 TO DECEMBER 1984

Date	Time (AST)	Temp (°C)	WS (m/s)	WD (Deg)	Gust (m/s)	RH (%)	Precip (mm)	Solar Radiation (mw/cm²)	Longwave (mw/cm²)
01/06/84	1600	-17.1				83			
08/19/84	0930								36
08/25/84	0900								38
	0930					91			
	1000					90			
	1030					88			
	1100					85			
	1130					80			
	1200					75			
	1230					73			
	1300					72			
	1330					71			
10/05/84	0000-0700						0.0		
	0730						1.0		
	0800						1.0		
	0830	+1.2		075		70	0.0	2	
	0900	+1.6		069		69	0.0	2	
11/03/84	1400					43		14	

NOTES:

1. These data have been estimated where gaps exist in the record. Estimates were made by interpolating between valid data points preceding and following the missing data.

2. Precipitation values are the amounts estimated to have fallen in the preceding half-hour.



LOCATION MAP: SUSITNA PROJECT METEOROLOGIC STATIONS

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FIGURE 1-1

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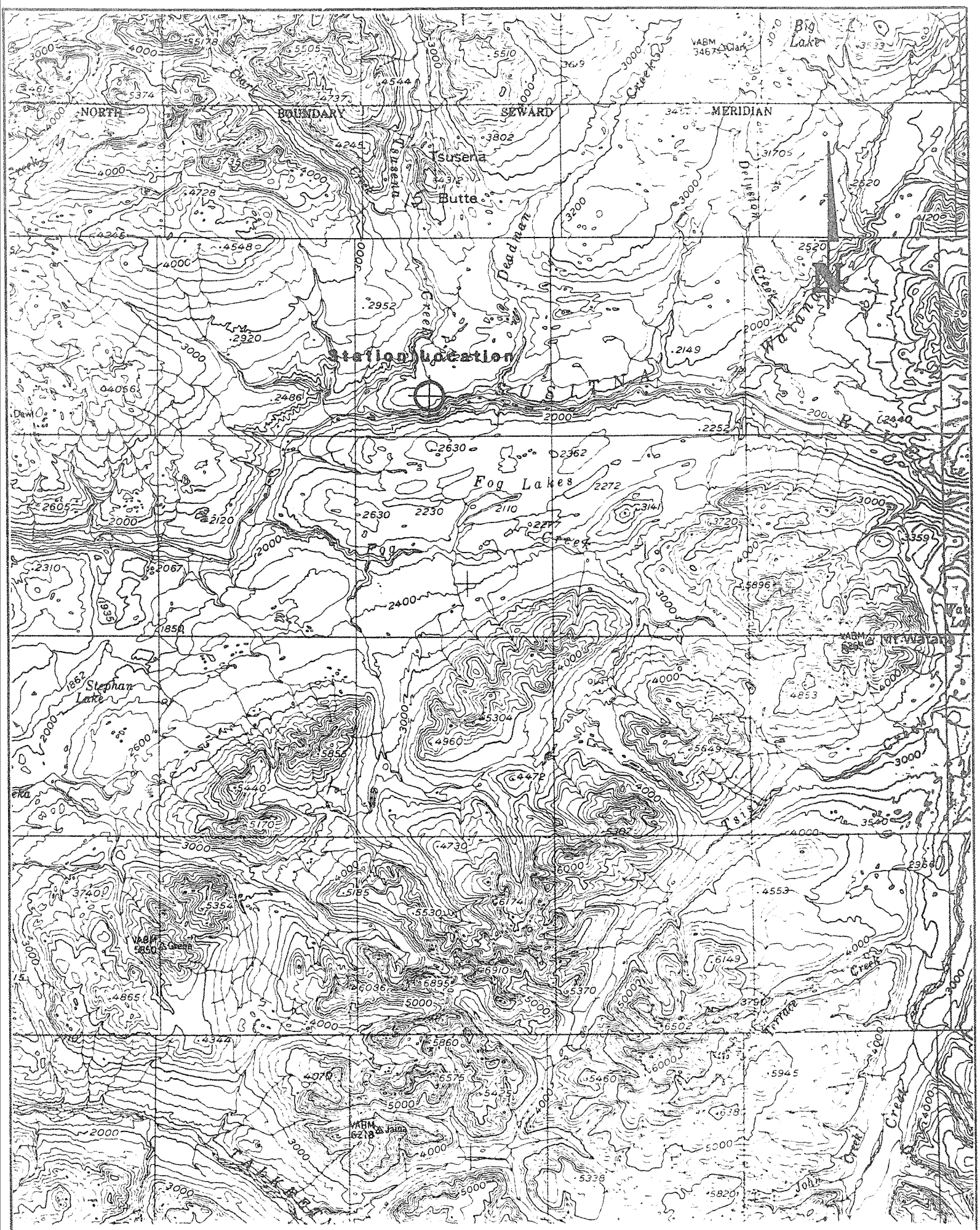
HARZA-EBASCO
SUSITNA JOINT VENTURE



USGS TALKEETNA MOUNTAINS (1954) SCALE 1:250,000 Figure 1.2

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WATANA CLIMATE STATION

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2.0 ANNUAL DATA SUMMARY

Table 2.1 presents a summary of the monthly averages or totals for each parameter for the full period covered by this report, October 1983 to December 1984. The symbols used in the table are explained in Section 3, Report Preparation. Conversion factors are provided in the appendix. The data reported herein are also summarized in Figure 2.1, a sequential plot of all the measured parameters except longwave radiation. Annual summaries for prior years are provided in the previous data report (R&M Consultants, 1984).

With this report, a shift has been made from presenting the climatic data on a water year basis to presenting it for the calendar year. The calendar year format matches that used by the National Oceanic and Atmospheric Administration (NOAA) in reporting climatic data, and simplifies comparisons. Future reports will also be for calendar years.

A summary of the percentage of usable data recovered for each climatic parameter by month during this reporting period is presented in Table 2.2. The cumulative percentage in this case applies for the whole 15-month period.

TABLE 2.1
SUMMARY OF CLIMATE DATA RECORDED AT WATANA STATION (NO. 0650)
OCTOBER 1983 TO DECEMBER 1984

	Temperature			Wind									
Month	Max (°C)	Min (°C)	Mean (°C)	Res Dir. (°True)	Res Speed (m/sec)	Ave 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)
1983													
October	M	M	M	M	M	M	M	M	M	M	M	M	M
November	1.8	-18.5	-8.2	071	3.9	4.0	094	14.6	ENE	78	-11.4M	0.6	12,930
December	0.3	-26.7	-12.8	077	3.3	3.5	069	12.1	ENE	85	-14.9M	M	4,755
1984													
January	3.4	-31.9	-12.5	077	3.2	3.7	097	13.3	E	80	-14.9M	M	7,425
February	-2.3	-26.1	-12.4	070	3.7	4.1	074	14.6	ENE	77	M	M	26,725
March	4.5	-15.8	-3.8	068	2.9	3.2	089	12.1	ENE	75	-7.6M	M	93,110
April	7.5	-13.2	-2.4	052	1.8	2.8	289	14.0	ENE	70	M	M	151,060
May	16.2	-7.4	4.0	002M	0.8M	2.5M	275M	11.4	NNE(M)	58	M	M	207,055
June	21.6	0.6	10.1	281	1.8	2.9	271	13.3	W	54	M	62.4	186,480
July	M	M	M	M	M	M	M	M	M	M	M	M	M
August	21.5M	-4.2M	9.4M	002M	0.8M	2.5M	354M	12.1M	W(M)	54M	M	100.0M	M
Sepember	15.5	-3.0	6.4	069	1.8	2.5	075	12.1	ENE	62	M	29.8M	M
October	10.7	-16.2	-2.0	070	2.4	3.0	076	12.4	ENE	70	M	M	32,265M
November	1.3	-25.0	-11.6	070	2.3	2.6	102	14.3	ENE	79	M	M	10,760
December	M	M	M	M	M	M	M	M	M	M	M	M	M
Annual-WY (10/83-9/84)	M	M	M	M	M	M	M	M	M	M	M	M	M
Annual-CY (1/84-12/84)	M	M	M	M	M	M	M	M	M	M	M	M	M

NOTE: See section on interpretation of data for explanation of symbols used. Annual values are for water year (WY) and calendar year (CY).

TABLE 2.2 PERCENT OF TOTAL POSSIBLE OBSERVATIONS
RECORDED AT WATANA CLIMATE STATION
OCTOBER 1983 to DECEMBER 1984

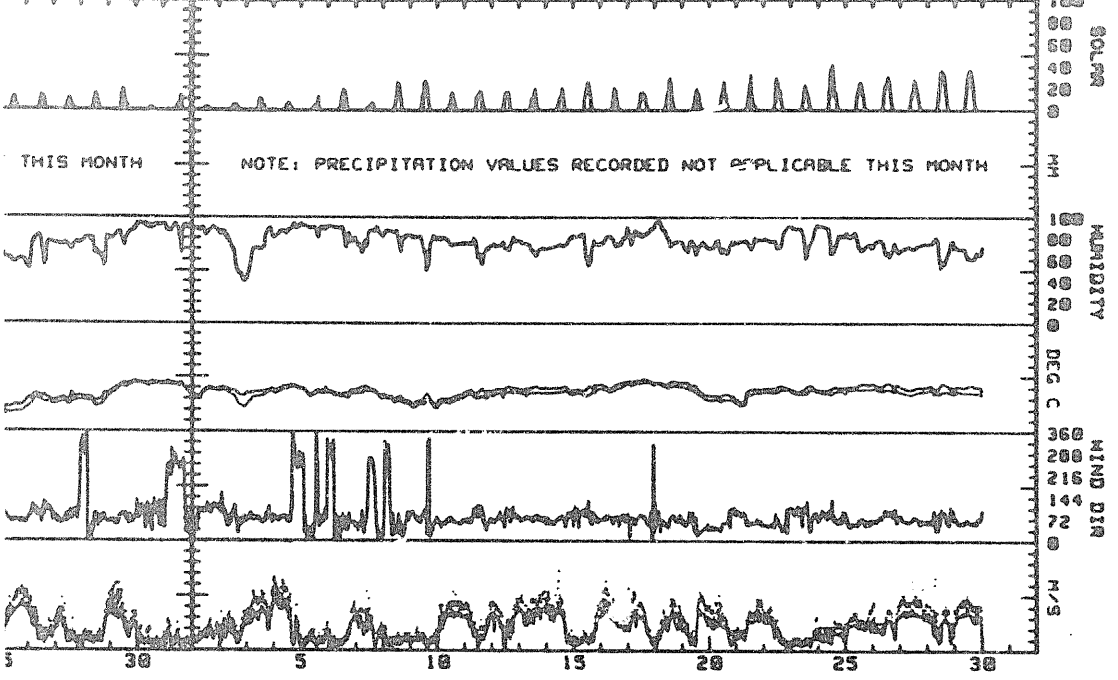
Month	Temp	Wind Speed	Wind Direction	Peak Gust	RH	Precip	Solar Radiation	Dew Point	Longwave Radiation
October 1983	46	46	44	46	43	46	46	43	46
November	100	100	100	100	97	100	100	97	100
December	100	100	100	100	96	5	100	96	15
January 1984	100	100	100	100	94	0	100	94	0
February	100	100	100	100	96	0	100	96	0
March	100	100	100	100	96	0	100	96	0
April	100	100	100	100	91	0	100	91	0
May	100	100	98	100	93	26	100	93	29
June	100	100	100	100	95	100	100	95	100
July	65	65	65	65	61	65	65	61	65
August	84	84	84	84	76	67	67	76	84
September	100	100	100	100	94	0	0	94	76
October	100	100	100	100	90	0	87	90	0
November	100	100	100	100	86	0	100	86	0
December	43	43	43	43	37	0	43	37	0
Total	89	89	89	89	83	27	81	83	34

NOTES:

(1) RH and dew point data are not valid and have been discarded for samples when the wind speed is less than 1.0 m/s.

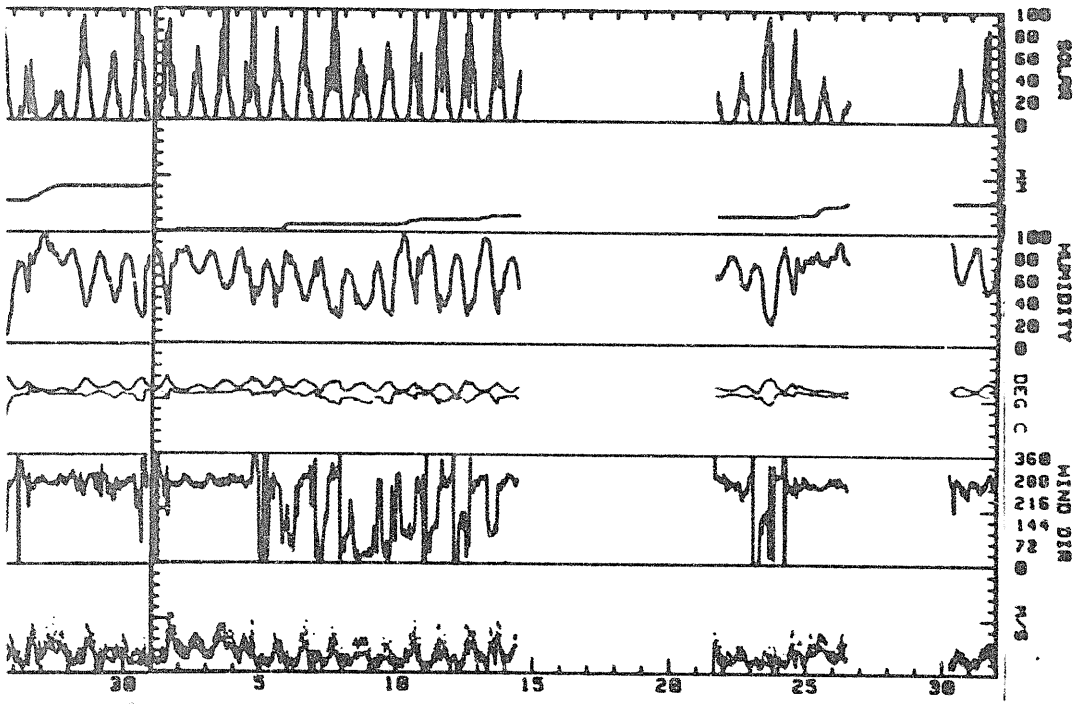
(2) Precipitation data are not recorded from December 1983 through March 1984. Collector is not designed for winter temperatures. Precipitation data are reported for October and November 1983, however since the tipping-bucket gage was heated. The gage was disconnected on 12/2/83.

(3) The percentage reported as TOTAL is for the full 15-month period (10/83 - 12/84).



NOTE: A larger copy of each plot is presented in Section 5, Climatic Data Summaries.

July, 1984



December, 1984

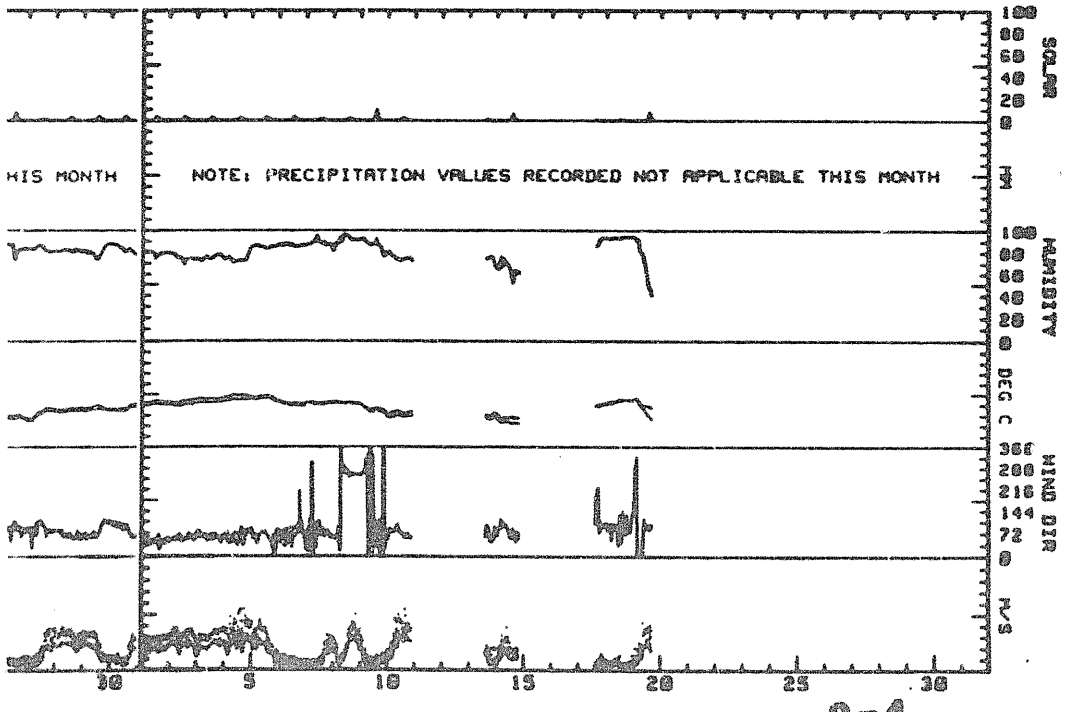
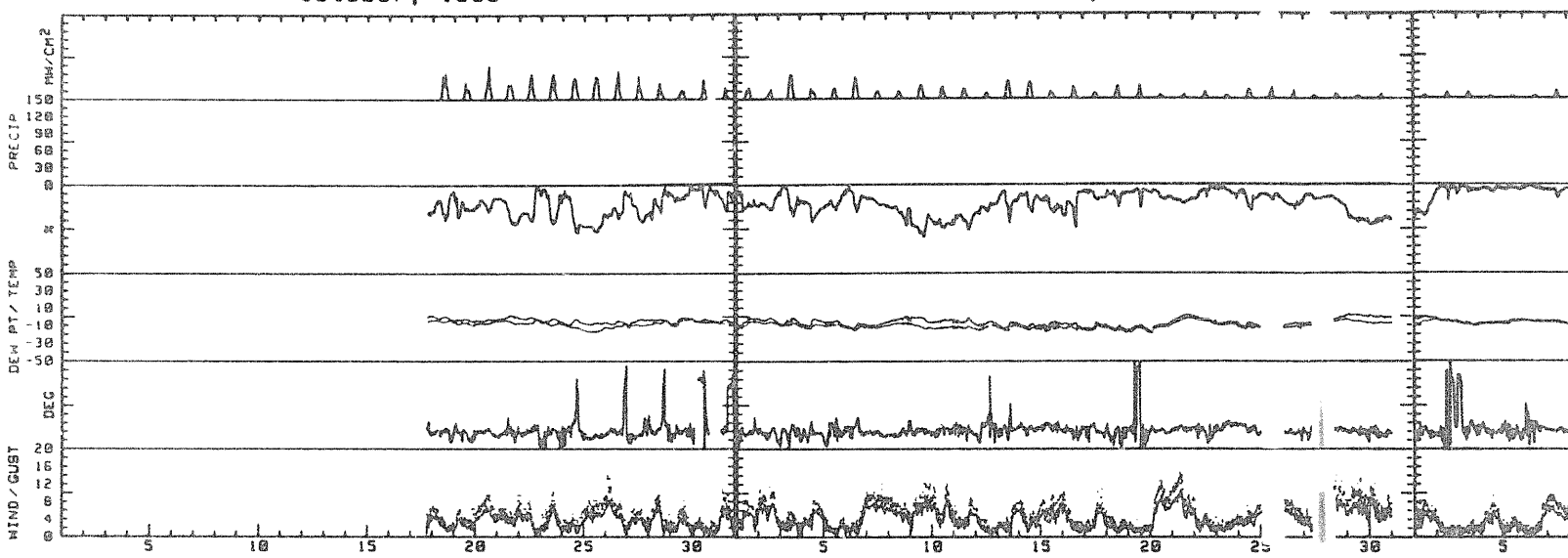


FIGURE 2.1 SEQUENTIAL PLOT OF CLIMATIC DATA, WATANA STATION, OCTOBER 1983-DECEMBER 1984.

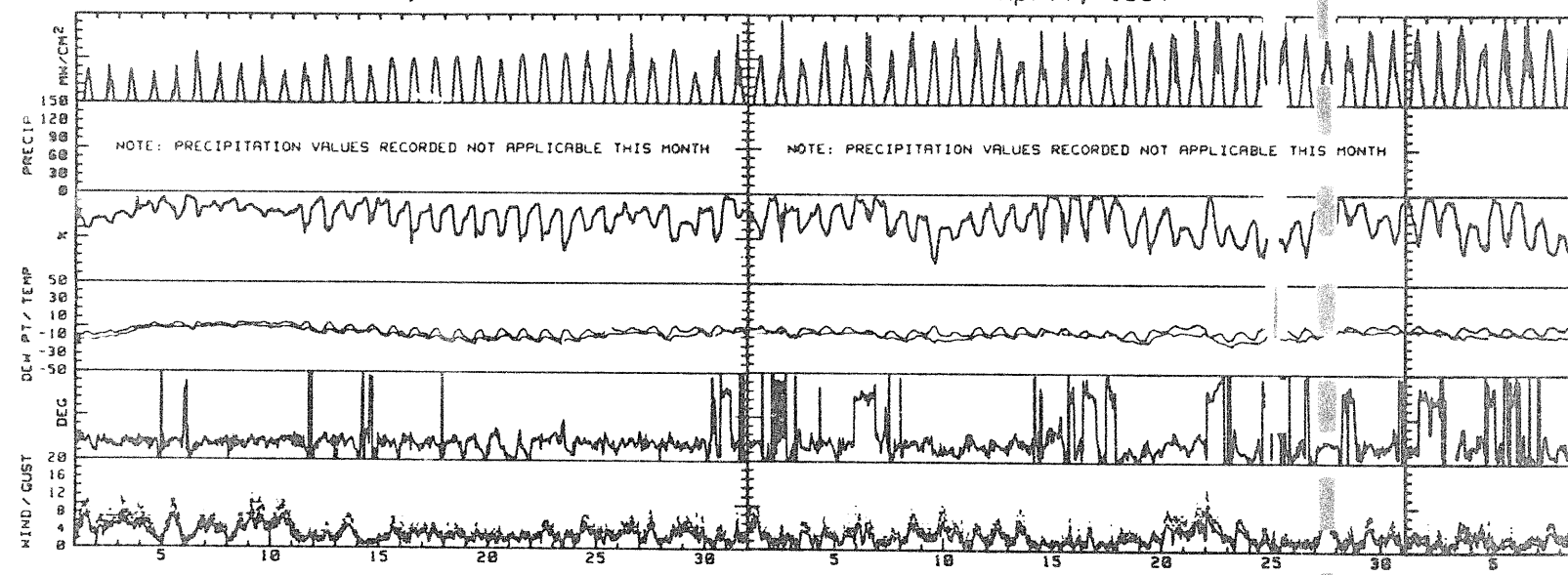
October, 1983

November, 1983



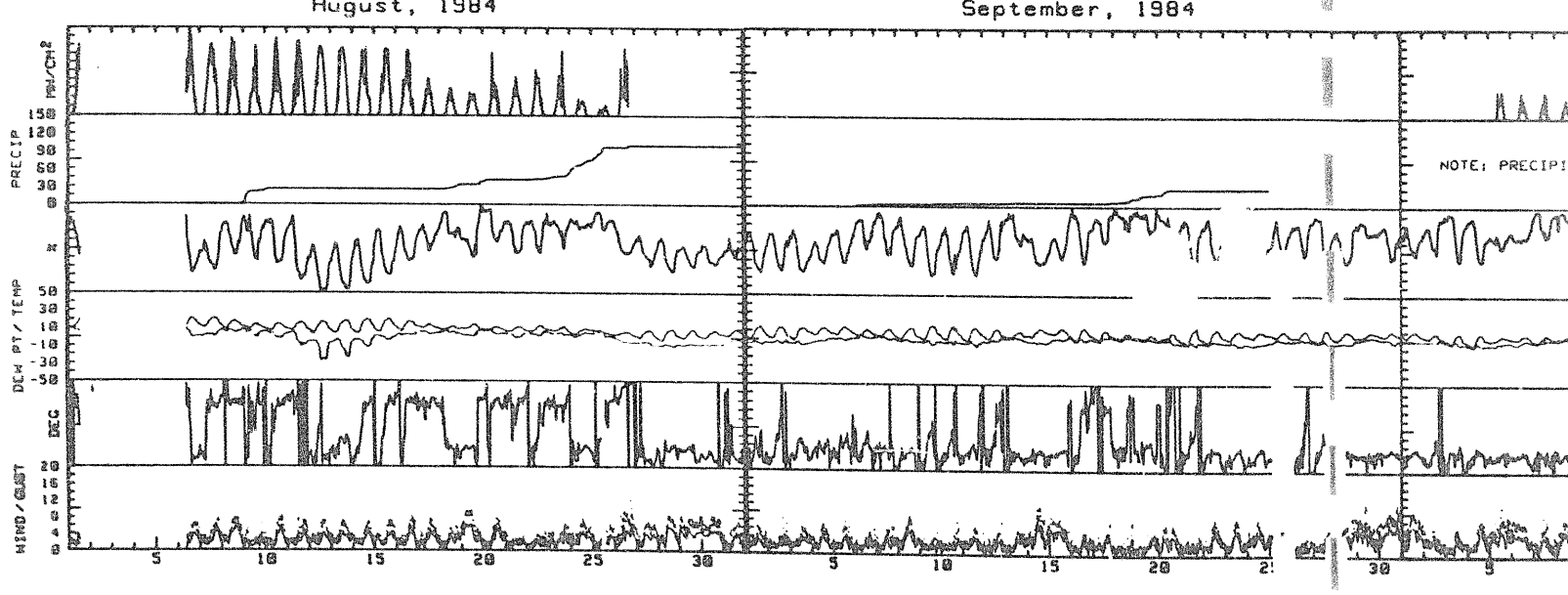
March, 1984

April, 1984



August, 1984

September, 1984



December, 1983

January, 1984

NOTE: PRECIPITATION VALUES RECORDED NOT APPLICABLE THIS MONTH

February, 1

NOTE: PRECIPITATION VALUES RECORDED

10 15 20 25 30 5 10 15 20 25 30 5 10 15

May, 1984

June, 1984

July, 1984

10 15 20 25 30 5 10 15 20 25 30 5 10 15

October, 1984

TATION VALUES RECORDED NOT APPLICABLE THIS MONTH

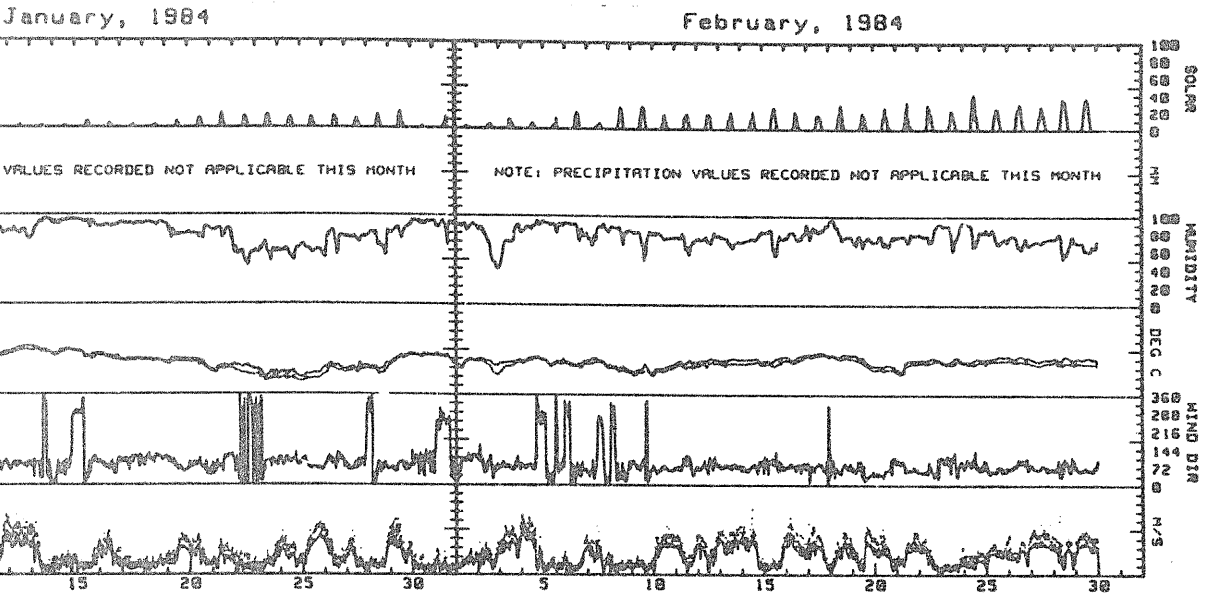
November, 1984

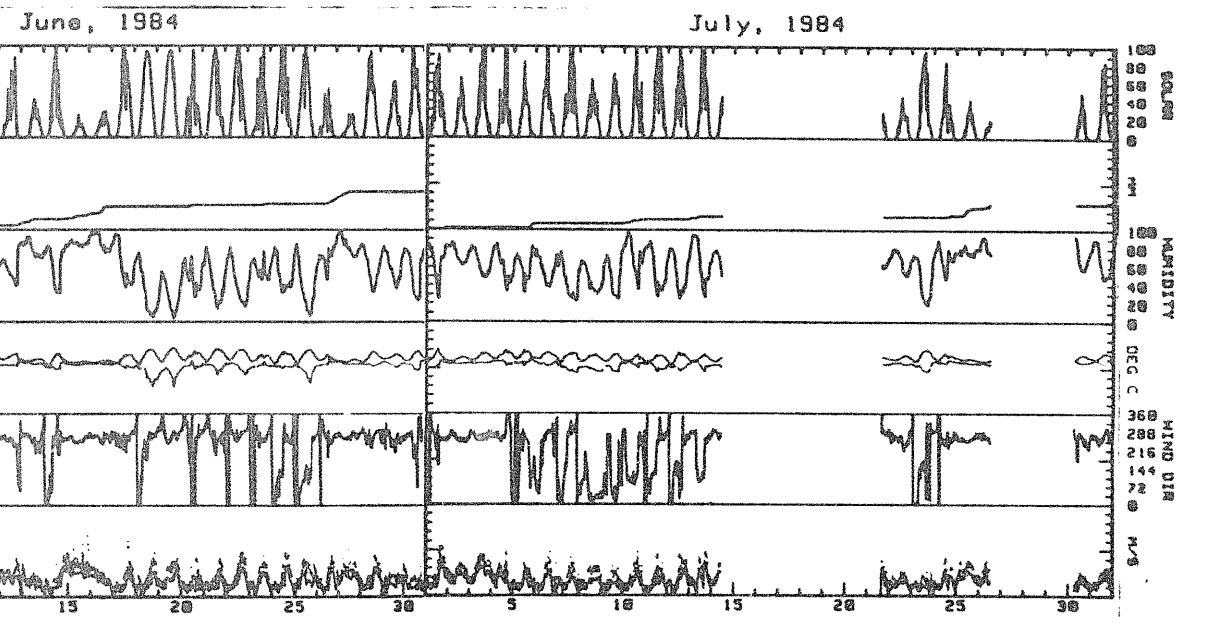
NOTE: PRECIPITATION VALUES RECORDED NOT APPLICABLE THIS MONTH

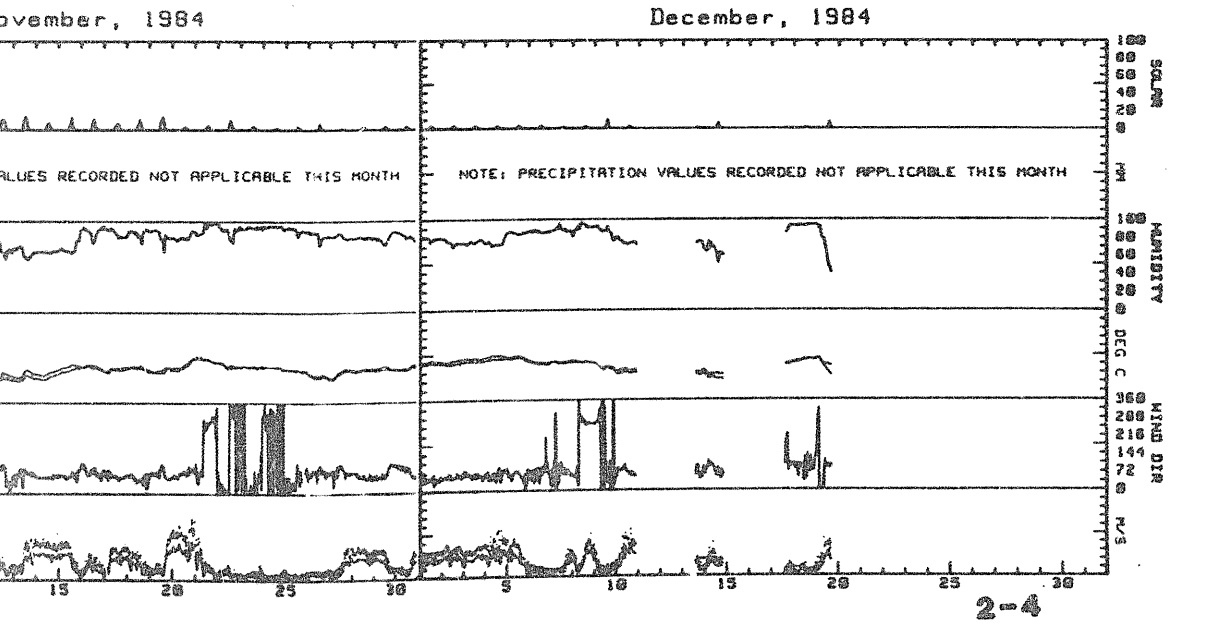
December, 198

NOTE: PRECIPITATION VALUES RECORDED NOT

10 15 20 25 30 5 10 15 20 25 30 5 10 15







NOTE: A larger copy of each plot is presented in Section 5, Climatic Data Summaries.

FIGURE 2.1 SEQUENTIAL PLOT OF CLIMATIC DATA, WATANA STATION, OCTOBER 1983-DECEMBER 1984

3.0 REPORT PREPARATION

3.1 Description of Symbols Used in Annual and Monthly Summaries

3.1.1 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.

3.1.2 Monthly Summaries

**** — Erroneous or missing data (may be from 2 to 6 asterisks, depending on number of digits possible in the value). Asterisks appear 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.

3.2 Data Computation Standards (Climate)

Conversion factors for units are presented in the appendix. Specific segments of the monthly reports are described below.

3.2.1 Graphical Data Plot

The data plot is a graphical representation of valid recorded and/or computed data.

3.2.2 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 are invalid, no value is reported for the current hour. No table is published for the winter months (October through March) unless a heater is part of the tipping bucket installation.

3.2.3 Monthly Summary Table

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

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

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

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

5. Average daily and monthly wind speeds are determined from 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). When the wind speed is less than 1 m/sec, the RH value is omitted from the averaging (but is displayed in the graphical data plot and in the three-hour table).

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 (in watt-hours per square meter) is determined by averaging the recorded solar intensity (which is in milliwatts per square centimeter) and converting the units. The monthly value is the sum of the daily values.

3.2.4 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.

3.2.5 Wind Frequency Summary Table

Reported data are determined from all valid pairs of readings. Valid pairs of wind data are composed of valid wind speed and wind direction data for the same interval.

3.2.6 Hourly Solar Radiation Table

An addition to this year's report series, hourly solar radiation values are averages of all valid readings recorded during the preceding hour. If any data are missing or invalid, the remaining values are arithmetically averaged for the hour. The daily average values are determined by summing the hourly averages for the day and dividing by 24. If all data are missing for the hour, no value is printed; asterisks (***) appear instead, and no value is used for the hour in computing the daily average.

3.2.7 Hourly Longwave Radiation Table (Watana and Eklutna Stations Only)

Another addition to this year's report series, hourly longwave radiation values are averages of all valid readings recorded during the preceding hour. If any data are missing or invalid, the remaining values are arithmetically averaged for the hour. The daily average values are determined by summing the hourly averages for the day and dividing by 24. If all data are missing for the hour, no

value is printed; asterisks (***) appear instead, and no value is used for the hour in computing the daily average.

3.2.8 Wind Rose Graphical Plot

The plot is a graphical representation of the wind frequency summary table.

3.2.9 Observation Summary Table

Another addition to this year's report series is an observation summary. The number of usable observations for each parameter is determined by counting the number of valid readings for the entire month. The percentage of total observations is determined by dividing the number of usable observations by the number possible for the month. Data adjustments and additional comments applicable to the month are manually entered below the summary table.

3.2.10 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 (i.e., ±3.6 degrees)
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

4.0 INTERPRETATION OF DATA, 1983-84

4.1 General Comments

4.1.1 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 Section 3.2 "Data Computation Standards."

4.1.2 As described in Section 2.0, a shift is being made from presenting the climatic data on a water year basis to presenting it for the calendar year. Thus, this report includes fifteen months of data. All future reports will be for the calendar year.

4.1.3 Changes made to the format of this year's report series include addition of hourly tables of solar radiation and longwave radiation values and tabulation of the actual number of usable observations on a monthly basis for each parameter. Also, the data-processing program was modified slightly to permit output of daily prevailing direction when the wind speed sensor was not operational, and output of speed-only parameters (peak gust and daily average speed) when the wind direction sensor was not operational.

4.1.4 The U.S. Department of Transportation ordered a shift in the time zones of central and Southeast Alaska in October 1983. The official time in central Alaska was advanced one hour, and the offical Southeast Alaska time was retarded one hour, making the two areas on the same time. This transition occurred when daylight savings time ended, on Sunday, October 30, 1983. The effect on the reporting of

the data is that one hour was "lost" between midnight and 0100 on October 30. There are thus no data at all for 0030 and 0100 on that date.

4.1.5 Missing data values have been estimated where possible. Estimation, which was accomplished by manually editing the raw computer data files, was generally limited to data gaps of an hour or less, where interpolation between the preceding and following valid data points could be used to estimate the missing points. Interpolation was performed in this manner for temperature, relative humidity, solar radiation, and longwave radiation data.

Solar data have been estimated only for clear or uniformly cloudy days and then only if not near the peak value of the day. Precipitation is estimated only if none at all occurred during the interval or if the tips of the tipping bucket were manually counted during a rainfall event. Wind speed and direction data have been estimated by interpolation only if the preceding and following winds were very uniform. Peak gust speeds have not been estimated at all.

4.1.6 The recording interval was changed prior to the winter of 1983-84 to permit recording of data for longer periods of time in the event monthly maintenance trips to the station were delayed. The interval was changed from 15 minutes to 30 minutes, which increased the maximum record length per data tape from approximately six weeks to approximately three months. The switch was made in November 1983 at all Susitna Basin stations and in December 1983 at the Eklutna Lake Station.

4.1.7 A new Weather Wizard model was installed on October 5, 1984 at the Watana Station. The new model records data as

averages of samples taken within the recording interval (the previous 30 minutes). The original Weather Wizards record instantaneous values of all parameters except wind speed and direction. Also, the new model takes samples every 10 seconds, rather than every 15 seconds, for wind speed and direction. The new Weather Wizard also reports sigma theta, the standard deviation of the wind direction samples over the recording interval. The sigma theta data are not summarized in the current report, but it is expected that they will be included in future summary reports.

4.1.8 Data for all parameters were lost from 7/14 to 7/21, 7/26 to 7/30, and 8/1 to 8/6 because of electrical problems in the Weather Wizard. Also, data for all parameters were lost from 12/10 to 12/13, 12/14 to 12/17, and 12/19 to 12/31 in 1984 due to power failures. These gaps are noted on Table 1.4 and are shown graphically on Figure 2.1.

4.2 Comments on Specific Parameters

4.2.1 Precipitation

Precipitation data are generally 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 timing within the day may not be accurate, but the daily total should be reasonable. 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 data is at the Watana station. An AC-powered heater was installed in the tipping-bucket rain gage for October and November 1983. Thus, the timing and quantity of precipitation data are correct and not affected by subfreezing temperatures for these months. Data are not reported after 12/2/83 when the gage was removed.

Watana data are not recorded for April and May through 5/23/84. The tipping-bucket rain gage was not installed until this date. The precipitation gage was removed again on 9/25/84. Therefore, data for the last five days of September are missing also.

4.2.2 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. Theoretically, the maximum value an RH reading can attain is 99%. However, when the sensor is not calibrated correcly, readings may exceed 100% or they may be noticably too low. Adjustments are therefore made accordingly.

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.

4.2.3 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 hourly solar radiation summary table to get a feel for the frequency and timing of lost solar radiation data. Caution should be used when a significant amount of data are 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 ±5 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. 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. Readings during periods when this sensor offset was demonstrated have been adjusted downward, as noted in Table 1.5.

The solar radiation sensor was removed from the Watana station on August 26, 1984 because of a broken wire. It was not replaced until October 5, 1984. Thus, 40 days of data are missing during August, September and October, as noted on Table 1.4.

4.2.4 Wind Speed and Direction

Occasionally intermittent freezing of the wind vane or anemometer occurs during the winter months. One or both of the sensors typically freezes and seizes up when the temperature drops after a rainstorm or freezing rain event. They will generally remain "stuck" until the temperature rises above 0°C or until a wind event occurs that is sufficiently strong to free it.

Watana wind data are generally very good, however. Only a few hours of wind direction data were lost intermittently in October 1983 and in May 1984.

4.2.5 Longwave Radiation

The longwave sensor was removed from 12/5/83 to 5/22/84 because the Watana base camp shut down for winter (the amplifier requires AC power to operate). The sensor and amplifier were reconnected when the camp reopened in May. Following re-installation, data are reported until 9/23/84 when the Watana base camp again closed down for winter.

The longwave radiation sensor from the Eklutna Lake site was brought to Watana for a comparison test with the Watana sensor in May 1984. They were within 7.5% of each other.

5.0 MONTHLY CLIMATIC DATA SUMMARIES
WATANA STATION
OCTOBER 1983 - DECEMBER 1984

Note:

Each month's climatic data summary report consists of the following 12 pages:

(1) Hourly Precipitation Summary Table (or note page)
(2) Three-Hour Summary Table (Days 1-9)
(3) Three-Hour Summary Table (Days 10-18)
(4) Three-Hour Summary Table (Days 19-27)
(5) Three-Hour Summary Table (Days 28-31)
(6) Monthly Summary Table
(7) Monthly Graphical Plot
(8) Wind Frequency Summary Table
(9) Wind Rose Plot
(10) Hourly Solar Radiation Summary Table
(11) Hourly Longwave Radiation Summary Table
(12) Observation Summary and Note Page

P A M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOUR 1 PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October 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	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	1
2	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	2
3	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	3
4	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	4
5	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	5
6	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	6
7	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	7
8	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	8
9	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	9
10	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	10
11	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	11
12	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	12
13	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	13
14	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	14
15	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	15
16	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	16
17	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	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	.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	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	.4	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	.4	.4	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	.8	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	[illegible]	29
30	****	****	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	.6	0.0	0.0	[illegible]	[illegible]	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	[illegible]	31

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

3-HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1985

DAY 01

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

DAY 02

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

DAY 03

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

DAY 04

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

DAY 05

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

DAY 06

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

DAY 07

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

DAY 08

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

DAY 09

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

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

SHORT HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1983

DAY 10

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

DAY 13

HOUR NDNG	DEW TEMP. 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 14

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

DAY 15

HOUR NDNG	DEW TEMP. 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 16

HOUR NDNG	DEW TEMP. 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	-.3	*****	67	085	7	095	5.1	0
2100	.9	-4.7	66	081	3.8	065	6.3	0
2400	.7	-4.1	70	062	4.0	059	6.3	1

DAY 17

HOUR NDNG	DEW TEMP. 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	DEW TEMP. 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	-4.0	80	064	6.5	062	7.3	0
0600	-2.2	-4.7	83	073	4.3	074	7.4	3
0900	-2.5	-5.3	81	068	3.4	075	5.7	5
1200	-.7	-4.2	68	068	3.9	071	6.1	23
1500	0.0	-5.8	63	072	3.8	079	7.5	15
1800	-1.6	-4.0	84	076	1.3	122	3.2	0
2100	-3.6	-5.0	91	342	1.5	075	2.5	0
2400	-4.6	-6.6	82	351	1.9	047	3.2	0

*** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT ***

SUSITNA HYDROELECTRIC PROJECT

HOURLY HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 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	-3.5	-8.7	67	091	1.7	080	3.8	0
0600	-3.3	-8.7	66	072	3.6	063	5.7	0
0900	-4.9	-7.5	82	059	3.4	059	6.3	1
1200	-3.1	-7.4	72	068	2.5	065	5.1	10
1500	-3.0	-7.0	74	066	2.4	070	4.4	12
1800	-5.6	-9.2	72	035	2.2	033	3.8	0
2100	-5.9	-10.3	71	038	2.0	027	6.3	0
2400	-4.5	-8.2	75	053	2.5	040	6.3	0

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.6	-8.0	77	068	4.0	066	7.0	0
0600	-5.0	-7.3	84	073	4.3	073	7.0	0
0900	-5.0	-8.1	79	070	5.1	071	7.6	3
1200	-4.1	-8.2	73	072	5.7	077	8.9	16
1500	-3.3	-7.6	72	081	6.2	080	9.5	15
1800	-3.8	-6.4	82	071	5.4	082	9.5	0
2100	-3.3	-5.5	85	060	4.2	059	7.0	0
2400	-2.7	-4.9	85	049	3.4	050	5.1	0

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.6	-4.8	85	051	4.0	059	6.3	0
0600	-2.5	-4.8	84	059	4.2	065	6.3	0
0900	-1.4	-4.4	80	070	4.1	069	6.3	4
1200	-.2	-4.6	72	080	3.7	065	7.6	17
1500	1.8	-5.8	57	088	3.4	094	5.7	13
1800	-.2	-7.2	59	061	3.2	084	5.1	0
2100	0.0	-7.5	57	050	3.3	070	7.0	0
2400	-1.8	-7.3	66	077	5.0	095	9.5	0

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.6	-7.5	69	063	4.8	066	9.5	0
0600	-2.6	-7.7	68	059	4.0	064	6.3	0
0900	-2.9	-7.9	68	070	4.3	059	8.3	7
1200	-.6	-7.4	61	070	4.9	071	8.3	29
1500	-.8	-6.7	64	078	3.6	074	7.0	7
1800	-2.3	*****	97	086	1.5	097	3.2	0
2100	-3.2	-3.6	97	091	.7	095	1.9	0
2400	-4.6	-5.9	91	043	1.3	082	1.9	0

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.4	-6.2	94	015	2.2	002	5.1	0
0600	-5.2	-7.2	86	035	1.7	005	6.3	0
0900	-4.8	-8.5	75	072	3.1	055	5.7	6
1200	-2.9	-9.8	59	063	4.6	059	7.6	29
1500	-2.3	-9.2	59	083	6.6	085	10.2	9
1800	-4.2	-8.6	71	075	4.4	079	7.6	0
2100	-6.1	-7.5	90	058	2.7	065	5.1	0
2400	-6.4	-8.2	87	029	1.3	008	3.2	0

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.3	-10.8	88	048	1.7	013	3.8	0
0600	-9.2	-10.8	88	064	1.7	069	3.8	0
0900	-9.4	-12.2	80	085	1.5	090	3.2	2
1200	-5.0	-11.8	59	090	2.2	109	5.1	23
1500	-2.7	-12.5	47	120	2.0	105	5.7	13
1800	-5.2	-12.6	56	318	.6	251	3.8	0
2100	-6.9	-14.7	54	077	2.1	093	4.4	0
2400	-7.7	-15.6	53	051	3.2	047	5.7	0

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.5	-16.4	53	049	4.1	049	6.3	0
0600	-9.3	-17.1	53	045	4.9	046	8.3	0
0900	-9.1	-17.0	53	043	4.6	050	7.6	5
1200	-7.5	-16.7	48	048	4.8	051	8.3	36
1500	-7.1	-16.3	48	055	5.3	049	8.3	17
1800	-7.7	-15.6	53	045	5.2	051	8.3	0
2100	-8.3	-17.2	46	055	4.7	058	7.6	0
2400	-7.1	-18.2	37	055	5.5	057	8.9	0

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.4	-12.6	66	066	7.3	058	14.0	3
0600	-8.6	-13.8	66	078	7.8	079	13.3	0
0900	-8.9	-13.5	75	073	6.2	087	11.4	2
1200	-6.0	-10.7	69	075	5.4	085	7.6	24
1500	-5.7	-11.0	66	065	4.6	062	7.0	7
1800	-6.1	-10.8	69	077	4.8	081	8.3	3
2100	-7.3	-8.5	91	137	.6	054	5.1	0
2400	-9.0	-10.5	89	334	1.0	283	3.8	0

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.7	-10.3	89	042	1.9	034	5.1	1
0600	-6.8	-10.1	77	073	3.5	052	5.7	1
0900	-5.8	-9.2	77	047	3.6	057	6.3	1
1200	-3.5	-9.5	67	054	3.6	054	5.7	13
1500	-3.4	-10.3	60	058	4.0	061	5.7	6
1800	-3.3	-9.7	61	062	3.4	056	6.3	0
2100	-4.3	-9.5	67	121	2.2	131	3.8	1
2400	-4.2	*****	69	331	2.6	079	4.4	1

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1983

DAY 28

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.1	-9.3	62	083	2.3	073	5.7	0
0600	-5.3	-7.6	82	068	4.3	065	6.3	0
0900	-3.9	-7.3	77	066	5.7	066	8.9	1
1200	-3.3	-7.6	72	082	6.6	084	11.4	19
1500	-3.8	-5.7	87	094	4.3	078	8.3	7
1800	-4.2	-4.6	97	247	.6	195	3.8	0
2100	-4.8	-6.7	87	098	2.2	107	3.8	0
2400	-8.3	-9.7	90	078	1.6	103	5.1	0

DAY 29

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.5	*****	87	042	1.8	029	3.8	0
0600	-8.4	-10.8	83	055	1.5	065	3.2	0
0900	-3.3	-5.6	84	084	1.7	073	5.1	1
1200	-2.1	-4.5	84	067	3.9	069	6.3	9
1500	-1.3	-3.7	84	072	3.9	079	8.3	10
1800	-2.5	-3.9	90	078	4.0	078	7.0	0
2100	-2.2	-3.1	94	066	2.7	059	4.4	0
2400	-2.5	-3.4	94	077	1.1	092	2.5	0

DAY 30

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.2	-6.2	93	039	.9	048	3.5	0
0600	-5.3	-6.0	95	***	****	***	3.3	0
0900	-5.7	-6.1	97	289	2.8	294	4.4	0
1200	-4.9	-5.5	96	289	1.8	298	3.7	9
1500	-2.3	*****	74	292	.7	275	3.1	11
1800	-4.7	-6.1	90	107	1.0	131	3.5	0
2100	-5.5	*****	94	068	.7	082	1.9	0
2400	-5.5	-6.8	91	***	****	***	3.3	0

DAY 31

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.1	*****	91	***	****	***	3.2	0
0600	-6.9	-8.4	89	***	****	***	2.5	0
0900	-5.7	-8.0	84	076	4.6	080	6.3	0
1200	-4.4	-7.7	78	075	5.3	082	10.8	3
1500	-3.6	-8.3	70	091	5.6	096	8.9	6
1800	-5.5	-6.5	93	256	4.4	245	9.5	0
2100	-6.8	-9.4	82	257	3.6	253	6.3	0
2400	-8.4	*****	90	289	.3	305	4.4	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1983

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	1
2	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	2
3	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	3
4	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	4
5	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	5
6	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	6
7	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	7
8	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	8
9	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	9
10	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	10
11	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	11
12	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	12
13	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	13
14	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	14
15	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	15
16	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	16
17	.9	-.8	.1	070	3.2	3.3	065	6.3	ENE	69	-4.7	0.0	0	17
18	.5	-5.1	-2.3	066	2.7	2.7	074	7.6	ENE	78	-5.1	0.0	1390	18
19	-2.7	-6.3	-4.5	060	2.4	2.6	059	6.3	ENE	74	-8.2	0.0	755	19
20	-2.7	-5.2	-4.0	069	4.7	4.8	080	9.5	ENE	80	-7.1	.2	1390	20
21	1.8	-3.2	-.7	067	3.8	4.0	095	9.5	ENE	70	-5.8	0.0	995	21
22	-.1	-4.6	-2.4	068	3.1	3.2	066	9.5	ENE	72	-6.7	.4	1185	22
23	-1.9	-7.1	-4.5	064	3.1	3.4	085	10.2	ENE	78	-8.1	0.0	1295	23
24	-2.4	-10.5	-6.5	076	1.6	2.0	105	5.7	E	68	-12.2	0.0	1215	24
25	-6.7	-9.4	-8.1	050	4.9	4.9	057	8.9	NE	54	-15.8	0.0	1345	25
26	-4.6	-9.1	-6.9	072	4.5	5.1	058	14.0	ENE	73	-11.4	.8	1060	26
27	-2.7	-11.8	-7.3	062	2.9	3.1	057	6.3	NE	71	-10.0	0.0	845	27
28	-2.9	-8.3	-5.6	080	3.2	3.6	084	11.4	ENE	80	-7.3	.8	665	28
29	-1.3	-9.6	-5.5	069	3.5	3.6	079	8.3	ENE	88	-6.0	0.0	520	29
30	-3.3	-6.0	-4.2	300	.8	1.5	294	4.4	WNW	93	-5.9	.8	720	30
31	-3.6	-9.8	-6.7	077	.8	3.3	082	10.8	E	84	-8.0	0.0	370	31
MONTH	1.8	-11.8	-4.6	066	3.0	3.4	058	14.0	ENE	75	-8.2	3.0	17650	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 8.9
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 13.4
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 10.2
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.

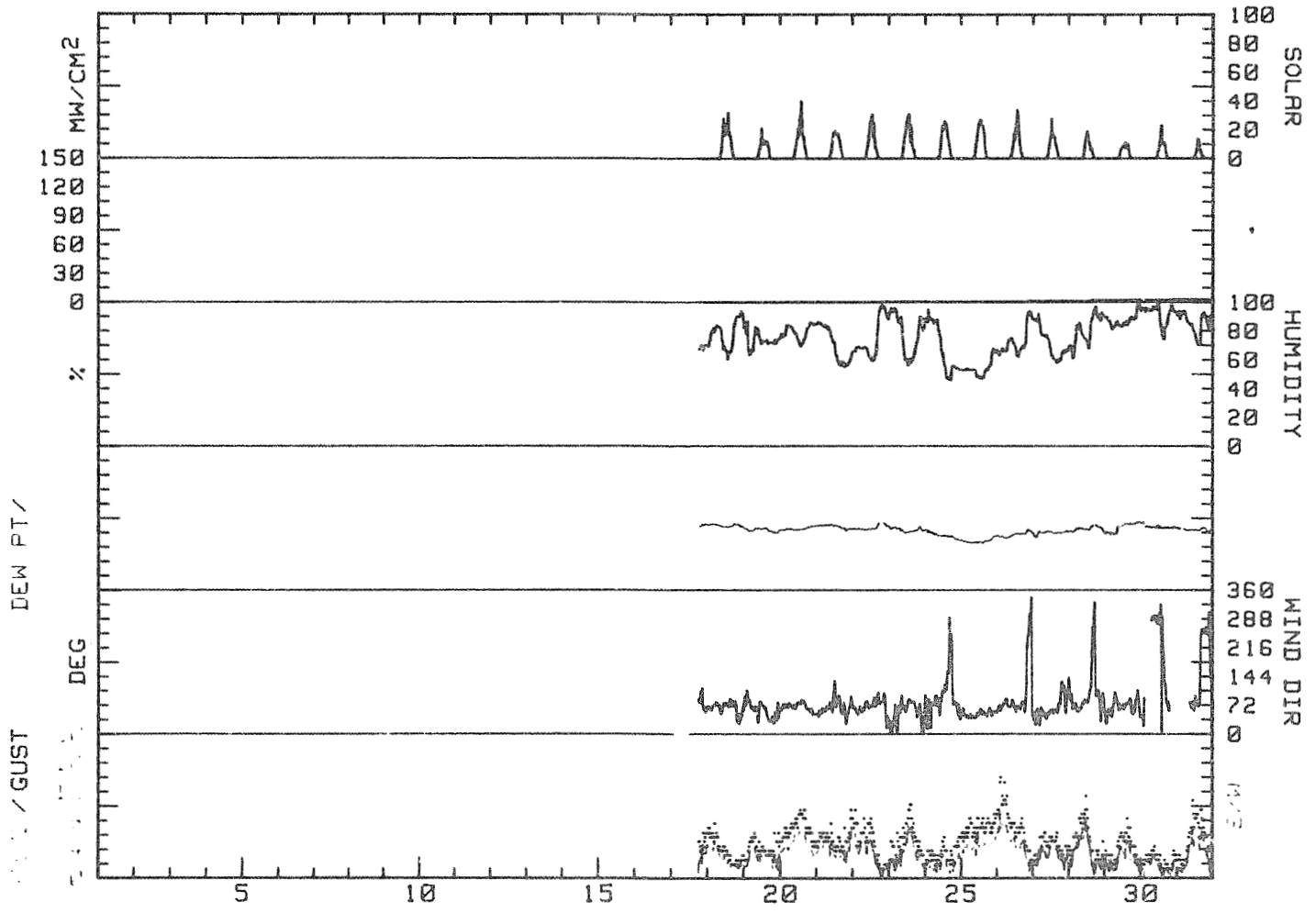
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

October, 1983



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 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	.31	1.08	0.00	0.00	0.00	0.00	0.00	1.39
NNE	0.00	4.01	.15	0.00	0.00	0.00	0.00	4.16
NE	.15	8.32	12.79	.46	0.00	0.00	0.00	21.73
ENE	.62	8.63	29.43	3.54	0.00	0.00	0.00	42.23
E	1.23	7.55	5.70	3.08	0.00	0.00	0.00	17.57
ESE	0.00	3.24	.77	0.00	0.00	0.00	0.00	4.01
SE	.15	.46	.31	0.00	0.00	0.00	0.00	.92
SSE	.31	.46	0.00	0.00	0.00	0.00	0.00	.77
S	.15	0.00	0.00	0.00	0.00	0.00	0.00	.15
SSW	.15	.15	0.00	0.00	0.00	0.00	0.00	.31
SW	0.00	.31	0.00	0.00	0.00	0.00	0.00	.31
WSW	.31	.77	.46	.15	0.00	0.00	0.00	1.69
W	0.00	.62	.62	.31	0.00	0.00	0.00	1.54
WNW	.62	1.54	.31	0.00	0.00	0.00	0.00	2.47
NW	.15	.15	0.00	0.00	0.00	0.00	0.00	.31
NNW	.15	.15	0.00	0.00	0.00	0.00	0.00	.31
CALM								.15
TOTAL	4.31	37.44	50.54	7.55	0.00	0.00	0.00	100.00

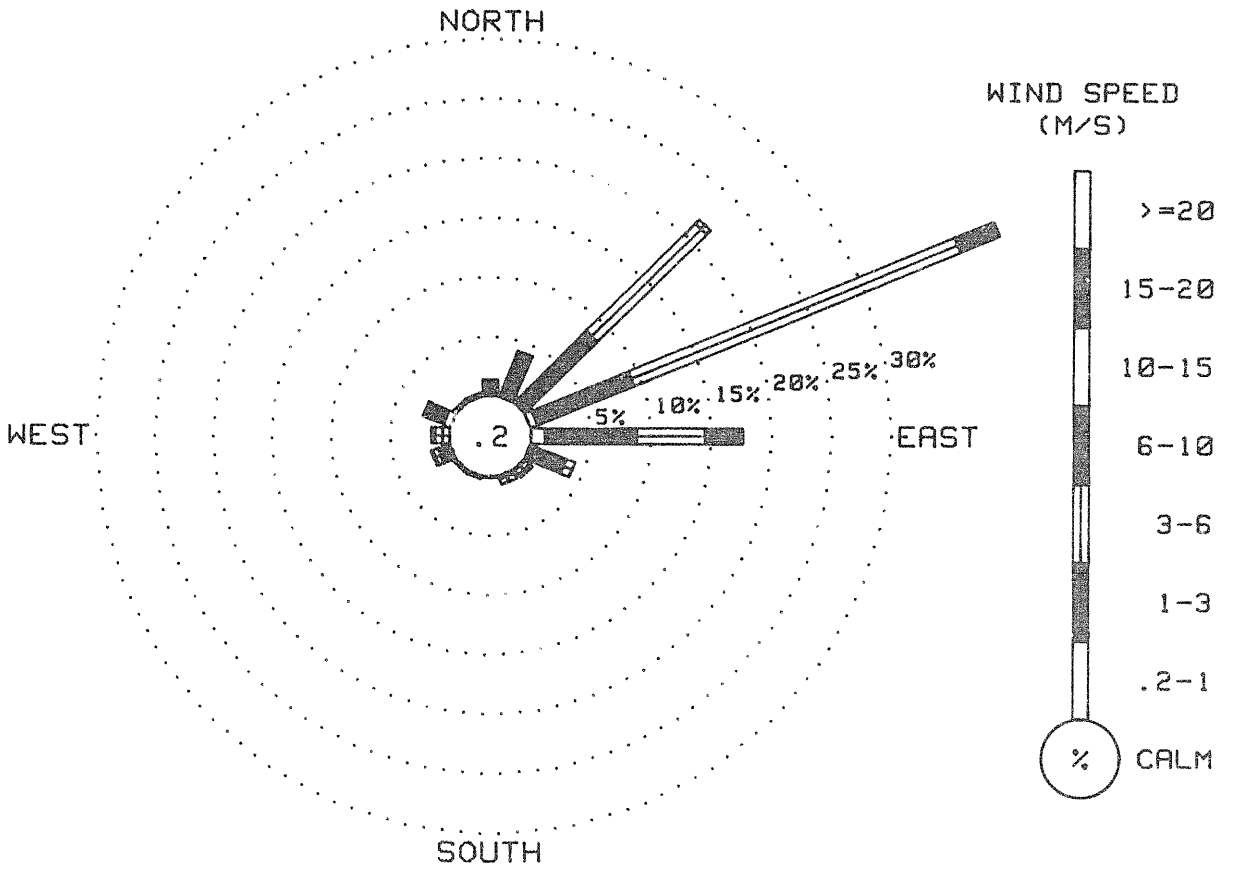
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
649 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
1486 WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 30 MINUTE DATA.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

October, 1983



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1983

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
7	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
8	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
9	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
10	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
11	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
12	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
13	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
14	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	0	0	0	0	0	0	0	***
18	0	0	0	0	0	0	0	0	4	18	26	20	22	21	17	8	2	0	0	0	0	0	0	0	6
19	0	0	0	0	0	0	0	0	1	6	11	16	12	10	12	8	2	0	0	0	0	0	0	0	3
20	0	0	0	0	0	0	0	0	2	8	14	19	29	33	15	8	3	0	0	0	0	0	0	0	5
21	0	0	0	0	0	0	0	0	3	8	16	18	18	17	13	7	2	0	0	0	0	0	0	0	4
22	0	0	0	0	0	0	0	0	5	11	22	28	23	20	7	4	1	0	0	0	0	0	0	0	5
23	0	0	0	0	0	0	0	0	4	13	19	27	30	13	16	7	2	0	0	0	0	0	0	0	5
24	0	0	0	0	0	0	0	0	2	9	21	22	24	23	14	8	2	0	0	0	0	0	0	0	5
25	0	0	0	0	0	0	0	0	3	12	19	25	27	24	19	6	1	0	0	0	0	0	0	0	6
26	0	0	0	0	0	0	0	0	1	6	14	19	39	25	10	4	1	0	0	0	0	0	0	0	4
27	0	0	0	0	0	0	0	0	1	5	11	22	17	15	10	5	1	0	0	0	0	0	0	0	4
28	0	0	0	0	0	0	0	0	1	5	13	18	13	8	7	3	1	0	0	0	0	0	0	0	3
29	0	0	0	0	0	0	0	0	1	5	7	9	9	9	9	5	1	0	0	0	0	0	0	0	2
30	***	0	0	0	0	0	0	0	0	1	4	8	20	17	11	8	3	0	0	0	0	0	0	0	3
31	0	0	0	0	0	0	0	0	0	0	1	2	6	14	9	4	2	1	0	0	0	0	0	0	2

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY L.O. LWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1983

LONGWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	*	**	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	**	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
7	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
8	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
9	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
10	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
11	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
12	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
13	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
14	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	30	29	30	30	30	29	31	9
18	30	30	28	27	26	24	25	25	24	24	26	25	28	25	28	28	31	28	26	26	24	23	23	27	26
19	29	29	29	29	29	30	29	30	28	29	30	30	30	29	29	27	25	27	25	25	28	25	27	29	28
20	29	29	29	29	29	29	27	27	28	27	28	28	28	28	26	28	27	27	27	27	27	27	27	27	28
21	25	28	27	27	29	25	25	24	25	26	26	27	26	27	25	24	23	25	25	26	27	26	27	25	26
22	26	24	24	26	25	25	25	26	24	24	24	24	24	29	31	31	31	32	31	31	31	30	29	29	27
23	27	27	27	28	28	28	28	28	29	29	28	23	24	26	25	24	24	25	27	24	24	24	25	26	26
24	23	23	25	26	24	25	25	25	26	24	26	25	27	26	26	30	23	22	22	22	21	21	20	22	24
25	20	20	20	20	20	22	24	***	24	23	21	21	21	22	24	28	27	27	27	28	27	28	27	27	23
26	26	25	24	27	29	29	28	26	25	27	28	28	27	25	23	25	29	29	29	33	33	33	33	33	27
27	23	24	27	28	27	27	27	27	27	27	27	26	24	24	27	27	28	28	30	30	29	29	30	31	27
28	28	29	29	29	28	23	25	26	31	29	29	29	30	31	31	34	33	30	30	28	27	25	23	22	28
29	22	26	23	24	24	24	28	27	31	29	30	30	29	30	30	29	29	24	28	29	30	31	31	29	27
30	***	29	36	37	37	37	36	35	36	35	37	37	38	35	35	33	30	31	30	31	31	31	31	31	32
31	31	31	31	31	31	31	31	31	30	30	30	30	31	30	31	36	37	36	35	33	33	31	28	25	31

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 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	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	.4	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	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	0.0	0.0	0.0	0.0	0.0	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

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

OBSERVATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1983

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	682	46
WIND SPEED	682	46
WIND DIRECTION	649	44
PEAK GUST	682	46
RELATIVE HUMIDITY	644	43
PRECIPITATION	682	46
SOLAR RADIATION	682	46
DEW POINT	646	43
LONGWAVE RADIATION	681	46

THERE ARE 1488 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER. THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

1. RH -12 RH Points
2. Solar - 1 mW/CM^2

Additional comments on this month's data:

1. Station was reinstalled on 10/17. No data prior to this date.
2. One hour of data "lost" between 0000 and 0100 on 10/30 due to official time zone. See note in section 4 of text.
3. Precipitation data are reported for October since the tipping bucket gage was heated. The timing and quantity of precipitation are correct.
4. Intermittent wind direction data lost due to frozen wind vane.

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HRLY HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1985

DAY 01

HOUR ENDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.6	-13.5	93	035	1.7	030	3.0	0
0600	-12.0	-13.3	90	072	1.8	083	3.2	0
0900	-7.3	-11.3	73	065	4.6	068	8.3	0
1200	-5.1	-8.8	75	057	5.4	056	8.3	10
1500	-3.5	-6.1	76	069	5.0	064	7.0	14
1800	-3.7	-6.3	76	065	4.9	059	7.0	0
2100	-3.5	-6.6	79	095	2.5	076	6.3	0
2400	-3.0	-6.5	77	073	4.0	059	7.6	0

DAY 02

HOUR ENDNG	TEMP. 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	-7.5	79	080	6.9	088	10.8	0
0600	-4.8	-8.0	78	065	6.1	069	9.5	0
0900	-4.9	-8.1	78	059	6.3	070	9.5	0
1200	-2.9	-7.0	73	048	4.3	069	7.0	4
1500	-2.5	-7.0	71	073	6.5	057	11.4	11
1800	-4.9	-8.0	79	085	7.2	084	10.2	0
2100	-6.6	-8.6	86	054	4.0	063	6.3	0
2400	-9.5	-11.0	89	026	2.6	036	4.4	0

DAY 03

HOUR ENDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.6	-11.1	96	061	1.8	046	3.2	0
0600	-9.1	-9.5	97	082	1.8	081	3.8	0
0900	-4.4	-5.2	94	055	2.1	051	5.7	0
1200	-5.5	-9.9	71	040	2.0	000	5.1	24
1500	-1.8	-7.5	65	093	3.3	087	5.7	22
1800	-5.0	-8.9	74	070	3.2	100	5.1	0
2100	-5.8	-8.7	80	073	1.6	061	3.3	0
2400	-10.5	-13.0	82	042	1.7	030	3.2	0

DAY 04

HOUR ENDNG	TEMP. 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	-12.5	80	063	2.4	088	4.4	0
0600	-11.9	-14.5	81	058	3.0	059	4.4	0
0900	-10.7	-13.8	78	052	3.7	086	4.4	0
1200	-4.2	-11.0	59	086	3.0	058	6.3	13
1500	-3.3	-9.3	63	069	5.6	080	8.3	9
1800	-5.0	-10.0	68	066	5.6	065	7.6	0
2100	-5.3	-9.7	71	064	5.1	065	7.6	0
2400	-6.3	-10.3	73	059	4.1	065	6.3	0

DAY 05

HOUR ENDNG	TEMP. 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	-11.9	76	026	2.5	032	4.4	0
0600	-7.9	-11.1	78	032	1.6	042	3.8	0
0900	-7.2	-9.6	83	092	1.2	051	2.5	0
1200	-5.9	*****	74	093	1.0	098	1.9	9
1500	-5.1	*****	71	098	.7	049	1.9	12
1800	-6.7	-9.9	78	067	1.3	074	3.2	0
2100	-10.1	-11.9	87	056	2.2	081	3.8	0
2400	-11.8	-12.9	92	072	1.9	068	4.4	0

DAY 06

HOUR ENDNG	TEMP. 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	-12.9	92	079	1.4	080	2.5	0
0600	-12.7	*****	95	093	1.1	096	2.5	0
0900	-14.3	-15.3	92	072	1.9	093	3.2	0
1200	-12.2	-15.7	75	093	1.4	088	3.2	20
1500	-9.1	-13.2	72	115	1.3	114	3.8	16
1800	-9.5	-12.0	82	073	2.8	071	5.7	0
2100	-10.8	-12.7	86	063	4.2	074	7.0	0
2400	-9.7	-11.8	85	066	6.7	074	10.2	0

DAY 07

HOUR ENDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.6	-12.6	85	066	6.7	074	9.5	0
0600	-11.0	-13.2	84	067	7.0	070	9.5	0
0900	-10.9	-13.2	83	063	7.1	071	10.2	0
1200	-10.9	-13.7	80	070	6.3	067	11.4	7
1500	-9.6	-12.9	77	066	6.6	076	9.5	9
1800	-9.0	-12.3	77	059	7.1	056	12.1	0
2100	-8.2	-11.5	77	049	5.8	052	8.9	0
2400	-7.8	-11.3	76	056	6.3	061	8.9	0

DAY 08

HOUR ENDNG	TEMP. 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	-9.8	73	056	6.3	061	8.9	0
0600	-5.0	-8.9	74	057	5.8	060	8.9	0
0900	-5.0	-8.7	75	057	5.4	058	7.6	0
1200	-3.7	-8.5	69	052	5.4	052	7.6	6
1500	-3.1	-8.3	67	063	4.8	061	7.0	4
1800	-1.6	-8.1	61	076	4.2	069	7.6	0
2100	-.2	-8.2	55	062	4.5	074	7.6	0
2400	-2.6	-8.4	64	090	3.0	091	5.7	0

DAY 09

HOUR ENDNG	TEMP. 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	-9.6	52	081	2.2	075	7.1	0
0600	-2.4	-10.9	52	059	3.5	062	9.3	0
0900	-2.2	-11.0	51	076	5.3	076	8.9	0
1200	-2.6	-12.7	46	076	6.3	069	9.5	11
1500	-2.6	-13.9	42	079	5.9	081	10.2	14
1800	-6.4	-14.9	51	076	7.9	075	12.1	0
2100	-7.4	-12.8	65	067	6.5	070	10.8	0
2400	-8.0	-14.4	60	064	6.9	070	12.1	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1983

DAY 10

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.6	-14.6	57	066	7.0	068	11.4	0
0600	-7.0	-14.3	56	058	5.0	044	10.2	0
0900	-7.6	-14.0	60	065	3.2	051	6.3	0
1200	-5.0	-13.4	52	093	3.5	090	5.7	12
1500	-4.7	-13.1	52	075	4.9	085	9.5	7
1800	-6.1	-13.7	55	085	7.9	084	12.1	0
2100	-4.3	-12.2	54	070	5.7	075	9.5	0
2400	-8.4	-14.8	60	074	3.9	064	6.3	0

DAY 11

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.4	-14.0	64	082	2.7	056	7.0	0
0600	-7.7	-13.3	64	086	2.2	098	5.7	0
0900	-7.5	-13.1	64	084	2.4	097	4.4	0
1200	-8.1	-14.3	61	077	2.3	087	3.8	7
1500	-6.1	-13.0	58	072	2.6	086	4.4	6
1800	-3.4	-12.6	49	073	4.0	067	8.3	0
2100	-7.8	-14.4	59	071	5.3	076	8.9	0
2400	-9.5	-14.8	65	058	4.9	058	6.3	0

DAY 12

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.6	-16.3	68	052	4.0	056	6.3	0
0600	-9.7	-14.8	66	036	2.5	034	4.4	0
0900	-10.9	-14.6	74	102	1.7	096	3.8	0
1200	-8.8	-12.9	72	095	1.6	093	3.8	3
1500	-7.2	*****	70	115	1.1	108	2.5	5
1800	-7.4	*****	78	109	.3	083	1.9	0
2100	-8.3	-11.8	76	078	.9	087	1.9	0
2400	-9.6	-12.9	77	081	1.1	071	2.5	0

DAY 13

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.5	-13.7	84	064	2.1	061	3.2	0
0600	-14.1	-15.5	89	066	2.2	069	3.2	0
0900	-15.6	-16.8	91	089	1.8	086	3.2	0
1200	-13.9	-17.1	77	069	1.6	075	4.4	15
1500	-8.0	*****	56	081	.7	054	3.2	17
1800	-7.5	-10.5	79	080	3.7	084	7.0	0
2100	-8.4	-10.9	82	079	5.3	076	7.6	0
2400	-9.1	-11.6	82	085	5.8	082	7.6	0

DAY 14

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.9	-12.4	89	096	5.5	088	8.3	0
0600	-11.8	-13.5	87	089	4.3	095	7.6	0
0900	-13.8	-15.4	88	072	2.5	088	5.1	0
1200	-12.8	-16.6	73	079	1.6	084	5.1	15
1500	-9.2	-14.0	68	085	2.6	083	5.1	16
1800	-12.7	-14.9	84	076	3.3	073	5.7	0
2100	-11.6	-13.2	88	077	2.7	077	5.1	0
2400	-11.2	-13.5	83	085	4.1	084	7.0	0

DAY 15

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.8	-13.4	81	085	5.3	078	8.3	0
0600	-10.3	-12.9	81	093	4.4	097	7.6	0
0900	-15.1	-17.1	85	103	3.5	097	6.3	0
1200	-8.0	-12.3	71	089	4.6	077	9.9	8
1500	-6.9	-12.0	67	077	5.7	068	9.5	6
1800	-7.6	-11.9	71	091	4.2	098	7.6	0
2100	-8.4	-12.4	73	089	5.3	089	8.9	0
2400	-10.1	-13.7	75	075	6.8	077	9.5	0

DAY 16

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.3	-14.8	64	074	6.6	080	10.2	0
0600	-10.1	-12.9	80	080	4.1	062	7.0	0
0900	-10.0	-12.8	80	077	3.5	082	6.3	0
1200	-9.6	-13.4	74	063	1.8	069	3.8	6
1500	-8.9	-16.8	53	054	1.6	050	3.2	10
1800	-13.3	*****	91	062	1.4	070	3.2	0
2100	-14.5	-15.7	91	065	1.4	049	3.2	0
2400	-15.1	-16.1	92	087	1.9	093	3.2	0

DAY 17

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.7	-16.6	93	075	1.4	043	3.2	0
0600	-14.8	-16.0	91	064	1.5	055	3.8	0
0900	-15.2	-16.4	91	095	1.9	090	3.8	0
1200	-10.9	-13.1	84	091	2.2	076	5.7	7
1500	-9.1	-11.6	82	071	5.0	073	10.2	3
1800	-10.5	-12.6	85	067	5.3	071	8.9	0
2100	-12.0	-14.2	84	063	5.1	066	10.8	0
2400	-10.9	-12.9	85	064	3.1	079	5.7	0

DAY 18

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.0	-14.6	88	076	2.0	084	4.4	0
0600	-13.5	-15.1	88	044	2.2	049	4.4	0
0900	-15.8	-16.7	93	034	2.1	030	4.4	0
1200	-15.1	-17.1	85	069	1.4	075	3.2	9
1500	-12.5	-15.8	76	057	1.1	029	3.2	5
1800	-14.9	-16.1	91	041	1.6	095	3.8	0
2100	-17.4	-18.8	89	055	2.1	055	3.8	0
2400	-16.6	-17.7	91	074	1.8	077	3.2	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

FIRST HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1983

DAY 19

HOUR ENDNG	TEMP. 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	-18.8	90	080	1.9	069	3.2	0
0600	-15.5	*****	91	089	1.2	092	2.5	0
0900	-11.9	-12.8	93	047	.8	355	1.9	0
1200	-12.5	-13.6	92	334	1.1	329	3.8	5
1500	-11.4	*****	81	358	.8	355	1.9	6
1800	-14.5	-15.4	93	023	1.3	004	2.5	0
2100	-17.3	-18.3	92	039	1.4	013	2.5	0
2400	-18.0	-19.3	90	064	1.6	071	2.5	0

DAY 20

HOUR ENDNG	TEMP. 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	-15.5	92	084	1.5	079	3.8	0
0600	-13.3	-14.3	92	071	5.2	069	8.9	0
0900	-11.7	-12.9	91	072	6.8	074	10.2	0
1200	-10.4	-12.5	85	075	8.3	075	12.7	5
1500	-10.5	-12.8	83	078	7.7	080	12.1	1
1800	-10.5	-12.7	84	064	6.3	075	10.2	0
2100	-9.2	-11.1	86	064	6.3	064	10.2	0
2400	-6.7	-9.0	84	072	7.0	076	10.2	0

DAY 21

HOUR ENDNG	TEMP. 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	-7.6	83	080	8.0	082	11.4	0
0600	-4.1	-6.9	81	082	8.4	087	12.1	0
0900	-2.1	-4.8	82	087	9.4	094	14.6	0
1200	-.6	-3.8	79	093	8.7	094	14.0	2
1500	.5	-2.5	80	078	4.9	077	8.3	1
1800	.5	-2.4	81	079	5.6	084	9.5	0
2100	-.3	-2.8	83	079	5.3	083	8.3	0
2400	-.6	-3.1	83	086	5.6	086	8.9	0

DAY 22

HOUR ENDNG	TEMP. 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	-4.0	86	086	3.4	089	8.3	0
0600	-3.5	*****	91	075	1.6	039	3.8	0
0900	-3.6	-4.6	93	083	2.0	074	3.2	0
1200	-5.0	-5.8	94	075	3.2	069	5.1	5
1500	-5.3	-6.3	93	043	2.7	055	5.1	2
1800	-5.8	-6.4	96	046	1.9	024	3.8	0
2100	-7.9	-8.6	95	054	1.6	065	3.2	0
2400	-8.8	-9.2	97	082	1.7	066	4.4	0

DAY 23

HOUR ENDNG	TEMP. 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	-10.2	93	082	1.6	097	3.2	0
0600	-10.1	-10.6	96	077	1.5	079	2.5	0
0900	-9.7	-10.4	95	090	1.4	072	3.8	0
1200	-7.9	-8.9	93	102	1.7	097	3.2	3
1500	-8.8	-9.8	93	107	1.8	112	3.2	1
1800	-7.6	-9.0	90	100	2.1	104	3.8	0
2100	-7.4	-9.1	88	100	2.7	100	3.8	0
2400	-8.7	-10.2	89	098	2.9	095	5.1	0

DAY 24

HOUR ENDNG	TEMP. 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	-12.8	92	100	3.0	097	4.4	0
0600	-12.6	-14.1	89	096	2.7	101	4.4	0
0900	-9.7	-11.6	86	093	2.6	081	4.4	0
1200	-7.5	-11.2	75	069	3.9	066	7.0	11
1500	-10.4	-14.5	72	080	3.2	085	5.7	4
1800	-11.2	-13.4	84	085	3.1	097	5.7	0
2100	-10.9	-12.9	85	066	4.6	055	7.0	0
2400	-11.3	-12.9	88	061	5.2	057	7.1	0

DAY 25

HOUR ENDNG	TEMP. 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	-13.4	89	069	5.5	069	7.6	0
0600	-12.4	-13.9	89	075	5.4	082	8.9	0
0900	-14.0	-15.6	89	060	4.2	085	8.9	0
1200	-12.8	-14.8	85	047	3.4	066	7.3	7
1500	-12.6	-14.5	86	056	3.7	069	6.3	2
1800	-13.4	-14.9	89	056	4.5	059	7.6	0
2100	-13.2	-14.9	87	062	4.9	060	7.6	0
2400	-11.0	-13.3	83	072	5.5	076	9.5	0

DAY 26

HOUR ENDNG	TEMP. 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	-13.7	80	067	5.8	059	8.3	0
0600	-9.5	-12.8	77	065	5.8	063	8.3	0
0900	-9.8	-13.1	77	076	5.4	080	7.6	0
1200	-8.5	-12.0	76	063	5.3	061	8.3	3
1500	-9.0	-11.5	76	063	4.6	067	6.3	1
1800	-8.5	-11.8	77	071	4.1	064	6.3	0
2100	-8.6	-11.6	79	067	3.9	075	6.3	0
2400	-9.3	-11.8	82	073	2.9	085	5.1	0

DAY 27

HOUR ENDNG	TEMP. 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	-10.3	88	068	2.7	071	5.7	0
0600	-7.6	-9.3	88	052	3.1	048	6.3	0
0900	-9.2	-10.8	88	073	1.6	066	4.4	0
1200	-5.6	-7.9	84	077	2.5	068	5.7	3
1500	-5.4	-7.7	84	069	3.2	064	5.1	1
1800	-6.3	-8.6	84	059	4.3	057	7.0	0
2100	-6.7	-9.0	84	054	4.7	058	6.3	0
2400	-6.9	-9.0	85	057	5.5	055	7.6	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1983

DAY 28									DAY 29									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	HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW	HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.7	-8.7	86	062	5.9	065	8.9	0	0300	1.3	-4.9	63	068	5.6	063	8.3	0	0300	-.3	-8.5	54	080	7.6	087	11.4	0
0600	-6.2	-8.2	86	065	5.9	070	8.9	0	0600	.9	-5.7	61	076	6.2	076	11.4	0	0600	-.9	-8.6	56	081	7.3	083	12.1	0
0900	-4.2	-6.2	86	070	6.7	076	10.8	0	0900	.5	-6.1	61	079	7.3	082	10.8	0	0900	-1.7	-8.4	60	077	4.8	079	8.3	0
1200	-3.3	-5.8	83	083	8.5	085	14.0	5	1200	1.5	-6.1	57	069	6.7	073	12.1	3	1200	-1.0	-7.5	61	054	3.8	069	7.6	1
1500	-1.9	-4.7	81	078	6.7	086	10.8	2	1500	.9	-6.2	59	079	7.3	095	13.3	1	1500	-1.2	-8.2	59	059	4.2	068	7.0	1
1800	-1.6	-4.8	79	086	7.7	090	12.7	0	1800	-.1	-7.1	59	071	6.0	083	10.2	0	1800	-1.9	-8.2	62	056	4.0	056	6.3	0
2100	-.8	-4.3	77	076	7.1	078	10.2	0	2100	-1.0	-7.8	60	065	5.2	079	9.5	0	2100	-2.1	-8.4	62	070	5.5	080	9.5	0
2400	.6	-4.0	71	076	5.6	084	8.3	0	2400	.4	-7.6	55	060	4.3	076	8.9	0	2400	-1.1	-7.9	60	069	4.8	075	7.6	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 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	-2.3	-13.4	-7.9	066	3.7	3.8	068	8.3	ENE	80	-9.1	0.0	630	1
2	-1.8	-9.5	-5.7	066	5.3	5.6	057	11.4	ENE	79	-7.8	0.0	435	2
3	-1.9	-10.6	-6.2	067	2.1	2.3	051	5.7	E	83	-9.4	0.0	1335	3
4	-3.3	-11.9	-7.6	065	3.9	4.0	080	8.3	ENE	73	-11.6	0.0	515	4
5	-5.1	-11.8	-8.5	059	1.4	1.6	032	4.4	E	80	-10.9	0.0	525	5
6	-7.7	-14.8	-11.3	073	2.5	2.6	074	10.2	ENE	86	-13.3	0.0	1080	6
7	-6.8	-11.6	-9.2	062	6.6	6.6	056	12.1	ENE	80	-12.6	0.0	410	7
8	-.2	-7.7	-4.0	062	4.8	5.0	061	8.9	ENE	69	-8.9	0.0	360	8
9	-1.0	-8.0	-4.5	072	5.8	5.9	078	12.1	ENE	54	-12.2	0.0	715	9
10	-4.1	-8.4	-6.3	073	5.1	5.2	084	12.1	ENE	55	-13.7	0.0	490	10
11	-2.5	-9.7	-6.1	073	3.3	3.4	076	8.9	ENE	59	-13.4	0.0	440	11
12	-6.8	-12.3	-9.6	072	1.5	1.7	056	6.3	E	72	-13.9	0.0	235	12
13	-7.1	-15.6	-11.4	078	2.9	3.0	076	7.6	E	82	-13.7	0.0	880	13
14	-9.2	-15.1	-12.2	084	3.3	3.3	088	8.3	E	83	-14.1	0.0	830	14
15	-6.6	-16.2	-11.4	086	4.9	5.0	068	9.5	E	77	-13.9	0.0	325	15
16	-8.6	-15.1	-11.9	073	2.8	2.8	080	10.2	ENE	76	-14.4	.6	450	16
17	-7.8	-15.9	-11.9	071	3.1	3.2	066	10.8	ENE	88	-14.2	0.0	280	17
18	-10.2	-18.1	-14.2	056	1.7	1.9	084	4.4	E	88	-16.3	0.0	495	18
19	-10.1	-18.0	-14.1	046	1.0	1.3	329	3.8	ENE	91	-16.1	0.0	415	19
20	-6.7	-18.5	-12.6	072	6.1	6.2	075	12.7	ENE	87	-13.2	0.0	135	20
21	.9	-6.2	-2.7	084	7.0	7.0	091	14.6	E	82	-4.4	0.0	100	21
22	-.8	-9.1	-5.0	069	2.2	2.3	089	8.3	E	92	-5.9	0.0	230	22
23	-6.4	-10.6	-8.5	096	2.0	2.0	095	5.1	E	92	-9.5	0.0	140	23
24	-7.5	-14.5	-11.0	078	3.4	3.6	066	7.0	E	85	-13.1	0.0	420	24
25	-11.0	-14.5	-12.8	063	4.6	4.7	076	9.5	ENE	87	-14.4	0.0	360	25
26	-7.5	-11.7	-9.6	068	4.7	4.8	059	8.3	ENE	78	-12.3	0.0	195	26
27	-5.1	-9.6	-7.4	062	3.4	3.5	055	7.6	ENE	86	-9.2	0.0	115	27
28	.8	-6.8	-3.0	075	6.7	6.8	085	14.0	ENE	82	-6.0	0.0	180	28
29	1.9	-1.6	.1	072	6.0	6.2	095	13.3	ENE	61	-6.5	0.0	110	29
30	.5	-2.5	-1.0	070	5.1	5.3	083	12.1	ENE	59	-8.2	0.0	100	30
MONTH	1.8	-18.5	-8.2	071	3.9	4.0	094	14.6	ENE	78	-11.4	.6	13930	

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

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

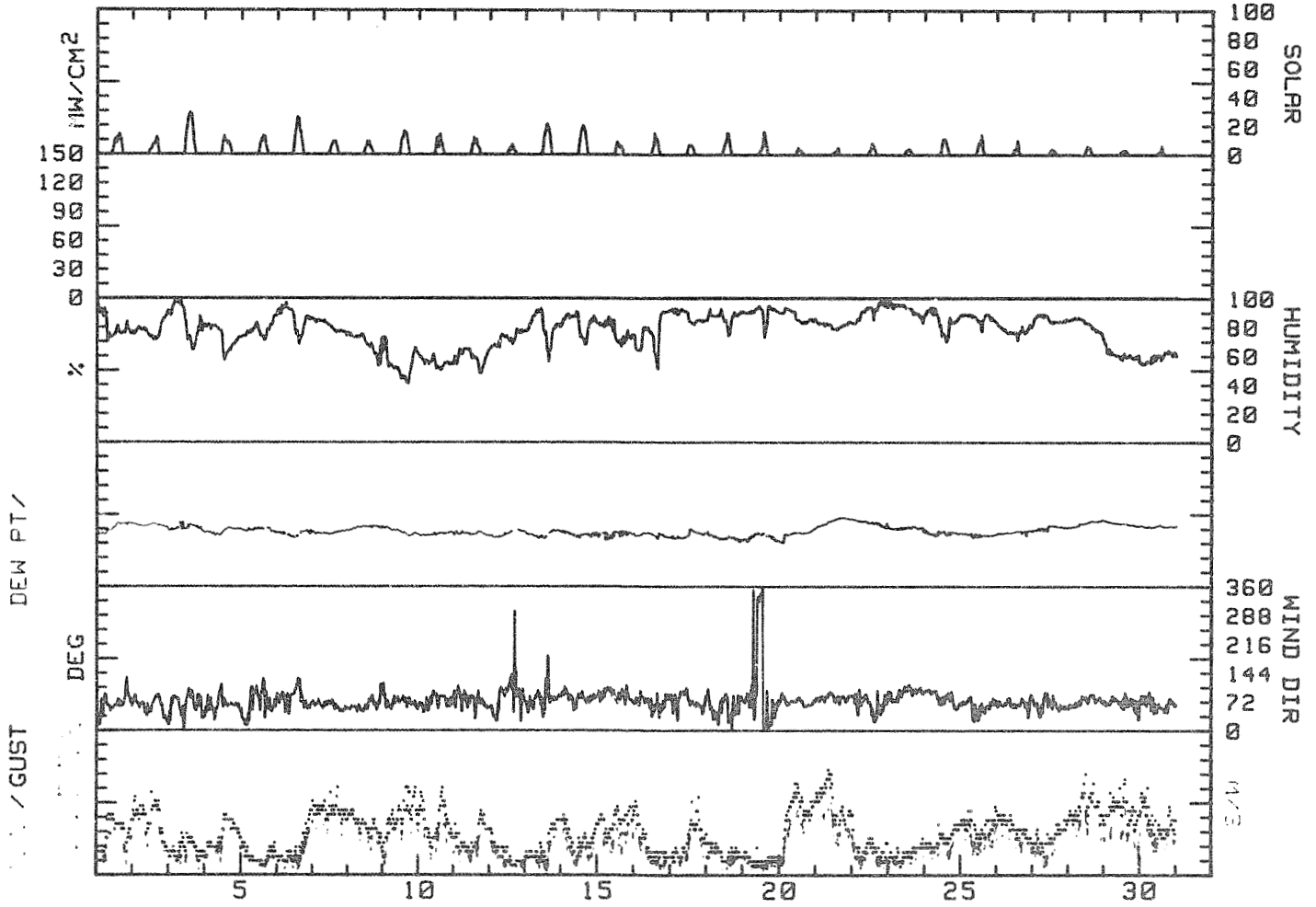
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

November, 1983



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 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	.21	.35	0.00	0.00	0.00	0.00	0.00	.56
NNE	.14	3.96	.56	0.00	0.00	0.00	0.00	4.65
NE	.28	5.14	6.74	1.11	0.00	0.00	0.00	13.26
ENE	.76	9.03	23.06	12.92	0.00	0.00	0.00	45.76
E	.90	13.40	9.31	6.11	.21	0.00	0.00	29.93
ESE	.42	3.13	.90	0.00	0.00	0.00	0.00	4.44
SE	.35	.28	0.00	0.00	0.00	0.00	0.00	.63
SSE	.14	0.00	0.00	0.00	0.00	0.00	0.00	.14
S	.07	0.00	0.00	0.00	0.00	0.00	0.00	.07
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	.07	0.00	0.00	0.00	0.00	0.00	0.00	.07
NW	.07	0.00	0.00	0.00	0.00	0.00	0.00	.07
NNW	0.00	.42	0.00	0.00	0.00	0.00	0.00	.42
CALM								5.00
TOTAL	3.40	35.69	40.56	20.14	.21	0.00	0.00	100.00

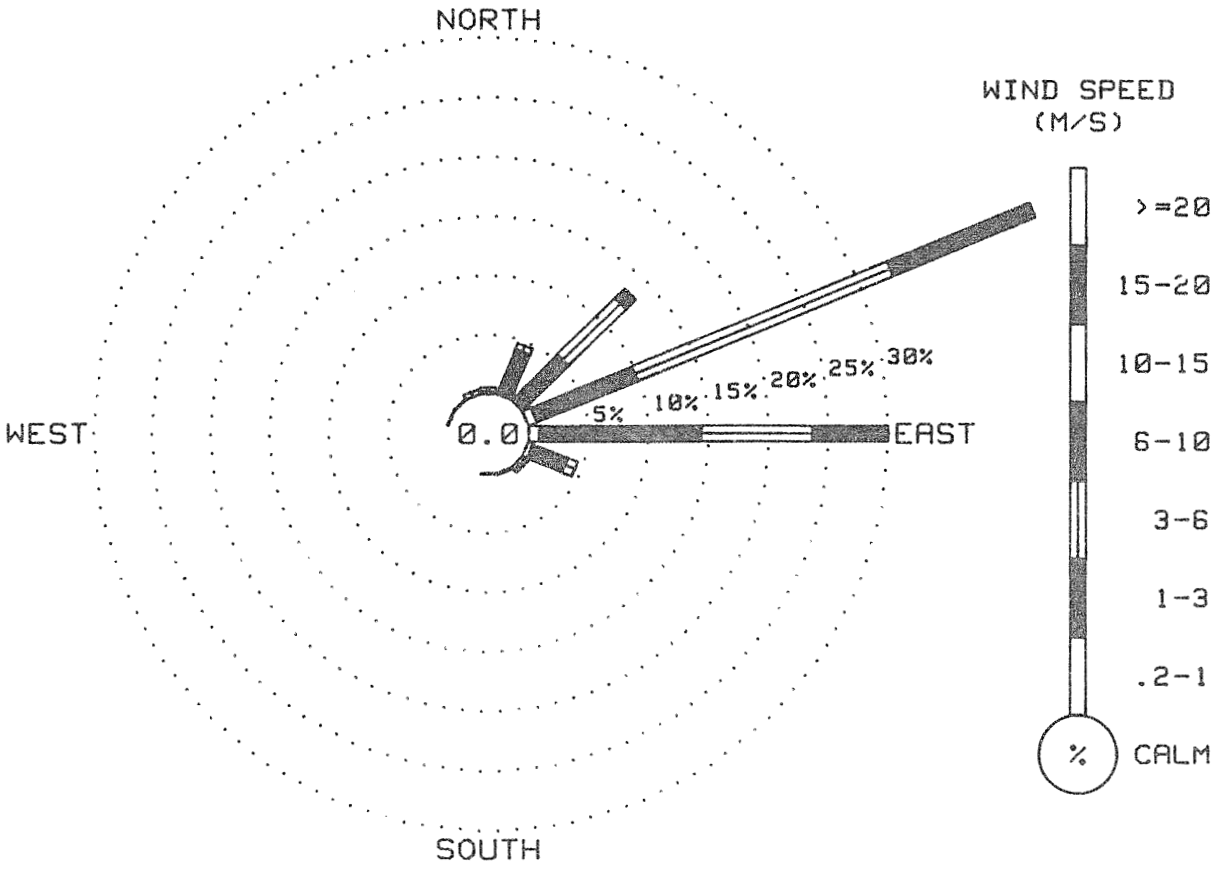
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1440 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
1440 WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 30 MINUTE DATA.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

November, 1983



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1983

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	0	0	0	0	0	0	0	0	0	1	4	10	18	11	14	11	4	0	0	0	0	0	0	0	3
2	0	0	0	0	0	0	0	0	0	0	3	4	7	7	10	11	3	0	0	0	0	0	0	0	2
3	0	0	0	0	0	0	0	0	0	1	12	22	28	29	25	13	5	1	0	0	0	0	0	0	6
4	0	0	0	0	0	0	0	0	0	0	5	11	10	9	8	7	3	0	0	0	0	0	0	0	2
5	0	0	0	0	0	0	0	0	0	0	2	8	10	12	13	7	3	0	0	0	0	0	0	0	2
6	0	0	0	0	0	0	0	0	0	1	9	18	25	25	16	11	4	0	0	0	0	0	0	0	5
7	0	0	0	0	0	0	0	0	0	0	2	6	8	9	9	6	2	0	0	0	0	0	0	0	2
8	0	0	0	0	0	0	0	0	0	0	3	6	9	9	5	4	2	0	0	0	0	0	0	0	2
9	0	0	0	0	0	0	0	0	0	0	4	11	14	16	15	10	3	0	0	0	0	0	0	0	3
10	0	0	0	0	0	0	0	0	0	0	4	12	5	14	9	5	2	0	0	0	0	0	0	0	2
11	0	0	0	0	0	0	0	0	0	0	2	7	11	9	9	5	2	0	0	0	0	0	0	0	2
12	0	0	0	0	0	0	0	0	0	0	1	3	4	6	6	3	2	0	0	0	0	0	0	0	1
13	0	0	0	0	0	0	0	0	0	0	4	13	18	21	18	12	3	0	0	0	0	0	0	0	4
14	0	0	0	0	0	0	0	0	0	0	4	13	18	20	17	10	2	0	0	0	0	0	0	0	3
15	0	0	0	0	0	0	0	0	0	0	2	7	8	6	6	4	1	0	0	0	0	0	0	0	1
16	0	0	0	0	0	0	0	0	0	0	1	5	11	13	11	5	1	0	0	0	0	0	0	0	2
17	0	0	0	0	0	0	0	0	0	1	4	7	7	6	4	1	0	0	0	0	0	0	0	0	1
18	0	0	0	0	0	0	0	0	0	1	5	8	13	13	8	2	0	0	0	0	0	0	0	0	2
19	0	0	0	0	0	0	0	0	0	1	3	5	11	15	8	1	0	0	0	0	0	0	0	0	2
20	0	0	0	0	0	0	0	0	0	0	2	4	3	3	2	0	0	0	0	0	0	0	0	0	1
21	0	0	0	0	0	0	0	0	0	0	1	2	2	3	3	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	1	2	4	8	6	3	0	0	0	0	0	0	0	0	0	1
23	0	0	0	0	0	0	0	0	0	0	2	3	4	4	2	0	0	0	0	0	0	0	0	0	1
24	0	0	0	0	0	0	0	0	0	1	6	11	11	9	5	1	0	0	0	0	0	0	0	0	2
25	0	0	0	0	0	0	0	0	0	1	5	8	9	12	3	1	0	0	0	0	0	0	0	0	2
26	0	0	0	0	0	0	0	0	0	0	2	4	5	9	2	0	0	0	0	0	0	0	0	0	1
27	0	0	0	0	0	0	0	0	0	0	2	3	3	3	2	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	1	4	6	5	3	0	0	0	0	0	0	0	0	0	1
29	0	0	0	0	0	0	0	0	0	0	2	3	3	3	2	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	1	1	3	5	2	0	0	0	0	0	0	0	0	0	1

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY LONGWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1983

LONGWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	30	24	27	25	26	27	29	29	27	24	25	26	27	29	28	24	28	28	29	31	30	31	30	29	27
2	27	26	24	25	25	26	25	27	28	28	29	29	30	30	30	27	25	23	23	22	21	22	22	20	25
3	21	22	22	23	23	23	25	25	24	26	23	23	24	24	24	23	22	22	23	27	22	21	20	21	23
4	22	23	21	22	21	21	22	22	23	24	27	27	26	26	27	25	24	24	26	25	28	26	24	24	24
5	24	29	24	26	29	29	28	27	29	30	29	28	26	27	25	26	23	26	24	21	22	23	22	22	26
6	21	22	21	22	22	23	23	23	23	24	25	24	24	24	26	23	22	21	21	21	21	22	23	23	22
7	22	22	24	25	25	24	26	25	25	23	23	24	26	25	25	25	25	24	25	23	21	23	25	24	24
8	23	25	25	25	26	26	26	25	25	23	22	23	23	24	26	27	27	27	26	27	28	29	29	28	25
9	27	27	26	26	24	25	27	28	28	28	25	23	22	22	22	21	21	22	21	21	21	20	22	22	24
10	22	23	21	22	25	24	24	26	27	27	26	23	23	26	25	23	23	22	23	26	27	27	23	23	24
11	25	26	27	25	26	25	26	26	24	20	22	22	22	22	23	25	26	25	22	22	21	21	20	21	23
12	21	21	20	22	22	27	30	30	29	30	31	31	31	31	31	34	32	30	28	27	24	29	28	25	27
13	21	20	21	21	20	20	21	21	22	22	24	22	22	23	21	21	21	21	21	22	22	22	22	22	21
14	22	22	22	22	21	22	20	20	20	20	22	22	22	22	22	21	21	21	21	21	21	21	21	21	21
15	22	21	21	22	23	22	23	24	23	23	24	24	22	24	25	25	25	26	26	26	25	25	25	25	23
16	26	28	25	28	29	28	27	28	28	26	24	23	22	21	21	21	20	20	20	20	20	20	20	20	23
17	21	21	23	22	23	24	25	25	26	26	25	26	26	25	24	24	22	21	20	20	21	25	27	28	24
18	25	21	21	19	19	19	18	18	20	22	22	22	22	22	18	19	17	20	19	20	20	21	22	22	20
19	23	23	24	26	28	31	31	27	28	35	35	30	36	25	24	25	22	23	23	24	24	24	24	23	26
20	25	24	25	26	26	25	25	25	27	27	25	26	28	25	27	28	29	27	28	28	27	29	29	29	26
21	29	29	29	29	29	28	29	29	30	29	31	31	30	31	31	31	30	30	30	28	30	28	30	31	29
22	31	31	29	25	30	30	30	30	30	27	28	26	25	23	23	26	23	23	22	22	26	25	25	25	26
23	27	25	23	25	26	27	29	29	29	30	29	29	30	30	28	29	28	27	26	26	29	28	27	27	27
24	26	23	23	22	22	23	21	22	22	21	21	22	22	22	20	21	20	22	20	20	20	19	20	21	21
25	20	21	20	22	21	21	21	19	19	22	21	20	20	20	19	20	21	22	23	24	22	22	24	24	21
26	25	25	22	22	23	25	26	25	23	25	24	22	22	23	21	22	22	23	23	23	22	24	23	24	23
27	23	21	23	25	23	28	25	29	28	29	29	29	26	28	26	25	27	27	25	23	23	25	26	26	26
28	27	29	29	28	29	29	28	29	28	29	29	26	24	25	25	25	26	25	26	27	28	27	28	29	27
29	28	28	28	29	28	28	28	27	26	26	25	26	29	28	28	27	26	27	26	26	25	23	26	28	27
30	28	25	25	28	26	29	26	28	28	28	29	30	30	28	23	24	24	27	29	28	27	27	28	26	27

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

OBSERVATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1983

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	1440	100
WIND SPEED	1440	100
WIND DIRECTION	1440	100
PEAK GUST	1440	100
RELATIVE HUMIDITY	1390	97
PRECIPITATION	1440	100
SOLAR RADIATION	1440	100
DEW POINT	1390	97
LONGWAVE RADIATION	1439	100

THERE ARE 1440 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER. THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

1.	RH	-4 RH Points	11/1 - 11/16
		+4	11/16 - 11/30
2.	Solar	-1 mW/CM^2	

Additional comments on this month's data:

1. Precipitation data are reported for November since the tipping bucket gage was heated. The timing and quantity of precipitation are correct.

No precipitation data for December

(See INTERPRETATION OF DATA).

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 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	-3.1	-8.1	68	058	4.1	064	7.6	0
0600	-3.1	-8.1	68	067	3.0	085	7.6	0
0900	-1.5	-6.8	67	076	3.9	084	8.3	0
1200	.3	-5.7	64	086	5.2	082	8.3	3
1500	-1.0	-6.1	68	080	4.8	094	7.6	1
1800	-1.4	-4.7	78	054	3.9	064	5.7	0
2100	-1.2	-3.7	83	063	4.0	077	7.0	0
2400	-1.8	-3.2	90	064	3.9	067	6.3	0

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.3	-4.2	94	058	2.6	051	4.4	0
0600	-4.5	-4.8	98	066	1.6	056	3.2	0
0900	-4.2	-4.8	96	045	.9	030	2.5	0
1200	-5.0	-5.6	96	356	.8	025	1.9	2
1500	-4.8	*****	93	097	.4	109	1.9	2
1800	-5.9	-6.3	97	304	1.6	355	2.5	0
2100	-5.5	*****	95	161	.2	276	1.9	0
2400	-6.3	-7.4	92	343	.1	129	2.5	0

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.5	*****	98	091	1.0	301	2.5	0
0600	-8.2	-8.6	97	086	.8	129	1.9	0
0900	-6.8	-7.2	97	065	1.0	065	1.9	0
1200	-8.0	-9.0	93	083	1.3	090	2.5	6
1500	-8.8	-9.9	92	110	1.9	117	3.2	1
1800	-10.0	-10.8	94	094	1.3	108	3.8	0
2100	-8.9	-10.0	92	080	1.6	093	2.5	0
2400	-8.4	-9.4	93	084	1.3	095	3.2	0

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.2	-8.9	95	098	1.4	087	3.2	0
0600	-7.8	-8.5	95	087	3.5	084	5.7	0
0900	-7.5	-8.2	95	071	3.4	070	5.7	0
1200	-7.4	-8.2	94	071	3.9	042	7.6	2
1500	-7.2	-8.4	91	071	5.2	079	9.5	1
1800	-7.2	-7.8	96	065	4.3	065	7.0	0
2100	-7.1	-7.7	96	074	3.0	073	6.3	0
2400	-7.0	-7.8	94	075	1.5	069	3.2	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	-7.8	-8.5	95	094	1.3	082	3.8	0
0600	-7.8	-8.6	94	069	1.2	066	3.2	0
0900	-5.1	-5.7	96	073	1.4	055	4.4	0
1200	-4.7	-5.3	96	059	2.3	042	4.4	2
1500	-5.3	-5.9	96	067	2.4	076	4.4	0
1800	-4.2	-5.0	94	070	1.3	059	3.2	0
2100	-3.9	-4.9	93	052	1.7	068	3.2	0
2400	-4.2	-4.8	96	070	1.3	080	2.5	0

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.8	-5.4	96	086	.6	065	3.5	0
0600	-5.0	-5.3	98	088	.4	026	1.9	0
0900	-5.3	-5.6	98	096	1.1	110	1.9	0
1200	-6.1	-6.2	99	095	.8	115	3.5	3
1500	-5.2	-5.9	95	097	1.2	104	3.2	1
1800	-5.1	-5.9	94	087	2.3	093	6.3	0
2100	-5.8	-6.5	95	092	4.9	089	7.6	0
2400	-5.7	-6.5	94	082	5.6	078	8.3	0

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.6	-6.6	93	081	6.4	078	9.5	0
0600	-5.1	-6.1	93	079	6.5	082	9.5	0
0900	-5.6	-6.4	94	076	6.0	079	9.5	0
1200	-5.1	-6.9	87	072	5.2	067	7.6	7
1500	-5.8	-7.3	89	083	5.5	083	7.6	1
1800	-7.0	-8.1	92	083	4.5	081	6.3	0
2100	-7.6	-8.4	94	073	4.0	077	7.0	0
2400	-8.4	-9.1	95	074	4.5	075	7.8	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	-9.2	-9.9	95	077	4.3	072	7.0	0
0600	-10.9	-11.3	97	062	4.0	075	7.0	0
0900	-11.8	-12.6	94	063	4.7	064	7.6	0
1200	-11.0	-13.0	85	078	5.1	074	7.6	10
1500	-11.8	-13.7	86	076	4.7	084	8.3	1
1800	-13.7	-15.3	88	078	4.3	070	6.3	0
2100	-14.1	-15.5	89	081	5.8	092	10.8	0
2400	-13.5	-16.2	80	088	6.5	092	9.5	0

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-16.8	-19.3	81	088	6.0	085	10.5	0
0600	-18.1	-20.3	79	082	4.9	060	8.9	0
0900	-18.1	-21.6	74	085	6.2	082	8.9	0
1200	-18.4	-23.2	68	078	7.2	078	10.8	3
1500	-18.7	-23.6	65	081	7.4	077	11.4	1
1800	-19.3	-24.2	65	084	6.4	084	9.5	0
2100	-19.9	-24.8	65	083	7.5	082	10.8	0
2400	-19.2	-24.3	64	077	6.5	086	9.5	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1983

DAY 10

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-19.2	-22.8	67	067	7.2	072	10.2	0
0600	-18.0	-22.4	68	069	8.3	069	12.1	0
0900	-17.7	-22.1	68	072	8.8	074	11.4	0
1200	-16.2	-19.1	78	069	7.4	071	10.8	1
1500	-16.1	-20.3	70	073	7.5	075	10.8	0
1800	-15.3	-18.6	76	065	7.7	061	10.2	0
2100	-15.4	-19.8	69	067	8.0	065	11.4	0
2400	-13.8	-18.4	68	067	7.5	065	10.8	0

DAY 11

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.6	-19.2	68	073	7.3	077	10.8	0
0600	-15.1	-18.4	76	075	7.9	072	10.8	0
0900	-14.3	-17.1	79	070	7.0	070	10.2	0
1200	-12.4	-15.4	78	068	7.0	071	9.5	2
1500	-12.1	-15.0	79	067	6.9	072	9.5	0
1800	-11.7	-13.7	85	071	6.5	075	9.5	0
2100	-10.7	-13.3	81	095	4.9	094	7.6	0
2400	-14.2	-16.0	86	093	3.7	092	7.6	0

DAY 12

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.4	-12.9	82	089	2.3	098	5.7	0
0600	-11.1	-13.6	82	076	5.3	078	7.6	0
0900	-10.9	-14.0	78	088	5.9	092	9.5	0
1200	-10.9	-14.6	74	082	6.1	079	10.2	3
1500	-11.7	-15.5	73	087	6.3	083	8.9	0
1800	-12.0	-15.8	73	079	5.7	080	8.3	0
2100	-13.4	-16.9	75	083	5.6	086	9.5	0
2400	-13.4	-16.4	78	082	5.9	080	10.8	0

DAY 13

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.8	-15.5	80	072	5.8	072	8.9	0
0600	-13.3	-15.9	81	066	5.9	068	8.9	0
0900	-13.2	-15.8	81	066	6.8	062	10.2	0
1200	-13.4	-15.5	84	065	7.1	062	10.2	1
1500	-13.2	-15.1	86	068	7.2	065	10.8	0
1800	-13.5	-15.1	88	075	6.5	075	10.2	0
2100	-13.4	-15.3	86	071	4.7	072	8.3	0
2400	-14.7	-16.3	88	061	2.5	058	4.4	0

DAY 14

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-16.8	-17.8	92	077	1.7	082	3.2	0
0600	-17.9	-19.2	90	072	1.3	067	2.5	0
0900	-18.2	-19.3	91	100	1.0	109	1.9	0
1200	-17.9	-19.4	88	088	1.3	067	3.2	7
1500	-19.1	-20.5	89	084	1.5	101	3.2	1
1800	-20.4	-21.9	88	064	1.8	069	3.2	0
2100	-21.3	-22.8	88	066	1.8	063	3.2	0
2400	-22.0	-23.6	87	072	1.8	058	3.2	0

DAY 15

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-23.2	-24.9	86	069	2.1	081	4.4	0
0600	-23.8	-25.4	87	081	1.6	076	3.2	0
0900	-19.4	-21.0	87	070	2.8	070	6.3	0
1200	-18.1	-20.4	82	063	5.3	069	7.6	9
1500	-17.7	-20.2	81	067	6.4	067	10.2	1
1800	-17.8	-20.4	80	069	6.4	069	9.5	0
2100	-18.1	-20.4	82	066	5.6	065	8.3	0
2400	-18.7	-20.7	84	058	5.0	061	7.6	0

DAY 16

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-20.2	-22.5	82	045	4.0	056	6.3	0
0600	-21.0	-23.4	81	027	3.3	029	4.4	0
0900	-20.3	-22.6	82	021	2.8	026	3.8	0
1200	-21.6	-24.3	79	030	2.4	033	3.8	6
1500	-19.1	-21.3	83	066	2.2	075	7.0	0
1800	-19.6	-21.9	82	086	3.8	088	5.7	0
2100	-19.8	-22.1	82	089	3.8	093	5.7	0
2400	-19.6	-21.8	83	090	3.7	074	5.1	0

DAY 17

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-18.6	-20.6	84	081	3.4	083	5.1	0
0600	-16.2	-17.7	88	075	3.7	069	6.3	0
0900	-17.9	-19.3	89	110	2.4	119	5.7	0
1200	-17.6	-19.0	89	115	2.4	116	4.4	3
1500	-16.7	-18.1	89	111	1.7	120	3.2	0
1800	-16.1	-17.4	90	108	2.2	104	3.8	0
2100	-16.4	-17.8	89	110	2.3	118	3.2	0
2400	-15.0	-16.6	88	115	1.8	114	4.4	0

DAY 18

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.6	-16.2	88	107	1.6	111	2.5	0
0600	-14.9	-16.3	89	102	1.5	107	3.2	0
0900	-14.6	-15.4	94	106	1.7	107	3.2	0
1200	-15.4	-16.2	91	093	1.8	092	3.2	3
1500	-14.1	-15.3	91	089	2.4	078	5.7	1
1800	-14.3	-15.3	93	073	2.5	069	7.0	0
2100	-10.6	-12.2	88	068	5.9	091	10.2	0
2400	-9.3	-11.3	86	083	7.2	085	10.8	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

1-HR HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1983

DAY 19

HOUR MDNG	TEMP. 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	-11.7	84	071	7.3	070	9.5	0
0600	-9.2	-11.7	82	078	6.9	081	10.8	0
0900	-8.8	-12.7	73	077	6.4	075	8.9	0
1200	-10.4	-13.6	77	079	5.5	081	8.9	2
1500	-11.2	-14.3	78	075	6.2	076	9.5	0
1800	-11.1	-13.9	80	083	4.2	079	8.3	0
2100	-11.2	-14.3	78	088	4.1	086	7.0	0
2400	-9.3	-12.7	74	085	3.3	073	5.7	0

DAY 20

HOUR MDNG	TEMP. 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	-12.6	75	080	3.3	078	6.3	0
0600	-9.3	-12.1	80	083	2.5	075	5.7	0
0900	-9.3	-12.1	80	099	2.1	084	5.1	0
1200	-7.7	-10.9	78	097	1.8	091	5.1	2
1500	-6.5	-9.9	77	087	2.6	093	5.1	0
1800	-6.6	-9.3	81	069	3.5	058	6.3	0
2100	-6.7	-8.8	85	075	3.5	071	6.3	0
2400	-7.0	-7.4	97	077	3.6	081	5.7	0

DAY 21

HOUR MDNG	TEMP. 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	-7.7	96	074	4.5	088	7.6	0
0600	-6.7	-7.4	95	056	4.3	057	6.3	0
0900	-6.6	-7.3	95	063	4.6	060	7.0	0
1200	-6.0	-7.0	93	060	4.4	070	6.3	1
1500	-5.8	-7.8	86	056	4.0	059	5.7	1
1800	-8.7	-10.4	88	055	3.4	060	5.1	0
2100	-10.3	-10.8	96	068	1.8	046	3.8	0
2400	-12.4	-13.1	95	065	2.0	089	3.2	0

DAY 22

HOUR MDNG	TEMP. 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	-13.9	96	077	2.0	070	3.2	0
0600	-13.7	-14.4	95	071	1.8	070	2.5	0
0900	-15.3	-15.9	95	086	1.7	078	3.2	0
1200	-13.7	-14.5	94	080	2.0	060	3.2	7
1500	-15.4	-16.3	93	084	1.6	085	2.5	1
1800	-14.9	-15.5	95	081	2.1	090	3.8	0
2100	-15.1	-15.7	95	090	1.8	088	3.2	0
2400	-15.1	-15.9	94	078	1.7	091	3.2	0

DAY 23

HOUR MDNG	TEMP. 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	-15.3	95	076	1.7	085	3.2	0
0600	-14.8	-15.6	94	083	2.2	092	3.8	0
0900	-15.2	-16.0	94	065	1.9	084	3.8	0
1200	-15.6	-16.5	93	060	1.6	087	3.8	7
1500	-15.1	-16.3	91	065	1.7	084	3.8	1
1800	-14.6	-15.4	94	079	2.0	087	4.4	0
2100	-15.3	-15.9	95	085	2.2	092	4.4	0
2400	-14.6	-15.4	94	068	2.1	065	3.2	0

DAY 24

HOUR MDNG	TEMP. 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	-14.8	93	088	2.7	091	3.8	0
0600	-13.9	-14.7	94	085	2.3	090	3.8	0
0900	-17.7	-18.7	92	071	1.7	102	3.8	0
1200	-15.0	-16.4	89	077	1.8	075	3.8	6
1500	-11.7	-14.0	83	095	1.4	105	4.4	1
1800	-10.9	-12.9	85	101	3.0	099	7.6	0
2100	-10.0	-12.1	85	121	4.0	115	8.3	0
2400	-13.0	-14.3	90	116	3.9	111	7.0	0

DAY 25

HOUR MDNG	TEMP. 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	-11.9	88	101	3.0	109	5.1	0
0600	-11.3	-12.8	89	105	2.2	105	4.4	0
0900	-7.3	-11.3	73	095	2.9	071	5.7	0
1200	-8.3	-12.1	74	092	3.3	085	5.1	5
1500	-8.2	-12.2	73	096	3.7	095	5.7	1
1800	-7.8	-11.9	72	091	3.6	070	5.7	0
2100	-9.3	-13.7	70	082	3.6	103	4.4	0
2400	-9.6	-13.9	71	071	3.5	079	5.1	0

DAY 26

HOUR MDNG	TEMP. 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	-13.8	71	080	3.0	074	5.1	0
0600	-10.8	-14.7	73	067	2.9	080	5.7	0
0900	-10.9	-14.8	73	076	3.1	077	5.7	0
1200	-9.2	-14.2	67	073	3.4	069	6.3	3
1500	-8.7	-14.3	64	065	3.0	068	6.3	1
1800	-8.3	-13.9	64	058	2.6	047	4.4	0
2100	-11.7	-15.4	74	088	1.8	093	3.8	0
2400	-10.7	-15.3	69	088	1.8	095	4.4	0

DAY 27

HOUR MDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.0	-17.3	76	068	3.6	095	5.1	0
0600	-13.8	-16.6	78	094	2.3	103	4.4	0
0900	-15.1	*****	82	094	1.8	097	3.8	0
1200	-16.0	-18.6	79	092	2.0	095	3.2	5
1500	-15.9	-19.1	76	095	2.1	092	3.8	1
1800	-16.1	-19.0	78	074	2.8	084	4.4	0
2100	-16.8	-19.4	80	076	2.7	088	3.8	0
2400	-17.7	-20.3	80	066	2.8	073	4.4	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 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	-17.1	-19.6	81	078	3.0	076	6.3	0
0600	-18.9	-20.9	84	068	2.3	071	3.8	0
0900	-19.4	-21.2	86	077	2.3	077	3.8	0
1200	-21.7	-23.9	82	076	2.4	089	3.8	5
1500	-18.2	-20.8	80	087	2.4	083	3.8	1
1800	-18.5	-20.8	82	071	2.6	079	4.4	0
2100	-21.2	-23.2	84	081	2.7	087	4.4	0
2400	-20.7	-22.8	83	073	2.4	077	3.8	0

DAY 29

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-21.1	-23.0	85	068	2.4	072	3.8	0
0600	-20.8	-22.7	85	072	2.6	092	4.4	0
0900	-21.9	-23.6	86	069	2.2	077	4.4	0
1200	-20.2	-22.5	82	073	3.2	078	3.8	6
1500	-20.6	-22.7	83	085	1.5	087	2.5	1
1800	-20.7	-22.4	86	078	2.0	077	3.2	0
2100	-21.3	-23.0	86	077	2.1	084	3.8	0
2400	-22.7	-24.4	86	074	2.5	083	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	-22.0	-23.7	86	079	2.5	067	4.4	0
0600	-22.7	-24.4	86	065	2.1	051	3.2	0
0900	-23.4	-25.2	85	078	2.0	064	3.8	0
1200	-23.6	-25.5	84	078	1.9	095	3.2	6
1500	-26.1	-28.5	80	092	1.9	081	3.2	1
1800	-24.8	-26.7	84	076	1.3	067	2.5	0
2100	-23.7	-25.5	85	088	1.4	101	3.2	0
2400	-22.5	-24.3	85	099	1.6	094	3.2	0

DAY 31

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-21.1	-22.7	87	105	1.4	112	3.2	0
0600	-17.8	-19.3	88	100	1.5	104	3.2	0
0900	-17.3	-18.7	89	104	2.0	104	3.8	0
1200	-16.8	-17.4	89	108	2.3	105	5.7	1
1500	-16.4	-17.8	89	101	2.1	097	3.8	0
1800	-16.3	-17.7	89	090	1.6	095	3.2	0
2100	-12.6	-14.6	85	104	2.4	110	6.3	0
2400	-11.4	-14.6	77	074	5.0	068	7.0	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 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	.3	-4.2	-2.0	070	4.0	4.2	084	8.3	ENE	72	-6.1	0.0	105	1
2	-2.4	-6.3	-4.4	038	.7	1.3	051	4.4	E	95	-5.4	0.0	175	2
3	-6.1	-10.6	-8.4	085	1.0	1.3	108	3.8	E	94	-9.3	****	205	3
4	-7.0	-8.6	-7.8	074	3.2	3.3	079	9.5	ENE	94	-8.3	****	60	4
5	-3.9	-7.9	-5.9	068	1.6	1.7	055	4.4	E	95	-6.1	****	65	5
6	-4.2	-6.4	-5.3	088	2.1	2.2	078	8.3	E	96	-6.0	****	100	6
7	-5.1	-8.7	-6.9	078	5.3	5.3	078	9.5	ENE	92	-7.3	****	250	7
8	-8.6	-14.5	-11.6	076	5.0	5.1	092	10.8	ENE	90	-13.1	****	295	8
9	-13.6	-20.2	-16.9	082	6.5	6.5	077	11.4	E	70	-22.3	****	170	9
10	-13.7	-19.2	-16.5	069	7.7	7.7	069	12.1	ENE	70	-20.9	****	60	10
11	-10.3	-15.2	-13.8	075	6.3	6.4	077	10.8	ENE	78	-15.8	****	95	11
12	-10.4	-15.2	-12.8	083	5.4	5.4	080	10.8	E	78	-15.3	****	90	12
13	-12.6	-14.7	-13.7	068	5.8	5.8	065	10.8	ENE	84	-15.6	****	45	13
14	-15.3	-22.7	-19.0	076	1.5	1.6	082	3.2	E	89	-20.4	****	220	14
15	-17.2	-24.3	-20.8	066	4.4	4.4	067	10.2	ENE	84	-21.7	****	255	15
16	-18.4	-21.9	-20.2	058	2.9	3.3	075	7.0	NNE	82	-22.5	****	105	16
17	-15.0	-19.7	-17.4	100	2.4	2.5	069	6.3	ESE	88	-18.5	****	80	17
18	-9.2	-16.7	-13.0	088	3.0	3.1	083	10.8	E	90	-14.9	****	125	18
19	-8.0	-14.0	-11.0	078	5.5	5.5	081	10.8	ENE	79	-13.1	****	70	19
20	-6.3	-10.2	-8.3	081	2.8	2.9	078	6.3	ENE	81	-10.7	****	65	20
21	-5.5	-13.0	-9.3	062	3.6	3.7	088	7.6	ENE	93	-8.6	****	70	21
22	-12.6	-16.9	-14.8	080	1.8	1.8	090	3.8	E	94	-15.2	****	255	22
23	-13.5	-17.3	-15.4	073	1.9	2.0	087	4.4	ENE	93	-16.1	****	285	23
24	-1.7	-17.7	-9.7	099	2.5	2.6	115	8.3	E	89	-14.0	****	270	24
25	-3.6	-13.9	-8.8	090	3.1	3.2	071	5.7	E	77	-12.9	****	210	25
26	-6.2	-13.4	-9.8	073	2.7	2.8	069	6.3	ENE	70	-14.4	****	175	26
27	-7.9	-18.1	-13.0	083	2.3	2.4	098	5.1	E	78	-18.4	****	155	27
28	-17.1	-22.7	-19.9	076	2.5	2.6	076	6.3	ENE	82	-21.5	****	285	28
29	-20.0	-23.7	-21.4	074	2.2	2.2	092	4.4	E	84	-23.2	****	265	29
30	-21.4	-26.7	-24.1	081	1.8	1.9	067	4.4	E	84	-25.8	****	255	30
31	-10.9	-23.2	-16.6	095	2.2	2.3	068	7.0	ESE	87	-18.4	****	35	31
MONTH	.3	-26.7	-13.9	077	3.3	3.5	069	12.1	ENE	85	-14.9	0.0	6755	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 10.6
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 10.6
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 10.6
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 10.6

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.

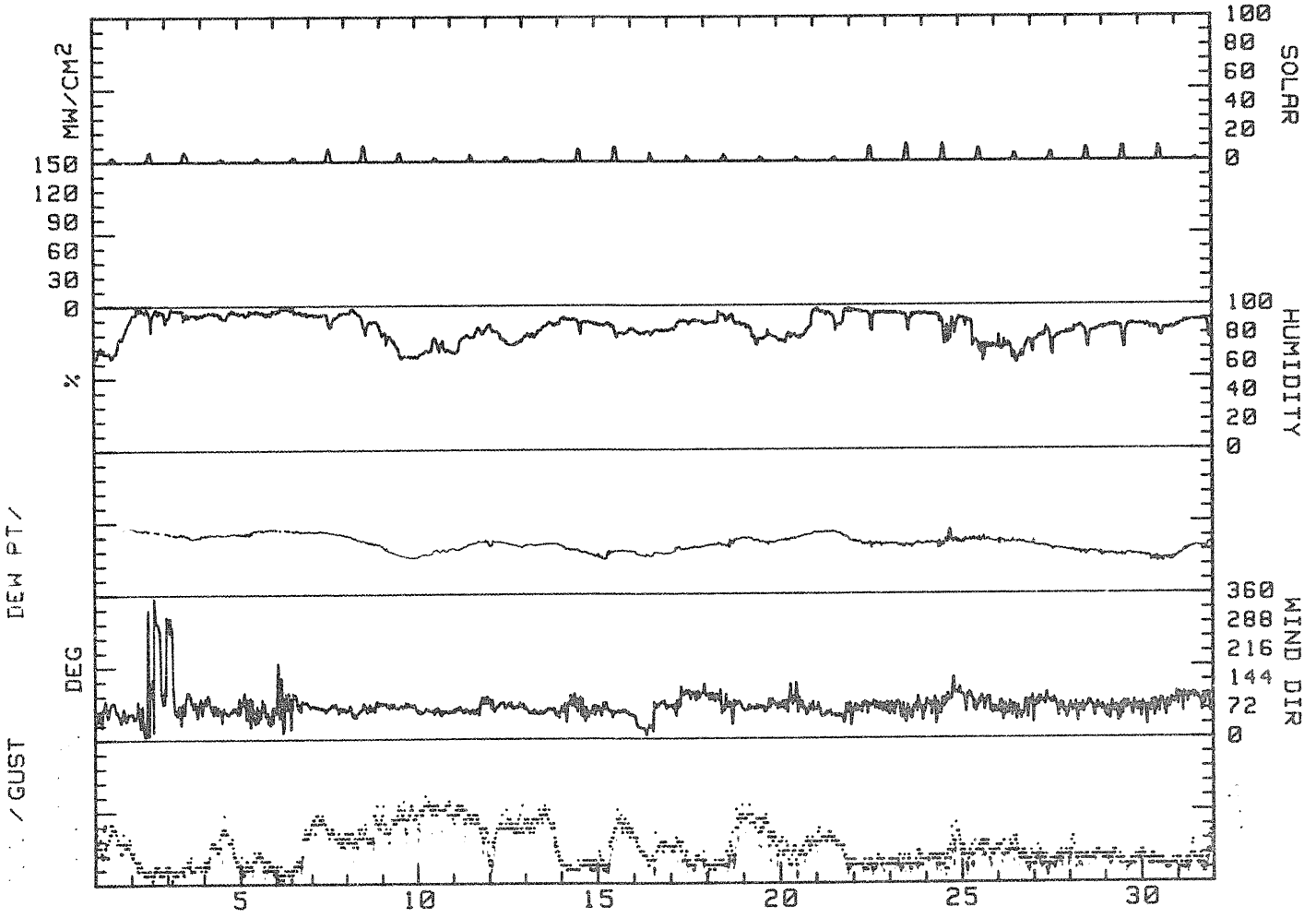
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

December, 1983



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 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	.34	0.00	0.00	0.00	0.00	0.00	.34
NNE	.34	1.21	.60	0.00	0.00	0.00	0.00	2.15
NE	.07	4.37	2.28	0.00	0.00	0.00	0.00	6.72
ENE	.34	15.73	15.73	11.16	0.00	0.00	0.00	42.94
E	1.21	18.88	10.75	5.04	0.00	0.00	0.00	35.89
ESE	.74	6.99	1.81	0.00	0.00	0.00	0.00	9.54
SE	.27	.47	.07	0.00	0.00	0.00	0.00	.81
SSE	.07	.07	0.00	0.00	0.00	0.00	0.00	.13
S	.13	0.00	0.00	0.00	0.00	0.00	0.00	.13
SSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW	.07	0.00	0.00	0.00	0.00	0.00	0.00	.07
WSW	.07	0.00	0.00	0.00	0.00	0.00	0.00	.07
W	.13	.13	0.00	0.00	0.00	0.00	0.00	.27
WNW	.07	.47	0.00	0.00	0.00	0.00	0.00	.54
NW	0.00	.27	0.00	0.00	0.00	0.00	0.00	.27
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CALM								
TOTAL	3.49	48.92	31.25	16.20	0.00	0.00	0.00	100.00

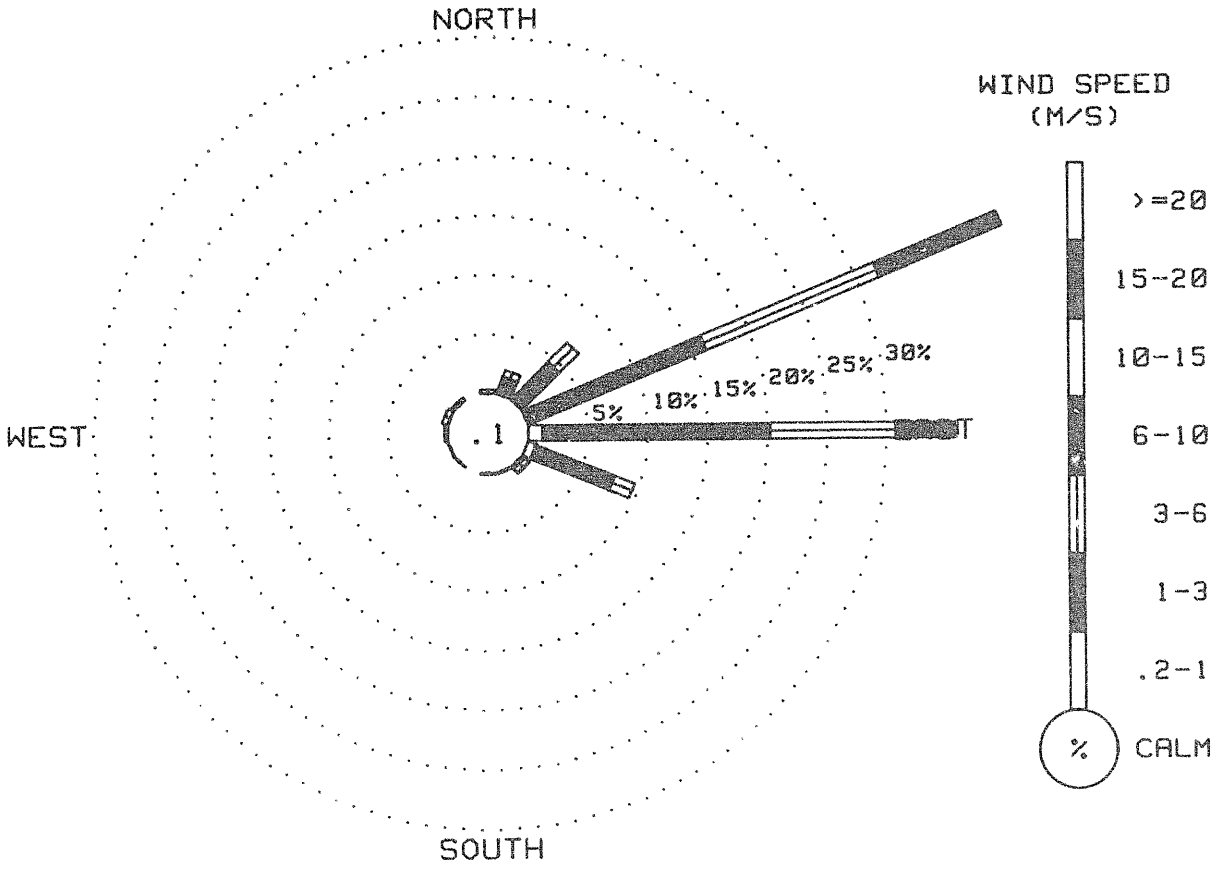
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1488 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
1488 WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 30 MINUTE DATA.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

December, 1983



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1983

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	0	0	0	0	0	0	0	0	0	0	1	3	3	3	2	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	1	2	6	6	3	0	0	0	0	0	0	0	0	0	1
3	0	0	0	0	0	0	0	0	0	0	2	6	7	5	3	0	0	0	0	0	0	0	0	0	1
4	0	0	0	0	0	0	0	0	0	0	1	2	2	1	1	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	1	2	3	2	1	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	1	2	3	3	2	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	2	6	9	7	2	0	0	0	0	0	0	0	0	0	1
8	0	0	0	0	0	0	0	0	0	0	2	7	11	9	2	0	0	0	0	0	0	0	0	0	1
9	0	0	0	0	0	0	0	0	0	0	1	4	6	5	2	0	0	0	0	0	0	0	0	0	1
10	0	0	0	0	0	0	0	0	0	0	0	1	3	2	1	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	1	2	4	3	1	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	1	3	3	3	1	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	1	5	9	7	2	0	0	0	0	0	0	0	0	0	1
15	0	0	0	0	0	0	0	0	0	0	1	6	10	8	2	0	0	0	0	0	0	0	0	0	1
16	0	0	0	0	0	0	0	0	0	0	1	4	4	2	1	0	0	0	0	0	0	0	0	1	0
17	0	0	0	0	0	0	0	0	0	0	0	2	4	2	1	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	1	3	5	4	2	0	0	0	0	0	0	0	0	0	1
19	0	0	0	0	0	0	0	0	0	0	0	2	3	2	1	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	1	2	3	2	1	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	1	2	3	2	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	1	5	10	9	2	0	0	0	0	0	0	0	0	0	1
23	0	0	0	0	0	0	0	0	0	0	1	5	12	11	2	0	0	0	0	0	0	0	0	0	1
24	0	0	0	0	0	0	0	0	0	0	1	4	12	10	2	0	0	0	0	0	0	0	0	0	1
25	0	0	0	0	0	0	0	0	0	0	1	4	9	7	2	0	0	0	0	0	0	0	0	0	1
26	0	0	0	0	0	0	0	0	0	0	1	2	5	4	1	0	0	0	0	0	0	0	0	0	1
27	0	0	0	0	0	0	0	0	0	0	1	3	6	6	1	0	0	0	0	0	0	0	0	0	1
28	0	0	0	0	0	0	0	0	0	0	1	4	9	8	2	0	0	0	0	0	0	0	0	0	1
29	0	0	0	0	0	0	0	0	0	0	1	4	10	10	2	0	0	0	0	0	0	0	0	0	1
30	0	0	0	0	0	0	0	0	0	0	1	4	10	8	2	0	0	0	0	0	0	0	0	0	1
31	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	0	0	0	0	0	0	0	0	0	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

PYRGEOMETER LONGWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1983

LONGWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	24	24	24	23	23	25	27	26	24	26	28	31	30	29	27	26	27	28	29	28	27	27	29	27	26
2	24	23	23	23	23	23	25	28	28	28	37	32	30	29	28	37	36	37	36	31	31	30	33	33	29
3	32	30	31	27	27	28	28	30	29	29	29	30	29	29	30	27	27	27	26	27	29	28	27	29	28
4	30	29	30	30	29	27	29	29	28	29	29	28	28	29	30	29	29	29	29	29	29	28	30	29	29
5	31	29	30	29	29	29	29	30	29	29	29	29	30	***	***	***	***	***	***	***	***	***	***	***	16
6	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
7	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
8	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
9	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
10	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
11	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
12	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
13	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
14	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
18	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
19	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
21	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
23	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
24	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
25	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
26	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
30	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
31	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

OBSERVATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1985

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	1488	100
WIND SPEED	1488	100
WIND DIRECTION	1488	100
PEAK GUST	1488	100
RELATIVE HUMIDITY	1434	96
PRECIPITATION	76	5
SOLAR RADIATION	1488	100
DEW POINT	1434	96
LONGWAVE RADIATION	217	15

THERE ARE 1488 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER. THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA.

1.	RH	+4 RH Points	12/01 - 12/04
		+5	12/04 - 12/31
2.	Solar	-1 mW/CM^2	

Additional comments on this month's data:

1. Precipitation gage disconnected on 12/2. A storage gage was installed in the Wyoming gage in its place.

2. No longwave data after 12/05. Watana base camp shut down for winter.

No precipitation data for January

(See INTERPRETATION OF DATA).

P & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING January, 1984

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.6	-10.8	84	075	5.5	079	8.9	0
0600	-8.0	-9.4	90	067	5.9	067	8.3	0
0900	-6.7	-8.5	87	068	5.7	078	8.3	0
1200	-5.2	-7.3	85	071	4.8	079	7.0	2
1500	-4.3	-5.7	90	076	4.5	073	7.0	0
1800	-4.1	-6.1	86	061	5.6	055	7.6	0
2100	-4.7	-6.1	90	085	5.3	079	8.3	0
2400	-5.9	-8.1	84	079	6.6	076	10.2	0

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.1	-8.4	84	069	5.6	077	9.5	0
0600	-6.1	-7.4	91	064	5.3	067	7.0	0
0900	-6.3	-7.1	94	058	4.9	055	7.6	0
1200	-5.7	-6.4	95	059	4.7	064	6.3	2
1500	-5.0	-6.0	93	067	5.5	066	7.6	1
1800	-5.0	-5.8	94	069	5.5	074	7.6	0
2100	-5.6	-6.6	93	061	3.9	070	7.0	0
2400	-3.3	-4.6	91	047	3.5	045	5.7	0

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.5	-3.1	89	065	5.3	077	10.2	0
0600	-2.9	-4.3	99	082	4.5	092	7.6	0
0900	-2.2	-3.5	91	080	4.7	079	7.6	0
1200	-1.4	-2.4	93	085	5.7	088	8.9	2
1500	-1.0	-2.5	90	082	5.3	082	8.3	2
1800	-2.5	-3.4	94	079	3.2	091	6.3	0
2100	-2.1	-3.1	93	057	2.5	057	5.7	0
2400	-3.3	-4.2	94	055	3.9	056	6.3	0

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.3	-3.4	99	070	4.0	062	6.3	0
0600	-8.4	-9.4	93	041	4.5	034	8.9	0
0900	-12.1	-12.9	94	023	4.4	042	8.3	0
1200	-14.8	-16.1	90	008	2.7	002	6.3	1
1500	-15.6	-17.7	84	011	3.4	002	7.0	0
1800	-16.5	*****	92	015	.8	357	5.1	0
2100	-17.5	-18.4	93	298	1.7	291	4.4	0
2400	-20.7	-21.9	90	306	1.8	290	3.2	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	-22.2	-23.5	89	026	1.5	001	3.8	0
0600	-23.6	-25.2	87	042	1.5	053	3.2	0
0900	-23.1	-24.6	88	060	1.6	067	3.2	0
1200	-17.6	-20.1	81	071	3.3	079	7.6	1
1500	-17.9	-21.5	73	066	5.5	076	8.3	2
1800	-17.7	-20.6	78	062	4.5	068	6.3	0
2100	-17.1	-18.4	90	056	4.0	054	7.0	0
2400	-17.2	-18.3	91	089	2.1	063	4.4	0

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-17.3	-18.4	91	104	1.9	086	4.4	0
0600	-18.7	-20.0	90	039	1.4	071	3.2	0
0900	-19.3	-20.5	90	069	1.3	030	3.5	0
1200	-20.0	-21.5	88	067	1.7	087	3.5	2
1500	-17.8	-20.0	83	084	1.8	081	3.2	0
1800	-16.5	-18.6	84	096	2.3	103	3.2	0
2100	-15.8	-17.9	84	099	2.3	099	3.8	0
2400	-14.5	-16.6	84	101	1.6	089	3.3	0

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.7	-17.0	83	096	1.7	094	3.2	0
0600	-15.0	-17.1	84	097	2.7	099	4.4	0
0900	-14.7	-16.5	86	095	2.6	098	3.2	0
1200	-14.5	-17.2	80	111	2.3	105	5.1	4
1500	-11.4	-15.3	73	109	3.0	108	7.6	2
1800	-12.9	-15.1	84	080	1.9	083	4.4	0
2100	-16.3	-17.7	89	085	1.4	066	4.4	0
2400	-8.4	-12.7	71	087	4.0	086	8.9	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	-9.2	-13.5	71	086	6.7	080	8.9	0
0600	-11.3	-15.3	72	086	6.3	084	9.5	0
0900	-15.1	-18.4	76	098	4.8	095	7.6	0
1200	-10.9	-15.8	67	099	4.1	094	10.8	5
1500	-10.9	-15.8	67	079	6.6	083	12.7	2
1800	-11.3	-15.5	71	069	6.5	066	8.9	0
2100	-11.9	-15.0	72	073	7.2	070	10.2	0
2400	-11.5	-15.5	72	079	6.5	084	10.2	0

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-15.9	-18.7	79	091	5.3	093	10.2	0
0600	-10.5	-15.6	66	090	4.7	091	9.9	0
0900	-10.1	-15.6	64	087	4.7	077	9.9	0
1200	-7.9	-14.7	58	104	4.3	083	10.2	3
1500	-7.4	-14.2	58	083	5.9	081	9.5	1
1800	-7.0	-13.4	60	079	6.5	072	11.4	0
2100	-9.7	-14.3	65	072	8.0	073	11.4	0
2400	-9.5	-14.3	68	068	7.3	072	10.8	0

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R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING January, 1984

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	-10.6	-15.0	70	077	5.7	071	9.5	0
0600	-10.1	-14.5	70	075	6.3	064	10.8	0
0900	-9.5	-13.9	70	069	7.4	078	10.8	0
1200	-8.6	-12.9	71	079	7.3	068	12.7	2
1500	-9.8	-13.7	73	076	7.7	075	12.1	2
1800	-7.4	-10.0	82	067	6.9	062	9.5	0
2100	-5.3	-7.9	82	070	5.1	063	10.2	0
2400	-3.0	-6.5	77	082	8.5	075	12.7	0

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.0	-7.3	78	070	6.5	075	10.8	0
0600	-3.5	-6.6	79	059	4.8	069	9.5	0
0900	-3.3	-4.0	95	070	1.4	071	8.3	0
1200	-4.5	-6.7	85	280	1.0	283	6.3	7
1500	-5.4	-7.4	86	088	3.4	095	6.3	1
1800	-4.1	-7.0	80	072	5.7	082	10.8	0
2100	-3.5	-6.5	80	092	8.3	097	13.3	0
2400	-2.6	-5.3	82	088	8.0	086	12.7	0

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.8	-4.6	81	066	7.1	067	10.2	0
0600	-.9	-3.0	86	086	6.8	093	10.9	0
0900	.7	-2.4	80	083	7.8	086	13.3	0
1200	1.9	-1.3	79	091	7.5	094	11.4	2
1500	1.9	-.7	83	085	6.7	085	12.1	1
1800	2.1	-.8	84	080	7.3	079	11.4	0
2100	3.1	-1.1	74	082	7.6	085	11.4	0
2400	2.8	-1.3	74	091	6.5	096	10.9	0

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.3	-1.0	79	085	5.5	089	10.2	0
0600	1.8	-.3	86	093	5.7	097	11.4	0
0900	0.0	-1.3	91	086	3.6	091	7.0	0
1200	- 9	*****	92	049	1.0	040	2.5	1
1500	-.5	*****	96	320	.8	349	1.9	1
1800	-1.6	-2.5	95	031	.6	026	3.2	0
2100	-4.1	-4.9	94	043	.8	007	2.5	0
2400	-5.0	-6.0	93	089	2.1	006	3.8	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	-5.7	-6.5	94	019	2.1	005	3.8	0
0600	-4.4	-5.4	93	074	1.1	044	3.2	0
0900	-.6	-1.8	92	059	2.6	049	4.4	0
1200	-.3	-1.3	93	065	1.9	048	3.8	1
1500	.1	-.9	93	074	2.2	071	5.1	0
1800	-.2	*****	95	079	1.7	068	4.4	0
2100	-1.6	-2.3	95	273	2.2	269	4.4	0
2400	-1.8	-2.5	95	290	2.4	290	4.4	0

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.7	-3.6	94	294	1.6	277	3.5	0
0600	-2.6	-3.5	94	298	1.7	279	3.2	0
0900	-8.3	-9.4	92	359	1.1	300	2.5	0
1200	-7.5	-8.5	93	026	1.4	037	2.5	5
1500	-7.9	-10.0	85	067	1.3	048	3.5	4
1800	-8.8	-9.9	92	096	2.4	113	5.7	0
2100	-5.5	-7.2	88	103	2.6	092	5.7	0
2400	-4.4	-6.3	87	089	4.7	087	7.6	0

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.8	-6.8	86	091	4.3	093	7.0	0
0600	-5.8	-7.6	87	094	5.5	084	8.9	0
0900	-7.5	-9.0	89	074	5.7	078	8.9	0
1200	-7.7	-9.5	87	070	6.0	080	9.5	3
1500	-8.2	-10.0	87	079	5.3	099	8.3	1
1800	-9.3	-11.1	87	055	2.5	057	5.1	0
2100	-6.8	-8.5	88	089	2.7	097	5.7	0
2400	-10.9	-12.1	91	096	3.2	086	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	-12.0	-13.3	90	099	2.1	103	3.8	0
0600	-11.2	-12.5	90	096	1.9	099	3.8	0
0900	-11.4	-12.7	90	090	1.7	095	3.8	0
1200	-11.3	-12.6	90	105	1.5	106	2.5	1
1500	-10.9	-12.4	89	108	1.4	095	2.5	1
1800	-9.9	-11.3	90	104	1.8	105	3.2	0
2100	-11.0	-12.2	91	098	1.5	080	3.2	0
2400	-10.5	-11.7	91	086	1.5	085	3.2	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	-11.4	-12.6	91	101	1.8	104	3.8	0
0600	-11.2	-12.3	92	111	1.1	113	3.5	0
0900	-11.8	-13.0	91	098	1.8	094	3.8	0
1200	-11.6	-13.1	89	100	1.4	093	3.5	2
1500	-11.4	-12.9	89	109	2.0	122	5.2	1
1800	-12.5	-13.6	92	111	2.6	119	4.4	0
2100	-14.1	-15.3	91	102	2.2	090	3.8	1
2400	-14.4	-15.8	89	113	2.8	111	4.4	0

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R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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DAY 19

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST MAX. M/S	RAD MW
0300	-15.8	-17.5	87	101	2.6	098	5.1	0
0600	-9.6	-13.5	73	089	2.6	085	5.1	0
0900	-11.5	-14.3	80	091	2.6	092	4.4	0
1200	-10.7	-13.8	78	071	4.4	073	7.6	2
1500	-10.4	-13.6	77	069	5.8	072	8.9	3
1800	-10.9	-14.0	78	058	6.0	064	8.3	0
2100	-11.3	-14.4	78	057	5.5	057	8.3	0
2400	-11.5	-14.4	79	072	4.9	060	7.6	0

DAY 20

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST MAX. M/S	RAD MW
0300	-11.5	-14.6	78	077	4.5	077	7.6	0
0600	-12.0	-15.1	78	080	4.5	074	7.0	0
0900	-12.4	-15.4	78	084	5.7	085	8.9	0
1200	-12.9	-16.2	76	086	3.9	087	7.6	10
1500	-14.2	-17.8	74	073	3.3	066	5.7	6
1800	-18.8	-20.6	86	074	2.1	056	3.8	0
2100	-21.3	-23.2	85	050	2.1	042	3.2	0
2400	-22.6	-24.7	83	060	2.0	053	3.2	0

DAY 21

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST MAX. M/S	RAD MW
0300	-23.6	-25.8	82	062	2.3	089	3.8	0
0600	-20.1	-22.1	84	082	1.7	083	5.7	0
0900	-19.9	-21.9	84	073	4.8	071	7.6	0
1200	-19.4	-23.0	73	073	3.6	081	6.3	14
1500	-18.0	-20.7	79	108	3.8	111	7.0	3
1800	-19.5	-21.5	84	114	3.7	114	5.7	0
2100	-17.0	-20.7	73	116	3.7	117	7.6	0
2400	-16.5	-22.4	60	102	3.2	127	4.4	0

DAY 22

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST MAX. M/S	RAD MW
0300	-18.5	*****	63	083	1.4	072	5.1	0
0600	-18.5	-24.9	57	018	2.2	358	5.1	0
0900	-20.0	-26.5	56	009	1.1	023	3.8	0
1200	-18.5	*****	50	018	1.7	018	4.4	10
1500	-17.3	*****	42	011	1.6	356	4.4	7
1800	-21.1	*****	57	341	1.0	350	2.5	0
2100	-23.2	-29.3	57	059	.8	047	3.8	0
2400	-21.5	-27.5	58	052	.6	067	2.5	0

DAY 23

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST MAX. M/S	RAD MW
0300	-26.3	-32.3	57	035	.8	023	2.5	0
0600	-27.2	-32.6	60	022	.8	018	3.2	0
0900	-30.1	-33.8	70	079	1.8	097	4.4	0
1200	-28.1	-33.8	58	094	2.6	095	5.1	12
1500	-25.3	-32.9	49	089	2.3	069	3.8	10
1800	-27.3	-33.0	58	095	2.5	099	6.3	0
2100	-24.5	-30.6	57	086	4.1	080	7.0	0
2400	-26.1	-31.7	59	101	4.5	108	7.6	0

DAY 24

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST MAX. M/S	RAD MW
0300	-26.0	-31.8	58	094	5.5	101	9.5	0
0600	-25.7	-31.1	60	094	4.6	095	8.3	0
0900	-25.5	-31.1	59	104	3.6	113	6.3	0
1200	-25.2	-32.0	53	094	4.2	097	7.3	10
1500	-22.7	-30.5	49	099	4.1	094	7.0	7
1800	-29.9	-34.8	62	101	1.6	104	5.1	0
2100	-30.9	-35.9	61	081	2.7	080	4.4	0
2400	-31.5	-35.7	66	095	2.7	094	4.4	0

DAY 25

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST MAX. M/S	RAD MW
0300	-31.4	-35.4	67	106	3.0	105	5.1	0
0600	-33.4	-33.5	61	088	4.5	085	7.6	0
0900	-28.9	-34.0	61	071	5.8	076	9.5	0
1200	-26.3	-32.3	57	066	6.6	064	9.5	10
1500	-27.3	-32.8	59	070	7.4	069	10.8	5
1800	-26.2	-31.6	60	065	8.0	064	10.8	0
2100	-24.8	-30.3	60	067	8.3	071	11.4	0
2400	-21.1	-28.0	54	067	7.5	062	10.8	0

DAY 26

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST MAX. M/S	RAD MW
0300	-21.2	-26.2	64	085	6.7	076	9.5	0
0600	-16.1	-19.2	77	107	4.5	115	7.0	0
0900	-18.9	-21.2	82	098	3.8	089	7.6	0
1200	-18.1	-20.8	79	085	2.1	093	4.4	10
1500	-16.8	-23.7	55	115	1.9	120	3.8	12
1800	-20.2	-23.3	76	110	2.3	100	5.7	0
2100	-22.8	-25.7	77	104	2.8	096	5.1	0
2400	-22.1	-25.3	75	082	3.5	089	5.7	0

DAY 27

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST MAX. M/S	RAD MW
0300	-21.0	-24.2	75	072	4.5	079	7.6	0
0600	-19.7	-23.1	74	084	5.5	085	9.3	0
0900	-19.9	-23.3	74	073	4.2	074	8.3	0
1200	-22.2	-25.2	73	087	1.7	083	3.8	6
1500	-19.3	-23.5	69	098	1.9	070	5.7	5
1800	-18.7	-21.9	76	093	1.6	079	3.3	0
2100	-17.6	*****	74	085	1.0	094	3.5	0
2400	-18.6	-21.8	76	322	1.0	346	3.3	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING January, 1984

DAY 29

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-20.0	-22.4	81	315	1.9	280	3.8	0
0600	-20.3	-22.9	80	003	1.8	340	3.2	0
0900	-20.1	-22.9	78	021	1.7	009	3.2	0
1200	-22.6	-27.2	66	080	1.5	031	2.5	15
1500	-21.3	-26.1	65	078	1.7	081	3.8	5
1800	-17.2	-23.3	59	076	2.2	069	4.4	0
2100	-15.3	-18.7	75	074	4.9	071	8.3	0
2400	-14.5	-17.3	79	064	6.6	061	10.2	0

DAY 29

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.1	-14.8	80	069	7.5	071	11.4	0
0600	-9.2	-11.4	84	063	6.9	070	12.1	0
0900	-8.1	-10.2	85	076	6.5	071	12.1	0
1200	-6.0	-9.2	78	090	6.4	087	10.8	17
1500	-7.2	-9.9	81	085	3.6	095	7.0	6
1800	-6.1	-7.9	87	069	2.6	067	5.1	0
2100	-4.6	-6.0	90	064	4.7	062	7.0	0
2400	-5.5	-6.2	95	089	3.3	075	7.0	0

DAY 30

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.6	-6.4	94	093	2.0	094	4.4	0
0600	-6.0	*****	94	107	1.3	112	2.5	0
0900	-6.9	-8.0	92	104	1.4	118	3.8	0
1200	-5.1	*****	93	092	1.2	061	4.4	2
1500	-5.8	*****	90	098	.5	112	1.9	1
1800	-5.7	-6.7	93	100	1.0	092	2.5	0
2100	-5.8	*****	93	077	.6	094	1.9	0
2400	-5.5	-6.3	94	108	1.1	135	3.2	0

DAY 31

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.2	-6.8	89	230	1.6	253	5.7	0
0600	-5.6	*****	86	251	2.1	238	5.1	0
0900	-6.6	*****	94	262	1.0	271	2.5	0
1200	-6.9	-8.3	90	259	2.3	265	5.1	6
1500	-5.1	*****	71	243	1.0	233	3.8	14
1800	-11.0	*****	93	180	.2	233	1.9	0
2100	-14.3	-15.5	91	053	1.1	033	2.5	0
2400	-15.2	*****	90	059	1.0	019	1.9	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING January, 1984

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	-3.7	-9.7	-6.7	073	5.4	5.5	076	10.2	ENE	87	-8.1	****	35	1
2	-3.3	-6.8	-5.1	063	4.8	4.9	077	9.5	ENE	91	-6.8	****	100	2
3	-.8	-3.6	-2.2	075	4.3	4.4	077	10.2	E	92	-3.4	****	145	3
4	-3.0	-20.7	-11.9	021	2.3	3.1	034	8.9	NNE	93	-13.5	****	45	4
5	-16.5	-25.1	-20.8	062	2.9	3.1	076	8.3	ENE	85	-21.6	****	160	5
6	-14.5	-20.6	-17.6	085	1.7	1.9	086	4.4	E	87	-19.2	****	110	6
7	-8.4	-16.3	-12.4	096	2.3	2.4	086	8.9	E	82	-16.2	****	165	7
8	-8.5	-16.8	-12.7	082	6.0	6.1	083	12.7	E	71	-15.4	****	190	8
9	-6.9	-16.7	-11.8	080	5.8	5.9	072	11.4	ENE	65	-15.7	****	205	9
10	-3.0	-10.9	-7.0	073	6.8	6.9	068	12.7	ENE	74	-12.1	****	190	10
11	-3.4	-6.6	-4.5	078	4.5	5.4	097	13.3	ENE	82	-6.5	****	150	11
12	3.4	-2.4	.5	083	7.0	7.1	086	13.3	E	80	-2.0	****	80	12
13	2.6	-5.8	-1.6	073	2.1	2.7	097	11.4	E	88	-2.2	****	55	13
14	.3	-6.6	-3.2	039	1.0	2.1	071	5.1	ENE	93	-2.9	****	50	14
15	-1.8	-9.9	-5.9	070	1.1	2.2	087	7.6	E	92	-6.8	****	230	15
16	-4.5	-11.4	-8.0	079	4.0	4.1	080	9.5	E	88	-9.4	****	125	16
17	-9.9	-12.2	-11.1	098	1.7	1.7	103	3.8	ESE	90	-12.3	****	75	17
18	-10.2	-15.3	-12.8	107	2.0	2.0	110	4.4	ESE	91	-13.3	****	85	18
19	-9.6	-15.8	-12.7	071	4.2	4.3	072	8.9	ENE	79	-14.3	****	155	19
20	-18.7	-23.0	-16.9	076	3.5	3.5	085	8.9	ENE	80	-17.9	****	405	20
21	-16.5	-24.4	-20.5	092	3.0	3.3	071	7.6	ESE	80	-22.4	****	470	21
22	-16.6	-23.2	-19.9	025	1.1	1.4	072	5.1	NNE	54	-26.2	****	485	22
23	-31.8	-31.8	-26.8	087	2.3	2.5	108	7.6	E	60	-32.7	****	595	23
24	-32.7	-31.6	-27.2	095	3.6	3.7	101	9.5	E	58	-33.2	****	190	24
25	-31.1	-31.9	-26.5	071	6.3	6.4	071	11.4	ENE	60	-32.5	****	435	25
26	-15.6	-22.8	-19.2	096	3.4	3.5	076	9.5	E	72	-23.2	****	500	26
27	-14.3	-23.2	-18.8	073	2.5	2.7	063	9.5	ENE	74	-23.1	****	360	27
28	-14.5	-23.4	-19.0	056	2.3	2.9	061	10.2	ENE	72	-22.9	****	535	28
29	-4.0	-13.9	-9.0	075	5.1	5.2	070	12.1	ENE	83	-10.1	****	280	29
30	-4.5	-7.6	-6.1	098	1.1	1.3	094	4.4	ESE	93	-7.0	****	85	30
31	-4.5	-15.2	-9.9	252	.7	1.4	253	5.7	WSW	91	-9.9	****	330	31
MONTH	3.4	-31.9	-12.5	077	3.2	3.7	097	13.3	E	80	-13.9	****	7405	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 11.4
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 11.4
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 12.7
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 9.5

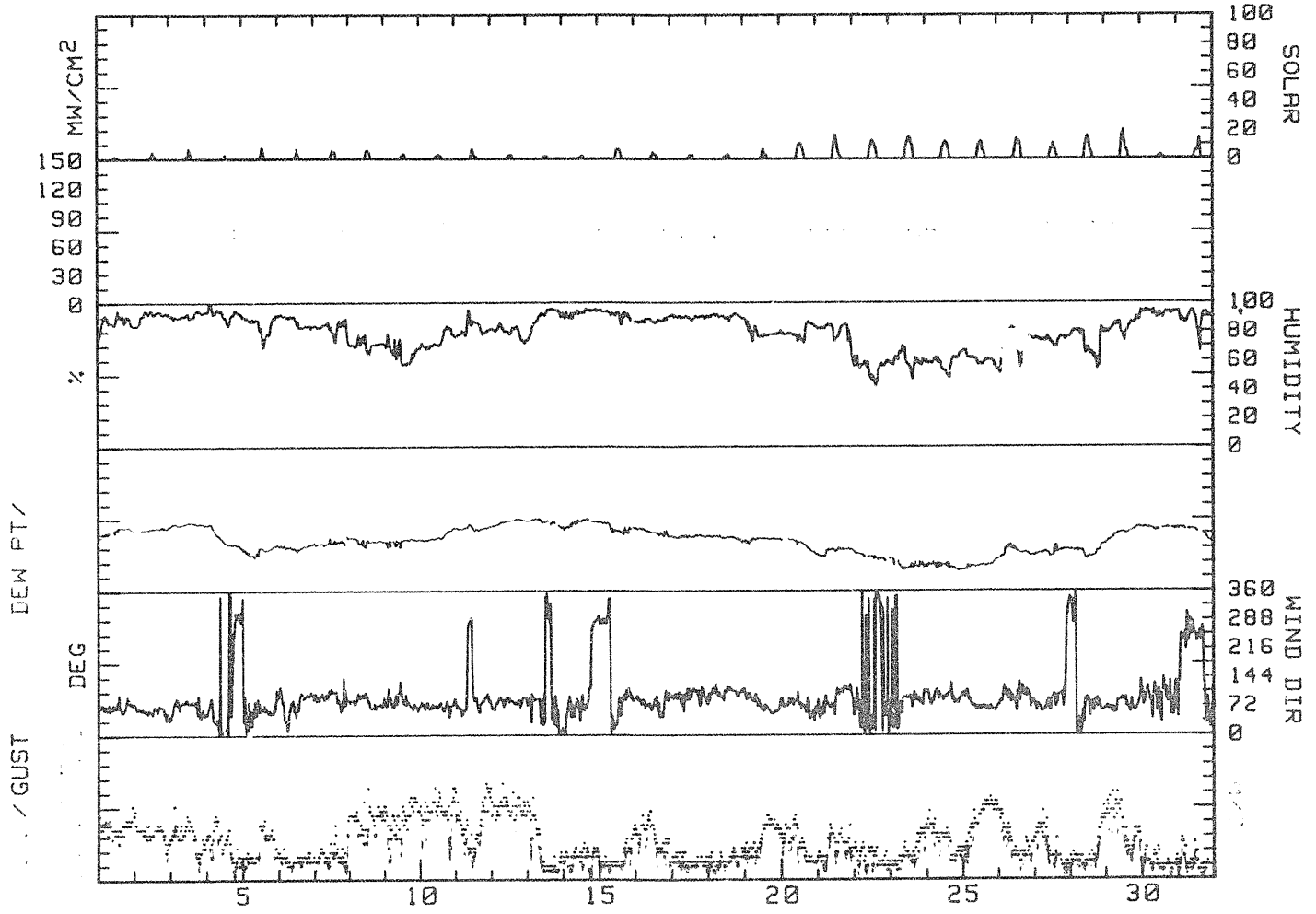
** RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE CALCULATION OF MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

January, 1984



P & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING January, 1984

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	.40	2.08	.34	0.00	0.00	0.00	0.00	2.82
NNE	.54	2.42	.54	0.00	0.00	0.00	0.00	3.50
NE	.40	4.10	2.49	.40	0.00	0.00	0.00	7.40
ENE	.74	5.72	13.18	11.90	0.00	0.00	0.00	31.54
E	.74	13.45	10.83	6.66	0.00	0.00	0.00	31.67
ESE	.54	9.21	4.30	.13	0.00	0.00	0.00	14.19
SE	.34	.67	.13	0.00	0.00	0.00	0.00	1.14
SSE	.07	.07	.07	0.00	0.00	0.00	0.00	.20
S	0.00	.07	0.00	0.00	0.00	0.00	0.00	.07
SSW	.07	.07	0.00	0.00	0.00	0.00	0.00	.13
SW	.13	.20	0.00	0.00	0.00	0.00	0.00	.34
WSW	.40	.61	.27	0.00	0.00	0.00	0.00	1.28
W	.27	.61	.20	0.00	0.00	0.00	0.00	1.08
WNW	.34	1.02	.27	0.00	0.00	0.00	0.00	1.63
NW	.27	.54	0.00	0.00	0.00	0.00	0.00	.81
NNW	.34	1.29	0.00	0.00	0.00	0.00	0.00	1.63
CALM								
TOTAL	5.52	43.27	33.41	19.10	0.00	0.00	0.00	100.0

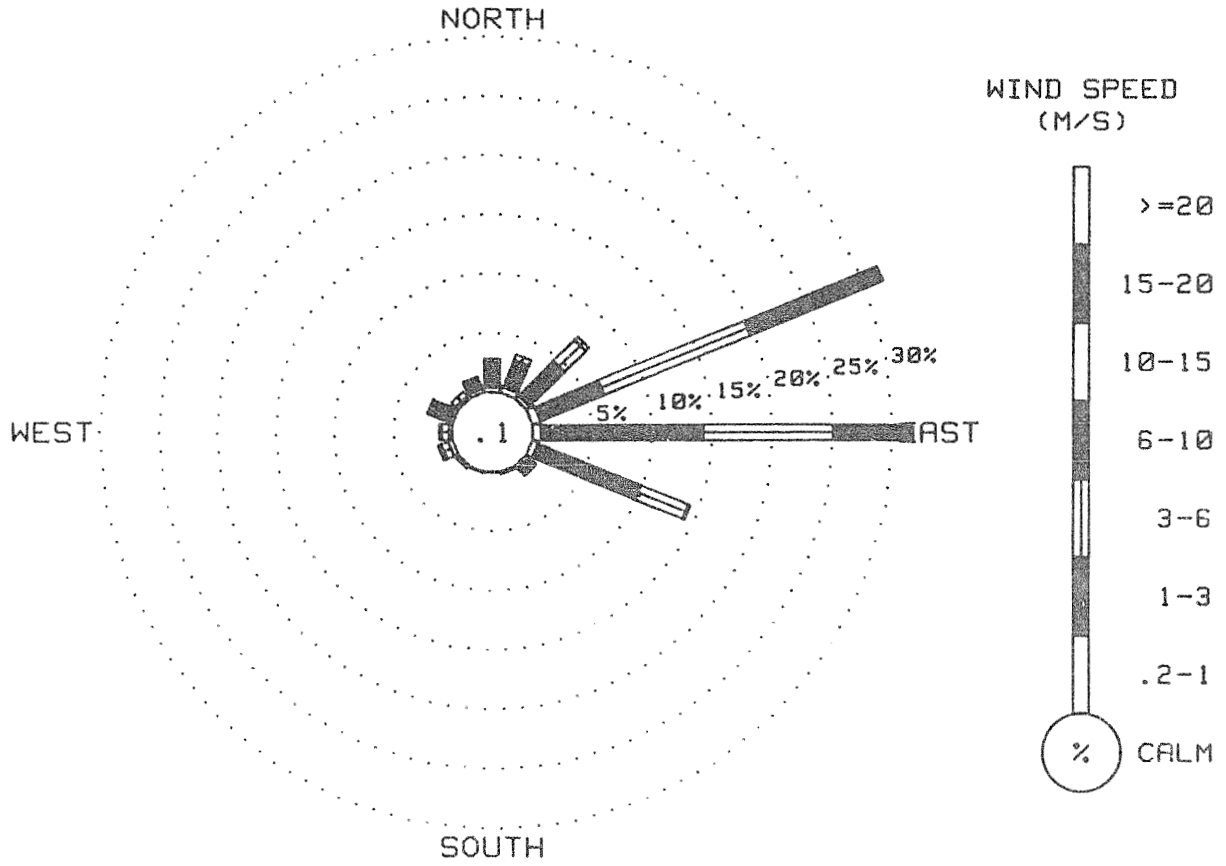
ALL FREQUENCIES ARE EXPRESSED IN PERCENT
WIND VELOCITY OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
WIND VELOCITY OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 30 MINUTE DURATION
SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

January, 1984



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING January, 1984

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	0	0	0	0	0	0	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	2	4	3	2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	1	2	6	5	2	0	0	0	0	0	0	0	0	0	1
4	0	0	0	0	0	0	0	0	0	0	0	1	3	1	1	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	1	5	8	3	0	0	0	0	0	0	0	0	0	1
6	0	0	0	0	0	0	0	0	0	0	1	2	6	3	1	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	1	3	5	5	4	0	0	0	0	0	0	0	0	0	1
8	0	0	0	0	0	0	0	0	0	0	1	4	6	6	3	1	0	0	0	0	0	0	0	0	1
9	0	0	0	0	0	0	0	0	0	0	1	2	4	3	2	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	1	2	3	3	2	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	1	6	5	2	2	0	0	0	0	0	0	0	0	0	1
12	0	0	0	0	0	0	0	0	0	0	0	3	3	3	2	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	1	2	2	1	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	1	2	2	1	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	3	7	7	5	1	0	0	0	0	0	0	0	0	1
16	0	0	0	0	0	0	0	0	0	0	1	3	5	3	2	0	0	0	0	0	0	0	0	0	1
17	0	0	0	0	0	0	0	0	0	0	0	1	3	2	2	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	2	2	3	2	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	1	2	7	4	3	1	0	0	0	0	0	0	0	0	1
20	0	0	0	0	0	0	0	0	0	0	3	8	11	11	7	2	0	0	0	0	0	0	0	0	2
21	0	0	0	0	0	0	0	0	0	0	4	13	17	9	4	2	0	0	0	0	0	0	0	0	2
22	0	0	0	0	0	0	0	0	0	0	4	9	13	12	9	4	0	0	0	0	0	0	0	0	2
23	0	0	0	0	0	0	0	0	0	0	5	11	15	15	11	4	0	0	0	0	0	0	0	0	3
24	0	0	0	0	0	0	0	0	0	0	4	9	12	12	9	4	0	0	0	0	0	0	0	0	2
25	0	0	0	0	0	0	0	0	0	0	5	10	12	9	6	2	0	0	0	0	0	0	0	0	2
26	0	0	0	0	0	0	0	0	0	0	2	8	13	12	11	6	0	0	0	0	0	0	0	0	2
27	0	0	0	0	0	0	0	0	0	0	3	7	9	9	6	3	0	0	0	0	0	0	0	0	2
28	0	0	0	0	0	0	0	0	0	1	5	13	14	11	5	2	0	0	0	0	0	0	0	0	2
29	0	0	0	0	0	0	0	0	0	0	7	17	16	10	6	3	0	0	0	0	0	0	0	0	3
30	0	0	0	0	0	0	0	0	0	0	1	3	3	3	2	1	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	1	4	5	6	13	7	1	0	0	0	0	0	0	0	1

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

[illegible] LONGWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING January, 1984

LONGWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
7	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
8	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
9	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
10	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
11	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
12	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
13	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
14	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
18	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
19	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
21	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
23	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
24	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
25	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
26	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
30	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
31	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

OBSERVATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING January, 1984

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	1488	100
WIND SPEED	1487	100
WIND DIRECTION	1487	100
PEAK GUST	1488	100
RELATIVE HUMIDITY	1403	94
PRECIPITATION	0	0
SOLAR RADIATION	1488	100
DEW POINT	1403	94
LONGWAVE RADIATION	0	0

THERE ARE 1488 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER. THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

1.	RH	+5 RH Points	1/01 - 1/06
2.	Solar	-1 mW/CM^2	

Additional comments on this month's data:

1. No longwave data. Watana base camp shut down for winter.

No precipitation data for February

(See INTERPRETATION OF DATA).

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING February 1984

DAY 01

HOUR	DEW			WIND	WIND	GUST	MAX.	
MDNG	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW
0300	-16.5	-17.9	89	023	1.4	014	2.5	0
0600	-19.5	-21.1	87	069	1.3	081	2.5	0
0900	-14.3	-15.7	89	101	2.8	091	3.2	0
1200	-11.6	-14.1	82	101	2.5	092	3.8	3
1500	-9.7	-11.6	86	106	2.7	096	5.1	2
1800	-11.3	-12.6	90	100	3.4	095	5.7	9
2100	-11.7	-13.2	89	119	2.6	121	4.4	0
2400	-12.8	-13.7	87	111	3.1	110	5.1	0

DAY 02

HOUR	DEW			WIND	WIND	GUST	MAX.	
MDNG	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW
0300	-9.5	-11.3	87	105	2.2	094	7.0	0
0600	-11.2	-13.4	84	094	2.7	088	5.7	0
0900	-12.6	-15.6	78	056	3.9	056	7.0	0
1200	-13.1	-17.2	71	083	3.1	059	5.7	4
1500	-13.5	-20.8	54	104	2.1	103	5.1	5
1800	-17.3	-25.7	48	060	1.4	062	3.2	0
2100	-17.5	-27.4	42	068	3.0	084	7.0	0
2400	-14.9	-25.3	41	072	4.9	085	7.0	0

DAY 03

HOUR	DEW			WIND	WIND	GUST	MAX.	
MDNG	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW
0300	-14.9	-21.7	56	078	5.1	069	7.6	0
0600	-14.5	-18.6	71	080	6.0	072	10.3	0
0900	-13.9	-18.0	71	075	6.5	070	9.5	0
1200	-13.8	-18.2	69	074	6.3	073	9.5	1
1500	-13.2	-17.2	72	064	7.5	064	10.8	5
1800	-13.0	-14.7	87	080	6.4	068	8.9	0
2100	-11.3	-12.6	90	099	4.7	093	7.6	0
2400	-13.1	-15.5	82	079	8.2	087	13.3	0

DAY 04

HOUR	DEW			WIND	WIND	GUST	MAX.	
MDNG	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW
0300	-12.0	-14.3	83	076	8.9	074	12.1	0
0600	-11.1	-12.9	87	073	8.1	077	11.4	0
0900	-8.3	-10.2	86	079	7.5	077	12.7	0
1200	-9.1	-10.7	88	077	8.1	081	11.4	6
1500	-7.8	-9.3	89	072	6.2	075	10.3	3
1800	-8.2	-9.0	94	354	.8	107	4.4	0
2100	-9.8	-11.2	90	251	4.1	258	8.3	0
2400	-10.4	*****	95	273	1.6	264	5.1	0

DAY 05

HOUR	DEW			WIND	WIND	GUST	MAX.	
MDNG	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW
0300	-11.7	-12.8	92	345	.2	027	1.9	0
0600	-15.6	-16.8	91	032	1.1	032	2.5	0
0900	-16.0	-17.3	90	022	2.0	007	3.8	0
1200	-14.0	-15.2	91	038	1.5	033	3.8	5
1500	-11.9	-14.7	80	033	.3	086	2.5	13
1800	-13.0	-14.2	91	066	1.4	063	3.2	0
2100	-13.4	-14.6	91	085	1.5	062	3.8	0
2400	-13.2	-14.3	92	005	.9	338	5.1	0

DAY 06

HOUR	DEW			WIND	WIND	GUST	MAX.	
MDNG	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW
0300	-13.7	*****	91	300	1.6	292	3.8	0
0600	-15.3	-16.3	91	345	1.1	283	2.5	0
0900	-15.8	*****	90	054	.7	013	1.9	0
1200	-16.8	*****	91	033	1.0	013	1.9	14
1500	-15.1	-19.0	73	061	1.3	021	2.5	16
1800	-17.1	-19.0	85	060	2.1	095	4.4	0
2100	-12.2	-15.4	77	067	4.7	064	7.6	0
2400	-11.4	-14.5	78	059	5.7	064	8.9	0

DAY 07

HOUR	DEW			WIND	WIND	GUST	MAX.	
MDNG	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW
0300	-11.3	-14.8	75	049	5.1	060	7.6	0
0600	-9.7	-14.8	66	066	4.8	053	7.6	0
0900	-8.3	-12.4	72	049	3.3	069	7.6	0
1200	-11.1	-13.9	87	310	.7	079	10.8	4
1500	-10.0	-13.7	87	279	4.0	274	6.3	5
1800	-13.1	-14.2	92	314	.7	250	3.8	0
2100	-16.7	-18.6	85	030	2.2	011	7.9	0
2400	-16.2	-18.7	81	021	2.7	007	5.1	0

DAY 08

HOUR	DEW			WIND	WIND	GUST	MAX.	
MDNG	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW
0300	-17.9	-19.4	88	319	1.5	297	4.4	0
0600	-18.3	-19.9	87	248	.5	133	2.5	0
0900	-20.5	-22.4	85	061	.8	093	2.5	0
1200	-20.9	-22.4	88	038	1.4	019	2.5	11
1500	-18.3	*****	79	058	1.3	324	3.2	29
1800	-20.9	-23.3	81	032	1.4	021	2.5	0
2100	-22.5	-24.6	83	052	1.7	046	3.2	0
2400	-22.5	-24.7	82	081	1.6	066	3.2	0

DAY 09

HOUR	DEW			WIND	WIND	GUST	MAX.	
MDNG	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW
0300	-24.7	-27.0	81	293	1.6	284	3.5	0
0600	-23.3	-25.6	81	277	2.2	063	4.4	0
0900	-22.2	-24.4	83	271	2.0	078	3.2	0
1200	-20.7	-25.2	67	278	3.0	058	5.3	22
1500	-16.3	*****	59	042	1.1	089	2.5	33
1800	-20.2	-23.3	76	349	.9	016	3.5	0
2100	-24.1	-26.3	83	045	1.9	062	3.2	0
2400	-26.1	-28.6	79	060	1.9	061	3.8	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

3-HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING February, 1984

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	-22.4	-25.2	78	061	4.1	063	8.3	0
0600	-20.7	-23.2	80	058	4.6	056	8.3	0
0900	-21.3	-24.0	79	062	5.8	074	8.3	0
1200	-20.4	-24.0	73	071	6.5	071	8.9	13
1500	-18.5	-22.0	74	070	6.6	072	10.8	10
1800	-17.4	-20.8	75	061	6.6	063	10.2	0
2100	-16.5	-19.9	75	059	6.5	061	8.9	0
2400	-14.9	-18.5	74	067	6.2	059	8.3	0

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.4	-16.9	75	067	6.2	067	8.9	0
0600	-11.9	-15.6	74	065	5.0	059	8.3	0
0900	-15.0	-18.1	77	087	3.1	080	7.0	0
1200	-14.8	*****	63	101	2.1	086	5.1	10
1500	-11.8	-18.6	57	110	2.1	109	5.7	16
1800	-13.2	-18.2	66	079	2.5	105	4.4	0
2100	-14.5	-18.9	69	049	3.7	057	6.3	0
2400	-13.4	-17.2	73	074	6.0	077	8.9	0

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.2	-17.0	73	064	5.5	071	8.9	0
0600	-11.8	-15.6	73	074	6.2	072	9.3	0
0900	-11.5	-15.2	74	085	4.8	084	7.0	0
1200	-11.4	*****	70	066	1.8	066	6.3	14
1500	-9.2	-13.8	69	102	3.2	113	5.7	15
1800	-10.2	-13.1	79	092	3.3	105	6.3	0
2100	-10.9	-14.1	77	090	5.4	078	8.3	0
2400	-11.1	-14.3	77	079	7.4	081	9.3	0

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.1	-15.6	75	070	7.4	068	10.2	0
0600	-11.5	-15.0	75	075	5.8	070	8.9	0
0900	-11.8	-15.5	74	079	5.4	084	8.3	0
1200	-11.1	-15.6	69	075	6.3	080	9.5	1
1500	-9.4	-15.1	63	078	6.6	080	9.5	16
1800	-9.7	-14.3	69	080	7.0	068	10.2	0
2100	-10.6	-15.0	70	072	7.0	067	10.8	0
2400	-10.9	-15.3	70	070	7.3	081	10.8	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	-10.9	-15.1	71	070	7.2	074	10.8	0
0600	-10.4	-14.5	72	062	6.2	055	8.3	0
0900	-10.5	-14.4	73	062	6.1	061	10.2	0
1200	-10.2	-13.9	74	076	7.6	074	14.6	11
1500	-9.6	-13.7	72	080	6.4	079	9.5	15
1800	-9.6	-13.2	75	065	3.4	081	7.0	0
2100	-13.3	-15.9	81	093	1.7	097	3.2	0
2400	-13.0	-15.4	82	082	1.4	079	3.8	0

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.0	-14.6	81	093	1.2	094	3.5	0
0600	-13.1	-15.4	83	088	1.0	099	1.9	0
0900	-15.1	-17.2	84	100	1.8	106	3.8	0
1200	-11.8	-17.4	63	094	1.9	082	3.2	21
1500	-9.1	-15.8	58	097	1.5	062	3.2	16
1800	-10.4	-13.3	79	082	1.7	081	3.2	0
2100	-7.8	-11.6	74	071	4.6	067	8.3	0
2400	-7.3	-10.8	76	068	6.3	066	8.9	0

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.4	-11.7	77	072	6.9	071	10.8	0
0600	-9.8	-13.5	81	073	8.4	085	12.7	0
0900	-11.8	-14.3	82	079	6.5	089	10.2	0
1200	-8.5	-12.3	74	069	5.9	067	9.5	31
1500	-6.9	-10.9	73	080	5.5	083	8.9	7
1800	-6.1	-10.0	74	072	5.1	077	8.9	0
2100	-6.7	-7.8	79	084	4.7	091	7.0	0
2400	-4.8	-6.2	90	076	4.8	085	11.4	0

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.3	-8.4	73	064	4.7	094	11.4	0
0600	-4.9	-6.6	88	073	6.6	082	10.8	0
0900	-3.3	-5.9	82	069	5.5	071	10.2	0
1200	-3.3	-5.8	82	086	6.3	083	8.9	11
1500	-2.4	-4.9	83	081	5.7	083	8.3	15
1800	-3.5	-5.5	86	067	3.6	086	6.3	0
2100	-4.5	-5.9	90	065	3.2	054	3.8	0
2400	-6.3	-7.0	95	015	.7	309	2.5	0

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.5	-6.1	96	087	1.3	095	3.8	0
0600	-6.3	-7.6	91	096	2.7	069	5.7	4
0900	-7.5	-9.3	87	063	4.8	064	7.6	1
1200	-6.9	-9.9	79	050	4.0	048	6.3	14
1500	-4.6	-8.7	73	074	6.0	050	9.5	15
1800	-4.8	-8.4	76	062	6.0	089	9.5	0
2100	-5.6	-9.0	77	069	4.5	080	8.3	0
2400	-6.1	-9.3	77	075	4.7	087	8.9	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING February, 1984

DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.6	-10.4	69	062	3.8	074	6.3	0
0600	-8.6	-11.9	77	062	3.1	058	5.1	0
0900	-8.4	-13.2	74	075	1.6	075	3.8	1
1200	-8.0	*****	66	060	1.1	100	3.8	15
1500	-12.9	-17.0	71	024	5.7	027	10.8	14
1800	-15.5	-18.6	77	034	6.9	033	10.2	0
2100	-17.0	-20.5	74	044	6.3	041	9.5	0
2400	-17.6	-21.7	70	043	5.5	037	8.3	0

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-17.8	-21.8	71	043	5.0	038	8.3	0
0600	-17.7	-20.7	77	042	4.7	047	8.9	0
0900	-17.9	-22.0	70	041	5.3	043	10.2	1
1200	-16.3	-20.5	70	046	5.1	044	8.3	18
1500	-16.6	-21.4	66	061	4.4	061	6.3	15
1800	-17.4	-21.1	73	071	2.9	063	5.1	0
2100	-18.3	-21.5	76	093	1.3	108	3.8	0
2400	-21.4	-24.5	76	098	2.2	093	3.8	0

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-23.2	-26.1	77	097	2.8	095	4.4	0
0600	-23.0	-25.9	77	091	2.8	079	3.8	0
0900	-14.1	-17.2	77	075	2.5	055	5.7	1
1200	-12.2	-16.4	71	058	5.1	060	7.6	24
1500	-11.3	-15.0	74	059	5.2	065	7.0	1
1800	-11.5	-14.6	78	064	5.9	077	9.5	0
2100	-11.5	-14.6	78	062	5.9	068	8.9	0
2400	-10.9	-13.8	79	059	6.0	070	9.5	0

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.9	-13.8	79	053	5.3	053	7.0	0
0600	-10.7	-14.1	76	051	5.5	057	8.3	0
0900	-11.5	-14.6	78	055	4.6	057	7.6	2
1200	-9.5	-13.4	73	071	3.3	072	5.7	12
1500	-8.2	-12.3	72	064	2.4	077	4.4	18
1800	-9.5	-11.3	87	040	1.5	037	2.5	0
2100	-10.1	*****	91	059	1.0	058	1.9	0
2400	-12.4	-13.6	91	103	1.1	083	1.9	0

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.6	-13.9	90	101	1.2	091	2.5	0
0600	-14.2	-15.6	89	105	1.4	102	2.5	0
0900	-12.8	*****	89	095	1.1	085	2.5	1
1200	-11.3	-15.3	72	091	1.2	116	2.5	22
1500	-8.5	-13.0	70	111	1.4	112	2.5	14
1800	-8.1	-11.3	78	044	1.1	067	2.5	0
2100	-11.1	-12.6	89	085	2.0	084	3.8	0
2400	-12.1	-13.3	91	085	3.0	099	6.3	0

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.4	-14.6	91	085	2.3	069	4.4	0
0600	-14.1	-15.3	91	093	2.3	096	4.4	0
0900	-14.3	-15.7	89	063	2.2	080	4.4	3
1200	-10.2	-15.3	66	103	1.9	090	4.4	35
1500	-9.4	-13.2	74	078	3.2	097	5.7	16
1800	-10.0	-12.4	83	067	3.2	056	5.1	0
2100	-10.1	-12.6	82	072	3.0	065	5.1	1
2400	-11.7	-14.2	82	090	2.3	091	5.1	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	-9.7	-12.2	82	044	3.3	056	5.7	0
0600	-9.4	-11.6	84	052	4.6	051	6.3	0
0900	-8.6	-11.1	82	056	4.8	056	7.0	2
1200	-7.5	-11.7	72	060	4.4	056	7.0	20
1500	-6.8	-11.7	68	071	4.4	059	8.7	17
1800	-7.0	-11.2	72	064	3.8	076	5.1	0
2100	-7.5	-11.5	73	058	4.8	052	7.6	0
2400	-6.8	-11.2	71	067	4.8	068	8.3	0

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.0	-12.3	77	067	4.6	065	8.9	0
0600	-9.3	-12.4	78	073	3.7	062	5.1	0
0900	-8.6	-12.1	76	076	3.5	074	5.1	3
1200	-6.2	-11.7	65	098	4.2	102	6.3	24
1500	-6.3	-12.4	62	094	5.5	100	7.6	23
1800	-8.9	-13.4	70	092	4.8	103	7.0	0
2100	-7.4	-11.9	70	084	3.2	059	7.0	0
2400	-9.6	-14.4	68	076	6.2	079	8.9	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	-10.1	-14.5	73	075	6.7	073	10.2	0
0600	-11.8	-16.0	71	060	6.9	067	10.2	0
0900	-12.4	-16.6	71	064	6.9	063	9.5	5
1200	-11.3	-15.7	73	072	7.1	068	10.2	33
1500	-10.0	-13.9	73	072	6.7	074	10.2	19
1800	-9.6	-13.5	73	064	6.4	055	9.5	0
2100	-10.1	-13.7	75	060	6.2	060	9.5	0
2400	-9.3	-13.1	74	062	6.2	070	9.5	0

*** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT ***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING February, 1984

DAY 28										DAY 29									
HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW		HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW	
0300	-8.4	-12.2	74	061	6.0	058	8.3	0		0300	-8.9	-13.4	70	068	5.5	066	8.3	0	
0600	-12.4	-15.3	79	075	4.0	072	7.6	0		0600	-9.8	-14.2	70	058	6.5	056	8.9	0	
0900	-12.3	-15.1	78	072	4.2	087	13.3	6		0900	-9.8	-14.4	69	061	6.7	063	9.5	7	
1200	-7.0	-15.2	52	062	2.0	053	5.1	37		1200	-8.4	-14.6	61	070	7.2	074	10.2	34	
1500	-7.1	-14.2	57	093	5.0	088	7.6	29		1500	-8.0	-14.4	60	060	6.5	062	8.9	29	
1800	-8.4	-13.6	66	075	5.6	086	8.3	1		1800	-10.0	-15.5	64	060	5.5	063	8.3	1	
2100	-11.2	-15.4	71	071	3.2	062	7.6	0		2100	-9.5	-15.0	64	068	5.9	065	8.3	0	
2400	-12.0	-16.0	72	082	3.3	067	7.6	0		2400	-12.9	*****	72	077	4.9	077	8.3	0	

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DAILY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING February, 1984

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 LY/SQ*	DAY
1	-9.7	-19.5	-14.6	099	2.2	2.4	095	5.7	ESE	88	-15.1	****	110	1
2	-9.5	-18.1	-13.8	078	2.8	3.0	094	7.0	ENE	65	-19.2	****	220	2
3	-10.7	-15.9	-13.3	077	6.3	6.4	087	13.3	ENE	73	-17.6	****	295	3
4	-7.5	-12.9	-10.2	074	4.3	5.9	077	12.7	ENE	88	-11.5	****	250	4
5	-8.9	-17.3	-13.1	041	1.0	1.5	338	5.1	E	90	-15.1	****	280	5
6	-11.4	-17.3	-14.4	051	1.9	2.4	064	9.9	ENE	84	-16.7	****	755	6
7	-8.3	-18.1	-13.2	037	1.7	3.7	079	10.8	NNE	80	-15.0	****	260	7
8	-15.6	-23.8	-19.7	041	.9	1.5	297	4.4	NNE	83	-22.3	****	915	8
9	-15.3	-26.1	-20.7	070	1.5	1.7	063	4.4	ENE	78	-25.7	****	1240	9
10	-14.9	-24.1	-19.5	064	5.9	5.9	072	10.8	ENE	77	-22.3	****	615	10
11	-10.9	-16.3	-13.6	074	3.7	3.9	067	8.9	ENE	71	-17.8	****	920	11
12	-9.9	-15.7	-12.3	081	4.6	4.7	081	9.5	ENE	74	-15.2	****	790	12
13	-9.1	-14.5	-11.8	075	6.6	6.6	067	10.8	ENE	71	-15.1	****	645	13
14	-8.2	-14.3	-11.3	071	4.9	5.0	074	14.6	ENE	74	-14.6	****	785	14
15	-7.3	-15.1	-11.2	080	2.4	2.6	066	8.9	E	74	-14.6	****	1165	15
16	-4.7	-11.8	-8.3	076	5.9	6.0	085	12.7	ENE	79	-11.0	****	665	16
17	-3.3	-6.4	-4.4	073	4.3	4.6	094	11.4	ENE	84	-6.3	****	360	17
18	-4.4	-7.6	-6.0	071	4.2	4.3	080	9.5	ENE	82	-8.5	****	1075	18
19	-5.1	-17.6	-11.4	044	4.1	4.3	027	10.8	NE	72	-15.1	****	810	19
20	-16.2	-21.4	-18.8	054	3.7	3.9	043	10.2	NE	72	-21.5	****	1000	20
21	-10.9	-23.8	-17.4	067	4.4	4.6	077	9.5	ENE	76	-18.6	****	795	21
22	-8.2	-12.4	-10.3	058	3.8	3.1	057	8.3	NE	79	-13.2	****	1130	22
23	-7.9	-14.4	-11.2	090	1.5	1.6	099	6.3	E	83	-14.0	****	985	23
24	-9.2	-14.3	-11.8	082	2.5	2.6	087	5.7	ENE	82	-14.0	****	1775	24
25	-6.3	-10.4	-8.4	061	4.4	4.4	068	8.3	ENE	76	-11.5	****	1310	25
26	-6.0	-10.9	-8.5	083	4.4	4.5	065	8.9	E	71	-12.3	****	1400	26
27	-9.3	-12.5	-10.9	069	6.6	6.7	068	13.7	ENE	72	-14.8	****	1390	27
28	-6.2	-13.2	-9.7	074	4.1	4.3	087	13.3	ENE	69	-14.2	****	2115	28
29	-8.0	-12.9	-10.5	065	6.1	6.1	074	10.3	ENE	66	-14.6	****	2.55	29
MONTH	-9.3	-26.1	-13.4	070	3.7	4.1	074	14.6	ENE	77	-15.4	****	24725	

GUST DIR. AT MAX. GUST MINUS 2 INTERVALS 11.4
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 12.7
GUST DIR. AT MAX. GUST PLUS 1 INTERVAL 9.5
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 10.2

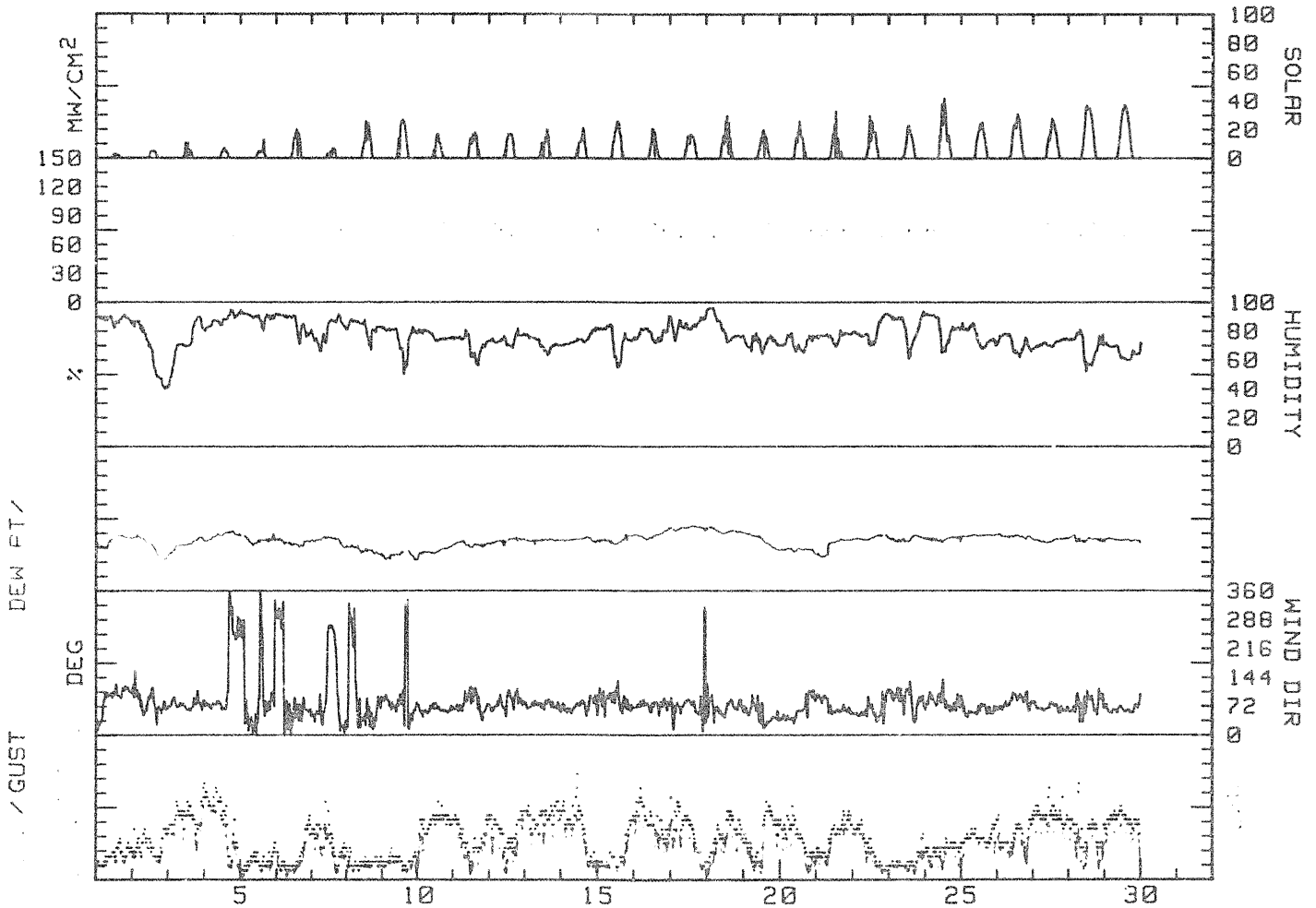
* ONE OF THESE HUMIDITY READINGS ARE UNREPRESENTATIVE AND SHOULD BE IGNORED
ONE METER PER SECOND SUCH READINGS HAVE NOT BEEN INCLUDED IN THE
THE MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

February, 1984



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING February, 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	.86	.07	0.00	0.00	0.00	0.00	.9
NNE	.29	3.30	.72	.36	0.00	0.00	0.00	4.6
NE	.57	4.17	2.90	1.87	0.00	0.00	0.00	9.5
ENE	.36	6.25	17.74	17.46	0.00	0.00	0.00	42.3
E	.97	9.91	7.54	5.32	.07	0.00	0.00	24.1
ESE	.57	6.47	1.51	0.00	0.00	0.00	0.00	8.5
SE	0.00	.57	0.00	0.00	0.00	0.00	0.00	.5
SSE	0.00	.87	.07	0.00	0.00	0.00	0.00	.9
S	.07	0.00	0.00	0.00	0.00	0.00	0.00	.0
SSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
SW	.14	.14	0.00	0.00	0.00	0.00	0.00	.2
WSW	.22	.36	.36	.07	0.00	0.00	0.00	1.0
W	.22	.14	.50	.07	0.00	0.00	0.00	.9
WNW	.43	.57	.14	0.00	0.00	0.00	0.00	1.1
NW	.07	.22	0.00	0.00	0.00	0.00	0.00	.2
NNW	.22	.29	.07	0.00	0.00	0.00	0.00	.5
CALM								
TOTAL	4.09	34.85	36.64	25.14	.07	0.00	0.00	100.0

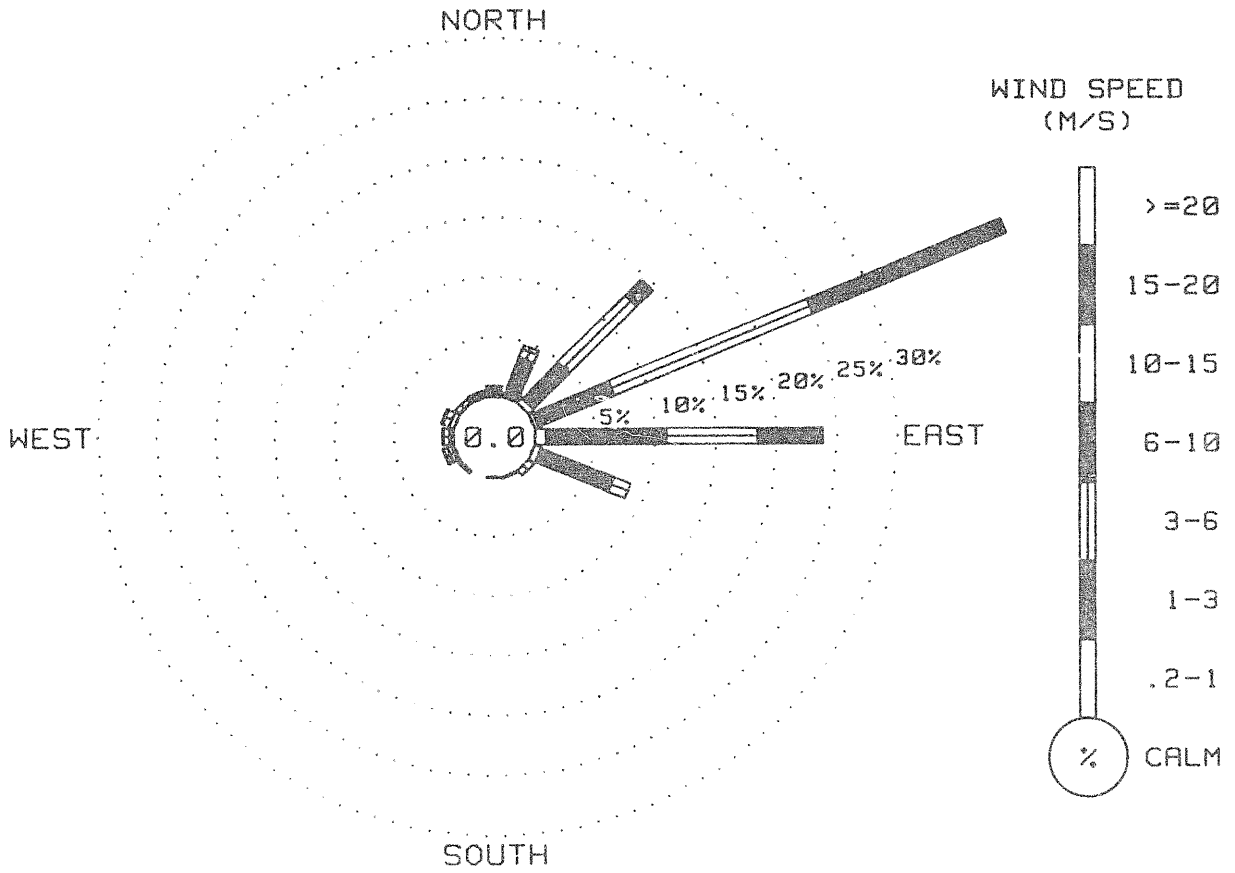
ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1392 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
1392 WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 58 MINUTES PER
SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

February, 1984



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING February, 1984

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	0	0	0	0	0	0	0	0	0	0	1	3	3	3	2	1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	1	3	5	5	5	3	1	0	0	0	0	0	0	0	1
3	0	0	0	0	0	0	0	0	0	1	4	6	11	1	6	2	0	0	0	0	0	0	0	0	1
4	0	0	0	0	0	0	0	0	0	0	3	6	7	5	4	1	0	0	0	0	0	0	0	0	1
5	0	0	0	0	0	0	0	0	0	1	2	5	5	5	9	3	1	0	0	0	0	0	0	0	1
6	0	0	0	0	0	0	0	0	0	2	5	14	18	11	17	9	1	0	0	0	0	0	0	0	3
7	0	0	0	0	0	0	0	0	0	2	3	4	3	4	6	5	1	0	0	0	0	0	0	0	1
8	0	0	0	0	0	0	0	0	0	1	6	11	24	14	22	12	2	0	0	0	0	0	0	0	4
9	0	0	0	0	0	0	0	0	0	4	13	12	26	27	24	15	6	0	0	0	0	0	0	0	5
10	0	0	0	0	0	0	0	0	0	2	6	7	16	15	10	5	2	0	0	0	0	0	0	0	3
11	0	0	0	0	0	0	0	0	0	2	12	11	16	14	17	7	4	0	0	0	0	0	0	0	3
12	0	0	0	0	0	0	0	0	0	2	4	13	17	16	16	10	2	0	0	0	0	0	0	0	3
13	0	0	0	0	0	0	0	0	0	3	6	4	11	14	18	8	3	0	0	0	0	0	0	0	3
14	0	0	0	0	0	0	0	0	0	2	4	11	12	15	18	9	2	0	0	0	0	0	0	0	3
15	0	0	0	0	0	0	0	0	0	7	14	20	26	25	17	7	4	0	0	0	0	0	0	0	5
16	0	0	0	0	0	0	0	0	0	2	8	17	16	10	9	4	2	0	0	0	0	0	0	0	3
17	0	0	0	0	0	0	0	0	0	4	9	14	13	16	15	11	5	1	0	0	0	0	0	0	4
18	0	0	0	0	0	0	0	0	1	8	14	12	26	17	20	8	4	1	0	0	0	0	0	0	4
19	0	0	0	0	0	0	0	0	1	4	8	15	19	10	15	9	3	0	0	0	0	0	0	0	3
20	0	0	0	0	0	0	0	0	1	5	14	15	24	18	15	6	4	1	0	0	0	[illegible]	0	[illegible]	4
21	0	0	0	0	0	0	0	0	1	5	14	20	18	7	8	5	4	1	0	0	0	0	0	0	3
22	0	0	0	0	0	0	0	0	1	5	16	21	20	19	18	9	5	1	0	0	0	0	0	0	[illegible]
23	0	0	0	0	0	0	0	0	1	3	7	17	21	19	16	11	5	1	0	0	0	0	0	0	[illegible]
24	0	0	0	0	0	0	0	0	2	14	32	29	40	37	14	14	6	1	0	0	0	0	0	[illegible]	[illegible]
25	0	0	0	0	0	0	0	0	1	9	16	20	25	25	19	13	6	1	0	0	0	0	0	[illegible]	5
26	0	0	0	0	0	0	0	0	2	12	22	24	25	30	25	14	6	1	0	[illegible]	0	0	0	[illegible]	[illegible]
27	0	0	0	0	0	0	0	0	3	12	15	19	27	24	20	13	7	1	0	0	0	0	0	0	6
28	0	0	0	0	0	0	[illegible]	0	4	13	23	36	35	35	31	22	13	3	0	0	0	0	[illegible]	[illegible]	[illegible]
29	0	0	0	0	0	0	0	0	5	14	25	33	37	36	31	23	13	3	0	[illegible]	0	0	[illegible]	0	[illegible]

SEE INFORMATION NOTES AT END OF MONTHLY REPORT [illegible]

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

TABLE 1 SHORTWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING February, 1984

SHORTWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
7	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
8	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
9	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
10	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
11	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
12	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
13	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
14	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
18	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
19	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
21	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
23	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
24	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
25	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
26	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***

*** = INCOMPLETE VALUES AT END OF MONTHLY REPORT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

OBSERVATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING February, 1984

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	1392	100
WIND SPEED	1392	100
WIND DIRECTION	1392	100
PEAK GUST	1392	100
RELATIVE HUMIDITY	1335	96
PRECIPITATION	0	0
SOLAR RADIATION	1392	100
DEW POINT	1335	96
LONGWAVE RADIATION	0	0

THERE ARE 1392 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER. THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

1. Solar -1 mW/CM^2

Additional comments on this month's data:

1. No longwave data. Watana base camp shut down for winter.

No precipitation data for March

(See INTERPRETATION OF DATA).

P & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MARCH, 1984

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	-13.4	-17.4	72	064	2.3	062	5.1	0
0600	-11.8	-16.1	70	097	3.7	097	7.0	0
0900	-10.5	-15.2	68	086	5.6	075	9.5	6
1200	-9.4	-14.8	69	070	7.2	072	10.2	34
1500	-9.1	-14.7	59	086	7.5	087	10.8	26
1800	-10.1	-15.0	67	073	4.7	088	8.9	0
2100	-11.4	-15.9	70	040	2.9	048	4.4	0
2400	-9.3	-13.9	69	044	3.0	051	5.1	0

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.2	-13.6	70	079	3.5	076	6.3	0
0600	-8.8	-13.3	70	069	4.5	072	7.0	0
0900	-9.2	-13.8	69	076	3.6	074	7.0	4
1200	-7.2	-12.6	65	064	3.8	078	7.0	42
1500	-6.3	-11.8	65	069	4.8	076	8.3	25
1800	-8.1	-12.2	72	063	4.5	076	8.3	1
2100	-8.8	-12.4	75	056	5.3	058	7.0	0
2400	-6.7	-10.2	76	053	5.5	051	7.0	0

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.9	-10.1	79	050	5.2	053	7.6	0
0600	-5.6	-9.1	76	074	7.2	068	11.4	0
0900	-5.4	-9.3	74	083	6.8	090	10.3	9
1200	-3.3	-7.8	71	077	5.5	084	9.5	37
1500	-2.3	-6.8	71	077	5.2	079	7.6	21
1800	-2.5	-5.8	78	060	4.4	065	7.0	0
2100	-1.6	-4.1	83	062	4.8	070	7.6	0
2400	-1.6	-3.8	85	083	5.1	093	10.3	0

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.3	-3.8	83	077	5.7	083	8.9	0
0600	-.2	-2.6	84	075	5.0	068	10.2	0
0900	-1.1	-3.0	87	069	3.8	061	7.0	5
1200	.9	-1.5	84	064	3.6	082	7.0	24
1500	2.7	-1.3	75	066	3.0	063	5.1	25
1800	1.8	-1.5	81	079	2.2	061	3.8	1
2100	.4	-1.2	89	026	1.3	054	2.5	0
2400	-.7	-1.9	92	017	1.0	008	1.9	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	-.9	-2.8	87	058	1.6	070	3.8	0
0600	-1.1	-3.0	87	053	3.8	038	5.7	0
0900	.7	-2.2	81	064	4.6	068	7.6	7
1200	1.3	-1.6	81	076	7.0	084	10.8	18
1500	3.3	-1.8	69	082	7.0	083	10.8	23
1800	2.9	-1.6	72	075	5.4	082	8.9	1
2100	2.0	-1.6	77	073	4.1	076	7.6	0
2400	.2	-1.4	89	066	.9	039	3.8	0

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.5	*****	95	297	1.0	293	3.5	0
0600	-1.6	-2.6	93	057	.8	007	3.5	0
0900	-3.9	-4.9	93	023	1.6	011	2.5	6
1200	-.2	-1.7	90	047	1.9	047	3.2	55
1500	3.8	-.7	72	048	2.6	052	4.4	34
1800	1.3	-1.4	82	058	4.4	058	7.1	3
2100	.9	-1.7	83	059	4.6	060	7.0	0
2400	1.7	-1.0	82	083	5.3	074	9.5	0

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.3	-.7	94	073	3.4	062	6.3	0
0600	.3	-1.2	86	064	4.7	066	7.9	0
0900	.2	-.4	89	062	5.1	059	7.9	12
1200	3.5	.1	84	067	4.8	061	7.6	37
1500	3.9	.4	79	065	3.2	073	5.1	26
1800	3.2	.1	86	069	3.6	086	7.6	3
2100	3.3	-.1	86	069	3.5	053	5.1	0
2400	1.5	-.4	87	073	3.9	066	5.1	0

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.3	-1.0	91	043	1.1	069	2.5	0
0600	-.3	-1.6	91	052	1.6	082	3.2	9
0900	0.0	-1.8	88	073	2.0	087	3.8	6
1200	3.7	.2	78	071	3.1	063	5.7	37
1500	3.5	.2	79	070	5.0	074	7.6	24
1800	4.2	.9	79	066	4.4	077	7.6	1
2100	3.3	.7	85	058	3.7	042	5.7	0
2400	3.6	.3	85	072	5.3	069	7.6	0

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.2	.7	94	184	4.7	189	10.3	1
0600	3.6	-.2	92	079	6.8	089	12.1	0
0900	2.7	-.6	89	043	4.7	077	10.3	11
1200	2.8	-.6	89	081	7.3	094	11.3	50
1500	3.8	-.4	84	184	6.4	084	10.3	24
1800	3.0	-1.0	89	075	5.8	075	9.5	3
2100	2.0	-1.6	90	053	3.9	059	5.1	0
2400	.8	-2.1	81	069	5.8	083	9.5	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

HOURLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING March, 1984

DAY 10

HOUR MDNG	TEMP. 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	-1.6	78	067	4.3	085	6.3	0
0600	1.4	-1.8	79	069	5.0	069	8.9	0
0900	1.8	-1.8	77	068	5.5	078	10.8	9
1200	3.3	-.3	77	087	6.1	086	9.5	26
1500	4.0	-.4	73	090	7.1	091	10.8	27
1800	3.6	-.6	74	087	6.1	095	10.2	6
2100	2.6	-.8	78	084	5.2	089	8.3	0
2400	1.4	-1.8	79	091	4.2	095	9.5	0

DAY 11

HOUR MDNG	TEMP. 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	-2.0	79	084	3.1	072	5.7	0
0600	-.1	-2.5	84	071	2.4	068	5.1	0
0900	-.5	-4.0	77	075	1.8	350	3.8	14
1200	4.5	-4.0	54	065	1.7	044	3.2	42
1500	4.3	-2.3	62	045	1.3	057	3.2	29
1800	1.8	-2.9	71	009	1.7	004	2.5	5
2100	-3.8	-5.1	84	002	2.6	359	4.4	0
2400	-3.9	-5.6	88	019	1.9	004	3.2	0

DAY 12

HOUR MDNG	TEMP. 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	-6.5	90	056	2.1	044	5.1	0
0600	-6.4	-7.4	93	068	1.5	039	3.8	0
0900	-4.4	-7.0	82	081	1.6	087	3.8	24
1200	0.0	-7.3	58	094	1.8	093	3.8	54
1500	4.3	-3.7	56	079	3.2	070	5.7	39
1800	2.6	-4.4	60	070	3.2	072	5.1	5
2100	-1.8	-5.0	79	086	1.7	093	4.4	0
2400	-4.7	-6.9	85	069	1.3	093	2.5	0

DAY 13

HOUR MDNG	TEMP. 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	-8.3	86	059	1.5	041	3.2	0
0600	-5.2	-5.2	86	093	2.6	082	4.4	0
0900	-1.9	-5.1	79	079	3.3	087	6.3	20
1200	.1	-4.1	73	066	4.3	075	7.0	37
1500	1.0	-3.8	70	079	5.0	074	7.6	43
1800	-.5	-4.4	75	087	4.8	090	7.6	6
2100	-3.5	-5.7	86	057	3.6	075	6.3	0
2400	-6.4	-8.1	88	031	3.5	041	5.8	0

DAY 14

HOUR MDNG	TEMP. 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	-6.9	87	021	1.3	002	2.5	0
0600	-5.1	*****	94	338	.7	050	1.9	0
0900	-5.0	*****	89	077	.5	009	1.3	9
1200	-.6	*****	69	114	.8	123	1.9	24
1500	.6	-3.3	75	332	1.0	343	1.9	29
1800	-.6	*****	81	014	.8	025	1.9	2
2100	-2.5	-3.5	93	019	1.1	049	1.9	0
2400	-5.7	-7.8	85	077	1.2	096	2.5	0

DAY 15

HOUR MDNG	TEMP. 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	-9.8	89	072	1.9	082	3.2	0
0600	-10.0	-11.4	90	076	1.8	065	3.2	0
0900	-7.7	-10.7	79	082	1.9	073	3.2	25
1200	-2.1	-7.8	65	066	2.0	070	3.2	49
1500	-.1	-6.3	63	068	3.8	073	7.0	48
1800	-2.9	-8.1	67	072	4.1	084	7.0	7
2100	-7.5	-10.5	79	089	3.2	087	4.4	1
2400	-4.9	-8.0	79	043	2.4	066	5.7	0

DAY 16

HOUR MDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.3	-9.4	85	082	3.5	106	7.0	0
0600	-10.6	-12.1	89	087	1.9	085	5.1	0
0900	-9.2	-13.0	74	089	1.7	094	4.4	21
1200	-3.3	-10.8	56	091	3.3	094	5.1	48
1500	-1.2	-8.9	56	077	3.8	079	5.7	43
1800	-3.9	-9.1	62	062	3.3	065	4.4	7
2100	-7.0	-10.3	77	057	3.7	059	5.7	0
2400	-7.6	-10.9	77	056	3.3	056	4.4	0

DAY 17

HOUR MDNG	TEMP. 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	-11.1	79	068	3.7	071	5.7	0
0600	-11.9	-14.4	82	076	3.3	071	5.1	0
0900	-7.5	-11.8	71	066	1.7	065	3.8	19
1200	-3.1	-10.2	53	092	3.5	096	5.7	48
1500	-2.1	-9.5	57	064	3.8	082	5.7	44
1800	-4.1	-10.9	59	059	3.7	057	4.4	8
2100	-10.4	-13.3	79	014	2.5	008	3.8	0
2400	-12.4	-15.0	81	027	1.5	001	3.8	0

DAY 18

HOUR MDNG	TEMP. 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	-15.5	84	066	2.0	063	5.2	0
0600	-14.3	-16.1	86	071	2.7	063	5.7	0
0900	-12.9	-16.7	73	080	2.6	079	5.8	35
1200	-5.0	-13.1	53	084	3.2	079	5.4	51
1500	-5.0	-11.3	53	080	3.6	063	5.7	45
1800	-4.8	-12.0	57	063	2.9	045	4.4	9
2100	-9.5	-13.8	71	025	2.6	026	4.4	0
2400	-11.3	-14.8	75	026	2.4	028	3.8	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MARCH, 1984

DAY 19

HOUR MDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-14.2	-16.3	84	081	1.3	080	2.5	0
0600	-15.1	-17.2	84	083	1.9	083	3.8	0
0900	-12.6	-17.6	66	091	2.0	091	3.2	24
1200	-5.8	-12.7	58	073	2.6	074	5.7	51
1500	-3.9	-11.9	54	055	2.9	067	4.4	46
1800	-3.4	-12.6	57	039	2.1	044	3.2	9
2100	-11.0	-14.1	78	010	2.4	004	4.4	0
2400	-12.6	-15.5	79	019	2.1	006	4.4	0

DAY 20

HOUR MDNG	TEMP. 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	-14.1	79	075	1.2	090	3.2	0
0600	-12.1	-14.8	80	100	2.2	101	3.8	0
0900	-10.3	*****	74	110	2.1	105	4.4	12
1200	-4.4	-12.3	54	107	1.9	097	3.8	37
1500	-1.8	-10.1	53	060	2.6	067	5.1	38
1800	-3.3	-9.1	64	053	1.9	052	3.2	6
2100	-6.3	-9.3	79	021	1.6	027	2.5	0
2400	-8.1	-10.5	83	013	1.9	006	3.2	0

DAY 21

HOUR MDNG	TEMP. 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	-13.8	83	010	2.5	017	3.2	0
0600	-12.5	-14.7	84	008	2.4	008	3.8	0
0900	-10.1	-13.8	74	036	1.9	008	3.8	25
1200	-4.6	-12.8	53	096	1.4	089	3.2	53
1500	-2.0	-10.6	52	053	2.6	060	4.4	46
1800	-4.5	-10.7	62	037	2.3	046	3.8	8
2100	-9.0	-12.1	78	018	2.5	022	3.8	0
2400	-10.9	-13.4	82	020	1.7	013	3.8	0

DAY 22

HOUR MDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.1	-14.7	88	084	2.0	084	3.2	0
0600	-14.3	-15.9	88	084	2.3	084	3.2	0
0900	-11.8	-16.3	69	090	3.7	092	3.8	30
1200	-4.3	-12.4	54	078	3.1	087	5.1	54
1500	-3.7	-10.0	57	081	4.2	078	6.3	48
1800	-3.9	-11.6	55	082	4.7	080	6.3	11
2100	-7.0	-11.3	71	079	3.6	081	6.3	0
2400	-9.0	-13.6	75	097	3.5	092	5.1	0

DAY 23

HOUR MDNG	TEMP. 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	-14.4	81	107	2.5	105	5.7	0
0600	-12.9	-15.5	81	087	2.0	097	3.8	0
0900	-12.0	-18.6	58	079	1.9	078	3.8	24
1200	-2.5	*****	38	141	.6	130	1.9	56
1500	-2.5	-12.9	45	064	2.0	053	3.8	50
1800	-4.7	-12.8	53	040	2.9	042	4.4	14
2100	-10.0	-14.2	71	027	2.9	022	4.4	0
2400	-12.4	-15.4	78	034	2.0	027	4.4	0

DAY 24

HOUR MDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.2	-15.6	82	093	1.6	093	3.8	0
0600	-9.4	-12.5	79	091	1.8	088	4.4	0
0900	-7.0	-11.7	69	069	4.5	068	7.0	36
1200	-4.2	-11.0	59	081	4.3	072	7.6	55
1500	-2.6	-9.3	60	073	5.2	072	7.6	44
1800	-4.0	-9.4	66	075	3.8	091	7.0	7
2100	-5.8	-9.5	75	056	3.7	048	5.7	0
2400	-8.1	*****	83	061	2.6	051	5.7	0

DAY 25

HOUR MDNG	TEMP. 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	-9.9	83	073	2.7	092	5.1	0
0600	-8.7	-10.6	86	082	3.0	075	5.1	0
0900	-7.8	-11.1	67	048	1.5	054	4.4	23
1200	-1.0	-8.2	69	130	2.7	100	5.7	47
1500	1.0	-6.8	56	070	3.1	092	4.4	51
1800	-.8	-6.5	65	060	2.4	060	4.4	10
2100	-2.9	-6.9	74	063	3.2	065	4.4	0
2400	-3.9	-6.9	74	039	3.2	056	5.8	0

DAY 26

HOUR MDNG	TEMP. 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	-7.6	77	064	3.0	062	4.4	0
0600	-5.0	-6.4	90	088	3.9	088	6.3	0
0900	-3.6	-6.4	81	065	3.6	056	5.7	29
1200	-1.4	-5.9	71	073	4.0	068	6.3	58
1500	-.2	-5.8	66	096	4.4	086	7.6	61
1800	-.8	-4.7	75	087	4.7	091	7.6	10
2100	-2.3	-5.5	78	058	3.8	056	6.3	0
2400	-3.5	-6.6	79	086	3.2	100	6.3	0

DAY 27

HOUR MDNG	TEMP. 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	-6.8	84	062	1.8	1.5	3.8	0
0600	-3.9	-6.5	83	061	2.3	060	4.4	0
0900	-2.1	-5.2	79	080	2.5	071	5.7	31
1200	-.1	-5.5	67	073	4.5	079	6.9	53
1500	1.1	-5.3	63	092	5.0	081	6.3	46
1800	.2	-5.4	66	069	3.6	078	6.3	11
2100	-4.4	-7.3	80	156	1.9	253	3.2	0
2400	-5.0	-8.1	79	048	1.5	066	2.5	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MARCH, 1984

DAY 28

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST MAX. M/S	RAD MW
0300	-8.0	-10.2	84	074	1.4	093	2.5	0
0600	-11.2	-13.0	87	055	1.9	050	3.2	0
0900	-7.8	-14.0	61	082	1.6	075	3.2	30
1200	-.7	-10.7	47	091	1.8	073	4.4	59
1500	1.4	-8.2	49	073	3.9	081	5.7	53
1800	.1	-8.9	51	066	3.5	075	7.0	15
2100	-3.9	-8.9	68	069	4.3	074	7.6	0
2400	-5.6	-8.8	67	056	3.5	068	5.7	0

DAY 29

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST MAX. M/S	RAD MW
0300	-4.5	-9.3	69	068	4.3	071	6.3	0
0600	-3.6	-8.8	67	068	4.6	082	7.6	0
0900	-2.4	-7.9	66	050	4.0	060	7.0	15
1200	-.3	-7.3	59	050	3.7	050	5.7	31
1500	.8	-6.3	59	080	3.4	099	8.3	23
1800	-1.0	-3.2	85	081	3.0	100	7.6	4
2100	-.9	-4.2	78	075	2.8	089	7.0	0
2400	-2.8	-5.5	82	089	3.9	095	7.6	0

DAY 30

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST MAX. M/S	RAD MW
0300	-6.5	-8.9	83	036	1.8	009	3.2	0
0600	-6.3	-8.6	84	037	1.6	029	2.5	0
0900	-3.9	*****	75	074	.8	084	2.5	18
1200	1.4	*****	47	157	.4	136	1.9	46
1500	2.6	-5.5	55	050	1.9	016	5.1	61
1800	0.0	-5.4	67	019	2.5	022	5.1	9
2100	-1.6	-2.5	94	275	2.4	310	5.7	0
2400	-2.7	-3.1	97	282	2.1	291	4.4	0

DAY 31

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST MAX. M/S	RAD MW
0300	-3.7	-3.4	95	283	1.5	284	2.5	0
0600	-3.2	*****	95	273	.9	276	2.5	0
0900	-3.1	-4.7	89	079	1.1	078	3.2	14
1200	.1	-4.1	73	072	3.2	084	8.3	78
1500	.6	-3.5	74	071	3.2	082	8.3	40
1800	0.0	-3.6	83	356	2.2	001	3.8	7
2100	-3.3	-6.1	81	009	1.8	010	3.2	0
2400	-3.4	-5.2	81	041	2.8	051	5.1	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

P & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

[illegible] FOR WATANA WEATHER STATION
[illegible] DURING MARCH 1984

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	-7.6	-15.4	-11.5	074	4.4	4.7	087	10.8	ENE	67	-15.4	****	[illegible]	1
2	-6.0	-11.4	-8.7	065	4.4	4.5	076	8.3	ENE	70	-13.8	****	1735	2
3	-.7	-6.9	-3.8	071	5.3	5.4	068	11.4	ENE	77	-7.3	****	1915	3
4	3.7	-2.2	3	068	3.1	3.3	068	10.2	ENE	84	-3.1	****	1525	4
5	3.5	-1.5	1.0	071	4.3	4.4	084	10.8	ENE	80	-3.0	****	1484	5
6	3.8	-3.9	-.1	057	2.5	2.8	079	9.5	ENE	85	-2.2	****	2770	6
7	3.9	.9	2.4	067	3.8	3.9	061	7.6	ENE	85	-.3	****	1965	7
8	4.3	-1.9	1.2	065	3.2	3.3	074	7.6	ENE	85	-.4	****	2110	8
9	4.1	-.8	1.7	076	5.6	5.7	089	13.1	ENE	79	-.6	****	3455	9
10	4.0	.7	3.4	079	5.4	5.5	078	10.8	ENE	77	-1.1	****	1996	10
11	4.5	-3.9	.3	048	1.9	2.1	072	5.7	N	76	-3.9	****	2550	11
12	4.3	-7.7	-1.7	075	2.0	2.1	070	5.7	E	76	-6.1	****	3695	12
13	1.4	-7.3	-2.9	072	3.3	3.5	071	7.6	E	81	-5.9	****	3900	13
14	3.3	-5.7	-1.8	031	.7	1.1	002	3.5	N	85	-5.3	****	2131	14
15	.1	-10.7	-5.3	062	2.5	2.7	073	7.0	ENE	77	-9.0	****	3535	15
16	-1.2	-10.8	-6.0	071	2.6	2.7	106	7.0	ENE	73	-10.5	****	3570	16
17	-1.9	-12.6	-7.2	064	2.6	2.9	071	5.7	ENE	71	-11.7	****	3555	17
18	-2.7	-15.1	-8.9	063	2.4	2.7	065	5.7	ENE	69	-14.2	****	3850	18
19	-3.5	-15.8	-9.7	055	1.9	2.2	074	5.7	E	70	-14.6	****	3855	19
20	-1.6	-12.6	-7.1	069	1.6	2.0	067	5.1	ESE	71	-11.8	****	3835	20
21	-1.8	-12.9	-7.4	031	2.0	2.2	060	4.4	NNE	70	-12.7	****	4001	21
22	-3.6	-14.8	-8.7	084	3.1	3.1	078	6.3	E	70	-13.2	****	4315	22
23	-3.5	-15.6	-8.8	063	1.8	2.2	105	5.7	NE	68	-14.6	****	4075	23
24	-3.5	-13.7	-8.1	071	3.4	3.5	072	7.6	ENE	71	-11.6	****	3975	24
25	1.0	-9.7	-4.4	069	2.4	2.5	100	5.7	ENE	71	-9.4	****	3705	25
26	-.2	-5.0	-3.6	074	3.7	3.8	086	7.6	ENE	77	-6.1	****	3570	26
27	1.2	-5.9	-2.4	071	2.8	3.0	078	8.9	ENE	75	-6.2	****	3445	27
28	1.6	-11.5	-5.0	069	3.7	2.8	074	7.6	ENE	66	-10.4	****	4710	28
29	1.3	-4.6	-1.7	069	3.6	3.9	099	8.7	ENE	69	-6.8	****	2861	29
30	3.8	-2.1	-.2	007	.9	1.9	310	5.7	NNE	76	-6.1	****	3485	30
31	.9	-5.0	-2.1	059	1.4	2.3	084	8.3	N	84	-4.9	****	2311	31
MONTH	4.5	-15.8	-3.9	068	3.9	3.2	089	13.1	ENE	75	-7.6	****	97110	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 10.3
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 8.3
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 10.3
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 10.3

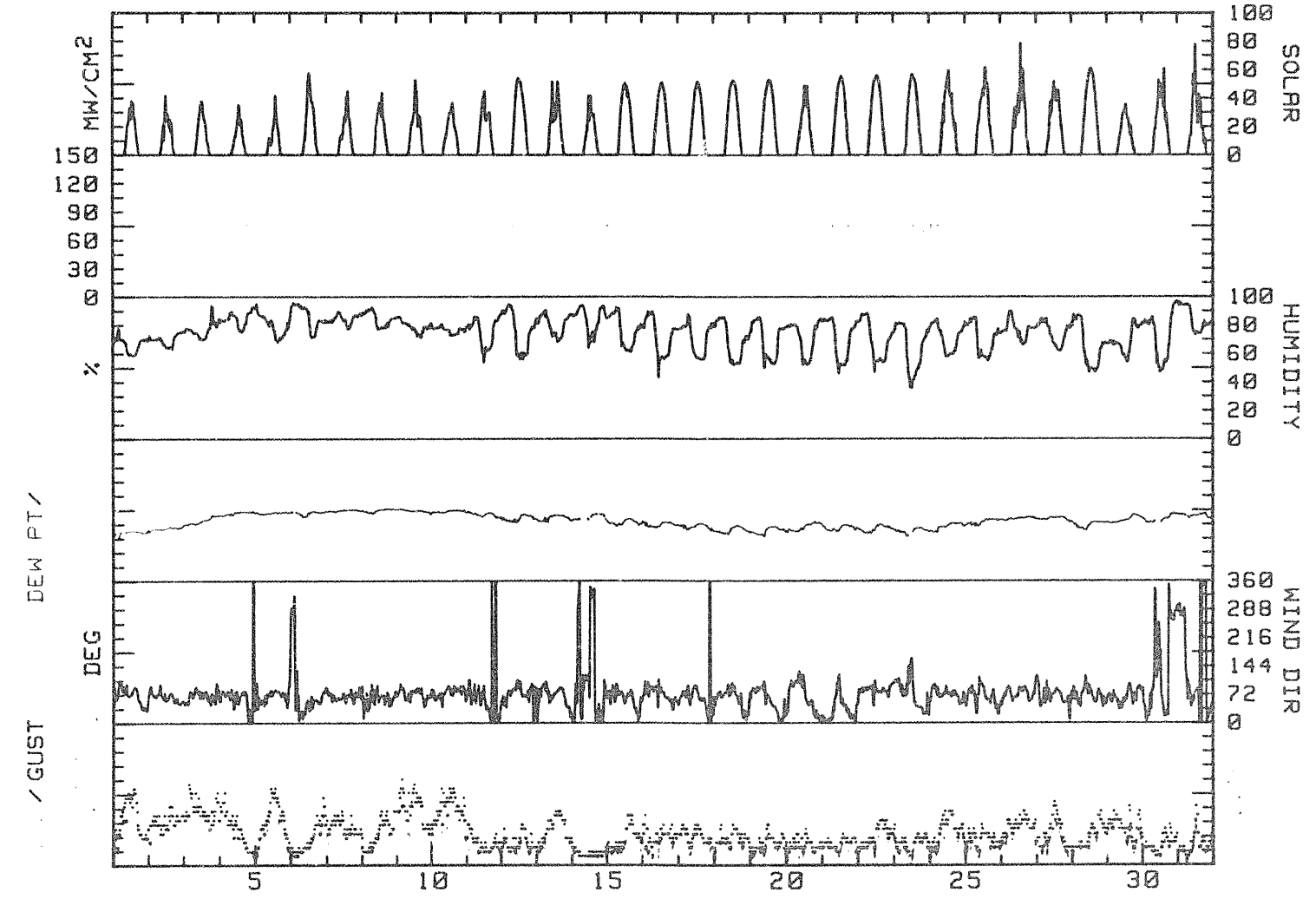
[illegible] RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS [illegible]
[illegible] METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED [illegible]
** MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.
[illegible] SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

March, 1984



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING March, 1984

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	.27	4.57	.20	0.00	0.00	0.00	0.00	5.03
NNE	.27	6.79	.81	0.00	0.00	0.00	0.00	7.86
NE	.47	9.48	7.06	0.00	0.00	0.00	0.00	17.00
ENE	.20	10.42	24.19	2.42	0.00	0.00	0.00	37.23
E	.47	10.89	9.88	3.63	0.00	0.00	0.00	24.87
ESE	.74	3.03	.40	0.00	0.00	0.00	0.00	4.17
SE	.67	.07	0.00	0.00	0.00	0.00	0.00	.74
SSE	.13	0.00	0.00	0.00	0.00	0.00	0.00	.13
S	.07	.07	0.00	0.00	0.00	0.00	0.00	.14
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	.07	0.00	0.00	0.00	0.00	0.00	0.00	.07
W	.07	.67	.07	0.00	0.00	0.00	0.00	.81
WNW	.07	.94	0.00	0.00	0.00	0.00	0.00	1.01
NW	.07	.27	0.00	0.00	0.00	0.00	0.00	.34
NNW	.34	.27	0.00	0.00	0.00	0.00	0.00	.61
CALM								3.29
TOTAL	3.90	47.45	42.61	6.05	0.00	0.00	0.00	100.00

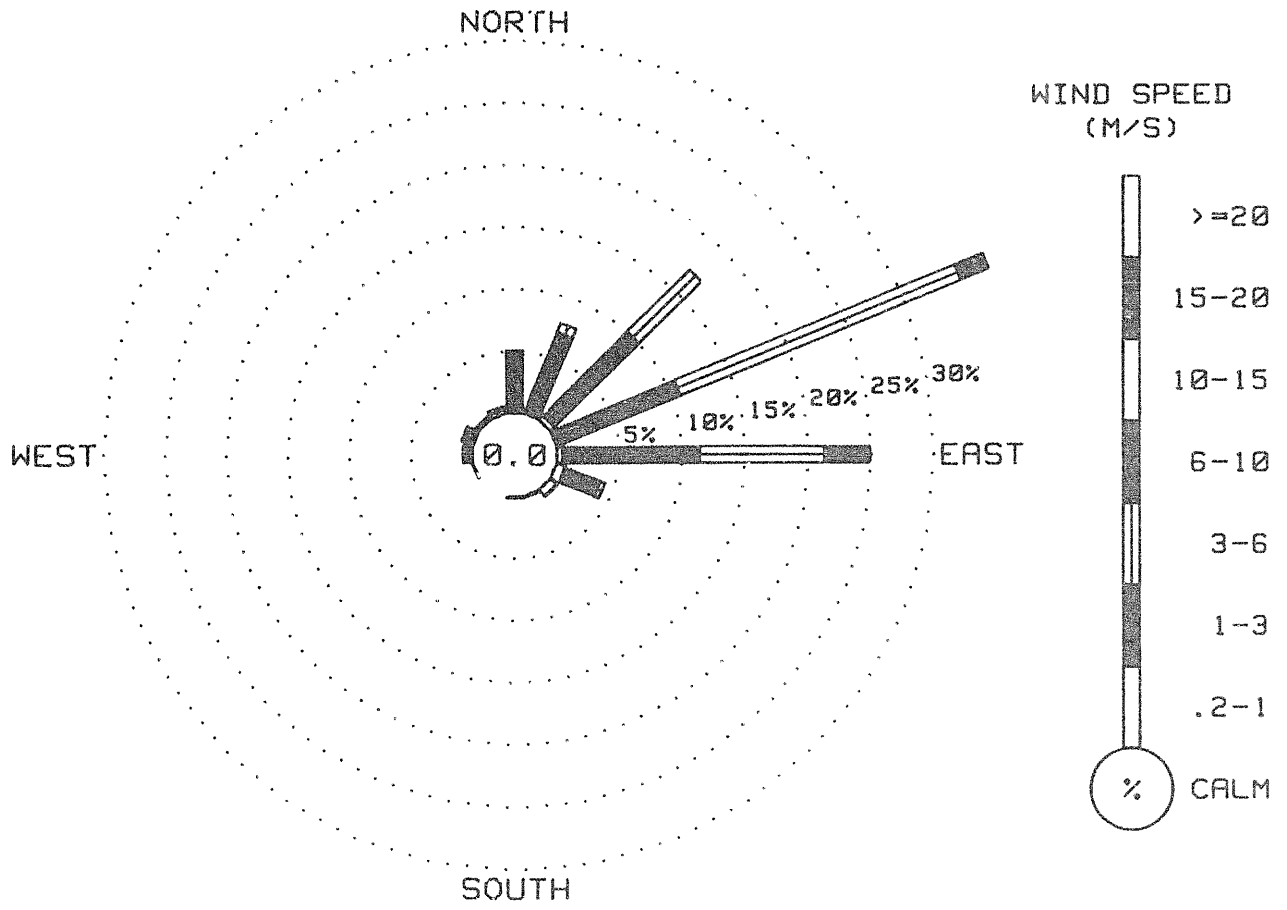
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1488 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
1488 WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 31 MINUTE DATA.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

March, 1984



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING March, 1984

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	0	0	0	0	0	0	0	0	4	16	23	33	32	33	26	18	9	2	0	0	0	0	0	0	8
2	0	0	0	0	0	0	0	0	3	13	16	36	25	27	22	20	11	2	0	0	0	0	0	0	7
3	0	0	0	0	0	0	0	0	7	17	28	36	37	27	23	12	7	1	0	0	0	0	0	0	8
4	0	0	0	0	0	0	0	1	4	8	13	21	31	28	25	14	8	2	0	0	0	0	0	0	6
5	0	0	0	0	0	0	0	0	5	12	9	14	22	35	26	18	9	1	0	0	0	0	0	0	6
6	0	0	0	0	0	0	0	1	6	15	30	53	54	40	36	28	13	4	0	0	0	0	0	0	12
7	0	0	0	0	0	0	0	1	9	14	13	24	24	38	36	25	12	4	0	0	0	0	0	0	8
8	0	0	0	0	0	0	0	0	4	20	28	35	35	36	26	18	9	3	0	0	0	0	0	0	9
9	0	0	0	0	0	0	0	1	9	20	22	29	49	45	22	27	18	5	0	0	0	0	0	0	10
10	0	0	0	0	0	0	0	1	7	12	17	25	39	31	32	20	16	9	1	0	0	0	0	0	8
11	0	0	0	0	0	0	0	1	11	23	34	41	36	26	28	30	18	8	1	0	0	0	0	0	11
12	0	0	0	0	0	0	0	4	20	37	50	54	52	49	41	33	23	8	1	0	0	0	0	0	15
13	0	0	0	0	0	0	0	2	13	27	44	30	29	35	48	34	21	9	1	0	0	0	0	0	12
14	0	0	0	0	0	0	0	1	7	15	22	33	40	29	29	22	13	4	1	0	0	0	0	0	9
15	0	0	0	0	0	0	0	3	20	35	45	49	49	45	43	36	23	10	1	0	0	0	0	0	15
16	0	0	0	0	0	0	0	5	18	31	40	47	51	50	45	36	24	11	2	0	0	0	0	0	15
17	0	0	0	0	0	0	0	5	16	28	40	47	52	51	46	37	25	11	2	0	0	0	0	0	15
18	0	0	0	0	0	0	0	7	21	35	45	50	53	52	47	38	26	12	2	0	0	0	0	0	16
19	0	0	0	0	0	0	0	7	20	35	44	50	53	53	48	38	26	12	3	0	0	0	0	0	16
20	0	0	0	0	0	0	0	3	11	19	28	35	46	41	44	30	17	9	1	0	0	0	0	0	12
21	0	0	0	0	0	0	0	8	22	35	46	52	55	55	50	41	25	10	3	0	0	0	0	0	17
22	0	0	0	0	0	0	1	11	27	41	51	54	56	55	50	41	29	15	4	0	0	0	0	0	18
23	0	0	0	0	0	0	1	4	16	35	46	54	57	55	52	43	30	15	4	0	0	0	0	0	17
24	0	0	0	0	0	0	1	9	29	32	46	54	59	43	43	28	19	15	3	0	0	0	0	0	16
25	0	0	0	0	0	0	1	9	22	30	39	45	46	62	49	40	21	12	6	0	0	0	0	0	16
26	0	0	0	0	0	0	1	7	24	27	28	37	36	59	52	44	32	11	4	0	0	0	0	0	15
27	0	0	0	0	0	0	1	9	16	33	35	48	46	39	43	36	24	14	4	0	0	0	0	0	14
28	0	0	0	0	0	0	2	14	27	42	50	58	61	60	55	46	33	19	6	0	0	0	0	0	20
29	0	0	0	0	0	0	1	6	13	20	28	31	36	28	25	15	17	7	3	0	0	0	0	0	9
30	0	0	0	0	0	0	1	7	19	28	38	50	45	46	48	36	26	13	3	0	0	0	0	0	14
31	0	0	0	0	0	0	1	7	14	26	51	62	41	38	42	28	20	11	2	0	0	0	0	0	14

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R A M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

LONGWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
Data Taken During March, 1984

LONGWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
7	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
8	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
9	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
10	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
11	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
12	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
13	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
14	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
18	***	***	***	***	***	***	***	***	***	***	***	***	***	***	**	***	***	***	***	***	***	***	***	***	***
19	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
21	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
23	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
24	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
25	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
26	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
30	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
31	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DATA RECOVERY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING March, 1984

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	1488	100
WIND SPEED	1488	100
WIND DIRECTION	1488	100
PEAK GUST	1488	100
RELATIVE HUMIDITY	1430	96
PRECIPITATION	0	0
SOLAR RADIATION	1488	100
DEW POINT	1430	96
LONGWAVE RADIATION	0	0

THERE ARE 1488 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER. THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

1. Solar -1 mW/CM^2

Additional comments on this month's data:

1. No longwave data. Watana base camp shut down for winter.

No precipitation data for April

(See INTERPRETATION OF DATA).

P A M CONSULTANTS, INC.

SULFUR HYDROCHLORIDE PROJECT

THREE HOUR SUMMARY FOR MONTANA WEATHER STATION
DATA TAKEN DURING April, 1984

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	-1.6	-5.1	77	074	5.0	075	8.9	0
0600	-1.9	-5.7	75	068	4.6	071	9.5	0
0900	-1.5	-6.0	71	075	5.2	090	9.5	18
1200	.1	-5.9	64	078	6.8	072	9.5	40
1500	3.3	-5.9	51	076	4.0	086	7.6	54
1800	-.1	-5.7	66	012	2.3	005	4.4	11
2100	-3.0	-6.8	75	006	2.9	005	5.1	0
2400	-3.4	-4.0	96	019	1.7	002	3.8	0

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.0	-5.8	94	004	1.8	002	3.2	0
0600	-4.7	-5.1	97	323	1.1	302	2.5	0
0900	-2.3	-3.6	91	322	1.2	292	3.2	11
1200	.1	-5.1	68	097	.4	077	5.1	36
1500	.5	-3.1	77	334	.3	331	5.7	42
1800	-.8	*****	82	224	.2	307	3.2	9
2100	-6.0	-8.9	80	007	2.3	018	3.8	0
2400	-8.9	-11.1	84	010	2.2	006	3.8	0

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.8	-9.2	83	045	1.7	048	3.2	0
0600	-8.0	-10.5	82	007	1.2	018	2.5	0
0900	-3.3	*****	60	070	.6	012	3.5	37
1200	0.0	-7.0	59	079	2.4	053	6.3	44
1500	.3	-5.7	64	054	4.2	051	6.3	37
1800	-.2	-5.4	68	049	4.0	050	6.3	8
2100	-.9	-4.9	74	051	3.4	049	5.1	0
2400	-1.0	-4.7	76	093	1.4	080	3.2	0

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.8	-5.6	81	065	1.7	064	3.8	0
0600	-5.5	*****	90	057	1.3	061	3.2	0
0900	-1.6	-6.9	67	049	.9	053	3.2	21
1200	1.1	-5.6	61	076	3.2	088	7.0	64
1500	3.0	-5.4	54	078	4.8	077	7.6	37
1800	1.3	-5.2	62	077	3.5	079	5.1	10
2100	-1.8	-4.8	80	083	2.7	084	4.4	0
2400	-3.3	-5.5	85	058	2.6	048	4.4	0

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.7	-6.4	88	020	2.4	018	3.8	0
0600	-5.0	-6.6	89	040	1.2	012	3.2	0
0900	-.2	-5.3	79	055	1.2	054	2.5	24
1200	.9	-4.5	67	067	2.6	080	5.7	66
1500	1.5	-5.0	62	064	3.1	080	5.1	43
1800	.9	-4.9	65	082	3.8	083	8.3	12
2100	-1.3	-4.5	79	065	3.2	060	5.1	0
2400	-3.3	-3.4	99	258	2.0	268	10.2	0

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.1	-5.2	92	257	4.7	256	7.6	0
0600	-4.9	-5.6	95	259	5.0	255	8.3	0
0900	-3.9	-5.3	90	281	1.7	289	3.2	22
1200	-2.5	-6.0	77	261	4.2	254	7.6	50
1500	-.9	-5.7	78	256	3.7	265	5.3	77
1800	-2.8	-5.5	82	274	3.8	287	7.0	18
2100	-4.6	*****	99	270	1.7	260	5.1	0
2400	-8.1	-9.1	93	106	1.0	124	3.5	0

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.0	-10.6	88	087	1.4	107	2.5	0
0600	-9.0	-9.8	94	068	1.6	077	3.9	0
0900	-5.0	*****	77	126	1.1	106	3.2	14
1200	-5.3	-10.2	58	081	1.0	132	3.2	53
1500	-2.7	-9.4	66	021	1.8	015	4.4	44
1800	-4.2	-9.8	65	019	3.1	007	5.1	10
2100	-6.9	-11.3	71	064	3.5	072	5.9	0
2400	-8.1	-11.7	75	066	2.7	075	4.4	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	-10.2	-12.7	82	034	1.4	058	3.2	0
0600	-11.2	-13.8	81	064	1.8	057	3.2	0
0900	-6.7	-12.2	65	069	2.0	067	5.1	24
1200	-3.4	-11.6	53	064	4.6	067	7.6	72
1500	-1.6	-10.7	50	080	5.6	086	9.5	44
1800	-1.5	-8.7	58	079	4.9	071	8.3	20
2100	-4.3	-7.6	78	069	4.0	085	7.0	0
2400	-4.0	-7.6	76	055	3.6	052	5.1	0

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.3	-9.0	75	065	3.4	077	6.3	0
0600	-7.6	-10.9	77	095	3.2	100	6.4	0
0900	-2.5	-10.6	54	059	3.3	104	6.3	26
1200	2.4	-14.6	29	087	2.7	091	5.1	55
1500	3.5	-15.8	25	060	2.3	042	3.8	62
1800	-1.6	-11.5	47	035	3.0	024	5.1	21
2100	-6.7	-13.5	63	036	4.7	041	8.9	1
2400	-7.2	-13.0	63	034	5.3	039	10.2	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING April, 1984

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	-8.0	-13.6	64	045	5.3	047	9.5	0
0600	-8.2	-13.6	65	038	4.3	047	7.0	0
0900	-6.7	-13.6	58	046	2.8	039	5.1	26
1200	-3.1	-11.8	51	049	2.9	065	7.0	63
1500	-3.3	-11.5	53	026	4.3	024	6.3	52
1800	-5.0	-11.3	61	021	3.7	027	5.7	14
2100	-7.7	-11.8	72	046	2.8	040	7.0	0
2400	-7.8	*****	72	046	1.4	047	5.1	0

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.9	-11.7	74	076	1.3	061	3.2	0
0600	-9.3	*****	82	085	.9	059	4.4	0
0900	-4.2	-9.8	65	083	1.2	088	5.1	25
1200	0.0	-7.0	59	077	3.7	073	6.3	43
1500	2.4	-5.7	55	056	4.3	064	6.3	62
1800	1.8	-5.6	58	057	3.4	058	5.7	17
2100	-2.0	-5.8	75	060	2.6	060	3.8	0
2400	-6.5	-8.9	83	053	1.7	056	3.2	0

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.7	-8.8	85	030	1.6	025	3.8	0
0600	-4.6	-7.1	83	086	1.9	092	5.1	2
0900	-2.0	-7.1	68	077	3.4	092	6.3	40
1200	1.1	-5.8	60	075	4.6	074	7.0	54
1500	2.8	-5.3	55	067	4.7	068	7.6	60
1800	2.1	-5.5	57	055	3.4	056	5.7	30
2100	-2.0	-6.2	73	052	3.0	049	4.4	0
2400	-5.0	-8.2	78	053	1.9	068	3.8	0

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.3	-8.8	89	068	1.8	056	3.8	0
0600	-8.4	-9.8	90	092	1.8	092	3.2	2
0900	-3.1	-8.9	64	112	2.2	116	5.7	39
1200	2.0	-4.7	61	082	4.4	094	8.3	40
1500	2.2	-4.3	62	079	5.8	087	9.5	37
1800	1.6	-5.1	61	077	4.8	071	8.3	16
2100	-1.6	-5.1	77	060	3.3	066	5.7	0
2400	-3.7	-6.8	79	045	2.1	055	3.8	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	-5.8	-6.9	92	074	1.3	074	3.2	0
0600	-6.1	-7.6	89	018	1.1	041	2.5	1
0900	-4.6	*****	71	082	.7	092	1.9	24
1200	1.8	-7.0	52	033	.2	306	1.9	83
1500	.2	-2.8	80	337	1.0	278	3.8	29
1800	-.1	-2.3	85	067	1.7	056	3.2	20
2100	-1.8	*****	99	107	1.1	103	1.9	0
2400	-2.4	-2.7	98	123	1.1	138	1.9	0

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.3	-3.7	97	103	1.1	106	2.5	0
0600	-4.5	-5.1	96	122	1.6	127	2.5	0
0900	-1.9	*****	89	113	1.0	119	2.5	8
1200	-.6	-4.1	77	118	.8	106	3.8	43
1500	2.4	-5.0	58	048	1.3	073	3.2	65
1800	-.3	-4.7	72	027	1.8	000	3.8	29
2100	-4.5	-4.8	98	296	2.8	271	7.6	0
2400	-5.3	-5.6	98	278	1.3	246	3.8	0

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.9	-7.3	97	016	.8	032	2.5	0
0600	-6.4	-6.8	97	052	1.4	073	5.1	2
0900	-4.0	-7.8	75	[illegible]	[illegible]	[illegible]	4.3	38
1200	-.3	-9.8	54	[illegible]	[illegible]	[illegible]	5	68
1500	-.3	-9.2	51	3[illegible]	[illegible]	[illegible]	[illegible]	80
1800	-2.3	-6.3	86	295	[illegible]	[illegible]	[illegible]	12
2100	-5.9	-6.3	97	294	[illegible]	[illegible]	1.7	0
2400	-6.3	*****	98	268	1.3	277	3.2	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	-7.1	*****	97	102	.6	094	1.9	0
0600	-7.5	-7.9	97	028	1.2	006	2.5	1
0900	-5.6	-7.7	85	012	1.7	002	2.5	23
1200	-1.4	*****	64	019	.9	029	1.9	47
1500	-1.9	-6.3	72	336	.8	312	2.5	41
1800	-3.8	-5.1	91	297	1.7	295	6.3	12
2100	-5.3	*****	99	262	.9	283	3.2	0
2400	-6.6	-7.7	92	004	1.1	021	2.5	0

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-8.4	-10.1	88	011	2.2	014	3.8	0
0600	-10.1	-12.3	84	013	3.3	006	5.7	5
0900	-6.6	-12.7	61	034	3.3	025	4.4	20
1200	-3.2	-11.7	52	035	2.6	044	4.4	39
1500	-1.0	-11.6	44	054	3.1	056	5.1	71
1800	-2.3	-12.4	46	032	3.0	029	4.4	29
2100	-7.5	-13.3	63	015	2.4	029	3.8	0
2400	-10.6	-14.5	73	010	2.3	015	4.4	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THIRTY HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING April, 1984

DAY 19

HOUR MDNG	TEMP. 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	-14.4	79	022	1.8	002	3.8	0
0600	-13.0	-14.9	86	045	1.6	043	2.5	2
0900	-7.1	*****	41	059	1.0	034	2.5	17
1200	-1.4	-13.1	41	056	1.1	044	2.5	67
1500	.5	-9.0	49	032	2.6	029	4.4	47
1800	.1	-7.4	57	027	3.0	023	5.1	23
2100	-1.3	-6.2	69	050	2.5	043	3.8	0
2400	-1.8	-5.5	76	047	2.4	050	4.4	0

DAY 20

HOUR MDNG	TEMP. 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	-4.2	80	051	2.4	057	5.1	0
0600	-1.2	-3.1	87	080	5.4	086	8.3	2
0900	1.1	-3.0	74	087	6.1	085	9.5	23
1200	3.3	-3.7	60	083	5.4	088	8.3	79
1500	5.6	-5.5	45	108	3.4	111	8.3	75
1800	5.1	-4.5	50	095	4.9	103	8.3	31
2100	3.2	-2.7	65	075	4.3	083	7.6	0
2400	2.6	-3.7	63	068	4.5	070	8.3	0

DAY 21

HOUR MDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.2	-3.7	65	068	4.4	077	7.0	0
0600	2.3	-4.2	62	044	3.5	059	7.6	9
0900	3.5	-4.7	55	050	3.7	053	7.0	27
1200	6.1	-5.6	43	072	4.2	097	7.0	95
1500	6.7	-5.4	42	096	6.2	105	11.4	83
1800	5.9	-6.1	42	112	5.8	112	10.2	20
2100	3.5	-4.0	58	094	5.4	099	10.2	0
2400	2.2	-2.7	70	081	4.9	081	9.5	0

DAY 22

HOUR MDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.4	-5.7	98	319	4.7	299	14.0	0
0600	-7.1	-7.5	97	265	7.0	286	10.8	2
0900	-5.0	-8.7	75	262	5.5	265	8.3	71
1200	-5.3	-11.8	60	295	5.2	280	7.6	38
1500	-3.2	-13.0	47	312	4.7	308	8.3	73
1800	-3.6	-13.9	45	333	4.1	325	6.3	32
2100	-7.9	-14.9	57	352	2.5	339	4.4	0
2400	-10.7	-16.0	65	003	3.0	000	4.4	0

DAY 23

HOUR MDNG	TEMP. 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	-16.8	62	002	2.7	359	3.8	0
0600	-10.9	-18.6	53	019	1.9	356	3.8	6
0900	-5.0	-15.2	45	111	1.0	125	5.1	48
1200	-2.4	-13.1	44	061	4.5	081	7.0	79
1500	-.9	-12.9	40	041	5.3	044	7.6	73
1800	-2.2	-12.6	45	038	4.7	034	7.6	33
2100	-4.8	-12.7	54	035	3.7	038	5.7	0
2400	-8.1	-13.3	66	018	3.2	024	5.1	0

DAY 24

HOUR MDNG	TEMP. 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	-13.5	72	012	2.2	013	3.2	0
0600	-9.7	-13.9	71	021	2.1	014	3.2	7
0900	-3.9	-14.5	44	061	1.2	059	3.6	19
1200	.8	-13.1	35	056	1.1	055	3.5	80
1500	4.0	-11.8	31	357	2.1	343	5.7	107
1800	1.1	-8.8	48	263	2.5	272	5.7	16
2100	-2.4	-3.0	96	278	2.5	282	5.7	0
2400	-3.7	*****	98	290	.9	265	3.2	0

DAY 25

HOUR MDNG	TEMP. 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	-5.2	96	361	1.6	358	7.0	0
0600	-4.7	*****	91	264	.7	261	3.2	4
0900	0.0	*****	52	132	.5	168	1.3	80
1200	.2	-8.9	48	355	1.7	356	3.8	95
1500	1.6	-10.7	40	354	1.7	316	4.4	58
1800	1.4	-8.1	49	044	2.1	045	4.4	21
2100	-1.6	-7.9	62	011	1.6	030	3.2	0
2400	-5.0	-10.0	68	020	1.3	014	2.5	0

DAY 26

HOUR MDNG	TEMP. 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	-10.1	71	032	1.6	017	2.5	0
0600	-8.7	-13.0	71	057	1.7	032	3.2	7
0900	-4.1	-11.4	57	078	1.4	083	3.2	34
1200	1.3	-9.7	44	062	1.5	065	2.5	71
1500	2.3	-10.8	38	009	1.0	050	3.2	53
1800	1.2	-8.1	58	347	1.5	349	3.2	16
2100	-1.2	-5.0	75	013	1.3	006	2.5	0
2400	-5.0	-7.3	84	007	2.1	003	3.8	0

DAY 27

HOUR MDNG	TEMP. 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	-7.6	82	124	1.9	041	3.8	0
0600	-3.1	-6.7	74	060	2.8	052	5.1	5
0900	-.8	-5.4	71	066	5.1	066	7.6	35
1200	2.0	-4.5	62	066	7.4	079	11.4	73
1500	3.4	-3.4	61	081	6.9	084	11.2	61
1800	3.5	-3.1	62	065	6.6	067	10.2	25
2100	2.8	-3.7	67	074	4.9	073	7.6	0
2400	2.1	-2.4	72	070	3.9	074	7.0	0

*** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT ***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING April 1984

DAY 28									DAY 29									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	HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW	HOUR NDNG	TEMP. 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	98	073	3.3	078	6.3	0	0300	-1.4	-2.6	92	036	1.5	042	3.2	0	0300	2.6	-.7	79	058	2.9	059	4.4	1
0600	.1	-.2	98	021	1.2	009	3.2	1	0600	-1.1	-3.6	83	053	1.6	042	3.2	10	0600	2.6	-.5	80	050	2.3	043	3.8	3
0900	1.1	-.4	90	284	1.3	287	3.2	48	0900	2.1	-2.4	72	064	3.4	052	6.3	38	0900	4.4	-.4	71	065	2.8	069	5.1	41
1200	3.7	.7	81	252	1.1	215	3.9	48	1200	4.5	-2.8	59	079	5.1	085	8.3	83	1200	6.6	-1.1	58	079	3.9	077	6.3	76
1500	5.1	.3	71	300	2.2	295	5.1	51	1500	5.2	-3.1	55	083	5.3	087	8.3	52	1500	6.5	-2.9	51	108	3.8	084	7.6	33
1800	3.6	.3	79	270	3.0	255	6.3	24	1800	5.1	-2.2	59	055	3.2	064	5.7	29	1800	5.4	-1.7	60	062	1.8	131	5.1	19
2100	2.5	.1	84	356	.6	271	3.2	0	2100	3.3	-.7	75	061	2.2	052	3.2	0	2100	2.0	.5	90	321	2.0	352	5.1	0
2400	5	-.7	92	061	1.2	117	2.5	0	2400	2.8	-1.3	74	052	2.7	046	3.8	0	2400	-.1	-1.3	92	346	1.0	271	3.2	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DAILY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING APRIL, 1984

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	3.3	-3.4	-.1	062	3.7	4.1	071	9.5	ENE	71	-5.5	****	3595	1
2	3.2	-8.9	-2.9	337	1.0	1.8	331	5.7	N	84	-5.6	****	3135	2
3	.5	-9.1	-4.3	055	2.2	2.5	053	6.3	NE	72	-7.1	****	3545	3
4	3.0	-5.5	-1.3	072	2.5	2.6	077	7.6	ENE	71	-5.5	****	4935	4
5	1.8	-5.1	-1.7	058	1.8	2.7	268	10.2	ENE	78	-5.1	****	4260	5
6	-.9	-8.1	-4.5	262	3.0	3.3	255	8.3	W	88	-5.6	****	3950	6
7	-1.7	-9.1	-5.4	058	1.6	2.0	007	5.1	ENE	73	-10.4	****	3495	7
8	-.8	-12.8	-6.4	068	3.4	3.6	086	9.5	ENE	67	-11.0	****	5320	8
9	3.9	-7.9	-2.0	056	3.1	3.4	030	10.2	NE	54	-11.6	****	5040	9
10	-3.1	-8.2	-5.7	038	3.4	3.5	047	9.5	NE	60	-12.5	****	4950	10
11	2.5	-9.3	-3.4	065	2.3	2.4	073	6.3	ENE	67	-7.9	****	5410	11
12	3.1	-9.0	-3.0	065	3.0	3.1	068	7.6	ENE	71	-6.9	****	5785	12
13	2.9	-9.1	-3.1	076	3.2	3.3	087	9.5	E	73	-6.7	****	3990	13
14	2.1	-7.1	-2.5	067	.8	1.2	278	3.8	ENE	83	-4.6	****	4070	14
15	2.4	-5.3	-1.5	046	.4	1.7	271	7.6	ESE	85	-4.6	****	3700	15
16	.2	-7.6	-3.7	312	1.0	2.1	278	7.0	W	83	-7.2	****	4635	16
17	0.0	-8.6	-4.3	352	.8	1.2	295	6.3	N	89	-6.9	****	3395	17
18	-.5	-10.6	-5.6	026	2.6	2.7	006	5.7	NNE	64	-12.2	****	7965	18
19	1.0	-13.2	-6.1	040	2.0	2.1	023	5.1	NE	66	-10.7	****	5390	19
20	5.7	-2.1	1.8	082	4.4	4.6	085	9.5	E	66	-4.0	****	5855	20
21	6.7	1.4	4.1	081	4.4	4.8	105	11.4	E	54	-4.7	****	5820	21
22	2.1	-10.7	-4.3	303	3.8	5.0	289	14.0	N	68	-10.8	****	6175	22
23	-.9	-12.6	-6.8	037	3.1	3.4	044	7.6	NE	51	-14.5	****	6935	23
24	4.0	-10.4	-3.2	341	1.0	1.9	343	5.7	NNE	59	-11.1	****	6595	24
25	3.3	-5.2	-1.0	001	.9	1.5	358	7.0	N	59	-8.6	****	6540	25
26	4.9	-9.3	-2.2	031	1.3	1.6	003	3.8	NE	61	-9.4	****	5370	26
27	3.9	-6.7	-1.4	075	4.8	5.0	090	11.4	ENE	70	-4.8	****	5465	27
28	6.2	-.3	3.0	319	.6	1.9	078	6.3	WNW	86	.0	****	4475	28
29	5.4	-2.4	1.5	066	3.0	3.2	085	8.3	ENE	73	-2.2	****	6140	29
30	7.5	-.1	3.7	064	2.0	2.9	084	7.6	ENE	70	-1.0	****	5485	30
MONTH	7.5	-13.2	-2.4	052	1.9	2.8	289	14.0	ENE	70	-7.3	****	151960	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 6.8
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 12.7
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 13.3
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 12.1

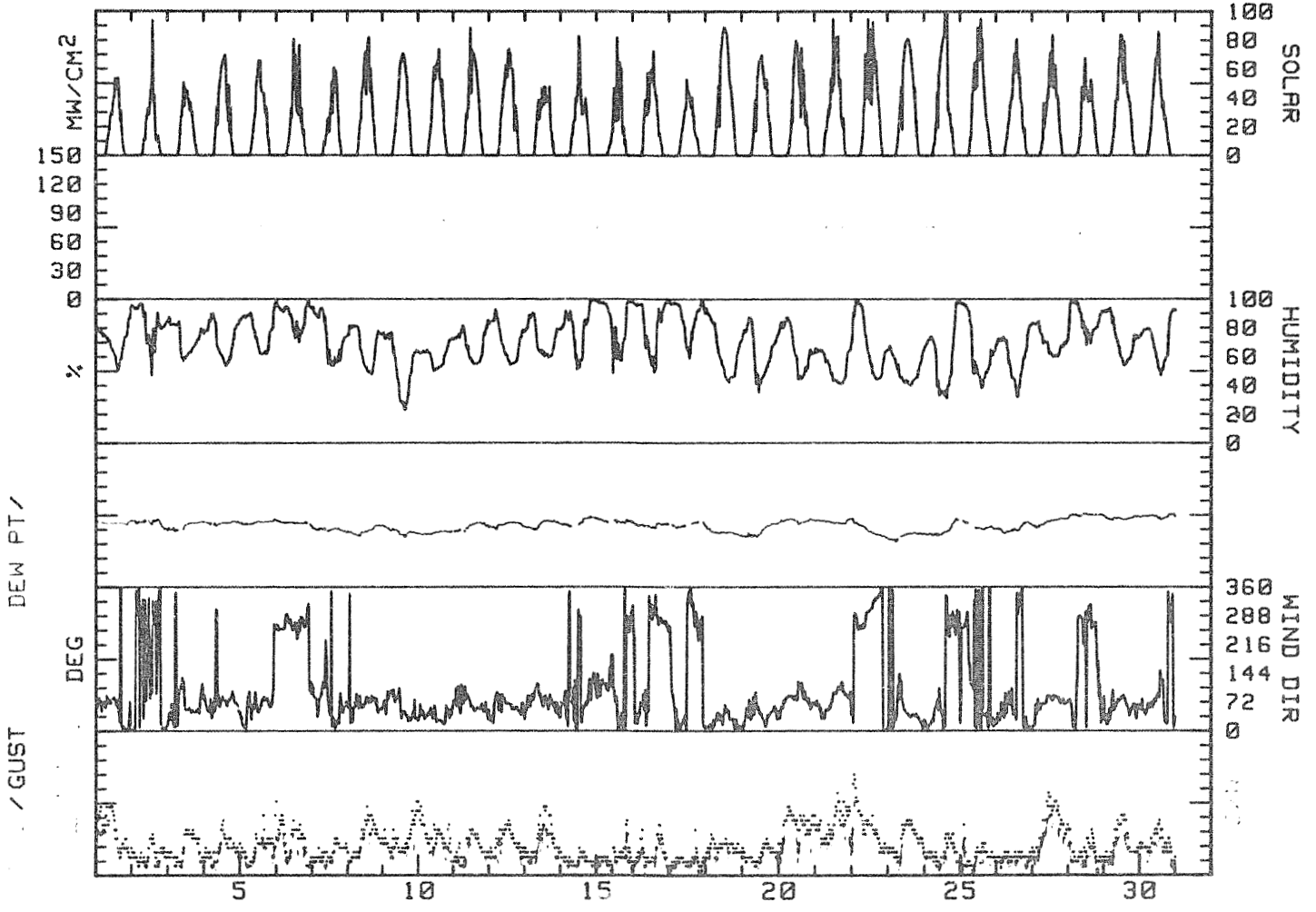
NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

April, 1984



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING April, 1984

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	.35	7.01	1.11	0.00	0.00	0.00	0.00	8.47
NNE	.49	8.68	3.33	.35	0.00	0.00	0.00	12.85
NE	.76	10.56	6.94	.07	0.00	0.00	0.00	18.33
ENE	1.04	8.40	11.60	.49	0.00	0.00	0.00	21.53
E	.69	5.21	5.63	2.78	0.00	0.00	0.00	14.31
ESE	1.39	2.99	.97	.21	0.00	0.00	0.00	5.49
SE	.49	.56	.14	0.00	0.00	0.00	0.00	1.19
SSE	.21	.14	.07	0.00	0.00	0.00	0.00	.42
S	.28	0.00	0.00	0.00	0.00	0.00	0.00	.28
SSW	.28	.07	0.00	0.00	0.00	0.00	0.00	.35
SW	.35	.14	.14	0.00	0.00	0.00	0.00	.63
WSW	.28	.49	1.25	.35	0.00	0.00	0.00	2.37
W	.63	1.94	1.81	.35	0.00	0.00	0.00	4.72
WNW	.35	2.43	1.32	.14	.14	0.00	0.00	4.39
NW	.49	1.18	.35	0.00	0.00	0.00	0.00	1.94
NNW	.76	1.11	.63	0.00	0.00	0.00	0.00	2.51
CALM								.07
TOTAL	8.75	51.04	35.28	4.79	.14	0.00	0.00	100.00

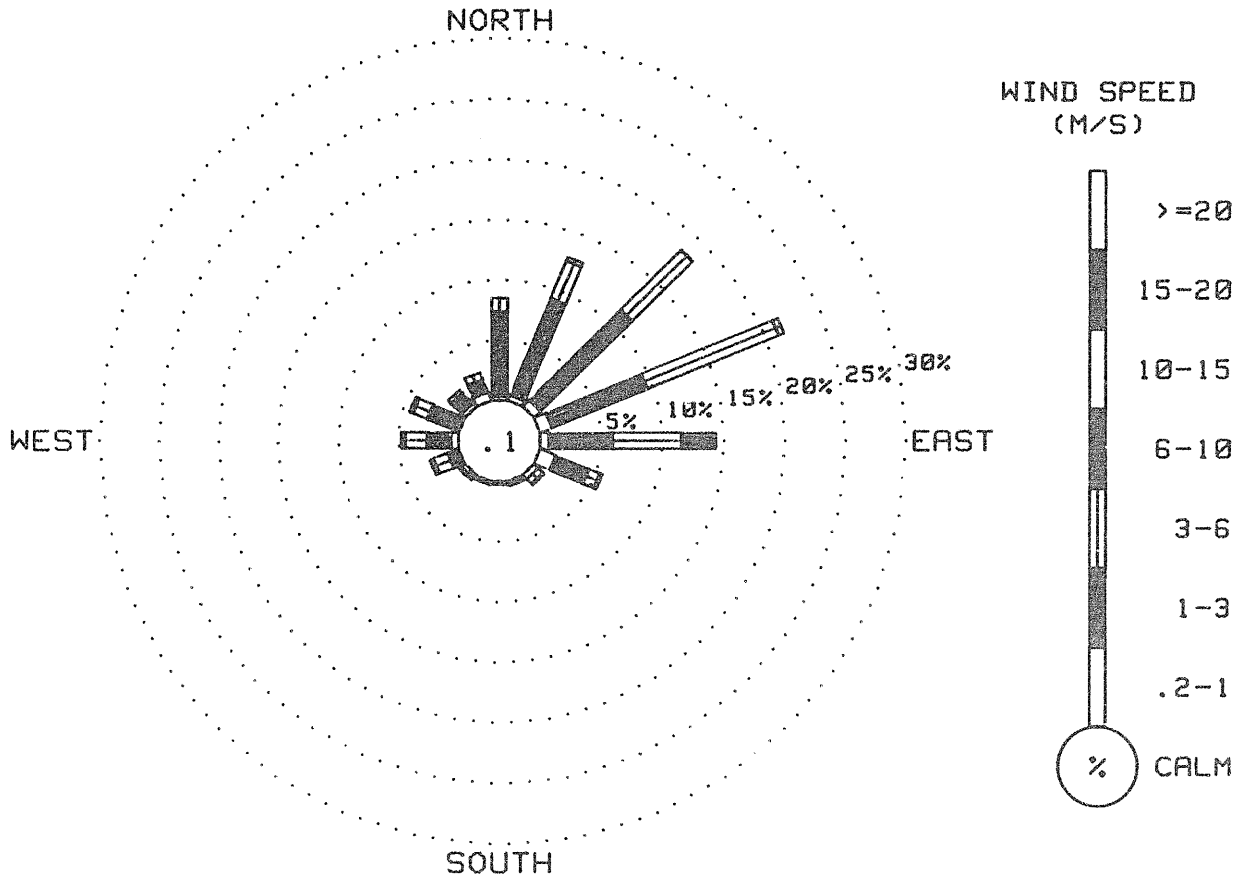
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1446 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
1440 WIND OBSERVATIONS SHOULD HAVE BEEN CORRECT FOR 30 MINUTE DATA.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

April, 1984



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MOUNT SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING April, 1984

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	0	0	0	0	0	0	2	9	16	27	29	38	47	53	50	42	28	16	5	1	0	0	0	0	15
2	0	0	0	0	0	0	1	8	11	26	32	32	47	71	40	20	12	12	4	1	0	0	0	0	13
3	0	0	0	0	0	0	3	12	27	38	43	46	45	39	34	31	22	12	5	1	0	0	0	0	15
4	0	0	0	0	0	0	6	22	28	45	55	63	67	69	51	29	33	22	6	1	0	0	0	0	21
5	0	0	0	0	0	0	3	11	21	30	52	62	62	47	44	38	32	20	8	1	0	0	0	0	18
6	0	0	0	0	0	0	4	9	18	30	47	66	53	42	53	27	27	17	6	1	0	0	0	0	16
7	0	0	0	0	0	0	2	9	11	20	24	25	43	40	53	57	42	19	9	1	0	0	0	0	15
8	0	0	0	0	0	0	4	16	24	45	52	70	54	79	63	57	40	22	8	1	0	0	0	0	22
9	0	0	0	0	0	0	4	12	22	33	44	61	67	70	65	56	36	26	10	1	0	0	0	0	21
10	0	0	0	0	0	0	5	14	23	45	60	58	64	67	53	49	36	16	8	1	0	0	0	0	21
11	0	0	0	0	0	0	5	13	27	33	55	66	72	70	64	56	43	25	12	3	0	0	0	0	23
12	0	0	0	0	0	1	8	26	37	48	59	58	73	71	60	56	24	33	19	3	0	0	0	0	24
13	0	0	0	0	0	1	10	23	37	28	35	44	42	42	39	37	39	17	8	2	0	0	0	0	17
14	0	0	0	0	0	1	6	15	23	33	41	63	59	33	32	33	37	24	11	1	0	0	0	0	17
15	0	0	0	0	0	0	2	3	7	12	26	45	33	68	45	62	40	18	10	2	0	0	0	0	15
16	0	0	0	0	0	1	15	35	29	44	47	59	53	60	44	36	20	14	8	2	0	0	0	0	19
17	0	0	0	0	0	1	5	12	21	29	34	50	44	38	37	29	18	13	10	3	0	0	0	0	14
18	0	0	0	0	0	3	18	35	35	67	80	88	89	85	75	54	46	33	18	5	0	0	0	0	30
19	0	0	0	0	0	1	8	24	28	48	62	67	69	60	50	51	38	24	10	2	0	0	0	0	22
20	0	0	0	0	0	1	6	16	31	59	73	80	68	60	51	50	41	26	21	6	1	0	0	0	24
21	0	0	0	0	0	5	17	22	30	34	50	70	66	81	77	49	41	22	19	4	0	0	0	0	24
22	0	0	0	0	0	1	9	24	55	41	68	40	62	69	75	62	51	36	20	8	1	0	0	0	26
23	0	0	0	0	0	4	14	29	44	40	70	78	81	80	75	64	52	40	19	7	1	0	0	0	29
24	0	0	0	0	0	5	10	24	32	59	69	78	83	99	105	32	29	19	15	4	0	0	0	0	27
25	0	0	0	0	0	3	12	35	53	56	51	87	76	88	70	47	33	23	16	8	1	0	0	0	27
26	0	0	0	0	0	5	12	21	30	39	46	66	64	72	60	48	36	19	18	5	1	0	0	0	22
27	0	0	0	0	0	4	10	28	27	39	46	69	56	66	60	53	41	31	15	5	1	0	0	0	23
28	0	0	0	0	0	1	4	11	31	38	49	58	44	38	45	51	35	26	14	5	1	0	0	0	19
29	0	0	0	0	1	8	17	34	39	62	75	84	55	78	55	47	40	33	21	8	1	0	0	0	27
30	0	0	0	0	0	4	12	23	39	52	68	78	84	53	40	38	27	23	14	7	1	0	0	0	23

*** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT ***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOUR Y LONGWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING April, 1984

LONGWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
7	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
8	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
9	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
10	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
11	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
12	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
13	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
14	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
18	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
19	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
21	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
23	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
24	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
25	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
26	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
30	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

OBSERVATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING April, 1984

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	1440	100
WIND SPEED	1440	100
WIND DIRECTION	1440	100
PEAK GUST	1440	100
RELATIVE HUMIDITY	1311	91
PRECIPITATION	0	0
SOLAR RADIATION	1440	100
DEW POINT	1311	91
LONGWAVE RADIATION	0	0

THERE ARE 1440 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER. THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

1. RH +4 RH Points 4/09 - 4/30
2. Solar -1 mW/CM^2

Additional comments on this month's data:

1. No longwave data. Watana base camp shut down for winter.
2. No precipitation data. Tipping bucket gage was not connected.

P & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY, 1984

PRECIPITATION VALUES ARE IN MILLIMETERS

	HOUR ENDING																								
DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE
1	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	1
2	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	2
3	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	3
4	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	4
5	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	5
6	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	6
7	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	7
8	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	8
9	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	9
10	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	10
11	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	11
12	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	12
13	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	13
14	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	14
15	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	15
16	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	16
17	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	17
18	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	18
19	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	19
20	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	20
21	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	21
22	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	22
23	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	0.0	1.0	23
24	0.0	0.0	0.1	0.0	0.0	0.0	0.0	.2	.2	.4	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	24
25	1.0	1.0	0.0	1.0	0.0	0.0	0.0	.2	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	25
26	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	.2	.2	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	.4	1.6	1.0	0.0	0.0	0.0	0.0	.2	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	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	29
30	0.0	0.0	0.0	0.0	0.0	0.0	.6	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	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

SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY, 1984

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	-1.0	-2.0	93	052	1.6	047	3.2	0
0600	-.4	-2.3	87	062	1.6	072	3.2	7
0900	3.6	-.9	72	057	2.6	047	4.4	51
1200	5.9	-1.7	58	064	3.0	064	5.1	66
1500	6.3	-1.3	58	048	1.6	079	5.1	64
1800	4.3	-.6	70	277	2.3	272	4.4	24
2100	1.5	.0	90	266	2.7	268	4.4	0
2400	.2	-.2	97	285	2.3	284	4.4	0

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.7	*****	97	252	2.2	248	7.0	0
0600	-.8	*****	95	238	.6	121	1.9	1
0900	.4	-2.2	83	251	1.5	258	2.5	9
1200	3.7	-3.1	61	258	1.9	271	5.7	85
1500	1.5	-2.8	73	252	1.3	211	5.1	38
1800	.3	-3.1	84	005	1.2	354	3.2	14
2100	-1.3	*****	91	329	.8	268	3.8	0
2400	-3.6	-4.6	93	***	****	***	1.9	0

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.4	-7.0	69	***	****	***	2.5	0
0600	-4.2	*****	80	***	****	***	2.5	9
0900	-.8	-6.1	67	037	1.6	***	4.4	21
1200	4.3	-5.8	48	078	4.1	088	7.6	60
1500	5.2	-8.6	36	131	3.1	100	5.7	80
1800	4.1	-5.2	51	093	2.0	144	7.0	23
2100	1.9	-3.5	67	052	3.3	058	6.3	1
2400	.7	-4.3	69	047	2.0	072	5.1	0

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.4	-5.7	67	070	3.2	073	4.4	0
0600	-.2	-6.2	64	059	2.9	064	5.1	9
0900	3.3	-6.4	49	090	3.7	073	5.7	48
1200	3.8	-7.1	45	105	4.3	099	7.0	61
1500	1.2	-6.2	47	066	2.1	106	5.7	50
1800	-.3	*****	63	007	1.6	355	3.8	13
2100	-.3	-3.2	87	268	3.2	281	7.6	0
2400	-1.9	*****	97	269	1.8	281	4.4	0

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.5	-4.5	93	326	.4	312	2.5	0
0600	-3.3	-4.3	93	031	1.0	022	1.9	9
0900	-.7	-4.9	73	076	1.5	028	3.2	58
1200	3.6	-5.1	53	013	1.3	034	3.8	61
1500	4.0	-6.7	46	334	1.8	320	3.8	28
1800	2.7	-4.5	59	033	1.9	039	3.8	12
2100	-.8	-2.7	87	281	1.9	285	6.3	1
2400	-1.9	*****	95	294	1.6	290	3.2	0

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.2	*****	93	312	.6	3.5	1.9	0
0600	-3.3	-4.4	92	016	.8	001	2.5	18
0900	.9	-3.7	71	092	1.0	120	3.5	34
1200	4.0	-6.7	46	093	1.2	015	3.2	80
1500	4.4	-7.5	42	313	1.8	095	3.6	33
1800	4.7	-7.2	42	089	2.2	076	3.4	4
2100	.4	-5.8	63	023	2.5	03.	3.5	.
2400	-1.6	-6.5	69	006	2.5	3.1	4.4	0

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.9	-8.2	73	007	3.2	358	3.8	0
0600	-3.1	-8.1	68	032	1.4	0.5	3.2	11
0900	.5	-7.1	53	.08	1.8	10h	4.4	53
1200	4.9	-8.4	38	064	3.7	044	7.0	85
1500	5.3	-7.6	38	034	4.8	036	7.0	79
1800	5.4	-8.4	36	032	3.4	032	7.0	39
2100	3.6	-6.5	44	031	3.1	033	5..	.
2400	.8	-6.3	59	065	2.8	046	4.4	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	.9	-6.9	56	077	2.8	073	4.4	0
0600	2.3	-7.1	50	081	2.3	083	3.8	12
0900	5.5	-7.2	40	033	2.3	024	5.1	54
1200	7.0	-7.6	35	026	2.9	028	5.1	85
1500	7.9	-6.8	35	036	3.7	035	5.7	79
1800	7.5	-7.1	35	032	3.9	034	6.3	39
2100	6.5	-6.8	44	034	2.9	032	5.7	2
2400	1.9	-5.9	56	054	1.6	094	3.8	0

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.0	-5.8	65	1h0	1.6	053	3.2	0
0600	4.8	*****	89	059	1.3	072	3.2	14
0900	5.8	-5.6	68	.10	.9	07h	3.8	54
1200	8.5	-4.4	47	071	2.6	071	4.4	85
1500	9.0	-5.4	54	071	3.0	077	4.4	79
1800	8.5	-5.1	56	119	3.1	121	5.7	38
2100	4.5	-5.6	78	124	2.7	124	.	.
2400	.9	-4.3	88	100	2.3	104	3.2	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY, 1984

DAY 10

HOUR ENDNG	TEMP. 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	-5.5	73	007	2.2	008	3.2	0
0600	.8	-4.6	67	016	1.9	001	3.2	12
0900	5.4	-5.1	47	105	.6	120	2.5	54
1200	8.6	-3.7	42	359	1.9	355	3.8	89
1500	8.9	-5.1	37	321	2.9	301	6.3	89
1800	7.6	-5.6	39	271	4.1	268	7.6	17
2100	3.3	-3.5	61	022	1.9	031	5.1	1
2400	.6	-5.0	66	081	2.7	056	5.7	0

DAY 11

HOUR ENDNG	TEMP. 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	-6.6	65	053	2.6	037	5.1	0
0600	-.8	-7.1	62	110	2.0	109	3.8	7
0900	1.0	-8.8	48	046	3.4	042	7.0	56
1200	2.2	-10.1	40	049	4.3	039	7.0	86
1500	3.2	-9.9	38	057	4.7	063	10.2	81
1800	1.7	-12.6	34	054	4.9	056	7.6	41
2100	-1.5	-13.5	40	067	4.0	058	7.6	2
2400	-4.1	-14.6	44	088	2.7	082	5.7	0

DAY 12

HOUR ENDNG	TEMP. 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	-15.9	46	069	2.2	056	3.8	0
0600	-4.2	-14.2	46	053	1.7	056	3.2	13
0900	1.0	-15.2	29	071	2.6	071	5.7	55
1200	3.8	-14.5	25	035	3.7	023	6.3	66
1500	5.9	-13.2	24	022	3.9	026	5.7	80
1800	6.3	-12.4	25	019	2.9	020	4.4	41
2100	1.8	-9.6	43	028	3.0	029	4.4	2
2400	-2.0	-10.1	54	013	2.4	013	5.1	0

DAY 13

HOUR ENDNG	TEMP. 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	-9.1	61	016	1.8	014	3.2	0
0600	-.3	-8.7	53	027	1.4	021	2.5	12
0900	4.3	-7.9	41	130	.7	054	2.5	55
1200	6.7	-7.5	36	267	3.3	286	7.0	88
1500	7.7	-7.3	34	307	3.0	261	7.0	39
1800	8.4	-7.1	33	279	3.4	266	7.0	40
2100	4.5	-7.7	41	320	1.9	297	5.1	3
2400	-.5	-6.0	66	006	2.4	007	3.8	0

DAY 14

HOUR ENDNG	TEMP. 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	-6.4	69	020	2.0	024	3.8	0
0600	-.7	-6.8	63	031	1.8	035	2.5	12
0900	5.6	-5.5	45	112	1.3	083	3.8	57
1200	8.6	-5.8	36	057	2.0	014	6.3	86
1500	10.3	-5.0	34	025	4.0	029	6.3	81
1800	9.2	-5.6	35	029	3.9	033	6.3	42
2100	5.5	-5.6	45	031	3.8	035	6.3	2
2400	3.4	-5.3	53	031	2.7	026	3.8	0

DAY 15

HOUR ENDNG	TEMP. 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	-5.5	66	336	1.2	012	3.2	0
0600	.8	*****	67	039	1.1	035	2.5	9
0900	6.0	-4.2	48	063	.8	090	2.5	39
1200	10.2	-10.7	22	121	1.9	118	5.7	91
1500	12.3	-10.7	19	111	2.4	130	5.7	63
1800	10.2	-9.1	25	133	1.3	136	6.3	33
2100	6.0	-8.1	36	009	2.6	021	4.4	3
2400	1.5	-6.6	54	351	2.7	356	4.4	0

DAY 16

HOUR ENDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.6	-7.2	56	008	1.8	011	3.9	0
0600	-.3	-7.1	60	030	1.5	006	3.2	6
0900	6.3	-5.4	43	120	1.4	116	3.2	54
1200	10.3	-6.7	29	061	2.2	110	5.7	95
1500	13.2	-11.7	18	059	2.3	016	6.3	84
1800	11.4	-12.1	19	120	1.5	114	5.7	77
2100	7.5	-8.7	31	020	3.0	026	4.4	4
2400	[illegible]	-6.5	53	010	2.5	002	4.4	0

DAY 17

HOUR ENDNG	TEMP. 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	-5.4	62	043	1.7	033	3.8	0
0600	2.1	*****	52	068	1.5	068	3.2	15
0900	9.3	-5.1	36	154	.8	128	1.9	57
1200	14.1	-8.0	21	344	.9	335	4.4	88
1500	13.9	-9.4	19	022	3.6	023	8.3	33
1800	14.7	-7.5	21	035	4.2	053	8.3	20
2100	8.3	-5.3	38	014	2.6	337	5.1	3
2400	7.2	-1.7	53	284	.8	292	4.4	0

DAY 18

HOUR ENDNG	TEMP. 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	-1.9	61	336	1.9	223	6.3	0
0600	4.3	*****	67	154	.2	[illegible]	1.9	4
0900	3.7	*****	35	090	.4	017	3.5	36
1200	9.2	.4	[illegible]	359	.9	199	3.2	106
1500	9.9	-1.9	[illegible]	337	1.2	114	[illegible]	39
1800	11.1	-3.5	[illegible]	337	3.0	[illegible]	[illegible]	41
2100	[illegible]	-3.4	45	336	1.7	345	[illegible]	5
2400	3.4	-3.2	62	[illegible]	1.5	015	[illegible]	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY, 1984

DAY 19

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.6	*****	69	004	1.6	003	3.2	0
0600	4.0	-1.5	67	057	.8	041	2.5	14
0900	8.5	-.5	53	252	.7	273	3.8	59
1200	10.9	-1.9	41	305	1.5	271	3.8	30
1500	12.4	-1.3	39	043	.6	219	6.3	118
1800	10.2	2.1	57	240	2.1	190	6.3	46
2100	7.2	1.5	67	217	1.2	157	8.9	3
2400	3.4	.5	81	037	1.3	033	3.2	0

DAY 20

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.9	-.9	88	036	1.8	029	3.2	0
0600	3.0	*****	78	052	1.1	048	2.5	18
0900	10.2	1.3	54	142	1.1	115	2.5	58
1200	14.4	-1.0	35	159	1.8	141	6.3	100
1500	14.4	-2.2	32	046	2.2	103	6.3	94
1800	14.1	-.1	38	046	3.7	075	8.9	33
2100	9.3	.5	54	270	4.3	252	8.3	4
2400	5.6	1.4	74	287	2.0	273	4.4	0

DAY 21

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.2	.9	79	289	1.2	329	1.9	0
0600	4.3	1.7	83	293	1.8	277	3.7	2
0900	9.0	3.3	67	273	3.0	270	5.7	45
1200	10.9	2.2	55	236	3.6	277	6.3	35
1500	12.3	3.5	55	244	3.2	245	8.9	64
1800	9.2	3.4	67	266	5.2	275	11.4	11
2100	3.4	2.2	92	261	5.8	259	[illegible]	0
2400	2.6	1.7	94	277	2.7	267	[illegible]	0

DAY 22

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.5	1.5	93	294	1.9	293	3.8	0
0600	2.2	1.3	94	273	1.8	244	4.4	2
0900	3.7	2.2	90	276	3.4	272	6.3	21
1200	5.4	2.1	79	269	2.6	282	4.4	39
1500	7.0	2.3	72	288	1.7	282	4.4	37
1800	6.7	2.1	63	275	2.1	275	3.1	56
2100	6.7	1.7	70	272	3.2	284	5.7	5
2400	2.9	1.[illegible]	88	290	1.6	278	3.8	0

DAY 23

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.6	*****	94	322	1.1	286	2.5	0
0600	-.1	-1.1	93	034	1.0	002	3.2	7
0900	7.9	2.0	66	054	.2	016	2.5	58
1200	13.3	.9	43	289	1.4	300	4.4	103
1500	11.6	-.3	44	034	2.3	035	8.9	12
1800	8.0	4.6	79	259	1.5	271	5.7	15
2100	6.9	4.4	84	302	.6	018	5.1	2
2400	5.1	3.1	87	307	1.3	299	2.5	0

DAY 24

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.9	2.7	86	234	3.0	276	3.8	0
0600	5.3	2.1	80	276	2.7	266	[illegible]	1
0900	4.8	2.0	87	279	3.8	290	[illegible]	11
1200	7.0	2.9	75	301	3.0	310	5.7	35
1500	9.0	-.1	53	291	3.3	276	[illegible]	51
1800	9.4	-4.3	38	260	5.0	256	10.2	15
2100	7.2	-2.8	44	254	5.0	264	[illegible]	[illegible]
2400	5.2	-1.7	61	291	2.5	280	[illegible]	[illegible]

DAY 25

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.9	-1.4	68	258	4.3	266	8.9	0
0600	3.5	.2	85	279	2.3	263	5.1	2
0900	3.3	.7	83	258	3.1	255	5.1	10
1200	5.0	.8	74	259	4.0	275	6.3	47
1500	8.4	-4.5	39	274	4.3	274	8.9	105
1800	8.4	-4.2	41	259	5.4	275	8.9	58
2100	3.5	-1.3	72	272	5.6	259	9.5	3
2400	.7	-1.5	85	287	2.1	295	5.7	0

DAY 26

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.3	-1.3	89	331	1.0	308	3.2	0
0600	.3	-.9	92	295	1.0	299	2.5	0
0900	3.1	-.7	76	266	2.4	271	3.8	28
1200	5.1	-2.7	57	273	2.2	252	6.3	38
1500	5.6	-2.7	55	278	2.4	279	7.0	12
1800	5.6	-2.2	57	244	3.2	271	7.6	23
2100	2.1	-1.2	79	269	3.6	263	10.2	5
2400	1.3	-.4	82	278	1.7	273	4.4	0

DAY 27

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.8	*****	85	[illegible]	.9	[illegible]	[illegible]	0
0600	.5	*****	86	[illegible]	.3	[illegible]	[illegible]	[illegible]
0900	4.3	-2.3	67	305	.8	[illegible]	[illegible]	[illegible]
1200	7.6	-3.7	45	[illegible]	1.5	[illegible]	[illegible]	[illegible]
1500	4.4	-3.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1800	4.3	.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2100	2.2	-.4	83	[illegible]	2.3	[illegible]	[illegible]	[illegible]
2400	.6	-1.2	86	[illegible]	.4	[illegible]	[illegible]	[illegible]

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

1-HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY, 1984

DAY 28

HOUR	TEMP.	DEW POINT	RH	WIND DIR.	WIND SPD.	GUST DIR.	MAX. GUST	RAD
MDNG	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	-1.7	-3.4	88	***	****	***	1.9	0
0600	-.6	-2.4	88	***	****	***	2.5	7
0900	3.0	*****	77	109	.8	056	1.9	61
1200	8.7	-5.0	38	199	1.6	284	4.4	104
1500	8.5	-7.4	32	359	2.4	323	8.9	96
1800	9.8	-10.4	23	273	2.9	251	7.0	50
2100	7.7	-10.2	27	302	3.6	315	7.0	7
2400	1.1	-5.8	60	034	1.8	016	4.4	0

DAY 29

HOUR	TEMP.	DEW POINT	RH	WIND DIR.	WIND SPD.	GUST DIR.	MAX. GUST	RAD
MDNG	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	-.2	-4.8	71	009	2.0	034	3.2	0
0600	1.8	-4.0	65	030	1.4	013	3.8	6
0900	5.9	-4.3	48	119	1.5	119	3.2	31
1200	7.9	-7.1	34	265	2.4	248	8.9	29
1500	3.1	1.0	86	235	2.4	281	8.9	44
1800	4.3	-.8	69	276	2.9	269	8.9	34
2100	3.5	-.7	74	000	1.4	300	3.8	2
2400	.4	*****	93	281	1.1	273	5.7	0

DAY 30

HOUR	TEMP.	DEW POINT	RH	WIND DIR.	WIND SPD.	GUST DIR.	MAX. GUST	RAD
MDNG	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	.3	-.3	96	078	.7	116	1.9	0
0600	1.8	-1.1	81	033	1.7	048	5.1	15
0900	5.1	-.7	66	033	3.6	029	6.3	31
1200	7.1	-4.7	45	103	4.8	119	8.3	54
1500	9.6	-4.7	36	072	3.7	089	8.3	77
1800	6.7	-1.7	55	039	4.5	035	8.9	46
2100	5.1	-2.0	60	069	2.9	085	6.3	5
2400	1.4	-.7	86	036	.9	104	4.4	0

DAY 31

HOUR	TEMP.	DEW POINT	RH	WIND DIR.	WIND SPD.	GUST DIR.	MAX. GUST	RAD
MDNG	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	.4	*****	79	351	1.3	338	2.5	0
0600	.9	*****	73	048	.9	001	2.5	25
0900	6.8	-3.2	49	137	1.2	123	3.8	61
1200	9.5	-6.1	33	057	1.8	045	7.0	31
1500	10.3	-8.1	25	046	2.6	056	5.1	30
1800	10.5	-6.5	30	061	1.9	026	7.6	6
2100	8.9	-3.1	43	154	2.2	122	6.3	10
2400	5.8	.1	81	109	1.3	098	3.2	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY, 1984

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 W-/SQ*	DAY
1	7.2	-2.4	2.4	013	.8	2.4	064	5.1	ENE	77	-1.3	****	6493	1
2	3.7	-3.6	.1	264	1.1	1.5	248	7.0	WSW	83	-2.5	****	3855	2
3	6.3	-7.1	-.6	078	2.4	2.6	088	7.6	NE	65	-6.1	****	6495	3
4	5.6	-1.9	1.9	068	1.3	2.9	281	7.6	ENE	61	-5.4	****	5945	4
5	4.8	-3.7	.6	351	.9	1.6	285	6.3	NNE	74	-4.1	****	6215	5
6	5.0	-5.7	-.4	023	1.4	1.6	026	4.4	NNE	61	-6.1	****	7090	6
7	6.0	-4.5	.8	042	2.7	3.1	044	7.0	NNE	52	-7.8	****	8020	7
8	7.9	-.4	3.8	044	2.6	2.8	034	6.3	NNE	44	-7.0	****	8125	8
9	9.5	-1.7	3.9	027	2.0	2.2	020	5.1	NNE	49	-5.4	****	6250	9
10	9.7	-2.0	3.9	353	1.3	2.4	268	7.6	N	54	-4.7	****	7625	10
11	3.2	-4.1	-.5	061	3.4	3.7	063	10.2	NE	47	-9.9	****	8205	11
12	7.1	-7.4	-.2	036	2.6	2.8	023	6.3	NNE	36	-13.3	****	8360	12
13	9.8	-3.4	3.2	318	1.5	2.4	286	7.0	N	45	-7.7	****	7765	13
14	10.3	-2.8	3.8	035	2.5	2.8	014	6.3	NNE	48	-5.8	****	8435	14
15	12.4	.1	6.3	057	1.1	2.1	136	6.3	N	39	-7.8	****	7265	15
16	13.3	-1.0	6.2	044	1.6	2.3	016	6.3	NNE	37	-8.5	****	8270	16
17	16.1	.6	8.4	029	1.6	2.3	023	8.3	NNE	37	-6.2	****	6905	17
18	12.0	3.0	7.5	341	1.0	1.8	223	6.3	N	55	-1.4	****	6210	18
19	13.4	1.2	7.3	311	.4	1.8	157	8.9	W	56	-.7	****	5995	19
20	16.2	.9	8.6	019	.6	2.5	075	8.9	NNE	59	.0	****	6705	20
21	12.8	2.6	7.7	270	3.2	3.4	275	11.4	W	73	2.3	****	5095	21
22	9.0	2.0	5.5	278	2.3	2.4	272	6.3	W	81	1.8	****	4390	22
23	14.3	-1.1	6.6	329	.7	1.7	035	8.9	WNW	74	1.9	5.0	5470	23
24	10.4	4.5	7.5	277	3.2	3.3	266	10.2	W	68	.5	1.4	4260	24
25	8.6	.6	4.6	268	3.9	3.9	259	9.5	W	67	-1.5	.4	5190	25
26	7.3	.3	3.8	271	2.1	2.4	263	10.2	W	72	-1.5	.8	4590	26
27	7.6	.3	4.0	168	.1	1.8	243	6.3	W	69	-1.7	3.2	5450	27
28	10.2	-3.3	4.3	281	1.4	2.2	223	8.9	NW	53	-6.1	0.0	8300	28
29	8.5	-.7	3.9	295	.8	2.2	248	8.9	WNW	63	-3.0	1.4	4975	29
30	7.8	0.0	4.9	070	2.6	3.1	035	8.9	E	65	-1.8	.8	7125	30
31	13.2	-1.0	5.6	075	1.1	2.0	045	7.0	NE	51	-3.9	0.0	8265	31
MONTH	16.2	-7.4	4.0	002	.8	2.5	275	11.4	NNE	58	-4.0	8.0	207055	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 7.0
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL [illegible]
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL [illegible]
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS [illegible]

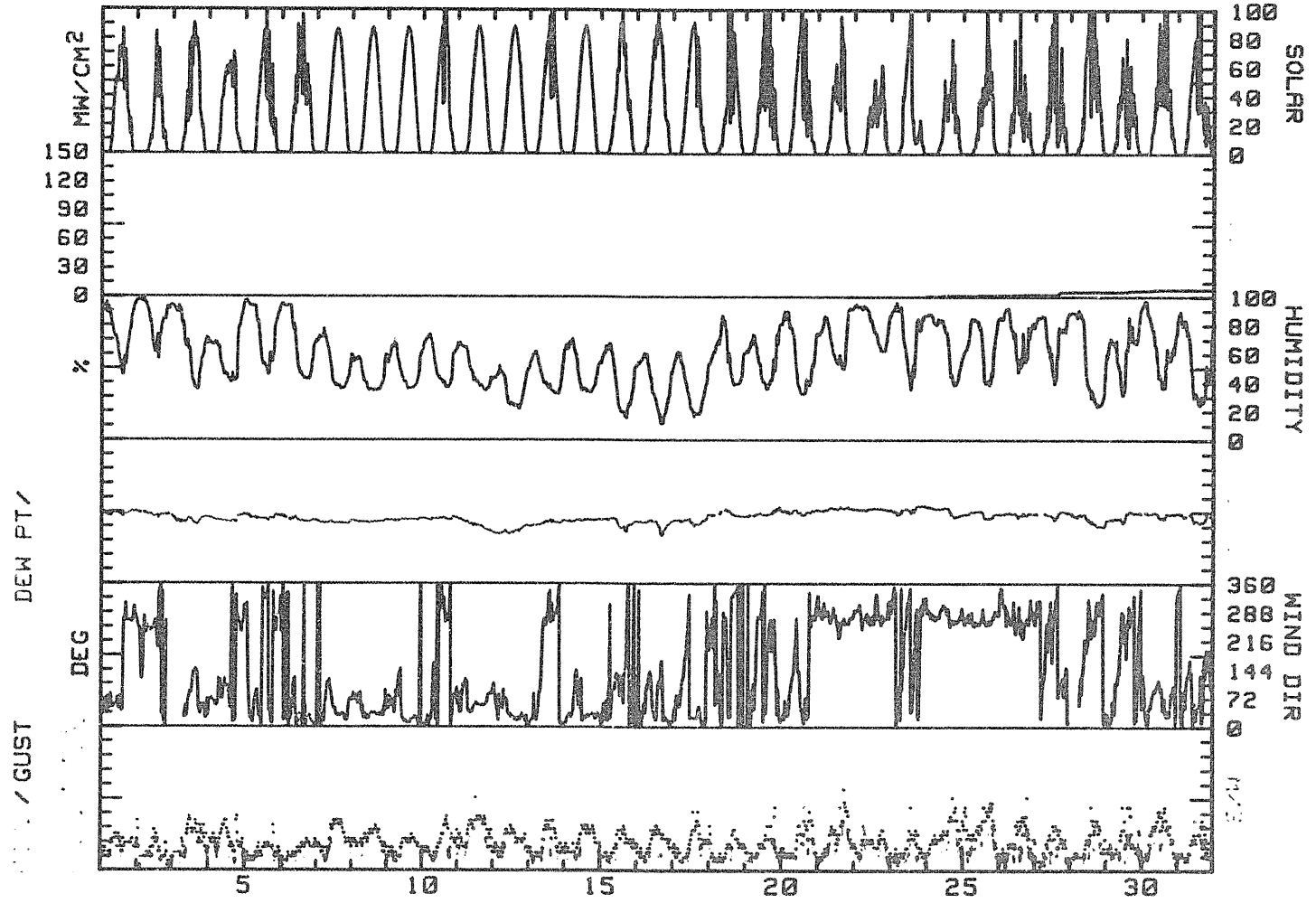
NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.
* SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT AS [illegible]

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

May, 1984



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DIRECTION	VELOCITY (M/S) 0.2 TO 1.0	1.0 TO 3.0	3.0 TO 6.0	6.0 TO 10.0	10.0 TO 15.0	15.0 TO 20.0	20.0 OR GREATER	TOTAL
N	.62	8.68	.55	0.00	0.00	0.00	0.00	9.85
NNE	.41	10.75	6.48	0.00	0.00	0.00	0.00	17.64
NE	.83	5.31	3.72	.07	0.00	0.00	0.00	9.94
ENE	.55	5.17	3.13	0.00	0.00	0.00	0.00	8.85
E	.83	3.95	1.59	0.00	0.00	0.00	0.00	6.37
ESE	.48	3.24	1.17	0.00	0.00	0.00	0.00	4.89
SE	.76	1.93	.90	0.00	0.00	0.00	0.00	3.59
SSE	.34	.90	.14	0.00	0.00	0.00	0.00	1.38
S	.14	.69	0.00	0.00	0.00	0.00	0.00	.83
SSW	.07	1.31	.14	0.00	0.00	0.00	0.00	1.52
SW	.14	.76	.62	0.00	0.00	0.00	0.00	1.52
WSW	.21	2.34	2.27	.28	0.00	0.00	0.00	5.11
W	.34	6.89	5.65	.55	0.00	0.00	0.00	13.44
WNW	.28	5.51	2.34	0.00	0.00	0.00	0.00	8.13
NW	.28	2.48	.21	0.00	0.00	0.00	0.00	2.96
NNW	.69	2.21	.69	0.00	0.00	0.00	0.00	3.59
CALM								.07
TOTAL	7.17	68.63	29.77	.90	0.00	0.00	0.00	100.00

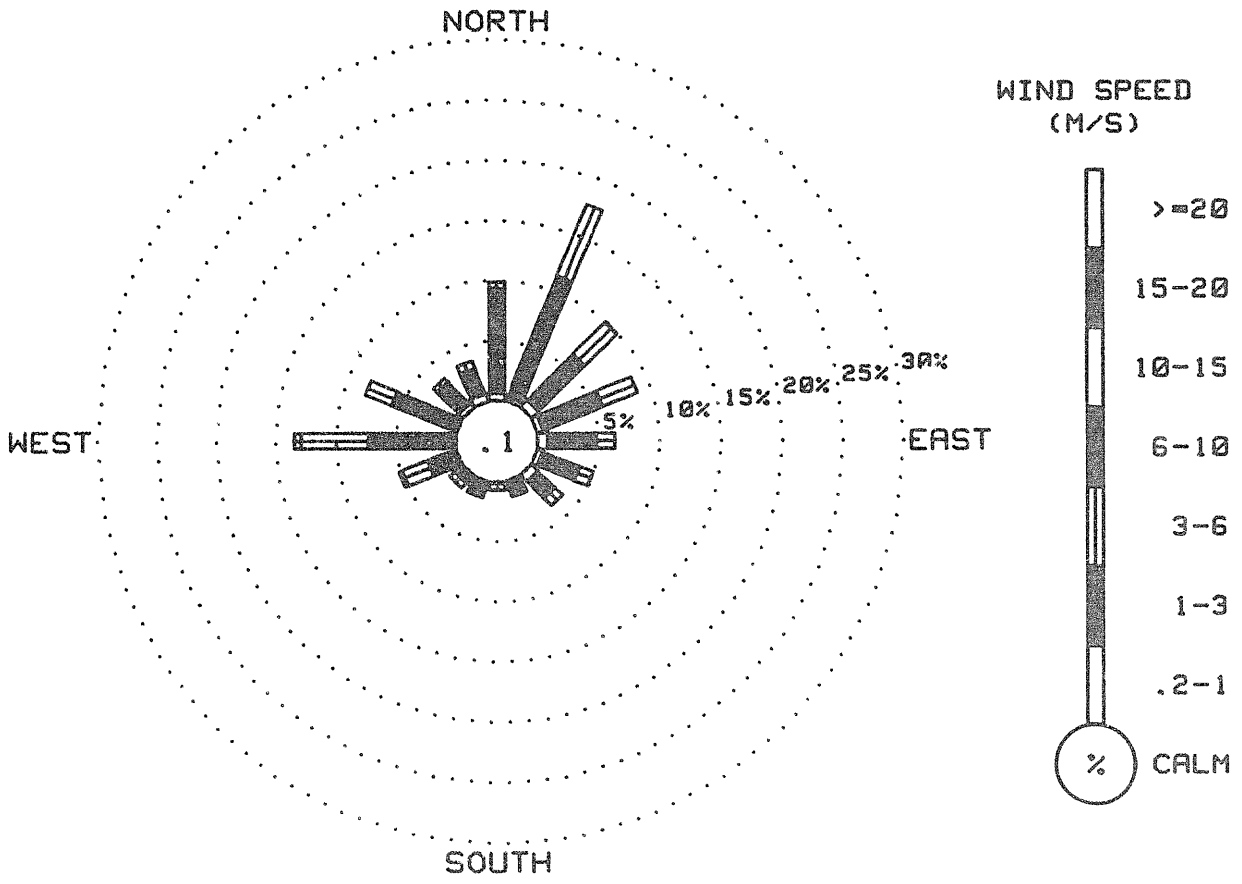
NOTES: ALL PERCENTAGES ARE EXPRESSED IN PERCENT
1. ONLY WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
2. WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 5° MINUTE DATA
3. SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

May, 1984



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY, 1984

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	0	0	0	0	1	5	15	35	48	51	56	70	73	81	54	68	36	27	19	13	1	0	0	0	27
2	0	0	0	0	0	1	3	8	11	19	41	73	48	73	48	32	10	15	5	1	1	0	0	0	16
3	0	0	0	0	1	8	13	26	32	53	28	70	85	86	77	73	44	26	19	11	2	0	0	0	27
4	0	0	0	0	1	8	22	38	44	55	60	58	63	64	48	67	42	13	10	5	1	0	0	0	25
5	0	0	0	0	1	6	28	40	54	66	78	74	74	42	57	22	40	15	19	7	2	0	0	0	28
6	0	0	0	0	1	11	27	38	44	67	67	87	69	81	46	36	58	47	29	11	3	0	0	0	30
7	0	0	0	0	1	9	21	35	50	64	75	84	87	86	81	71	58	43	28	12	2	0	0	0	33
8	0	0	0	0	2	10	22	36	51	65	77	84	88	87	81	71	58	43	28	13	3	0	0	0	34
9	0	0	0	0	2	11	23	37	51	65	77	84	87	87	82	73	59	43	29	15	4	0	0	0	34
10	0	0	0	0	2	10	22	37	51	64	77	86	68	76	99	78	51	22	15	7	2	0	0	0	32
11	0	0	0	0	1	6	17	36	53	66	76	86	89	87	83	73	60	45	30	14	4	1	0	0	34
12	0	0	0	0	3	11	23	37	52	66	77	85	89	87	82	73	63	45	30	16	4	1	0	0	35
13	0	0	0	0	3	10	23	37	52	63	78	85	72	76	39	89	60	44	29	16	4	1	0	0	32
14	0	0	0	0	2	10	22	37	53	68	79	65	89	88	83	73	60	46	31	17	4	1	0	0	31
15	0	0	0	0	2	8	15	26	35	52	57	87	85	94	69	66	48	34	31	16	5	1	0	0	30
16	0	0	0	0	4	6	19	36	53	67	73	85	85	94	86	76	58	38	24	21	6	1	0	0	34
17	0	0	0	0	3	13	25	40	54	68	79	87	90	90	58	79	58	29	18	9	4	2	0	0	33
18	0	0	0	0	1	3	7	9	22	24	35	104	67	61	44	81	62	46	34	19	6	1	0	0	26
19	0	0	0	0	3	11	19	37	44	52	70	64	72	34	116	47	52	28	36	14	5	1	0	0	29
20	0	0	0	1	6	15	25	39	55	68	82	94	75	24	65	14	41	36	18	9	6	1	0	0	26
21	0	0	0	0	2	7	11	24	43	42	55	49	45	34	90	78	53	20	7	3	0	0	0	0	23
22	0	0	0	0	0	1	6	16	24	34	20	36	51	27	28	35	46	59	36	17	6	3	0	0	16
23	0	0	0	0	2	6	26	41	55	68	80	97	71	23	11	9	10	16	23	8	4	1	0	0	25
24	0	0	0	0	0	1	3	6	10	22	40	37	32	40	44	64	30	39	26	35	9	3	0	0	18
25	0	0	0	0	0	3	5	9	13	29	31	34	34	49	70	78	36	57	41	9	4	2	0	0	22
26	0	0	0	0	1	4	21	28	22	56	42	37	66	30	18	33	33	24	16	24	6	2	0	0	17
27	0	0	0	0	2	9	11	23	46	57	73	74	60	60	15	13	64	26	16	14	5	1	0	0	23
28	0	0	0	1	4	6	16	28	47	70	84	103	34	101	107	60	54	56	36	25	11	3	1	0	32
29	0	0	0	1	4	8	24	30	37	60	52	38	47	15	24	50	31	39	26	12	5	1	0	0	21
30	0	0	0	1	3	13	17	32	39	55	99	60	14	93	55	94	36	45	30	15	6	2	1	0	31
31	0	0	0	1	8	18	32	46	58	78	80	55	68	105	71	32	18	22	15	35	16	4	0	0	31

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

LONGWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
AS TAKEN DURING MAY, 1984

LONGWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
7	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
8	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
9	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
10	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
11	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
12	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
13	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
14	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
18	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
19	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
21	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	54	51	53	4
23	36	36	29	26	28	31	32	35	38	37	31	36	37	34	37	41	42	40	38	39	***	41	43	41	34
24	43	41	41	43	41	42	43	41	42	43	45	45	43	44	41	39	39	39	39	36	37	39	41	41	41
25	36	39	41	41	41	42	41	41	41	42	41	42	43	39	41	38	39	38	37	40	35	36	37	38	39
26	39	38	41	43	40	41	39	39	40	41	38	41	41	41	38	39	39	37	39	34	36	38	41	41	39
27	39	42	42	39	38	37	38	35	35	40	41	34	39	36	37	33	35	32	35	31	34	38	36	39	35
28	35	36	36	38	38	38	33	38	33	34	33	35	37	39	40	37	37	40	36	37	38	35	37	40	36
29	33	33	36	36	37	38	39	32	32	38	40	41	39	40	41	41	41	40	40	36	39	37	41	37	37
30	35	37	37	37	35	38	37	37	35	33	32	33	36	33	34	32	30	39	30	37	37	37	37	37	32
31	31	31	33	37	36	37	39	31	31	29	29	29	30	39	35	35	32	37	36	36	36	36	37	37	31

SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

USGS STATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY, 1984

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	1488	100
WIND SPEED	1488	100
WIND DIRECTION	1451	98
WIND GUST	1488	100
RELATIVE HUMIDITY	1377	93
PRECIPITATION	390	26
SOLAR RADIATION	1480	100
DEW POINT	1377	93
LONGWAVE RADIATION	457	29

THERE ARE 1488 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER. THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

1.	RH	+4 RH Points	5/01 - 5/24
		-1	5/24 - 5/31
2.	Solar	-1 mW/CM^2	

Additional comments on this month's data.

1. Longwave radiation data begins on 5/22. Watana base camp had been reopened, and the sensor and amplifier were reconnected.

2. Intermittent wind direction data lost due to frozen wind vane.

3. Precipitation data begins on 5/23.

R & M CONSULTANTS INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1984

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	.2	0.0	.2	0.0	.2	.6	.2	0.0	0.0	.2	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	1.8	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	.2	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.0	1.8	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	.6	.8	.6	1.8	.6	12
13	0.0	.2	.2	0.0	.2	0.0	.2	1.6	1.6	.4	.4	.6	0.0	0.0	0.0	.2	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	.4	0.0	0.0	0.0	0.0	0.0	.6	.2	14
15	.2	.4	0.0	0.0	.2	.4	.6	.8	1.0	.4	.2	0.0	0.0	0.0	.2	0.0	0.0	0.0	.6	.2	.8	.8	.6	4	15
16	.2	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	.8	1.0	1.2	2.8	1.8	1.4	.8	.2	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	.4	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	1.6	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	2.0	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	1.0	1.6	.4	.6	.4	1.2	.6	3.0	1.0	1.3	.2	.4	26
27	.6	1.2	.2	.4	1.6	1.0	1.0	.2	.2	.6	.6	.6	1.0	.2	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	.2	.2	0.0	0.0	0.0	0.0	30

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1984

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	1.6	-.7	85	036	1.3	035	3.8	0
0600	3.4	*****	75	003	.4	098	2.5	29
0900	8.8	-1.9	47	283	2.0	275	5.1	26
1200	11.4	-7.1	27	341	2.2	298	7.0	26
1500	12.6	-7.0	25	342	2.8	340	6.3	25
1800	13.5	-7.9	22	348	4.6	334	9.5	49
2100	11.5	-9.6	22	009	3.6	355	6.3	7
2400	4.7	-5.2	49	025	1.3	011	3.8	0

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.6	-5.2	65	013	2.0	003	3.8	0
0600	4.3	*****	50	060	.8	044	3.2	19
0900	11.3	-4.5	33	216	.6	265	3.2	65
1200	14.4	-8.3	20	017	2.9	027	7.6	112
1500	13.8	-12.5	15	027	3.0	041	7.0	19
1800	15.5	-12.9	13	027	2.6	038	5.7	58
2100	12.8	-12.5	16	343	3.0	337	7.0	7
2400	7.7	-5.5	39	010	1.8	358	3.2	0

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.8	-4.2	52	015	1.7	008	3.8	0
0600	3.5	-5.2	53	076	1.2	079	2.5	19
0900	12.9	-3.5	32	181	.6	256	3.2	66
1200	16.1	-8.3	18	012	3.1	027	8.9	95
1500	14.4	-11.2	16	029	4.2	030	8.3	20
1800	14.3	-9.1	19	007	4.4	353	8.3	50
2100	11.7	-7.8	25	001	3.5	352	7.6	5
2400	6.7	-4.8	44	035	2.2	007	7.0	0

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.4	*****	52	039	1.3	029	3.2	0
0600	4.7	*****	55	066	.8	093	2.5	19
0900	11.5	-4.4	33	135	1.2	135	3.8	53
1200	15.6	-11.0	15	025	3.4	025	7.6	103
1500	15.3	-13.1	13	021	5.6	021	8.9	87
1800	14.8	-11.7	15	018	4.5	011	8.3	60
2100	14.2	-13.0	14	097	2.2	113	7.6	10
2400	5.6	-5.8	44	032	1.8	005	3.2	0

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.5	-5.2	53	012	2.5	004	3.8	0
0600	5.3	-5.8	45	059	1.8	096	3.8	19
0900	12.7	-6.9	25	115	2.2	122	3.8	61
1200	15.2	-12.2	14	122	2.4	058	8.3	53
1500	15.8	-14.8	11	048	2.5	070	6.3	40
1800	17.4	-20.7	6	063	2.1	062	5.1	49
2100	14.8	-14.5	12	055	1.6	009	6.3	7
2400	8.6	-3.7	42	307	2.1	286	5.7	0

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.1	-2.4	51	276	3.2	283	5.7	0
0600	7.0	.3	62	262	1.9	261	5.7	6
0900	7.9	.9	61	095	1.4	088	4.4	16
1200	6.2	3.5	83	098	3.9	095	8.9	11
1500	6.8	3.6	80	245	2.9	266	6.3	11
1800	7.0	3.3	77	283	3.6	273	5.7	30
2100	5.8	3.0	82	287	2.8	294	5.7	4
2400	4.9	*****	90	274	.5	274	3.8	0

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.4	3.0	91	018	.7	006	2.5	0
0600	4.8	2.6	86	282	1.4	292	3.8	19
0900	7.0	1.7	69	245	1.2	196	4.4	16
1200	10.3	-2.1	42	252	2.3	290	7.0	68
1500	11.1	-2.5	39	269	5.6	274	10.2	31
1800	10.4	-1.4	44	278	6.1	270	10.2	38
2100	7.4	-.3	58	279	4.9	259	12.1	3
2400	5.1	1.4	77	295	1.8	295	3.8	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	4.3	1.2	80	296	1.7	312	3.8	0
0600	4.3	1.3	81	289	1.8	297	3.2	9
0900	8.8	3.1	67	284	2.3	273	4.4	40
1200	13.0	1.9	47	263	4.9	250	8.3	93
1500	14.6	-.4	36	257	5.2	246	8.9	115
1800	11.9	1.8	50	306	3.8	303	7.6	52
2100	9.4	2.8	63	267	5.0	257	9.5	12
2400	6.1	3.3	82	277	3.4	276	7.6	0

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.9	2.9	87	292	2.1	291	3.8	0
0600	5.9	3.1	82	290	1.6	293	3.8	6
0900	7.9	3.4	73	272	3.0	267	6.3	40
1200	12.0	3.3	55	272	3.6	272	6.3	106
1500	7.1	3.9	81	244	4.8	254	8.9	9
1800	9.1	4.4	72	243	3.1	262	5.1	15
2100	8.0	3.5	73	269	3.3	268	5.7	3
2400	5.6	2.8	92	281	1.6	30.	3.8	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1984

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	5.2	2.7	84	289	1.7	283	3.2	0
0600	6.8	*****	74	246	.1	318	1.9	18
0900	9.3	2.7	63	273	1.4	272	5.1	28
1200	12.3	-.7	41	272	1.8	273	3.8	109
1500	13.7	-4.1	29	256	1.7	280	4.4	26
1800	15.2	-5.3	24	276	2.2	273	5.1	48
2100	12.7	-6.4	26	295	3.6	297	5.1	6
2400	8.4	-.9	52	296	1.9	287	3.2	0

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.9	-1.5	63	336	1.7	297	3.2	0
0600	4.3	.3	75	350	1.8	354	3.2	11
0900	10.5	2.4	57	305	1.5	285	3.2	47
1200	14.8	-1.9	32	262	2.7	248	5.1	67
1500	16.4	-5.4	22	262	2.9	263	7.0	17
1800	16.3	-4.9	23	251	3.4	298	6.3	20
2100	12.9	.2	42	257	5.8	261	10.2	8
2400	9.5	2.4	61	277	4.0	273	7.0	0

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.7	3.0	67	265	3.8	264	5.7	0
0600	8.9	3.2	67	272	3.2	267	5.7	9
0900	10.7	2.8	58	260	3.9	259	5.7	23
1200	12.6	2.4	50	260	3.9	254	5.7	25
1500	14.1	2.9	47	262	2.8	257	5.1	39
1800	15.3	1.3	39	242	3.9	247	8.3	35
2100	9.0	6.6	85	143	1.7	242	7.0	2
2400	8.2	6.2	87	276	.9	269	5.7	0

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.1	4.6	84	279	4.1	276	7.0	0
0600	6.8	5.7	93	291	2.5	272	3.9	1
0900	6.8	4.6	86	273	2.4	280	4.4	10
1200	7.4	3.7	77	255	2.9	257	5.1	28
1500	8.5	3.6	71	252	2.1	262	4.4	24
1800	9.6	4.3	72	242	2.1	232	4.4	22
2100	8.9	4.0	71	237	1.7	232	3.8	6
2400	5.5	1.5	75	329	1.1	018	2.5	0

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.2	.4	82	006	2.1	007	3.8	0
0600	3.2	*****	80	044	.7	000	2.5	14
0900	9.9	.8	53	202	.2	238	3.2	62
1200	15.4	-1.3	32	257	1.7	267	7.0	84
1500	15.5	-.8	33	243	1.4	202	5.1	61
1800	9.6	6.2	79	258	2.9	275	6.3	9
2100	7.9	4.5	79	257	6.0	255	8.9	1
2400	6.3	3.5	82	262	6.0	264	9.5	0

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.3	3.3	87	266	5.6	265	8.9	0
0600	5.1	2.8	85	271	4.6	258	10.2	3
0900	5.0	2.7	85	252	5.0	251	8.3	7
1200	5.9	3.1	82	249	5.0	251	8.3	24
1500	6.2	3.4	82	255	5.0	252	7.0	15
1800	6.6	4.2	85	255	5.3	252	11.4	6
2100	5.9	3.4	84	272	4.8	271	10.3	0
2400	5.1	4.3	95	276	5.1	266	11.4	0

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.2	4.1	95	273	4.5	286	6.3	0
0600	5.8	4.4	96	274	4.3	273	6.3	2
0900	8.0	5.5	97	275	3.6	273	5.7	13
1200	6.6	3.9	83	258	3.6	268	5.1	12
1500	6.2	4.3	84	257	3.9	242	5.1	14
1800	7.4	4.0	79	275	3.6	277	5.8	14
2100	7.1	3.4	77	263	3.6	268	5.8	2
2400	5.7	*****	85	274	1.2	249	2.5	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	5.2	4.6	96	279	1.2	291	2.5	0
0600	5.7	4.8	94	266	1.5	279	3.2	7
0900	9.1	2.5	63	262	1.2	283	2.5	34
1200	13.0	.3	42	258	1.4	251	4.4	111
1500	13.0	3.4	52	250	2.8	308	6.3	84
1800	13.1	.0	41	267	5.2	273	12.1	58
2100	13.1	-.5	42	296	3.7	277	6.3	19
2400	7.7	2.0	67	292	2.0	290	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	4.5	.1	73	352	1.8	004	4.4	0
0600	8.8	*****	55	110	1.8	007	3.8	33
0900	12.8	-1.3	38	181	.5	093	3.2	63
1200	17.0	-11.7	13	221	1.3	179	3.6	92
1500	20.1	-11.4	11	241	1.6	294	5.7	88
1800	19.5	-21.0	5	271	3.3	273	7.6	58
2100	16.4	-13.2	12	260	5.0	296	9.5	11
2400	11.4	-10.2	21	259	2.6	276	7.0	0

*** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT ***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1984

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	-4.5	46	302	2.4	302	3.8	0
0600	7.8	-2.9	47	342	1.8	338	3.2	22
0900	14.2	-.4	37	275	2.6	269	5.7	59
1200	18.6	-4.2	21	251	3.9	256	6.3	91
1500	21.3	-11.7	10	265	3.5	271	7.6	93
1800	20.8	-10.9	11	298	4.3	295	7.6	45
2100	16.3	-5.5	22	270	5.1	257	8.3	9
2400	11.0	-1.2	43	285	2.7	268	5.7	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	7.9	1.8	65	316	2.0	295	3.2	0
0600	9.8	*****	55	335	1.4	334	2.5	26
0900	14.2	1.7	43	274	.9	187	3.2	26
1200	13.7	8.0	68	333	1.0	345	6.3	49
1500	18.2	-1.2	27	032	1.9	046	4.4	20
1800	16.2	1.8	38	246	2.6	202	8.3	19
2100	14.8	.9	39	287	2.2	292	4.4	10
2400	10.5	3.3	61	294	1.7	298	3.2	0

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.0	3.2	82	311	1.8	325	3.2	0
0600	8.9	3.6	69	343	1.7	339	3.2	24
0900	14.4	2.6	45	291	1.7	264	3.8	62
1200	19.1	.5	29	259	1.7	211	4.4	91
1500	20.0	-3.0	21	238	2.0	246	5.7	28
1800	19.1	-4.4	20	266	4.5	271	8.3	20
2100	17.5	1.3	34	259	3.2	280	7.0	5
2400	11.6	4.4	61	279	.5	254	3.8	0

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.0	3.9	75	001	1.6	022	2.5	0
0600	9.6	5.2	74	315	1.5	348	2.5	23
0900	14.4	3.8	49	276	2.1	272	4.4	63
1200	18.1	2.7	36	270	2.6	252	7.0	90
1500	20.0	-1.8	23	269	4.4	267	8.9	16
1800	19.5	-4.1	20	287	5.7	286	9.5	48
2100	16.4	-6.0	21	293	4.6	289	8.3	10
2400	10.9	-1.0	44	314	1.6	299	4.4	0

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.0	-.0	65	011	1.9	359	3.2	0
0600	7.3	*****	68	013	1.6	004	3.2	9
0900	10.2	1.8	56	302	1.0	277	3.8	30
1200	11.8	3.6	57	254	3.3	236	6.3	40
1500	11.8	3.3	56	256	4.5	250	8.9	8
1800	12.7	2.8	51	259	4.7	263	7.6	50
2100	12.7	1.0	45	277	3.1	259	6.3	10
2400	7.8	1.2	63	315	1.2	304	2.5	0

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.0	.9	80	013	1.9	011	3.2	0
0600	5.2	1.7	78	058	1.2	015	3.2	10
0900	13.5	2.4	47	112	1.0	131	3.2	63
1200	14.2	-.4	37	125	2.8	107	7.0	33
1500	17.2	1.9	36	277	3.7	274	9.5	102
1800	15.3	.6	37	265	5.7	255	8.9	63
2100	13.9	.4	40	248	3.5	249	7.0	10
2400	8.0	3.5	73	324	.7	255	2.5	0

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.8	1.5	85	025	1.5	062	3.8	0
0600	8.6	.6	57	021	2.2	010	3.8	31
0900	13.5	-2.2	34	084	4.2	099	7.6	66
1200	17.0	-4.4	23	107	4.4	093	8.3	30
1500	19.5	-11.9	11	121	2.9	124	7.6	71
1800	19.8	-12.9	10	116	3.1	146	7.0	39
2100	8.3	-3.9	35	243	2.0	253	7.0	10
2400	10.7	1.8	54	267	3.7	262	6.3	0

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.9	2.7	65	298	2.2	283	4.4	0
0600	8.1	3.4	72	338	1.8	000	3.8	10
0900	9.4	3.8	68	316	1.0	316	2.5	16
1200	14.8	2.9	45	271	1.8	257	5.1	23
1500	12.7	7.8	72	269	2.8	275	6.3	26
1800	9.4	5.4	76	252	5.7	244	8.9	19
2100	8.2	5.7	84	267	3.4	246	7.6	1
2400	7.3	6.5	95	272	3.2	264	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	7.2	6.7	97	281	3.9	270	5.7	0
0600	6.3	4.9	91	270	4.3	266	8.3	4
0900	6.0	4.1	88	263	4.6	260	7.6	7
1200	6.4	3.4	81	268	4.5	271	10.2	13
1500	7.7	3.8	76	268	3.8	270	7.6	15
1800	9.0	3.9	70	290	4.4	295	7.0	34
2100	8.5	3.8	72	279	4.1	282	7.6	0
2400	7.3	3.9	79	270	2.8	280	5.1	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1984

DAY 28										DAY 29										DAY 30									
HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW		HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW		HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW	
0300	5.8	3.5	85	289	1.7	287	3.8	0		0300	9.4	6.7	83	276	1.2	245	3.2	0		0300	7.3	3.9	79	265	3.7	264	6.3	0	
0600	7.0	3.4	78	297	1.4	298	2.5	7		0600	9.6	5.6	76	273	1.7	293	4.4	2		0600	7.6	3.9	77	276	2.2	273	4.4	3	
0900	9.4	3.8	68	263	1.9	266	4.4	52		0900	11.1	4.4	63	287	2.7	299	5.1	21		0900	10.7	3.3	60	280	1.9	283	3.8	31	
1200	14.3	4.0	50	271	1.8	278	4.4	61		1200	11.6	3.4	57	255	2.5	294	4.4	37		1200	15.7	-1.5	31	244	1.2	182	4.4	80	
1500	17.8	1.6	34	249	2.3	265	5.7	47		1500	13.8	1.0	42	255	2.3	265	4.4	51		1500	17.9	-2.0	26	218	1.6	244	4.4	53	
1800	16.6	2.9	40	275	5.1	274	8.9	38		1800	14.4	1.2	41	250	2.0	282	5.1	26		1800	18.6	-.9	27	303	.8	302	4.4	48	
2100	12.7	3.7	54	292	4.6	296	7.6	7		2100	13.0	2.8	50	262	3.0	286	4.4	8		2100	13.1	7.2	67	298	1.9	263	6.3	9	
2400	10.6	5.6	71	294	3.7	297	7.0	0		2400	9.3	5.1	75	262	3.1	259	7.0	0		2400	9.5	6.8	83	291	2.3	291	3.8	0	

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP mm	DAY'S SOLAR ENERGY wH/SQM	DAY
1	13.9	1.1	7.5	351	2.0	2.4	334	9.5	N	40	-5.3	0.0	6040	1
2	16.7	.6	8.7	014	1.8	2.2	027	7.6	N	28	-8.9	0.0	7885	2
3	16.9	2.5	9.7	019	2.3	2.9	027	8.9	NNE	32	-7.1	0.0	8055	3
4	16.2	1.8	9.0	036	2.2	2.9	021	8.9	NNE	27	-9.0	0.0	9275	4
5	18.5	1.9	10.2	058	1.4	2.4	058	8.3	ENE	26	-10.6	0.0	7825	5
6	8.9	4.8	6.9	261	1.1	2.7	095	8.7	W	69	1.4	1.6	2330	6
7	11.8	4.3	8.1	275	2.8	3.3	259	12.1	W	61	.2	0.0	5950	7
8	15.3	3.9	9.6	274	3.3	3.5	257	9.5	WNW	64	1.8	1.8	7800	8
9	12.6	4.7	8.7	266	2.6	2.9	254	8.9	W	74	3.4	4.0	5430	9
10	15.3	4.5	9.9	281	1.6	1.8	272	5.1	WNW	47	-1.7	0.0	6495	10
11	18.1	4.3	11.2	274	2.6	3.1	261	10.2	W	47	-.9	0.0	7890	11
12	16.0	8.1	12.1	256	2.7	3.5	247	8.3	W	60	3.4	4.4	4595	12
13	9.4	5.5	7.5	266	3.2	3.4	276	7.0	W	80	4.1	5.6	2990	13
14	15.8	2.1	9.0	265	2.1	3.0	264	9.5	W	62	1.6	1.2	6395	14
15	6.6	4.9	5.8	262	5.0	5.1	271	13.3	W	86	3.4	7.8	1365	15
16	7.7	4.8	6.3	269	3.1	3.2	286	6.3	W	87	4.2	10.4	2135	16
17	14.7	5.1	9.9	271	2.3	2.4	273	13.1	W	62	2.1	.4	3165	17
18	20.2	2.7	11.5	283	1.7	2.5	280	9.5	W	30	-8.4	0.0	9800	18
19	21.6	5.3	13.5	278	3.0	3.3	257	8.3	WNW	29	-6.0	0.0	9590	19
20	18.5	7.0	12.8	304	1.3	2.0	202	8.3	WNW	50	2.2	2.0	5375	20
21	21.5	6.0	13.8	273	1.9	2.3	271	8.3	WSW	45	.9	0.0	8995	21
22	20.2	7.7	14.0	290	2.8	3.1	286	9.5	WNW	44	.5	0.0	87	22
23	14.6	6.0	10.3	278	2.1	2.8	250	8.9	W	56	2.3	2.6	4	23
24	18.4	3.8	10.9	268	1.0	2.8	274	9.5	WSW	51	1.2	0.	[illegible]	24
25	20.3	3.2	12.1	098	1.2	3.2	093	8.3	E	37	-4.1	0.0	9040	25
26	15.2	6.9	11.1	273	3.5	3.8	244	8.9	W	71	4.6	10.8	3515	26
27	9.1	5.8	7.5	274	3.9	4.0	271	10.2	W	82	4.3	9.4	1635	27
28	18.2	5.8	12.0	279	2.7	2.9	274	8.9	WNW	60	3.5	0.0	7090	28
29	15.3	9.3	12.3	264	3.2	3.4	259	7.6	WSW	60	3.7	0.0	4440	29
30	13.9	7.1	10.0	272	1.8	2.2	264	6.3	WNW	58	2.8	1.0	6705	30
MONTH	21.6	.6	10.1	281	1.3	2.9	271	13.3	W	54	-.3	62.4	166480	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 7.6
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 8.3
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 11.4
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 10.1

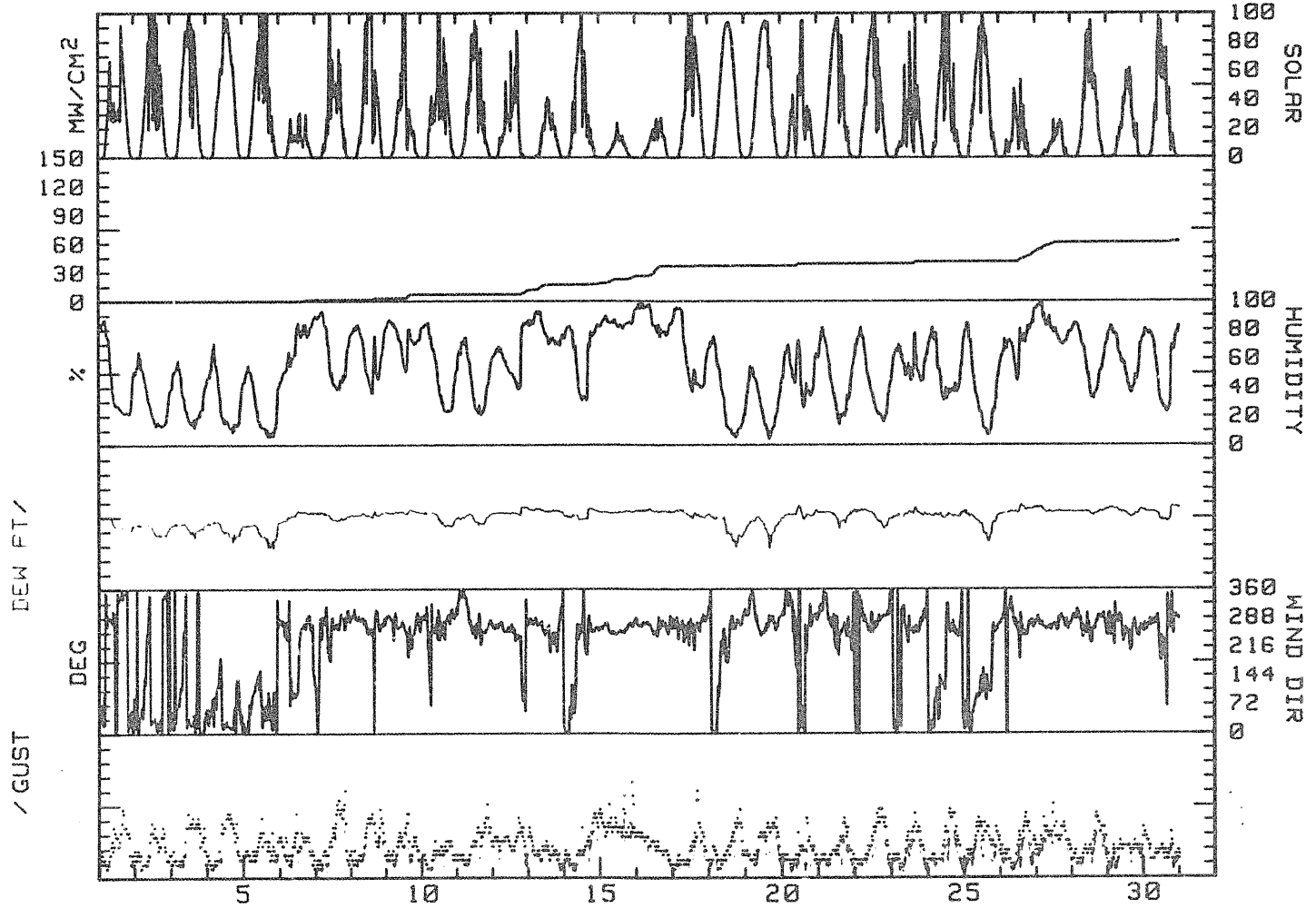
** RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

June, 1984



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1984

	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	.21	6.11	1.88	0.00	0.00	0.00	0.00	8.17
NNE	.21	2.57	2.29	.07	0.00	0.00	0.00	5.14
NE	.42	1.81	.49	0.00	0.00	0.00	0.00	2.72
ENE	.76	1.81	.28	0.00	0.00	0.00	0.00	2.85
E	.28	.69	1.11	0.00	0.00	0.00	0.00	2.08
ESE	.69	1.25	1.04	0.00	0.00	0.00	0.00	2.98
SE	.28	1.11	.28	0.00	0.00	0.00	0.00	1.67
SSE	0.00	.42	.21	0.00	0.00	0.00	0.00	.63
S	.14	.83	.07	0.00	0.00	0.00	0.00	1.04
SSW	.07	1.18	.28	0.00	0.00	0.00	0.00	1.53
SW	.28	2.01	.56	0.00	0.00	0.00	0.00	2.85
WSW	.21	5.49	7.99	.90	0.00	0.00	0.00	14.59
W	.42	9.79	15.69	1.53	0.00	0.00	0.00	27.43
WNW	.56	13.10	5.42	.35	0.00	0.00	0.00	19.43
NW	.21	3.46	.07	0.00	0.00	0.00	0.00	3.74
NNW	.35	2.15	.42	0.00	0.00	0.00	0.00	2.92
CALM								0.00
TOTAL	5.07	54.03	38.06	2.85	0.00	0.00	0.00	100.00

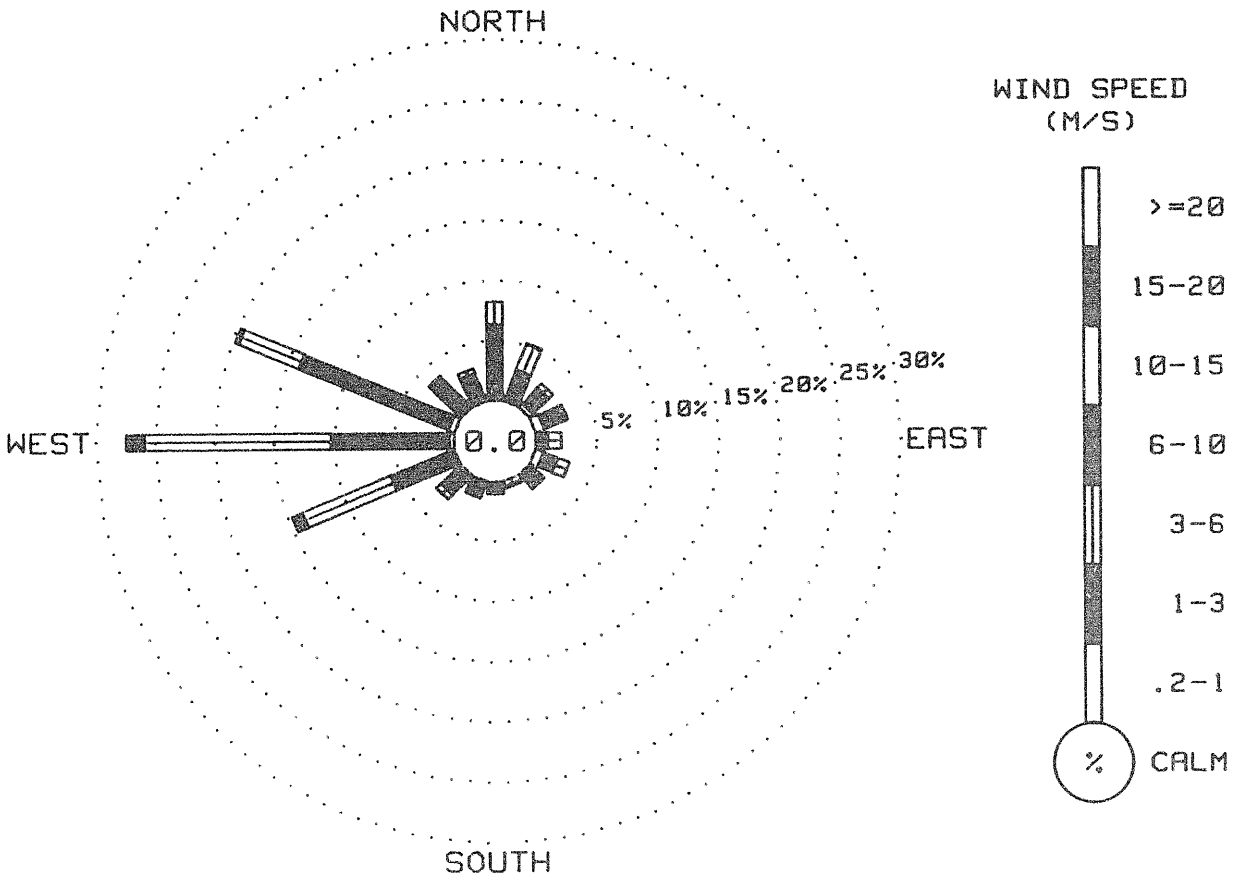
(1) ALL FREQUENCIES ARE EXPRESSED IN PERCENT
(2) 1440 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
(3) 1440 WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 30 MINUTE DATA.
(4) SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

June, 1984



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1984

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	0	0	0	1	4	16	30	50	47	27	32	26	31	31	26	88	70	53	38	24	11	3	1	0	25
2	0	0	0	1	6	16	29	43	59	50	83	116	29	107	30	57	26	62	41	24	11	3	1	0	33
3	0	0	0	1	4	16	26	50	63	81	85	86	96	61	55	58	76	54	33	18	5	2	1	0	36
4	0	0	0	1	5	17	29	41	49	61	61	90	88	94	90	81	68	63	47	29	15	3	1	0	39
5	0	0	0	1	7	16	30	44	57	71	61	79	104	43	41	78	65	33	23	20	12	3	1	0	33
6	0	0	0	0	1	5	13	22	14	12	15	12	20	30	13	11	15	23	14	9	6	1	0	0	10
7	0	0	0	0	2	8	5	15	22	80	70	59	45	53	41	47	55	52	22	13	9	2	0	0	25
8	0	0	0	0	2	8	13	19	33	58	92	65	102	98	114	13	16	57	42	34	17	3	0	0	33
9	0	0	0	1	3	5	15	23	36	34	48	78	106	28	6	28	35	19	18	11	3	2	0	0	23
10	0	0	0	1	2	19	35	33	33	39	43	80	71	38	30	65	41	57	37	26	10	4	1	0	27
11	0	0	0	3	5	10	20	39	39	51	84	72	86	83	47	27	72	23	28	11	9	4	1	0	30
12	0	0	0	1	4	12	12	16	20	39	28	27	46	31	38	54	63	57	13	3	1	0	0	0	19
13	0	0	0	0	0	1	2	2	8	18	23	24	36	40	32	24	28	21	19	12	8	4	1	0	12
14	0	0	0	1	5	10	36	22	60	71	84	87	62	44	68	26	26	13	16	9	4	1	0	0	27
15	0	0	0	0	0	2	3	6	7	10	13	20	16	13	14	13	9	7	4	2	1	0	0	0	6
16	0	0	0	0	0	2	5	6	9	13	16	16	15	25	13	24	24	18	16	11	4	1	0	0	9
17	0	0	0	1	2	7	13	26	32	71	49	116	80	70	58	82	68	58	47	26	13	2	1	0	34
18	0	0	0	2	10	20	33	46	60	73	84	91	94	94	89	81	69	54	40	26	14	4	.	0	41
19	0	0	0	2	8	19	32	46	58	73	84	90	93	95	91	78	74	57	27	24	10	3	1	0	40
20	0	0	0	1	5	19	31	34	27	5	18	53	54	95	58	15	39	38	29	25	13	3	1	0	22
21	0	0	0	3	10	22	33	45	58	72	83	90	95	96	26	60	52	39	19	13	13	3	1	0	34
22	0	0	0	1	8	20	31	44	50	71	82	89	98	78	55	93	41	52	35	22	13	3	1	0	36
23	0	0	0	1	5	8	10	8	20	32	20	31	62	41	10	28	65	41	37	23	13	3	1	0	20
24	0	0	0	1	9	9	32	45	60	73	98	29	72	85	107	42	20	45	11	15	13	3	1	0	31
25	0	0	0	3	11	23	35	46	62	71	87	61	96	91	80	79	62	48	32	13	14	4	1	0	33
26	0	0	0	2	9	7	5	10	14	38	39	30	15	11	40	16	34	12	10	3	1	1	0	0	12
27	0	0	0	0	1	3	5	4	5	8	9	12	19	15	17	22	24	23	12	4	4	1	0	0	8
28	0	0	0	1	2	7	13	23	45	53	85	75	73	86	58	55	52	39	22	13	9	2	0	0	30
29	0	0	0	1	1	2	6	13	18	32	25	40	46	54	53	53	45	27	14	13	10	2	0	0	17
30	0	0	0	0	1	3	10	23	34	51	90	69	75	73	55	72	35	39	14	14	12	4	1	0	19

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

DOWNWARD LONGWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1984

LONGWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	28	31	32	34	39	35	35	38	41	44	39	36	39	44	30	38	41	40	28	28	28	27	24	26	34
2	25	24	25	25	27	27	31	37	37	30	33	35	31	34	31	39	30	39	41	39	39	33	26	32	32
3	26	31	27	28	26	28	30	36	39	35	32	33	35	33	32	32	33	41	29	30	36	37	29	27	32
4	29	27	26	26	27	28	29	32	33	30	30	32	32	38	33	31	30	35	34	35	33	28	26	31	30
5	25	26	26	27	27	29	30	31	33	33	35	37	38	36	35	38	39	33	34	35	29	27	35	36	32
6	39	40	41	41	41	43	36	38	37	37	36	37	41	44	43	42	44	44	43	43	43	41	36	36	40
7	32	34	43	42	42	42	39	40	36	37	42	43	41	43	43	43	41	40	38	36	36	37	36	37	39
8	37	36	40	42	41	40	42	42	42	43	39	39	42	39	45	38	38	41	40	41	42	41	40	40	40
9	40	38	41	41	42	40	41	43	41	44	42	41	42	42	40	44	42	43	41	43	44	42	41	39	41
10	40	41	38	42	32	39	38	38	42	44	44	40	37	37	34	40	39	41	40	42	40	39	39	37	39
11	38	36	38	38	32	40	40	40	40	43	42	42	43	43	45	41	46	43	43	41	43	41	40	40	41
12	42	42	42	42	42	41	43	42	43	43	44	45	46	46	44	45	45	44	44	38	38	36	44	43	42
13	44	44	43	43	43	43	43	43	43	43	44	43	43	45	41	43	43	42	40	40	40	40	32	33	42
14	27	26	28	29	25	30	31	34	39	36	42	37	39	43	42	44	40	44	42	43	43	42	43	43	37
15	42	43	42	43	43	42	42	42	42	42	42	43	44	42	43	42	43	43	43	43	43	43	43	43	43
16	43	43	43	42	43	42	43	43	44	43	42	42	43	43	43	43	44	43	43	42	41	42	43	43	43
17	43	42	43	41	43	43	42	43	44	41	42	45	42	41	43	40	40	39	43	39	38	37	36	37	41
18	36	35	25	31	34	29	33	38	39	34	38	34	40	38	43	41	40	42	40	39	38	37	37	37	36
19	36	37	37	32	38	39	38	38	39	40	40	41	40	44	42	44	44	43	41	39	38	38	38	38	39
20	38	39	35	38	33	41	39	42	39	44	36	43	38	40	44	41	41	41	42	40	40	39	39	40	40
21	39	39	39	39	39	39	38	40	41	42	41	43	42	45	41	44	45	43	44	43	42	37	31	33	41
22	35	38	36	41	38	38	39	43	39	40	45	42	44	45	42	44	41	42	41	39	39	39	38	38	39
23	37	26	29	38	28	37	43	43	42	42	42	44	43	45	43	44	44	42	44	41	39	39	37	37	38
24	37	36	27	31	32	34	35	34	35	35	38	39	47	45	45	41	40	43	36	38	37	38	33	31	36
25	29	28	26	26	27	29	30	32	32	33	35	36	38	37	36	37	36	36	37	39	39	40	41	39	34
26	40	38	41	39	35	41	44	44	44	44	44	43	43	45	43	43	44	44	44	44	43	44	43	43	42
27	43	43	44	44	43	42	42	42	43	42	42	43	43	44	44	45	45	44	43	43	43	39	41	43	43
28	40	37	43	43	44	43	43	44	44	39	41	43	41	42	42	43	44	44	43	43	42	41	41	42	42
29	43	40	43	44	43	43	44	44	45	45	43	45	45	45	45	44	44	43	43	42	44	43	44	41	43
30	42	40	41	43	43	43	44	43	37	36	41	41	43	45	42	42	40	45	42	39	42	41	40	37	

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

OBSERVATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING June, 1994

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	1440	100
WIND SPEED	1440	100
WIND DIRECTION	1440	100
PEAK GUST	1440	100
RELATIVE HUMIDITY	1367	95
PRECIPITATION	1440	100
SOLAR RADIATION	1440	100
DEW POINT	1367	95
LONGWAVE RADIATION	1440	100

THERE ARE 1440 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER.
THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

1. RH -1 RH Points
2. Solar -1 mW/CM^2

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 1984

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	.2	0.0	0.0	0.0	0.0	.2	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	.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	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	1.2	4.0	.6	1.0	.2	0.0	.4	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	.2	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	.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	.6	9
10	.2	0.0	.2	0.0	0.0	.2	.6	2.0	1.0	.4	0.0	0.0	0.0	0.0	0.0	0.0	1.4	.2	0.0	0.0	.2	0.0	0.0	0.0	10
11	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	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	.4	2.0	12
13	.2	0.0	0.0	.2	0.0	0.0	.2	1.6	.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	.2	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	****	****	****	****	****	****	****	****	****	****	****	****	****	****	14
15	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	15
16	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	16
17	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	17
18	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	18
19	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	19
20	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	20
21	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	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	.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	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	1.2	1.0	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	.2	.4	.4	2.2	1.8	2.4	1.4	.8	.6	.8	0.0	.6	.2	0.0	0.0	0.0	0.0	.2	.2	0.0	25
26	0.0	.2	0.0	0.0	.2	.4	.2	.2	.4	1.8	.8	.8	****	****	****	****	****	****	****	****	****	****	****	****	26
27	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	27
28	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	28
29	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	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	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

** SEE PRECIPITATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 1984

DAY 01

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.7	5.2	84	302	2.1	292	3.8	0
0600	9.5	4.9	73	346	1.6	327	2.5	23
0900	13.1	5.3	59	297	1.8	294	3.8	65
1200	18.9	2.6	34	263	1.9	269	4.4	70
1500	15.2	6.5	56	332	1.7	258	10.8	36
1800	11.9	6.5	69	361	6.5	256	10.2	28
2100	7.9	5.0	82	258	6.4	252	10.8	5
2400	7.4	4.4	81	259	3.8	263	7.0	0

DAY 02

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.8	3.9	82	264	3.3	269	5.7	0
0600	6.8	4.4	85	286	2.5	277	4.4	2
0900	8.5	4.2	74	275	2.6	269	4.4	20
1200	9.5	3.9	68	261	4.1	254	6.3	33
1500	11.1	4.4	63	256	4.6	262	7.0	52
1800	11.1	4.8	65	253	4.6	255	7.0	19
2100	9.8	4.6	70	254	4.0	263	6.3	3
2400	8.5	4.9	78	259	3.2	249	5.7	0

DAY 03

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.5	4.3	80	285	2.5	268	13.8	0
0600	8.1	4.7	79	295	2.7	279	4.4	5
0900	11.3	5.2	66	265	4.3	267	7.0	53
1200	14.3	5.7	56	262	5.2	259	8.3	69
1500	14.9	5.1	52	263	6.0	261	8.9	110
1800	15.8	4.8	48	267	5.5	275	8.9	23
2100	14.1	5.0	54	274	4.4	294	7.6	9
2400	11.1	6.5	73	277	4.4	277	7.6	0

DAY 04

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	10.2	7.1	81	292	3.4	289	7.0	0
0600	9.9	7.0	82	275	2.5	279	4.4	6
0900	13.2	7.3	67	272	3.2	261	6.3	28
1200	13.7	8.0	68	257	4.5	260	7.0	20
1500	19.5	5.8	41	266	3.6	260	6.3	96
1800	15.6	4.3	47	337	3.9	348	9.5	12
2100	15.4	5.0	50	349	2.2	356	5.1	2
2400	12.8	4.8	58	008	.8	032	2.5	0

DAY 05

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.5	4.6	71	007	1.8	024	3.2	0
0600	11.1	5.5	68	003	1.5	355	2.5	20
0900	14.2	6.6	60	198	.3	074	2.5	38
1200	19.2	2.0	32	263	1.6	251	5.1	42
1500	17.1	6.3	49	269	4.1	284	7.0	34
1800	15.0	9.6	70	247	2.7	255	5.7	2
2100	11.1	7.8	80	112	2.1	162	5.7	2
2400	10.4	6.2	75	140	1.4	187	3.8	0

DAY 06

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.4	4.7	72	086	1.3	145	3.2	0
0600	11.3	3.6	59	077	1.0	042	3.5	22
0900	14.4	5.2	54	185	.8	176	3.5	44
1200	16.7	2.9	40	265	2.6	253	7.0	74
1500	16.9	2.4	38	285	4.4	280	8.3	43
1800	14.4	4.4	51	290	4.7	292	9.5	35
2100	12.7	6.1	64	296	1.3	295	5.1	1
2400	10.5	3.3	61	332	1.5	315	7.6	0

DAY 07

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.6	1.9	77	061	1.5	012	3.8	0
0600	8.3	1.5	62	003	2.5	003	3.8	20
0900	13.7	-.3	41	104	.9	032	2.5	49
1200	14.2	-3.3	30	297	.7	265	4.4	39
1500	16.2	-3.4	26	300	3.6	302	6.3	104
1800	14.9	-4.1	25	293	4.1	290	8.3	46
2100	14.2	-5.1	26	303	3.8	295	7.0	6
2400	9.7	.4	76	039	1.6	056	4.4	0

DAY 08

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.8	-.9	66	067	1.5	081	3.2	0
0600	7.8	1.0	62	098	1.5	091	3.2	6
0900	10.2	.8	52	167	1.0	212	2.5	40
1200	11.8	-1.1	44	042	2.1	018	5.7	99
1500	13.6	-1.7	35	023	2.9	024	6.3	41
1800	13.9	-3.5	30	023	3.4	025	6.3	41
2100	11.5	-3.6	35	032	3.5	031	6.3	9
2400	9.2	-3.1	42	033	2.8	039	6.3	0

DAY 09

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.1	*****	66	134	1.3	020	4.4	0
0600	6.8	*****	71	109	.9	042	3.5	4
0900	9.7	*****	55	293	.8	272	3.2	33
1200	12.9	-3.5	32	046	.4	059	5.1	67
1500	14.8	-3.7	33	045	2.5	079	3	63
1800	15.1	-4.4	29	024	2.3	051	5.	31
2100	10.2	6.2	76	155	.9	072	5.1	5
2400	7.8	5.3	84	172	.7	094	3.5	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING JULY, 1984

DAY 10

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.4	*****	93	275	1.2	251	2.5	0
0600	7.7	*****	95	124	.8	112	2.5	3
0900	7.8	3.9	76	094	2.4	088	4.4	14
1200	11.6	3.4	57	113	2.4	115	7.0	65
1500	13.5	2.7	48	097	3.7	090	7.0	52
1800	10.7	5.7	71	221	1.2	170	9.5	33
2100	9.2	4.8	74	259	2.7	267	6.3	2
2400	7.3	*****	82	257	.6	267	5.1	0

DAY 11

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.3	*****	82	033	.8	002	1.9	0
0600	8.1	4.9	80	078	.7	099	1.9	8
0900	10.1	2.0	57	114	1.3	121	3.2	30
1200	14.2	-3.7	29	130	2.3	116	5.1	95
1500	13.8	-.8	37	249	4.6	250	8.9	97
1800	13.0	-1.5	37	300	2.8	344	5.7	11
2100	11.4	-.5	44	262	3.4	254	7.0	6
2400	7.5	2.8	72	280	1.9	261	3.8	0

DAY 12

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.1	1.0	89	344	1.9	356	3.2	0
0600	5.7	*****	75	009	1.6	006	3.2	12
0900	11.2	*****	54	137	.6	121	1.9	25
1200	17.3	-1.5	28	137	1.1	164	3.8	92
1500	15.3	-1.4	32	099	2.9	059	8.9	51
1800	14.8	.1	37	293	1.4	068	8.3	47
2100	10.6	4.6	66	256	4.8	250	7.6	4
2400	8.0	4.9	81	270	3.1	277	7.6	0

DAY 13

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.7	6.8	94	284	2.2	290	3.8	0
0600	7.9	7.0	94	286	2.3	285	3.8	1
0900	9.4	*****	75	246	.4	273	2.5	28
1200	11.9	2.6	53	097	4.0	103	8.3	105
1500	14.7	-2.0	32	108	3.8	094	7.6	96
1800	12.7	1.9	48	237	2.7	253	9.5	50
2100	9.6	3.6	66	258	5.3	266	8.9	3
2400	7.8	3.9	76	271	3.2	269	4.4	0

DAY 14

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.8	3.3	78	289	2.1	273	3.2	0
0600	7.4	3.3	75	291	2.5	286	4.4	7
0900	10.3	2.7	59	266	4.1	258	7.0	25
1200	*****	*****	**	279	5.0	274	7.0	***
1500	*****	*****	**	***	****	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 15

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

DAY 16

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

DAY 17

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

DAY 18

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

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

P & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 1984

DAY 19

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

DAY 20

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

DAY 21

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. m/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	*****	*****	**	***	****	***	****	***
1800	11.9	4.7	61	291	3.6	291	7.6	18
2100	11.0	5.0	66	285	3.0	293	6.3	0
2400	9.9	*****	72	262	1.6	283	5.1	0

DAY 22

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.4	6.3	81	271	1.4	280	3.2	0
0600	9.4	6.1	80	268	2.2	270	4.4	3
0900	10.1	6.3	77	268	1.9	267	3.2	7
1200	11.6	6.4	70	263	2.5	275	5.1	39
1500	13.4	4.6	55	262	2.7	270	5.1	20
1800	14.2	4.5	52	231	2.9	242	5.1	24
2100	12.7	4.7	58	246	2.5	237	4.4	2
2400	10.5	4.9	68	292	1.4	283	1.9	0

DAY 23

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.2	3.5	72	347	1.6	295	2.5	0
0600	8.5	3.2	69	002	2.2	002	3.2	9
0900	14.4	2.2	44	054	.4	004	2.5	30
1200	18.9	-.6	27	154	1.4	150	4.4	84
1500	19.6	-3.4	21	157	1.9	177	4.4	37
1800	19.1	-1.5	25	077	1.7	331	5.1	16
2100	15.3	4.6	49	355	.4	277	5.1	2
2400	11.7	7.6	76	290	2.4	284	4.4	0

DAY 24

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. m/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.7	7.1	84	294	1.9	295	3.2	0
0600	10.0	6.9	81	355	1.9	359	3.8	11
0900	13.5	6.9	64	322	1.4	245	3.2	33
1200	16.4	5.0	47	256	3.0	256	7.0	85
1500	12.4	8.3	76	254	4.1	252	9.3	15
1800	13.7	8.6	71	260	2.6	260	5.7	17
2100	12.4	7.7	73	254	3.7	250	6.3	4
2400	11.1	7.1	76	229	1.7	294	3.2	0

DAY 25

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	10.7	7.6	81	266	3.8	255	5.1	0
0600	9.4	6.0	79	260	4.1	259	7.6	3
0900	9.4	7.8	85	264	3.8	255	5.7	6
1200	9.7	5.7	76	255	4.4	255	7.6	34
1500	9.6	5.8	77	251	5.0	253	7.6	39
1800	9.5	4.8	72	261	4.6	262	7.0	14
2100	8.6	5.4	80	270	3.4	270	6.3	0
2400	7.9	4.5	79	274	2.6	289	4.4	0

DAY 26

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.4	6.0	91	281	2.3	278	4.4	0
0600	7.5	6.3	92	279	2.7	294	5.7	6
0900	7.8	4.4	79	268	4.2	261	7.6	9
1200	8.5	4.2	74	265	3.9	263	5.7	19
1500	*****	*****	**	246	3.2	***	****	***
1800	*****	*****	**	***	****	***	****	***
2100	*****	*****	**	***	****	***	****	***
2400	*****	*****	**	***	****	***	****	***

DAY 27

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

*** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT ***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 1984

DAY 28

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

DAY 29

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

DAY 30

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	11.0	8.4	84	277	1.4	277	3.3	17
1200	13.5	7.1	65	251	1.2	265	3.8	21
1500	14.3	6.2	58	279	3.0	271	5.1	27
1800	13.9	6.6	61	255	2.6	266	4.4	5
2100	12.2	7.2	71	250	2.2	264	4.4	0
2400	11.0	7.3	78	257	1.7	277	3.2	0

DAY 31

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	10.5	8.7	89	276	1.6	277	3.2	0
0600	10.6	8.8	89	273	2.0	266	3.2	3
0900	12.3	6.8	69	260	1.8	240	3.9	20
1200	15.4	6.2	54	254	3.1	253	5.1	50
1500	16.8	5.4	47	264	3.4	275	5.7	37
1800	15.5	5.7	52	299	4.0	283	5.7	16
2100	13.2	6.8	65	279	3.0	307	5.1	1
2400	11.5	7.1	74	286	1.6	272	3.2	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

P & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July 1984

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	DAILY SOLAR ENERGY WH/SQM	DAY
1	20.6	7.2	13.9	268	2.9	3.4	258	10.8	W	67	4.7	2.4	6135	1
2	11.9	6.6	9.3	261	3.6	3.6	262	7.0	W	73	4.4	0.0	3980	2
3	16.2	7.4	11.8	270	4.4	4.5	261	8.9	W	64	5.1	0.0	6795	3
4	19.5	9.4	14.5	299	2.5	3.1	348	9.5	W	62	6.0	.2	5995	4
5	19.6	8.3	14.2	268	.6	2.2	284	7.0	W	63	6.0	7.4	4415	5
6	17.0	8.9	13.0	286	1.5	2.4	292	9.5	WNW	56	4.4	.2	5895	6
7	16.3	4.8	10.6	326	1.2	2.3	290	8.3	WNW	44	-1.2	0.0	7495	7
8	14.3	6.2	10.3	041	2.0	2.5	024	6.3	NNE	45	-1.1	0.0	4920	8
9	15.5	6.4	11.0	046	.8	1.8	059	6.3	NNE	49	-.2	.8	4765	9
10	15.3	7.0	11.2	133	.6	2.4	170	9.5	E	71	4.4	6.4	4995	10
11	14.3	6.4	10.3	258	1.0	2.3	250	8.9	WSW	49	.3	.2	7755	11
12	17.3	3.5	10.4	281	.7	2.8	059	8.9	N	55	1.0	2.4	6330	12
13	15.7	7.5	11.6	245	.9	3.2	253	9.5	W	66	3.3	2.8	6420	13
14	11.2	6.8	9.0	279	3.0	3.2	258	7.0	WNW	71	3.2	0.0	2772	14
15	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	15
16	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	16
17	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	17
18	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	18
19	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	19
20	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	20
21	13.7	9.9	11.3	287	2.8	2.8	281	7.6	W	64	4.8	0.0	1437	21
22	14.4	9.4	11.9	259	2.1	2.2	275	5.1	W	68	5.5	.2	3940	22
23	21.2	7.1	14.2	018	.3	1.9	331	5.1	N	48	1.8	0.0	6630	23
24	16.9	8.2	12.6	269	3.2	2.6	252	8.3	WNW	71	7.1	2.2	4045	24
25	11.1	7.9	9.5	262	3.8	3.8	259	7.6	W	78	5.9	12.2	2485	25
26	8.7	7.2	8.0	271	3.0	3.1	261	7.6	W	84	5.1	5.0	1637	26
27	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	27
28	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	28
29	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	29
30	15.0	9.9	12.5	259	1.9	3.1	271	5.1	W	69	7.1	0.4	3167	30
31	17.0	10.3	13.7	275	2.5	3.6	275	5.7	W	66	6.9	8.0	4185	31
MONTH	21.2	3.5	11.6	272	1.6	3.7	258	10.8	W	**	3.6	42.4	104435	

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

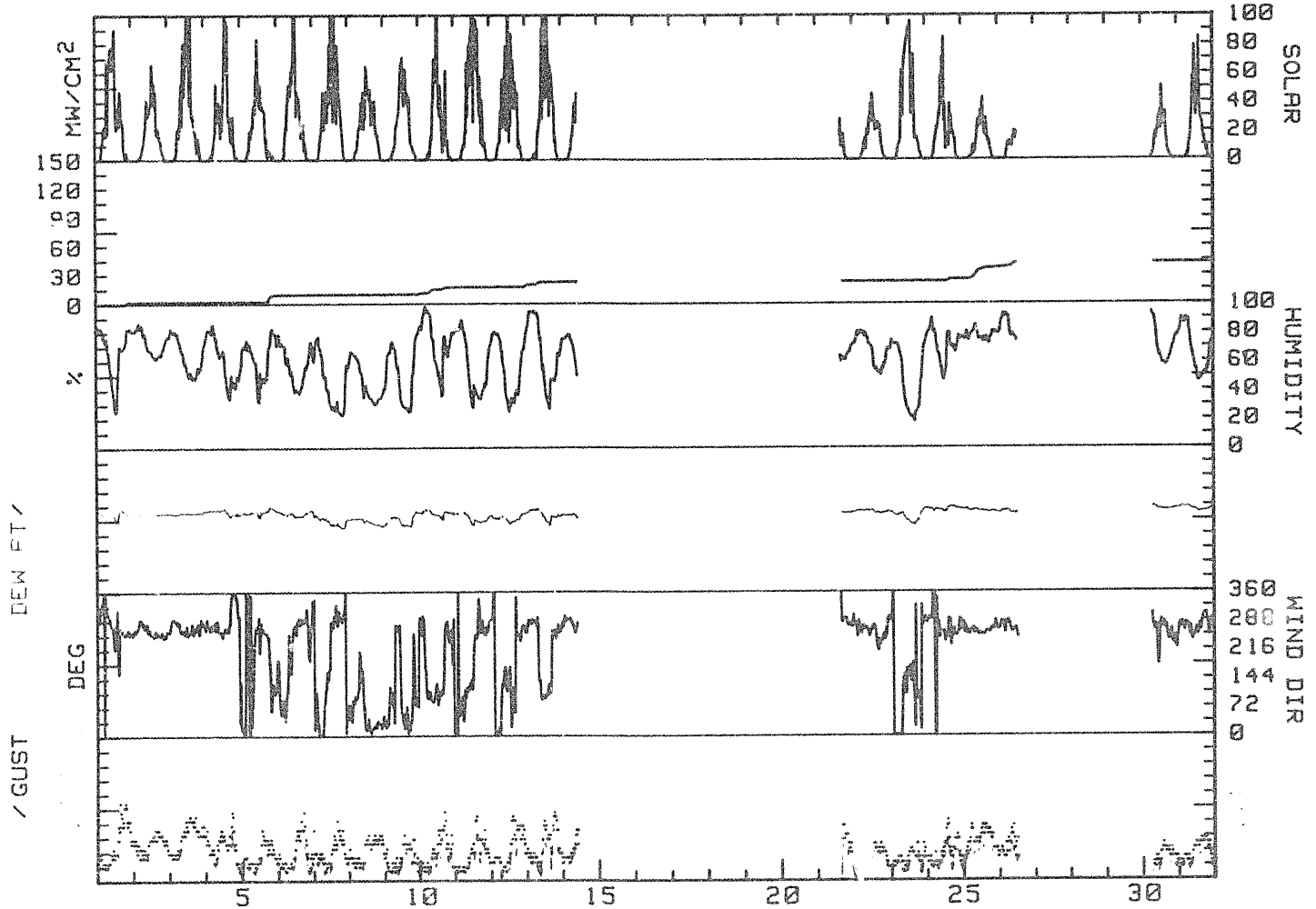
** RELATIVE HUMIDITY READINGS ARE USED ONLY WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE CALCULATION OF MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

July, 1984



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING JULY, 1984

	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	.21	4.88	.62	.10	0.00	0.00	0.00	5.81
NNE	.10	2.80	1.66	0.00	0.00	0.00	0.00	4.57
NE	.83	1.56	.31	0.00	0.00	0.00	0.00	2.70
ENE	.73	1.77	.52	0.00	0.00	0.00	0.00	3.01
E	1.25	2.70	1.04	0.00	0.00	0.00	0.00	4.99
ESE	.42	3.32	1.14	0.00	0.00	0.00	0.00	4.88
SE	.62	1.87	.62	0.00	0.00	0.00	0.00	3.12
SSE	.31	1.35	0.00	0.00	0.00	0.00	0.00	1.66
S	.42	1.35	.10	0.00	0.00	0.00	0.00	1.87
SSW	.10	1.04	.10	0.00	0.00	0.00	0.00	1.25
SW	.10	1.35	.31	0.00	0.00	0.00	0.00	1.77
WSW	.21	4.88	9.76	1.25	0.00	0.00	0.00	16.10
W	.73	13.29	12.98	.73	0.00	0.00	0.00	27.73
WNW	.21	11.32	5.40	0.00	0.00	0.00	0.00	16.93
NW	.10	1.45	.52	0.00	0.00	0.00	0.00	2.08
NNW	0.00	1.35	.21	.10	0.00	0.00	0.00	1.66
CALM								
TOTAL	6.55	56.15	35.51	2.19	0.00	0.00	0.00	100.00

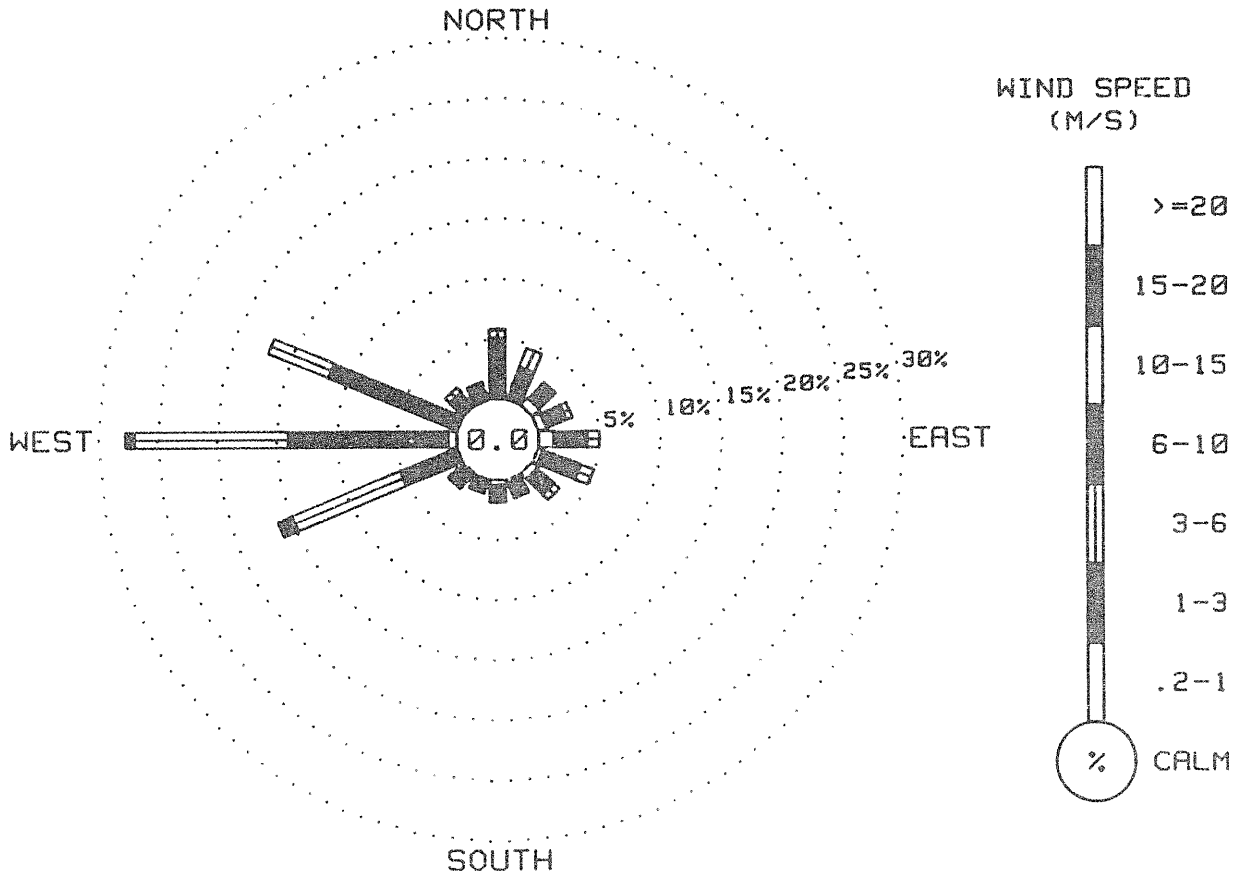
NOTES: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
THIS WIND TO WIND OBSERVATIONS USED TO DEVELOP PRESENT SUMMARY
WIND WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 50 MINUTES DATA.
SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

July, 1984



WIND ROSE PLOT

P & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 1984

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	0	0	0	1	9	20	16	45	41	73	70	70	90	27	29	30	45	26	16	3	5	1	0	0	26
2	0	0	0	0	1	2	4	9	17	34	35	33	38	63	53	42	19	21	15	10	4	2	0	0	17
3	0	0	0	0	2	4	18	17	47	51	63	63	98	95	74	65	30	22	15	6	12	2	0	0	28
4	0	0	0	0	2	5	13	37	27	35	25	28	49	93	78	60	28	13	28	9	2	2	0	0	22
5	0	0	0	1	5	13	17	23	37	46	72	50	44	38	36	33	15	3	7	4	2	2	0	0	16
6	0	0	0	1	2	19	30	47	45	57	66	87	68	46	40	30	17	23	9	5	1	0	1	0	25
7	0	0	0	1	8	18	38	22	42	32	41	60	116	62	88	43	53	57	38	24	19	2	0	0	31
8	0	0	0	0	3	6	13	23	31	39	34	28	64	49	43	37	31	41	22	17	11	3	0	0	21
9	0	0	0	0	1	3	7	10	24	30	39	62	63	41	54	44	42	33	11	8	5	3	0	0	20
10	0	0	0	0	0	2	4	6	16	41	62	66	110	40	41	26	19	29	36	11	3	1	0	1	21
11	0	0	0	0	2	8	10	20	49	71	69	92	65	96	92	77	39	35	36	9	9	2	0	0	32
12	0	0	0	1	5	11	24	40	24	59	50	67	58	33	70	56	45	48	27	13	3	1	0	0	26
13	0	0	0	0	1	3	3	11	22	32	70	67	42	74	98	48	61	55	39	14	5	1	0	0	27
14	0	0	0	0	2	6	15	25	33	36	***	***	***	***	***	***	***	***	***	***	***	***	***	***	5
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
18	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
19	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
21	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	23	9	14	7	1	1	0	0	0	3
22	0	0	0	0	1	2	5	11	11	21	23	33	36	35	24	25	25	23	14	7	3	1	0	0	12
23	0	0	0	0	2	8	12	34	46	66	77	84	90	92	34	54	36	16	14	9	4	1	0	0	33
24	0	0	0	0	3	8	16	22	39	49	55	70	32	11	13	24	31	21	18	10	3	0	0	0	17
25	0	0	0	0	0	2	3	10	5	14	27	23	33	39	23	23	22	13	9	5	1	0	0	0	10
26	0	0	0	0	0	4	11	12	9	12	18	17	***	***	***	***	***	***	***	***	***	***	***	***	3
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
30	***	***	***	***	***	***	3	4	13	17	23	36	39	44	28	28	16	6	3	2	0	0	0	1	13
31	0	0	0	0	0	2	3	8	16	34	55	65	41	43	61	23	24	16	10	8	2	0	0	1	17

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY LONGWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July 1982

LONGWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	38	38	39	39	29	40	41	46	39	42	40	43	47	42	40	43	42	42	42	43	41	42	40	43	41
2	42	43	43	43	43	43	43	43	43	44	43	44	44	45	44	44	43	43	43	43	42	41	41	43	43
3	43	44	44	44	42	42	43	43	44	44	44	43	45	46	45	44	43	44	44	45	45	45	41	40	44
4	38	41	43	44	44	44	42	44	44	45	44	45	45	46	45	46	43	41	45	44	47	45	36	31	43
5	36	35	41	31	37	38	37	43	44	44	43	45	45	44	44	45	44	42	38	40	40	38	42	42	40
6	36	37	36	32	31	34	38	39	42	45	45	45	46	47	46	45	46	47	46	45	43	45	46	40	41
7	35	31	27	27	26	27	38	37	39	41	43	42	46	44	41	42	44	41	40	39	38	27	39	39	36
8	29	29	31	31	34	36	36	38	39	36	36	35	37	36	36	36	34	34	34	33	33	33	35	34	34
9	34	34	35	36	35	41	42	41	43	43	38	37	36	42	38	37	34	36	42	42	36	35	39	44	38
10	42	43	41	39	37	37	37	36	36	37	37	38	38	37	39	39	44	42	41	42	43	38	40	33	39
11	33	38	34	35	34	35	33	38	35	34	36	37	41	40	43	42	41	39	40	39	36	37	36	35	37
12	36	25	26	26	28	29	35	34	37	36	37	40	38	41	38	34	40	39	42	39	41	44	42	41	36
13	41	42	42	42	43	43	43	39	39	37	35	36	36	38	38	38	40	39	38	37	36	38	38	40	39
14	40	40	41	41	40	40	40	41	41	43	***	***	***	***	***	***	***	***	***	***	***	***	***	***	17
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
18	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
19	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
21	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	44	44	44	44	44	42	43	43	43	10
22	41	42	41	43	43	43	41	43	43	43	44	46	45	43	43	43	43	42	42	43	42	42	43	42	43
23	42	32	32	38	31	29	39	33	37	39	36	39	41	44	39	42	40	40	36	34	40	36	40	40	37
24	39	38	39	38	33	33	43	43	42	41	43	44	43	43	44	42	42	43	41	42	41	39	43	28	41
25	43	43	42	42	42	42	43	43	43	43	43	43	43	43	43	43	42	43	43	44	44	43	43	43	43
26	43	43	44	42	43	43	43	43	42	44	43	43	***	***	***	***	***	***	***	***	***	***	***	***	21
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
30	***	***	***	***	***	***	44	44	44	43	44	45	46	46	45	45	44	44	44	43	42	43	43	43	33
31	43	43	44	43	43	44	43	44	43	45	44	45	44	46	46	47	46	46	47	42	37	38	41	41	43

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

OBSERVATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 1984

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	964	65
WIND SPEED	964	65
WIND DIRECTION	963	65
PEAK GUST	962	65
RELATIVE HUMIDITY	901	61
PRECIPITATION	962	65
SOLAR RADIATION	962	65
DEW POINT	901	61
LONGWAVE RADIATION	962	65

THERE ARE 1488 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER. THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

1.	RH	-1 RH Points	7/01 - 7/13
		-3	7/13 - 7/31
2.	Solar	-1 mW/CM^2	

Additional comments on this month's data:

1. Lost data for all parameters from 7/14 to 7/21 and 7/26 to 7/30 due to electrical problems in the weather wizard.

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August, 1984

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	****	****	****	****	****	****	****	****	****	****	****	****	1
2	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	2
3	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	3
4	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	4
5	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	5
6	****	****	****	****	****	****	****	****	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6
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	.4	.6	1.6	.8	8
9	.8	8.4	4.2	1.8	1.4	1.0	.8	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	.6	.2	0.0	0.0	0.0	.2	.4	.8	.6	9
10	1.4	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17
18	0.0	0.0	0.0	.2	.2	.2	0.0	.2	.4	.2	.4	.2	.4	.2	.2	.2	.8	1.0	.8	1.0	.8	.4	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	.2	.8	3.6	.4	0.0	0.0	19
20	0.0	1.6	.8	0.0	.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	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	.2	0.0	0.0	21
22	0.0	0.0	0.0	0.0	0.0	.2	.2	.4	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	.4	.4	0.0	0.0	.4	.2	.2	0.0	22
23	.2	.6	.2	.6	.2	.2	.6	.2	0.0	.2	0.0	0.0	0.0	.2	0.0	.2	0.0	0.0	0.0	1.4	1.2	1.8	1.0	2.0	23
24	4.0	.8	1.2	1.2	.4	.6	1.4	.8	.8	.2	0.0	.2	1.0	1.0	1.2	1.0	1.0	.8	.6	1.2	.2	.2	.2	0.0	24
25	.6	1.8	1.0	1.4	1.0	1.6	2.2	1.2	.2	.8	1.8	3.6	4.2	1.0	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	2.6	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	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	2.0	0.0	1.0	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

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August, 1984

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	9.3	6.7	84	325	1.4	318	2.5	0
0600	10.2	6.6	78	358	1.5	358	2.5	3
0900	13.8	7.4	65	281	.9	245	3.8	20
1200	17.9	6.4	47	275	1.4	293	3.8	79
1500	*****	*****	**	177	1.3	177	2.5	***
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	12.3	*****	87	347	.3	347	3.2	23
1200	17.7	5.6	45	279	1.6	268	3.8	58
1500	21.5	-1.2	22	135	.3	134	5.7	91
1800	18.8	-.2	29	037	3.8	044	6.3	24
2100	15.3	.2	36	033	3.3	035	6.3	1
2400	11.9	.9	47	058	1.9	041	5.1	0

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	10.7	.1	48	054	1.9	064	3.2	0
0600	11.1	1.9	53	045	1.5	031	3.2	14
0900	15.5	*****	40	357	.9	281	2.5	52
1200	18.5	1.4	32	262	1.5	281	4.4	80
1500	20.4	1.7	29	268	2.7	264	5.7	61
1800	20.5	2.2	30	260	4.3	253	7.0	42
2100	15.7	6.5	54	257	4.3	248	7.6	1
2400	11.5	6.9	73	289	2.0	269	3.8	0

DAY 08

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.9	5.1	77	325	1.8	299	3.2	0
0600	9.8	6.2	78	354	1.9	000	3.2	2
0900	14.3	7.4	63	271	2.2	264	4.4	52
1200	16.1	6.0	51	274	4.1	273	7.0	44
1500	17.2	4.4	47	276	5.0	272	7.6	44
1800	15.1	7.0	58	275	5.4	274	8.9	16
2100	12.6	7.1	69	276	3.4	289	5.7	0
2400	11.1	*****	87	288	1.0	267	3.2	0

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.9	4.7	71	035	1.6	039	[illegible]	[illegible]
0600	8.0	5.5	84	[illegible]	1.0	[illegible]	5.1	[illegible]
0900	10.7	*****	67	344	.6	294	3.2	24
1200	13.2	.1	41	191	.8	153	[illegible]	14
1500	14.3	-.7	36	274	.9	233	[illegible]	21
1800	12.1	4.6	[illegible]	293	1.3	[illegible]	[illegible]	3
2100	9.7	5.7	[illegible]	271	2.2	251	[illegible]	[illegible]
2400	8.6	5.4	63	347	1.2	[illegible]	[illegible]	0

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R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August, 1984

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	8.1	*****	79	040	.8	356	2.5	0
0600	6.7	*****	83	023	1.0	006	2.5	5
0900	9.2	*****	67	171	.6	177	1.9	31
1200	14.0	-.6	37	240	1.7	252	6.3	84
1500	13.8	-1.9	34	269	4.0	270	7.6	40
1800	12.7	-1.4	38	261	5.2	262	8.3	13
2100	9.9	2.5	60	274	2.9	281	5.7	0
2400	8.5	3.6	71	289	1.4	286	2.5	0

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	8.0	4.2	77	284	1.4	270	2.5	0
0600	7.8	5.8	87	305	1.5	289	2.5	4
0900	11.1	3.2	58	268	1.0	298	2.5	10
1200	14.9	-6.1	23	329	1.6	343	7.6	83
1500	15.4	-12.0	14	017	2.0	345	5.1	70
1800	14.3	-7.8	21	358	3.8	359	7.0	23
2100	9.4	-6.6	32	355	3.6	349	7.0	1
2400	7.6	-5.3	40	035	1.7	006	4.4	0

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.0	-4.5	47	047	1.8	046	3.2	0
0600	5.2	-5.5	46	024	1.9	025	3.8	9
0900	10.4	-8.4	26	078	1.1	107	3.8	49
1200	15.0	-24.2	5	175	1.5	183	6.3	79
1500	17.0	-27.1	3	021	2.3	027	7.0	70
1800	16.3	-25.3	4	038	3.5	025	8.9	34
2100	10.2	-10.1	23	048	2.6	054	5.1	0
2400	8.0	-6.7	35	058	2.0	065	3.8	0

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.7	-5.4	48	069	1.7	086	3.2	0
0600	4.7	-3.6	55	055	1.5	080	3.2	2
0900	11.6	-4.7	32	094	1.7	111	4.4	50
1200	14.9	-12.4	14	121	3.6	116	7.0	75
1500	17.6	-14.6	10	107	3.6	108	7.0	68
1800	17.8	-20.4	6	127	3.1	107	5.7	32
2100	13.4	-12.8	15	079	1.7	125	3.8	1
2400	6.6	-4.9	44	014	2.5	003	3.8	0

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	4.8	-2.5	59	042	1.7	043	3.2	0
0600	3.5	-3.3	61	071	1.4	068	2.5	5
0900	11.6	-4.7	32	118	1.4	095	2.5	48
1200	17.6	-8.6	16	238	1.4	250	4.4	51
1500	19.2	-10.0	13	256	3.3	263	6.3	70
1800	19.2	-12.1	11	264	4.1	261	7.0	17
2100	14.7	-2.4	31	293	2.8	298	5.1	0
2400	9.3	1.5	58	322	1.0	282	2.5	0

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.2	1.4	71	002	2.5	004	3.8	0
0600	5.1	.1	70	008	2.3	023	3.2	5
0900	12.5	*****	42	106	1.0	076	1.9	37
1200	17.4	-1.9	27	193	.9	267	1.4	75
1500	19.1	-3.2	22	262	3.3	261	7.6	58
1800	19.0	-2.7	23	295	3.7	289	7.0	16
2100	14.5	-.9	35	273	3.5	282	7.0	0
2400	11.1	1.6	52	308	2.3	266	5.1	0

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	9.1	3.4	67	312	1.5	301	2.5	0
0600	8.8	2.7	69	015	1.5	003	3.2	2
0900	12.4	*****	51	115	.9	109	3.2	35
1200	16.4	3.0	41	271	1.7	282	3.8	75
1500	17.6	2.6	37	279	3.9	270	7.0	36
1800	16.7	2.9	41	288	4.2	291	8.3	9
2100	12.8	5.5	53	294	3.3	267	7.0	0
2400	11.9	*****	65	279	.8	274	1.9	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	11.0	6.0	71	267	1.6	260	4.4	0
0600	9.9	6.1	77	281	1.5	281	3.8	2
0900	12.0	5.9	66	243	1.2	256	3.8	29
1200	14.1	3.8	50	265	2.9	266	5.1	40
1500	12.3	3.5	55	275	4.0	263	7.6	18
1800	11.0	3.8	61	289	3.4	288	5.7	1
2100	9.9	4.5	69	276	2.5	290	5.1	0
2400	9.1	5.1	76	265	1.9	272	3.2	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	8.2	6.2	87	269	.9	245	1.9	0
0600	8.3	*****	93	154	.5	177	1.3	1
0900	9.5	6.6	87	097	1.1	101	2.5	15
1200	10.8	5.0	67	089	3.0	088	6.3	16
1500	11.9	6.0	67	079	3.5	084	5.1	4
1800	9.6	3.5	67	056	1.6	077	5.7	5
2100	8.5	4.2	74	065	2.5	093	5.7	0
2400	9.9	2.5	60	063	3.3	076	6.3	0

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DATA TAKEN DURING August, 1984

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	9.3	2.2	61	081	4.4	091	8.3	0
0600	9.4	2.1	60	088	5.8	087	9.5	0
0900	10.7	1.5	53	079	5.8	086	9.5	13
1200	13.7	.6	41	086	5.4	088	9.5	21
1500	13.3	4.5	55	054	2.6	088	5.7	24
1800	11.4	7.0	74	359	1.4	036	5.1	7
2100	9.1	7.8	92	288	2.5	285	4.4	0
2400	8.4	7.9	97	288	1.1	288	2.5	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	8.1	7.0	93	312	.9	305	1.9	0
0600	8.5	*****	94	074	.5	095	1.9	1
0900	9.1	8.0	93	251	.9	247	3.2	12
1200	11.0	5.0	66	267	3.3	281	5.7	21
1500	10.9	3.0	58	288	4.7	289	7.6	17
1800	9.7	3.5	65	284	4.3	293	7.0	7
2100	8.6	3.9	72	256	2.4	255	4.4	0
2400	7.3	4.3	81	284	2.4	301	4.4	0

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.9	*****	81	274	1.3	274	3.8	0
0600	6.2	*****	77	298	.6	296	1.9	1
0900	8.3	2.4	66	199	.5	130	2.5	13
1200	9.7	.0	51	198	1.3	204	2.5	21
1500	11.1	-.5	45	270	1.2	260	3.2	21
1800	10.8	.8	50	288	1.4	288	2.5	5
2100	7.8	3.9	76	285	1.8	278	3.2	0
2400	6.8	*****	81	318	.9	291	1.3	0

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	6.3	*****	79	031	.7	007	1.3	0
0600	6.6	3.7	82	034	.7	065	1.9	1
0900	8.5	3.4	70	078	1.0	078	2.5	20
1200	11.7	1.6	50	125	1.6	117	3.8	35
1500	13.0	1.6	46	234	1.1	267	3.2	24
1800	10.2	6.4	77	214	1.4	248	5.1	5
2100	8.7	*****	83	274	1.8	279	4.4	0
2400	8.3	4.5	77	275	2.1	296	4.4	0

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.3	3.9	79	273	2.1	264	4.4	0
0600	6.8	*****	82	271	1.2	255	4.4	0
0900	7.6	3.9	77	249	.9	259	2.5	11
1200	9.4	4.8	73	261	2.1	258	3.8	46
1500	9.7	4.7	71	255	2.1	268	4.4	9
1800	11.1	2.9	57	255	3.8	264	7.6	12
2100	7.3	2.4	71	292	2.3	277	5.7	0
2400	5.4	2.4	81	342	1.2	284	4.4	0

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.6	.8	82	093	1.7	121	4.4	0
0600	3.4	.3	80	040	1.5	022	3.8	0
0900	5.8	1.9	76	064	1.6	102	4.4	11
1200	7.5	3.4	75	068	3.9	072	7.6	14
1500	9.2	4.8	74	085	3.9	085	7.0	14
1800	8.7	4.4	74	090	2.9	099	5.7	6
2100	7.7	4.3	79	091	3.1	077	[illegible]	0
2400	7.5	3.9	78	[illegible]	2.2	[illegible]	[illegible]	[illegible]

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.0	*****	83	030	1.2	022	3.2	0
0600	6.8	*****	92	010	.3	004	1.9	0
0900	7.7	6.5	92	122	1.3	122	3.2	3
1200	*****	*****	75	***	****	***	****	5
1500	5.6	.6	73	251	1.1	210	5.1	[illegible]
1800	3.9	.9	81	236	1.6	272	5.1	5
2100	3.2	.6	83	251	3.3	276	6.3	[illegible]
2400	2.0	*****	82	284	2.4	279	5.1	0

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.4	-1.9	73	302	1.3	296	3.8	0
0600	4.1	-3.4	58	285	1.5	306	8.3	0
0900	4.7	-5.2	49	323	3.2	331	7.6	54
1200	5.1	-5.6	46	339	4.3	338	9.5	26
1500	5.1	-5.6	46	[illegible]	4.3	358	8.9	22
1800	4.6	-6.4	45	353	4.4	354	12.1	***
2100	2.0	-7.1	51	353	4.5	349	8.9	***
2400	1.1	-6.2	58	001	2.6	357	5.7	***

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	-6.5	59	[illegible]	1.5	057	[illegible]	***
0600	.4	-5.8	63	[illegible]	.8	[illegible]	[illegible]	***
0900	4.5	-5.9	47	[illegible]	1.9	[illegible]	[illegible]	***
1200	6.5	-5.3	43	[illegible]	3.8	[illegible]	[illegible]	***
1500	7.3	-5.9	39	[illegible]	3.9	[illegible]	[illegible]	***
1800	6.9	-8.6	32	[illegible]	2.9	[illegible]	5.7	***
2100	1.9	-10.4	[illegible]	[illegible]	3.4	[illegible]	[illegible]	***
2400	-.4	-9.9	49	[illegible]	2.1	031	[illegible]	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING AUGUST, 1984

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	-3.1	-10.0	59	033	1.8	008	3.9	***
0600	-3.5	-9.9	61	019	2.1	009	3.8	***
0900	3.2	-7.4	46	099	1.8	096	5.7	***
1200	6.1	-9.1	33	071	5.4	069	8.3	***
1500	8.5	-9.6	27	079	5.1	072	8.3	***
1800	8.4	-10.1	26	091	4.6	083	7.6	***
2100	2.8	-9.3	41	079	2.7	103	5.7	***
2400	1.4	-8.5	48	069	2.6	080	7.6	***

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	-9.3	51	076	5.0	085	8.3	***
0600	-.9	-9.3	53	074	3.7	078	6.3	***
0900	2.7	-8.4	44	084	3.8	090	7.6	***
1200	6.1	-7.3	38	088	4.6	096	7.6	***
1500	9.2	-7.2	31	087	3.5	074	7.6	***
1800	7.2	-8.9	31	044	3.3	066	7.0	***
2100	2.2	-8.6	45	031	4.3	026	7.0	***
2400	1.1	-8.8	48	050	4.6	026	8.3	***

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	-8.1	55	052	4.0	042	7.0	***
0600	.1	-8.1	54	040	3.7	039	6.3	***
0900	3.5	-8.6	41	060	3.9	045	6.3	***
1200	5.6	-8.4	36	060	4.5	072	8.3	***
1500	6.5	-6.0	35	033	4.5	024	8.3	***
1800	6.8	-8.1	34	027	4.5	020	7.6	***
2100	3.6	-8.5	41	003	4.0	001	7.6	***
2400	3.7	-7.8	43	013	2.1	010	4.4	***

DAY 31

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.2	*****	47	056	1.1	081	3.8	***
0600	2.6	*****	49	325	.6	320	2.5	***
0900	4.0	-2.8	61	090	.6	058	5.1	***
1200	6.9	-3.7	47	068	1.9	082	5.7	***
1500	9.1	-3.6	41	041	3.7	038	6.3	***
1800	7.1	-1.6	54	035	3.7	038	7.0	***
2100	5.8	*****	51	034	2.1	049	5.1	***
2400	3.3	-4.5	57	038	2.2	063	4.4	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

Daily Summary for Watana Weather Station
Data Taken During August, 1984

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	20.4	9.2	14.8	311	1.0	1.4	245	3.8	N	71	6.9	3.0	4608	1
2	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	2
3	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	3
4	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	4
5	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	5
6	21.5	11.9	16.7	032	1.6	2.5	044	6.3	NE	38	2.0	0.0	8686	6
7	21.1	9.4	15.3	273	1.6	2.5	248	7.6	W	44	2.6	0.0	7135	7
8	18.5	8.3	13.4	283	2.9	3.2	274	8.9	W	64	6.3	2.6	5745	8
9	11.6	8.0	11.2	307	.6	1.5	261	6.3	W	65	4.1	21.4	3475	9
10	14.7	6.1	10.4	276	1.7	2.3	262	8.3	W	54	1.3	1.6	5325	10
11	16.6	7.0	11.8	346	1.7	2.2	343	7.6	N	43	-3.1	0.0	6005	11
12	17.1	3.0	10.1	047	1.7	2.3	025	8.9	NE	25	-13.6	0.0	6970	12
13	18.3	3.6	11.0	093	2.0	2.6	116	7.0	ESE	28	-10.5	0.0	6645	13
14	19.9	3.5	11.7	277	1.0	2.3	261	7.0	W	33	-5.9	0.0	5115	14
15	20.3	5.1	12.7	297	1.6	2.5	261	7.0	N	43	-.6	0.0	5475	15
16	17.6	6.0	11.8	290	1.8	2.3	291	8.3	WNW	51	2.8	0.0	4495	16
17	14.6	9.1	11.9	273	2.3	2.4	268	7.6	W	64	4.7	0.0	2485	17
18	12.0	8.2	10.1	074	1.6	2.1	088	6.3	E	73	5.2	7.8	1835	18
19	14.8	8.4	11.6	072	2.6	3.8	087	9.5	E	62	3.5	5.0	1840	19
20	11.6	7.3	9.5	279	2.2	2.5	289	7.6	WNW	74	4.8	3.0	2670	20
21	11.7	5.9	8.8	271	.9	1.2	274	3.8	W	60	1.6	.2	2455	21
22	13.2	6.3	9.8	248	.3	1.4	248	5.1	W	68	3.9	2.6	3045	22
23	12.1	5.2	8.7	270	1.8	2.1	264	7.6	W	72	3.6	10.8	2660	23
24	9.3	3.1	6.2	074	2.5	2.7	072	7.6	E	78	2.9	20.0	1310	24
25	7.7	2.0	4.9	276	.9	1.8	276	6.3	W	81	2.1	22.4	730	25
26	6.0	1.1	3.6	343	3.1	3.3	354	12.1	N	54	-4.8	2.6	4391	26
27	8.1	-1.5	3.3	033	2.3	2.5	028	7.0	NNE	46	-7.3	0.0	******	27
28	8.9	-4.2	2.4	073	3.0	3.4	069	8.3	E	43	-9.4	0.0	******	28
29	9.4	-1.1	4.2	067	3.8	4.2	085	9.3	ENE	43	-8.5	0.0	******	29
30	7.9	-.5	3.7	038	3.7	3.9	072	8.3	NE	42	-8.3	0.0	******	30
31	9.6	1.6	5.6	042	1.9	2.2	038	7.0	NE	50	-3.8	0.0	******	31
MONTH	21.5	-4.2	9.4	002	.8	2.5	354	12.1	N	58	-.6	100.0	93320	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 7.0
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 8.3
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 8.3
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 10.2

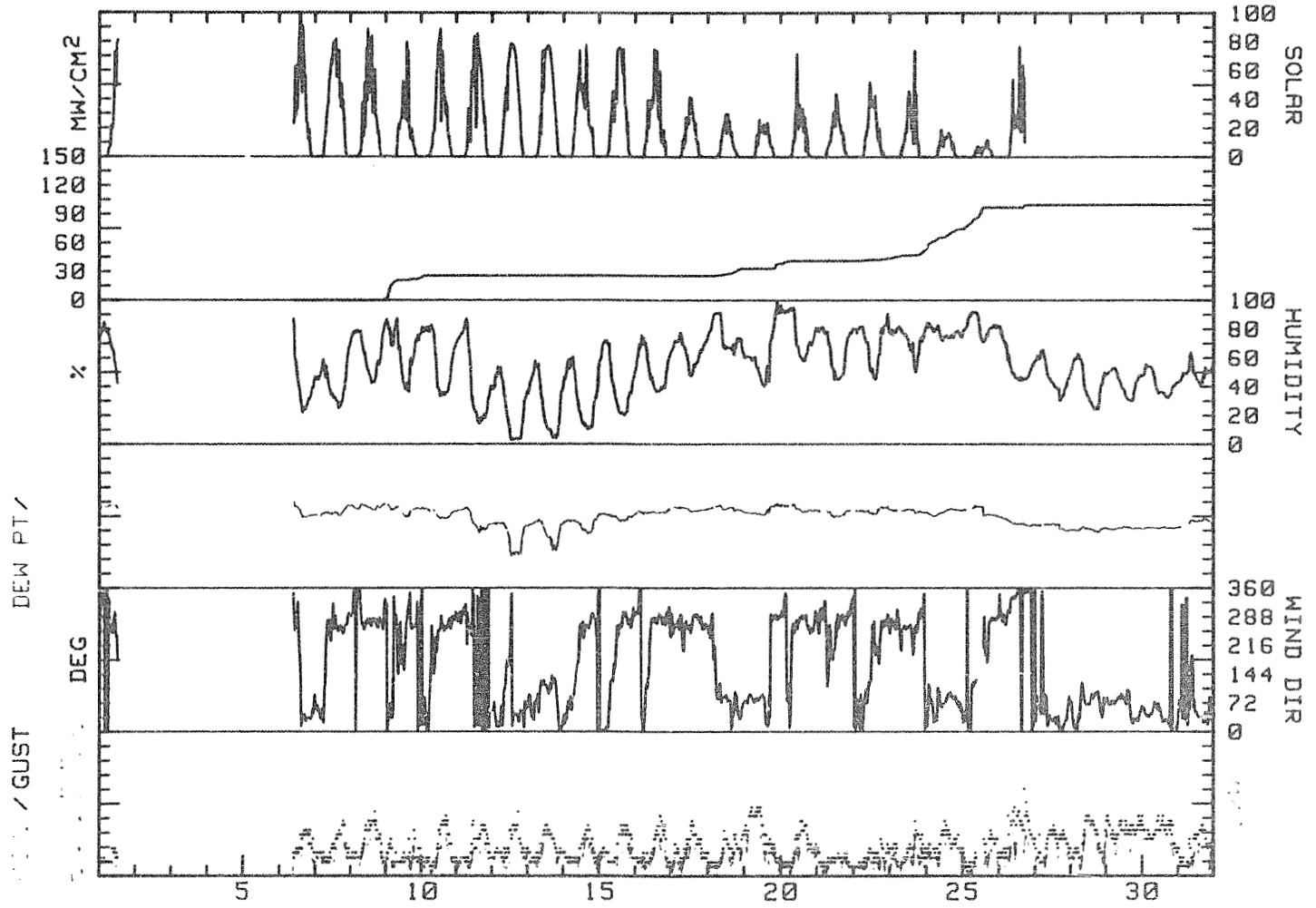
NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.
SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

August, 1984



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August, 1984

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	.88	5.29	2.41	.08	0.00	0.00	0.00	8.66
NNE	.40	5.37	3.61	0.00	0.00	0.00	0.00	9.38
NE	.40	5.37	3.85	0.00	0.00	0.00	0.00	9.62
ENE	.56	4.81	4.81	.08	0.00	0.00	0.00	10.26
E	.64	3.13	4.41	.48	0.00	0.00	0.30	8.66
ESE	.40	2.49	1.12	0.00	0.00	0.00	0.00	4.01
SE	.32	.96	.40	0.00	0.00	0.00	0.00	1.68
SSE	.16	.80	0.00	0.00	0.00	0.00	0.00	.96
S	.72	1.12	0.00	0.00	0.00	0.00	0.00	1.84
SSW	.32	1.84	0.00	0.00	0.00	0.00	0.00	2.17
SW	.72	.88	0.00	0.00	0.00	0.00	0.00	1.60
WSW	.56	3.85	2.09	0.00	0.00	0.00	0.00	6.50
W	1.44	7.78	5.69	.08	0.00	0.00	0.50	15.00
WNW	.96	8.02	4.33	0.00	0.00	0.00	0.00	13.31
NW	.88	1.76	0.09	0.00	0.00	0.00	0.00	2.65
NNW	1.04	1.60	.96	.08	0.00	0.00	0.00	3.69
CALM								1.00
TOTAL	10.13	55.07	33.68	.80	0.00	0.00	0.80	100.00

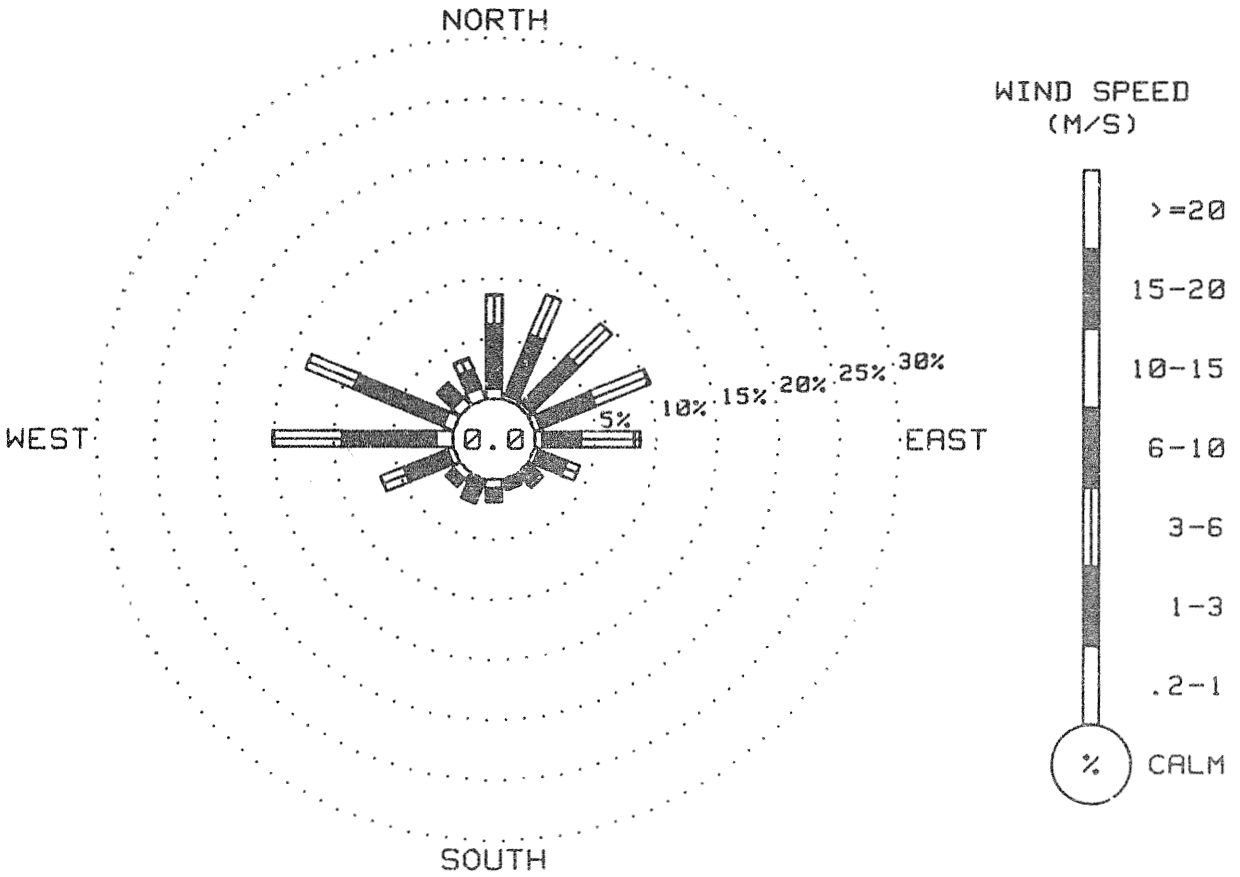
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1242 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
1488 WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 30 MINUTE DATA.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

August, 1984



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August 1984

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	0	0	0	0	0	2	7	11	21	33	63	64	***	***	***	***	***	***	***	***	***	***	***	***	8
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	52	46	46	46	84	95	68	64	50	24	14	15	2	0	0	0	25
7	0	0	0	0	1	11	22	33	45	60	66	78	78	69	64	57	42	47	31	13	2	0	0	0	30
8	0	0	0	0	0	3	7	30	33	38	58	67	51	63	37	53	28	20	15	5	1	0	0	0	22
9	0	0	0	0	0	0	7	21	22	27	46	39	39	52	48	14	18	11	6	2	0	0	0	0	14
10	0	0	0	0	0	4	8	17	25	50	70	83	57	74	44	36	37	17	11	5	1	0	0	0	22
11	0	0	0	0	0	3	10	27	14	55	61	84	25	82	72	63	47	31	24	6	2	0	0	0	25
12	0	0	0	0	0	7	18	33	46	47	69	77	78	77	72	62	50	37	19	7	1	0	0	0	29
13	0	0	0	0	0	2	7	22	33	60	68	75	77	76	70	61	49	36	22	8	2	0	0	0	28
14	0	0	0	0	0	4	17	29	45	58	60	51	40	34	74	37	22	19	19	6	1	0	0	0	21
15	0	0	0	0	0	4	17	31	42	33	42	74	76	74	63	66	36	25	15	3	1	0	0	0	25
16	0	0	0	0	0	6	11	32	28	39	36	57	52	60	30	57	14	12	13	6	0	0	0	0	19
17	0	0	0	0	0	2	9	11	19	22	24	41	39	28	22	18	11	4	1	1	0	0	0	0	10
18	0	0	0	0	0	1	3	4	13	20	25	23	26	26	16	15	8	5	3	0	0	0	0	0	8
19	0	0	0	0	0	0	2	13	11	23	19	21	20	19	21	16	10	7	4	1	0	0	0	0	6
20	0	0	0	0	0	1	1	8	11	32	57	20	33	28	25	28	12	11	2	0	0	0	0	0	11
21	0	0	0	0	0	1	6	9	12	21	26	24	42	34	24	19	17	9	3	1	0	0	0	0	10
22	0	0	0	0	0	1	4	14	19	33	50	37	37	39	28	13	20	7	3	2	0	0	0	0	13
23	0	0	0	0	0	0	1	6	10	18	23	42	40	21	21	65	27	12	5	0	0	0	0	0	12
24	0	0	0	0	0	0	2	6	11	17	8	13	14	15	16	13	8	8	3	0	0	0	0	0	5
25	0	0	0	0	0	0	1	2	4	8	5	6	4	8	8	11	9	5	4	1	0	0	0	0	3
26	0	0	0	0	0	0	3	13	37	22	35	25	27	48	20	61	33	***	***	***	***	***	***	***	13
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
30	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
31	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY LONGWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August, 1984

LONGWAVE RADIATION VALUES IN MILLIWATTS / SQUARE CENTIMETER

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	AVG
1	39	42	41	36	42	40	45	45	45	45	40	43	***	***	***	***	***	***	***	***	***	***	***	***	21
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	42	42	42	43	41	39	38	35	35	33	32	35	35	37	34	35	25
7	34	31	29	32	31	34	37	39	41	39	42	43	43	42	42	42	41	43	43	42	39	40	39	40	38
8	41	35	30	43	31	44	45	43	41	42	44	43	43	42	41	43	41	41	42	41	42	43	45	46	41
9	47	37	37	35	39	43	42	39	43	41	34	39	41	45	38	40	40	43	42	42	41	36	36	47	40
10	35	31	35	32	32	37	41	38	37	39	35	40	40	41	42	41	41	41	42	41	41	40	41	43	39
11	42	43	42	42	43	43	37	39	39	37	36	39	33	33	38	37	28	34	39	27	38	26	26	25	36
12	28	27	31	25	25	28	26	31	31	34	34	37	35	31	31	31	29	28	28	28	28	28	29	28	29
13	30	34	28	29	30	34	33	35	34	37	33	34	34	33	34	35	34	33	32	30	28	27	27	26	32
14	28	28	30	29	29	29	29	32	36	36	42	42	44	43	42	42	42	42	42	38	39	38	37	36	36
15	27	27	27	28	28	29	30	35	37	40	42	43	40	42	42	43	41	40	40	40	40	38	40	39	36
16	41	39	34	31	28	29	33	34	40	42	44	46	45	44	43	44	44	44	44	42	40	40	39	42	40
17	41	44	44	45	42	42	40	41	44	44	45	45	43	43	45	45	45	45	45	44	43	44	43	43	43
18	43	43	44	42	40	37	38	39	38	38	37	38	38	38	37	37	36	38	37	35	36	35	36	35	38
19	36	37	36	35	36	36	36	34	36	36	37	38	39	38	36	36	42	44	44	44	44	43	44	44	39
20	44	44	46	37	39	35	40	45	44	44	43	45	45	45	44	45	44	43	43	42	43	43	43	43	43
21	42	42	41	41	41	41	36	40	41	41	40	40	42	45	43	43	42	42	42	43	43	43	43	44	42
22	33	34	35	33	36	33	35	39	37	39	39	43	45	38	40	41	40	43	43	43	42	44	44	42	39
23	42	42	41	41	43	42	41	42	42	43	44	43	43	43	40	42	38	38	42	42	43	42	38	38	41
24	35	36	34	35	32	34	34	36	36	35	35	36	36	36	38	38	37	37	36	36	36	35	36	36	36
25	34	37	33	36	34	36	38	38	38	38	38	37	35	35	38	37	37	40	39	39	39	39	38	39	37
26	39	36	34	39	39	40	40	40	40	38	29	33	31	31	26	38	36	31	29	25	36	25	31	29	35
27	25	23	27	34	32	23	30	25	24	24	25	26	27	32	39	27	27	25	23	23	23	24	25	25	26
28	23	22	21	21	22	22	25	27	26	26	26	28	28	29	28	28	28	28	27	26	25	26	26	26	25
29	25	24	24	24	25	24	25	26	26	27	27	28	28	29	30	31	27	25	25	25	24	24	25	26	26
30	26	24	24	27	25	26	29	29	27	29	33	32	31	33	31	31	30	29	33	40	35	30	31	31	30
31	31	31	29	39	40	35	36	33	36	36	34	33	33	34	34	33	31	32	30	28	32	32	27	26	33

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

OBSERVATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August, 1984

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	1248	84
WIND SPEED	1247	84
WIND DIRECTION	1247	84
PEAK GUST	1247	84
RELATIVE HUMIDITY	1126	76
PRECIPITATION	1002	67
SOLAR RADIATION	1002	67
DEW POINT	1126	76
LONGWAVE RADIATION	1256	84

THERE ARE 1488 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER.
THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

1.	RH	-3 RH Points	8/01 - 8/27
		-10	8/27 - 8/31
2.	Solar	-1 mW/CM^2	

Additional comments on this month's data:

1. Lost data for all parameters from 8/1 to 8/6 due to electrical problems in the weather wizard.

2. Missing temperature, RH, wind speed, wind direction, and gust data on 8/26. Sensor array was disconnected for 4 hours for annual maintenance.

3. Solar radiation sensor removed on 8/26.

P & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1984

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	.2	.8	.4	.2	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	.4	0.0	.2	6
7	.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	.6	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	.8	.2	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	.2	0.0	0.0	0.0	12
13	0.0	0.0	0.0	.2	0.0	.6	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	13
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	17
18	0.0	0.0	.4	.4	0.0	0.0	.2	0.0	0.0	.2	0.0	0.0	.2	1.0	0.0	0.0	0.0	2.2	1.4	.2	0.0	0.0	0.0	0.0	18
19	0.0	0.0	.8	1.4	1.6	1.0	0.0	.2	0.0	0.0	.4	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	.6	0.0	19
20	0.0	0.0	0.0	.4	1.0	2.2	1.6	1.0	.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	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	.2	0.0	0.0	0.0	0.0	0.0	0.0	****	****	****	****	****	****	****	****	****	25
26	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	26
27	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	27
28	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	28
29	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	29
30	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	30

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1984

DAY 01

HOUR ENDNG	TEMP. 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	-4.6	67	019	2.3	028	5.1	***
0600	.3	-5.1	67	024	1.7	005	3.8	***
0900	5.0	-2.8	57	072	1.6	047	3.2	***
1200	11.4	-3.7	35	105	2.8	096	6.3	***
1500	12.9	-4.8	29	083	2.2	062	5.7	***
1800	11.6	-6.4	28	123	1.1	162	3.8	***
2100	7.0	-3.6	47	037	2.1	034	5.1	***
2400	4.4	-3.9	55	048	1.1	076	3.2	***

DAY 02

HOUR ENDNG	TEMP. 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	-4.7	69	029	1.5	018	3.2	***
0600	.9	-4.1	69	053	1.4	057	2.5	***
0900	3.8	-3.2	60	100	.9	062	1.9	***
1200	11.3	-2.3	39	140	1.8	123	3.8	***
1500	11.8	-3.7	34	229	1.1	332	8.3	***
1800	11.8	-4.1	33	045	1.5	359	5.7	***
2100	6.1	-1.3	59	033	1.9	019	7.0	***
2400	3.9	-4.1	56	031	1.8	045	3.2	***

DAY 03

HOUR ENDNG	TEMP. 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	-5.0	66	067	1.7	064	2.5	***
0600	-.8	-5.4	71	048	1.9	061	3.2	***
0900	4.3	-2.5	61	088	1.7	066	3.2	***
1200	11.0	-4.4	34	127	2.4	119	4.4	***
1500	11.9	-6.2	28	123	3.4	139	6.3	***
1800	11.6	-5.5	30	082	3.1	085	5.7	***
2100	8.1	-5.5	38	071	2.3	101	4.4	***
2400	7.8	-4.4	42	04n	2.3	038	3.8	***

DAY 04

HOUR ENDNG	TEMP. 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	-3.0	53	075	1.7	070	3.8	***
0600	4.7	*****	60	090	1.4	093	2.5	***
0900	8.6	-1.0	51	111	1.7	119	3.8	***
1200	11.5	-1.7	40	094	3.7	084	7.0	***
1500	12.7	-1.7	37	087	3.2	078	6.3	***
1800	10.8	-.1	47	110	2.8	097	5.7	***
2100	8.5	.7	58	080	1.1	118	3.2	***
2400	6.4	1.2	69	071	1.5	065	3.2	***

DAY 05

HOUR ENDNG	TEMP. 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	*****	69	079	1.3	100	2.5	***
0600	5.1	.7	73	065	1.3	079	2.5	***
0900	10.2	1.6	55	115	1.0	121	2.5	***
1200	12.4	.4	44	106	2.8	107	6.3	***
1500	13.5	-1.0	37	124	3.5	116	7.6	***
1800	11.3	.3	47	120	1.9	096	6.3	***
2100	9.1	*****	58	074	1.9	097	3.8	***
2400	6.8	*****	69	149	.4	058	2.5	***

DAY 06

HOUR ENDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.3	2.1	80	159	.8	178	3.2	***
0600	4.9	2.4	84	053	1.2	065	1.9	***
0900	6.0	3.5	84	077	.8	076	1.9	***
1200	9.2	3.9	69	115	1.8	118	3.8	***
1500	11.5	2.0	52	139	1.7	122	3.2	***
1800	8.8	1.7	61	101	2.7	102	5.1	***
2100	7.7	1.8	66	049	1.4	069	5.7	***
2400	6.1	2.9	86	069	2.1	097	5.7	***

DAY 07

HOUR ENDNG	TEMP. 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	*****	92	095	1.5	111	3.8	***
0600	4.1	2.6	90	065	.8	125	1.9	***
0900	6.5	3.3	80	090	1.6	089	3.8	***
1200	8.6	2.0	63	091	3.2	081	5.7	***
1500	11.2	-.0	46	068	2.2	048	5.7	***
1800	11.1	.2	47	106	1.3	136	6.3	***
2100	5.6	1.0	72	046	2.0	095	6.3	***
2400	3.2	-.4	77	013	2.0	007	3.8	***

DAY 08

HOUR ENDNG	TEMP. 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	-.6	85	035	1.7	013	3.2	***
0600	2.6	-.7	79	065	1.6	055	3.8	***
0900	6.7	.2	63	053	3.6	052	6.3	***
1200	10.6	.0	48	084	4.9	092	8.3	***
1500	12.7	-1.7	37	088	4.9	091	8.9	***
1800	12.7	-2.5	35	085	3.0	103	5.1	***
2100	5.1	-2.5	58	028	1.9	078	3.2	***
2400	3.1	-2.4	67	340	2.7	001	3.8	***

DAY 09

HOUR ENDNG	TEMP. 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	-2.2	73	089	2.1	080	3.2	***
0600	-.1	-3.5	79	018	1.7	013	3.8	***
0900	4.4	*****	85	079	1.1	046	2.5	***
1200	12.7	-1.0	39	151	1.1	141	3.2	***
1500	15.4	-6.3	22	176	1.5	169	3.8	***
1800	15.0	-5.0	25	073	1.3	106	3.8	***
2100	6.8	-2.4	52	030	1.3	077	5.1	***
2400	6.6	-1.4	56	037	1.7	046	3.2	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1984

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	1.6	-3.1	71	061	1.4	025	2.5	***
0600	1.1	-2.8	75	060	1.3	040	2.5	***
0900	3.7	-2.0	66	090	1.3	102	3.2	***
1200	12.0	-1.6	39	137	1.4	129	2.5	***
1500	13.8	-4.1	29	143	.8	150	4.4	***
1800	13.4	-3.5	31	322	1.5	358	7.6	***
2100	6.0	-3.7	50	063	2.7	082	6.3	***
2400	3.4	-3.6	60	054	1.6	070	3.2	***

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.0	-3.5	72	057	1.8	043	3.2	***
0600	-1.2	-4.4	79	076	1.7	077	3.2	***
0900	3.2	-2.5	66	073	2.1	052	3.8	***
1200	11.9	-2.8	36	108	2.8	120	5.7	***
1500	14.4	-5.5	25	086	3.5	103	6.3	***
1800	10.5	-5.2	33	087	1.1	049	5.1	***
2100	5.9	-3.2	52	277	.6	239	3.2	***
2400	4.1	-1.8	65	011	1.0	358	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	1.7	-2.8	72	072	1.0	035	2.5	***
0600	.8	-1.6	84	059	1.4	049	3.8	***
0900	4.6	-.6	69	093	1.1	115	3.2	***
1200	10.0	-1.1	46	130	1.6	118	3.8	***
1500	11.8	-.1	44	231	1.7	266	5.1	***
1800	9.5	.7	54	242	2.6	243	5.1	***
2100	4.9	2.6	85	212	.2	184	7.6	***
2400	4.1	1.8	85	018	1.3	005	2.5	***

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	3.9	2.1	88	004	1.5	356	2.5	***
0600	3.6	1.9	89	054	.8	008	2.5	***
0900	4.4	2.7	89	069	1.1	068	2.5	***
1200	7.3	2.2	70	063	2.4	064	5.1	***
1500	8.7	2.3	64	076	3.4	075	5.7	***
1800	9.2	1.2	57	054	3.1	046	5.1	***
2100	4.9	-.3	69	048	2.6	030	5.1	***
2400	4.6	-1.4	67	051	2.9	050	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	5.1	-1.8	61	058	3.2	055	5.7	***
0600	3.4	-2.3	66	072	2.2	044	4.4	***
0900	9.0	-1.8	47	058	3.5	061	7.0	***
1200	10.8	-2.7	39	078	6.6	086	10.8	***
1500	12.5	-2.3	36	088	6.2	091	11.4	***
1800	11.4	-2.9	37	078	4.2	090	8.3	***
2100	9.4	-3.6	40	042	2.4	045	5.7	***
2400	8.1	-2.0	49	058	3.4	052	7.0	***

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	7.6	.4	60	071	5.4	070	8.9	***
0600	7.3	1.2	65	070	5.0	074	8.3	***
0900	8.4	1.6	62	071	4.5	063	7.6	***
1200	10.9	1.1	51	083	5.6	079	8.3	***
1500	12.9	.5	43	086	4.3	085	7.0	***
1800	10.8	1.1	51	093	4.2	092	6.3	***
2100	7.6	3.3	74	086	1.6	287	5.7	***
2400	5.3	3.6	89	282	1.4	282	3.2	***

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.2	.2	93	028	1.4	012	3.8	***
0600	.9	-.7	89	055	1.3	069	2.5	***
0900	3.2	*****	84	070	1.9	070	1.9	***
1200	10.8	2.9	58	243	1.1	263	3.8	***
1500	13.9	-.7	37	267	2.8	272	5.1	***
1800	10.2	.2	50	291	1.2	340	5.1	***
2100	6.6	2.1	73	269	1.6	283	4.4	***
2400	5.1	1.1	75	314	1.8	293	3.8	***

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	2.6	.2	84	325	1.6	294	3.2	***
0600	.4	-1.7	86	351	1.8	001	4.4	***
0900	2.9	.5	84	359	2.1	001	3.2	***
1200	9.9	3.2	63	309	1.1	273	3.2	***
1500	10.2	3.3	62	262	2.4	260	5.1	***
1800	6.3	4.3	87	262	3.5	257	7.0	***
2100	5.4	3.6	88	235	.5	279	7.6	***
2400	3.4	2.8	96	084	1.3	069	2.5	***

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	3.2	2.8	97	076	1.0	022	2.5	***
0600	2.4	.9	90	095	1.3	102	3.8	***
0900	3.4	1.6	89	098	1.3	112	3.2	***
1200	7.3	3.4	76	095	1.0	106	3.8	***
1500	7.1	3.5	79	207	.9	156	4.4	***
1800	5.3	3.3	87	279	1.3	244	7.0	***
2100	3.8	2.6	93	334	1.6	279	7.6	***
2400	3.0	1.6	91	093	1.3	115	3.8	***

*** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT ***

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September 1982

DAY 19

HOUR MDNG	TEMP. 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	1.8	92	075	1.1	088	2.5	***
0600	2.1	.5	89	097	1.0	088	2.5	***
0900	2.1	*****	92	092	.9	108	2.5	***
1200	3.6	1.8	88	115	1.6	118	5.1	***
1500	6.0	2.1	76	119	2.3	115	3.8	***
1800	4.7	.5	74	087	2.6	112	4.4	***
2100	3.2	-.1	79	055	2.6	050	5.1	***
2400	0.0	-1.0	93	294	1.6	065	4.4	***

DAY 20

HOUR MDNG	TEMP. 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	-.3	86	030	.4	067	3.2	***
0600	2.4	.1	85	035	3.0	034	6.3	***
0900	3.4	.6	82	008	3.4	015	7.0	***
1200	5.1	2.3	82	321	1.0	009	3.8	***
1500	8.0	-3.0	46	325	2.4	352	7.0	***
1800	7.7	-3.6	45	352	3.6	349	6.3	***
2100	2.6	*****	66	017	1.7	008	4.4	***
2400	-.5	-4.2	76	004	1.7	000	3.2	***

DAY 21

HOUR MDNG	TEMP. 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	-4.6	81	037	1.2	017	2.5	***
0600	-1.6	-4.3	82	060	1.5	072	3.2	***
0900	-.6	-4.5	75	085	1.4	087	3.8	***
1200	7.6	-2.2	50	143	1.2	153	3.2	***
1500	11.0	-4.0	35	143	1.3	130	3.2	***
1800	14.4	*****	27	231	.9	294	3.2	***
2100	2.0	-3.2	68	006	2.4	013	4.4	***
2400	1.4	-2.5	75	016	1.8	359	3.2	***

DAY 22

HOUR MDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.7	-4.0	78	041	1.8	057	3.8	***
0600	-2.7	-4.7	86	075	1.7	063	2.5	***
0900	2.8	-1.7	72	075	1.6	049	3.2	***
1200	9.3	-.9	49	087	4.4	087	7.6	***
1500	11.9	-1.7	39	086	4.6	085	8.3	***
1800	9.4	-2.3	44	085	3.5	092	6.3	***
2100	4.4	-2.9	59	041	2.3	078	4.4	***
2400	2.1	-3.6	66	013	2.1	020	3.2	***

DAY 23

HOUR MDNG	TEMP. 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	-3.7	71	043	1.3	050	2.5	***
0600	.4	-3.5	75	046	1.2	037	2.5	***
0900	5.5	-3.1	54	053	3.0	058	6.3	***
1200	9.0	-4.0	40	074	5.2	078	8.3	***
1500	9.8	-6.3	32	089	4.5	086	7.6	***
1800	7.9	-6.8	35	086	2.0	089	5.1	***
2100	5.3	-4.6	49	042	1.6	052	3.2	***
2400	5.3	-4.9	48	029	2.1	030	3.8	***

DAY 24

HOUR MDNG	TEMP. 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	-5.6	52	050	2.8	074	5.7	***
0600	3.1	-6.4	50	040	3.0	050	5.1	***
0900	4.4	-6.0	47	048	2.9	066	5.1	***
1200	7.7	-5.2	40	079	4.3	076	8.3	***
1500	8.8	-4.5	39	091	4.3	094	7.0	***
1800	8.2	-4.4	41	094	2.9	096	5.1	***
2100	6.5	-3.5	49	038	3.0	048	3.8	***
2400	6.0	-2.4	55	054	3.1	062	5.1	***

DAY 25

HOUR MDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.3	-2.0	59	056	3.3	061	5.1	***
0600	4.0	-.2	74	067	2.3	079	4.4	***
0900	4.2	1.4	82	048	3.4	062	4.4	***
1200	6.9	.2	62	058	2.8	066	5.7	***
1500	9.9	-.6	48	075	3.1	051	5.7	***
1800	8.1	-1.2	52	101	3.5	082	4.4	***
2100	5.8	*****	68	068	1.3	064	2.5	***
2400	2.6	-1.5	74	033	1.5	058	2.5	***

DAY 26

HOUR MDNG	TEMP. 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	*****	77	038	.8	041	1.9	***
0600	3.4	*****	77	048	1.0	045	2.5	***
0900	3.4	-.2	77	037	.9	010	2.5	***
1200	7.7	1.1	63	072	1.0	093	3.2	***
1500	10.4	-1.1	45	148	1.6	104	4.4	***
1800	8.5	-.5	53	303	1.2	294	5.1	***
2100	2.6	-.8	78	359	1.8	004	3.2	***
2400	.3	-2.4	82	004	2.5	005	3.8	***

DAY 27

HOUR MDNG	TEMP. 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	-2.9	87	33	1.7	007	3.2	***
0600	-1.3	-3.2	87	063	1.6	063	2.5	***
0900	-.6	-2.5	87	089	1.7	094	3.2	***
1200	7.3	1.0	64	132	1.4	141	4.4	***
1500	11.1	-2.5	39	117	3.7	108	5.1	***
1800	10.2	-5.1	34	100	3.7	112	7.0	***
2100	3.2	-4.0	59	055	2.2	073	3.8	***
2400	1.5	-3.9	67	017	2.3	029	3.8	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HALF HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1981

DAY 28										DAY 29										DAY 30									
HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW		HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD *MW		HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD mw	
0300	1.8	-3.4	68	039	2.2	057	3.3	***		0300	4.3	.5	76	066	4.9	072	8.9	***		0300	5.5	1.5	75	081	4.0	092	8.3	***	
0600	2.6	-3.3	65	058	2.4	057	4.4	***		0600	3.2	.7	84	070	5.0	074	8.3	***		0600	5.0	1.3	77	081	4.5	078	7.6	***	
0900	6.2	-2.7	53	066	3.5	081	6.3	***		0900	4.9	2.1	82	070	5.3	072	10.8	***		0900	5.6	1.7	76	077	5.7	078	8.9	***	
1200	9.3	-3.1	42	076	4.3	076	7.0	***		1200	7.3	2.8	73	054	4.9	075	12.1	***		1200	8.9	1.6	60	084	6.4	084	10.2	***	
1500	10.0	-3.8	38	085	4.8	066	7.8	***		1500	8.7	3.6	70	078	4.2	082	7.6	***		1500	10.4	-2.1	42	095	6.8	09[illegible]	9.5	***	
1800	8.7	-3.6	42	063	2.7	069	5.7	***		1800	9.4	4.1	69	067	3.4	085	7.0	***		1800	8.6	-3.0	44	085	6.[illegible]	08[illegible]	9.5	***	
2100	5.9	-1.5	59	081	4.4	089	8.9	***		2100	8.6	3.5	70	044	1.9	063	6.3	***		2100	6.8	.1	62	084	7.1	091	12.1	***	
2400	4.8	.4	77	071	5.7	077	8.9	***		2400	7.3	2.2	70	080	3.6	067	7.6	***		2400	5.9	.5	68	069	5.2	073	10.8	***	

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1984

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	14.3	.1	7.2	062	1.5	2.1	096	6.3	NNE	48	-4.5	0.0	******	1
2	13.5	0.0	6.8	056	.9	1.8	332	8.3	NNE	51	-3.6	0.0	******	2
3	12.8	-1.6	5.6	085	2.1	2.4	139	6.3	NE	47	-4.9	0.0	******	3
4	13.1	4.4	8.8	092	2.1	2.2	084	7.0	E	50	-1.4	0.0	******	4
5	14.0	4.6	9.3	104	1.6	1.9	116	7.6	ESE	55	.5	0.0	******	5
6	11.9	4.5	8.2	094	1.3	1.7	069	5.7	ESE	72	2.4	3.4	******	6
7	11.8	3.1	7.5	072	1.6	2.1	136	6.3	E	69	1.5	.8	******	7
8	13.2	-.3	6.5	063	2.6	3.1	091	8.9	E	60	-1.3	0.0	******	8
9	15.5	-.1	7.7	050	.9	1.6	077	5.1	N	53	-2.7	.6	******	9
10	15.4	.3	7.9	069	1.1	1.7	358	7.6	ENE	52	-2.9	1.0	******	10
11	14.4	-1.2	6.6	078	1.5	2.1	103	6.3	ENE	53	-3.8	0.0	******	11
12	12.5	.8	6.7	117	.1	1.7	184	7.6	E	65	-.2	.2	******	12
13	9.5	2.9	6.2	054	2.1	2.3	075	5.7	NE	74	1.5	1.0	******	13
14	13.1	3.3	8.2	071	3.8	4.0	091	11.4	ENE	48	-2.4	0.0	******	14
15	13.2	5.3	9.3	076	3.6	4.1	070	8.9	E	59	1.3	0.0	******	15
16	13.9	-.1	6.9	303	.8	1.7	272	5.1	W	70	.7	0.0	******	16
17	11.0	.4	5.7	305	1.1	2.0	279	7.6	N	79	1.8	1.0	******	17
18	7.7	1.9	4.8	093	.3	1.4	279	7.6	E	89	2.5	6.2	******	18
19	6.5	0.0	3.3	087	1.2	1.8	118	5.1	ESE	84	.7	7.2	******	19
20	8.5	-.5	4.0	002	2.0	2.5	015	7.0	N	71	-1.3	8.2	******	20
21	14.4	-3.0	5.7	057	.7	1.6	013	4.4	N	64	-3.8	0.0	******	21
22	11.9	-2.7	4.6	070	2.5	2.8	085	8.3	E	62	-2.9	0.0	******	22
23	10.2	-.3	5.0	065	2.4	2.7	078	8.3	ENE	51	-4.4	0.0	******	23
24	9.2	1.8	5.5	065	2.9	3.2	076	8.3	NE	46	-4.7	0.0	******	24
25	10.1	2.6	6.4	064	2.3	2.5	066	5.7	ENE	63	-.6	.2	******	25
26	10.4	.3	5.4	020	.9	1.4	294	5.1	N	67	-.5	****	******	26
27	11.4	-1.7	4.9	077	1.7	2.2	112	7.0	E	67	-2.7	****	******	27
28	10.3	-.2	5.1	070	3.6	3.7	089	8.9	ENE	56	-2.9	****	******	28
29	9.4	3.2	6.3	068	4.1	4.3	075	12.1	ENE	75	2.4	****	******	29
30	10.8	4.7	7.8	082	5.6	5.7	088	12.1	E	63	.4	****	******	30
MONTH	15.5	-3.0	6.4	069	1.8	2.5	075	12.1	ENE	62	-1.2	29.8	******	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 8.3
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 10.6
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 11.4
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 8.3

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

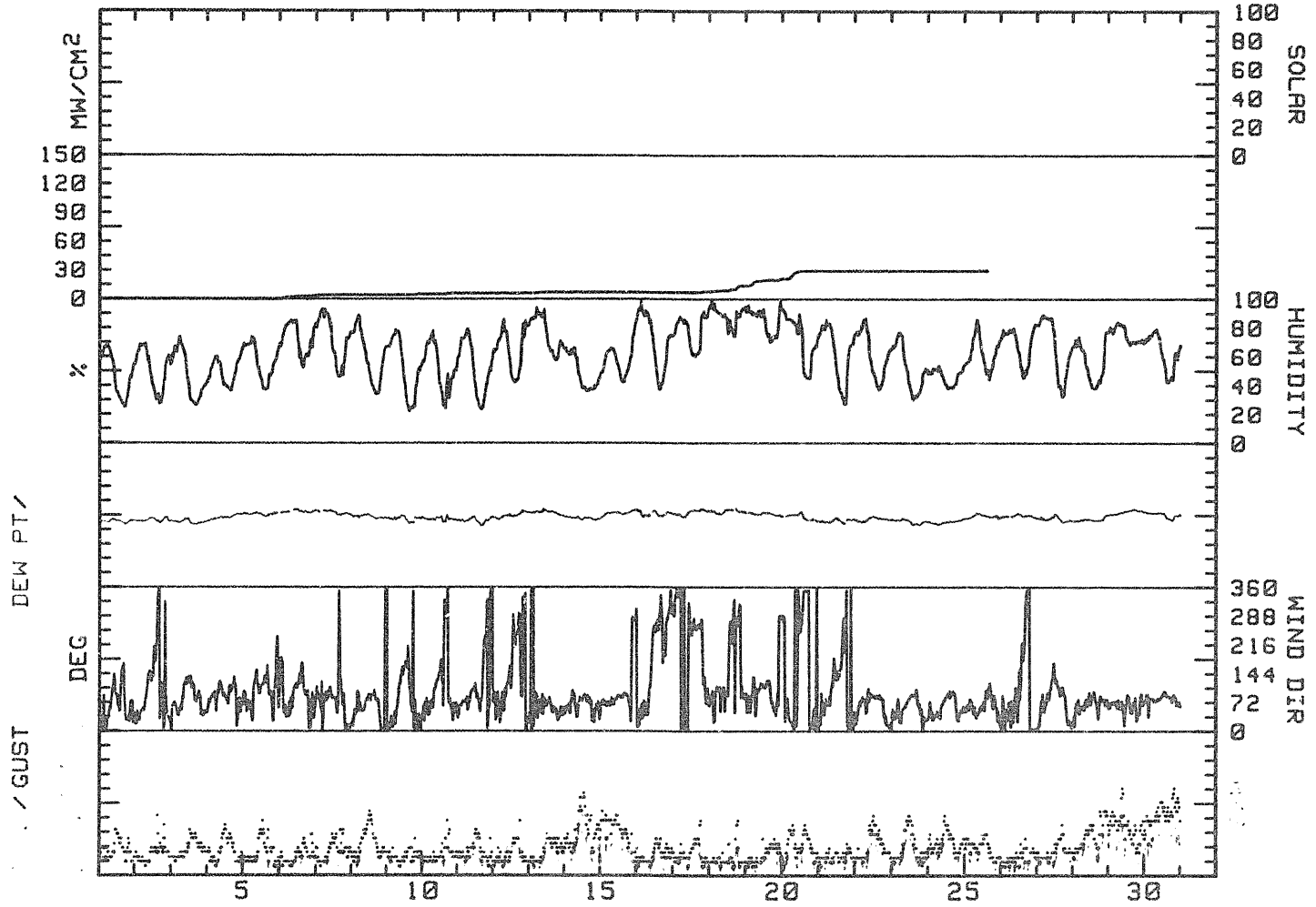
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

September, 1984



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1984

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	.28	6.81	.83	0.00	0.00	0.00	0.00	7.92
NNE	.28	7.78	.97	0.00	0.00	0.00	0.00	9.03
NE	1.04	11.11	2.36	0.00	0.00	0.00	0.00	14.51
ENE	1.18	11.18	9.38	.90	0.00	0.00	0.00	22.64
E	1.11	8.40	9.79	1.46	0.00	0.00	0.00	20.76
ESE	.63	6.53	1.60	0.00	0.00	0.00	0.00	8.75
SE	.35	2.64	.42	0.00	0.00	0.00	0.00	3.40
SSE	.21	1.88	0.00	0.00	0.00	0.00	0.00	2.08
S	.14	1.25	.07	0.00	0.00	0.00	0.00	1.46
SSW	0.00	.63	0.00	0.00	0.00	0.00	0.00	.63
SW	.14	.76	0.00	0.00	0.00	0.00	0.00	.90
WSW	.21	.76	.28	0.00	0.00	0.00	0.00	1.25
W	.07	1.53	.76	0.00	0.00	0.00	0.00	2.36
WNW	.28	1.81	.21	0.00	0.00	0.00	0.00	2.29
NW	.21	.56	0.00	0.00	0.00	0.00	0.00	.76
NNW	.07	.90	.28	0.00	0.00	0.00	0.00	1.25
CALM								9.86
TOTAL	5.18	64.51	26.94	2.36	0.00	0.00	0.00	101.00

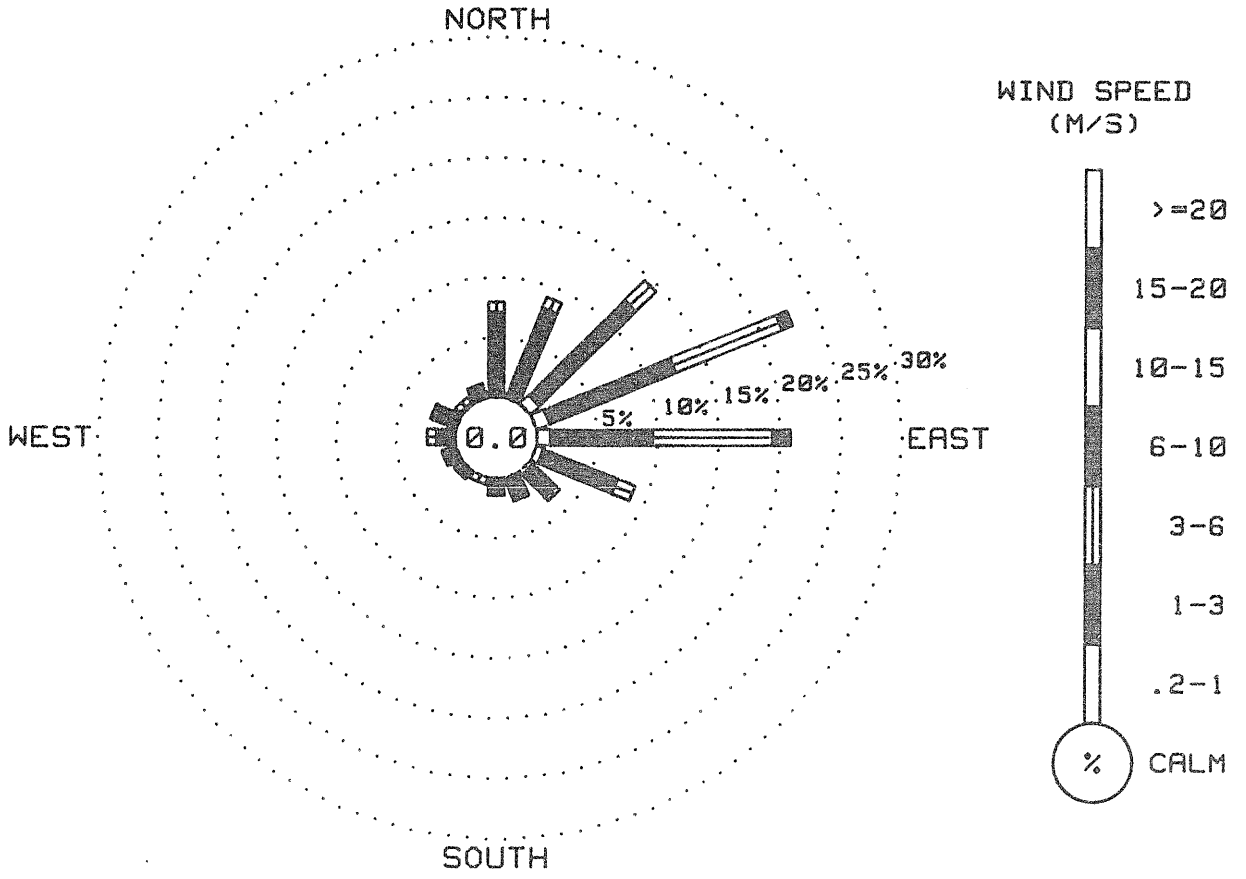
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1440 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
1440 WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 30 MINUTE DATA.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

September, 1984



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1984

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
7	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
8	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
9	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
10	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
11	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
12	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
13	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
14	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
18	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
19	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
21	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
23	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
24	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
25	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
26	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
30	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY LONGWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1984

LONGWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	24	24	26	25	23	24	26	27	29	30	30	30	34	30	33	33	32	28	28	26	33	34	27	25	28
2	28	31	25	28	28	27	29	30	31	30	32	32	34	35	39	34	37	32	33	37	27	25	25	24	30
3	25	26	26	25	24	25	26	27	30	30	31	34	35	36	36	35	35	35	34	31	31	31	33	33	30
4	35	33	32	34	34	31	32	30	30	30	32	35	37	35	35	38	38	37	37	33	32	34	29	35	34
5	35	33	34	34	34	33	36	35	37	33	34	37	35	36	36	37	35	36	35	33	37	41	38	40	35
6	40	39	33	34	33	33	34	35	37	37	36	35	33	38	40	34	34	34	32	29	34	35	34	35	35
7	35	33	36	35	39	36	35	36	35	34	33	36	36	36	31	40	35	35	31	30	31	27	26	25	33
8	27	28	27	26	27	27	27	27	28	29	30	31	30	32	32	32	31	30	29	29	26	25	25	25	28
9	25	25	26	24	25	25	26	28	30	33	34	33	33	39	38	34	34	36	39	34	27	30	33	28	31
10	27	27	26	26	26	26	25	28	29	31	32	34	35	36	40	33	41	32	30	28	28	27	27	25	30
11	25	26	25	25	26	26	25	27	28	30	31	31	31	30	31	29	30	34	34	32	30	42	34	33	30
12	29	29	27	29	37	33	33	31	32	31	35	37	38	38	37	39	39	40	34	42	42	37	32	31	34
13	30	33	37	34	34	33	32	34	35	35	34	34	34	35	35	34	32	31	27	29	27	28	29	29	32
14	29	28	31	33	33	32	31	31	31	31	31	32	33	33	33	33	34	33	30	30	30	31	30	32	31
15	34	34	33	32	33	33	33	34	33	31	32	31	32	32	32	35	34	34	35	35	41	39	39	36	34
16	28	29	30	30	30	32	31	30	32	34	36	37	38	37	39	41	38	36	37	36	38	42	35	37	35
17	39	37	38	37	38	28	32	27	28	30	41	40	40	42	40	41	42	41	39	36	36	32	31	31	36
18	34	35	34	33	35	35	34	33	35	35	36	36	39	41	40	36	36	40	41	42	35	33	33	33	36
19	32	34	37	34	36	33	35	34	34	35	35	35	34	32	31	31	29	29	28	30	34	40	41	40	34
20	41	37	33	32	32	31	32	37	38	35	42	39	37	32	36	37	36	36	23	23	27	23	29	26	33
21	22	25	25	24	24	25	25	26	27	30	31	31	30	32	30	32	32	31	23	23	25	23	23	25	27
22	23	23	24	24	26	25	25	25	27	28	29	28	28	29	28	30	28	22	26	26	26	26	27	26	26
23	28	27	26	26	24	26	26	26	27	28	28	29	28	30	31	31	30	***	***	***	***	***	***	***	19
24	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
25	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
26	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
30	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

OBSERVATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING September, 1984

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	1440	100
WIND SPEED	1440	100
WIND DIRECTION	1440	100
PEAK GUST	1440	100
RELATIVE HUMIDITY	1351	94
PRECIPITATION	0	0
SOLAR RADIATION	0	0
DEW POINT	1351	94
LONGWAVE RADIATION	1090	76

THERE ARE 1440 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER.
THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

1. RH -10 RH Points

Additional comments on this month's data:

1. No solar radiation data. Sensor not installed.

2. No longwave radiation data after 9/23. Watana base camp shut down for winter.

3. Precipitation tipping bucket gage removed, so no data after 9/25. Storage precipitation gage installed in its place.

No precipitation data for October

(See INTERPRETATION OF DATA).

P & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October 1984

DAY 01

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	5.3	-.5	66	049	3.3	071	7.6	***
0600	3.5	-.1	77	061	3.2	065	6.3	***
0900	6.0	.6	68	069	3.8	068	7.0	***
1200	8.5	.2	56	077	6.3	074	9.5	***
1500	10.7	.4	49	090	6.7	092	10.2	***
1800	8.9	-1.0	50	094	4.4	096	8.9	***
2100	6.0	-.5	63	076	5.0	081	8.9	***
2400	4.6	-1.2	66	071	4.4	073	7.6	***

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	3.3	-.9	74	055	2.9	054	5.7	***
0600	3.1	-.7	76	035	2.6	035	4.4	***
0900	5.0	-.4	68	049	2.4	047	3.8	***
1200	7.3	-.9	56	086	3.7	082	6.3	***
1500	7.7	-1.0	54	110	2.4	090	5.1	***
1800	4.6	1.8	82	057	1.1	025	4.4	***
2100	1.7	-.6	85	012	1.5	359	3.2	***
2400	.6	-.7	91	019	1.5	002	3.2	***

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	-.1	-2.0	87	018	1.4	020	3.5	***
0600	-1.9	-3.1	92	074	1.3	044	3.5	***
0900	-2.3	-3.6	91	091	1.4	091	3.5	***
1200	5.1	.1	79	063	2.2	073	5.7	***
1500	7.7	-4.2	43	081	3.3	084	6.3	***
1800	5.5	-4.7	48	101	2.4	101	4.4	***
2100	-.1	-4.0	75	024	2.0	056	3.2	***
2400	-2.5	-5.2	82	016	2.0	002	3.2	***

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	-4.1	-6.3	85	049	1.5	059	3.2	***
0600	-5.3	-7.1	87	055	1.7	037	3.5	***
0900	-2.5	-5.5	80	068	2.0	060	3.2	***
1200	6.0	-2.4	55	092	3.9	100	7.0	***
1500	7.5	-5.3	40	088	5.2	090	8.3	***
1800	5.2	-6.2	44	083	4.7	080	7.6	***
2100	.9	-5.1	64	053	3.0	074	5.7	***
2400	.1	-5.5	66	060	2.9	052	5.1	***

DAY 05

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.4	-5.2	66	061	3.5	053	6.3	0
0600	.9	-5.3	63	054	4.4	054	8.3	0
0900	1.6	-3.4	69	057	3.8	062	7.6	2
1200	3.9	-2.9	61	066	4.3	078	7.8	21
1500	6.1	-2.3	55	079	5.7	076	11.5	25
1800	4.0	-1.9	65	079	3.8	091	8.7	1
2100	3.6	-1.9	67	076	5.1	095	9.2	0
2400	2.9	-1.6	72	069	3.4	074	8.7	0

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	2.3	-3.4	66	069	4.9	069	8.7	0
0600	1.7	-4.3	64	067	4.6	068	7.8	0
0900	2.2	-3.5	66	072	4.8	077	8.3	3
1200	5.6	-.8	63	077	4.6	073	7.4	29
1500	6.1	.5	67	081	4.6	090	7.4	13
1800	6.0	.4	67	078	3.1	083	6.9	3
2100	3.3	-.7	75	045	2.2	043	3.7	0
2400	.1	-1.5	89	029	2.2	040	4.1	0

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.3	-1.9	95	052	1.7	074	3.7	0
0600	-1.6	*****	96	071	1.1	071	3.2	0
0900	3.6	-.5	80	077	2.1	091	6.0	6
1200	8.5	-.1	72	073	4.2	071	9.2	33
1500	7.1	1.2	86	078	4.0	083	8.3	25
1800	5.3	.5	79	056	3.2	084	4.6	1
2100	3.5	1.0	98	054	1.7	048	3.2	0
2400	3.5	1.2	91	055	1.3	001	4.6	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	2.4	1.4	93	073	1.3	073	3.7	0
0600	2.7	1.8	94	059	3.0	057	6.0	0
0900	3.0	2.3	95	063	4.5	072	8.3	4
1200	4.9	3.5	91	082	5.2	081	8.3	20
1500	6.2	4.2	87	077	4.4	080	7.8	8
1800	5.2	3.2	87	085	3.1	071	6.9	1
2100	.6	-.3	94	251	3.5	225	7.8	0
2400	.1	-.6	95	275	1.3	288	3.2	0

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.3	*****	95	284	.7	276	1.8	0
0600	-.5	*****	96	321	.6	059	1.4	0
0900	0.0	*****	96	018	.9	111	1.3	3
1200	1.1	*****	97	138	.5	151	1.4	12
1500	2.8	1.5	91	112	1.4	127	2.9	16
1800	1.3	-.5	88	091	1.8	097	3.7	1
2100	-1.7	-2.6	94	095	1.3	071	3.2	0
2400	-2.2	-2.8	96	053	1.3	089	3.7	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October 1984

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	-2.3	97	079	1.6	067	3.7	0
0600	-4.4	-4.8	97	055	1.3	071	3.2	0
0900	-3.8	-4.4	96	052	1.6	047	3.2	8
1200	3.1	-.9	75	085	2.7	085	7.4	32
1500	5.3	-1.1	63	090	4.5	090	6.9	24
1800	2.3	-1.8	74	081	3.2	088	6.0	1
2100	1.1	-2.5	77	043	2.7	053	4.1	0
2400	-1.8	-3.1	91	062	1.7	056	3.7	0

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.0	-4.6	96	074	2.0	079	3.7	0
0600	-4.2	-4.6	97	076	2.3	063	4.6	0
0900	-2.3	-3.3	93	077	1.5	099	4.1	17
1200	2.4	-1.7	74	101	2.1	115	5.1	15
1500	4.4	-1.1	67	073	4.7	074	8.3	13
1800	2.3	-.5	82	086	3.4	093	6.0	0
2100	.9	-.3	92	077	3.1	082	6.9	0
2400	-.5	*****	93	245	1.4	255	4.6	0

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-.9	*****	93	265	1.2	276	2.8	0
0600	-1.7	*****	95	301	.6	250	1.8	0
0900	-1.7	*****	96	326	.5	353	1.8	3
1200	-.2	-1.1	94	283	1.4	272	3.7	19
1500	2.4	-.5	81	263	3.5	261	6.0	25
1800	.9	-1.5	84	277	3.2	272	5.5	1
2100	.1	*****	91	247	1.1	270	3.2	0
2400	-.6	*****	93	212	.3	269	1.8	0

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.2	-1.9	95	360	1.1	359	1.8	0
0600	-.9	*****	95	358	.7	359	2.8	0
0900	.2	*****	86	006	.9	359	1.9	14
1200	3.8	*****	59	235	.7	218	2.7	38
1500	4.2	-4.5	53	038	3.3	049	6.4	29
1800	.1	-5.7	65	037	3.3	044	6.0	1
2100	-2.4	-5.6	73	054	1.9	025	4.1	0
2400	-2.9	-7.6	71	075	2.3	082	6.4	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	-3.4	-8.4	68	055	2.9	047	6.0	0
0600	-4.6	-9.2	70	054	2.6	058	6.0	0
0900	-3.8	-8.8	68	061	2.1	054	5.1	3
1200	-.4	-7.4	59	048	2.9	044	6.0	32
1500	.2	-6.9	59	049	3.0	049	6.0	15
1800	-1.5	-7.0	66	034	1.6	048	3.7	1
2100	-3.2	*****	73	081	.9	092	1.8	0
2400	-4.1	*****	78	002	.0	282	1.4	0

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.4	*****	91	077	.4	098	.4	0
0600	-6.4	-7.0	96	059	.7	046	1.8	0
0900	-7.3	*****	96	047	.9	069	2.3	7
1200	-4.2	-5.9	88	116	.6	164	3.8	12
1500	-.5	-5.5	69	276	2.0	283	3.7	25
1800	-1.7	-6.8	68	263	3.4	268	5.1	0
2100	-3.2	-7.2	74	259	9	336	2.3	0
2400	-4.0	*****	96	343	.7	277	1.8	0

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.3	*****	97	043	.9	039	2.8	0
0600	-4.4	-4.7	98	063	1.5	056	4.1	0
0900	-3.1	-5.3	85	082	1.9	082	3.7	10
1200	.9	-4.5	67	114	3.7	113	6.4	34
1500	1.9	-7.2	51	084	4.3	091	6.9	28
1800	-2.3	-7.8	66	067	3.2	071	6.4	1
2100	-3.9	-8.7	69	052	3.1	064	5.5	0
2400	-4.2	-10.0	64	049	4.5	049	7.8	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	-8.0	-11.5	76	069	3.4	046	6.4	0
0600	-9.5	-12.8	77	072	1.7	095	4.6	0
0900	-9.4	-12.4	73	085	2.1	079	4.1	7
1200	-1.1	-11.6	45	114	2.1	111	6.4	25
1500	3.2	-12.5	31	061	5.0	065	8.3	18
1800	0.0	-12.8	38	046	3.3	055	5.5	1
2100	-4.9	-11.9	58	042	3.2	051	5.1	0
2400	-6.3	-13.4	57	042	2.1	042	3.2	0

DAY 18

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.6	-12.5	54	074	2.9	067	6.9	0
0600	-3.7	-11.9	53	076	3.2	087	7.8	0
0900	-2.7	-12.0	49	067	4.3	067	7.4	1
1200	5	-11.0	43	072	5.5	077	9.7	25
1500	3.7	-10.9	34	100	4.3	098	8.3	17
1800	1.1	-11.6	39	081	3.9	074	6.3	0
2100	-1.1	-11.6	45	068	3.4	061	6.0	0
2400	-1.5	-10.9	49	069	3.1	069	6.4	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1984

DAY 19

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-1.9	-10.5	52	077	3.9	082	6.8	0
0600	-3.4	-10.0	60	080	1.2	073	4.6	0
0900	-3.9	*****	67	078	.8	099	1.8	1
1200	-2.3	-8.4	63	277	.4	261	2.3	15
1500	1.0	-7.8	52	244	1.9	241	4.6	12
1800	-2.9	*****	61	354	.3	266	2.3	0
2100	-5.9	-10.6	69	063	1.1	061	3.2	0
2400	-6.6	-11.9	66	077	2.5	055	5.1	0

DAY 20

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-6.3	-12.0	64	085	2.8	070	5.1	0
0600	-6.6	-10.4	74	071	3.9	070	6.0	0
0900	-6.4	-8.5	85	069	3.1	055	6.9	3
1200	-4.3	-7.1	81	081	3.9	069	9.2	14
1500	-3.7	-6.3	82	081	5.8	082	9.7	12
1800	-3.3	-6.1	81	070	4.2	079	7.8	0
2100	-2.4	-5.2	81	077	4.9	087	8.3	0
2400	-2.2	-5.7	77	071	6.1	069	9.2	0

DAY 21

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.2	-5.0	81	070	5.6	072	11.5	0
0600	-1.1	-5.5	72	071	4.9	072	8.7	0
0900	-.7	-4.9	73	052	3.8	071	8.7	5
1200	2.2	-4.3	62	079	5.9	082	12.0	23
1500	2.5	-4.9	58	082	6.3	088	11.5	10
1800	1.9	-4.8	61	084	6.4	084	11.0	0
2100	1.4	-3.4	70	080	6.5	079	11.0	0
2400	1.1	-3.2	73	074	6.4	079	11.0	0

DAY 22

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.9	-3.5	72	075	5.7	076	10.1	0
0600	.4	-3.3	76	074	6.7	076	12.4	0
0900	1.4	-2.3	76	076	6.0	073	10.1	1
1200	2.9	-1.1	75	080	6.8	079	11.5	10
1500	4.3	.3	75	076	5.8	072	9.7	11
1800	4.5	.5	75	074	4.7	075	7.9	0
2100	3.7	.0	79	084	3.5	083	6.4	0
2400	1.5	*****	94	297	.4	160	2.3	0

DAY 23

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	.6	-.1	95	313	.9	311	2.3	0
0600	-.6	-1.2	96	275	1.5	277	3.7	0
0900	-2.1	-2.7	96	253	3.8	252	7.4	1
1200	-2.4	-3.0	96	255	4.9	250	7.4	9
1500	-2.6	-3.2	96	261	4.2	252	6.4	5
1800	-3.5	-3.9	97	276	3.3	281	6.9	0
2100	-4.9	*****	98	274	1.5	258	4.1	0
2400	-5.1	*****	98	285	.6	301	1.8	0

DAY 24

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.9	-6.3	97	078	.8	060	1.8	0
0600	-8.7	-9.5	94	074	1.4	090	2.8	0
0900	-10.5	-12.0	89	050	1.6	054	3.8	0
1200	-5.0	-9.4	71	114	1.4	109	3.8	29
1500	-.5	*****	54	141	1.3	133	3.6	17
1800	-5.6	-10.0	71	133	.6	079	3.2	0
2100	-4.7	-9.5	69	051	1.8	032	5.5	0
2400	-4.4	-9.6	67	137	2.6	039	5.1	0

DAY 25

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.2	*****	73	012	1.4	027	5.5	0
0600	-4.3	-11.1	59	046	1.7	050	5.1	0
0900	-5.7	-13.0	61	050	1.4	036	5.1	3
1200	-1.4	-12.5	43	051	2.0	046	5.1	21
1500	-.7	-13.4	38	028	2.5	012	5.1	14
1800	-5.2	-14.2	42	069	2.9	063	5.5	1
2100	-6.8	-15.4	39	087	2.9	072	6.0	0
2400	-12.7	-15.7	78	099	1.7	131	3.7	0

DAY 26

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.5	-17.2	68	060	.9	039	2.8	0
0600	-12.3	-16.1	73	067	1.7	048	3.2	0
0900	-11.5	-15.2	74	075	1.6	064	3.2	2
1200	-5.3	-13.6	52	073	1.9	071	4.1	21
1500	-2.1	-13.7	41	083	2.6	078	5.1	13
1800	-6.8	-15.3	51	074	2.2	096	5.5	0
2100	-9.5	-16.7	56	043	1.9	053	3.2	0
2400	-12.2	-17.6	64	063	1.6	071	3.2	0

DAY 27

HOUR ENDING	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.1	-17.1	72	059	1.8	075	4.1	0
0600	-12.3	-16.1	77	062	1.6	043	3.2	0
0900	-12.8	-16.6	75	078	2.1	073	3.7	3
1200	-7.1	-13.7	59	090	1.8	099	3.7	20
1500	-1.1	*****	46	128	1.8	095	3.6	5
1800	-5.7	-13.1	54	095	.9	104	1.6	0
2100	-9.9	-14.3	70	053	1.5	038	2.8	0
2400	-.1.9	-15.0	76	063	1.5	071	2.5	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1984

DAY 28

HOUR MDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.1	-16.0	79	073	2.2	075	3.7	0
0600	-13.5	-15.2	80	079	2.5	085	5.1	0
0900	-13.8	-16.2	82	091	2.3	103	4.1	3
1200	-5.4	-12.1	59	082	4.3	086	8.3	20
1500	-4.7	-14.1	48	077	5.2	074	9.2	12
1800	-9.9	-16.8	57	065	3.8	074	8.7	0
2100	-9.8	-17.6	53	049	3.7	050	6.9	0
2400	-13.8	-19.5	62	088	2.1	069	6.3	0

DAY 29

HOUR MDNG	TEMP. 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	-20.2	62	083	2.8	074	4.6	0
0600	-15.0	-20.6	62	082	2.9	078	5.5	0
0900	-12.2	-20.5	50	079	4.4	077	7.4	2
1200	-9.6	-19.7	44	090	5.5	083	9.7	20
1500	-8.7	-20.3	39	093	4.4	089	7.4	12
1800	-12.3	-21.1	48	072	3.5	073	6.4	0
2100	-15.2	-22.2	55	054	2.4	083	5.5	0
2400	-16.0	-22.6	57	030	2.5	028	5.5	0

DAY 30

HOUR MDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.2	-20.8	53	062	3.1	076	6.9	0
0600	-13.5	-20.6	55	075	4.6	078	7.8	0
0900	-13.1	-20.5	54	073	4.6	081	8.3	1
1200	-11.5	-19.7	51	083	5.3	090	9.7	11
1500	-10.1	-18.8	49	067	5.2	092	10.1	3
1800	-9.9	-18.4	50	088	5.1	092	8.3	0
2100	-9.4	-18.4	48	071	4.6	086	7.4	0
2400	-10.9	-19.1	51	071	4.9	090	8.3	0

DAY 31

HOUR MDNG	TEMP. 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	-18.8	59	073	5.4	073	10.6	0
0600	-11.6	-18.2	58	076	5.9	076	9.7	0
0900	-10.7	-17.4	58	067	5.4	070	11.0	2
1200	-6.3	-13.4	57	066	5.2	062	8.7	18
1500	-4.9	-12.6	55	080	5.7	081	8.7	10
1800	-7.3	-13.1	63	076	5.3	084	8.7	0
2100	-8.4	-13.7	71	073	4.6	070	7.8	0
2400	-9.5	-12.2	91	083	2.4	074	6.0	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1984

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	10.7	2.9	6.8	076	4.5	4.7	092	10.2	ENE	62	-.2	****	******	1
2	8.9	.5	4.7	058	2.0	2.5	082	6.3	NE	72	-.5	****	******	2
3	8.3	-2.5	2.9	062	1.7	2.1	084	6.3	E	74	-2.9	****	******	3
4	7.8	-5.8	1.0	073	2.9	3.0	090	8.3	E	66	-5.3	****	******	4
5	6.1	-1.1	2.5	069	4.4	4.5	076	11.5	ENE	64	-3.5	****	1490	5
6	6.8	.1	3.5	069	3.7	3.9	069	8.7	ENE	68	-1.7	****	1235	6
7	7.3	-2.2	2.5	067	2.3	2.4	071	9.2	ENE	83	-.0	****	1035	7
8	6.7	.1	3.4	072	2.1	3.3	072	8.3	ENE	90	1.9	****	885	8
9	3.4	-2.4	.5	063	.7	1.1	097	3.7	N	92	-.6	****	995	9
10	5.5	-5.0	.3	073	2.3	2.5	085	7.4	E	83	-2.8	****	1995	10
11	5.2	-4.5	.4	081	2.3	2.6	074	8.3	ENE	85	-2.2	****	1540	11
12	2.4	-1.9	.3	271	1.4	1.5	261	6.0	W	89	-1.3	****	1325	12
13	4.2	-3.2	.5	038	1.5	1.9	049	6.4	N	72	-4.5	****	1940	13
14	.2	-5.5	-2.7	051	1.9	2.0	047	6.0	NE	66	-7.9	****	1380	14
15	.5	-8.4	-4.0	291	.5	1.2	268	5.1	W	77	-6.6	****	1165	15
16	2.0	-5.0	-1.5	070	2.6	2.8	049	7.8	NE	74	-6.7	****	1860	16
17	3.3	-11.1	-3.9	064	2.4	2.7	065	8.3	NE	56	-12.4	****	1650	17
18	4.2	-7.6	-1.7	077	3.6	3.8	077	8.7	ENE	46	-11.9	****	1210	18
19	1.5	-6.6	-2.6	075	.8	1.6	082	6.0	E	59	-9.8	****	925	19
20	-2.2	-7.5	-4.9	075	4.3	4.4	082	9.7	ENE	78	-7.9	****	985	20
21	3.2	-2.2	.5	075	5.7	5.8	082	12.0	ENE	69	-4.6	****	1210	21
22	4.5	.3	2.4	076	4.8	5.0	076	12.4	ENE	75	-1.5	****	620	22
23	1.9	-5.3	-2.1	265	2.5	2.6	252	7.4	W	96	-2.6	****	535	23
24	0.0	-10.8	-5.4	072	1.2	1.6	032	5.5	NE	80	-9.6	****	1535	24
25	-.7	-12.7	-6.7	058	1.8	2.2	072	6.0	E	56	-13.2	****	1175	25
26	-2.0	-14.0	-8.0	069	1.8	1.9	086	5.5	ENE	60	-15.5	****	1125	26
27	-1.1	-14.1	-7.6	077	1.3	1.5	078	4.1	ENE	67	-15.3	****	875	27
28	-4.5	-14.3	-9.4	074	3.2	3.3	074	9.2	ENE	65	-15.7	****	1075	28
29	-9.3	-16.2	-12.7	077	3.4	3.6	083	9.7	E	53	-20.8	****	1035	29
30	-9.4	-15.8	-12.6	077	4.6	4.7	092	10.1	ENE	52	-19.7	****	930	30
31	-4.6	-11.7	-8.3	074	5.0	5.0	070	11.0	ENE	63	-15.1	****	695	31
MONTH	10.7	-16.2	-3.0	070	2.4	3.0	076	12.4	ENE	70	-7.1	****	32965	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 9.7
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 10.1
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 10.6
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 9.7

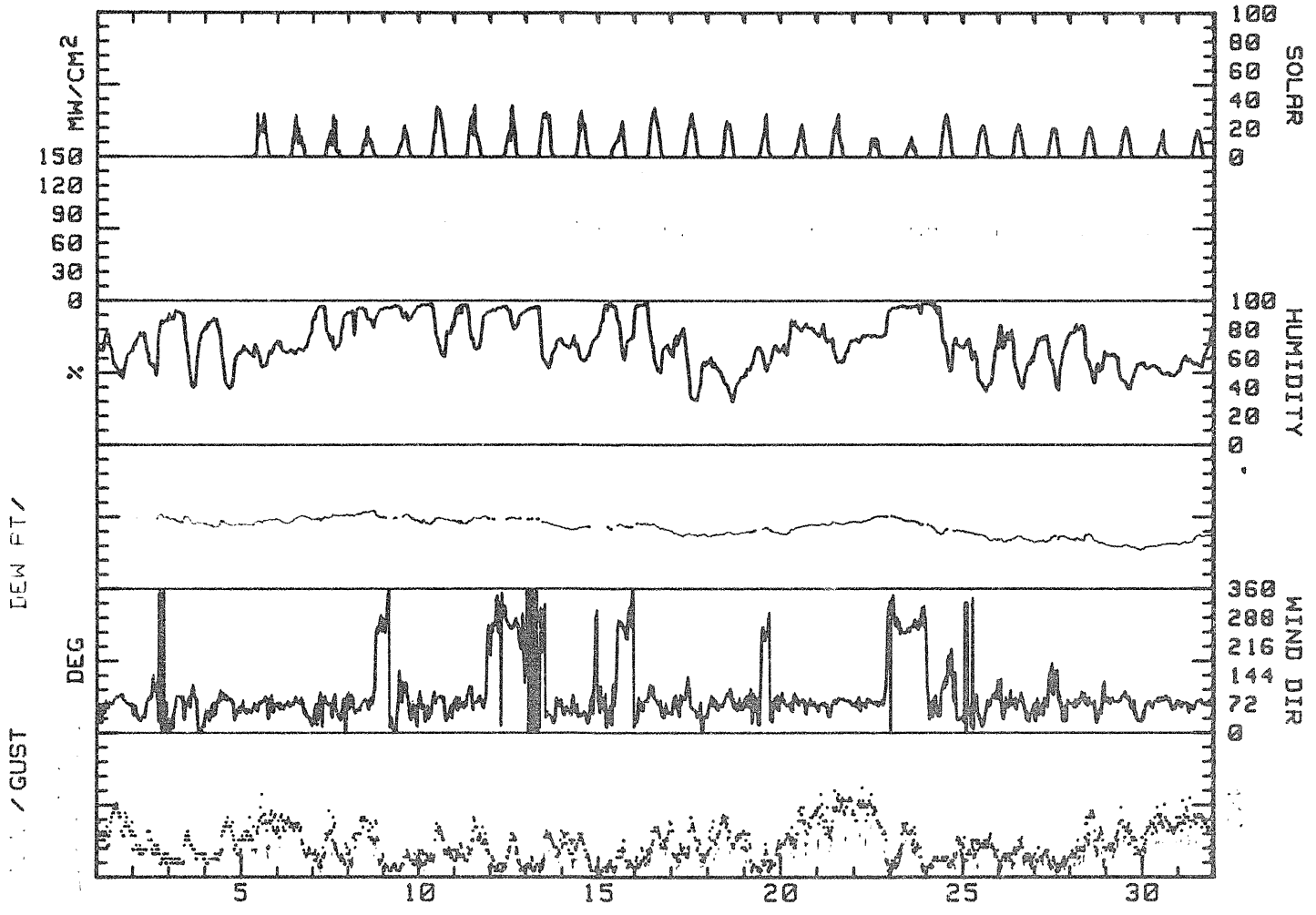
** RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND, SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

October, 1984



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1984

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	.81	2.42	.07	0.00	0.00	0.00	0.00	3.30
NNE	1.14	4.78	.27	0.00	0.00	0.00	0.00	6.19
NE	.81	9.09	5.25	0.00	0.00	0.00	0.00	15.14
ENE	1.01	10.30	19.11	2.69	0.00	0.00	0.00	33.11
E	1.28	10.23	10.83	2.22	0.00	0.00	0.00	24.56
ESE	.61	2.76	.61	0.00	0.00	0.00	0.00	3.97
SE	.34	1.01	0.00	0.00	0.00	0.00	0.00	1.35
SSE	.54	.27	0.00	0.00	0.00	0.00	0.00	.81
S	.20	.07	0.00	0.00	0.00	0.00	0.00	.27
SSW	.27	.13	0.00	0.00	0.00	0.00	0.00	.40
SW	.20	.40	.07	0.00	0.00	0.00	0.00	.67
WSW	.40	1.01	.94	0.00	0.00	0.00	0.00	2.35
W	.81	2.49	1.14	0.00	0.00	0.00	0.00	4.44
WNW	.61	.74	.20	0.00	0.00	0.00	0.00	1.55
NW	.74	.20	0.00	0.00	0.00	0.00	0.00	.94
NNW	.67	.27	0.00	0.00	0.00	0.00	0.00	.94
CALM								0.00
TOTAL	10.45	44.16	38.49	4.91	0.00	0.00	0.00	100.00

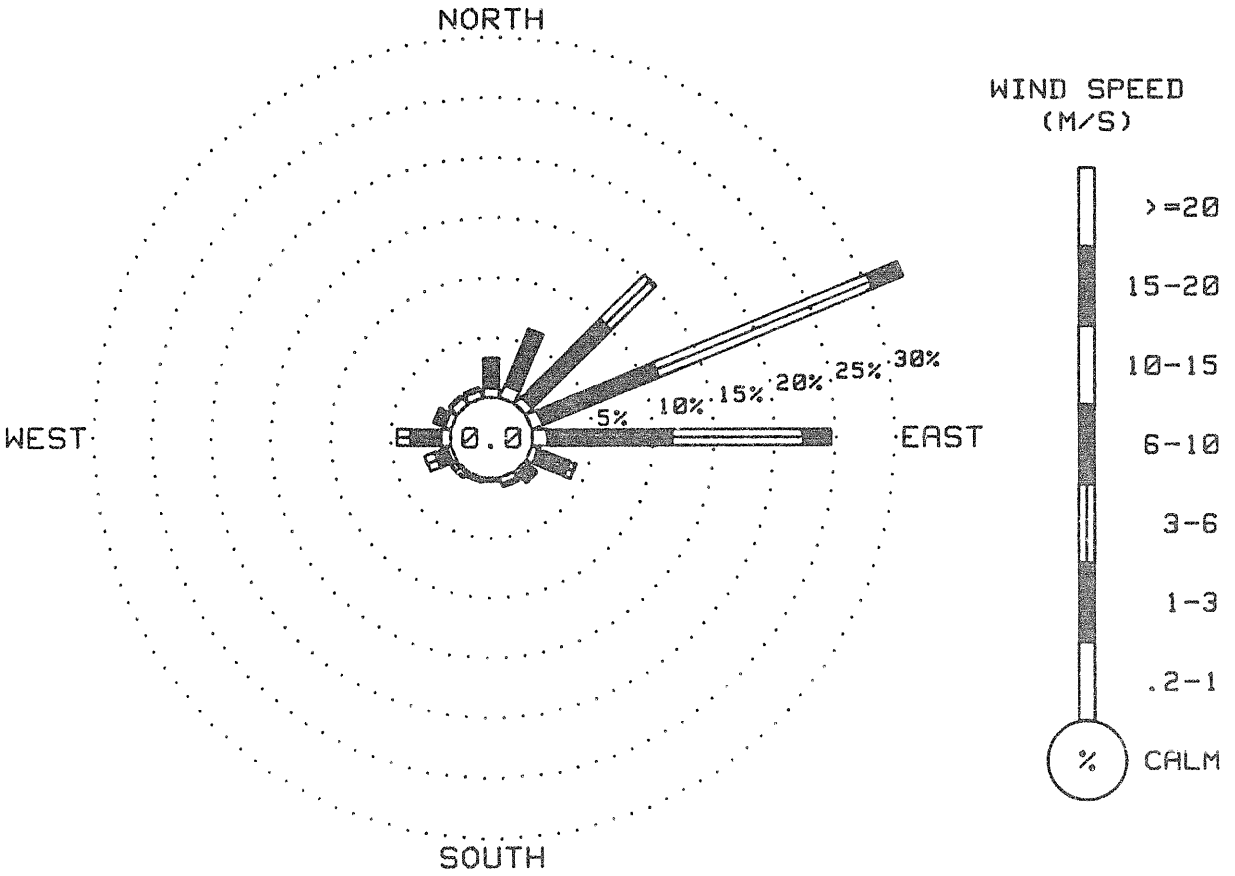
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
* ALSO VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
** 1-HR WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 30 MINUTE DATA.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

October, 1984



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1984

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
5	0	0	0	0	0	0	0	1	2	18	15	22	21	19	28	16	8	2	0	0	0	0	0	0	6
6	0	0	0	0	0	0	0	1	3	10	13	27	18	15	14	13	6	6	0	0	0	0	0	0	5
7	0	0	0	0	0	0	0	1	4	11	11	16	8	25	20	4	4	3	0	0	0	0	0	0	4
8	0	0	0	0	0	0	0	1	3	11	9	14	17	12	10	9	3	1	0	0	0	0	0	0	4
9	0	0	0	0	0	0	0	1	3	6	8	11	16	20	17	13	5	2	0	0	0	0	0	0	4
10	0	0	0	0	0	0	0	1	6	18	22	34	34	31	26	18	10	2	0	0	0	0	0	0	8
11	0	0	0	0	0	0	0	1	12	23	29	16	29	17	15	10	4	1	0	0	0	0	0	0	6
12	0	0	0	0	0	0	0	1	2	6	11	17	12	32	27	19	6	1	0	0	0	0	0	0	6
13	0	0	0	0	0	0	0	1	10	20	28	29	29	28	29	17	3	1	0	0	0	0	0	0	8
14	0	0	0	0	0	0	0	1	3	9	22	25	26	23	19	9	3	1	0	0	0	0	0	0	6
15	0	0	0	0	0	0	0	1	7	8	10	12	14	17	22	19	9	1	0	0	0	0	0	0	5
16	0	0	0	0	0	0	0	1	7	20	28	32	32	26	22	14	6	1	0	0	0	0	0	0	8
17	0	0	0	0	0	0	0	1	5	13	20	23	30	25	20	13	6	1	1	0	0	0	0	0	6
18	0	0	0	0	0	0	0	0	1	5	15	23	21	23	19	13	4	0	0	0	0	0	0	0	5
19	0	0	0	0	0	0	0	0	1	3	8	14	18	27	16	5	2	1	0	0	0	0	0	0	4
20	0	0	0	0	0	0	0	0	2	4	8	14	20	20	15	6	2	1	0	0	0	0	0	0	4
21	0	0	0	0	0	0	0	0	2	12	20	20	25	23	12	8	1	0	0	0	0	0	0	0	5
22	0	0	0	0	0	0	0	0	1	3	9	11	11	10	12	6	1	1	0	0	0	0	0	0	3
23	0	0	0	0	0	0	0	0	1	3	6	8	10	13	6	7	3	0	0	0	0	0	0	0	3
24	0	0	0	0	0	0	0	0	4	14	21	28	30	26	19	11	3	1	0	0	0	0	0	0	6
25	0	0	0	0	0	0	0	0	2	9	16	21	22	20	16	9	2	1	1	1	0	0	0	0	5
26	0	0	0	0	0	0	0	0	2	8	17	20	23	20	15	8	2	1	0	0	0	0	0	0	5
27	0	0	0	0	0	0	0	0	2	9	14	20	19	20	16	8	2	0	0	0	0	0	0	0	4
28	0	0	0	0	0	0	0	0	2	10	16	19	21	18	14	7	2	0	0	0	0	0	0	0	4
29	0	0	0	0	0	0	0	0	2	8	15	19	21	18	14	7	2	0	0	0	0	0	0	0	4
30	0	0	0	0	0	0	0	0	1	3	8	11	13	14	9	3	1	0	0	0	0	0	0	0	2
31	0	0	0	0	0	0	0	0	2	7	13	17	19	16	12	6	1	0	0	0	0	0	0	0	4

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY LONGWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 198*

LONGWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
7	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
8	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
9	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
10	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
11	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
12	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
13	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
14	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
18	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
19	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
21	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
23	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
24	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
25	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
26	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
30	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
31	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

OBSERVATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING October, 1984

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	1488	100
WIND SPEED	1486	100
WIND DIRECTION	1488	100
PEAK GUST	1485	100
RELATIVE HUMIDITY	1333	90
PRECIPITATION	0	0
SOLAR RADIATION	1296	87
DEW POINT	1333	90
LONGWAVE RADIATION	0	0

THERE ARE 1488 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER. THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

1.	RH	-10 RH Points	10/01 - 10/05
2.	Solar	-1 mW/CM^2	10/18

Additional comments on this month's data:

1. New solar sensor installed on 10/5. No data prior to this date.

2. No longwave radiation data. Watana base camp shut down for winter.

3. New weather wizard model installed 10/5. Differences in recording methods with this model, compared with the original version:
   A. Recorded data are averages of samples taken within the recording interval (previous 30 minutes). Original weather wizards record instantaneous values of all parameters except wind speed and direction.

   B. Samples are taken every 10 seconds. Original weather wizards sample every 15 seconds for wind speed and direction.

No precipitation data for November

(See INTERPRETATION OF DATA).

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1984

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	-9.0	-12.0	79	069	3.1	066	6.4	0
0600	-9.2	-12.3	78	091	3.5	090	6.9	0
0900	-14.8	-16.4	88	095	2.8	094	5.1	2
1200	-7.5	-12.2	69	108	2.2	103	4.1	20
1500	-1.6	-14.5	37	093	3.2	109	6.4	10
1800	-5.2	-16.8	40	074	4.4	080	7.4	1
2100	-9.8	-16.9	56	083	2.3	080	5.5	0
2400	-11.1	-17.3	60	070	.9	063	2.3	0

DAY 02

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.4	-18.6	65	080	1.8	086	3.7	0
0600	-13.5	-18.8	64	085	2.3	091	4.1	0
0900	-14.1	-19.2	65	079	2.4	076	4.6	1
1200	-9.7	-18.0	51	114	2.3	121	5.1	17
1500	-5.9	-17.1	41	118	2.8	119	4.6	11
1800	-8.7	-18.3	46	107	2.6	099	5.5	1
2100	-10.7	-18.7	52	079	1.7	102	4.6	0
2400	-11.3	-19.2	52	050	1.8	039	4.1	0

DAY 03

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-12.9	-19.4	58	059	1.8	062	3.7	0
0600	-12.2	-18.6	59	071	1.7	069	3.7	0
0900	-13.4	-18.4	66	085	1.5	084	3.7	1
1200	-6.7	-16.2	47	111	1.4	108	4.1	16
1500	-3.0	-14.2	42	119	1.5	135	3.2	8
1800	-6.6	-14.9	52	072	1.3	073	3.7	0
2100	-8.3	-16.2	53	063	1.7	035	3.2	0
2400	-10.6	-16.9	60	042	1.3	077	3.2	0

DAY 04

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.4	-16.1	68	042	1.4	067	3.7	0
0600	-12.7	-16.8	71	070	1.3	079	3.8	0
0900	-14.3	-17.3	78	061	1.4	079	3.2	1
1200	-10.6	-15.7	66	096	1.3	095	2.8	12
1500	-8.8	-14.7	62	156	.7	132	2.3	7
1800	-10.5	-14.6	72	059	1.2	082	2.8	0
2100	-9.4	-13.5	72	031	2.2	031	5.1	0
2400	-10.0	*****	74	045	1.6	043	4.1	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	-6.5	-13.0	60	057	2.3	060	5.1	0
0600	-6.2	-12.3	62	050	3.8	045	7.4	0
0900	-5.9	-11.8	63	054	4.4	049	7.4	1
1200	-5.1	-10.8	64	060	4.3	062	7.4	4
1500	-5.6	-7.9	84	065	4.6	067	7.4	3
1800	-4.2	-7.0	81	064	4.7	066	8.3	0
2100	-4.7	-7.5	81	060	4.2	067	7.4	0
2400	-3.5	-6.8	78	065	4.5	075	7.8	0

DAY 06

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-2.9	-6.7	75	070	4.1	072	6.4	0
0600	-3.4	-6.8	77	056	2.6	062	5.1	0
0900	-4.2	-7.5	79	076	1.7	091	4.1	1
1200	-2.1	-6.4	72	051	1.7	032	4.1	4
1500	-2.6	-4.8	85	066	1.2	044	2.8	3
1800	-3.7	*****	97	046	.2	056	2.3	0
2100	-4.6	*****	93	302	.5	289	1.8	0
2400	-4.3	*****	98	291	.6	287	1.4	0

DAY 07

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-4.4	*****	98	253	.3	250	1.8	0
0600	-4.3	-4.6	99	305	.4	309	1.8	0
0900	-4.6	*****	98	287	1.0	271	2.3	0
1200	-3.7	*****	97	321	.6	321	1.4	2
1500	-3.3	*****	97	323	.4	302	1.4	1
1800	-5.0	*****	98	308	.5	023	2.3	0
2100	-6.2	-6.5	98	085	1.3	097	3.2	0
2400	-5.9	-6.3	97	105	1.4	097	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	-6.8	-7.2	97	096	1.2	099	2.3	0
0600	-6.1	-6.4	98	106	1.7	093	3.7	0
0900	-5.8	-6.2	97	092	2.1	086	4.1	0
1200	-5.2	-6.5	91	106	1.6	108	4.1	3
1500	-3.4	-6.7	78	094	1.9	088	4.6	6
1800	-6.9	*****	98	061	.4	097	4.6	0
2100	-7.6	-7.9	98	060	.6	004	1.8	0
2400	-7.9	-8.2	99	077	.6	072	2.3	0

DAY 09

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.9	*****	99	073	.8	079	2.8	0
0600	-9.5	-10.2	95	354	.6	017	2.3	0
0900	-11.7	-13.3	88	336	1.4	049	3.2	0
1200	-7.1	-12.7	64	018	1.2	032	2.5	11
1500	-7.0	-11.3	71	029	2.5	045	4.6	7
1800	-10.8	-13.9	84	061	2.8	061	4.6	0
2100	-14.7	-16.7	85	075	2.3	042	4.1	0
2400	-17.0	-18.7	87	066	2.4	008	5.2	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1984

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	-18.0	-20.1	84	093	2.4	007	3.2	0
0600	-17.9	-19.7	86	085	2.4	001	3.2	0
0900	-16.8	-17.9	91	018	2.0	011	2.8	0
1200	-14.3	-17.1	79	072	2.0	081	4.1	11
1500	-12.8	-17.4	68	110	1.7	107	4.6	7
1800	-17.0	-19.1	84	060	1.7	067	3.7	0
2100	-19.5	-21.0	88	070	1.6	048	3.7	0
2400	-21.0	-22.9	85	059	1.6	049	2.8	0

DAY 11

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-21.7	-23.7	84	054	1.4	059	2.8	0
0600	-22.9	-25.0	83	072	1.4	066	2.3	0
0900	-22.9	-25.1	82	066	1.7	063	3.2	1
1200	-20.4	*****	77	094	1.3	094	3.2	11
1500	-16.8	*****	64	113	1.0	113	2.3	6
1800	-19.7	-22.1	81	087	1.7	084	3.2	0
2100	-20.9	-23.4	80	093	2.1	089	3.7	0
2400	-22.2	-24.7	80	072	2.1	091	3.7	0

DAY 12

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-23.2	-26.0	78	066	1.8	065	3.8	0
0600	-24.2	-26.9	78	090	2.0	104	4.6	0
0900	-22.8	-25.7	77	096	2.9	095	5.1	0
1200	-19.2	-23.9	66	103	2.8	100	4.6	12
1500	-18.9	-24.5	61	106	2.9	105	5.5	7
1800	-19.2	-23.6	68	070	1.3	100	3.7	0
2100	-20.3	-24.8	67	030	1.6	020	3.2	0
2400	-21.2	-25.0	71	047	1.9	025	3.7	0

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-22.4	-26.3	70	052	1.8	072	3.7	0
0600	-22.5	-26.1	72	072	1.8	091	4.6	0
0900	-21.6	-25.3	72	088	2.0	100	3.7	0
1200	-16.5	-21.9	63	081	2.9	097	7.4	12
1500	-13.9	-20.2	59	085	5.3	082	9.2	3
1800	-15.9	-21.5	62	082	5.2	083	8.7	0
2100	-19.5	-24.0	67	077	5.2	072	9.7	0
2400	-18.6	-23.2	67	072	5.9	072	9.7	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	-19.0	-23.6	67	064	6.0	063	9.2	0
0600	-20.1	-24.6	67	064	6.0	064	8.7	0
0900	-20.1	-24.5	68	064	6.3	061	9.7	0
1200	-18.3	-22.9	67	063	5.8	066	8.7	7
1500	-16.1	-21.0	66	065	5.8	062	9.2	3
1800	-15.6	-20.3	67	064	5.0	064	7.8	0
2100	-14.6	-19.3	67	075	5.6	078	8.7	0
2400	-13.5	-17.9	69	069	5.4	064	11.0	0

DAY 15

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-11.9	-16.1	71	074	5.8	074	8.7	0
0600	-11.1	-15.8	68	070	6.0	071	9.2	0
0900	-10.3	-15.0	68	064	6.0	056	9.2	0
1200	-9.0	-14.0	67	067	6.0	065	8.7	8
1500	-7.7	-12.7	67	074	4.6	066	7.8	3
1800	-8.9	-11.9	79	073	2.4	073	5.1	0
2100	-9.2	-12.2	79	064	1.9	052	4.1	0
2400	-10.0	-11.2	91	099	1.2	095	3.3	0

DAY 16

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.1	-11.0	93	112	1.3	114	2.8	0
0600	-7.8	-9.2	90	094	2.0	090	4.6	0
0900	-7.7	-9.5	87	076	3.5	076	6.4	0
1200	-9.0	-12.4	76	096	3.2	082	6.0	11
1500	-10.4	-11.9	86	092	2.8	077	5.5	3
1800	-11.2	-12.4	91	077	3.5	071	5.5	0
2100	-12.7	-13.6	93	066	2.1	069	4.6	0
2400	-14.3	-14.9	95	085	1.7	092	3.7	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	-15.8	-17.0	91	080	1.6	076	2.8	0
0600	-12.7	-13.6	93	079	1.9	087	6.0	0
0900	-12.3	-13.6	90	075	4.8	073	7.4	0
1200	-11.6	-13.4	87	070	4.9	068	7.8	5
1500	-11.4	-13.9	82	065	4.7	076	7.8	6
1800	-11.2	-13.5	83	061	4.3	067	6.9	0
2100	-11.1	-13.4	83	065	4.9	061	7.8	0
2400	-10.3	-12.4	85	070	5.1	076	8.7	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	-9.8	-11.4	89	072	3.1	078	5.8	0
0600	-9.4	-10.9	89	076	3.2	073	6.4	0
0900	-10.0	-11.5	89	066	4.0	075	6.4	0
1200	-10.0	-11.9	86	053	3.6	057	6.9	5
1500	-8.5	-11.8	77	054	3.7	063	6.9	7
1800	-10.4	-11.8	90	056	3.0	054	4.6	0
2100	-13.1	-14.4	90	049	1.8	072	4.6	0
2400	-13.7	-15.0	90	051	1.7	024	3.7	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THIRTY HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1984

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	-15.8	-17.1	90	084	1.9	073	3.2	0
0600	-15.6	-16.8	91	078	1.5	084	2.8	0
0900	-16.2	-17.6	89	082	2.0	087	4.1	0
1200	-14.4	-16.9	81	085	2.2	100	4.1	11
1500	-12.5	-17.3	67	108	1.4	102	2.8	8
1800	-11.1	-13.4	83	069	3.3	060	7.4	0
2100	-11.2	-13.7	82	061	6.4	063	9.7	0
2400	-11.4	-13.9	82	062	6.8	062	11.9	0

DAY 20

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.9	-13.5	81	072	7.6	076	12.0	0
0600	-11.9	-14.7	80	065	7.1	063	11.5	0
0900	-10.0	-12.6	81	079	8.0	083	12.9	0
1200	-9.1	-11.8	81	084	6.9	083	11.5	2
1500	-6.1	-8.5	83	082	6.7	087	10.6	1
1800	-4.1	-6.6	83	086	5.6	090	11.5	0
2100	-.9	-2.4	90	094	7.3	102	14.3	0
2400	.4	-1.2	89	090	8.1	086	13.8	0

DAY 21

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	1.1	-1.0	86	090	3.5	104	9.7	0
0600	1.0	-.9	87	076	5.1	081	10.1	0
0900	-1.3	-2.0	95	079	3.2	080	7.4	0
1200	-1.0	-2.0	93	270	2.3	230	4.6	3
1500	-1.8	-2.2	97	276	2.5	271	4.1	2
1800	-4.1	-4.2	99	290	2.0	287	3.2	0
2100	-4.7	-5.0	98	292	1.7	269	3.3	0
2400	-4.9	-5.2	96	346	.5	343	1.9	0

DAY 22

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-5.0	-6.1	92	027	1.1	001	3.7	0
0600	-5.6	-7.2	89	026	1.2	014	2.3	0
0900	-9.7	-10.8	92	016	1.7	012	2.8	0
1200	-8.0	-10.7	81	004	2.2	002	3.7	10
1500	-7.9	*****	82	337	1.1	356	2.8	3
1800	-9.3	-10.4	92	326	1.0	346	2.8	0
2100	-9.3	*****	91	356	1.1	347	1.8	0
2400	-9.7	-10.8	92	358	.6	348	1.8	0

DAY 23

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-9.1	*****	92	349	.6	351	1.8	0
0600	-9.8	*****	93	001	.5	349	1.4	0
0900	-10.0	-10.7	95	007	1.1	000	1.8	0
1200	-9.2	-10.2	93	015	1.2	011	2.3	4
1500	-9.0	-10.0	93	025	1.0	005	2.3	2
1800	-10.7	*****	93	017	1.3	027	2.3	0
2100	-9.4	-10.2	94	065	1.1	059	3.7	0
2400	-10.7	-11.5	94	360	.9	055	4.1	0

DAY 24

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-10.2	*****	94	309	.6	294	1.4	0
0600	-10.3	*****	95	341	.5	307	1.4	0
0900	-10.7	*****	95	335	.5	344	1.4	0
1200	-10.4	*****	95	294	.3	249	1.4	1
1500	-10.0	-10.7	95	351	.5	312	1.8	1
1800	-10.4	*****	95	008	.6	016	1.4	0
2100	-12.4	-13.6	91	358	1.4	000	3.7	0
2400	-12.5	-13.6	92	004	1.3	359	3.8	0

DAY 25

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-13.8	-13.6	94	036	.6	005	1.8	0
0600	-13.3	*****	92	027	.8	076	1.4	0
0900	-13.3	*****	93	029	.8	020	1.8	0
1200	-13.8	*****	83	059	.6	016	1.8	3
1500	-14.7	*****	98	074	.6	116	1.4	1
1800	-14.2	-15.5	90	092	.9	091	1.8	0
2100	-14.8	*****	89	075	.6	060	1.8	0
2400	-17.1	-18.4	90	093	1.0	103	3.3	0

DAY 26

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-19.2	-20.8	87	074	1.5	083	2.3	0
0600	-19.8	-21.3	88	092	1.4	082	2.3	0
0900	-20.8	-22.5	86	090	1.3	094	3.2	0
1200	-19.2	-22.6	74	087	1.1	109	2.3	7
1500	-18.6	-20.9	82	106	1.1	115	2.3	1
1800	-20.2	*****	83	093	1.3	091	4.1	0
2100	-21.4	-23.4	84	081	1.6	085	2.8	0
2400	-21.9	-24.0	83	081	1.8	074	2.8	0

DAY 27

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-23.1	-25.2	85	099	1.1	094	3.6	0
0600	-19.4	-21.4	84	062	1.0	059	3.3	0
0900	-16.1	-17.8	87	094	1.2	095	3.3	0
1200	-15.3	-17.1	86	158	1.4	101	3.7	1
1500	-16.9	-15.3	89	102	2.4	093	5.5	1
1800	-12.1	-14.8	81	079	4.2	079	7.4	0
2100	-12.7	-15.3	81	084	4.3	094	7.6	0
2400	-13.4	-16.0	81	090	4.2	079	11.6	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1984

DAY 28									DAY 29									DAY 30								
HOUR NONG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW	HOUR NONG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW	HOUR NONG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX GUST m/S	RAD MW
0300	-14.0	-16.6	81	082	4.7	080	7.8	0	0300	-12.4	-15.3	79	066	5.0	077	7.4	0	0300	-13.2	-14.9	87	107	1.7	112	3.3	0
0600	-14.1	-16.5	82	090	4.6	072	6.9	0	0600	-12.2	-14.8	81	063	4.9	062	6.9	0	0600	-13.2	-15.1	86	105	1.7	113	3.8	0
0900	-13.3	-15.7	82	067	5.0	060	8.3	0	0900	-11.2	-14.1	79	066	4.5	069	6.9	0	0900	-13.2	-15.3	84	102	1.6	100	3.2	0
1200	-13.2	-15.6	82	067	4.9	065	7.4	3	1200	-10.2	-13.8	75	066	4.3	082	7.4	2	1200	-12.6	-15.3	80	093	1.3	099	2.3	4
1500	-12.6	-15.0	82	069	4.9	071	7.8	1	1500	-9.7	-12.8	78	070	3.4	076	6.9	2	1500	-12.0	-14.3	83	100	1.0	099	2.3	1
1800	-12.7	-15.0	83	056	4.5	058	7.8	0	1800	-12.2	-14.4	84	099	2.2	084	5.1	0	1800	-9.1	-11.8	81	080	1.8	074	4.6	0
2100	-12.6	-15.0	82	068	3.8	070	6.4	0	2100	-12.9	-14.5	88	114	1.8	114	3.2	0	2100	-8.5	-11.5	79	063	3.7	065	6.9	0
2400	-12.0	-14.5	82	062	4.4	072	7.4	0	2400	-13.3	-14.9	88	111	1.7	109	2.8	0	2400	-8.3	-11.3	79	064	4.0	069	6.0	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSQUEHANNA HYDROELECTRIC PROJECT

DAILY SUMMARY FOR WATANA WEATHER STATION
DATA TAPES DURING November, 1984

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	-1.5	-14.9	-8.2	085	2.8	2.9	080	7.4	E	65	-14.6	****	1000	1
2	-5.9	-14.3	-10.1	091	2.0	2.2	099	5.5	E	55	-18.4	****	925	2
3	-2.6	-14.2	-8.4	077	1.4	1.6	108	4.1	ENE	54	-16.9	****	785	3
4	-8.1	-14.6	-11.4	059	1.2	1.5	031	5.1	NE	70	-15.5	****	635	4
5	-3.5	-9.2	-6.4	060	4.1	4.1	066	8.3	ENE	71	-10.0	****	215	5
6	-2.0	-4.8	-3.4	059	1.3	1.7	072	6.4	ENE	78	-6.5	****	220	6
7	-3.3	-7.7	-5.5	021	.2	.8	097	3.2	W	98	-6.1	****	115	7
8	-3.4	-7.9	-5.7	094	1.2	1.4	088	4.6	E	94	-6.7	****	220	8
9	-6.6	-17.0	-11.8	042	1.5	1.8	085	4.6	ENE	83	-13.3	****	515	9
10	-13.8	-21.3	-17.1	044	1.6	2.0	107	4.6	N	83	-19.3	****	560	10
11	-16.8	-23.4	-20.1	080	1.5	1.6	089	3.7	E	80	-23.7	****	550	11
12	-15.9	-25.0	-20.5	082	2.0	2.2	105	5.5	E	71	-24.8	****	570	12
13	-13.5	-22.8	-18.2	078	3.7	3.8	072	9.7	E	66	-23.4	****	565	13
14	-13.5	-20.7	-17.1	066	5.7	5.8	064	11.0	ENE	67	-22.1	****	385	14
15	-7.4	-13.3	-10.4	071	4.2	4.3	071	9.2	ENE	72	-14.0	****	335	15
16	-7.5	-14.3	-10.9	084	2.3	2.4	076	6.4	E	89	-11.6	****	395	16
17	-10.3	-16.3	-13.3	069	4.0	4.0	076	8.7	ENE	87	-14.2	****	295	17
18	-8.5	-14.9	-11.7	062	3.1	3.2	078	7.8	ENE	88	-12.4	****	390	18
19	-10.5	-16.2	-13.4	071	3.1	3.2	062	11.0	ENE	85	-15.6	****	560	19
20	.4	-12.0	-5.8	081	7.1	7.2	102	14.3	E	83	-9.5	****	110	20
21	1.3	-4.9	-1.8	034	.6	2.8	081	10.1	WNW	93	-2.3	****	175	21
22	-4.6	-10.7	-7.7	004	1.2	1.3	001	3.7	N	89	-9.3	****	360	22
23	-7.6	-11.0	-9.3	017	.9	1.1	055	4.1	N	94	-10.6	****	100	23
24	-9.6	-12.7	-11.2	349	.7	.8	000	3.7	N	93	-12.9	****	65	24
25	-12.6	-17.1	-14.9	061	.7	.8	103	2.3	NNE	91	-15.5	****	.85	25
26	-17.8	-22.1	-20.0	087	1.4	1.4	091	4.1	E	84	-21.9	****	180	26
27	-13.1	-23.2	-17.7	086	2.5	2.5	079	11.0	E	83	-18.1	****	60	27
28	-11.7	-14.7	-13.2	069	4.5	4.6	060	8.3	ENE	82	-15.6	****	130	28
29	-9.6	-13.3	-11.5	074	3.3	7.5	077	7.4	ENE	81	-14.3	****	130	29
30	-8.3	-13.3	-10.8	082	2.0	2.1	065	6.9	E	83	-13.8	****	140	30
MONTH	1.3	-25.0	-11.6	079	3.3	3.6	102	14.3	ENE	79	-14.1	****	12769	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 12.0
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 13.4
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 12.4
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 11.5

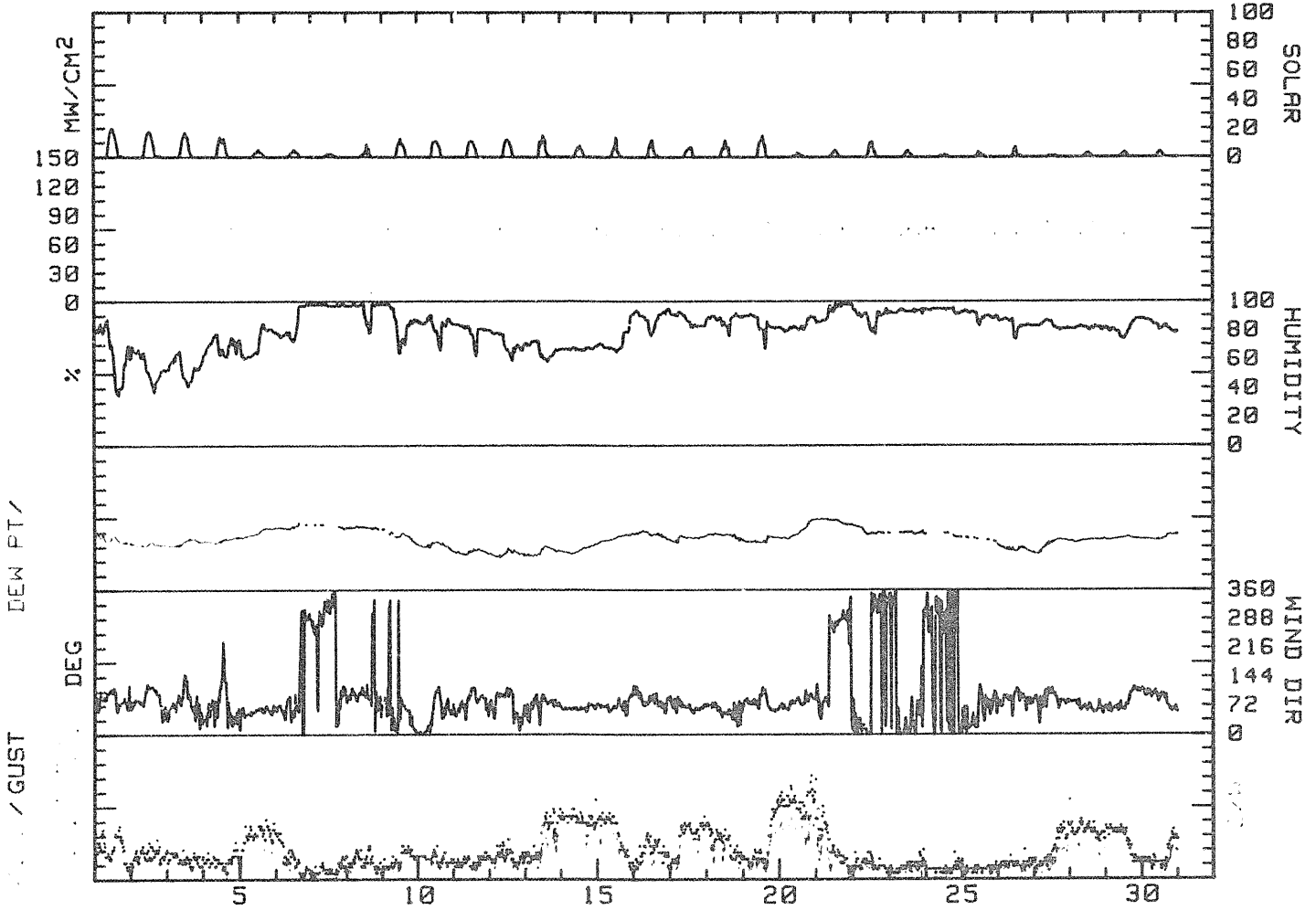
** RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

November, 1984



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1984

	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	1.25	4.73	0.00	0.00	0.00	0.00	0.00	5.98
NNE	1.46	3.87	0.00	0.00	0.00	0.00	0.00	5.33
NE	1.39	6.54	2.71	.07	0.00	0.00	0.00	10.71
ENE	1.81	11.34	15.99	5.01	0.00	0.00	0.00	34.14
E	1.67	15.37	5.29	1.60	0.00	0.00	0.00	23.93
ESE	.76	8.21	.97	.21	0.00	0.00	0.00	10.15
SE	.07	.70	.07	0.00	0.00	0.00	0.00	.85
SSE	.14	.07	0.00	0.00	0.00	0.00	0.00	.21
S	.07	0.00	0.00	0.00	0.00	0.00	0.00	.07
SSW	.14	0.00	0.00	0.00	0.00	0.00	0.00	.14
SW	.07	.07	0.00	0.00	0.00	0.00	0.00	.14
WSW	.28	.14	0.00	0.00	0.00	0.00	0.00	.42
W	.35	.76	.07	0.00	0.00	0.00	0.00	1.18
WNW	1.11	1.39	0.00	0.00	0.00	0.00	0.00	2.51
NW	1.32	.70	0.00	0.00	0.00	0.00	0.00	2.02
NNW	1.46	.35	0.00	0.00	0.00	0.00	0.00	1.81
CALM								.42
TOTAL	15.35	54.17	25.10	6.89	0.00	0.00	0.00	100.00

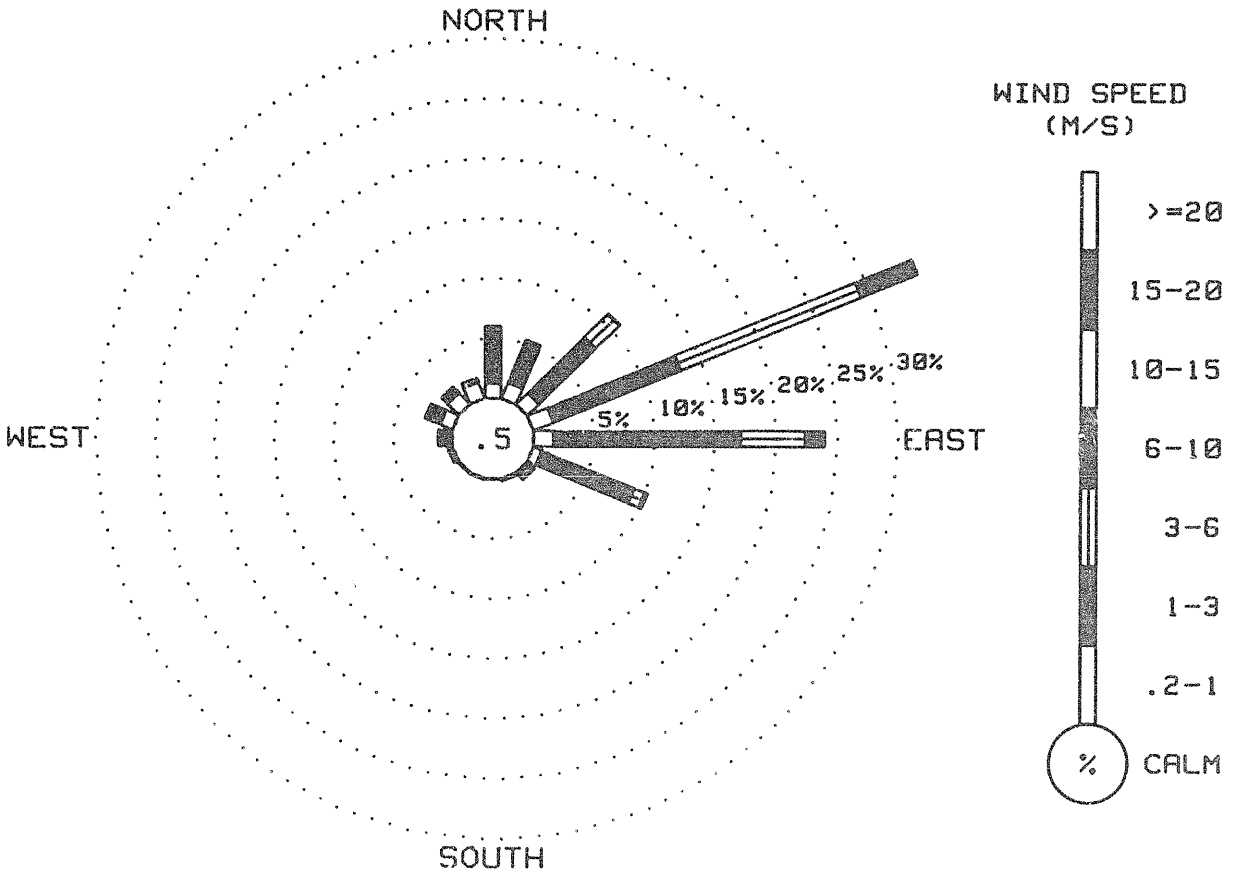
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1434 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
1440 WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 30 MINUTE DATA.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

November, 1984



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1984

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	0	0	0	0	0	0	0	0	2	8	16	20	20	16	12	6	1	1	1	0	0	0	0	0	4
2	0	0	0	0	0	0	0	0	1	6	12	17	18	16	12	7	2	1	1	1	0	0	0	0	4
3	0	0	0	0	0	0	0	0	1	5	11	15	17	14	11	4	2	1	0	0	0	0	0	0	3
4	0	0	0	0	0	0	0	0	1	4	11	13	11	13	9	3	1	0	0	0	0	0	0	0	3
5	0	0	0	0	0	0	0	0	1	2	3	4	5	3	3	2	1	0	0	0	0	0	0	0	1
6	0	0	0	0	0	0	0	0	1	2	3	4	5	4	3	2	1	0	0	0	0	0	0	0	1
7	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	1	1	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	1	2	3	4	6	5	2	1	0	0	0	0	0	0	0	1
9	0	0	0	0	0	0	0	0	0	3	8	11	11	9	7	4	1	0	0	0	0	0	0	0	2
10	0	0	0	0	0	0	0	0	0	4	10	11	11	10	8	4	1	0	0	0	0	0	0	0	2
11	0	0	0	0	0	0	0	0	1	3	9	11	11	10	7	4	1	0	0	0	0	0	0	0	2
12	0	0	0	0	0	0	0	0	0	3	9	12	12	11	8	4	1	0	0	0	0	0	0	0	2
13	0	0	0	0	0	0	0	0	0	4	11	11	15	12	4	2	1	0	0	0	0	0	0	0	2
14	0	0	0	0	0	0	0	0	0	2	5	6	8	6	4	2	0	0	0	0	0	0	0	0	1
15	0	0	0	0	0	0	0	0	0	1	4	7	10	8	3	1	0	0	0	0	0	0	0	0	1
16	0	0	0	0	0	0	0	0	0	1	6	10	12	6	3	2	1	0	0	0	0	0	0	0	2
17	0	0	0	0	0	0	0	0	0	1	3	5	6	7	7	2	0	0	0	0	0	0	0	0	1
18	0	0	0	0	0	0	0	0	0	1	5	6	11	8	7	3	0	0	0	0	0	0	0	0	2
19	0	0	0	0	0	0	0	0	0	1	7	11	13	14	9	3	0	0	0	0	0	0	0	0	2
20	0	0	0	0	0	0	0	0	0	1	1	2	3	3	1	1	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	1	2	3	5	5	3	1	0	0	0	0	0	0	0	0	1
22	0	0	0	0	0	0	0	0	0	1	3	9	11	8	4	2	0	0	0	0	0	0	0	0	2
23	0	0	0	0	0	0	0	0	0	1	2	4	5	3	2	1	0	0	0	0	0	0	0	0	1
24	0	0	0	0	0	0	0	0	0	1	1	1	1	2	1	1	0	0	0	0	0	0	0	0	1
25	0	0	0	0	0	0	0	0	0	1	2	4	3	2	1	1	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	1	3	7	6	2	1	1	0	0	0	0	0	0	0	0	1
27	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	1	1	3	3	3	2	1	0	0	0	0	0	0	0	0	1
29	0	0	0	0	0	0	0	0	0	1	2	2	4	3	2	1	0	0	0	0	0	0	1	1	1
30	0	0	0	0	0	0	0	0	0	1	1	4	4	3	2	1	0	0	0	0	0	0	1	1	1

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY LONGWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1984

LONGWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
7	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
8	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
9	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
10	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
11	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
12	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
13	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
14	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
18	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
19	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
21	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
23	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
24	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
25	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
26	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
30	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***

** SEE INTERPRETATION NOTES AT END OF MONTH'S REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

OBSERVATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING November, 1984

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	1440	100
WIND SPEED	1439	100
WIND DIRECTION	1439	100
PEAK GUST	1439	100
RELATIVE HUMIDITY	1241	86
PRECIPITATION	0	0
SOLAR RADIATION	1440	100
DEW POINT	1241	86
LONGWAVE RADIATION	0	0

THERE ARE 1440 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER. THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

None

Additional comments on this month's data:

1. No longwave radiation data. Watana base camp shut down for winter.

No precipitation data for December

(See INTERPRETATION OF DATA).

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1984

DAY 01

HOUR MDNG	TEMP. 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	-10.8	81	055	3.7	050	6.4	0
0600	-7.8	-10.6	80	061	3.3	068	5.5	0
0900	-7.2	-10.1	80	046	3.4	043	5.5	0
1200	-5.9	-9.4	76	047	3.9	041	6.0	4
1500	-6.2	-9.6	77	051	3.7	044	6.0	1
1800	-7.0	-10.0	79	04.	3.3	036	6.0	0
2100	-7.3	-10.2	80	047	3.9	043	6.4	0
2400	-7.6	-10.6	79	054	4.0	061	6.4	0

DAY 02

HOUR MDNG	TEMP. 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	-11.2	79	050	4.5	050	6.4	0
0600	-8.1	-11.7	75	057	4.8	059	7.8	0
0900	-7.8	-11.4	75	061	4.7	058	7.8	0
1200	-6.1	-10.5	71	059	3.8	060	6.4	3
1500	-6.5	-10.4	74	052	4.6	055	6.9	1
1800	-5.2	-8.9	75	061	4.5	062	7.4	0
2100	-4.6	-8.5	74	062	4.8	059	7.4	0
2400	-4.3	-8.1	75	057	3.9	048	6.4	0

DAY 03

HOUR MDNG	TEMP. 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	-7.5	73	070	3.3	079	6.0	0
0600	-4.2	-8.0	75	064	4.1	070	6.4	0
0900	-4.6	-8.3	75	064	4.0	070	6.4	0
1200	-4.0	-7.9	74	056	3.8	063	6.0	3
1500	-4.3	-7.7	77	062	4.5	055	6.9	1
1800	-4.9	-8.1	78	065	5.0	070	7.4	0
2100	-3.9	-7.3	77	057	4.7	060	7.4	0
2400	-2.9	-6.9	74	056	4.7	046	7.4	0

DAY 04

HOUR MDNG	TEMP. 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	-5.8	75	066	4.5	067	7.8	0
0600	-1.6	-5.8	73	057	3.6	055	8.3	0
0900	0.0	-4.4	72	055	4.7	046	9.7	0
1200	-1.1	-5.3	73	063	5.3	078	9.2	2
1500	-.5	-4.9	72	069	5.6	089	11.0	1
1800	-.6	-4.8	73	071	3.6	094	8.7	0
2100	-1.6	-4.6	80	076	5.6	082	11.0	0
2400	-2.5	-4.5	86	082	5.6	084	9.2	0

DAY 05

HOUR MDNG	TEMP. 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	-5.1	87	073	4.6	083	8.7	0
0600	-3.0	-5.0	86	055	4.0	068	7.4	0
0900	-1.6	-3.8	85	069	5.3	068	9.2	0
1200	-1.0	-3.5	83	074	4.5	075	7.4	4
1500	-1.4	-3.8	84	070	4.1	079	7.8	2
1800	-2.4	-4.6	85	050	3.1	055	5.5	0
2100	-4.7	-6.7	86	046	2.6	029	4.1	0
2400	-6.7	-8.4	88	071	1.6	085	3.7	0

DAY 06

HOUR MDNG	TEMP. 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	*****	88	045	1.3	072	2.8	0
0600	-8.5	*****	88	056	1.2	040	2.8	0
0900	-8.9	-10.6	86	061	1.1	038	2.8	0
1200	-9.1	-11.0	86	074	1.0	092	3.3	4
1500	-8.9	*****	86	067	1.0	052	2.3	1
1800	-8.6	-10.5	86	082	1.1	075	2.3	0
2100	-9.1	*****	86	093	.7	071	1.8	0
2400	-8.1	*****	87	062	.9	067	1.8	0

DAY 07

HOUR MDNG	TEMP. 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	*****	88	037	.5	034	1.8	0
0600	-7.4	*****	91	356	.3	071	1.4	0
0900	-9.5	*****	96	072	.9	005	1.8	0
1200	-8.7	-10.2	89	091	1.0	027	1.8	2
1500	-9.1	-10.6	89	084	1.1	106	2.3	1
1800	-7.4	-9.2	87	068	3.5	064	5.1	0
2100	-7.4	-9.1	88	077	3.2	076	6.4	0
2400	-8.7	-9.4	91	062	3.4	059	6.4	0

DAY 08

HOUR MDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-7.3	-8.8	89	057	3.4	055	6.0	0
0600	-7.6	-9.0	90	066	1.8	061	4.6	0
0900	-8.5	-9.0	96	310	1.2	298	2.8	0
1200	-8.6	-9.3	95	283	2.3	292	4.6	2
1500	-7.7	-8.8	92	268	4.3	258	7.4	1
1800	-8.6	-9.7	92	266	5.5	270	8.7	0
2100	-8.6	-9.8	91	266	5.6	266	10.1	0
2400	-9.3	-10.4	92	265	4.4	266	6.9	0

DAY 09

HOUR MDNG	TEMP. 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	-13.1	92	268	3.7	242	7.1	1
0600	-14.0	*****	88	292	1.3	278	3.7	0
0900	-15.7	-17.4	87	351	1.0	338	2.8	0
1200	-14.1	*****	89	341	.9	007	3.3	5
1500	-14.5	*****	86	070	.6	107	3.6	1
1800	-15.6	-17.7	84	049	.9	053	3.3	0
2100	-15.5	-18.6	77	086	1.3	091	3.2	0
2400	-18.9	-21.5	80	350	1.4	076	3.7	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1984

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	-17.9	-20.9	77	079	2.1	084	4.1	0
0600	-17.9	-21.1	76	078	2.7	074	6.4	0
0900	-15.8	-19.5	73	086	5.0	080	9.2	0
1200	-17.5	-21.3	72	080	5.5	077	10.1	3
1500	-18.3	-21.8	74	067	5.5	070	8.7	1
1800	-17.6	-20.9	75	065	5.9	057	11.0	0
2100	-16.3	-20.0	73	059	5.3	055	8.3	0
2400	*****	*****	**	059	5.1	059	7.4	***

DAY 11

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

DAY 12

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

DAY 13

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	-19.8	-23.2	74	094	2.8	094	3.7	1
1800	-20.2	-23.3	76	090	3.3	100	4.6	0
2100	-17.6	-21.3	73	051	1.1	044	4.1	0
2400	-17.8	-22.8	65	094	1.6	078	4.1	0

DAY 14

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-24.2	-27.3	75	082	1.7	090	4.1	0
0600	-24.1	-27.2	75	096	2.7	091	6.4	0
0900	-22.0	-26.1	69	097	3.5	095	6.0	0
1200	-21.8	-27.1	62	080	2.8	095	7.8	3
1500	-22.2	-27.8	60	073	1.9	070	5.1	1
1800	-22.3	-27.7	61	062	2.4	055	4.1	0
2100	*****	*****	**	068	2.3	079	4.1	***
2400	*****	*****	**	***	****	***	****	***

DAY 15

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

DAY 16

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

DAY 17

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***
0900	*****	*****	**	***	****	***	****	***
1200	*****	*****	**	***	****	***	****	***
1500	-11.3	*****	86	103	.4	103	.9	1
1800	-10.3	-11.7	90	205	.6	225	2.3	0
2100	-9.2	-10.2	93	100	1.3	094	3.2	0
2400	-8.4	-9.4	93	099	1.0	102	2.8	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	-6.6	*****	93	095	.8	106	1.5	0
0600	-7.7	-8.5	94	093	.9	095	1.8	0
0900	-6.5	-7.5	93	097	1.0	093	2.3	0
1200	-5.2	*****	93	080	1.1	083	2.3	1
1500	-5.0	*****	94	101	.9	126	1.9	1
1800	-4.9	*****	94	099	.5	103	1.4	0
2100	-5.0	*****	94	099	.7	073	1.5	0
2400	-5.0	-5.8	94	117	.8	138	2.8	0

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE-HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1984

DAY 19

HOUR NDNG	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	MAX. GUST M/S	RAD MW
0300	-3.7	-4.8	92	214	.9	230	4.1	0
0600	-7.7	-10.6	80	356	1.8	000	5.1	0
0900	-10.3	-14.7	70	020	2.4	079	8.7	0
1200	-11.4	-18.2	57	098	4.3	091	7.4	2
1500	-12.6	-21.9	46	093	4.9	087	7.8	1
1800	*****	*****	**	***	****	086	8.3	***
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	*****	*****	**	***	****	***	****	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

INPUT HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1984

DAY 28

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

DAY 29

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

DAY 30

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

DAY 31

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

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1984

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
1	-5.8	-8.5	-7.2	050	3.6	3.7	050	6.4	NE	79	-10.2	****	125	1
2	-4.1	-8.7	-6.4	057	4.4	4.5	059	7.8	NE	75	-10.3	****	135	2
3	-2.9	-4.9	-3.9	061	4.2	4.3	070	7.4	ENE	75	-7.8	****	115	3
4	0.0	-2.9	-1.5	068	4.8	4.9	089	11.0	ENE	75	-5.2	****	105	4
5	-1.0	-6.7	-3.9	065	3.7	3.8	068	9.2	ENE	85	-4.8	****	125	5
6	-6.7	-10.1	-8.4	069	1.0	1.1	072	2.8	E	87	-10.6	****	120	6
7	-6.7	-9.5	-8.1	070	1.5	1.7	076	6.4	ENE	88	-9.6	****	80	7
8	-6.7	-9.3	-8.0	278	2.3	3.6	266	10.1	W	92	-9.3	****	85	8
9	-9.4	-19.3	-14.4	332	.7	1.5	262	7.4	N	85	-16.2	****	265	9
10	-15.5	-20.6	-18.1	072	4.5	4.6	057	11.0	ENE	75	-20.9	****	117	10
11	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	11
12	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	12
13	-16.5	-21.6	-19.1	080	1.7	1.8	100	4.6	E	73	-22.7	****	48	13
14	-18.7	-24.5	-21.6	082	2.4	2.5	095	7.8	ENE	65	-26.9	****	232	14
15	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	15
16	*****	*****	*****	***	****	****	***	****	***	**	*****	****	******	16
17	-7.9	-11.3	-9.6	115	.7	.9	094	3.2	ESE	93	-10.3	****	13	17
18	-4.0	-8.4	-6.2	097	.8	.9	126	2.8	E	93	-7.1	****	59	18
19	-3.1	-12.9	-8.0	078	2.1	3.2	079	8.7	E	70	-13.8	****	305	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	1.8	-24.5	-9.6	063	2.3	3.0	089	11.0	ENE	80	-12.4	****	1910	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 10.1
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 9.0
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 8.7
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 6.7

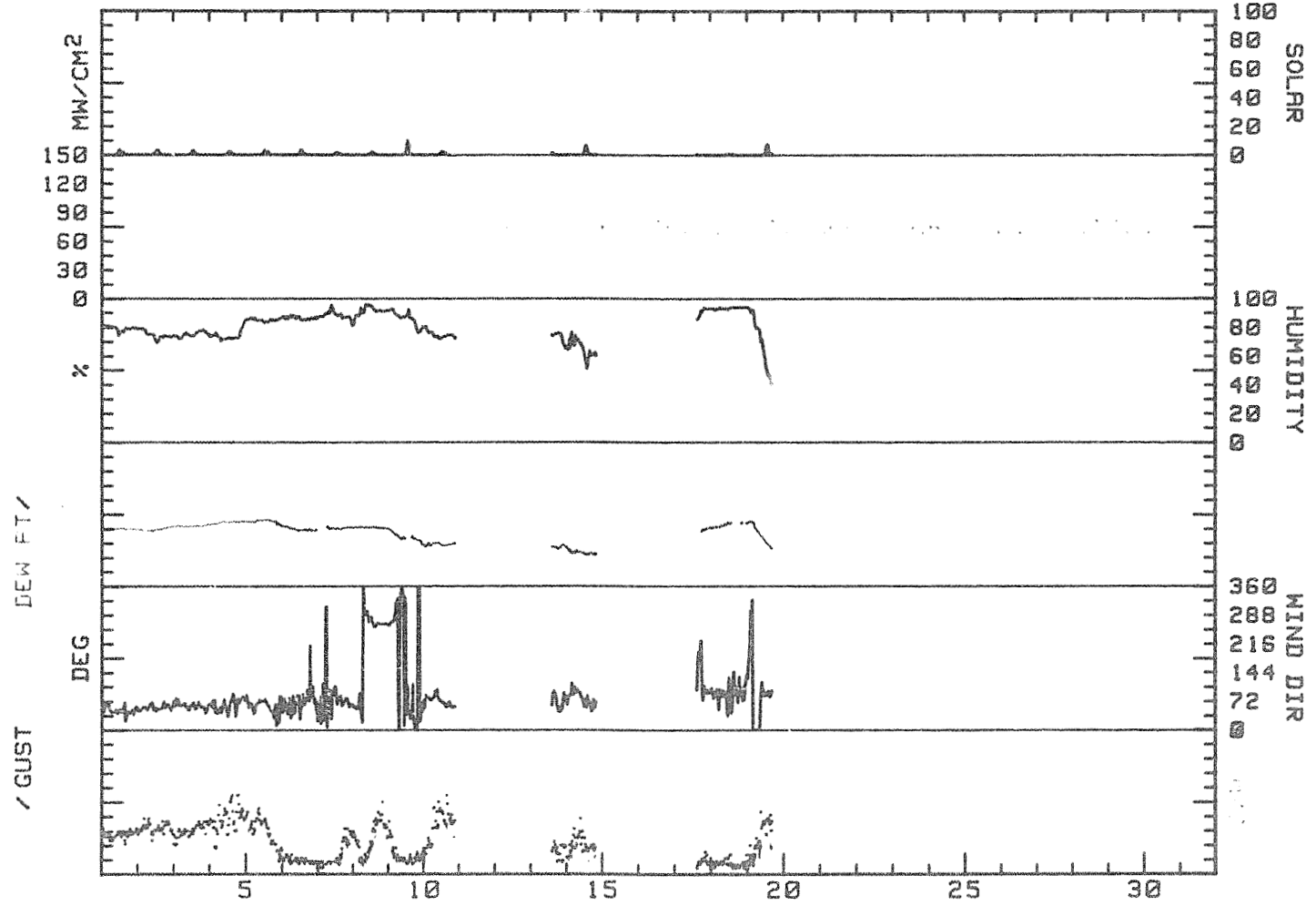
NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEEDS ARE LESS THAN ONE METER PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

December, 1984



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1984

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	.16	3.00	.47	0.00	0.00	0.00	0.00	3.63
NNE	1.42	1.42	.47	0.00	0.00	0.00	0.00	3.31
NE	1.26	5.21	14.67	0.00	0.00	0.00	0.00	21.14
ENE	2.84	7.26	22.40	2.21	0.00	0.00	0.00	34.75
E	3.47	9.31	5.84	.63	0.00	0.00	0.00	19.24
ESE	1.89	3.15	.79	0.00	0.00	0.00	0.00	5.83
SE	.47	.63	0.00	0.00	0.00	0.00	0.00	1.10
SSE	.32	0.00	0.00	0.00	0.00	0.00	0.00	.32
S	.32	.16	0.00	0.00	0.00	0.00	0.00	.47
SSW	.47	0.00	0.00	0.00	0.00	0.00	0.00	.47
SW	.16	.32	0.00	0.00	0.00	0.00	0.00	.47
WSW	1.00	.16	.47	0.00	0.00	0.00	0.00	1.63
W	0.00	.79	3.37	.32	0.00	0.00	0.00	4.47
WNW	0.00	1.42	.47	0.00	0.00	0.00	0.00	1.89
NW	.47	.16	0.00	0.00	0.00	0.00	0.00	.63
NNW	.16	1.26	0.00	0.00	0.00	0.00	0.00	1.42
CALM								.16
TOTAL	15.41	34.25	49.05	3.15	0.00	0.00	0.00	100.00

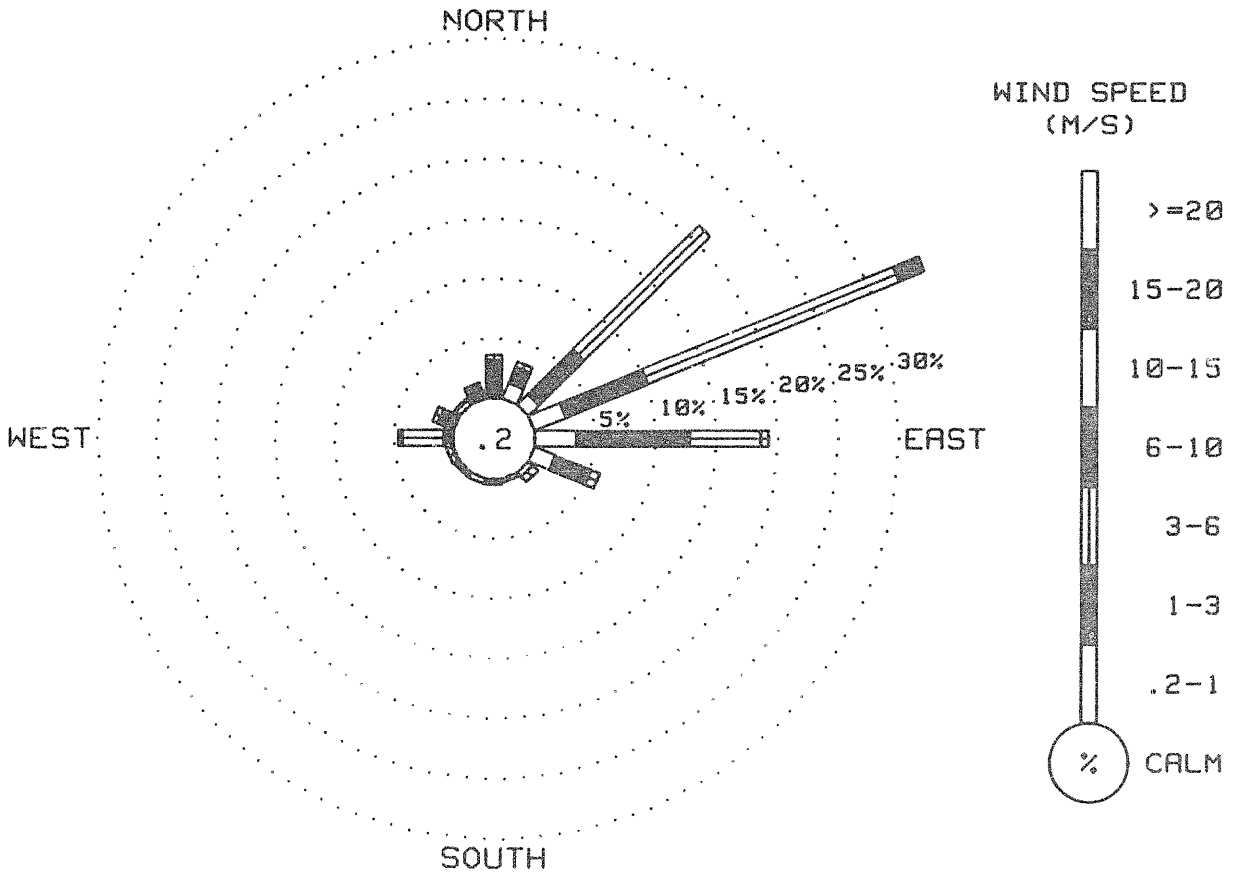
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
634 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY
1968 WIND OBSERVATIONS WOULD HAVE BEEN CORRECT FOR 30 MINUTE DATA.
** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

December, 1984



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY SOLAR RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1984

SOLAR RADIATION VALUES MEASURED IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	0	0	0	0	0	0	0	0	0	1	2	4	3	2	2	1	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	1	2	3	4	4	2	1	0	0	0	0	0	0	0	0	1
3	0	0	0	0	0	0	0	0	0	1	1	2	4	3	2	1	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	1	2	3	3	2	1	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	1	1	4	3	3	2	1	0	0	0	0	0	0	0	0	1
6	0	0	0	0	0	0	0	0	0	0	1	3	4	3	1	1	0	0	0	0	0	0	0	0	1
7	0	0	0	0	0	0	0	0	0	0	1	2	2	2	1	1	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	1	2	3	2	1	1	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	1	2	4	10	10	2	1	0	0	0	0	0	0	0	0	1
10	0	0	0	0	0	0	0	0	0	0	1	3	3	2	2	1	0	0	0	0	0	***	***	***	0
11	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
12	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
13	***	***	***	***	***	***	***	***	***	***	***	***	***	***	1	1	0	0	0	0	0	0	1	0	0
14	0	0	0	0	0	0	0	0	0	0	1	3	7	6	2	1	0	0	0	0	***	***	***	***	1
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	1	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0
19	0	0	0	0	0	0	0	0	0	0	1	2	8	8	2	1	***	***	***	***	***	***	***	***	1
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
21	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
23	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
24	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
25	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
26	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
30	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
31	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY LONGWAVE RADIATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1984

LONGWAVE RADIATION VALUES IN MILLIWATTS PER SQUARE CENTIMETER

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	AVG
1	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
7	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
8	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
9	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
10	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
11	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
12	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
13	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
14	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
15	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
16	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
17	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
18	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
19	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
21	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
23	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
24	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
25	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
26	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
27	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
28	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
29	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
30	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
31	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***

** SEE INTERPRETATION NOTES AT END OF MONTHLY REPORT **

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

USGS STATION SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING December, 1984

PARAMETER	NUMBER OF USABLE OBSERVATIONS	PERCENT OF TOTAL OBSERVATIONS
TEMPERATURE	635	43
WIND SPEED	634	43
WIND DIRECTION	635	43
PEAK GUST	634	43
RELATIVE HUMIDITY	549	37
PRECIPITATION	0	0
SOLAR RADIATION	635	43
DEW POINT	549	37
LONGWAVE RADIATION	0	0

THERE ARE 1488 POSSIBLE OBSERVATIONS THIS MONTH FOR EACH PARAMETER.
THE DATA RECORDING INTERVAL IS 30 MINUTES.

THE FOLLOWING ADJUSTMENTS HAVE BEEN MADE TO THIS MONTH'S DATA:

None

Additional comments on this month's data:

1. Data lost for all parameters from 12/10 to 12/13, 12/14 to 12/17, and 12/19 to 12/31 due to power source failure.

2. No longwave radiation data. Watana base camp shut down for winter.

6.0 REFERENCES

Coffin, J. H. 1984. Solar and longwave radiation data for south-central Alaska. In: Proceedings, Alaska Section AWRA Annual Conference, Alyeska Resort, Alaska, November 1984. Published by Institute of Water Resources, University of Alaska, Fairbanks, Alaska, as Report IWR-106.

R&M Consultants, Inc. 1984. Processed climatic data, October 1982 - September 1983, Volume IV, Watana Station (No. 0650). Prepared under contract to Harza-Ebasco Susitna Joint Venture for Alaska Power Authority. Document No. 1091. June.

APPENDICES

TABLE A.1 CONVERSION FACTORS

Multiply	by	To Obtain
millimeter (mm)	0.03937	inch (in)
centimeter (cm)	0.3937	inch (in)
square centimeter (cm^2)	0.1550	square inch (in^2)
meter (m)	3.281	foot (ft)
square meter (m^2)	10.76	square foot (ft^2)
meter per second (m/s)	3.821	foot per second (ft/s)
meter per second (m/s)	2.237	mile per hour (mph)
meter per second (m/s)	1.944	knot (kt)
degree Celsius (°C)	°F= 9/5(C) +32	degree Fahrenheit (°F)
watt-hour (WH)	3.413	British Thermal Unit (BTU)
watt-hour (WH)	3600	joule (J)
milliwatt (mw)	0.003413	BTU per hour (BTU/hr)
milliwatt per square centimeter (mw/cm^2)	0.1040	BTU per hour per square foot ($BTU/hr\text{-}ft^2$)
watt-hour per square meter (WH/m^2)	0.3171	BTU per square foot (BTU/ft^2)
watt-hour per square meter (WH/m^2)	0.0860	langley (ly)

TABLE B.1

WYOMING GAGE PRECIPITATION MEASUREMENTS
WATANA CLIMATE STATION
1983-1985

Date	Cumulative Precipitation (inches)		Incremental Precipitation (inches)
12/04/83	4.0	(Start)	--
01/06/84	4.4		0.4
02/22/84	5.3		0.9
04/09/84	5.6		0.3
05/22/84	7.0		1.4
05/23/84	7.1		0.1
09/25/84	5.2	(Start)	--
10/05/84	5.2		0.0
11/02/84	5.4		0.2
11/29/84	5.9		0.5
	4.5	(Re-started)	--
01/04/85	6.2		1.7
02/05/85	7.9		1.7
03/04/85	8.8		0.9
03/18/85	9.5		0.7
04/01/85	9.5		0.0
04/29/85	9.8		0.3
06/06/85	11.6		1.8

TABLE C.1

EVAPORATION DATA, WATANA CAMP, 1984

Day	May	June	July	August	September
1		0.18	0.21	0.08(e)	0.10(i)
2		0.19	0.07	0.02(e)	0.09
3		0.20	0.11	0.05(e)	0.08(i)
4		0.12	*	0.17(e)	*
5		0.22	0.40	0.15(e)	0.21
6		0.12	0.58	0.00(e)	0.06
7		*	0.28	0.20(e)	0.02
8		*	0.17	0.19	0.06
9		*	0.14	0.17	0.12(i)
10		*	0.06	0.00	0.06(i)
11		0.37	0.11	0.55	0.04
12		0.06	0.18	*	0.08
13		0.07	0.14	0.38	0.02
14		0.19	0.00	0.17	0.08
15		0.00(e)	0.09(e)	0.14	0.12
16		*	0.08(e)	0.16	end of data
17		*	0.01(e)	0.13	
18		0.42	0.00(e)	0.06	
19		0.21	0.04(e)	0.04	
20		0.81	0.07(e)	0.00	
21		0.64	0.00(e)	0.05	
22		0.28	0.00(e)	0.04	
23	Start	0.81	0.08	0.00	
24	0.03	0.30	0.15	0.00	
25	0.06	0.12	0.09	0.00	
26	0.09	0.24	0.00	0.04	
27	*	0.05	0.00(e)	0.23	
28	*	0.03	0.01(e)	0.14(i)	
29	0.28	0.02	0.00(e)	0.03(i)	
30	0.00(e)	0.01	0.03(e)	0.24(i)	
31	0.73		0.06	0.12	
TOTAL	1.19M	5.66(e)	3.16(e)	3.55(e)	1.14M

NOTE: All values are for a 24-hour period ending at approximately 0800 on date shown.

* No pan observation on this date. Amount included in following measurement, time distribution unknown.

(e) Precipitation data missing but estimated from observers notes and records from nearby stations.

(i) Ice layer on water surface.

M Monthly total is approximate, based on a partial record only.