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SUSITNA HYDROELECTRIC PROJECT

PROCESSED CLIMATIC DATA

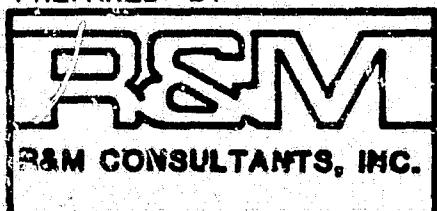
OCTOBER 1981 THRU MAY 1982

VOLUME 3

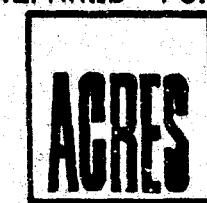
0630 - TYONE RIVER STATION

DECEMBER 1982

PREPARED BY:



PREPARED FOR:



ALASKA POWER AUTHORITY

DC NO 45
s8/r1

ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT

TASK 3 - HYDROLOGY

PROCESSED CLIMATIC DATA

VOLUME 3
0630 - TYONE RIVER STATION
OCTOBER 1981 - MAY 1982

DECEMBER 1982

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ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT

TASK 3 - HYDROLOGY

PROCESSED CLIMATIC DATA

OCTOBER 1981 - SEPTEMBER 1982

VOLUME INDEX

- VOLUME 1: 0610 - SUSITNA GLACIER STATION
- VOLUME 2: 0620 - DENALI STATION
- VOLUME 3: 0630 - TYONE RIVER STATION
- VOLUME 4: 0640 - KOSINA CREEK STATION
- VOLUME 5: 0650 - WATANA STATION
- VOLUME 6: 0660 - DEVIL CANYON STATION
- VOLUME 7: 0665 - SHERMAN STATION
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ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT

TYONE CLIMATIC DATA

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Acknowledgments

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

HISTORY OF TYONE STATION (0630)

Tyone climate station was installed on August 27, 1980. The climate station is located about five miles east-southeast of the Susitna River, on the left bank (looking downstream) of the Tyone River. The site is on a terrace between the river and an adjacent bluff at an elevation of 2,500 feet above mean sea level. The mouth of Tyone river is at Susitna River Mile 246.5.

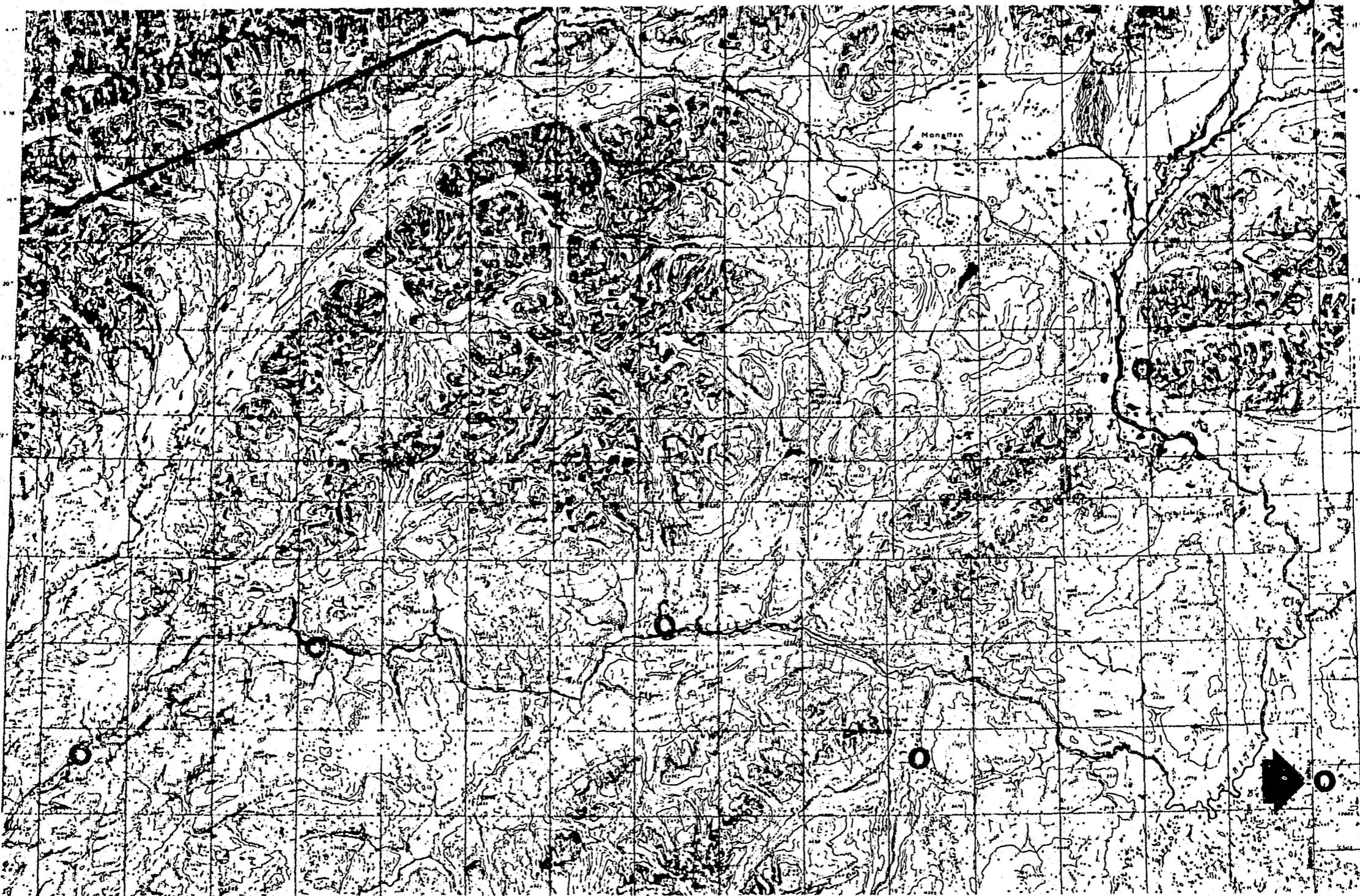
The Tyone River drainage basin is relatively large, and the area is characterized by gently rolling or flat terrain with numerous lakes. The area is poorly drained and data gathered here were felt to be particularly important for runoff studies.

Climate data for the water year 1982 are fairly clean, with no major data losses. Tyone station usually received the coldest temperatures of the six Susitna Hydroelectric Project climate stations.

Climate data for the Tyone location ends on May 13, 1982, when the station was relocated to Sherman.

Previous data reports of this station are:

Processed Climatic Data
Volume 3
Tyone River Station
March 1981
For the period: August 1980 thru September 1981



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



TYONE CLIMATE STATION UPPER SUSITNA BASIN

► : Station Location

ACRES

INTERPRETING DATA

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

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

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

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

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

DATA COMPUTATION STANDARDS

Graphical Data Plot

Graphical representation of valid recorded and/or computed data.

Hourly Precipitation Summary Table

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

Monthly Summary Table

1. Maximum daily and monthly temperatures are determined from all valid recorded temperatures.
2. Minimum daily and monthly temperatures are determined from all valid recorded temperatures.
3. Mean daily and monthly temperatures are determined from all valid recorded temperatures. The mean daily temperature is determined from the mean of the maximum and minimum temperatures. The mean monthly temperature is determined from the mean of all reported daily mean temperatures.
4. Resultant daily and monthly wind directions and speeds are summed vectorially from all valid readings.
5. Average daily and monthly wind speeds are determined for all valid readings (arithmetic mean).
6. Maximum daily and monthly gust speeds are determined from all valid readings. Associated directions are the resultant directions from the recording interval in which the peak interval gust was observed.
7. Prevailing daily and monthly directions are determined from all valid readings. The reported value is the most frequent direction observed.
8. Mean daily and monthly relative humidities are determined from all valid readings (arithmetic mean).
9. Mean daily and monthly dewpoint temperatures are determined from all valid readings (arithmetic mean). Dewpoints are omitted when the wind speed is less than 1 m/s, when the dewpoint calculates to a value greater than the recorded temperature, or

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

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

Three Hour Summary Tables

1. The temperature reported is the temperature recorded at the specified time.
2. The dewpoint temperature reported is the dewpoint calculated at the specified time. Dewpoints are omitted when the wind speed is less than 1 m/s, when the dewpoint is calculated to a value greater than the recorded temperature, or when the dewpoint calculates to less than minus 47 degrees or more than 27 degrees.
3. The relative humidity reported is the humidity recorded at the specified time.
4. The wind direction reported is the three-hour vectorial resultant sum of data recorded up to the specified time.
5. The wind speed reported is the three-hour vectorial resultant of data recorded up to the specified time.
6. The gust direction reported is the direction of the maximum gust recorded during the preceeding three-hour period.
7. The gust reported is the maximum recorded during the three-hour period.
8. The radiation reported is the solar radiation intensity recorded at the specified time.

Wind Frequency Summary Table

1. Reported data are determined from all valid readings.

Wind Rose Graphical Plot

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

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

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

Three Hour Summary Tables

1. The temperature reported is the temperature recorded at the specified time.
2. The dewpoint temperature reported is the dewpoint calculated at the specified time. Dewpoints are omitted when the wind speed is less than 1 m/s, when the dewpoint is calculated to a value greater than the recorded temperature, or when the dewpoint calculates to less than minus 47 degrees or more than 27 degrees.
3. The relative humidity reported is the humidity recorded at the specified time.
4. The wind direction reported is the three-hour vectorial resultant sum of data recorded up to the specified time.
5. The wind speed reported is the three-hour vectorial resultant of data recorded up to the specified time.
6. The gust direction reported is the direction of the maximum gust recorded during the preceeding three-hour period.
7. The gust reported is the maximum recorded during the three-hour period.
8. The radiation reported is the solar radiation intensity recorded at the specified time.

Wind Frequency Summary Table

1. Reported data are determined from all valid readings.

Wind Rose Graphical Plot

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

General Notes

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

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

Temperature: -50 through +35 °C

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

Direction: 0 through 360 degrees

Relative Humidity: 0 through 99 percent

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

Solar: 0 through 150 milliwatts/cm

Gust: 0 through 99.9 m/sec

Battery: 9 through 14.5 volts

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

Temperature: $\pm 1^\circ\text{C}$

Wind Speed: ± 0.5 meters per second

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

Relative Humidity: $\pm 6\%$

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

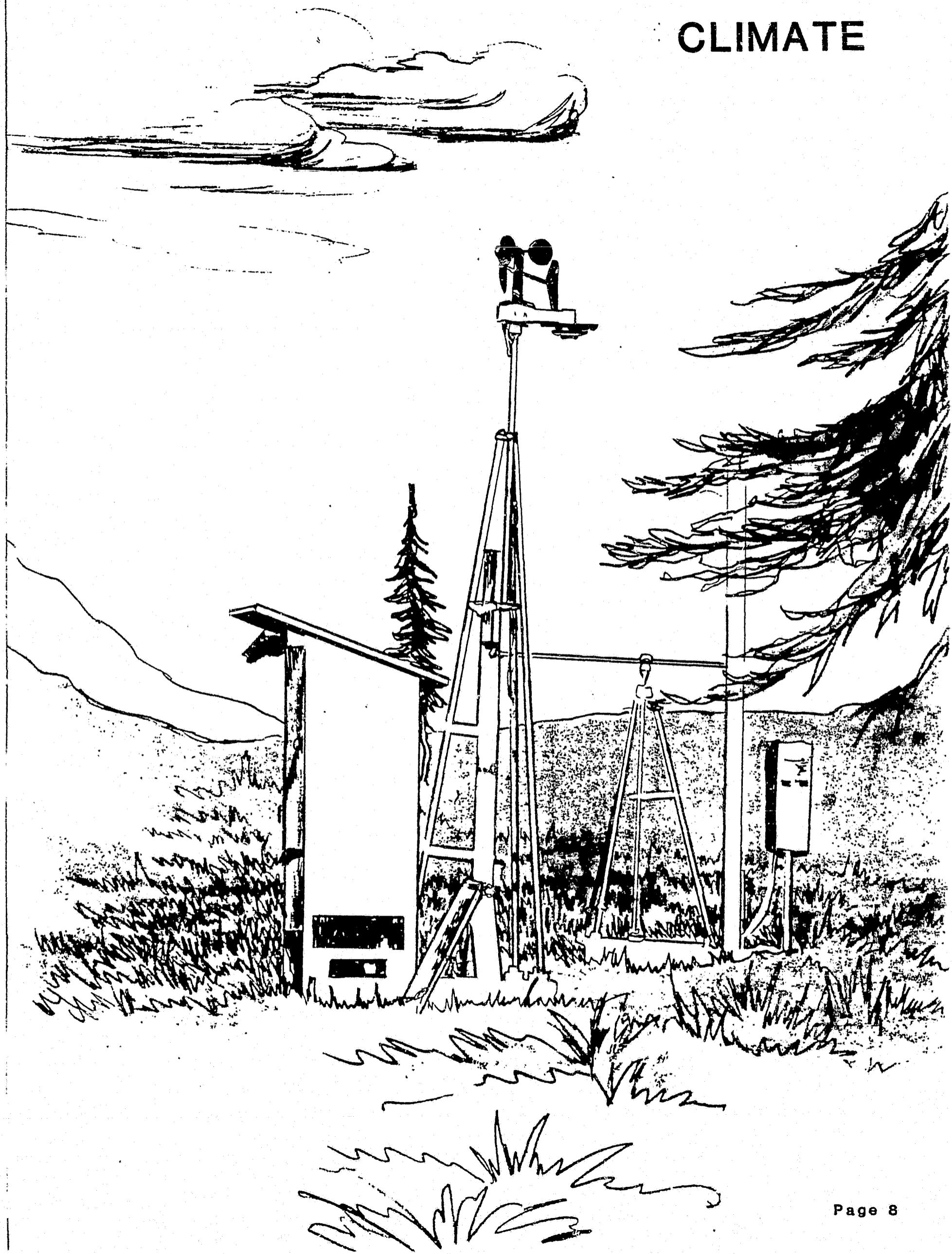
Solar Radiation: $\pm 5\text{mw cm}^{-2}$

Tape Recorder Error Rate: 1 bit in 10^7

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

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

CLIMATE



No precipitation data for October
(See INTERPRETING DATA).

R & M CONSULTANTS, INC.

SOUTHERN HYDRO ELECTRIC PROJECT

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

DAY 01

DAY 02

DAY 03

| HOUR | DEW | WIND | WIND GUST MAX. | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | | | | |
|------|-------|-------|----------------|-------|------------|-----|-------|-------|-------|--------|-------|-------|------------|-------|-------|-------|--------|------|-------|-------|------------|-------|--------|------|------|------|-------|-------|--------|-----|----|
| | DEG C | DEG C | % DEG. | M/S | MW | | DEG C | DEG C | DEG C | % DEG. | M/S | MW | | DEG C | DEG C | DEG C | % DEG. | M/S | MW | | DEG C | DEG C | % DEG. | M/S | MW | | DEG C | DEG C | % DEG. | M/S | MW |
| 0300 | -3.1 | -12.6 | 48 | 309 | 1.8 | 316 | 5.1 | 1 | 0300 | -6.7 | -15.7 | 50 | 318 | 1.7 | 334 | 3.8 | 1 | 0300 | -12.7 | ***** | 79 | 134 | .2 | 139 | 1.3 | 1 | | | | | |
| 0600 | -1.6 | -12.1 | 45 | 329 | 2.1 | 332 | 5.1 | 2 | 0600 | -6.5 | -14.8 | 52 | 294 | 1.5 | 299 | 5.1 | 1 | 0600 | -13.5 | ***** | 75 | 056 | .2 | 083 | .6 | 1 | | | | | |
| 0900 | .9 | -12.0 | 38 | 344 | 2.6 | 348 | 6.3 | 28 | 0900 | -3.4 | -15.5 | 39 | 306 | 1.8 | 334 | 5.1 | 26 | 0900 | -7.8 | ***** | 67 | 160 | .3 | 186 | 1.3 | 16 | | | | | |
| 1200 | 2.7 | -13.3 | 30 | 357 | 3.6 | 003 | 7.6 | 39 | 1200 | -1.1 | -15.7 | 30 | 347 | 3.1 | 355 | 5.7 | 39 | 1200 | -1.1 | -12.5 | 42 | 078 | .7 | 070 | 1.9 | 26 | | | | | |
| 1500 | 2.6 | -14.2 | 28 | 343 | 3.0 | 332 | 5.1 | 26 | 1500 | 1.7 | -17.8 | 22 | 359 | 2.6 | 357 | 6.3 | 25 | 1500 | 1.0 | -13.3 | 34 | 123 | 1.0 | 088 | 3.2 | 8 | | | | | |
| 1800 | -1.6 | -12.9 | 42 | 340 | 2.6 | 327 | 6.3 | 2 | 1800 | -1.9 | -15.5 | 35 | 348 | 1.4 | 004 | 3.8 | 2 | 1800 | -1.0 | ***** | 46 | 056 | .5 | 022 | 3.2 | 1 | | | | | |
| 2100 | -4.4 | -15.2 | 43 | 333 | 2.0 | 342 | 4.4 | 1 | 2100 | -6.7 | ***** | 55 | 324 | .6 | 003 | 3.8 | 1 | 2100 | -2.9 | -6.2 | 78 | 056 | .8 | 160 | 2.5 | 1 | | | | | |
| 2400 | -6.0 | -16.4 | 44 | 313 | 1.7 | 318 | 3.8 | 1 | 2400 | -10.4 | ***** | 84 | 238 | .4 | 227 | 1.3 | 1 | 2400 | -3.7 | ***** | 85 | 059 | 1.0 | 059 | 2.5 | 1 | | | | | |

DAY 04

DAY 05

DAY 06

| HOUR | DEW | WIND | WIND GUST MAX. | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | | | | |
|------|-------|-------|----------------|-------|------------|-----|-------|-------|-------|--------|-------|-------|------------|-------|-------|-------|--------|------|-------|-------|------------|-------|--------|------|------|------|-------|-------|--------|-----|----|
| | DEG C | DEG C | % DEG. | M/S | MW | | DEG C | DEG C | DEG C | % DEG. | M/S | MW | | DEG C | DEG C | DEG C | % DEG. | M/S | MW | | DEG C | DEG C | % DEG. | M/S | MW | | DEG C | DEG C | % DEG. | M/S | MW |
| 0300 | -3.9 | ***** | 91 | 068 | .6 | 065 | 1.3 | 1 | 0300 | -2.0 | -3.7 | 68 | 071 | .8 | 057 | 3.9 | 1 | 0300 | -3.7 | -9.9 | 62 | 358 | 2.5 | 019 | 5.7 | 1 | | | | | |
| 0600 | -3.7 | ***** | 96 | 063 | .6 | 068 | 1.9 | 1 | 0600 | -5.1 | ***** | 99 | 251 | .6 | 355 | 2.5 | 1 | 0600 | -3.7 | -10.5 | 59 | 359 | 3.5 | 006 | 5.7 | 1 | | | | | |
| 0900 | -2.7 | -5.4 | 82 | 001 | .4 | 358 | 1.9 | 4 | 0900 | -1.8 | -7.5 | 65 | 243 | .7 | 252 | 2.5 | 12 | 0900 | -1.7 | ***** | 54 | 002 | 1.7 | 007 | 5.1 | 10 | | | | | |
| 1200 | -.3 | ***** | 67 | 015 | .6 | 358 | 2.5 | 6 | 1200 | 1.8 | -7.3 | 51 | 310 | 1.2 | 327 | 3.2 | 46 | 1200 | 2.1 | -9.6 | 42 | 078 | 1.7 | 074 | 5.7 | 30 | | | | | |
| 1500 | -.1 | -3.8 | 76 | 038 | 1.3 | 033 | 3.8 | 2 | 1500 | 1.0 | -7.3 | 54 | 331 | 2.0 | 348 | 5.7 | 15 | 1500 | 0.0 | -7.5 | 57 | 091 | 2.1 | 090 | 5.1 | 7 | | | | | |
| 1800 | -.9 | -2.1 | 92 | 040 | 1.7 | 043 | 5.7 | 1 | 1800 | -1.1 | -8.3 | 58 | 339 | 2.0 | 002 | 5.1 | 1 | 1800 | -1.9 | ***** | 99 | 083 | .7 | 077 | 2.5 | 1 | | | | | |
| 2100 | -.9 | -1.9 | 93 | 052 | 2.0 | 051 | 5.1 | 1 | 2100 | -3.1 | -7.2 | 73 | 334 | 2.0 | 338 | 5.1 | 1 | 2100 | -3.5 | -5.7 | 85 | 312 | .4 | 337 | 1.9 | 1 | | | | | |
| 2400 | -1.3 | -3.7 | 84 | 094 | .8 | 093 | 2.5 | 1 | 2400 | -2.5 | -8.8 | 62 | 346 | 2.5 | 002 | 5.7 | 1 | 2400 | -10.0 | ***** | 84 | 099 | .2 | 340 | 1.9 | 1 | | | | | |

DAY 07

DAY 08

DAY 09

| HOUR | DEW | WIND | WIND GUST MAX. | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | | | | |
|------|-------|-------|----------------|-------|------------|-----|-------|-------|-------|--------|-------|-------|------------|-------|-------|-------|--------|------|------|-------|------------|-------|--------|------|------|------|-------|-------|--------|-----|----|
| | DEG C | DEG C | % DEG. | M/S | MW | | DEG C | DEG C | DEG C | % DEG. | M/S | MW | | DEG C | DEG C | DEG C | % DEG. | M/S | MW | | DEG C | DEG C | % DEG. | M/S | MW | | DEG C | DEG C | % DEG. | M/S | MW |
| 0300 | -10.6 | -12.9 | 83 | 222 | .4 | 277 | 2.5 | 1 | 0300 | -4.1 | -13.0 | 50 | 004 | 3.8 | 012 | 7.6 | 1 | 0300 | -2.7 | ***** | 90 | 269 | .4 | 262 | 1.9 | 1 | | | | | |
| 0600 | -14.4 | ***** | 77 | 258 | .4 | 256 | 1.9 | 1 | 0600 | -4.4 | ***** | 71 | 356 | 2.5 | 002 | 5.7 | 1 | 0600 | -3.2 | ***** | 87 | 355 | .7 | 022 | 2.5 | 1 | | | | | |
| 0900 | -5.0 | -11.6 | 60 | 282 | .9 | 296 | 5.1 | 25 | 0900 | -2.8 | ***** | 59 | 010 | 1.0 | 006 | 2.5 | 10 | 0900 | -2.2 | ***** | 81 | 243 | .5 | 234 | 2.5 | 4 | | | | | |
| 1200 | -2.5 | -11.3 | 51 | 355 | 4.3 | 005 | 7.6 | 31 | 1200 | -1.6 | -7.7 | 63 | 007 | 1.2 | 015 | 2.5 | 22 | 1200 | 1.1 | ***** | 64 | 099 | .6 | 146 | 1.9 | 11 | | | | | |
| 1500 | -2.4 | -12.0 | 48 | 336 | 3.2 | 338 | 6.3 | 7 | 1500 | -.9 | -6.8 | 64 | 007 | 1.1 | 350 | 2.5 | 10 | 1500 | .7 | ***** | 63 | 136 | .5 | 130 | 1.9 | 7 | | | | | |
| 1800 | -3.3 | -12.8 | 48 | 000 | 4.2 | 001 | 8.3 | 1 | 1800 | -1.8 | ***** | 86 | 351 | .6 | 005 | 1.3 | 1 | 1800 | -.9 | ***** | 84 | 090 | .1 | 235 | 1.3 | 1 | | | | | |
| 2100 | -3.7 | -13.2 | 48 | 004 | 4.7 | 001 | 7.6 | 1 | 2100 | -2.2 | ***** | 90 | 329 | .4 | 350 | 1.9 | 1 | 2100 | -1.3 | ***** | 88 | 128 | .3 | 107 | 1.3 | 1 | | | | | |
| 2400 | -3.8 | -13.3 | 48 | 000 | 3.7 | 355 | 7.0 | 1 | 2400 | -2.5 | ***** | 1 | 295 | .3 | 005 | 1.9 | 1 | 2400 | -2.6 | -6.2 | 76 | 208 | .6 | 218 | 2.5 | 1 | | | | | |

R & M CONSULTANTS, INC.

SUSSETTNA HYDRO ELECTRIC PROJECT

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

DAY 10

DAY 11

DAY 12

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|-------|----|-----|-----|-----|-----|----|------|------|-------|----|-----|-----|-----|-----|----|------|------|-------|----|-----|-----|-----|-----|---|
| 0300 | -5.5 | ***** | 85 | 241 | .6 | 267 | 1.9 | 1 | 0300 | -5.5 | ***** | 83 | 191 | .4 | 234 | 1.9 | 1 | 0300 | -2.8 | ***** | 10 | *** | 0.0 | 238 | .6 | 1 |
| 0600 | -6.7 | ***** | 98 | 139 | .2 | 147 | 1.3 | 1 | 0600 | -4.3 | ***** | 98 | 211 | .4 | 197 | 1.3 | 0 | 0600 | -2.6 | ***** | 3 | *** | 0.0 | 0.0 | 0.0 | 1 |
| 0900 | -4.2 | ***** | 64 | 209 | .3 | 222 | 1.9 | 15 | 0900 | -1.8 | -3.7 | 87 | 083 | 1.3 | 075 | 4.4 | 2 | 0900 | -.8 | ***** | 92 | 138 | .0 | 217 | .6 | 8 |
| 1200 | 1.1 | ***** | 46 | 172 | .6 | 180 | 2.5 | 31 | 1200 | 0.0 | -3.4 | 78 | 082 | 2.2 | 089 | 4.4 | 10 | 1200 | .5 | ***** | 78 | 257 | .3 | 269 | 1.9 | 6 |
| 1500 | 2.9 | -12.3 | 32 | 148 | 1.0 | 140 | 3.2 | 25 | 1500 | 0.0 | ***** | 92 | 088 | 1.5 | 084 | 3.8 | 3 | 1500 | .4 | ***** | 4 | 250 | .6 | 245 | 1.9 | 3 |
| 1800 | -2.6 | ***** | 62 | 124 | .7 | 120 | 2.5 | 1 | 1800 | -1.7 | ***** | 0 | 134 | .1 | 142 | 2.5 | 1 | 1800 | .1 | ***** | 14 | 237 | .2 | 231 | 1.3 | 1 |
| 2100 | -4.9 | ***** | 65 | 189 | .3 | 074 | 1.9 | 1 | 2100 | -1.6 | ***** | 10 | *** | 0.0 | 238 | .6 | 1 | 2100 | .3 | ***** | 25 | 330 | .2 | 323 | 1.3 | 1 |
| 2400 | -6.9 | ***** | 80 | 196 | .5 | 207 | 1.9 | 1 | 2400 | -2.6 | ***** | 18 | *** | 0.0 | *** | 0.0 | 1 | 2400 | .4 | ***** | 32 | 312 | .2 | 359 | 1.3 | 1 |

DAY 13

DAY 14

DAY 15

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-----|-------|----|-----|----|-----|-----|----|------|-----|-------|----|-----|-----|-----|-----|----|------|-----|-------|----|-----|----|-----|-----|----|
| 0300 | .3 | ***** | 40 | 221 | .2 | 220 | 1.3 | 1 | 0300 | 1.1 | ***** | 49 | 215 | .3 | 208 | 1.3 | 1 | 0300 | .1 | ***** | 40 | 359 | .1 | 036 | 1.3 | 0 |
| 0600 | .4 | ***** | 45 | 226 | .4 | 211 | 1.3 | 0 | 0600 | .7 | -8.3 | 51 | 225 | .5 | 211 | 1.9 | 1 | 0600 | -.4 | ***** | 41 | 258 | .4 | 281 | 1.9 | 0 |
| 0900 | 1.8 | ***** | 16 | 230 | .5 | 245 | 1.3 | 6 | 0900 | 1.7 | ***** | 36 | 249 | .8 | 248 | 1.9 | 11 | 0900 | .1 | ***** | 8 | 303 | .1 | 303 | 1.3 | 12 |
| 1200 | 4.4 | ***** | 70 | 235 | .3 | 302 | 1.9 | 25 | 1200 | 3.2 | .7 | 84 | 253 | 1.3 | 254 | 2.5 | 17 | 1200 | 2.1 | ***** | 70 | 264 | .5 | 227 | 1.3 | 11 |
| 1500 | 3.4 | ***** | 84 | 304 | .7 | 306 | 2.5 | 11 | 1500 | 3.9 | ***** | 80 | 282 | .6 | 273 | 2.5 | 8 | 1500 | 2.4 | -1.2 | 77 | 114 | .6 | 107 | 2.5 | 7 |
| 1800 | 2.2 | ***** | 21 | 256 | .7 | 241 | 1.9 | 1 | 1800 | 1.9 | ***** | 8 | 027 | .2 | 338 | 1.9 | 1 | 1800 | .2 | ***** | 14 | 093 | .7 | 127 | 2.5 | 1 |
| 2100 | 1.4 | ***** | 36 | 204 | .5 | 174 | 1.9 | 1 | 2100 | 1.1 | ***** | 31 | 103 | .5 | 068 | 1.9 | 1 | 2100 | -.8 | ***** | 27 | 133 | .1 | 054 | 1.3 | 1 |
| 2400 | 1.3 | ***** | 45 | 227 | .6 | 214 | 1.9 | 1 | 2400 | -.1 | ***** | 35 | 098 | .3 | 120 | 1.3 | 1 | 2400 | -.6 | ***** | 38 | 228 | .1 | 323 | 1.3 | 1 |

DAY 16

DAY 17

DAY 18

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|-------|----|-----|-----|-----|-----|----|------|------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -.4 | ***** | 43 | 228 | .5 | 290 | 1.3 | 1 | 0300 | -4.0 | ***** | 6 | 175 | .1 | 217 | 1.3 | 1 | 0300 | -1.9 | -3.3 | 90 | 360 | 3.4 | 002 | 5.7 | 1 |
| 0600 | -.3 | ***** | 46 | 261 | .4 | 240 | 1.9 | 1 | 0600 | -3.9 | ***** | 6 | 043 | .2 | 040 | 1.3 | 1 | 0600 | -2.1 | -5.7 | 76 | 357 | 2.9 | 355 | 5.7 | 0 |
| 0900 | .1 | ***** | 41 | 250 | .6 | 245 | 1.9 | 10 | 0900 | -1.0 | ***** | 99 | 283 | .1 | 062 | 1.3 | 9 | 0900 | -1.4 | -6.7 | 67 | 317 | 2.0 | 336 | 3.8 | 16 |
| 1200 | 1.2 | -1.5 | 82 | 110 | 1.1 | 107 | 3.8 | 10 | 1200 | 2.0 | -3.4 | 67 | 263 | 1.1 | 247 | 3.2 | 13 | 1200 | -.3 | -7.8 | 57 | 309 | 2.1 | 319 | 4.4 | 21 |
| 1500 | 1.3 | ***** | 82 | 149 | .9 | 105 | 3.2 | 2 | 1500 | 3.2 | -8.0 | 44 | 349 | 3.0 | 343 | 6.3 | 4 | 1500 | -.8 | -11.6 | 44 | 300 | 1.9 | 301 | 5.7 | 8 |
| 1800 | .5 | ***** | 94 | 233 | .6 | 249 | 1.3 | 1 | 1800 | 2.3 | -5.6 | 56 | 010 | 1.4 | 350 | 4.4 | 1 | 1800 | -2.8 | -11.8 | 50 | 270 | 1.3 | 296 | 4.4 | 1 |
| 2100 | -.4 | ***** | 5 | 271 | .3 | 282 | 1.3 | 1 | 2100 | -.3 | -1.0 | 95 | 008 | 1.3 | 042 | 3.2 | 1 | 2100 | -10.1 | ***** | 90 | 230 | .5 | 254 | 1.9 | 1 |
| 2400 | -1.2 | ***** | 15 | 204 | .6 | 187 | 1.9 | 1 | 2400 | -.9 | -1.5 | 96 | 359 | 2.0 | 003 | 4.4 | 1 | 2400 | -12.1 | ***** | 80 | 218 | .8 | 214 | 1.9 | 1 |

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT PRICE LIST

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

DAY 19

DAY 20

DAY 21

| HOUR | DEW | WIND | WIND GUST MAX. | NDNG TEMP. | POINT RH | DIR. | SPD. | DIR. | GUST RAD | NDNG TEMP. | POINT RH | DIR. | SPD. | DIR. | GUST RAD | NDNG TEMP. | POINT RH | DIR. | SPD. | DIR. | GUST RAD | | | | | |
|------|-------|-------|----------------|------------|----------|------|------|------|----------|------------|----------|-------|------|------|----------|------------|----------|--------|------|-------|----------|-----|-----|-----|-----|----|
| | DEG C | DEG C | % DEG. | M/S | DEG C | M/S | MW | | DEG C | DEG C | M/S | DEG C | M/S | MW | | DEG C | DEG C | % DEG. | M/S | DEG C | M/S | MW | | | | |
| 0300 | -12.7 | ***** | 81 | 219 | .7 | 220 | 1.9 | 1 | 0300 | -5.9 | ***** | 78 | 220 | .5 | 217 | 1.9 | 1 | 0300 | .1 | -36.7 | 4 | 084 | 1.8 | 084 | 3.2 | 1 |
| 0600 | -16.5 | ***** | 75 | 260 | .0 | 229 | 1.3 | 1 | 0600 | -6.6 | ***** | 87 | 141 | .2 | 112 | 1.3 | 1 | 0600 | .8 | -8.89 | 89 | 088 | 1.9 | 083 | 3.8 | 1 |
| 0900 | -12.2 | ***** | 81 | 141 | .2 | 060 | 1.3 | 25 | 0900 | -4.4 | ***** | 74 | 206 | .3 | 189 | 1.3 | 8 | 0900 | 1.9 | -1.0 | 81 | 085 | 1.9 | 087 | 3.8 | 7 |
| 1200 | -5.8 | -15.9 | 45 | 243 | .8 | 262 | 1.9 | 25 | 1200 | -2.3 | ***** | 64 | 244 | .5 | 272 | 1.9 | 16 | 1200 | 2.8 | -3.7 | 62 | 161 | .6 | 074 | 3.2 | 26 |
| 1500 | -5.5 | -13.4 | 54 | 207 | 1.1 | 219 | 2.5 | 3 | 1500 | -2.7 | -6.5 | 75 | 230 | 1.0 | 268 | 1.9 | 4 | 1500 | 5.1 | -2.2 | 59 | 145 | .6 | 098 | 2.5 | 6 |
| 1800 | -5.7 | ***** | 70 | 215 | .7 | 216 | 2.5 | 1 | 1800 | -3.3 | ***** | 97 | 214 | .8 | 200 | 1.9 | 1 | 1800 | .6 | ***** | 95 | 193 | .5 | 130 | 2.5 | 1 |
| 2100 | -5.7 | ***** | 76 | 151 | .3 | 142 | 1.3 | 1 | 2100 | -1.0 | -1.6 | 96 | 098 | 1.4 | 087 | 4.4 | 1 | 2100 | 2.2 | ***** | 0 | 081 | .6 | 073 | 2.5 | 1 |
| 2400 | -5.3 | ***** | 75 | 233 | .4 | 236 | 1.3 | 1 | 2400 | -3 | -4 | 99 | 090 | 2.0 | 085 | 4.4 | 1 | 2400 | 2.2 | ***** | 2 | 084 | .7 | 084 | 1.9 | 1 |

DAY 22

DAY 23

DAY 24

| HOUR | DEW | WIND | WIND GUST MAX. | NDNG TEMP. | POINT RH | DIR. | SPD. | DIR. | GUST RAD | NDNG TEMP. | POINT RH | DIR. | SPD. | DIR. | GUST RAD | NDNG TEMP. | POINT RH | DIR. | SPD. | DIR. | GUST RAD | | | | | |
|------|-------|-------|----------------|------------|----------|------|------|------|----------|------------|----------|-------|------|------|----------|------------|----------|--------|------|-------|----------|-----|-----|-----|-----|----|
| | DEG C | DEG C | % DEG. | M/S | DEG C | M/S | MW | | DEG C | DEG C | M/S | DEG C | M/S | MW | | DEG C | DEG C | % DEG. | M/S | DEG C | M/S | MW | | | | |
| 0300 | .7 | ***** | 14 | 202 | .3 | 117 | 1.3 | 1 | 0300 | 1.6 | .4 | 92 | 079 | 1.3 | 092 | 3.2 | 1 | 0300 | .9 | ***** | 24 | 208 | .3 | 273 | 1.9 | 1 |
| 0600 | .9 | ***** | 21 | 215 | .8 | 207 | 1.9 | 1 | 0600 | 1.7 | .7 | 93 | 071 | 1.4 | 075 | 3.8 | 1 | 0600 | -3 | ***** | 36 | 089 | .3 | 087 | 1.9 | 1 |
| 0900 | -6 | ***** | 35 | 244 | .8 | 219 | 2.5 | 9 | 0900 | 1.8 | ***** | 90 | 087 | .6 | 080 | 3.2 | 4 | 0900 | .8 | -12.9 | 36 | 245 | .3 | 257 | 1.9 | 7 |
| 1200 | 1.7 | ***** | 73 | 239 | .8 | 244 | 1.9 | 14 | 1200 | 3.8 | ***** | 77 | 082 | .4 | 072 | 1.9 | 15 | 1200 | 2.7 | -2.0 | 71 | 256 | 1.0 | 313 | 3.2 | 15 |
| 1500 | 1.5 | ***** | 86 | 228 | .9 | 232 | 1.9 | 4 | 1500 | 3.6 | ***** | 82 | 313 | .2 | 056 | 1.9 | 3 | 1500 | 2.7 | -7.8 | 46 | 337 | 2.6 | 351 | 5.7 | 11 |
| 1800 | .3 | ***** | 6 | 183 | .1 | 213 | 2.5 | 1 | 1800 | 1.4 | -37.8 | 3 | 206 | .6 | 188 | 1.9 | 1 | 1800 | .2 | -8.5 | 52 | 306 | 2.4 | 332 | 6.3 | 1 |
| 2100 | 1.0 | ***** | 13 | 096 | .5 | 114 | 1.9 | 1 | 2100 | 1.7 | ***** | 4 | 213 | .7 | 245 | 1.9 | 1 | 2100 | -.5 | -6.9 | 62 | 268 | 2.4 | 284 | 5.7 | 1 |
| 2400 | 2.1 | -3 | 84 | 096 | 1.3 | 087 | 2.5 | 1 | 2400 | 1.0 | ***** | 7 | 194 | .5 | 195 | 2.5 | 1 | 2400 | -2.5 | ***** | 76 | 290 | 1.3 | 289 | 4.4 | 1 |

DAY 25

DAY 26

DAY 27

| HOUR | DEW | WIND | WIND GUST MAX. | NDNG TEMP. | POINT RH | DIR. | SPD. | DIR. | GUST RAD | NDNG TEMP. | POINT RH | DIR. | SPD. | DIR. | GUST RAD | NDNG TEMP. | POINT RH | DIR. | SPD. | DIR. | GUST RAD | | | | | |
|------|-------|-------|----------------|------------|----------|------|------|------|----------|------------|----------|-------|------|------|----------|------------|----------|--------|-------|-------|----------|-----|-----|-----|-----|----|
| | DEG C | DEG C | % DEG. | M/S | DEG C | M/S | MW | | DEG C | DEG C | M/S | DEG C | M/S | MW | | DEG C | DEG C | % DEG. | M/S | DEG C | M/S | MW | | | | |
| 0300 | -1.3 | -5.9 | 71 | 261 | .6 | 281 | 2.5 | 1 | 0300 | -5.1 | -8.3 | 78 | 218 | .9 | 239 | 1.9 | 1 | 0300 | -4.1 | -9.5 | 66 | 086 | 1.3 | 087 | 3.2 | 1 |
| 0600 | -1.0 | -6.3 | 67 | 316 | .7 | 334 | 2.5 | 1 | 0600 | -5.8 | ***** | 78 | 232 | 1.0 | 244 | 2.5 | 1 | 0600 | -4.6 | -9.6 | 68 | 091 | 1.2 | 082 | 2.5 | 1 |
| 0900 | -7 | -5.6 | 69 | 302 | 1.0 | 279 | 3.2 | 10 | 0900 | -3.7 | ***** | 73 | 260 | 1.0 | 261 | 2.5 | 8 | 0900 | -4.9 | -10.6 | 64 | 105 | 1.6 | 114 | 3.2 | 7 |
| 1200 | .3 | -9.0 | 50 | 301 | 1.3 | 331 | 3.8 | 24 | 1200 | -1.6 | -9.0 | 57 | 280 | 1.2 | 295 | 3.2 | 13 | 1200 | -3.5 | ***** | 55 | 118 | 1.4 | 103 | 3.8 | 13 |
| 1500 | .2 | ***** | 49 | 237 | 1.8 | 228 | 3.8 | 4 | 1500 | -1.6 | ***** | 60 | 349 | 1.0 | 349 | 2.5 | 4 | 1500 | -3.8 | ***** | 62 | 213 | .9 | 186 | 1.9 | 4 |
| 1800 | -1.9 | -7.2 | 67 | 312 | .7 | 341 | 3.2 | 1 | 1800 | -3.0 | ***** | 71 | 021 | .4 | 007 | 1.9 | 1 | 1800 | -6.6 | ***** | 80 | 249 | .9 | 248 | 2.5 | 1 |
| 2100 | -4.8 | ***** | 75 | 253 | .9 | 269 | 2.5 | 1 | 2100 | -3.4 | ***** | 79 | 202 | .2 | 193 | 1.9 | 1 | 2100 | -8.0 | ***** | 81 | 229 | .5 | 274 | 1.9 | 1 |
| 2400 | -5.3 | ***** | 83 | 194 | .7 | 191 | 1.3 | 1 | 2400 | -3.4 | ***** | 74 | 070 | .3 | 313 | 1.3 | 1 | 2400 | -11.2 | ***** | 87 | 208 | .3 | 246 | 1.3 | 1 |

R & M CONSULTANTS, INC.

SUSTAINABLE HYDROELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -14.3 | ***** | 76 | 105 | .2 | 061 | 1.3 | 1 | 0300 | -16.5 | ***** | 72 | 062 | .3 | 048 | 1.3 | 1 | 0300 | -14.7 | ***** | 75 | 170 | .3 | 209 | 1.3 | 1 |
| 0600 | -15.4 | ***** | 75 | 028 | .1 | 250 | 1.9 | 1 | 0600 | -15.3 | ***** | 74 | 112 | .2 | 125 | 1.3 | 1 | 0600 | -15.9 | ***** | 73 | 092 | .3 | 213 | 1.3 | 1 |
| 0900 | -11.8 | ***** | 81 | 128 | .2 | 117 | 1.3 | 18 | 0900 | -11.3 | ***** | 82 | 241 | .2 | 207 | 1.3 | 4 | 0900 | -13.0 | ***** | 76 | 131 | .1 | 054 | 1.3 | 10 |
| 1200 | -4.8 | ***** | 52 | 214 | .5 | 280 | 1.9 | 36 | 1200 | -8.4 | ***** | 79 | 241 | .3 | 271 | 1.9 | 16 | 1200 | -9.2 | ***** | 61 | 193 | .6 | 213 | 1.9 | 32 |
| 1500 | -1.2 | ***** | 39 | 250 | .7 | 241 | 2.5 | 12 | 1500 | -9.2 | -11.7 | 82 | 238 | 1.1 | 224 | 1.9 | 2 | 1500 | -7.1 | -15.3 | 52 | 218 | 1.2 | 228 | 2.5 | 15 |
| 1800 | -11.7 | ***** | 80 | 239 | .8 | 237 | 2.5 | 0 | 1800 | -11.7 | ***** | 81 | 232 | .7 | 234 | 2.5 | 1 | 1800 | -13.9 | ***** | 78 | 217 | .3 | 215 | 1.3 | 1 |
| 2100 | -15.5 | ***** | 75 | 096 | .1 | 084 | 1.3 | 1 | 2100 | -14.4 | ***** | 78 | 276 | .3 | 009 | 1.9 | 1 | 2100 | -16.9 | ***** | 72 | 121 | .0 | 103 | 1.3 | 1 |
| 2400 | -16.3 | ***** | 73 | 084 | .3 | 060 | 1.3 | 1 | 2400 | -15.6 | ***** | 75 | 215 | .4 | 211 | 1.9 | 1 | 2400 | -19.5 | ***** | 68 | 064 | .3 | 061 | 1.3 | 1 |

DAY 31

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

| | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -17.9 | ***** | 70 | 107 | .3 | 110 | 1.3 | 1 |
| 0600 | -14.7 | ***** | 74 | 176 | .1 | 263 | 1.3 | 1 |
| 0900 | -12.8 | ***** | 76 | 228 | .6 | 224 | 1.9 | 6 |
| 1200 | -8.8 | -15.4 | 59 | 221 | .7 | 212 | 2.5 | 23 |
| 1500 | -9.7 | -14.1 | 70 | 231 | 1.1 | 212 | 3.2 | 2 |
| 1800 | -10.4 | -13.5 | 78 | 253 | 1.0 | 232 | 2.5 | 1 |
| 2100 | -12.2 | -15.1 | 79 | 233 | 1.5 | 199 | 4.4 | 1 |
| 2400 | -12.6 | -15.3 | 80 | 253 | 1.4 | 266 | 2.5 | 1 |

R & M CONSULTANTS, INC.

SALISBURY HYDRO ELECTRIC CO. PROJECT

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

| DAY | MAX. TEMP. DEG C | MIN. TEMP. DEG C | MEAN TEMP. DEG C | RES. WIND DIR. | RES. WIND SPD. M/S | AVG. WIND DIR. | MAX. GUST SPD. M/S | MAX. GUST P'VAL DIR. RH % | MAX. P'VAL MEAN DEG C | MEAN RH % | DP DEG C | PRECIP MM | DAY'S SOLAR ENERGY WH/SDM | |
|-------|------------------------|------------------------|------------------------|----------------------|-----------------------------|----------------------|-----------------------------|------------------------------------|--------------------------------|--------------|-------------|--------------|------------------------------------|----|
| | | | | | | | | | | | | | | |
| 1 | 3.3 | -6.0 | -1.4 | 337 | 2.4 | 2.5 | 003 | 7.6 | NNW | 40 | -13.4 | **** | 2863 | 1 |
| 2 | 2.1 | -10.5 | -4.2 | 331 | 1.5 | 1.8 | 357 | 6.3 | N | 44 | -15.9 | **** | 2855 | 2 |
| 3 | 1.1 | -15.5 | -7.2 | 082 | .5 | .7 | 088 | 3.2 | ENE | 64 | -10.3 | **** | 1813 | 3 |
| 4 | 0.0 | -4.2 | -2.1 | 048 | .9 | 1.1 | 043 | 5.7 | NE | 86 | -2.9 | **** | 480 | 4 |
| 5 | 2.8 | -6.2 | -1.7 | 332 | 1.2 | 1.6 | 348 | 5.7 | NNW | 68 | -7.3 | **** | 2338 | 5 |
| 6 | 2.6 | -10.0 | -3.7 | 027 | 1.2 | 1.8 | 019 | 5.7 | N | 67 | -9.2 | **** | 1468 | 6 |
| 7 | -1.8 | -14.4 | -8.1 | 352 | 2.5 | 2.9 | 001 | 8.3 | N | 61 | -12.3 | **** | 1995 | 7 |
| 8 | -5 | -4.7 | -2.6 | 360 | 1.3 | 1.4 | 012 | 7.6 | N | 65 | -9.7 | **** | 1353 | 8 |
| 9 | 1.1 | -3.8 | -1.4 | 177 | .1 | .6 | 022 | 2.5 | ESE | 77 | -5.2 | **** | 838 | 9 |
| 10 | 2.9 | -7.9 | -2.5 | 172 | .4 | .7 | 140 | 3.2 | SSE | 62 | -10.8 | **** | 2570 | 10 |
| 11 | 0.0 | -7.0 | -3.5 | 093 | .6 | .8 | 075 | 4.4 | E | 66 | -3.1 | **** | 610 | 11 |
| 12 | 1.1 | -2.8 | -.9 | 266 | .2 | .3 | 269 | 1.9 | WNW | 31 | -1.9 | **** | 568 | 12 |
| 13 | 5.1 | -.2 | 2.7 | 242 | .4 | .5 | 306 | 2.5 | SW | 49 | -1.1 | **** | 1218 | 13 |
| 14 | 4.3 | -.1 | 2.1 | 24 | .3 | .7 | 254 | 2.5 | WSW | 49 | -9.2 | **** | 1210 | 14 |
| 15 | 3.9 | -1.1 | 1.4 | 156 | .1 | .5 | 107 | 2.5 | W | 47 | -2.4 | **** | 1373 | 15 |
| 16 | 1.9 | -1.5 | .2 | 197 | .3 | .7 | 107 | 3.8 | WSW | 56 | -9.0 | **** | 770 | 16 |
| 17 | 3.5 | -5.0 | -.8 | 350 | 1.0 | 1.3 | 343 | 6.3 | N | 53 | -6.5 | **** | 940 | 17 |
| 18 | .2 | -12.1 | -6.0 | 323 | 1.4 | 1.9 | 002 | 5.7 | N | 71 | -7.1 | **** | 1275 | 18 |
| 19 | -4.9 | -17.1 | -11.0 | 213 | .5 | .6 | 219 | 2.5 | SSW | 69 | -14.7 | **** | 1723 | 19 |
| 20 | -.3 | -7.4 | -3.9 | 150 | .4 | .9 | 087 | 4.4 | E | 77 | -10.1 | **** | 875 | 20 |
| 21 | 6.1 | -.3 | 2.9 | 097 | .9 | 1.2 | 083 | 3.8 | E | 59 | -8.7 | **** | 1345 | 21 |
| 22 | 2.1 | -.6 | .8 | 198 | .3 | .8 | 219 | 2.5 | WSW | 43 | -9.1 | **** | 1030 | 22 |
| 23 | 4.9 | -.9 | 2.9 | 105 | .4 | .9 | 075 | 3.8 | ENE | 63 | -5.8 | **** | 785 | 23 |
| 24 | 3.7 | -2.5 | .6 | 295 | 1.1 | 1.5 | 332 | 6.3 | W | 45 | -7.9 | **** | 1225 | 24 |
| 25 | 1.9 | -5.9 | -2.0 | 271 | .8 | 1.2 | 331 | 3.8 | WSW | 66 | -7.5 | **** | 1478 | 25 |
| 26 | -1.2 | -5.9 | -3.6 | 269 | .4 | .8 | 295 | 3.2 | W | 73 | -8.6 | **** | 785 | 26 |
| 27 | -3.4 | -11.2 | -7.3 | 128 | .5 | 1.1 | 103 | 3.8 | E | 69 | -9.9 | **** | 825 | 27 |
| 28 | 0.0 | -16.9 | -8.5 | 216 | .2 | .5 | 241 | 2.5 | ENE | 69 | -14.0 | **** | 2063 | 28 |
| 29 | -8.4 | -17.3 | -12.9 | 233 | .3 | .5 | 234 | 2.5 | SW | 78 | -11.7 | **** | 635 | 29 |
| 30 | -6.6 | -19.5 | -13.1 | 189 | .3 | .5 | 228 | 2.5 | SW | 71 | -14.7 | **** | 1855 | 30 |
| 31 | -7.7 | -19.3 | -13.5 | 236 | .8 | .9 | 199 | 4.4 | WSW | 73 | -14.6 | **** | 953 | 31 |
| MONTH | 6.1 | -19.5 | -3.5 | 337 | .3 | 1.1 | 001 | 8.3 | SW | 62 | -8.9 | **** | 42108 | |

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 5.1

GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 5.7

GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 7.6

GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 7.0

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

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

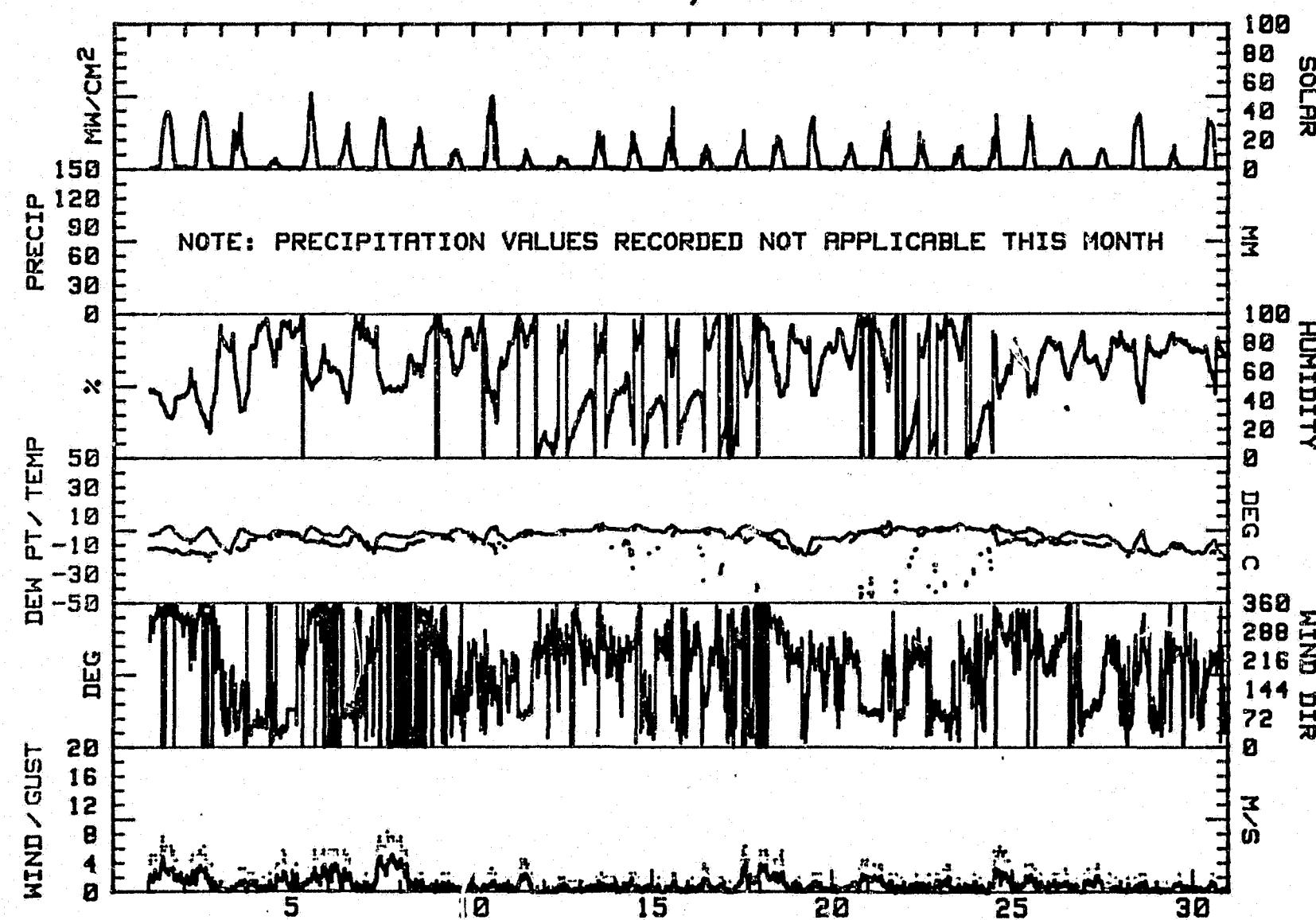
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

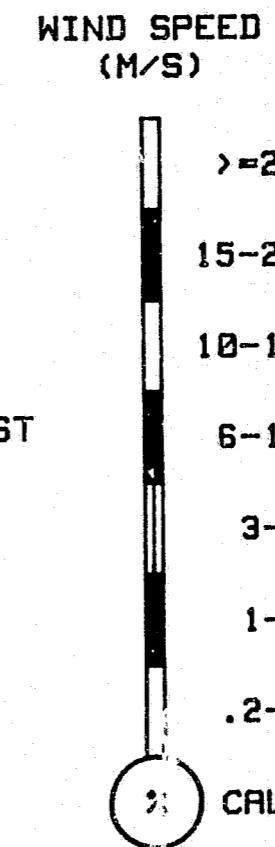
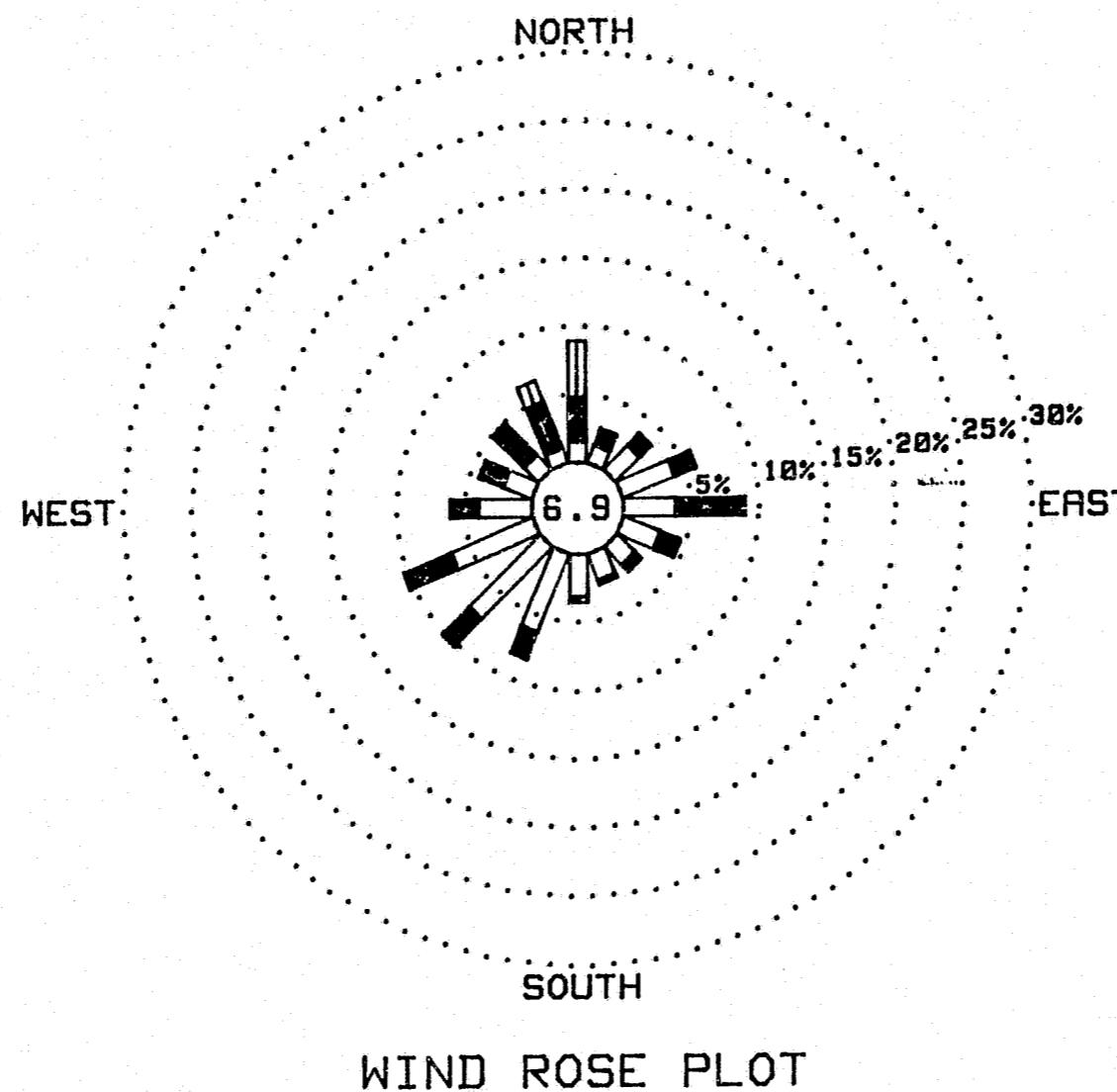
| DIRECTION | VELOCITY (M/S) | | | | | | | | TOTAL |
|-----------|----------------|------------|------------|-------------|--------------|--------------|-----------------|--------|-------|
| | 0.2 TO 1.0 | 1.0 TO 3.0 | 3.0 TO 6.0 | 6.0 TO 10.0 | 10.0 TO 15.0 | 15.0 TO 20.0 | 20.0 OR GREATER | | |
| | 1.0 | 3.0 | 6.0 | 10.0 | 15.0 | 20.0 | | | |
| N | 1.51 | 3.23 | 4.10 | 0.00 | 0.00 | 0.00 | 0.00 | 8.84 | |
| NNE | 1.41 | 1.11 | .13 | 0.00 | 0.00 | 0.00 | 0.00 | 2.65 | |
| NE | 2.52 | 1.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.70 | |
| ENE | 4.13 | 1.58 | .07 | 0.00 | 0.00 | 0.00 | 0.00 | 5.78 | |
| E | 3.83 | 5.07 | .03 | 0.00 | 0.00 | 0.00 | 0.00 | 8.94 | |
| ESE | 2.92 | 1.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.50 | |
| SE | 1.85 | .67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.52 | |
| SSE | 2.05 | .34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.39 | |
| S | 3.13 | .40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.53 | |
| SSW | 6.18 | 2.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.23 | |
| SW | 7.39 | 2.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.18 | |
| WSW | 6.49 | 3.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.25 | |
| W | 3.93 | 2.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.01 | |
| WNW | 2.35 | 1.85 | .03 | 0.00 | 0.00 | 0.00 | 0.00 | 4.23 | |
| NW | 1.55 | 3.16 | .17 | 0.00 | 0.00 | 0.00 | 0.00 | 4.87 | |
| NNW | 1.14 | 3.66 | 1.65 | 0.00 | 0.00 | 0.00 | 0.00 | 6.45 | |
| CALM | | | | | | | | 6.92 | |
| TOTAL | 52.39 | 34.51 | 6.18 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | |

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

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
October, 1981



R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
October, 1981



No Precipitation data for November
(See INTERPRETING DATA).

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

DAY 02

DAY 03

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -14.3 | -17.7 | 75 | 273 | 1.4 | 296 | 4.4 | 1 | 0300 | -12.4 | **** | 75 | 256 | .8 | 256 | 1.9 | 1 | 0300 | -20.3 | **** | 68 | 329 | .3 | 243 | 1.9 | 1 |
| 0600 | -17.0 | **** | 71 | 257 | .8 | 225 | 2.5 | 1 | 0600 | -11.3 | -14.2 | 79 | 256 | .7 | 234 | 2.5 | 1 | 0600 | -20.5 | **** | 67 | 044 | .3 | 110 | 1.9 | 1 |
| 0900 | -14.8 | **** | 76 | 098 | .4 | 128 | 1.3 | 12 | 0900 | -8.6 | -12.4 | 74 | 231 | 1.0 | 194 | 3.2 | 2 | 0900 | -12.6 | **** | 73 | 256 | .8 | 255 | 1.9 | 10 |
| 1200 | -11.2 | **** | 68 | 215 | .3 | 212 | 1.9 | 8 | 1200 | -2.3 | -10.1 | 55 | 059 | 1.6 | 062 | 5.7 | 31 | 1200 | -11.1 | **** | 61 | 247 | .7 | 251 | 1.9 | 11 |
| 1500 | -11.9 | -17.3 | 64 | 214 | 1.0 | 208 | 2.5 | 5 | 1500 | -4.5 | -10.9 | 61 | 106 | 3.0 | 085 | 7.0 | 2 | 1500 | -10.7 | -15.3 | 69 | 324 | 1.2 | 346 | 3.8 | 2 |
| 1800 | -12.5 | **** | 70 | 222 | .7 | 206 | 2.5 | 1 | 1800 | -6.8 | -10.1 | 77 | 148 | 1.7 | 164 | 4.4 | 1 | 1800 | -10.8 | **** | 79 | 225 | .8 | 188 | 2.5 | 1 |
| 2100 | -13.4 | -17.4 | 72 | 237 | 1.0 | 236 | 1.9 | 1 | 2100 | -12.3 | **** | 78 | 123 | .8 | 113 | 2.5 | 1 | 2100 | -12.0 | **** | 77 | 237 | 1.2 | 233 | 2.5 | 1 |
| 2400 | -12.3 | **** | 75 | 240 | .7 | 231 | 1.9 | 1 | 2400 | -17.8 | **** | 73 | 253 | .4 | 218 | 1.9 | 1 | 2400 | -10.2 | -14.3 | 72 | 247 | 1.6 | 252 | 3.8 | 1 |

DAY 04

DAY 05

DAY 06

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -9.2 | -12.5 | 77 | 247 | 1.4 | 255 | 3.2 | 1 | 0300 | -16.8 | -21.0 | 70 | 238 | 1.5 | 222 | 3.2 | 1 | 0300 | -16.0 | -23.4 | 53 | 326 | 1.9 | 343 | 4.4 | 1 |
| 0600 | -7.4 | -10.4 | 79 | 355 | 2.5 | 345 | 5.1 | 1 | 0600 | -15.9 | -20.6 | 67 | 259 | 1.3 | 266 | 3.2 | 1 | 0600 | -17.7 | -23.8 | 59 | 261 | 1.3 | 326 | 4.4 | 1 |
| 0900 | -7.7 | -11.0 | 77 | 350 | 2.6 | 002 | 5.7 | 2 | 0900 | -14.0 | -20.1 | 60 | 312 | 1.7 | 355 | 5.1 | 3 | 0900 | -19.9 | -26.4 | 56 | 232 | 1.4 | 252 | 2.5 | 4 |
| 1200 | -5.3 | -12.9 | 55 | 032 | 1.2 | 346 | 3.8 | 13 | 1200 | -12.0 | -20.4 | 50 | 316 | 1.8 | 350 | 5.1 | 10 | 1200 | -18.9 | -27.2 | 48 | 202 | 1.2 | 185 | 2.5 | 10 |
| 1500 | -8.1 | -12.2 | 72 | 002 | 1.5 | 001 | 3.2 | 1 | 1500 | -13.4 | -19.5 | 60 | 346 | 2.7 | 351 | 6.3 | 2 | 1500 | -17.3 | **** | 57 | 212 | .9 | 190 | 2.5 | 2 |
| 1800 | -9.0 | -13.3 | 71 | 327 | 1.3 | 347 | 5.1 | 1 | 1800 | -15.2 | -21.8 | 57 | 322 | 2.3 | 332 | 5.7 | 1 | 1800 | -18.2 | **** | 67 | 193 | .3 | 219 | 1.3 | 1 |
| 2100 | -9.5 | **** | 69 | 278 | .8 | 314 | 3.2 | 1 | 2100 | -15.0 | -21.4 | 58 | 285 | 1.1 | 322 | 3.8 | 1 | 2100 | -18.4 | -23.2 | 66 | 201 | .7 | 202 | 1.9 | 1 |
| 2400 | -11.8 | -16.0 | 71 | 252 | .9 | 301 | 2.5 | 1 | 2400 | -16.0 | -23.0 | 55 | 351 | 2.8 | 342 | 5.7 | 1 | 2400 | -18.1 | **** | 66 | 212 | .7 | 197 | 2.5 | 1 |

DAY 07

DAY 08

DAY 09

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|------|----|-----|-----|-----|-----|---|------|-------|-------|----|-----|-----|-----|-----|---|------|-------|-------|----|-----|----|-----|-----|---|
| 0300 | -16.2 | **** | 66 | 184 | .2 | 159 | 1.3 | 1 | 0300 | -11.9 | **** | 77 | 237 | .1 | 216 | 1.3 | 1 | 0300 | -10.1 | -12.6 | 82 | 214 | .5 | 203 | 2.5 | 1 |
| 0600 | -14.1 | **** | 68 | 243 | .6 | 249 | 1.9 | 1 | 0600 | -13.1 | **** | 78 | 210 | .2 | 251 | 1.3 | 1 | 0600 | -9.5 | **** | 83 | 302 | .3 | 212 | 1.9 | 1 |
| 0900 | -11.8 | **** | 65 | 244 | | 216 | 1.9 | 3 | 0900 | -7.5 | **** | 79 | 068 | .3 | 155 | 1.3 | 2 | 0900 | -9.0 | **** | 84 | 059 | .1 | 045 | 1.3 | 2 |
| 1200 | -9.7 | **** | 55 | 250 | .9 | 257 | 1.9 | 6 | 1200 | -5.9 | -12.2 | 61 | 105 | 1.5 | 119 | 3.8 | 7 | 1200 | -8.0 | **** | 85 | 221 | .0 | 327 | 1.3 | 7 |
| 1500 | -11.7 | **** | 69 | 216 | 1.1 | 211 | 2.5 | 1 | 1500 | -7.3 | **** | 67 | 134 | .8 | 103 | 3.2 | 2 | 1500 | -8.0 | **** | 81 | 225 | .5 | 217 | 1.3 | 1 |
| 1800 | -14.0 | **** | 80 | 264 | .2 | 212 | 1.3 | 1 | 1800 | -9.2 | **** | 77 | 221 | .8 | 217 | 2.5 | 1 | 1800 | -7.6 | **** | 86 | 003 | .1 | 355 | 2.5 | 1 |
| 2100 | -16.3 | **** | 77 | 134 | .2 | 191 | 1.3 | 1 | 2100 | -9.8 | **** | 92 | 246 | 1.0 | 240 | 2.5 | 0 | 2100 | -5.8 | **** | 87 | 259 | .1 | 086 | 1.9 | 1 |
| 2400 | -14.4 | **** | 75 | 065 | .2 | 085 | 1.3 | 1 | 2400 | -10.2 | **** | 82 | 241 | .8 | 231 | 1.9 | 1 | 2400 | -7.4 | **** | 86 | 207 | .4 | 210 | 1.9 | 1 |

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

DAY 10

DAY 11

DAY 12

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|-------|----|-----|-----|-----|-----|---|------|-------|-------|----|-----|----|-----|-----|---|------|-------|-------|----|-----|----|-----|-----|----|
| 0300 | -5.5 | -7.8 | 84 | 272 | .3 | 242 | 1.9 | 0 | 0300 | -10.1 | ***** | 83 | 276 | .3 | 221 | 1.9 | 1 | 0300 | -10.9 | ***** | 81 | 286 | .2 | 045 | 1.9 | 1 |
| 0600 | -.5 | -8.2 | 56 | 094 | 1.1 | 080 | 6.3 | 1 | 0600 | -9.7 | ***** | 83 | 289 | .2 | 202 | 2.5 | 1 | 0600 | -13.8 | ***** | 77 | 294 | .3 | 010 | 2.5 | 1 |
| 0900 | .9 | -5.7 | 61 | 091 | 3.5 | 092 | 7.0 | 3 | 0900 | -11.0 | ***** | 81 | 266 | .4 | 256 | 1.9 | 4 | 0900 | -13.9 | ***** | 77 | 341 | .3 | 022 | 1.9 | 3 |
| 1200 | 2.6 | -5.1 | 57 | 102 | 3.1 | 099 | 6.3 | 7 | 1200 | -7.0 | ***** | 75 | 219 | .6 | 206 | 1.9 | 7 | 1200 | -6.4 | ***** | 64 | 086 | .1 | 040 | 1.3 | 26 |
| 1500 | 2.1 | -3.8 | 65 | 102 | 2.8 | 114 | 6.3 | 1 | 1500 | -4.3 | -7.9 | 76 | 213 | .4 | 212 | 2.5 | 1 | 1500 | -11.7 | ***** | 79 | 211 | .6 | 218 | 1.9 | 1 |
| 1800 | 1.3 | -4.5 | 65 | 100 | 2.2 | 103 | 5.1 | 1 | 1800 | -7.7 | -8.9 | 91 | 223 | .6 | 215 | 1.9 | 1 | 1800 | -18.1 | ***** | 74 | 027 | .3 | 047 | 1.9 | 1 |
| 2100 | -4.5 | -4.6 | 99 | 204 | .6 | 096 | 3.2 | 1 | 2100 | -10.1 | ***** | 83 | 295 | .2 | 218 | 2.5 | 1 | 2100 | -20.9 | ***** | 70 | 004 | .2 | 035 | 1.3 | 0 |
| 2400 | -7.9 | ***** | 87 | 233 | .5 | 208 | 2.5 | 1 | 2400 | -11.0 | ***** | 81 | 211 | .2 | 059 | 1.9 | 1 | 2400 | -22.5 | ***** | 67 | 028 | .2 | 037 | 1.3 | 1 |

DAY 13

DAY 14

DAY 15

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|---|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|----|
| 0300 | -22.6 | ***** | 66 | 342 | .1 | 215 | 1.3 | 1 | 0300 | -27.8 | ***** | 59 | 120 | .1 | 172 | 1.3 | 1 | 0300 | -28.2 | ***** | 57 | 065 | .3 | 043 | 1.3 | 1 |
| 0600 | -23.9 | ***** | 65 | 069 | .3 | 142 | 1.9 | 1 | 0600 | -28.8 | ***** | 57 | 050 | .1 | 040 | 1.3 | 1 | 0600 | -28.3 | ***** | 57 | 068 | .2 | 179 | 1.3 | 1 |
| 0900 | -23.6 | ***** | 62 | 005 | .1 | 070 | 1.3 | 2 | 0900 | -28.5 | ***** | 57 | 072 | .0 | 075 | .6 | 3 | 0900 | -28.2 | ***** | 55 | 057 | .2 | 048 | 1.3 | 2 |
| 1200 | -13.4 | ***** | 57 | 112 | .2 | 073 | 1.3 | 2 | 1200 | -18.9 | ***** | 51 | 194 | .5 | 183 | 1.3 | 26 | 1200 | -17.9 | -26.1 | 49 | 172 | .2 | 209 | 1.9 | 30 |
| 1500 | -17.2 | ***** | 69 | 161 | .3 | 188 | 1.9 | 1 | 1500 | -19.9 | ***** | 56 | 209 | .3 | 228 | 1.3 | 2 | 1500 | -16.6 | ***** | 65 | 204 | .9 | 219 | 1.9 | 1 |
| 1800 | -22.6 | ***** | 67 | 015 | .3 | 224 | 1.3 | 1 | 1800 | -26.3 | ***** | 61 | 031 | .0 | 215 | 1.3 | 1 | 1800 | -24.3 | ***** | 66 | 152 | .0 | 195 | 1.3 | 1 |
| 2100 | -25.7 | ***** | 62 | 044 | .2 | 028 | 1.3 | 1 | 2100 | -27.8 | ***** | 58 | 020 | .1 | 214 | .6 | 1 | 2100 | -26.1 | ***** | 61 | 028 | .4 | 029 | 1.3 | 1 |
| 2400 | -27.0 | ***** | 60 | 052 | .2 | 041 | 1.3 | 1 | 2400 | -27.8 | ***** | 58 | 054 | .2 | 044 | 1.3 | 1 | 2400 | -28.1 | ***** | 58 | 045 | .2 | 048 | 1.3 | 1 |

DAY 16

DAY 17

DAY 18

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|----|
| 0300 | -29.5 | ***** | 57 | 079 | .1 | 061 | 1.3 | 1 | 0300 | -27.2 | ***** | 58 | 243 | .1 | 018 | .6 | 1 | 0300 | -31.2 | ***** | 53 | 062 | .3 | 332 | 1.3 | 2 |
| 0600 | -29.8 | ***** | 56 | 066 | .1 | 147 | .6 | 1 | 0600 | -30.3 | ***** | 54 | 001 | .1 | 029 | 1.3 | 1 | 0600 | -32.7 | ***** | 53 | 044 | .1 | 041 | 1.3 | 1 |
| 0900 | -29.7 | ***** | 55 | 109 | .1 | 069 | .6 | 2 | 0900 | -30.1 | ***** | 55 | 066 | .1 | 002 | .6 | 2 | 0900 | -32.4 | ***** | 53 | 041 | .1 | 251 | 1.3 | 3 |
| 1200 | -22.3 | ***** | 54 | 106 | .2 | 070 | 1.3 | 18 | 1200 | -21.4 | ***** | 59 | 167 | .2 | 139 | 1.3 | 24 | 1200 | -25.0 | ***** | 48 | 191 | .2 | 198 | 1.3 | 23 |
| 1500 | -22.7 | ***** | 60 | 220 | .5 | 199 | 1.3 | 1 | 1500 | -22.7 | ***** | 59 | 204 | .6 | 192 | 1.3 | 1 | 1500 | -26.7 | ***** | 52 | 209 | .5 | 200 | 1.3 | 2 |
| 1800 | -25.1 | ***** | 62 | 207 | .2 | 231 | 1.3 | 1 | 1800 | -28.7 | ***** | 57 | 275 | .0 | 249 | 1.3 | 1 | 1800 | -31.6 | ***** | 53 | 253 | .1 | 307 | .6 | 1 |
| 2100 | -27.2 | ***** | 58 | 167 | .1 | 107 | 1.3 | 1 | 2100 | -30.5 | ***** | 55 | 041 | .2 | 104 | 1.3 | 1 | 2100 | -32.1 | ***** | 54 | 057 | .1 | 197 | 1.9 | 1 |
| 2400 | -28.2 | ***** | 56 | 069 | .1 | 161 | .6 | 1 | 2400 | -31.3 | ***** | 54 | 052 | .3 | 050 | 1.3 | 1 | 2400 | -32.0 | ***** | 54 | 021 | .4 | 023 | 1.3 | 1 |

R & M CONSULTANTS, INC.

SUNGKYN HYDRO ELECTRIC PROJECT

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

DAY 19

DAY 20

DAY 21

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

| | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|------|----|-----|----|-----|-----|---------|-------|-------|----|-----|----|-----|-----|--------|-------|------|----|-----|----|-----|-----|----|
| 0300 | -30.9 | **** | 54 | 024 | .3 | 023 | 1.3 | 1 0300 | -30.9 | **** | 53 | 105 | .1 | 045 | 1.3 | 2 0300 | -27.3 | **** | 57 | 262 | .6 | 275 | 1.9 | 1 |
| 0600 | -31.2 | **** | 53 | 020 | .3 | 032 | 1.3 | 1 0600 | -25.9 | **** | 59 | 249 | .3 | 228 | 1.3 | 1 0600 | -29.5 | **** | 55 | 156 | .2 | 196 | 1.3 | 1 |
| 0900 | -31.1 | **** | 53 | 354 | .2 | 341 | 1.3 | 2 0900 | -23.6 | **** | 60 | 231 | .6 | 214 | 1.3 | 2 0900 | -31.2 | **** | 54 | 280 | .1 | 210 | .6 | 2 |
| 1200 | -20.9 | **** | 50 | 208 | .4 | 314 | 1.3 | 24 1200 | -22.1 | -27.2 | 63 | 236 | .9 | 231 | 2.5 | 4 1200 | -24.5 | **** | 62 | 159 | .1 | 233 | 1.3 | 20 |
| 1500 | -23.9 | **** | 58 | 169 | .5 | 195 | 1.3 | 1 1500 | -22.1 | **** | 62 | 244 | .9 | 237 | 1.9 | 1 1500 | -27.8 | **** | 56 | 207 | .5 | 184 | 1.3 | 1 |
| 1800 | -28.1 | **** | 57 | 111 | .2 | 095 | 1.3 | 1 1800 | -22.4 | **** | 62 | 244 | .7 | 225 | 1.9 | 1 1800 | -31.8 | **** | 53 | 149 | .1 | 123 | .6 | 2 |
| 2100 | -30.7 | **** | 54 | 107 | .1 | 093 | 1.3 | 1 2100 | -24.4 | **** | 60 | 245 | .8 | 260 | 1.9 | 1 2100 | -32.2 | **** | 53 | 060 | .1 | 036 | .6 | 1 |
| 2400 | -31.8 | **** | 53 | 117 | .1 | 114 | 1.9 | 1 2400 | -26.1 | **** | 58 | 242 | .7 | 251 | 1.9 | 1 2400 | -33.0 | **** | 52 | 088 | .1 | 081 | 1.3 | 1 |

DAY 22

DAY 23

DAY 24

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

| | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|------|----|-----|----|-----|-----|--------|-------|------|----|-----|----|-----|-----|--------|-------|-------|----|-----|----|-----|-----|---|
| 0300 | -32.7 | **** | 53 | 098 | .0 | 193 | .6 | 2 0300 | -19.1 | **** | 66 | 078 | .3 | 070 | 1.3 | 1 0300 | -16.3 | **** | 71 | 225 | .2 | 202 | 1.3 | 1 |
| 0600 | -30.4 | **** | 54 | 104 | .0 | 234 | 1.3 | 1 0600 | -17.0 | **** | 69 | 235 | .2 | 237 | 1.3 | 1 0600 | -15.3 | **** | 72 | 001 | .0 | 205 | 1.3 | 1 |
| 0900 | -27.9 | **** | 55 | 113 | .1 | 103 | 1.3 | 2 0900 | -15.3 | **** | 72 | 083 | .1 | 096 | 1.3 | 1 0900 | -13.4 | -17.0 | 74 | 259 | .5 | 246 | 1.9 | 1 |
| 1200 | -23.2 | **** | 60 | 238 | .2 | 208 | 1.3 | 5 1200 | -12.8 | **** | 74 | 312 | .1 | 100 | 1.3 | 6 1200 | -11.5 | **** | 74 | 244 | .8 | 238 | 1.9 | 2 |
| 1500 | -20.9 | **** | 64 | 255 | .1 | 232 | 1.3 | 1 1500 | -13.2 | **** | 74 | 166 | .3 | 165 | 1.3 | 1 1500 | -10.7 | **** | 78 | 264 | .4 | 280 | 1.9 | 1 |
| 1800 | -19.3 | **** | 65 | 237 | .1 | 231 | 1.3 | 1 1800 | -16.4 | **** | 71 | 187 | .3 | 106 | 1.3 | 1 1800 | -11.9 | **** | 77 | 103 | .1 | 154 | 1.3 | 1 |
| 2100 | -20.0 | **** | 65 | 254 | .1 | 250 | 1.3 | 1 2100 | -22.2 | **** | 64 | 210 | .2 | 199 | 1.3 | 1 2100 | -10.4 | **** | 80 | 064 | .1 | 057 | 1.3 | 1 |
| 2400 | -18.7 | **** | 67 | 106 | .1 | 104 | .6 | 1 2400 | -18.4 | **** | 68 | 227 | .2 | 253 | 1.3 | 1 2400 | -9.8 | **** | 82 | 232 | .4 | 221 | 1.3 | 1 |

DAY 25

DAY 26

DAY 27

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

| | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|------|----|-----|----|-----|-----|--------|-------|-------|----|-----|-----|-----|-----|--------|------|-------|----|-----|-----|-----|-----|---|
| 0300 | -17.7 | **** | 69 | 010 | .1 | 217 | 1.3 | 1 0300 | -14.8 | **** | 72 | 358 | .0 | 025 | 1.3 | 1 0300 | -6.3 | **** | 88 | 229 | .6 | 230 | 1.3 | 1 |
| 0600 | -21.2 | **** | 65 | 076 | .4 | 111 | 1.9 | 1 0600 | -13.0 | **** | 76 | 274 | .3 | 218 | 1.3 | 1 0600 | -5.8 | **** | 89 | 252 | .4 | 248 | 1.3 | 1 |
| 0900 | -18.5 | **** | 67 | 048 | .2 | 068 | 1.3 | 1 0900 | -11.4 | **** | 78 | 244 | .3 | 241 | 1.3 | 1 0900 | -4.6 | -6.0 | 90 | 236 | .9 | 237 | 1.9 | 1 |
| 1200 | -11.8 | **** | 64 | 121 | .1 | 096 | 1.3 | 4 1200 | -10.2 | -13.5 | 77 | 217 | .9 | 199 | 2.5 | 1 1200 | -4.2 | **** | 80 | 243 | 1.0 | 258 | 1.9 | 2 |
| 1500 | -19.4 | **** | 67 | 145 | .3 | 237 | 1.3 | 1 1500 | -9.2 | -11.9 | 81 | 209 | 1.2 | 226 | 2.5 | 1 1500 | -3.8 | -6.9 | 79 | 242 | .6 | 293 | 2.5 | 1 |
| 1800 | -24.3 | **** | 61 | 023 | .3 | 075 | 1.3 | 1 1800 | -8.7 | **** | 82 | 211 | .2 | 221 | 1.3 | 1 1800 | -4.5 | -8.2 | 75 | 243 | 2.0 | 274 | 7.0 | 1 |
| 2100 | -19.6 | **** | 66 | 056 | .2 | 033 | 1.3 | 1 2100 | -7.0 | **** | 83 | 282 | .2 | 285 | 1.3 | 1 2100 | -6.7 | **** | 76 | 261 | 2.0 | 290 | 5.7 | 1 |
| 2400 | -18.5 | **** | 67 | 272 | .1 | 006 | 1.3 | 1 2400 | -6.6 | **** | 87 | 217 | .5 | 213 | 1.9 | 1 2400 | -7.9 | -10.9 | 79 | 164 | .4 | 107 | 2.5 | 1 |

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

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

| | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|---|------|-------|-------|----|-----|----|-----|-----|---|
| 0300 | -17.4 | ***** | 73 | 066 | .5 | 074 | 1.9 | 1 | 0300 | -15.1 | ***** | 73 | 343 | .2 | 342 | 1.3 | 1 |
| 0600 | -19.4 | ***** | 67 | 040 | .5 | 028 | 1.9 | 1 | 0600 | -13.9 | ***** | 76 | 325 | .4 | 284 | 1.3 | 1 |
| 0900 | -21.0 | ***** | 65 | 045 | .3 | 039 | 1.3 | 1 | 0900 | -13.8 | ***** | 74 | 310 | .2 | 012 | 1.9 | 1 |
| 1200 | -20.4 | ***** | 60 | 059 | .3 | 043 | 1.3 | 2 | 1200 | -12.0 | ***** | 69 | 250 | .2 | 216 | 1.9 | 2 |
| 1500 | -22.2 | ***** | 63 | 161 | .2 | 207 | 1.3 | 1 | 1500 | -12.2 | ***** | 75 | 228 | .1 | 021 | 1.3 | 1 |
| 1800 | -23.8 | ***** | 66 | 356 | .3 | 286 | 2.5 | 1 | 1800 | -12.8 | ***** | 76 | 344 | .2 | 256 | 1.3 | 1 |
| 2100 | -22.8 | ***** | 62 | 020 | .3 | 028 | 1.3 | 1 | 2100 | -13.5 | ***** | 74 | 006 | .2 | 097 | .6 | 1 |
| 2400 | -16.4 | ***** | 71 | 023 | .3 | 014 | 1.3 | 1 | 2400 | -15.7 | ***** | 73 | 332 | .3 | 053 | 1.3 | 1 |

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

| DAY | MAX. | | | RES. | | | AVG. | | | MAX. | | | DAY'S | | |
|-------|-------|-------|-------|-----------|-----------|-----|-----------|-----------|-----|-----------|-------|-----------|---------------|-----------|---------------------|
| | TEMP. | MIN. | MEAN | WIND DIR. | WIND SPD. | M/S | WIND DIR. | WIND SPD. | M/S | GUST DIR. | P'VAL | MEAN RH % | MEAN DP DEG C | PRECIP MM | SOLAR ENERGY WH/SQM |
| | DEG C | DEG C | DEG C | DEG | M/S | M/S | DEG | M/S | M/S | DIR. | % | DEG C | MM | | |
| 1 | -11.1 | -17.2 | -14.2 | 239 | .7 | .9 | 296 | 4.4 | SW | 73 | -17.1 | **** | 830 | 1 | |
| 2 | -1.6 | -17.8 | -9.7 | 133 | .6 | 1.4 | 085 | 7.0 | WSW | 71 | -11.5 | **** | 893 | 2 | |
| 3 | -10.1 | -21.2 | -15.7 | 261 | .6 | 1.0 | 346 | 3.8 | WSW | 71 | -16.1 | **** | 1033 | 3 | |
| 4 | -4.8 | -12.7 | -8.8 | 335 | 1.1 | 1.7 | 002 | 5.7 | N | 72 | -12.5 | **** | 655 | 4 | |
| 5 | -11.5 | -16.8 | -14.2 | 316 | 1.6 | 2.0 | 351 | 6.3 | NNW | 61 | -20.3 | **** | 628 | 5 | |
| 6 | -16.0 | -20.7 | -18.4 | 240 | .7 | 1.1 | 343 | 4.4 | SSW | 56 | -24.7 | **** | 690 | 6 | |
| 7 | -9.2 | -17.9 | -13.6 | 231 | .4 | .6 | 211 | 2.5 | SW | 64 | -16.9 | **** | 500 | 7 | |
| 8 | -4.6 | -14.2 | -9.4 | 180 | .3 | .8 | 119 | 3.8 | SW | 69 | -12.2 | **** | 618 | 8 | |
| 9 | -5.8 | -10.7 | -8.3 | 234 | .2 | .6 | 203 | 2.5 | SSW | 83 | -11.6 | **** | 468 | 9 | |
| 10 | 4.0 | -8.4 | -2.2 | 103 | 1.5 | 1.9 | 092 | 7.0 | E | 64 | -6.3 | **** | 855 | 10 | |
| 11 | -4.1 | -11.7 | -7.9 | 240 | .3 | .6 | 202 | 2.5 | SW | 80 | -9.3 | **** | 775 | 11 | |
| 12 | -4.0 | -22.5 | -13.3 | 320 | .1 | .4 | 010 | 2.5 | NE | 71 | -12.8 | **** | 1080 | 12 | |
| 13 | -10.1 | -27.0 | -18.6 | 062 | .1 | .3 | 142 | 1.9 | NE | ** | ***** | **** | 1175 | 13 | |
| 14 | -13.4 | -29.2 | -21.3 | 155 | .1 | .2 | 172 | 1.3 | SSW | ** | ***** | **** | 1265 | 14 | |
| 15 | -12.4 | -29.0 | -20.7 | 107 | .1 | .4 | 209 | 1.9 | NE | 52 | -23.1 | **** | 1208 | 15 | |
| 16 | -18.8 | -30.5 | -24.7 | 155 | .1 | .2 | 061 | 1.3 | NE | ** | ***** | **** | 880 | 16 | |
| 17 | -17.8 | -31.3 | -24.6 | 160 | .0 | .3 | 029 | 1.3 | SSW | 55 | -26.1 | **** | 1120 | 17 | |
| 18 | -20.9 | -33.1 | -27.0 | 096 | .0 | .3 | 197 | 1.9 | SSW | ** | ***** | **** | 1085 | 18 | |
| 19 | -17.7 | -32.4 | -25.1 | 119 | .1 | .4 | 114 | 1.9 | NNE | 51 | -27.7 | **** | 1058 | 19 | |
| 20 | -21.7 | -31.9 | -26.8 | 240 | .5 | .7 | 231 | 2.5 | WSW | 61 | -28.4 | **** | 388 | 20 | |
| 21 | -23.4 | -33.4 | -28.4 | 212 | .1 | .3 | 275 | 1.9 | SSW | ** | ***** | **** | 855 | 21 | |
| 22 | -18.6 | -33.3 | -26.0 | 214 | .1 | .2 | 234 | 1.3 | NE | ** | ***** | **** | 393 | 22 | |
| 23 | -12.6 | -22.6 | -17.6 | 184 | .1 | .3 | 070 | 1.3 | WSW | ** | ***** | **** | 353 | 23 | |
| 24 | -9.0 | -18.1 | -13.6 | 245 | .2 | .4 | 246 | 1.9 | WSW | 74 | -16.2 | **** | 265 | 24 | |
| 25 | -10.2 | -25.3 | -17.8 | 066 | .1 | .4 | 111 | 1.9 | ENE | ** | ***** | **** | 393 | 25 | |
| 26 | -6.6 | -18.0 | -12.3 | 223 | .4 | .6 | 199 | 2.5 | SW | 79 | -12.9 | **** | 233 | 26 | |
| 27 | -2.5 | -12.2 | -7.4 | 243 | .9 | 1.1 | 274 | 7.0 | WSW | 79 | -7.8 | **** | 258 | 27 | |
| 28 | -10.1 | -25.6 | -17.9 | 043 | .3 | .4 | 286 | 2.5 | NNE | 71 | -23.0 | **** | 288 | 28 | |
| 29 | -11.8 | -16.4 | -14.1 | 267 | .1 | .4 | 249 | 2.5 | SW | 73 | -18.4 | **** | 273 | 29 | |
| 30 | -10.9 | -17.7 | -14.3 | 326 | .2 | .3 | 342 | 1.3 | NNW | ** | ***** | **** | 278 | 30 | |
| MONTH | 4.0 | -33.4 | -16.4 | 250 | .1 | .7 | 085 | 7.0 | WSW | 68 | -16.9 | **** | 20785 | | |

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 5.7
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 5.7
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 6.3
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 7.0

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

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

R & M CONSULTANTS, INC.

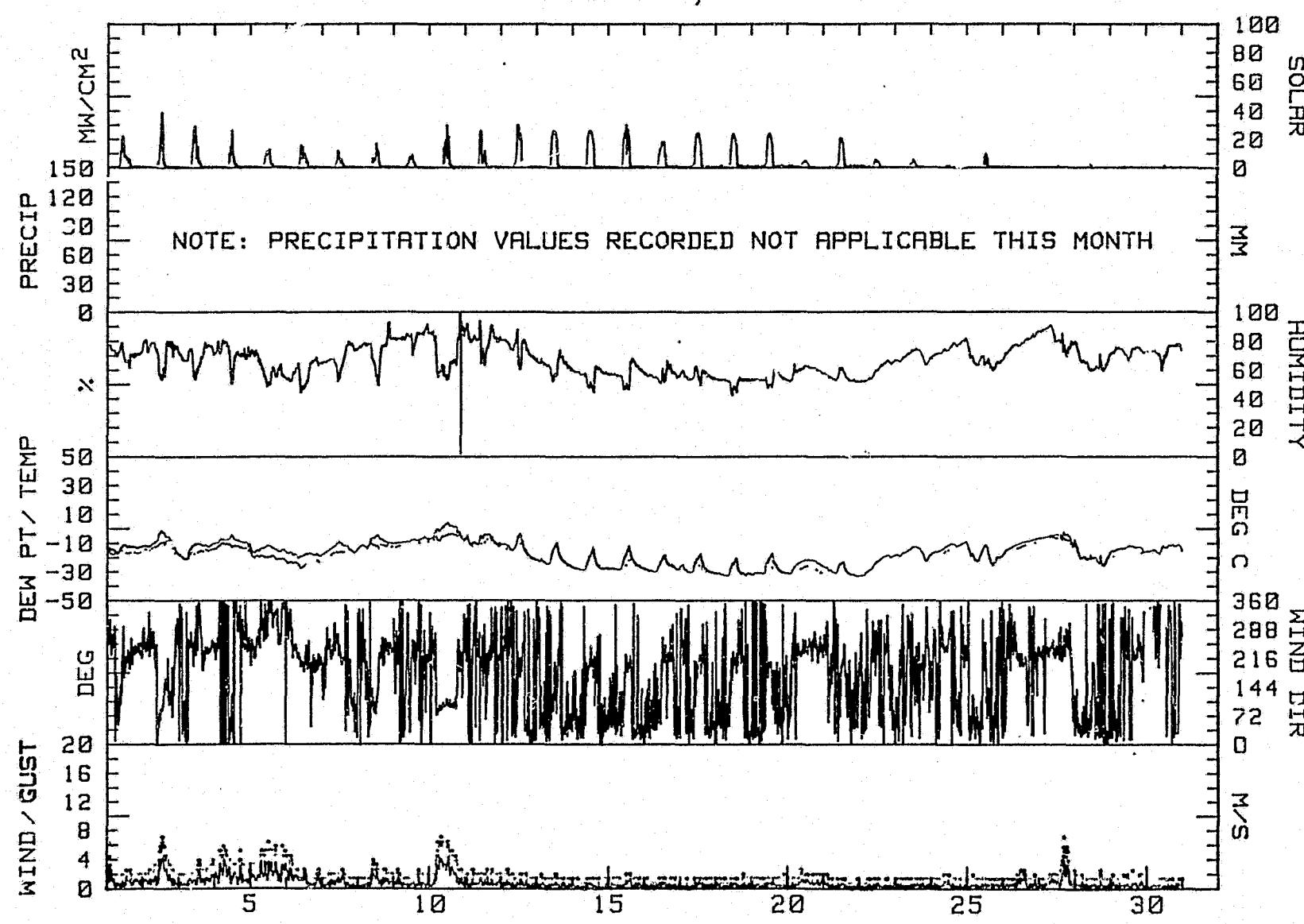
SUBSTITNA HYDROELECTRIC PROJECT

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

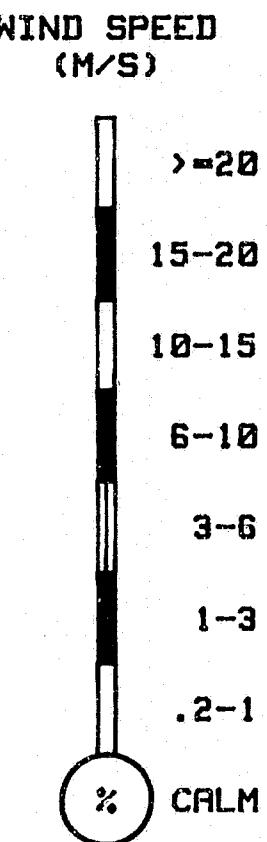
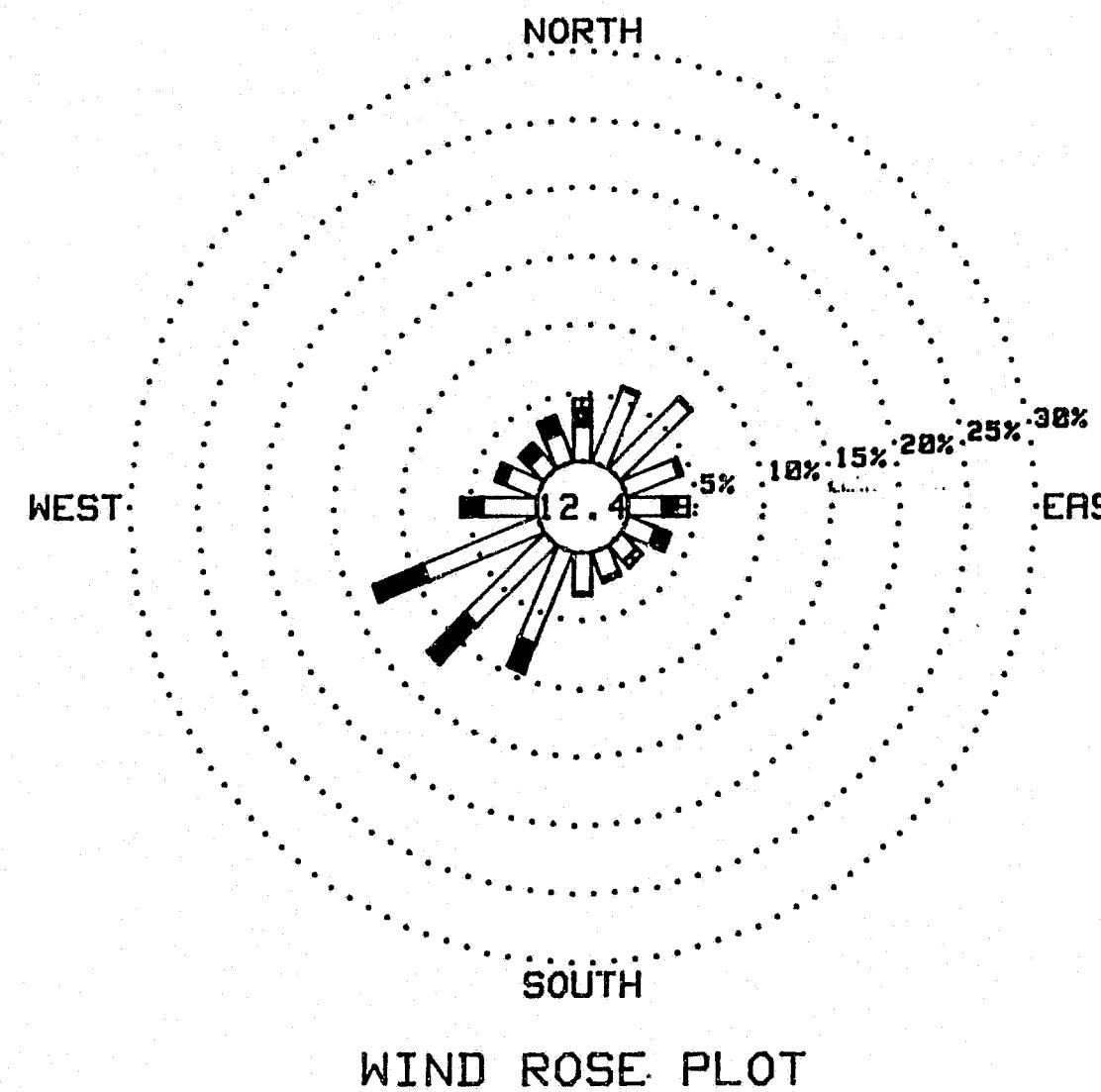
| DIRECTION | VELOCITY (M/S) | | | | | | | | TOTAL |
|-----------|----------------|------------|------------|-------------|--------------|--------------|-----------------|--------|-------|
| | 0.2 TO 1.0 | 1.0 TO 3.0 | 3.0 TO 6.0 | 6.0 TO 10.0 | 10.0 TO 15.0 | 15.0 TO 20.0 | 20.0 OR GREATER | | |
| | 1.0 | 3.0 | 6.0 | 10.0 | 15.0 | 20.0 | | | |
| N | 2.61 | 1.23 | .74 | 0.00 | 0.00 | 0.00 | 0.00 | 4.58 | |
| NNE | 5.78 | .14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.92 | |
| NE | 7.26 | .11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.37 | |
| ENE | 4.09 | .18 | .07 | 0.00 | 0.00 | 0.00 | 0.00 | 4.34 | |
| E | 2.57 | 1.02 | .92 | 0.00 | 0.00 | 0.00 | 0.00 | 4.51 | |
| ESE | 2.29 | .88 | .25 | 0.00 | 0.00 | 0.00 | 0.00 | 3.42 | |
| SE | 1.62 | .60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.22 | |
| SSE | 2.05 | .28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.33 | |
| S | 2.93 | .18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.10 | |
| SSW | 7.26 | 2.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.41 | |
| SW | 8.29 | 3.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 12.13 | |
| WSW | 9.17 | 3.81 | .07 | 0.00 | 0.00 | 0.00 | 0.00 | 13.05 | |
| W | 4.02 | 1.52 | .07 | 0.00 | 0.00 | 0.00 | 0.00 | 5.61 | |
| WNW | 2.64 | .67 | .04 | 0.00 | 0.00 | 0.00 | 0.00 | 3.35 | |
| NW | 1.59 | .99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.57 | |
| NNW | 2.33 | 1.20 | .11 | 0.00 | 0.00 | 0.00 | 0.00 | 3.63 | |
| CALM | | | | | | | | 12.45 | |
| TOTAL | 66.50 | 18.79 | 2.26 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | |

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2836 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
November, 1981



R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
November, 1981



No precipitation data for December

(See INTERPRETING DATA).

R & M CONSULTANTS, INC.

SUSSEKINA HYDRO ELECTRIC PROJECT

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

DAY 01

DAY 02

DAY 03

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|------|----|-----|----|-----|-----|---|------|-------|-------|----|-----|-----|-----|-----|---|------|-------|-------|----|-----|-----|-----|-----|---|
| 0300 | -20.7 | **** | 67 | 332 | .3 | 358 | 1.9 | 1 | 0300 | -12.1 | **** | 77 | 011 | .1 | 240 | 1.3 | 1 | 0300 | -8.5 | -11.3 | 80 | 170 | 1.3 | 194 | 3.8 | 1 |
| 0600 | -23.0 | **** | 63 | 026 | .4 | 034 | 1.3 | 1 | 0400 | -16.4 | **** | 74 | 029 | .2 | 045 | 1.3 | 1 | 0600 | -11.1 | **** | 81 | 096 | .5 | 076 | 1.9 | 1 |
| 0900 | -23.7 | **** | 63 | 001 | .4 | 309 | 2.5 | 1 | 0900 | -15.1 | **** | 73 | 073 | .3 | 048 | 2.5 | 1 | 0900 | -11.1 | **** | 78 | 222 | .7 | 211 | 1.9 | 1 |
| 1200 | -15.6 | **** | 58 | 034 | .3 | 020 | 2.5 | 2 | 1200 | -15.4 | -19.9 | 68 | 088 | .5 | 109 | 3.2 | 2 | 1200 | -9.4 | **** | 78 | *** | *** | *** | *** | 1 |
| 1500 | -20.1 | **** | 66 | 211 | .3 | 185 | 1.3 | 1 | 1500 | -19.2 | **** | 66 | 092 | .1 | 169 | 2.5 | 1 | 1500 | -7.5 | -10.4 | 80 | 286 | 1.2 | 297 | 3.2 | 1 |
| 1800 | -18.5 | **** | 68 | 025 | .3 | 038 | 1.3 | 1 | 1600 | -18.9 | **** | 68 | 054 | .5 | 026 | 1.3 | 1 | 1800 | -7.2 | **** | 80 | 230 | .8 | 247 | 3.2 | 1 |
| 2100 | -15.4 | **** | 72 | 355 | .2 | 223 | 1.3 | 1 | 2100 | -13.4 | **** | 75 | 041 | .4 | 100 | 1.3 | 1 | 2100 | -8.1 | **** | 80 | 213 | .6 | 188 | 1.9 | 1 |
| 2400 | -15.4 | **** | 72 | 186 | .1 | 203 | 1.3 | 1 | 2400 | -6.2 | **** | 87 | 042 | 1.6 | 036 | 4.4 | 1 | 2400 | -8.4 | -11.7 | 77 | 103 | .9 | 188 | 4.4 | 0 |

DAY 04

DAY 05

DAY 06

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|------|----|-----|-----|-----|-----|---|------|-------|------|----|-----|-----|-----|-----|---|------|-------|------|----|-----|-----|-----|-----|---|
| 0300 | -16.8 | **** | 73 | 103 | .9 | 089 | 3.2 | 1 | 0300 | -17.8 | **** | 68 | 342 | .3 | 342 | 3.2 | 1 | 0300 | -16.3 | **** | 70 | 217 | .2 | 192 | 1.9 | 1 |
| 0600 | -18.8 | **** | 72 | 049 | .0 | 081 | 1.9 | 1 | 0600 | -22.7 | **** | 64 | 317 | .1 | 298 | 1.9 | 1 | 0600 | -15.8 | **** | 71 | 078 | .2 | 013 | 1.9 | 1 |
| 0900 | -26.3 | **** | 61 | 257 | .2 | 229 | 1.3 | 1 | 0900 | -27.6 | **** | 59 | *** | *** | *** | *** | 1 | 0900 | -18.8 | **** | 69 | 247 | .4 | 359 | 1.9 | 1 |
| 1200 | -25.1 | **** | 56 | *** | *** | *** | *** | 2 | 1200 | -23.3 | **** | 54 | *** | *** | *** | *** | 4 | 1200 | -19.2 | **** | 58 | 186 | .1 | 259 | 1.9 | 3 |
| 1500 | -26.5 | **** | 59 | *** | *** | *** | *** | 1 | 1500 | -21.1 | **** | 64 | *** | *** | *** | *** | 1 | 1500 | -26.1 | **** | 59 | 169 | .3 | 089 | 1.3 | 1 |
| 1800 | -31.3 | **** | 55 | *** | *** | *** | *** | 1 | 1800 | -22.0 | **** | 65 | *** | *** | *** | *** | 1 | 1800 | -31.2 | **** | 55 | 072 | .2 | 048 | 1.3 | 1 |
| 2100 | -29.3 | **** | 56 | *** | *** | *** | *** | 1 | 2100 | -18.3 | **** | 66 | 040 | .6 | 346 | 1.9 | 1 | 2100 | -33.8 | **** | 53 | 039 | .1 | 045 | 1.3 | 1 |
| 2400 | -22.9 | **** | 61 | 306 | .6 | 314 | 2.5 | 1 | 2400 | -17.0 | **** | 68 | 316 | .2 | 253 | 1.9 | 1 | 2400 | -34.9 | **** | 53 | *** | *** | *** | *** | 2 |

DAY 07

DAY 08

DAY 09

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|------|----|-----|-----|-----|-----|---|------|-------|-------|----|-----|-----|-----|-----|---|------|-------|-------|----|-----|-----|-----|-----|---|
| 0300 | -35.0 | **** | 52 | *** | *** | *** | *** | 1 | 0300 | -39.6 | **** | 47 | *** | *** | *** | *** | 2 | 0300 | -34.6 | -41.5 | 49 | *** | *** | *** | *** | 2 |
| 0600 | -35.8 | **** | 51 | *** | *** | *** | *** | 2 | 0600 | -39.9 | **** | 46 | *** | *** | *** | *** | 2 | 0600 | -28.5 | **** | 54 | *** | *** | *** | *** | 1 |
| 0900 | -36.1 | **** | 51 | *** | *** | *** | *** | 2 | 0900 | -39.4 | **** | 46 | *** | *** | *** | *** | 2 | 0900 | -25.6 | **** | 56 | *** | *** | *** | *** | 1 |
| 1200 | -30.5 | **** | 48 | *** | *** | *** | *** | 3 | 1200 | -35.2 | **** | 45 | 208 | .3 | 287 | 1.3 | 3 | 1200 | -23.5 | **** | 55 | *** | *** | *** | *** | 2 |
| 1500 | -34.3 | **** | 50 | 257 | .2 | 226 | .6 | 1 | 1500 | -36.8 | -44.2 | 46 | 178 | .3 | 194 | 1.3 | 2 | 1500 | -25.5 | -31.3 | 58 | 220 | .1 | 246 | .6 | 1 |
| 1800 | -37.0 | **** | 49 | *** | *** | *** | *** | 2 | 1800 | -38.2 | -45.3 | 47 | *** | *** | *** | *** | 1 | 1800 | -32.8 | -38.9 | 54 | 298 | .2 | 247 | .6 | 1 |
| 2100 | -38.7 | **** | 48 | *** | *** | *** | *** | 2 | 2100 | -35.8 | -42.8 | 48 | *** | *** | *** | *** | 2 | 2100 | -35.4 | -41.7 | 52 | *** | *** | *** | *** | 2 |
| 2400 | -39.4 | **** | 47 | *** | *** | *** | *** | 2 | 2400 | -34.8 | -41.5 | 50 | *** | *** | *** | *** | 1 | 2400 | -36.4 | -43.0 | 50 | *** | *** | *** | *** | 2 |

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

DAY 10

DAY 11

DAY 12

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|---|------|-------|-------|----|-----|------|-----|-----|---|------|-------|------|----|-----|------|-----|-----|---|
| 0300 | -35.7 | -42.4 | 50 | *** | 0.0 | *** | 0.0 | 2 | 0300 | -24.9 | -30.8 | 58 | *** | **** | *** | *** | 1 | 0300 | -15.4 | **** | 69 | *** | **** | *** | *** | 1 |
| 0600 | -35.4 | -41.9 | 51 | *** | *** | *** | *** | 2 | 0600 | -22.7 | -28.3 | 60 | *** | **** | *** | *** | 1 | 0600 | -14.8 | **** | 71 | *** | *** | *** | *** | 1 |
| 0900 | -37.1 | **** | 49 | *** | *** | *** | *** | 1 | 0900 | -22.5 | **** | 61 | *** | **** | *** | *** | 1 | 0900 | -13.8 | **** | 72 | *** | *** | *** | *** | 1 |
| 1200 | -32.4 | **** | 48 | *** | *** | *** | *** | 2 | 1200 | -20.6 | **** | 59 | *** | **** | *** | *** | 1 | 1200 | -11.8 | **** | 70 | *** | *** | *** | *** | 2 |
| 1500 | -30.0 | -36.5 | 53 | *** | *** | *** | *** | 1 | 1500 | -20.0 | **** | 61 | 215 | .3 | 230 | 1.9 | 1 | 1500 | -12.2 | **** | 75 | *** | *** | *** | *** | 1 |
| 1800 | -31.1 | -37.5 | 53 | *** | *** | *** | *** | 1 | 1800 | -18.7 | **** | 64 | 221 | .3 | 233 | 1.3 | 1 | 1800 | -15.1 | **** | 74 | *** | *** | *** | *** | 1 |
| 2100 | -27.8 | -34.0 | 55 | *** | *** | *** | *** | 1 | 2100 | -17.4 | **** | 65 | *** | **** | *** | *** | 1 | 2100 | -18.4 | **** | 70 | *** | *** | *** | *** | 1 |
| 2400 | -26.0 | -32.2 | 56 | *** | *** | *** | *** | 1 | 2400 | -16.8 | **** | 67 | *** | **** | *** | *** | 1 | 2400 | -21.8 | **** | 65 | 359 | .2 | 281 | 1.3 | 1 |

DAY 13

DAY 14

DAY 15

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|------|----|-----|-----|-----|-----|---|------|-------|------|----|-----|-----|-----|-----|---|------|-------|------|----|-----|-----|-----|-----|---|
| 0300 | -21.2 | **** | 66 | 006 | .3 | 001 | 1.9 | 1 | 0300 | -25.1 | **** | 59 | 313 | .1 | 300 | 1.3 | 1 | 0300 | -24.4 | **** | 61 | *** | *** | *** | *** | 1 |
| 0600 | -25.4 | **** | 60 | *** | *** | *** | *** | 1 | 0600 | -22.1 | **** | 62 | 256 | .1 | 216 | 1.3 | 1 | 0600 | -24.0 | **** | 61 | 249 | .2 | 285 | 1.3 | 1 |
| 0900 | -23.0 | **** | 61 | *** | *** | *** | *** | 1 | 0900 | -26.6 | **** | 60 | 229 | .3 | 236 | 1.3 | 1 | 0900 | -24.8 | **** | 60 | 134 | .1 | 230 | 1.3 | 1 |
| 1200 | -25.4 | **** | 58 | *** | *** | *** | *** | 2 | 1200 | -27.0 | **** | 54 | 231 | .1 | 210 | 1.3 | 2 | 1200 | -18.6 | **** | 56 | 334 | .0 | 056 | 1.3 | 2 |
| 1500 | -25.0 | **** | 59 | *** | *** | *** | *** | 1 | 1500 | -27.5 | **** | 56 | 284 | .0 | 103 | 1.3 | 1 | 1500 | -17.4 | **** | 66 | 241 | .4 | 209 | 1.3 | 1 |
| 1800 | -26.9 | **** | 59 | *** | *** | *** | *** | 2 | 1800 | -25.1 | **** | 58 | 056 | .1 | 087 | .6 | 1 | 1800 | -20.2 | **** | 64 | 308 | .1 | 217 | 1.3 | 1 |
| 2100 | -27.3 | **** | 58 | *** | *** | *** | *** | 1 | 2100 | -22.7 | **** | 60 | 242 | .0 | 211 | 1.3 | 1 | 2100 | -21.6 | **** | 65 | 058 | .2 | 283 | 1.3 | 1 |
| 2400 | -27.9 | **** | 57 | *** | *** | *** | *** | 1 | 2400 | -21.7 | **** | 62 | *** | *** | *** | *** | 1 | 2400 | -27.1 | **** | 60 | 244 | .4 | 225 | 1.9 | 1 |

DAY 16

DAY 17

DAY 18

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|---|------|------|------|----|-----|-----|-----|-----|---|------|-------|------|----|-----|-----|-----|-----|---|
| 0300 | -28.7 | **** | 56 | *** | *** | *** | *** | 1 | 0300 | -5.0 | **** | 81 | 238 | .4 | 283 | 1.9 | 1 | 0300 | -.1 | -3.6 | 77 | 107 | 3.6 | 118 | 7.6 | 1 |
| 0600 | -27.5 | **** | 59 | *** | *** | *** | *** | 1 | 0600 | -4.5 | **** | 96 | 290 | .2 | 259 | 1.9 | 1 | 0600 | -1.4 | **** | 81 | 110 | 2.5 | 114 | 7.0 | 1 |
| 0900 | -20.5 | -25.3 | 65 | *** | *** | *** | *** | 1 | 0900 | -2.2 | -3.8 | 89 | 140 | 1.6 | 142 | 4.4 | 1 | 0900 | -3.8 | **** | 85 | 105 | .3 | 178 | 1.9 | 1 |
| 1200 | -15.7 | **** | 68 | 243 | .1 | 243 | 1.3 | 1 | 1200 | -1.6 | -3.7 | 86 | 114 | 1.1 | 113 | 5.7 | 2 | 1200 | -4.8 | **** | 84 | 016 | .2 | 053 | 2.5 | 1 |
| 1500 | -12.1 | **** | 76 | 279 | .1 | 267 | 1.3 | 1 | 1500 | -2.3 | **** | 0 | 098 | .7 | 112 | 3.8 | 1 | 1500 | -4.3 | **** | 89 | 180 | .8 | 194 | 2.5 | 1 |
| 1800 | -9.5 | **** | 81 | 232 | .2 | 239 | 1.9 | 1 | 1800 | -4.4 | -6.0 | 89 | 196 | .7 | 202 | 3.8 | 1 | 1800 | -7.8 | **** | 89 | 209 | .6 | 208 | 2.5 | 1 |
| 2100 | -7.5 | **** | 84 | *** | *** | *** | *** | 1 | 2100 | -4.8 | **** | 90 | 296 | .2 | 257 | 1.9 | 1 | 2100 | -8.2 | **** | 85 | 323 | .4 | 329 | 1.3 | 1 |
| 2400 | -6.8 | **** | 80 | *** | *** | *** | *** | 1 | 2400 | -1.8 | -6.3 | 71 | 103 | .5 | 136 | 4.4 | 1 | 2400 | -11.3 | **** | 79 | 303 | .4 | 329 | 1.9 | 1 |

R & M CONSULTANTS, INC.

SUSIETNA HYDROELECTRIC PROJECT

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

DAY 19

DAY 20

DAY 21

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

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|---|------|-------|------|----|-----|-----|-----|-----|---|------|-------|------|----|-----|-----|-----|---|
| 0300 | -15.9 | **** | 73 | 336 | .3 | 013 | 1.3 | 1 | 0300 | -16.1 | **** | 72 | 314 | .7 | 326 | 3.8 | 1 | 0300 | -11.7 | **** | 77 | *** | *** | *** | 1 |
| 0600 | -16.3 | **** | 73 | 047 | .4 | 027 | 1.3 | 1 | 0600 | -19.9 | **** | 68 | *** | *** | *** | *** | 1 | 0600 | -11.0 | **** | 78 | *** | *** | *** | 1 |
| 0900 | -17.1 | **** | 71 | 041 | .4 | 046 | 1.9 | 1 | 0900 | -16.9 | **** | 71 | 021 | .2 | 065 | 1.9 | 1 | 0900 | -10.9 | **** | 80 | *** | *** | *** | 1 |
| 1200 | -19.6 | **** | 68 | 044 | .3 | 045 | 1.9 | 2 | 1200 | -15.1 | **** | 70 | 326 | .3 | 327 | 1.3 | 1 | 1200 | -10.1 | **** | 74 | *** | *** | *** | 2 |
| 1500 | -12.9 | -15.9 | 78 | 247 | .7 | 223 | 2.5 | 1 | 1500 | -13.2 | **** | 76 | *** | *** | *** | *** | 1 | 1500 | -13.6 | **** | 75 | *** | *** | *** | 1 |
| 1800 | -9.5 | -12.0 | 82 | 243 | 1.0 | 270 | 3.8 | 1 | 1800 | -12.6 | **** | 78 | *** | *** | *** | *** | 1 | 1800 | -18.3 | **** | 71 | *** | *** | *** | 1 |
| 2100 | -12.8 | -15.8 | 78 | 257 | 1.5 | 260 | 4.4 | 1 | 2100 | -12.9 | **** | 78 | *** | *** | *** | *** | 1 | 2100 | -15.3 | **** | 73 | *** | *** | *** | 1 |
| 2400 | -16.2 | **** | 74 | 248 | .7 | 256 | 1.2 | 1 | 2400 | -12.9 | **** | 78 | *** | *** | *** | *** | 1 | 2400 | -21.7 | **** | 67 | *** | *** | *** | 1 |

DAY 22

DAY 23

DAY 24

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|------|----|-----|-----|-----|-----|---|------|-------|------|----|-----|----|-----|-----|---|------|-------|-------|----|-----|-----|-----|-----|---|
| 0300 | -15.1 | **** | 72 | *** | *** | *** | *** | 1 | 0300 | -18.6 | **** | 69 | 328 | .2 | 328 | 1.3 | 0 | 0300 | -9.2 | **** | 82 | 321 | .1 | 320 | .6 | 1 |
| 0600 | -14.5 | **** | 72 | *** | *** | *** | *** | 1 | 0600 | -23.1 | **** | 64 | 328 | .3 | 328 | 1.3 | 1 | 0600 | -10.4 | **** | 81 | *** | *** | *** | 1 | |
| 0900 | -14.0 | **** | 74 | *** | *** | *** | *** | 1 | 0900 | -17.5 | **** | 70 | 296 | .3 | 328 | 1.3 | 1 | 0900 | -8.6 | -10.8 | 84 | 246 | 1.1 | 241 | 2.5 | 1 |
| 1200 | -14.6 | **** | 73 | 270 | .6 | 271 | 1.9 | 1 | 1200 | -14.7 | **** | 73 | 325 | .4 | 320 | 1.9 | 1 | 1200 | -7.6 | **** | 88 | 274 | .4 | 250 | 1.3 | 4 |
| 1500 | -17.1 | **** | 70 | 279 | .5 | 285 | 1.9 | 1 | 1500 | -12.2 | **** | 75 | 280 | .3 | 269 | 1.9 | 1 | 1500 | -10.3 | **** | 80 | *** | *** | *** | 1 | |
| 1800 | -17.9 | **** | 74 | 311 | .4 | 286 | 1.3 | 1 | 1800 | -11.3 | **** | 77 | 300 | .2 | 265 | 1.3 | 1 | 1800 | -10.0 | **** | 81 | *** | *** | *** | 1 | |
| 2100 | -18.2 | **** | 72 | 276 | .5 | 276 | 1.3 | 1 | 2100 | -10.5 | **** | 81 | 328 | .1 | 328 | .6 | 1 | 2100 | -11.4 | **** | 78 | *** | *** | *** | 1 | |
| 2400 | -18.3 | **** | 70 | 275 | .3 | 277 | 1.3 | 1 | 2400 | -9.3 | **** | 82 | 292 | .2 | 287 | 1.3 | 1 | 2400 | -14.2 | **** | 75 | *** | *** | *** | 1 | |

DAY 25

DAY 26

DAY 27

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|---|------|-------|-------|----|-----|-----|-----|-----|---|------|-------|------|----|-----|----|-----|-----|---|
| 0300 | -12.8 | **** | 78 | 323 | .1 | 323 | .6 | 1 | 0300 | -11.8 | -17.0 | 65 | 321 | 2.0 | 326 | 3.8 | 1 | 0300 | -38.3 | **** | 50 | 030 | .2 | 247 | 1.3 | 2 |
| 0600 | -16.8 | **** | 72 | *** | *** | *** | *** | 1 | 0600 | -13.0 | -18.9 | 61 | 315 | 1.6 | 315 | 2.5 | 1 | 0600 | -39.2 | **** | 49 | 319 | .1 | 282 | 1.9 | 2 |
| 0900 | -19.5 | **** | 71 | *** | *** | *** | *** | 1 | 0900 | -13.9 | **** | 59 | 286 | 1.1 | 313 | 3.8 | 1 | 0900 | -40.5 | **** | 49 | 296 | .0 | 139 | 1.3 | 1 |
| 1200 | -18.6 | **** | 68 | 328 | .3 | 313 | 1.3 | 2 | 1200 | -15.8 | -22.4 | 57 | 262 | 1.3 | 302 | 3.2 | 2 | 1200 | -37.1 | **** | 47 | 241 | .1 | 191 | 1.3 | 3 |
| 1500 | -14.4 | **** | 76 | 266 | .7 | 241 | 1.7 | 1 | 1500 | -24.1 | **** | 62 | 216 | .9 | 231 | 1.9 | 1 | 1500 | -38.7 | **** | 48 | 217 | .1 | 173 | 1.3 | 2 |
| 1800 | -20.1 | **** | 68 | 037 | .4 | 043 | 1.3 | 1 | 1800 | -28.4 | **** | 60 | 244 | .6 | 259 | 2.5 | 1 | 1800 | -41.3 | **** | 47 | 266 | .0 | 266 | .6 | 2 |
| 2100 | -16.8 | -20.8 | 71 | 031 | .3 | 253 | 1.9 | 1 | 2100 | -32.5 | **** | 55 | 223 | .3 | 208 | 1.9 | 1 | 2100 | -42.2 | **** | 46 | 323 | .1 | 328 | 1.3 | 2 |
| 2400 | -12.9 | **** | 76 | 280 | .4 | 298 | 2.5 | 1 | 2400 | -35.6 | **** | 53 | 038 | .1 | 103 | 1.9 | 2 | 2400 | -42.8 | **** | 45 | 276 | .2 | 276 | 1.3 | 2 |

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|---|------|-------|-------|----|-----|-----|-----|-----|---|------|-------|-------|----|-----|----|-----|-----|---|
| 0300 | -42.3 | ***** | 46 | 036 | .1 | 329 | 1.3 | 2 | 0300 | -44.5 | ***** | 45 | *** | *** | *** | *** | 2 | 0300 | -44.7 | ***** | 44 | 288 | .2 | 262 | 1.3 | 2 |
| 0600 | -43.0 | ***** | 45 | 044 | .3 | 042 | 1.3 | 2 | 0600 | -44.9 | ***** | 45 | 320 | .1 | 327 | .6 | 2 | 0600 | -45.6 | ***** | 43 | 055 | .2 | 039 | 1.3 | 2 |
| 0900 | -43.4 | ***** | 46 | 042 | .1 | 037 | .6 | 2 | 0900 | -45.1 | ***** | 45 | 317 | .2 | 257 | .6 | 3 | 0900 | -44.9 | ***** | 44 | 074 | .3 | 060 | 1.3 | 2 |
| 1200 | -39.2 | ***** | 46 | 217 | .0 | 286 | 1.3 | 2 | 1200 | -40.3 | ***** | 46 | 267 | .1 | 173 | 1.3 | 3 | 1200 | -40.5 | ***** | 45 | 221 | .1 | 075 | 1.3 | 3 |
| 1500 | -40.5 | ***** | 47 | 175 | .2 | 203 | 1.3 | 2 | 1500 | -42.2 | ***** | 45 | 193 | .1 | 138 | 1.3 | 2 | 1500 | -40.1 | ***** | 45 | 184 | .1 | 207 | 1.3 | 2 |
| 1800 | -41.7 | ***** | 46 | 098 | .0 | 038 | .6 | 2 | 1800 | -44.4 | ***** | 45 | 009 | .1 | 343 | .6 | 2 | 1800 | -38.3 | ***** | 47 | 288 | .1 | 036 | 1.3 | 2 |
| 2100 | -42.1 | ***** | 46 | 021 | .1 | 056 | 1.9 | 2 | 2100 | -44.5 | ***** | 45 | 351 | .0 | 038 | .6 | 2 | 2100 | -36.8 | ***** | 48 | 120 | .0 | 264 | .6 | 2 |
| 2400 | -43.2 | ***** | 46 | 314 | .1 | 343 | .6 | 2 | 2400 | -44.7 | ***** | 44 | 344 | .1 | 250 | .6 | 2 | 2400 | -38.6 | ***** | 48 | 092 | .0 | 182 | .6 | 2 |

DAY 31

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

| | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|---|
| 0300 | -38.8 | ***** | 47 | 061 | .2 | 119 | .6 | 2 |
| 0600 | -36.6 | ***** | 48 | 313 | .1 | 038 | .6 | 1 |
| 0900 | -34.4 | ***** | 49 | 315 | .1 | 273 | 1.3 | 2 |
| 1200 | -28.9 | ***** | 51 | 351 | .1 | 328 | .6 | 2 |
| 1500 | -27.0 | ***** | 55 | 277 | .5 | 287 | 1.9 | 1 |
| 1800 | -32.4 | -38.5 | 54 | *** | *** | *** | *** | 1 |
| 2100 | -36.3 | -42.7 | 51 | *** | *** | *** | *** | 2 |
| 2400 | -38.6 | ***** | 49 | *** | *** | *** | *** | 2 |

R & M CONSULTANTS, INC.

SUSITNA HYDRO ELECTRIC PROJECT

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

| DAY | RES. | | | RES. | | | Avg. | Max. | Max. | DAY'S | | | |
|-------|---------------|---------------|---------------|--------------|---------------------|---------------------|--------------|------------------------|--------------|---------------|-------|------------------|---------------------|
| | MAX. DEG C | MIN. DEG C | MEAN DEG C | WIND DIR. | WIND SPD. M/S | WIND SPD. M/S | GUST DIR. | GUST P'VAL SPD. M/S | MEAN RH % | MEAN DEG C | DP MM | Precip WH/SQM | SOLAR ENERGY DAY |
| 1 | -14.2 | -24.9 | -19.6 | 006 | .2 | .4 | 309 | 2.5 NNE | ** | ***** | **** | 298 | 1 |
| 2 | -6.1 | -20.7 | -13.4 | 056 | .4 | .5 | 036 | 4.4 NNE | 80 | -12.6 | **** | 278 | 2 |
| 3 | -5.7 | -11.4 | -8.6 | 189 | .4 | .9 | 188 | 4.4 WSW | 81 | -10.5 | **** | 230 | 3 |
| 4 | -9.3 | -31.7 | -20.5 | 091 | .1 | .4 | 089 | 3.2 NE | 76 | -13.2 | **** | 293 | 4 |
| 5 | -17.0 | -27.6 | -22.3 | 352 | .2 | .4 | 342 | 3.2 WNW | 66 | -22.7 | **** | 328 | 5 |
| 6 | -15.4 | -35.0 | -25.2 | 165 | .1 | .3 | 192 | 1.9 NE | 70 | -20.5 | **** | 348 | 6 |
| 7 | -28.0 | -39.4 | -33.7 | 257 | .2 | .2 | 226 | .6 SW | ** | ***** | **** | 475 | 7 |
| 8 | -32.4 | -40.2 | -36.3 | 186 | .3 | .1 | 287 | 1.3 S | 48 | -43.7 | **** | 513 | 8 |
| 9 | -22.7 | -36.6 | -29.7 | 238 | .1 | .3 | 246 | .6 SSW | 52 | -39.5 | **** | 330 | 9 |
| 10 | -26.0 | -37.1 | -31.6 | *** | 0.0 | 0.0 | *** | 0.0 *** | 52 | -38.6 | **** | 355 | 10 |
| 11 | -16.8 | -26.9 | -21.9 | 219 | .3 | .2 | 230 | 1.9 SW | 58 | -30.4 | **** | 243 | 11 |
| 12 | -11.3 | -21.8 | -16.6 | 359 | .2 | .2 | 281 | 1.3 W | ** | ***** | **** | 245 | 12 |
| 13 | -20.2 | -27.9 | -24.1 | 006 | .3 | .2 | 001 | 1.9 WNW | ** | ***** | **** | 270 | 13 |
| 14 | -21.7 | -27.9 | -24.8 | 254 | .1 | .2 | 300 | 1.3 WNW | ** | ***** | **** | 273 | 14 |
| 15 | -17.3 | -27.1 | -22.2 | 249 | .0 | .2 | 225 | 1.9 NE | ** | ***** | **** | 288 | 15 |
| 16 | -6.6 | -29.3 | -18.0 | 250 | .1 | .2 | 239 | 1.9 WSW | 67 | -22.3 | **** | 240 | 16 |
| 17 | -.3 | -6.9 | -3.6 | 133 | .5 | 1.0 | 113 | 5.7 ESE | 86 | -4.3 | **** | 255 | 17 |
| 18 | 0.0 | -11.3 | -5.7 | 116 | 1.0 | 1.2 | 118 | 7.6 ESE | 78 | -5.1 | **** | 230 | 18 |
| 19 | -9.0 | -19.6 | -14.3 | 261 | .5 | .7 | 260 | 4.4 WSW | 79 | -14.4 | **** | 260 | 19 |
| 20 | -9.3 | -20.4 | -14.9 | 327 | .4 | .4 | 326 | 3.8 NNW | 77 | -14.0 | **** | 238 | 20 |
| 21 | -10.0 | -21.7 | -15.9 | *** | *** | .3 | *** | *** *** | 80 | -13.6 | **** | 258 | 21 |
| 22 | -13.4 | -21.1 | -17.3 | 279 | .4 | .4 | 271 | 1.9 W | ** | ***** | **** | 240 | 22 |
| 23 | -9.3 | -23.6 | -16.5 | 308 | .2 | .3 | 320 | 1.9 NNW | 70 | -21.4 | **** | 240 | 23 |
| 24 | -7.5 | -15.1 | -11.3 | 251 | .6 | .4 | 241 | 2.5 WSW | 82 | -11.6 | **** | 278 | 24 |
| 25 | -12.6 | -26.0 | -19.3 | 331 | .2 | .3 | 298 | 2.5 NE | 77 | -18.0 | **** | 270 | 25 |
| 26 | -11.8 | -35.6 | -23.7 | 261 | .6 | 1.3 | 326 | 3.8 WSW | 62 | -20.1 | **** | 285 | 26 |
| 27 | -33.1 | -42.8 | -38.0 | 316 | .0 | .2 | 282 | 1.9 NNW | 47 | ***** | **** | 455 | 27 |
| 28 | -37.9 | -43.6 | -40.8 | 050 | .1 | .2 | 056 | 1.9 NE | ** | ***** | **** | 505 | 28 |
| 29 | -37.2 | -45.2 | -41.2 | 319 | .1 | .2 | 173 | 1.3 NNW | ** | ***** | **** | 525 | 29 |
| 30 | -36.5 | -45.6 | -41.1 | 047 | .0 | .2 | 262 | 1.3 NE | ** | ***** | **** | 515 | 30 |
| 31 | -26.5 | -39.0 | -32.8 | 297 | .1 | .2 | 287 | 1.9 NNW | 52 | -40.9 | **** | 396 | 31 |
| MONTH | 0.0 | -45.6 | -22.7 | 219 | .0 | .0 | 118 | 7.6 NE | 64 | -20.9 | **** | 9966 | |

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 7.0

GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 7.0

GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 5.7

GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 7.0

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

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

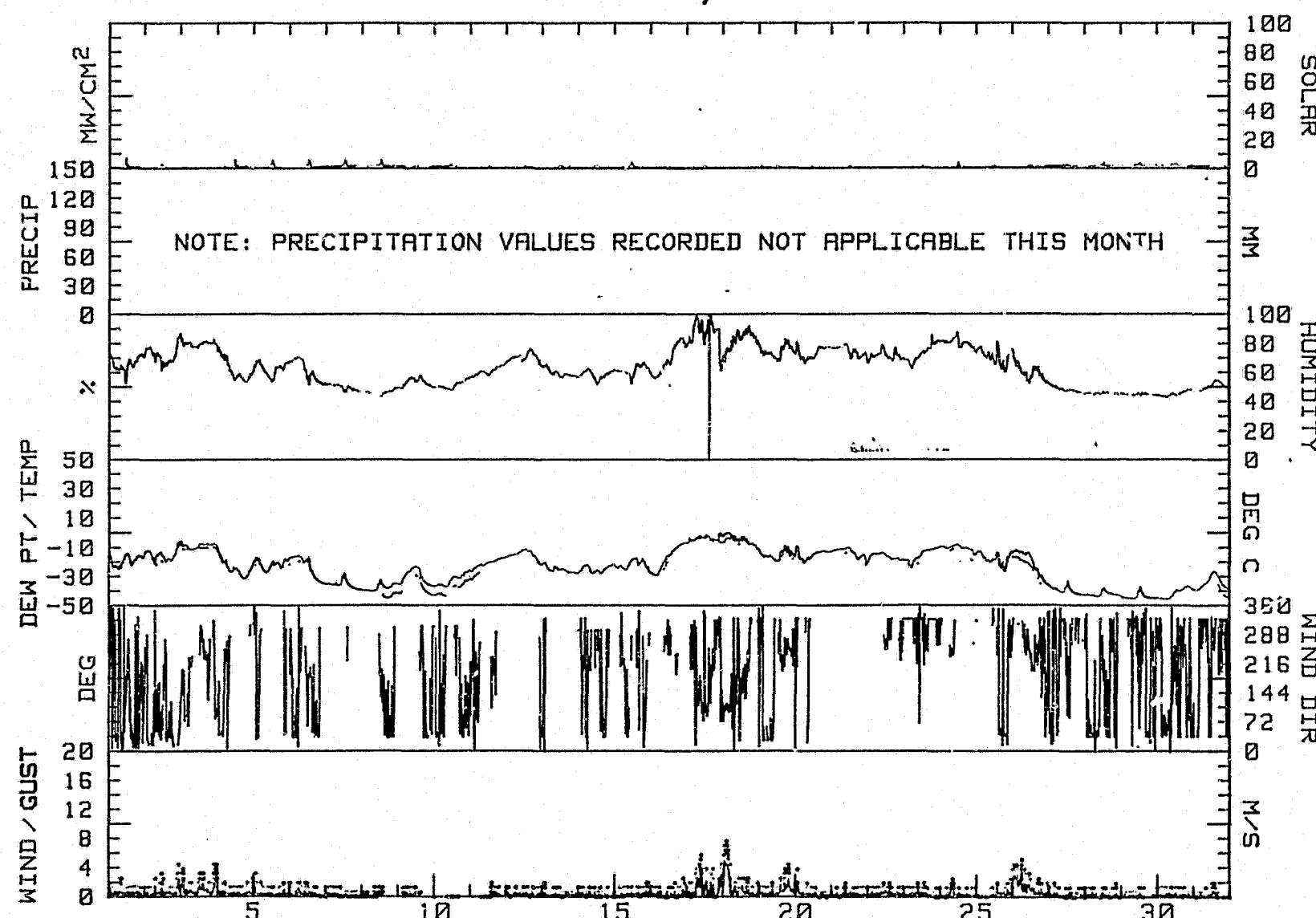
R & M CONSULTANTS, INC.
SUSITTNA HYDROELECTRIC PROJECT

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

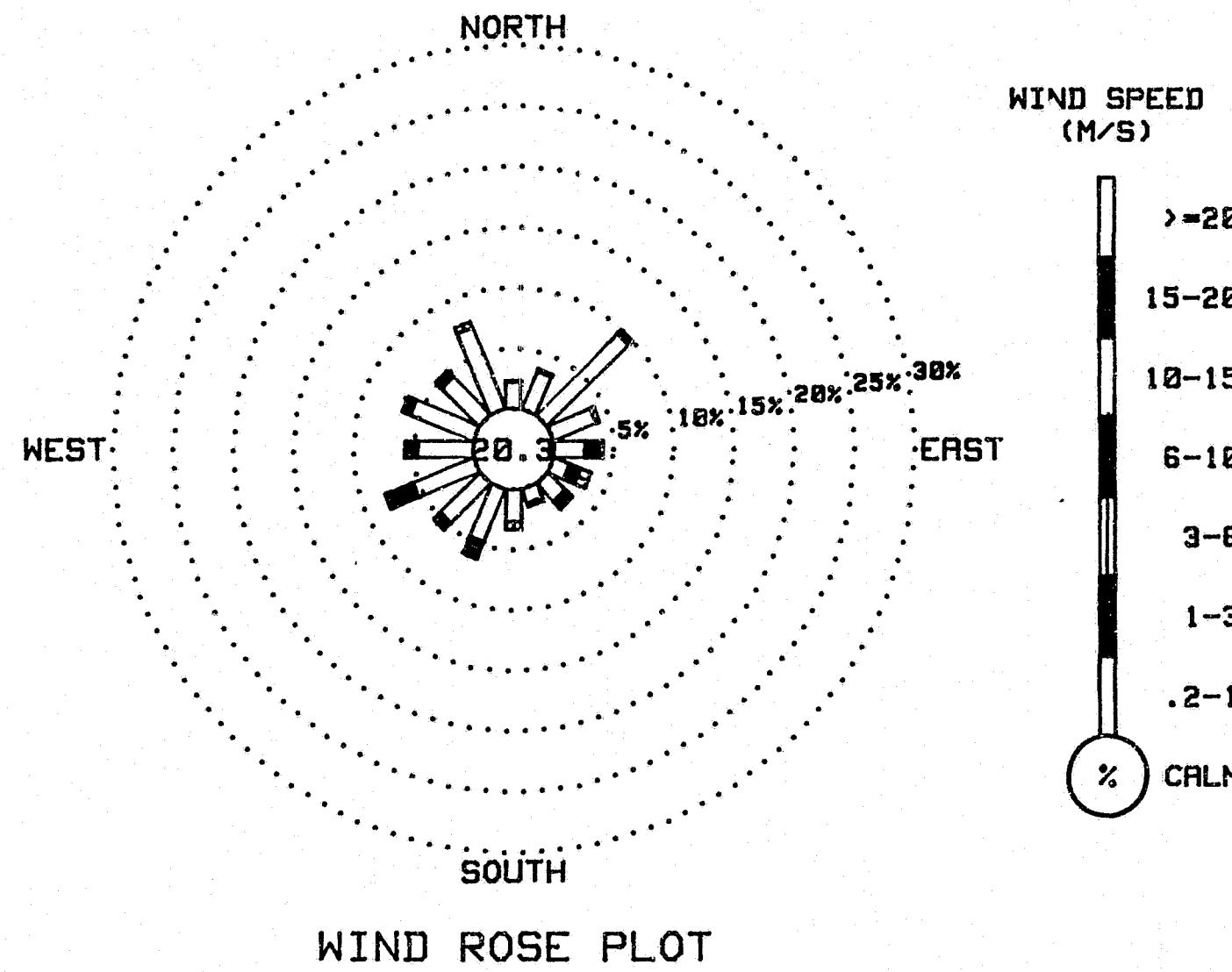
| DIRECTION | VELOCITY (M/S) | | | | | | | | TOTAL |
|-----------|----------------|------------|------------|-------------|--------------|--------------|-----------------|------|--------|
| | 0.2 TO 1.0 | 1.0 TO 3.0 | 3.0 TO 6.0 | 6.0 TO 10.0 | 10.0 TO 15.0 | 15.0 TO 20.0 | 20.0 OR GREATER | | |
| | 1.0 | 3.0 | 6.0 | 10.0 | 15.0 | 20.0 | | | |
| N | 2.25 | .07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.32 |
| NNE | 3.45 | .14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.59 |
| NE | 9.57 | .35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.92 |
| ENE | 3.87 | .21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.08 |
| E | 2.60 | 1.41 | .07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.08 |
| ESE | 1.48 | .91 | .99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.38 |
| SE | 2.11 | .77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.89 |
| SSE | 1.27 | .28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.55 |
| S | 2.67 | .63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.31 |
| SSW | 4.71 | 1.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.19 |
| SW | 4.71 | .70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.42 |
| WSW | 5.49 | 2.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.95 |
| W | 4.64 | 1.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.70 |
| WNW | 5.70 | .70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.40 |
| NW | 4.43 | .70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.14 |
| NNW | 7.25 | .49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.74 |
| CALM | | | | | | | | | 20.34 |
| TOTAL | 66.22 | 12.39 | 1.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1421 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
December, 1981



R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
December, 1981



No precipitation data for January

(See INTERPRETING DATA).

R & M CONSULTANTS, INC.

SUSITTNA HYDROELECTRIC PROJECT

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

DAY 01

DAY 02

DAY 03

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

| | | | | | | | | | | | | | | | | | | | | |
|------|-------|---------|----------|----------|----------|----------|-------|-------|-------|----------|----------|----------|------|-------|-------|-------|----------|----------|----------|---|
| 0300 | -39.4 | -46.4 | 47 | *** **** | *** **** | 2 | 0300 | -30.0 | -36.5 | 53 | *** **** | *** **** | 1 | 0300 | -38.5 | -45.3 | 48 | *** **** | *** **** | 2 |
| 0600 | -40.1 | **** 47 | *** **** | *** **** | *** **** | *** 0600 | -28.3 | -34.7 | 54 | *** **** | *** **** | 1 | 0600 | -39.1 | -46.1 | 47 | *** **** | *** **** | *** | |
| 0900 | -40.6 | **** 48 | *** **** | *** **** | *** **** | *** 0900 | -29.1 | -35.4 | 54 | *** **** | *** **** | 1 | 0900 | -39.3 | -46.3 | 47 | *** **** | *** **** | *** | |
| 1200 | -37.9 | -45.2 | 46 | *** **** | *** **** | 3 | 1200 | -26.6 | -33.7 | 51 | *** **** | *** **** | 3 | 1200 | -34.6 | -42.6 | 44 | *** **** | *** **** | 3 |
| 1500 | -36.0 | -43.0 | 48 | *** **** | *** **** | 1 | 1500 | -32.9 | -39.4 | 52 | *** **** | *** **** | 1 | 1500 | -36.5 | -43.7 | 47 | *** **** | *** **** | 2 |
| 1800 | -34.0 | -40.6 | 51 | *** **** | *** **** | 1 | 1800 | -35.3 | -41.8 | 51 | *** **** | *** **** | 1 | 1800 | **** | **** | 49 | *** **** | *** **** | 2 |
| 2100 | -32.4 | -38.9 | 52 | *** **** | *** **** | 2 | 2100 | -35.4 | -41.9 | 51 | *** **** | *** **** | 1 | 2100 | **** | **** | 49 | *** **** | *** **** | 1 |
| 2400 | -32.8 | -39.1 | 53 | *** **** | *** **** | 1 | 2400 | -37.1 | -43.9 | 49 | *** **** | *** **** | 2 | 2400 | **** | **** | 50 | *** **** | *** **** | 1 |

DAY 04

DAY 05

DAY 06

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

| | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|----------|----------|----------|----------|-------|-------|-------|----------|----------|----------|----------|-------|-------|-------|------|-------|------|-----|-----|
| 0300 | **** | **** | ** | *** **** | *** **** | 2 | 0300 | **** | **** | ** | *** **** | *** **** | *** 0300 | -32.5 | -40.6 | 44 | 287 | 1.7 | 309 | 4.4 | 2 | |
| 0600 | **** | **** | 54 | *** **** | 243 | 1.9 | *** 0600 | **** | **** | ** | *** **** | *** **** | *** 0600 | -41.2 | **** | 45 | 238 | .7 | 238 | 3.2 | 2 | |
| 0900 | -26.1 | -32.1 | 57 | *** **** | 281 | 1.3 | 1 | 0900 | **** | **** | ** | *** **** | *** **** | *** 0900 | -44.1 | **** | 42 | 077 | .4 | 126 | 2.5 | 2 |
| 1200 | -22.0 | **** | 52 | 231 | .3 | 201 | 1.9 | 3 | 1200 | -23.6 | -34.6 | 36 | 332 | 5.0 | 347 | 11.4 | 7 | 1200 | -38.8 | **** | 43 | 174 |
| 1500 | **** | **** | ** | *** **** | 211 | 1.3 | *** 1500 | -26.4 | -36.3 | 39 | 329 | 4.9 | 333 | 10.2 | 2 | 1500 | -41.3 | **** | 43 | 228 | | |
| 1800 | **** | **** | ** | *** **** | *** **** | *** 1800 | -27.0 | -36.8 | 39 | 328 | 2.8 | 337 | 8.9 | 2 | 1800 | -44.8 | **** | 41 | 084 | | | |
| 2100 | **** | **** | ** | *** **** | *** **** | *** 2100 | -28.1 | -37.8 | 39 | 328 | 2.7 | 328 | 5.7 | 1 | 2100 | -46.0 | **** | 39 | 055 | | | |
| 2400 | **** | **** | ** | *** **** | *** **** | 2400 | -29.4 | -38.7 | 40 | 335 | 2.1 | 324 | 5.1 | 2 | 2400 | -47.0 | **** | 39 | 043 | | | |

DAY 07

DAY 08

DAY 09

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

| | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|---|------|-------|------|----|-----|
| 0300 | -47.4 | **** | 39 | 102 | .3 | 051 | 1.9 | 2 | 0300 | -45.9 | **** | 40 | 056 | .8 | 042 | 2.5 | 2 | 0300 | -28.5 | **** | 51 | 046 |
| 0600 | -47.6 | **** | 38 | 061 | .4 | 047 | 1.9 | 2 | 0600 | -44.6 | **** | 41 | 050 | .6 | 066 | 3.8 | 2 | 0600 | -29.5 | **** | 53 | 058 |
| 0900 | -47.4 | **** | 39 | 050 | .4 | 041 | 2.5 | 2 | 0900 | -43.6 | **** | 41 | 031 | .7 | 009 | 4.4 | 3 | 0900 | -33.9 | **** | 50 | 048 |
| 1200 | -38.0 | **** | 43 | 074 | .5 | 046 | 1.3 | 10 | 1200 | -32.8 | -40.9 | 44 | 151 | .6 | 153 | 4.4 | 9 | 1200 | -29.7 | **** | 49 | 167 |
| 1500 | -40.2 | **** | 43 | 165 | .4 | 162 | 1.9 | 2 | 1500 | -31.7 | **** | 45 | 169 | .9 | 203 | 3.2 | 2 | 1500 | -25.3 | **** | 52 | 129 |
| 1800 | -43.2 | **** | 42 | 046 | .3 | 202 | 1.3 | 2 | 1800 | -35.2 | -42.3 | 48 | 230 | 1.1 | 235 | 3.2 | 2 | 1800 | -24.3 | **** | 54 | 021 |
| 2100 | -45.4 | **** | 39 | 055 | .3 | 007 | 3.8 | 2 | 2100 | -36.5 | **** | 47 | 224 | .6 | 264 | 2.5 | 1 | 2100 | -25.4 | **** | 56 | 234 |
| 2400 | -44.7 | **** | 41 | 040 | .4 | 355 | 1.3 | 2 | 2400 | -35.9 | **** | 47 | 051 | .6 | 056 | 3.2 | 2 | 2400 | -26.7 | **** | 56 | 066 |

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 10

DAY 11

DAY 12

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|---|------|-------|-------|----|-----|----|-----|-----|----|
| 0300 | -21.8 | ***** | 57 | 044 | .4 | 062 | 1.3 | 1 | 0300 | -25.1 | ***** | 56 | 130 | .1 | 079 | 1.3 | 1 | 0300 | -17.3 | ***** | 62 | 154 | .2 | 087 | 1.3 | 1 |
| 0600 | -19.5 | ***** | 49 | 176 | .2 | 207 | 2.5 | 1 | 0600 | -27.3 | ***** | 56 | 096 | .1 | 090 | 1.3 | 1 | 0600 | -17.1 | ***** | 62 | 095 | .3 | 106 | 1.3 | 1 |
| 0900 | -19.9 | ***** | 50 | 077 | .5 | 064 | 1.3 | 2 | 0900 | -23.6 | ***** | 55 | 190 | .2 | 138 | 1.3 | 1 | 0900 | -18.5 | ***** | 66 | 195 | .1 | 219 | 1.3 | 1 |
| 1200 | -18.2 | ***** | 42 | 102 | .8 | 106 | 1.9 | 12 | 1200 | -20.4 | ***** | 51 | 159 | .1 | 143 | 1.3 | 5 | 1200 | -14.1 | ***** | 47 | 234 | .3 | 198 | 1.3 | 15 |
| 1500 | -23.8 | ***** | 53 | 127 | .4 | 125 | 1.9 | 1 | 1500 | -22.0 | ***** | 56 | 228 | .3 | 156 | 1.3 | 1 | 1500 | -17.7 | ***** | 61 | 188 | .4 | 204 | 1.9 | 1 |
| 1800 | -23.5 | ***** | 55 | 043 | .1 | 214 | 1.3 | 1 | 1800 | -20.7 | ***** | 59 | 038 | .1 | 210 | .6 | 1 | 1800 | -17.0 | ***** | 71 | 227 | .4 | 218 | 1.9 | 1 |
| 2100 | -22.6 | ***** | 55 | 217 | .4 | 210 | 1.3 | 1 | 2100 | -18.7 | ***** | 56 | 290 | .2 | 295 | 1.3 | 1 | 2100 | -16.7 | ***** | 70 | 225 | .6 | 211 | 1.9 | 1 |
| 2400 | -25.6 | ***** | 55 | 208 | .6 | 202 | 1.9 | 1 | 2400 | -17.6 | ***** | 57 | 116 | .5 | 118 | 1.9 | 1 | 2400 | -18.7 | ***** | 67 | 275 | .9 | 262 | 2.5 | 1 |

DAY 13

DAY 14

DAY 15

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|---|
| 0300 | -23.0 | ***** | 61 | 044 | .2 | 033 | 1.3 | 1 | 0300 | -35.9 | ***** | 51 | 029 | .3 | 009 | 1.9 | 1 | 0300 | -41.0 | ***** | 46 | 066 | .2 | 040 | 1.9 | 2 |
| 0600 | -22.5 | ***** | 62 | 039 | .2 | 027 | 1.3 | 1 | 0600 | -39.6 | ***** | 47 | 043 | .4 | 040 | 1.9 | 2 | 0600 | -41.7 | ***** | 46 | 096 | .2 | 119 | 1.3 | 2 |
| 0900 | -20.8 | ***** | 64 | 026 | .4 | 007 | 1.9 | 1 | 0900 | -40.9 | ***** | 47 | 034 | .4 | 035 | 1.3 | 2 | 0900 | -41.8 | ***** | 46 | 141 | .1 | 220 | 1.3 | 2 |
| 1200 | -16.7 | -20.9 | 70 | 272 | .7 | 260 | 3.2 | 18 | 1200 | -33.3 | ***** | 52 | 025 | .2 | 333 | 1.9 | 12 | 1200 | -37.8 | ***** | 49 | 041 | .4 | 016 | 3.2 | 7 |
| 1500 | -15.6 | ***** | 72 | 253 | .7 | 287 | 1.9 | 1 | 1500 | -36.8 | ***** | 49 | 139 | .3 | 157 | 2.5 | 2 | 1500 | -36.1 | ***** | 49 | 153 | .1 | 136 | 1.3 | 2 |
| 1800 | -17.5 | ***** | 68 | 235 | .5 | 238 | 1.9 | 1 | 1800 | -36.7 | ***** | 48 | 076 | .3 | 067 | 1.9 | 2 | 1800 | -36.2 | ***** | 49 | 096 | .2 | 154 | 1.3 | 2 |
| 2100 | -28.5 | ***** | 56 | 086 | .4 | 145 | 1.3 | 1 | 2100 | -39.9 | ***** | 46 | 348 | .2 | 267 | 1.3 | 2 | 2100 | -37.2 | ***** | 48 | 241 | .1 | 222 | 1.3 | 1 |
| 2400 | -30.5 | ***** | 54 | 354 | .1 | 001 | 1.3 | 1 | 2400 | -40.5 | ***** | 47 | 037 | .3 | 019 | 1.9 | 2 | 2400 | -37.8 | ***** | 48 | 153 | .1 | 161 | 1.3 | 2 |

DAY 16

DAY 17

DAY 18

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|---|------|-------|-------|----|-----|-----|-----|-----|---|
| 0300 | -38.5 | ***** | 47 | 134 | .1 | 196 | 1.3 | 2 | 0300 | -40.3 | ***** | 46 | 297 | .1 | 248 | 3.2 | 2 | 0300 | -39.6 | ***** | 46 | 054 | .2 | 046 | 1.3 | 2 |
| 0600 | -39.2 | ***** | 47 | 132 | .1 | 164 | .6 | 2 | 0600 | -40.6 | ***** | 46 | 118 | .4 | 155 | 2.5 | 2 | 0600 | -35.8 | ***** | 48 | 304 | .1 | 255 | 1.3 | 1 |
| 0900 | -40.5 | ***** | 47 | 068 | .1 | 038 | 1.3 | 2 | 0900 | -39.3 | ***** | 46 | 141 | .4 | 085 | 3.8 | 2 | 0900 | -31.7 | ***** | 51 | 352 | .1 | 025 | 1.3 | 2 |
| 1200 | -32.4 | ***** | 52 | 145 | .2 | 093 | 1.3 | 19 | 1200 | -31.2 | ***** | 51 | 127 | .3 | 207 | 1.9 | 6 | 1200 | -27.7 | ***** | 50 | 040 | .0 | 205 | 1.3 | 6 |
| 1500 | -35.9 | ***** | 49 | 141 | .2 | 098 | 1.3 | 2 | 1500 | -31.3 | ***** | 51 | 160 | .2 | 058 | 1.9 | 2 | 1500 | -26.4 | ***** | 54 | 271 | .3 | 210 | 1.9 | 2 |
| 1800 | -40.3 | ***** | 47 | 048 | .1 | 283 | 1.3 | 2 | 1800 | -36.9 | ***** | 48 | 069 | .0 | 181 | 1.9 | 1 | 1800 | -26.1 | -32.1 | 57 | 224 | .8 | 218 | 2.5 | 1 |
| 2100 | -40.7 | ***** | 46 | 060 | .3 | 058 | 1.9 | 1 | 2100 | -39.4 | ***** | 46 | 085 | .2 | 099 | 1.9 | 2 | 2100 | -12.7 | -21.0 | 50 | 262 | 1.9 | 310 | 7.0 | 1 |
| 2400 | -41.0 | ***** | 46 | 052 | .3 | 103 | 1.3 | 2 | 2400 | -40.5 | ***** | 46 | 134 | .2 | 123 | 1.9 | 2 | 2400 | -12.5 | -24.3 | 37 | 321 | 3.9 | 330 | 8.3 | 1 |

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 19

DAY 20

DAY 21

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|----|
| 0300 | -17.8 | ***** | 54 | 249 | .9 | 321 | 5.7 | 1 | 0300 | -39.9 | ***** | 45 | 042 | .2 | 015 | 1.3 | 2 | 0300 | -40.6 | ***** | 45 | 082 | .3 | 101 | 1.9 | 2 |
| 0600 | -30.0 | ***** | 55 | 197 | .1 | 217 | 1.9 | 1 | 0600 | -39.2 | ***** | 45 | 036 | .3 | 037 | 1.9 | 2 | 0600 | -42.2 | ***** | 44 | 038 | .2 | 082 | 1.3 | 2 |
| 0900 | -33.9 | ***** | 51 | 053 | .4 | 038 | 1.9 | 2 | 0900 | -38.3 | ***** | 46 | 065 | .2 | 089 | 1.3 | 3 | 0900 | -42.8 | ***** | 43 | 049 | .3 | 022 | 1.9 | 3 |
| 1200 | -25.8 | ***** | 42 | 102 | .4 | 107 | 1.9 | 19 | 1200 | -31.8 | ***** | 42 | 182 | .0 | 068 | 1.3 | 17 | 1200 | -33.5 | ***** | 37 | 168 | .4 | 136 | 3.2 | 21 |
| 1500 | -29.0 | ***** | 47 | 156 | .3 | 202 | 1.9 | 2 | 1500 | -32.4 | ***** | 45 | 160 | .2 | 006 | 1.3 | 2 | 1500 | -35.3 | ***** | 43 | 154 | .3 | 184 | 1.9 | 3 |
| 1800 | -36.2 | ***** | 49 | 143 | .2 | 221 | 1.3 | 1 | 1800 | -38.0 | ***** | 47 | 340 | .0 | 180 | 1.3 | 1 | 1800 | -40.9 | ***** | 45 | 073 | .3 | 151 | 1.9 | 2 |
| 2100 | -38.0 | ***** | 47 | 046 | .2 | 039 | 1.9 | 2 | 2100 | -38.7 | ***** | 46 | 068 | .3 | 039 | 1.3 | 2 | 2100 | -43.0 | ***** | 42 | 046 | .4 | 041 | 1.3 | 2 |
| 2400 | -39.1 | ***** | 46 | 031 | .3 | 028 | 1.3 | 2 | 2400 | -39.8 | ***** | 45 | 060 | .3 | 034 | 1.9 | 2 | 2400 | -44.8 | ***** | 40 | 038 | .6 | 040 | 1.9 | 2 |

DAY 22

DAY 23

DAY 24

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|----|
| 0300 | -45.2 | ***** | 39 | 044 | .3 | 064 | 1.3 | 2 | 0300 | -43.7 | ***** | 41 | 004 | .3 | 004 | 1.9 | 2 | 0300 | -43.9 | ***** | 41 | 034 | .3 | 059 | 1.9 | 2 |
| 0600 | -45.3 | ***** | 39 | 044 | .5 | 043 | 1.9 | 2 | 0600 | -43.9 | ***** | 41 | 118 | .4 | 079 | 1.9 | 2 | 0600 | -44.1 | ***** | 40 | 032 | .3 | 016 | 1.3 | 2 |
| 0900 | -45.1 | ***** | 39 | 064 | .4 | 057 | 1.3 | 3 | 0900 | -43.9 | ***** | 41 | 081 | .2 | 099 | 1.3 | 3 | 0900 | -42.5 | ***** | 41 | 084 | .1 | 114 | 1.3 | 3 |
| 1200 | -33.0 | ***** | 36 | 174 | .4 | 183 | 1.9 | 21 | 1200 | -33.2 | ***** | 37 | 148 | .3 | 166 | 3.2 | 23 | 1200 | -33.7 | ***** | 37 | 083 | .3 | 092 | 1.9 | 16 |
| 1500 | -34.2 | ***** | 42 | 204 | .6 | 192 | 1.3 | 2 | 1500 | -34.6 | ***** | 41 | 201 | .5 | 197 | 1.3 | 3 | 1500 | -32.0 | ***** | 42 | 174 | .2 | 164 | 1.3 | 2 |
| 1800 | -40.6 | ***** | 45 | 119 | .3 | 099 | 1.9 | 2 | 1800 | -40.6 | ***** | 45 | 115 | .3 | 149 | 1.3 | 2 | 1800 | -37.2 | ***** | 44 | 068 | .2 | 064 | 1.9 | 2 |
| 2100 | -42.0 | ***** | 43 | 106 | .5 | 135 | 2.5 | 2 | 2100 | -43.0 | ***** | 41 | 065 | .3 | 035 | 1.3 | 2 | 2100 | -39.7 | ***** | 44 | 160 | .2 | 161 | 1.9 | 1 |
| 2400 | -42.7 | ***** | 42 | 014 | .5 | 295 | 3.2 | 2 | 2400 | -43.9 | ***** | 41 | 080 | .2 | 041 | 1.3 | 2 | 2400 | -41.6 | ***** | 44 | 064 | .1 | 089 | 1.3 | 2 |

DAY 25

DAY 26

DAY 27

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|---|
| 0300 | -42.8 | ***** | 41 | 025 | .1 | 015 | 1.3 | 2 | 0300 | -43.6 | ***** | 40 | 034 | .1 | 073 | 1.3 | 2 | 0300 | -44.7 | ***** | 38 | 063 | .1 | 082 | 1.3 | 2 |
| 0600 | -43.2 | ***** | 42 | 028 | .1 | 031 | .6 | 2 | 0600 | -43.9 | ***** | 40 | 016 | .1 | 315 | 1.3 | 2 | 0600 | -43.0 | ***** | 39 | 077 | .0 | 232 | .6 | 2 |
| 0900 | -43.2 | ***** | 41 | 038 | .1 | 037 | 1.3 | 3 | 0900 | -43.9 | ***** | 39 | 051 | .1 | 191 | 1.3 | 3 | 0900 | -41.9 | ***** | 40 | 138 | .1 | 231 | 1.3 | 3 |
| 1200 | -33.5 | ***** | 33 | 184 | .3 | 215 | 1.3 | 25 | 1200 | -34.1 | ***** | 32 | 169 | .2 | 169 | 1.3 | 26 | 1200 | -33.3 | ***** | 41 | 298 | .2 | 015 | 1.3 | 7 |
| 1500 | -34.3 | ***** | 35 | 199 | .3 | 196 | 1.3 | 3 | 1500 | -34.4 | ***** | 34 | 168 | .3 | 207 | 1.3 | 3 | 1500 | -29.5 | ***** | 43 | 212 | .2 | 230 | 1.3 | 2 |
| 1800 | -41.4 | ***** | 42 | 292 | .1 | 261 | 1.3 | 2 | 1800 | -41.3 | ***** | 42 | 206 | .2 | 094 | 1.3 | 2 | 1800 | -27.8 | ***** | 50 | 332 | .1 | 038 | 1.3 | 2 |
| 2100 | -43.0 | ***** | 40 | 038 | .2 | 030 | 1.3 | 2 | 2100 | -43.2 | ***** | 41 | 065 | .2 | 113 | 1.3 | 2 | 2100 | -26.2 | ***** | 51 | 354 | .0 | 203 | 1.3 | 1 |
| 2400 | -43.9 | ***** | 40 | 042 | .1 | 225 | 1.3 | 2 | 2400 | -44.3 | ***** | 39 | 063 | .2 | 047 | 1.3 | 2 | 2400 | -24.4 | ***** | 52 | 090 | .2 | 176 | 1.3 | 1 |

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|---|------|-------|-------|----|-----|----|-----|-----|---|------|-------|-------|----|-----|----|-----|-----|---|
| 0300 | -23.7 | ***** | 54 | 274 | .1 | 264 | 1.3 | 1 | 0300 | -17.7 | ***** | 59 | 082 | .7 | 083 | 2.5 | 1 | 0300 | -26.6 | ***** | 58 | 074 | .1 | 224 | 1.3 | 1 |
| 0600 | -22.4 | ***** | 55 | 075 | .3 | 094 | 1.3 | 1 | 0600 | -18.5 | ***** | 60 | 071 | .4 | 088 | 1.3 | 1 | 0600 | -25.9 | ***** | 57 | 293 | .1 | 215 | 1.3 | 1 |
| 0900 | -20.4 | ***** | 58 | 064 | .5 | 049 | 1.9 | 2 | 0900 | -20.5 | ***** | 58 | 187 | .1 | 117 | 1.3 | 1 | 0900 | -25.2 | ***** | 58 | 050 | .1 | 028 | 1.3 | 2 |
| 1200 | -17.4 | ***** | 54 | 072 | .3 | 079 | 1.3 | 4 | 1200 | -18.9 | ***** | 52 | 242 | .3 | 237 | 1.3 | 4 | 1200 | -20.9 | ***** | 66 | 208 | .1 | 044 | 1.3 | 6 |
| 1500 | -17.0 | ***** | 59 | 175 | .2 | 028 | 1.3 | 1 | 1500 | -19.8 | ***** | 67 | 230 | .2 | 244 | 1.3 | 2 | 1500 | -20.3 | ***** | 63 | 207 | .3 | 206 | 1.3 | 2 |
| 1800 | -19.6 | ***** | 64 | 082 | .3 | 077 | 1.3 | 1 | 1800 | -24.8 | ***** | 59 | 202 | .1 | 174 | .6 | 1 | 1800 | -22.2 | ***** | 61 | 073 | .2 | 209 | 1.3 | 1 |
| 2100 | -17.7 | ***** | 64 | 040 | .5 | 036 | 1.3 | 1 | 2100 | -26.3 | ***** | 57 | 207 | .0 | 264 | 1.3 | 1 | 2100 | -22.4 | ***** | 61 | 052 | .3 | 044 | 1.3 | 1 |
| 2400 | -17.3 | ***** | 63 | 058 | .4 | 131 | 1.9 | 1 | 2400 | -27.0 | ***** | 56 | 074 | .1 | 089 | .6 | 1 | 2400 | -21.4 | ***** | 62 | 309 | .1 | 024 | 1.3 | 1 |

DAY 31

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

| | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|---|
| 0300 | -20.4 | ***** | 63 | 264 | .2 | 221 | 1.3 | 1 |
| 0600 | -21.9 | ***** | 62 | 014 | .2 | 312 | 1.3 | 1 |
| 0900 | -22.0 | ***** | 62 | 065 | .3 | 033 | 1.3 | 2 |
| 1200 | -18.4 | ***** | 69 | 097 | .1 | 002 | .6 | 8 |
| 1500 | -21.6 | ***** | 63 | 203 | .2 | 246 | 1.9 | 2 |
| 1800 | -27.4 | ***** | 56 | 159 | .3 | 195 | 1.3 | 1 |
| 2100 | -29.8 | ***** | 55 | 101 | .1 | 329 | 1.9 | 1 |
| 2400 | -29.2 | ***** | 54 | 087 | .1 | 303 | 1.3 | 1 |

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

| DAY | RES. | | | RES. | | | AVG. | MAX. | MAX. | DAY'S | | | |
|-------|---------------|---------------|---------------|--------------|---------------------|---------------------|--------------|---------------------|------------|---------------|------------------|---------------------------|---------|
| | MAX. DEG C | MIN. DEG C | MEAN DEG C | WIND DIR. | WIND SPD. M/S | WIND SPD. M/S | GUST DIR. | GUST SPD. M/S | P'VAL % | MEAN DEG C | MEAN DP MM | SOLAR ENERGY WH/SQM | |
| 1 | -31.3 | -40.8 | -36.1 | *** | **** | **** | *** | **** | *** | 49 | -42.9 | **** | 421 1 |
| 2 | -26.6 | -37.2 | -31.9 | *** | **** | **** | *** | **** | *** | 52 | -37.9 | **** | 350 2 |
| 3 | -33.7 | -39.6 | -36.7 | *** | **** | **** | *** | **** | *** | 48 | -44.6 | **** | 473 3 |
| 4 | -19.3 | -26.5 | -22.9 | 219 | .2 | .4 | 243 | 1.9 | W | 54 | -32.1 | **** | 497 4 |
| 5 | -23.6 | -29.4 | -26.5 | 330 | 3.3 | 3.4 | 347 | 11.4 | NNW | 39 | -36.7 | **** | 661 5 |
| 6 | -28.8 | -47.0 | -37.9 | 280 | .2 | .6 | 309 | 4.4 | NE | 42 | -40.7 | **** | 633 6 |
| 7 | -35.2 | -48.0 | -41.6 | 070 | .3 | .5 | 007 | 3.8 | NE | 42 | **** | **** | 693 7 |
| 8 | -30.6 | -46.3 | -38.5 | 129 | .2 | .9 | 009 | 4.4 | ENE | 45 | -41.3 | **** | 703 8 |
| 9 | -23.6 | -35.1 | -29.4 | 070 | .2 | .4 | 022 | 1.9 | NE | ** | **** | **** | 383 9 |
| 10 | -17.7 | -26.4 | -22.1 | 127 | .2 | .5 | 207 | 2.5 | SSW | 47 | -28.3 | **** | 613 10 |
| 11 | -17.6 | -27.7 | -22.7 | 156 | .1 | .4 | 118 | 1.9 | SW | ** | **** | **** | 405 11 |
| 12 | -13.6 | -18.8 | -16.2 | 224 | .3 | .5 | 262 | 2.5 | SW | 67 | -21.7 | **** | 540 12 |
| 13 | -15.1 | -30.5 | -22.8 | 286 | .1 | .5 | 260 | 3.2 | NNE | 71 | -20.3 | **** | 638 13 |
| 14 | -30.6 | -40.9 | -35.8 | 046 | .2 | .4 | 157 | 2.5 | NE | 50 | -43.1 | **** | 655 14 |
| 15 | -35.4 | -42.0 | -38.7 | 085 | .1 | .3 | 016 | 3.2 | NE | 47 | **** | **** | 595 15 |
| 16 | -30.0 | -41.2 | -35.6 | 086 | .1 | .3 | 058 | 1.9 | NE | ** | **** | **** | 935 16 |
| 17 | -27.2 | -41.3 | -34.3 | 127 | .2 | .5 | 085 | 3.8 | E | 48 | -42.8 | **** | 818 17 |
| 18 | -12.0 | -40.3 | -26.2 | 296 | .7 | 1.1 | 330 | 8.3 | WSW | 50 | -26.6 | **** | 518 18 |
| 19 | -12.2 | -39.2 | -25.7 | 112 | .1 | .6 | 321 | 5.7 | NE | 45 | -27.7 | **** | 885 19 |
| 20 | -29.6 | -40.2 | -34.9 | 061 | .1 | .3 | 037 | 1.9 | NE | ** | **** | **** | 860 20 |
| 21 | -30.1 | -44.8 | -37.5 | 075 | .2 | .4 | 136 | 3.2 | NE | 43 | -46.4 | **** | 1128 21 |
| 22 | -30.3 | -45.6 | -33.0 | 092 | .2 | .5 | 295 | 3.2 | NE | 43 | **** | **** | 1153 22 |
| 23 | -28.8 | -44.2 | -36.5 | 112 | .2 | .4 | 166 | 3.2 | NE | ** | **** | **** | 1255 23 |
| 24 | -27.8 | -44.2 | -38.0 | 079 | .2 | .3 | 059 | 1.0 | ENE | ** | **** | **** | 1433 24 |
| 25 | -30.3 | -43.9 | -37.1 | 113 | .0 | .2 | 015 | 1.3 | NNE | ** | **** | **** | 1348 25 |
| 26 | -29.5 | -44.4 | -37.0 | 123 | .1 | .3 | 073 | 1.3 | NE | ** | **** | **** | 1408 26 |
| 27 | -24.4 | -44.8 | -34.6 | 080 | .0 | .3 | 082 | 1.3 | ENE | ** | **** | **** | 663 27 |
| 28 | -16.4 | -24.4 | -20.4 | 066 | .3 | .4 | 049 | 1.9 | NE | 63 | -22.4 | **** | 348 28 |
| 29 | -17.1 | -27.1 | -22.1 | 110 | .1 | .3 | 083 | 2.5 | ENE | 62 | -23.1 | **** | 358 29 |
| 30 | -19.6 | -28.1 | -23.9 | 066 | .0 | .3 | 224 | 1.3 | NE | ** | **** | **** | 433 30 |
| 31 | -17.5 | -30.9 | -24.2 | 111 | .0 | .3 | 246 | 1.9 | ENE | ** | **** | **** | 520 31 |
| MONTH | -12.0 | -48.0 | -31.1 | 021 | .1 | .5 | 347 | 11.4 | NE | 49 | -34.0 | **** | 22045 |

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS .6

GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 1.3

GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 9.5

GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 8.9

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

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

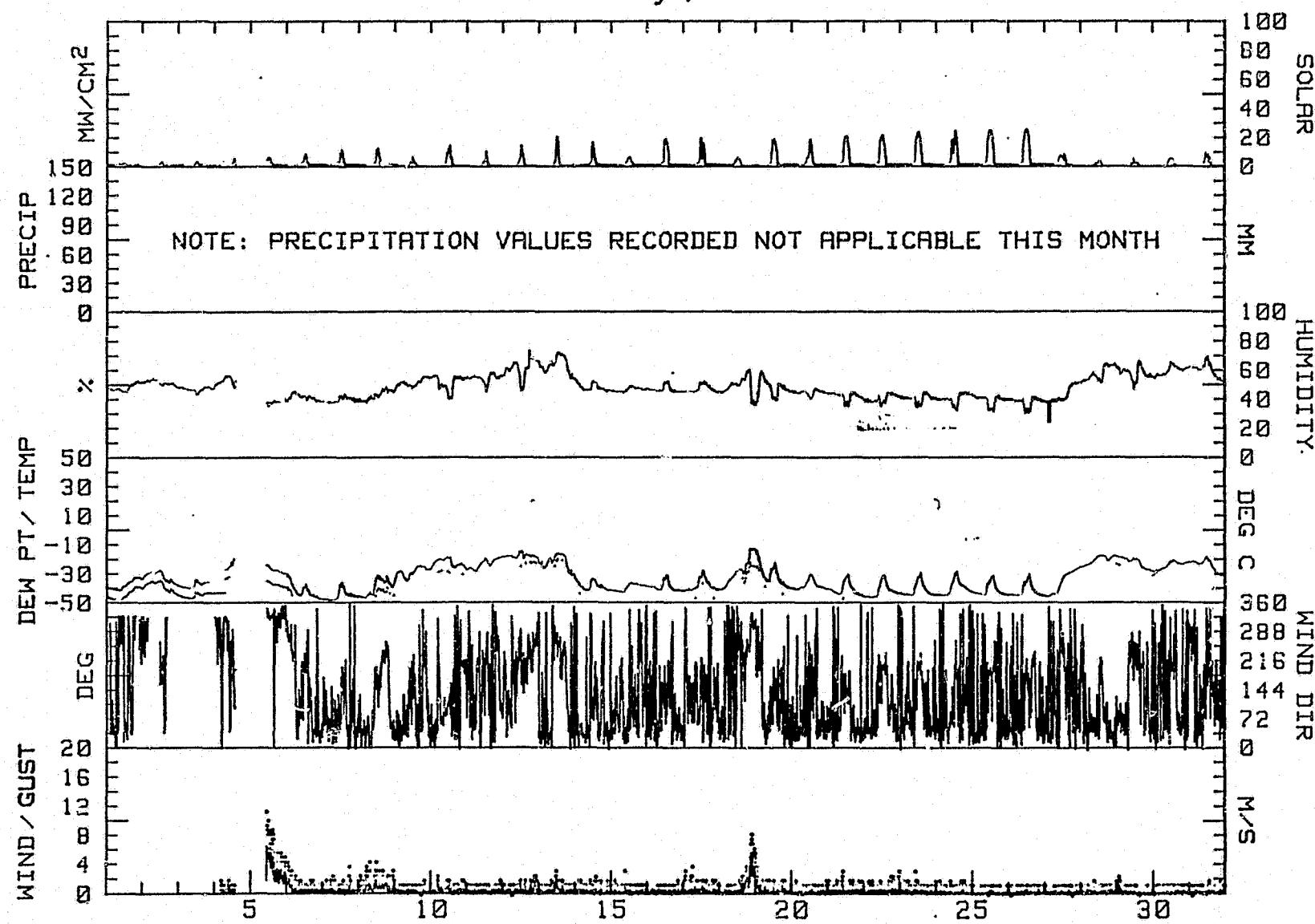
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

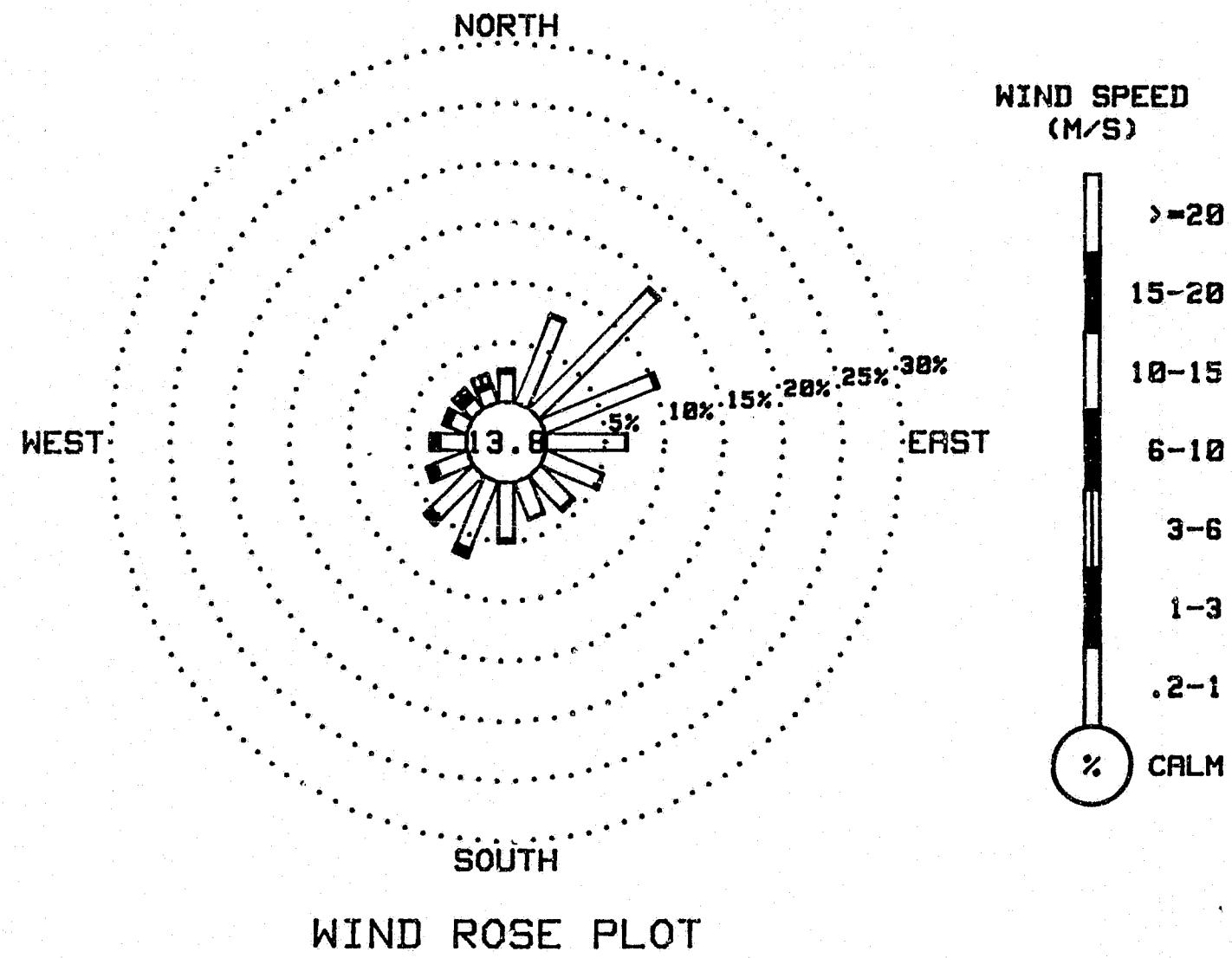
| DIRECTION | VELOCITY (M/S) | | | | | | | | TOTAL |
|-----------|----------------|------------|------------|-------------|--------------|--------------|-----------------|------|--------|
| | 0.2 TO 1.0 | 1.0 TO 3.0 | 3.0 TO 6.0 | 6.0 TO 10.0 | 10.0 TO 15.0 | 15.0 TO 20.0 | 20.0 OR GREATER | | |
| N | 2.49 | .23 | .08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.80 |
| NNE | 7.79 | .16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.95 |
| NE | 14.06 | .16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 14.22 |
| ENE | 10.05 | .23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.28 |
| E | 6.74 | .08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.82 |
| ESE | 5.14 | .12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.26 |
| SE | 3.86 | .23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.09 |
| SSE | 3.27 | .08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.35 |
| S | 4.71 | .31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.03 |
| SSW | 6.12 | .66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.78 |
| SW | 5.10 | .66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.77 |
| WSW | 2.88 | .78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.66 |
| W | 2.30 | .78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.08 |
| WNW | 1.64 | .47 | .04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.14 |
| NW | 1.21 | .66 | .51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.38 |
| NNW | 1.44 | .31 | .82 | .04 | 0.00 | 0.00 | 0.00 | 0.00 | 2.61 |
| CALM | | | | | | | | | 13.79 |
| TOTAL | 78.81 | 5.92 | 1.44 | .04 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2567 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
January, 1982



R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
January, 1982



No precipitation data for February

(See INTERPRETING DATA).

R & M CONSULTANTS, INC.

SUSITTNA HYDRO ELECTRIC PROJECT

THREE HOUR SUMMARY FOR TYONE WEATHER STATION
DATA TAKEN DURING February, 1982

DAY 01

DAY 02

DAY 03

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|---|------|------|-------|----|-----|----|-----|-----|---|
| 0300 | -26.1 | ***** | 56 | 077 | .3 | 060 | 1.3 | 1 | 0300 | -9.9 | ***** | 78 | 034 | .2 | 219 | 1.9 | 0 | 0300 | -9.2 | ***** | 79 | 089 | .2 | 122 | 1.9 | 1 |
| 0600 | -21.5 | ***** | 62 | 274 | .2 | 238 | 1.3 | 1 | 0600 | -10.1 | ***** | 78 | 351 | .1 | 050 | 1.3 | 1 | 0600 | -9.2 | ***** | 79 | 176 | .3 | 202 | 1.9 | 1 |
| 0900 | -17.9 | ***** | 65 | 310 | .1 | 229 | 1.3 | 1 | 0900 | -12.7 | ***** | 72 | 108 | .3 | 095 | 1.3 | 2 | 0900 | -8.4 | ***** | 76 | 208 | .3 | 104 | 1.9 | 2 |
| 1200 | -11.9 | ***** | 60 | 228 | .0 | 205 | 1.3 | 16 | 1200 | -10.1 | ***** | 65 | 071 | .1 | 176 | 1.9 | 4 | 1200 | -4.9 | ***** | 72 | 229 | .1 | 233 | 1.9 | 3 |
| 1500 | -12.6 | ***** | 69 | 187 | .3 | 248 | 1.9 | 1 | 1500 | -11.2 | ***** | 68 | 158 | .2 | 057 | 1.3 | 2 | 1500 | -3.9 | ***** | 83 | 087 | .2 | 086 | 1.9 | 2 |
| 1800 | -11.8 | ***** | 74 | 072 | .3 | 083 | 1.3 | 1 | 1800 | -10.3 | ***** | 77 | 177 | .2 | 262 | 1.3 | 1 | 1800 | -3.8 | ***** | 93 | 102 | .4 | 099 | 1.9 | 1 |
| 2100 | -11.0 | ***** | 75 | 007 | .1 | 053 | 1.3 | 1 | 2100 | -8.7 | ***** | 79 | 254 | .0 | 133 | 1.9 | 1 | 2100 | -3.3 | -4.2 | 94 | 172 | .2 | 165 | 1.9 | 1 |
| 2400 | -10.9 | ***** | 76 | 211 | .1 | 230 | 1.3 | 1 | 2400 | -7.9 | ***** | 80 | 241 | .2 | 342 | 1.3 | 1 | 2400 | -2.7 | ***** | 98 | 203 | .2 | 207 | 1.9 | 1 |

DAY 04

DAY 05

DAY 06

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

| | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|-------|----|----------|----------|-----|------|-------|-------|------|----------|----------|----------|----------|----------|-------|-------|-------|----------|----------|----------|----------|----------|----|
| 0300 | -8 | ***** | 27 | 248 | .4 | 254 | 2.5 | 1 | 0300 | -4.9 | ***** | 91 | *** **** | *** **** | *** **** | 1 | 0300 | -12.2 | ***** | 80 | *** **** | *** **** | *** **** | 1 |
| 0600 | .3 | -9.8 | 47 | 250 | 1.3 | 254 | 2.5 | 0 | 0600 | -8.0 | ***** | 84 | *** **** | *** **** | *** **** | 1 | 0600 | -13.6 | ***** | 78 | *** **** | *** **** | *** **** | 1 |
| 0900 | .4 | ***** | 50 | 264 | .4 | 258 | 1.9 | 2 | 0900 | -8.4 | ***** | 86 | *** **** | *** **** | *** **** | 3 | 0900 | -14.0 | ***** | 78 | *** **** | *** **** | *** **** | 3 |
| 1200 | 1.6 | ***** | 95 | 243 | .1 | 207 | 1.3 | 8 | 1200 | -5.0 | ***** | 97 | *** **** | *** **** | *** **** | 11 | 1200 | -9.1 | ***** | 89 | *** **** | *** **** | *** **** | 20 |
| 1500 | 1.5 | ***** | 86 | 242 | .5 | 264 | 1.9 | 3 | 1500 | -4.1 | ***** | 92 | *** **** | *** **** | *** **** | 4 | 1500 | -8.4 | ***** | 67 | *** **** | *** **** | *** **** | 11 |
| 1800 | -2.3 | ***** | 9 | 221 | .7 | 228 | 1.9 | 1 | 1800 | -6.5 | ***** | 87 | *** **** | *** **** | *** **** | 1 | 1800 | -12.5 | ***** | 78 | *** **** | *** **** | *** **** | 1 |
| 2100 | -6.0 | ***** | 88 | *** **** | *** **** | 1 | 2100 | -7.7 | ***** | 87 | *** **** | *** **** | *** **** | 1 | 2100 | -15.3 | ***** | 76 | *** **** | *** **** | *** **** | 1 | | |
| 2400 | -6.1 | ***** | 88 | *** **** | *** **** | 1 | 2400 | -10.5 | ***** | 82 | *** **** | *** **** | *** **** | 1 | 2400 | -11.8 | ***** | 78 | *** **** | *** **** | *** **** | 1 | | |

DAY 07

DAY 08

DAY 09

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

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|----------|----------|-----|------|-------|-------|------|----------|----------|----------|----------|----------|------|-------|------|-------|-----|-----|-----|-----|-----|----|
| 0300 | -11.6 | ***** | 79 | *** **** | *** **** | 1 | 0300 | -18.5 | ***** | 73 | *** **** | *** **** | *** **** | 1 | 0300 | -2.4 | -10.2 | 55 | 323 | 4.2 | 313 | 7.0 | 1 | | |
| 0600 | -14.5 | **** | 76 | *** **** | *** **** | 1 | 0600 | -15.5 | ***** | 75 | *** **** | *** **** | *** **** | 1 | 0600 | -3.1 | -13.7 | 44 | 317 | 4.1 | 314 | 8.3 | 1 | | |
| 0900 | -16.4 | ***** | 70 | *** **** | *** **** | 3 | 0900 | -12.4 | ***** | 75 | *** **** | *** **** | *** **** | 4 | 0900 | -3.8 | -14.9 | 42 | 328 | 5.2 | 318 | 8.9 | 5 | | |
| 1200 | -8.4 | ***** | 56 | 163 | .3 | 163 | 1.3 | 25 | 1200 | -6.4 | ***** | 66 | *** **** | *** **** | *** **** | 9 | 1200 | -2.6 | -17.2 | 32 | 334 | 5.2 | 334 | 9.5 | 30 |
| 1500 | -5.8 | ***** | 55 | 204 | .1 | 253 | 1.9 | 11 | 1500 | -8.4 | ***** | 78 | *** **** | *** **** | *** **** | 2 | 1500 | -4.0 | -18.4 | 32 | 334 | 5.1 | 333 | 9.5 | 11 |
| 1800 | -15.4 | ***** | 74 | 188 | .1 | 202 | 1.3 | 1 | 1800 | -7.7 | ***** | 84 | *** **** | *** **** | *** **** | 1 | 1800 | -5.7 | -17.9 | 38 | 346 | 5.6 | 331 | 9.5 | 1 |
| 2100 | -18.5 | ***** | 70 | *** **** | *** **** | 1 | 2100 | -3.3 | ***** | 86 | *** **** | *** **** | *** **** | 1 | 2100 | -6.5 | -18.0 | 40 | 347 | 4.7 | 351 | 8.3 | 2 | | |
| 2400 | -19.8 | ***** | 67 | *** **** | *** **** | 1 | 2400 | -3.3 | ***** | 79 | *** **** | *** **** | *** **** | 1 | 2400 | -8.4 | -18.8 | 43 | 338 | 3.6 | 334 | 7.6 | 1 | | |

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR TYONE WEATHER STATION
DATA TAKEN DURING February, 1982

DAY 10

DAY 11

DAY 12

| HOUR | DEW | WIND | WIND GUST MAX. | POINT | NDNG TEMP. | DIR. | SPD. | DIR. | GUST RAD | POINT | NDNG TEMP. | DIR. | SPD. | DIR. | GUST RAD | POINT | NDNG TEMP. | DIR. | SPD. | DIR. | GUST RAD | | | | | |
|------|-------|-------|----------------|-------|------------|------------|------|-------|----------|------------|------------|-------|-------|------------|----------|-------|------------|------------|-------|-------|----------|------------|----|-----|-----|----|
| | DEG C | DEG C | % DEG. M/S | DEG C | DEG C | % DEG. M/S | MW | DEG C | DEG C | % DEG. M/S | MW | DEG C | DEG C | % DEG. M/S | MW | DEG C | DEG C | % DEG. M/S | MW | DEG C | DEG C | % DEG. M/S | MW | | | |
| 0300 | -9.8 | -19.6 | 45 | 353 | 4.0 | 355 | 7.0 | 1 | 0300 | -21.2 | -29.1 | 49 | 296 | 1.2 | 327 | 3.8 | 1 | 0300 | -27.2 | ***** | 49 | 247 | .8 | 236 | 3.2 | 1 |
| 0600 | -10.9 | **** | 42 | 356 | 3.2 | 356 | 8.3 | 1 | 0600 | -29.1 | **** | 54 | 191 | .5 | 238 | 3.2 | 1 | 0600 | -34.6 | **** | 49 | 152 | .6 | 182 | 2.5 | 1 |
| 0900 | -10.7 | -23.3 | 35 | 006 | 1.9 | 013 | 6.3 | 6 | 0900 | -24.5 | -32.2 | 49 | 118 | 1.0 | 110 | 3.8 | 4 | 0900 | -30.0 | **** | 43 | 067 | .3 | 090 | 1.9 | 4 |
| 1200 | -9.6 | -23.3 | 32 | 009 | 4.3 | 011 | 7.0 | 31 | 1200 | -18.1 | -31.5 | 30 | 210 | .9 | 129 | 2.5 | 31 | 1200 | -21.6 | **** | 23 | 187 | .4 | 158 | 1.3 | 31 |
| 1500 | -10.2 | -24.6 | 30 | 009 | 4.4 | 001 | 7.6 | 12 | 1500 | -14.1 | -31.7 | 21 | 084 | 1.0 | 064 | 7.0 | 12 | 1500 | -16.8 | **** | 19 | 103 | .7 | 126 | 1.7 | 16 |
| 1800 | -12.4 | -25.5 | 33 | 335 | 2.4 | 345 | 5.1 | 2 | 1800 | -16.8 | -31.8 | 26 | 069 | 1.5 | 060 | 7.0 | 1 | 1800 | -27.1 | **** | 42 | 231 | .2 | 297 | 1.3 | 1 |
| 2100 | -14.1 | -26.3 | 35 | 344 | 2.9 | 344 | 5.7 | 2 | 2100 | -15.6 | -31.2 | 25 | 088 | .9 | 085 | 5.1 | 2 | 2100 | -28.7 | **** | 46 | 013 | .2 | 297 | 1.3 | 1 |
| 2400 | -17.1 | -27.6 | 40 | 232 | .9 | 333 | 4.4 | 1 | 2400 | -22.1 | -33.2 | 36 | 265 | .4 | 059 | 5.1 | 2 | 2400 | -32.7 | **** | 48 | 051 | .3 | 055 | 1.9 | 2 |

DAY 13

DAY 14

DAY 15

| HOUR | DEW | WIND | WIND GUST MAX. | POINT | NDNG TEMP. | DIR. | SPD. | DIR. | GUST RAD | POINT | NDNG TEMP. | DIR. | SPD. | DIR. | GUST RAD | POINT | NDNG TEMP. | DIR. | SPD. | DIR. | GUST RAD | | | | | |
|------|-------|-------|----------------|-------|------------|------------|------|-------|----------|------------|------------|-------|-------|------------|----------|-------|------------|------------|-------|-------|----------|------------|-----|-----|------|----|
| | DEG C | DEG C | % DEG. M/S | DEG C | DEG C | % DEG. M/S | MW | DEG C | DEG C | % DEG. M/S | MW | DEG C | DEG C | % DEG. M/S | MW | DEG C | DEG C | % DEG. M/S | MW | DEG C | DEG C | % DEG. M/S | MW | | | |
| 0300 | -35.5 | **** | 46 | 046 | .1 | 048 | 1.9 | 1 | 0300 | -28.2 | **** | 49 | 202 | .4 | 129 | 1.3 | 2 | 0300 | -26.8 | -35.4 | 44 | 003 | 5.1 | 009 | 9.5 | 2 |
| 0600 | -36.4 | **** | 44 | 049 | .2 | 344 | 1.9 | 1 | 0600 | -25.3 | **** | 50 | 316 | .1 | 187 | 1.3 | 1 | 0600 | -27.3 | -36.1 | 43 | 007 | 4.9 | 017 | 8.3 | 2 |
| 0900 | -31.2 | **** | 44 | 038 | .1 | 291 | 1.3 | 4 | 0900 | -23.4 | **** | 48 | 251 | .4 | 291 | 1.3 | 6 | 0900 | -27.4 | -36.4 | 42 | 005 | 4.5 | 003 | 10.2 | 7 |
| 1200 | -23.3 | **** | 33 | 140 | .3 | 084 | 1.9 | 14 | 1200 | -19.2 | -27.7 | 47 | 309 | .8 | 001 | 7.0 | 12 | 1200 | -25.8 | -35.7 | 39 | 001 | 4.4 | 001 | 7.6 | 17 |
| 1500 | -23.5 | **** | 38 | 193 | .4 | 224 | 1.9 | 4 | 1500 | -22.4 | -31.1 | 45 | 359 | 6.4 | 353 | 10.8 | 5 | 1500 | -25.4 | -35.4 | 39 | 354 | 3.6 | 358 | 7.0 | 11 |
| 1800 | -31.0 | **** | 48 | 153 | .5 | 156 | 3.2 | 1 | 1800 | -24.4 | -32.7 | 46 | 359 | 6.9 | 357 | 10.8 | 1 | 1800 | -28.0 | -36.7 | 43 | 349 | 2.0 | 356 | 5.7 | 2 |
| 2100 | -33.5 | -41.1 | 46 | 071 | .5 | 115 | 2.5 | 2 | 2100 | -25.8 | -34.7 | 43 | 359 | 6.2 | 350 | 9.5 | 1 | 2100 | -30.8 | **** | 45 | 192 | .8 | 196 | 2.5 | 2 |
| 2400 | -32.5 | **** | 46 | 086 | .5 | 087 | 1.9 | 2 | 2400 | -26.4 | -36.0 | 40 | 357 | 6.1 | 000 | 9.5 | 2 | 2400 | -29.3 | -36.2 | 42 | 270 | 1.5 | 304 | 5.7 | 2 |

DAY 16

DAY 17

DAY 18

| HOUR | DEW | WIND | WIND GUST MAX. | POINT | NDNG TEMP. | DIR. | SPD. | DIR. | GUST RAD | POINT | NDNG TEMP. | DIR. | SPD. | DIR. | GUST RAD | POINT | NDNG TEMP. | DIR. | SPD. | DIR. | GUST RAD | | | | | |
|------|-------|-------|----------------|-------|------------|------------|------|-------|----------|------------|------------|-------|-------|------------|----------|-------|------------|------------|-------|-------|----------|------------|-----|-----|-----|----|
| | DEG C | DEG C | % DEG. M/S | DEG C | DEG C | % DEG. M/S | MW | DEG C | DEG C | % DEG. M/S | MW | DEG C | DEG C | % DEG. M/S | MW | DEG C | DEG C | % DEG. M/S | MW | DEG C | DEG C | % DEG. M/S | MW | | | |
| 0300 | -28.7 | **** | 42 | 276 | 1.5 | 329 | 5.1 | 1 | 0300 | -29.1 | **** | 49 | 227 | .4 | 205 | 1.8 | 1 | 0300 | -23.0 | **** | 52 | 074 | .4 | 069 | 1.9 | 1 |
| 0600 | -28.7 | **** | 42 | 358 | .2 | 249 | 3.2 | 2 | 0600 | -28.6 | **** | 50 | 125 | .3 | 073 | 2.5 | 1 | 0600 | -22.6 | **** | 53 | 208 | .8 | 209 | 3.2 | 1 |
| 0900 | -29.2 | **** | 41 | 244 | .6 | 319 | 2.5 | 7 | 0900 | -39.5 | **** | 45 | 161 | .2 | 206 | 1.9 | 7 | 0900 | -21.9 | -31.2 | 43 | 027 | .2 | 036 | 3.8 | 5 |
| 1200 | -24.3 | **** | 21 | 208 | .8 | 228 | 1.9 | 32 | 1200 | -21.2 | **** | 31 | 220 | .4 | 248 | 1.9 | 17 | 1200 | -19.3 | -30.4 | 37 | 311 | 2.4 | 305 | 5.7 | 11 |
| 1500 | -23.3 | -35.5 | 32 | 237 | .5 | 324 | 2.5 | 10 | 1500 | -20.7 | -33.8 | 30 | 218 | .8 | 220 | 2.5 | 13 | 1500 | -19.4 | -31.1 | 35 | 349 | 4.8 | 356 | 9.5 | 8 |
| 1800 | -26.9 | **** | 48 | 223 | .9 | 254 | 1.9 | 1 | 1800 | -23.6 | **** | 51 | 221 | .6 | 315 | 1.9 | 1 | 1800 | -21.9 | -33.0 | 36 | 360 | 5.3 | 359 | 8.9 | 2 |
| 2100 | -25.8 | **** | 48 | 248 | .6 | 230 | 1.9 | 1 | 2100 | -22.2 | -29.6 | 51 | 242 | 1.0 | 200 | 3.8 | 1 | 2100 | -21.6 | -34.3 | 31 | 359 | 4.9 | 006 | 8.9 | 2 |
| 2400 | -26.1 | **** | 49 | 338 | .3 | 001 | 3.2 | 1 | 2400 | -24.2 | **** | 53 | 162 | .2 | 212 | 3.2 | 1 | 2400 | -23.1 | -34.7 | 34 | 355 | 3.2 | 008 | 7.6 | 2 |

R & M CONSULTANTS, INC.

SUSITNA HYDRO ELECTRIC PROJECT

THREE HOUR SUMMARY FOR TYONE WEATHER STATION
DATA TAKEN DURING February, 1982

DAY 19

DAY 20

DAY 21

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -20.1 | -35.3 | 35 | 355 | 4.0 | 354 | 7.0 | 2 | 0300 | -35.0 | **** | 45 | 213 | .8 | 209 | 3.2 | 2 | 0300 | -45.0 | **** | 36 | 119 | .1 | 145 | 1.3 | 2 |
| 0600 | -25.3 | -36.9 | 33 | 327 | 2.3 | 348 | 7.6 | 2 | 0600 | -34.6 | **** | 43 | 209 | .5 | 212 | 2.5 | 2 | 0600 | -47.0 | **** | 36 | 043 | .2 | 073 | 2.5 | 2 |
| 0900 | -25.1 | -37.4 | 31 | 323 | 2.0 | 352 | 5.1 | 6 | 0900 | -31.2 | **** | 33 | 282 | .4 | 273 | 2.5 | 15 | 0900 | -40.2 | **** | 29 | 092 | .3 | 152 | 1.9 | 19 |
| 1200 | -23.5 | -36.6 | 29 | 343 | 3.1 | 347 | 7.0 | 15 | 1200 | -24.3 | -39.9 | 22 | 225 | .5 | 225 | 3.8 | 15 | 1200 | -25.3 | -41.2 | 21 | 231 | .8 | 257 | 3.2 | 17 |
| 1500 | -23.1 | -36.6 | 28 | 324 | 2.8 | 333 | 6.3 | 8 | 1500 | -20.6 | -37.6 | 20 | 278 | 1.4 | 266 | 4.4 | 10 | 1500 | -21.8 | -38.7 | 20 | 271 | 1.6 | 316 | 3.8 | 10 |
| 1800 | -24.4 | -36.4 | 32 | 330 | 2.9 | 357 | 7.8 | 1 | 1800 | -27.9 | **** | 35 | 276 | .9 | 300 | 3.8 | 2 | 1800 | -29.9 | **** | 34 | 297 | 1.1 | 340 | 5.1 | 2 |
| 2100 | -27.2 | -38.6 | 33 | 319 | 1.4 | 002 | 5.1 | 2 | 2100 | -35.3 | **** | 43 | 252 | .5 | 015 | 2.5 | 2 | 2100 | -38.5 | **** | 37 | 041 | .4 | 049 | 3.2 | 2 |
| 2400 | -32.9 | -40.6 | 46 | 250 | 1.2 | 281 | 3.8 | 2 | 2400 | -41.0 | **** | 39 | 352 | .2 | 322 | 2.5 | 2 | 2400 | -41.0 | **** | 37 | 074 | .6 | 046 | 1.9 | 2 |

DAY 22

DAY 23

DAY 24

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -45.4 | **** | 35 | 056 | .5 | 021 | 1.9 | 2 | 0300 | -43.9 | **** | 35 | 043 | .4 | 029 | 1.3 | 2 | 0300 | -44.7 | **** | 35 | 033 | .4 | 341 | 1.9 | 2 |
| 0600 | -46.4 | **** | 35 | 049 | .4 | 034 | 1.9 | 2 | 0600 | -45.0 | **** | 34 | 057 | .5 | 036 | 1.9 | 2 | 0600 | -45.4 | **** | 34 | 056 | .4 | 039 | 1.3 | 2 |
| 0900 | -38.3 | **** | 27 | 058 | .4 | 054 | 1.9 | 20 | 0900 | -36.7 | **** | 25 | 065 | .3 | 047 | 1.9 | 21 | 0900 | -35.8 | **** | 26 | 049 | .4 | 024 | 1.9 | 22 |
| 1200 | -25.9 | -41.3 | 22 | 210 | .6 | 208 | 2.5 | 17 | 1200 | -26.1 | -41.9 | 21 | 214 | .7 | 233 | 2.5 | 18 | 1200 | -23.9 | -40.0 | 21 | 179 | .5 | 076 | 1.9 | 18 |
| 1500 | -23.5 | -40.1 | 20 | 274 | 1.8 | 262 | 3.8 | 10 | 1500 | -19.5 | -37.2 | 19 | 214 | .6 | 185 | 2.5 | 11 | 1500 | -17.2 | -35.8 | 18 | 237 | 1.3 | 263 | 3.2 | 13 |
| 1800 | -30.4 | **** | 31 | 247 | .6 | 299 | 2.5 | 2 | 1800 | -26.0 | -38.8 | 29 | 197 | .5 | 131 | 4.4 | 2 | 1800 | -28.7 | **** | 28 | 207 | .8 | 222 | 3.8 | 2 |
| 2100 | -39.6 | **** | 35 | 038 | .3 | 251 | 1.9 | 2 | 2100 | -39.0 | **** | 36 | 093 | .4 | 155 | 2.5 | 2 | 2100 | -38.2 | **** | 36 | 053 | .3 | 051 | 1.9 | 2 |
| 2400 | -42.1 | **** | 35 | 043 | .5 | 035 | 1.9 | 2 | 2400 | -42.9 | **** | 34 | 045 | .4 | 078 | 1.9 | 2 | 2400 | -40.9 | **** | 35 | 065 | .4 | 082 | 1.9 | 2 |

DAY 25

DAY 26

DAY 27

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -41.1 | **** | 35 | 036 | .5 | 035 | 1.9 | 2 | 0300 | -40.6 | **** | 35 | 036 | .4 | 036 | 1.3 | 2 | 0300 | -23.8 | **** | 32 | 078 | .3 | 086 | 1.3 | 2 |
| 0600 | -39.6 | **** | 36 | 038 | .7 | 029 | 4.4 | 2 | 0600 | -41.4 | **** | 35 | 040 | .5 | 036 | 1.3 | 2 | 0600 | -24.7 | **** | 34 | 081 | .3 | 155 | 1.3 | 2 |
| 0900 | -30.6 | **** | 24 | 050 | .4 | 036 | 1.9 | 24 | 0900 | -33.2 | **** | 25 | 046 | .5 | 050 | 2.5 | 24 | 0900 | -21.6 | -38.0 | 21 | 183 | .3 | 197 | 1.9 | 16 |
| 1200 | -20.3 | -37.9 | 19 | 237 | 1.3 | 242 | 3.2 | 21 | 1200 | -20.9 | -37.9 | 20 | 206 | .6 | 204 | 1.9 | 32 | 1200 | -15.9 | -34.7 | 18 | 223 | 1.0 | 198 | 1.9 | 28 |
| 1500 | -15.8 | -34.6 | 18 | 253 | 1.8 | 287 | 3.8 | 21 | 1500 | -14.3 | -34.0 | 17 | 217 | 1.2 | 220 | 2.5 | 23 | 1500 | -13.0 | **** | 17 | 201 | .8 | 238 | 1.9 | 20 |
| 1800 | -22.2 | -38.5 | 21 | 254 | 1.4 | 283 | 3.8 | 2 | 1800 | -26.6 | **** | 29 | 170 | .5 | 168 | 2.5 | 2 | 1800 | -24.8 | **** | 29 | 210 | .6 | 203 | 2.5 | 2 |
| 2100 | -31.2 | **** | 31 | 237 | .6 | 216 | 2.5 | 2 | 2100 | -25.8 | **** | 31 | 240 | .5 | 227 | 2.5 | 2 | 2100 | -30.2 | **** | 38 | 053 | .4 | 043 | 1.9 | 2 |
| 2400 | -37.4 | **** | 36 | 048 | .3 | 036 | 1.3 | 2 | 2400 | -26.8 | **** | 33 | 010 | .3 | 318 | 1.9 | 2 | 2400 | -34.5 | **** | 40 | 047 | .3 | 041 | 1.3 | 2 |

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR TYONE WEATHER STATION
DATA TAKEN DURING February, 1982

DAY 28

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

| | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -35.9 | ***** | 38 | 043 | .3 | 039 | 1.3 | 2 |
| 0600 | -38.1 | ***** | 37 | 083 | .2 | 153 | 1.3 | 2 |
| 0900 | -28.7 | ***** | 22 | 053 | .3 | 028 | 1.3 | 27 |
| 1200 | -18.6 | -36.5 | 19 | 177 | .5 | 194 | 1.9 | 41 |
| 1500 | -13.9 | -33.6 | 17 | 227 | 1.3 | 217 | 2.5 | 24 |
| 1800 | -22.0 | ***** | 26 | 229 | 1.1 | 227 | 2.5 | 2 |
| 2100 | -32.2 | ***** | 40 | 077 | .2 | 105 | 1.9 | 2 |
| 2400 | -36.6 | ***** | 38 | 044 | .5 | 033 | 1.9 | 2 |

R & M CONSULTANTS, INC.
SUSTAINA HYDRO ELECTRIC PROJECT

MONTHLY SUMMARY FOR TYONE WEATHER STATION
DATA TAKEN DURING February, 1982

| DAY | MAX. TEMP. | | | RES. TEMP. | | | AVG. WIND | | | MAX. WIND | | | MAX. GUST | | | P'VAL MEAN | | | DAY'S PRECIP | | | SOLAR ENERGY |
|-------|------------|-------|-------|------------|------|-----|-----------|------|------|-----------|-------|-------|-----------|-------|----|------------|-----|--|--------------|--|--|--------------|
| | DEG C | DEG C | DEG C | DEG C | DIR. | M/S | SPD. | M/S | DIR. | DEG | SPD. | DIR. | RH % | DEG C | MM | WH/SQM | DAY | | | | | |
| 1 | -10.0 | -28.7 | -19.4 | 104 | .0 | .4 | 248 | 1.9 | NE | ** | ***** | ***** | 568 | 1 | | | | | | | | |
| 2 | -7.4 | -12.7 | -10.1 | 131 | .1 | .4 | 219 | 1.9 | NE | ** | ***** | ***** | 398 | 2 | | | | | | | | |
| 3 | -2.7 | -11.2 | -7.0 | 155 | .1 | .6 | 122 | 1.9 | ENE | 87 | -7.7 | **** | 385 | 3 | | | | | | | | |
| 4 | 3.7 | -6.7 | -1.5 | 246 | .5 | .4 | 254 | 2.5 | WSW | 51 | -10.0 | **** | 645 | 4 | | | | | | | | |
| 5 | -3.0 | -10.5 | -6.8 | *** | **** | 0.0 | *** | **** | *** | ** | ***** | **** | 668 | 5 | | | | | | | | |
| 6 | -7.6 | -15.6 | -11.6 | *** | **** | 0.0 | *** | **** | *** | ** | ***** | **** | 1108 | 6 | | | | | | | | |
| 7 | -5.3 | -19.9 | -12.6 | 192 | .1 | .1 | 253 | 1.9 | SSE | ** | ***** | **** | 1318 | 7 | | | | | | | | |
| 8 | -2.5 | -20.4 | -11.5 | *** | **** | 0.0 | *** | **** | *** | ** | ***** | **** | 570 | 8 | | | | | | | | |
| 9 | -2.1 | -8.4 | -5.3 | 335 | 4.7 | 4.3 | 334 | 9.5 | NNW | 40 | -16.3 | **** | 1663 | 9 | | | | | | | | |
| 10 | -8.2 | -18.2 | -13.2 | 356 | 2.8 | 3.2 | 356 | 8.3 | N | 37 | -23.4 | **** | 1610 | 10 | | | | | | | | |
| 11 | -13.5 | -29.8 | -21.7 | 104 | .3 | 1.4 | 064 | 7.0 | E | 33 | -31.2 | **** | 1780 | 11 | | | | | | | | |
| 12 | -16.4 | -36.8 | -26.6 | 156 | .1 | .5 | 236 | 3.2 | NE | 39 | -35.1 | **** | 1858 | 12 | | | | | | | | |
| 13 | -21.8 | -36.8 | -29.3 | 108 | .2 | .5 | 156 | 3.2 | ENE | 48 | -38.9 | **** | 1120 | 13 | | | | | | | | |
| 14 | -19.1 | -32.0 | -25.6 | 356 | 3.2 | 3.6 | 353 | 10.8 | N | 45 | -32.3 | **** | 825 | 14 | | | | | | | | |
| 15 | -25.1 | -31.1 | -28.1 | 356 | 2.9 | 3.4 | 003 | 10.2 | N | 42 | -36.4 | **** | 1220 | 15 | | | | | | | | |
| 16 | -22.3 | -30.5 | -26.4 | 250 | .6 | 1.0 | 329 | 5.1 | WSW | 40 | -36.4 | **** | 1430 | 16 | | | | | | | | |
| 17 | -18.6 | -30.0 | -24.3 | 215 | .4 | .7 | 200 | 3.8 | SSW | 44 | -31.8 | **** | 1165 | 17 | | | | | | | | |
| 18 | -18.4 | -25.3 | -21.9 | 351 | 2.4 | 2.9 | 256 | 9.5 | N | 37 | -32.1 | **** | 973 | 18 | | | | | | | | |
| 19 | -21.8 | -32.9 | -27.4 | 331 | 2.3 | 2.7 | 348 | 7.6 | NW | 33 | -36.9 | **** | 1203 | 19 | | | | | | | | |
| 20 | -19.6 | -42.2 | -30.9 | 256 | .5 | .9 | 266 | 4.4 | W | 30 | -39.6 | **** | 1403 | 20 | | | | | | | | |
| 21 | -20.6 | -47.5 | -34.1 | 288 | .2 | .8 | 340 | 5.1 | NE | 24 | -40.2 | **** | 1555 | 21 | | | | | | | | |
| 22 | -23.1 | -46.4 | -34.8 | 301 | .2 | .7 | 262 | 3.8 | NE | 22 | -41.3 | **** | 1600 | 22 | | | | | | | | |
| 23 | -18.5 | -45.6 | -32.1 | 129 | .1 | .6 | 131 | 4.4 | NE | 22 | -39.4 | **** | 1683 | 23 | | | | | | | | |
| 24 | -16.4 | -45.1 | -31.0 | 180 | .1 | .7 | 222 | 3.8 | NE | 20 | -38.1 | **** | 1780 | 24 | | | | | | | | |
| 25 | -14.5 | -41.5 | -28.0 | 261 | .4 | 1.0 | 029 | 4.4 | NE | 20 | -37.1 | **** | 2090 | 25 | | | | | | | | |
| 26 | -12.8 | -42.0 | -27.4 | 203 | .1 | .7 | 050 | 2.5 | NE | 20 | -36.3 | **** | 2548 | 26 | | | | | | | | |
| 27 | -13.0 | -34.5 | -23.8 | 182 | .2 | .6 | 203 | 2.5 | NE | 19 | -36.0 | **** | 2215 | 27 | | | | | | | | |
| 28 | -13.9 | -38.4 | -26.2 | 205 | .2 | .6 | 217 | 2.5 | NE | 18 | -34.7 | *** | 2905 | 28 | | | | | | | | |
| MONTH | 3.7 | -47.5 | -21.4 | 340 | .7 | 1.2 | 353 | 10.8 | NE | 35 | -32.3 | *** | 38280 | | | | | | | | | |

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 10.2

GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 10.2

GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 9.5

GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 10.8

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

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

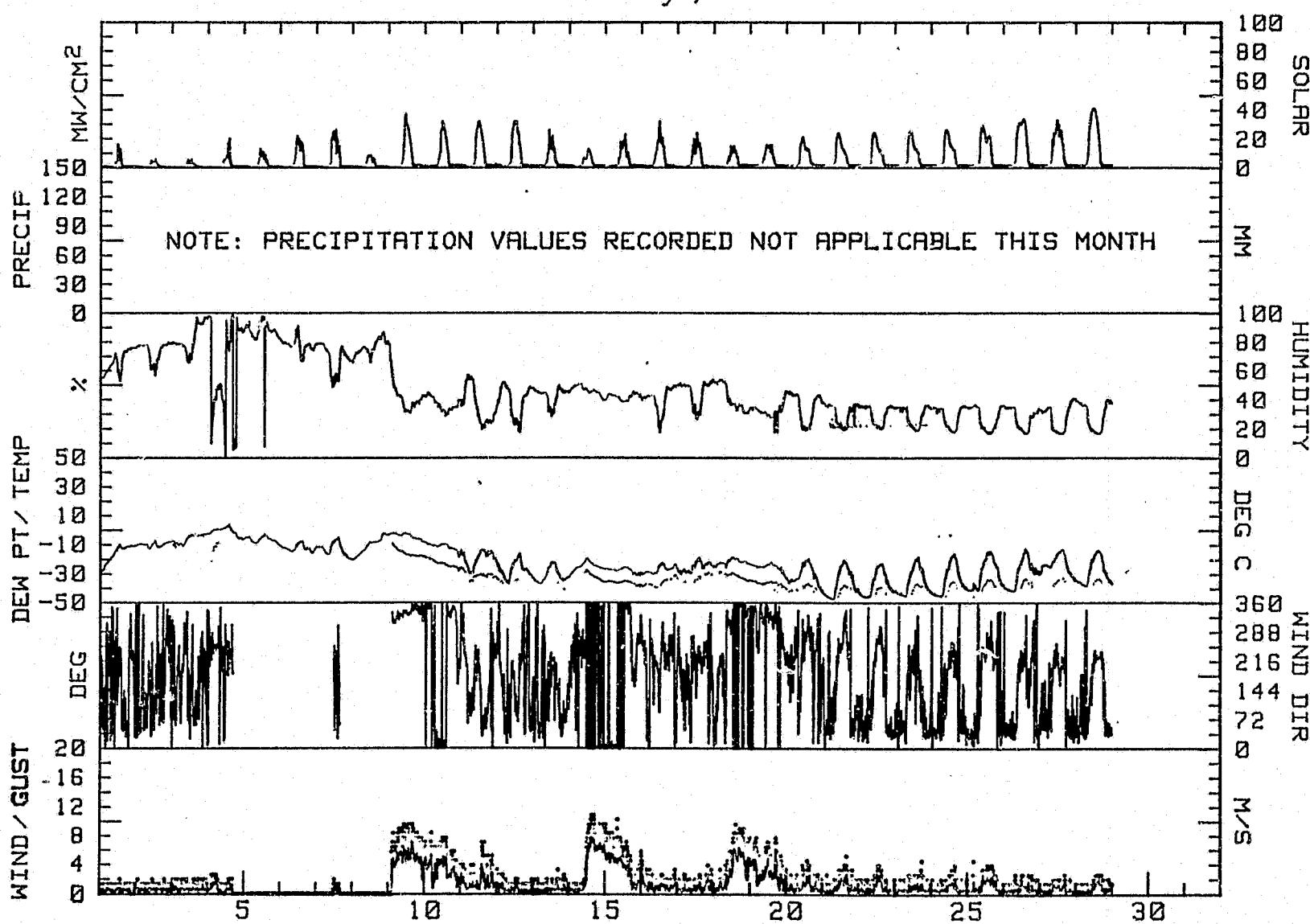
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR TYONE WEATHER STATION
DATA TAKEN DURING February, 1982

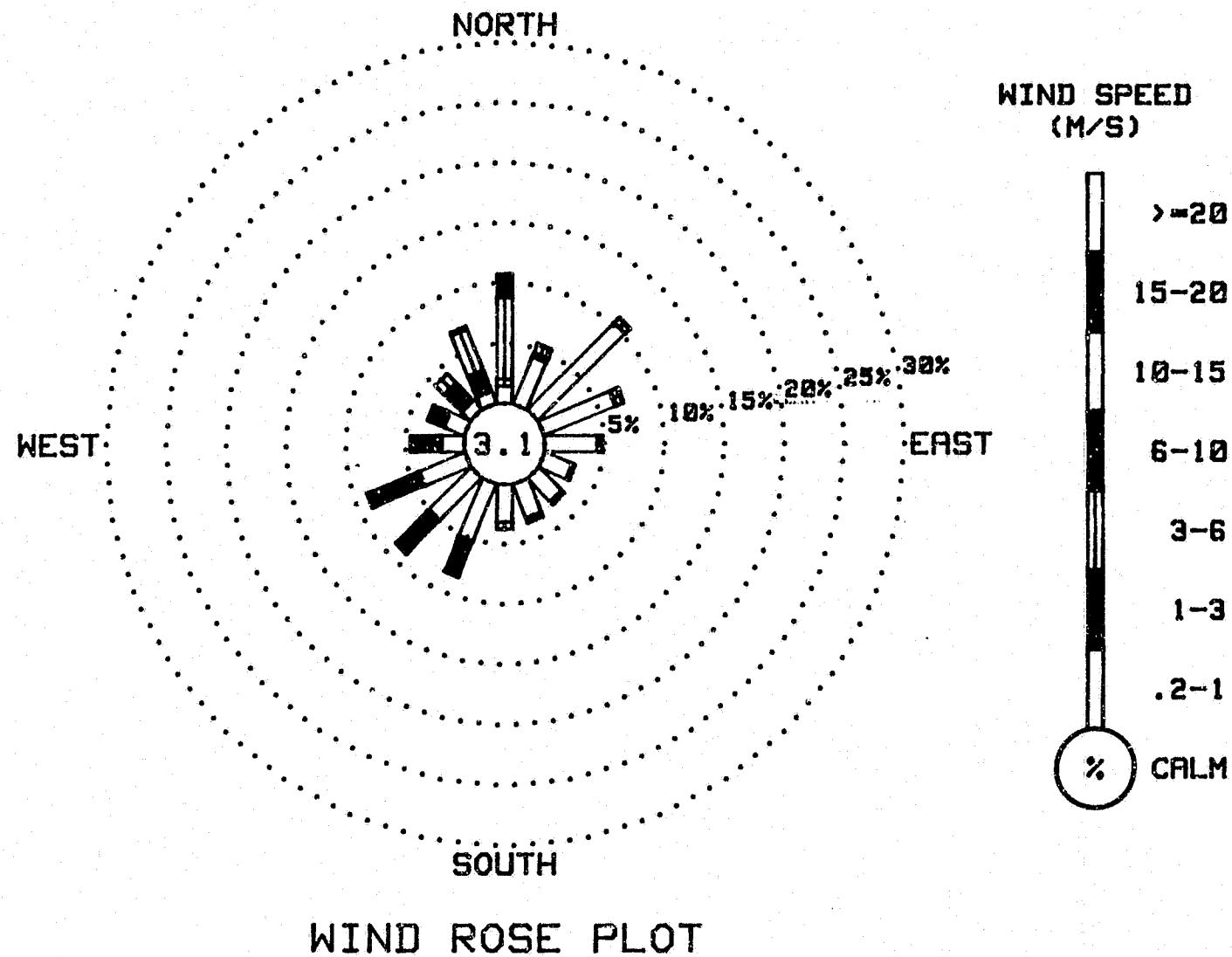
| DIRECTION | VELOCITY (M/S) | | | | | | | | TOTAL |
|-----------|----------------|------------|------------|-------------|--------------|--------------|-----------------|--------|-------|
| | 0.2 TO 1.0 | 1.0 TO 3.0 | 3.0 TO 6.0 | 6.0 TO 10.0 | 10.0 TO 15.0 | 15.0 TO 20.0 | 20.0 OR GREATER | | |
| | 1.0 | 3.0 | 6.0 | 10.0 | 15.0 | 20.0 | | | |
| N | 1.45 | .57 | 6.75 | 1.88 | 0.00 | 0.00 | 0.00 | 10.64 | |
| NNE | 4.25 | .35 | .74 | .04 | 0.00 | 0.00 | 0.00 | 5.39 | |
| NE | 10.21 | .53 | .04 | 0.00 | 0.00 | 0.00 | 0.00 | 10.78 | |
| ENE | 6.44 | .61 | .04 | 0.00 | 0.00 | 0.00 | 0.00 | 7.10 | |
| E | 4.42 | .44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.86 | |
| ESE | 2.54 | .26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.80 | |
| SE | 2.76 | .31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.07 | |
| SSE | 3.02 | .44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.46 | |
| S | 3.15 | .57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.72 | |
| SSW | 5.17 | 3.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.32 | |
| SW | 4.99 | 3.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.89 | |
| WSW | 4.16 | 4.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.85 | |
| W | 1.93 | 2.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.56 | |
| WNW | 1.88 | 1.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.37 | |
| NW | 1.05 | 2.01 | 1.14 | 0.00 | 0.00 | 0.00 | 0.00 | 4.20 | |
| NNW | 1.10 | 1.88 | 3.68 | .26 | 0.00 | 0.00 | 0.00 | 6.92 | |
| CALM | | | | | | | | 3.07 | |
| TOTAL | 58.52 | 23.83 | 12.40 | 2.19 | 0.00 | 0.00 | 0.00 | 100.00 | |

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2283 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
February, 1982



R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
February, 1982



No Precipitation data for March

(See INTERPRETING DATA) ?

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

DAY 02

DAY 03

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|----|
| 0300 | -39.7 | ***** | 36 | 039 | .5 | 027 | 1.9 | 2 | 0300 | -39.4 | ***** | 36 | 059 | .6 | 092 | 1.9 | 2 | 0300 | -38.5 | ***** | 35 | 041 | .3 | 046 | 1.3 | 2 |
| 0600 | -40.8 | ***** | 35 | 034 | .5 | 042 | 3.2 | 2 | 0600 | -41.2 | ***** | 35 | 078 | .4 | 073 | 2.5 | 2 | 0600 | -39.2 | ***** | 34 | 055 | .1 | 045 | 1.3 | 2 |
| 0900 | -30.5 | ***** | 23 | 058 | .5 | 084 | 2.5 | 26 | 0900 | -30.3 | ***** | 23 | 053 | .1 | 029 | 1.9 | 28 | 0900 | -29.0 | ***** | 28 | 094 | .2 | 044 | 1.3 | 28 |
| 1200 | -16.9 | -35.6 | 18 | 223 | .9 | 232 | 2.5 | 41 | 1200 | -19.4 | -37.1 | 19 | 188 | .7 | 197 | 1.9 | 42 | 1200 | -19.5 | -35.4 | 23 | 202 | .8 | 207 | 1.9 | 43 |
| 1500 | -11.8 | ***** | 16 | 198 | 1.1 | 207 | 3.2 | 24 | 1500 | -13.4 | -32.7 | 16 | 215 | 1.3 | 206 | 2.5 | 25 | 1500 | -13.7 | ***** | 23 | 195 | .8 | 190 | 1.3 | 26 |
| 1800 | -22.8 | -37.8 | 24 | 142 | .7 | 185 | 2.5 | 2 | 1800 | -26.2 | ***** | 25 | 211 | .4 | 201 | 1.9 | 2 | 1800 | -27.6 | ***** | 28 | 204 | .4 | 208 | 1.3 | 2 |
| 2100 | -31.9 | ***** | 38 | 110 | .3 | 197 | 2.5 | 2 | 2100 | -33.4 | ***** | 34 | 045 | .4 | 025 | 1.3 | 2 | 2100 | -34.9 | ***** | 36 | 044 | .1 | 075 | .6 | 2 |
| 2400 | -36.9 | ***** | 37 | 048 | .7 | 041 | 3.2 | 2 | 2400 | -36.7 | ***** | 35 | 047 | .3 | 051 | 1.3 | 2 | 2400 | -37.7 | ***** | 35 | 036 | .3 | 032 | 1.3 | 2 |

DAY 04

DAY 05

DAY 06

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|----|-----|-----|----|
| 0300 | -39.6 | ***** | 34 | 022 | .2 | 036 | 1.3 | 2 | 0300 | -32.9 | ***** | 41 | 044 | .2 | 033 | 1.3 | 2 | 0300 | -31.7 | ***** | 41 | 022 | .3 | 007 | 1.9 | 2 |
| 0600 | -40.7 | ***** | 35 | 035 | .2 | 028 | .6 | 2 | 0600 | -33.7 | ***** | 39 | 043 | .2 | 065 | 1.3 | 2 | 0600 | -24.4 | ***** | 30 | 033 | .2 | 067 | 1.9 | 2 |
| 0900 | -30.2 | ***** | 29 | 135 | .2 | 037 | 1.3 | 29 | 0900 | -22.7 | ***** | 20 | 011 | .1 | 045 | 1.3 | 21 | 0900 | -18.8 | ***** | 19 | 238 | .2 | 227 | 1.3 | 17 |
| 1200 | -19.0 | ***** | 25 | 196 | .7 | 197 | 1.9 | 44 | 1200 | -12.5 | ***** | 23 | 197 | .4 | 182 | 2.5 | 45 | 1200 | -12.6 | -32.0 | 18 | 212 | .5 | 220 | 3.2 | 26 |
| 1500 | -16.3 | -32.2 | 24 | 189 | .7 | 210 | 1.9 | 18 | 1500 | -9.7 | ***** | 22 | 196 | .7 | 227 | 1.9 | 26 | 1500 | -10.8 | -29.9 | 19 | 228 | .4 | 199 | 1.3 | 10 |
| 1800 | -20.5 | ***** | 29 | 217 | .4 | 216 | 1.9 | 2 | 1800 | -20.2 | ***** | 29 | 132 | .3 | 089 | 1.3 | 2 | 1800 | -11.7 | ***** | 46 | 204 | .3 | 203 | 1.9 | 1 |
| 2100 | -28.8 | ***** | 40 | 040 | .1 | 266 | 1.3 | 2 | 2100 | -28.2 | ***** | 40 | 043 | .3 | 040 | 1.3 | 2 | 2100 | -11.7 | ***** | 50 | 223 | .2 | 211 | 1.3 | 1 |
| 2400 | -31.2 | ***** | 41 | 053 | .3 | 041 | 1.3 | 2 | 2400 | -30.5 | ***** | 41 | 042 | .4 | 040 | 1.3 | 2 | 2400 | -11.5 | ***** | 53 | 212 | .1 | 062 | .6 | 1 |

DAY 07

DAY 08

DAY 09

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|---|
| 0300 | -11.3 | ***** | 52 | 245 | .2 | 253 | 1.3 | 1 | 0300 | -20.1 | ***** | 57 | 034 | .2 | 075 | 1.3 | 1 | 0300 | -19.7 | ***** | 46 | 058 | .3 | 063 | 1.3 | 1 |
| 0600 | -12.2 | ***** | 54 | 170 | .0 | 289 | 1.3 | 1 | 0600 | -16.1 | ***** | 61 | 051 | .2 | 056 | 1.3 | 1 | 0600 | -15.3 | ***** | 47 | 257 | .3 | 320 | 1.3 | 2 |
| 0900 | -9.5 | ***** | 26 | 205 | .2 | 157 | 1.3 | 11 | 0900 | -11.2 | ***** | 51 | 288 | .1 | 156 | 1.3 | 7 | 0900 | -11.9 | ***** | 51 | 225 | .4 | 221 | 1.3 | 4 |
| 1200 | -5.0 | -22.5 | 24 | 254 | 1.1 | 255 | 2.5 | 16 | 1200 | -5.9 | ***** | 17 | 244 | .4 | 250 | 1.9 | 16 | 1200 | -8.4 | -21.6 | 34 | 219 | .7 | 209 | 1.9 | 8 |
| 1500 | -3.6 | -23.4 | 20 | 255 | 1.1 | 246 | 2.5 | 18 | 1500 | -3.7 | -21.9 | 23 | 245 | 1.5 | 245 | 4.4 | 10 | 1500 | -7.0 | -20.4 | 34 | 232 | 1.0 | 215 | 1.9 | 7 |
| 1800 | -11.2 | ***** | 45 | 237 | .9 | 226 | 2.5 | 1 | 1800 | -6.3 | -20.8 | 31 | 293 | 2.1 | 274 | 4.4 | 2 | 1800 | -8.4 | ***** | 49 | 242 | 1.2 | 245 | 2.5 | 1 |
| 2100 | -22.7 | ***** | 55 | 313 | .1 | 221 | 1.9 | 1 | 2100 | -15.7 | ***** | 51 | 308 | .4 | 299 | 3.8 | 1 | 2100 | -12.6 | -20.9 | 50 | 241 | 1.1 | 254 | 2.5 | 1 |
| 2400 | -25.3 | ***** | 53 | 044 | .3 | 039 | 1.3 | 1 | 2400 | -24.7 | ***** | 42 | 027 | .4 | 330 | 1.9 | 1 | 2400 | -14.4 | ***** | 48 | 232 | 1.0 | 203 | 2.5 | 1 |

R & M CONSULTANTS, INC.

SUSSEKNA HYDRO ELECTRIC PROJECT

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

DAY 10

DAY 11

DAY 12

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -22.6 | **** | 45 | 070 | .3 | 213 | 1.9 | 1 | 0300 | -13.6 | **** | 60 | 324 | .0 | 223 | 1.3 | 1 | 0300 | -29.9 | **** | 51 | 064 | .2 | 079 | 1.3 | 1 |
| 0600 | -14.3 | **** | 50 | 056 | .8 | 095 | 2.5 | 1 | 0600 | -13.3 | **** | 61 | 255 | .1 | 205 | 1.3 | 1 | 0600 | -31.4 | **** | 48 | 047 | .5 | 038 | 1.9 | 1 |
| 0900 | -4.2 | -23.3 | 21 | 295 | .7 | 270 | 5.7 | 15 | 0900 | -10.2 | **** | 44 | 245 | .3 | 332 | 1.3 | 6 | 0900 | -16.3 | -24.6 | 49 | 301 | .2 | 284 | 2.5 | 7 |
| 1200 | -3.1 | -26.9 | 14 | 313 | 3.3 | 319 | 6.3 | 22 | 1200 | -6.3 | **** | 25 | 306 | .5 | 347 | 1.9 | 12 | 1200 | -8.7 | -28.7 | 18 | 260 | 1.4 | 277 | 3.8 | 26 |
| 1500 | -4.2 | -25.6 | 17 | 320 | 2.6 | 322 | 5.1 | 12 | 1500 | -7.5 | -21.8 | 31 | 300 | .9 | 234 | 2.5 | 7 | 1500 | -8.3 | -30.3 | 15 | 342 | 2.9 | 354 | 5.7 | 17 |
| 1800 | -11.1 | **** | 41 | 328 | .9 | 312 | 3.2 | 1 | 1800 | -9.9 | **** | 66 | 235 | 1.0 | 252 | 2.5 | 1 | 1800 | -11.8 | -27.1 | 27 | 344 | 3.8 | 347 | 6.3 | 2 |
| 2100 | -13.4 | **** | 53 | 235 | .3 | 207 | 1.3 | 1 | 2100 | -13.1 | -18.1 | 66 | 212 | .8 | 179 | 1.9 | 1 | 2100 | -13.6 | -31.7 | 20 | 284 | 1.8 | 332 | 3.8 | 2 |
| 2400 | -15.0 | **** | 58 | 014 | .1 | 070 | 1.9 | 1 | 2400 | -24.3 | **** | 56 | 233 | .2 | 231 | 1.9 | 1 | 2400 | -14.3 | -29.3 | 27 | 296 | 1.8 | 299 | 5.1 | 2 |

DAY 13

DAY 14

DAY 15

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|------|----|-----|----|-----|-----|----|
| 0300 | -24.6 | -34.6 | 39 | 232 | 1.4 | 266 | 4.4 | 2 | 0300 | -39.2 | **** | 36 | 033 | .4 | 037 | 1.3 | 2 | 0300 | -14.7 | **** | 45 | 234 | .3 | 223 | 1.3 | 1 |
| 0600 | -30.8 | **** | 35 | 226 | 1.2 | 223 | 2.5 | 2 | 0600 | -37.7 | **** | 37 | 045 | .2 | 044 | 1.3 | 2 | 0600 | -13.9 | **** | 46 | 237 | .1 | 240 | .6 | 1 |
| 0900 | -20.9 | **** | 24 | 231 | 1.0 | 225 | 2.5 | 25 | 0900 | -24.4 | **** | 29 | 027 | .1 | 039 | 1.3 | 13 | 0900 | -11.4 | **** | 25 | 078 | .1 | 054 | 1.3 | 9 |
| 1200 | -11.6 | -27.3 | 26 | 239 | 1.3 | 245 | 2.5 | 29 | 1200 | -14.9 | -34.5 | 17 | 237 | .8 | 227 | 2.5 | 32 | 1200 | -8.7 | **** | 21 | 200 | .5 | 189 | 1.3 | 11 |
| 1500 | -10.1 | -24.9 | 29 | 198 | 1.3 | 205 | 3.2 | 27 | 1500 | -12.3 | -32.3 | 17 | 244 | 1.6 | 254 | 3.2 | 30 | 1500 | -7.9 | **** | 23 | 203 | .9 | 192 | 1.9 | 8 |
| 1800 | -21.9 | **** | 27 | 195 | .6 | 197 | 1.9 | 2 | 1800 | -14.5 | **** | 34 | 231 | 1.0 | 231 | 2.5 | 2 | 1800 | -9.4 | **** | 46 | 245 | .5 | 227 | 1.9 | 1 |
| 2100 | -32.8 | **** | 41 | 079 | .3 | 096 | 1.9 | 2 | 2100 | -14.9 | **** | 44 | 196 | .1 | 184 | .6 | 1 | 2100 | -12.7 | **** | 49 | 273 | .1 | 231 | .6 | 1 |
| 2400 | -37.8 | **** | 38 | 032 | .5 | 032 | 1.3 | 2 | 2400 | -15.5 | **** | 46 | 188 | .0 | 048 | .6 | 1 | 2400 | -12.6 | **** | 50 | 342 | .3 | 341 | 1.3 | 1 |

DAY 16

DAY 17

DAY 18

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -13.6 | **** | 46 | 352 | .4 | 348 | 1.9 | 1 | 0300 | -12.4 | **** | 49 | *** | 0.0 | 245 | .6 | 1 | 0300 | -2.5 | -20.4 | 24 | 089 | 1.4 | 088 | 3.2 | 2 |
| 0600 | -13.7 | **** | 46 | 048 | .3 | 034 | 1.9 | 1 | 0600 | -12.3 | **** | 49 | *** | 0.0 | 023 | .6 | 1 | 0600 | -2.8 | -19.3 | 27 | 084 | 1.8 | 077 | 3.8 | 2 |
| 0900 | -8.4 | **** | 16 | 031 | .2 | 085 | 1.3 | 26 | 0900 | -8.4 | **** | 26 | *** | 0.0 | 297 | .6 | 9 | 0900 | -1.6 | -20.6 | 22 | 092 | 1.8 | 088 | 3.2 | 22 |
| 1200 | -7.7 | **** | 19 | 005 | .1 | 359 | 1.3 | 15 | 1200 | 2.7 | -21.4 | 15 | 120 | 1.3 | 116 | 4.4 | 22 | 1200 | -8.8 | **** | 12 | 151 | .7 | 097 | 3.2 | 24 |
| 1500 | -7.3 | **** | 25 | 199 | .0 | 180 | .6 | 9 | 1500 | 1.5 | -24.9 | 12 | 132 | 3.0 | 137 | 7.6 | 20 | 1500 | .8 | -24.6 | 13 | 230 | 1.0 | 250 | 1.9 | 27 |
| 1800 | -8.9 | **** | 44 | 249 | .0 | 268 | .6 | 1 | 1800 | -.8 | -21.6 | 19 | 128 | 2.2 | 138 | 7.0 | 2 | 1800 | -5.4 | **** | 29 | 201 | .9 | 194 | 1.9 | 2 |
| 2100 | -9.9 | **** | 50 | 230 | .0 | 248 | .6 | 1 | 2100 | -1.6 | -21.1 | 21 | 098 | 2.1 | 106 | 5.1 | 2 | 2100 | -9.7 | **** | 45 | 041 | .1 | 217 | 1.3 | 1 |
| 2400 | -10.3 | **** | 50 | 247 | .0 | 245 | .6 | 1 | 2400 | -1.8 | -20.8 | 22 | 094 | 1.8 | 088 | 3.8 | 2 | 2400 | -13.7 | **** | 54 | 109 | .1 | 336 | 1.3 | 1 |

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

DAY 19

DAY 20

DAY 21

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

| | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|---------|-------|-------|----|
| 0300 | -15.4 | ***** | 48 | 072 | .3 | 135 | 1.3 | 1 0300 | -11.4 | ***** | 56 |
| 0600 | -11.7 | ***** | 49 | 326 | .1 | 876 | 1.3 | 1 0600 | -11.5 | ***** | 54 |
| 0900 | -5.3 | ***** | 33 | 003 | .2 | 332 | 1.9 | 22 0900 | -.1 | -19.3 | 22 |
| 1200 | 3.1 | -23.7 | 12 | 160 | 1.3 | 132 | 3.8 | 49 1200 | 3.4 | ***** | 12 |
| 1500 | 2.5 | -22.4 | 14 | 117 | 2.9 | 121 | 6.3 | 23 1500 | 3.2 | -24.6 | 11 |
| 1800 | -.5 | -19.2 | 23 | 116 | 3.1 | 125 | 6.3 | 3 1800 | -1.3 | -20.9 | 21 |
| 2100 | -4.1 | ***** | 37 | 104 | 1.5 | 102 | 3.8 | 1 2100 | -2.1 | -22.1 | 20 |
| 2400 | -8.6 | ***** | 59 | 091 | .5 | 887 | 1.9 | 1 2400 | -3.3 | -18.2 | 31 |

DAY 22

DAY 23

DAY 24

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

| | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|---------|-------|-------|----|
| 0300 | -15.1 | ***** | 60 | 104 | .3 | 209 | 1.3 | 1 0300 | -19.3 | ***** | 60 |
| 0600 | -10.8 | ***** | 57 | 178 | .2 | 054 | 1.3 | 1 0600 | -19.0 | ***** | 59 |
| 0900 | -2.5 | ***** | 16 | 213 | .5 | 229 | 1.9 | 50 0900 | -7.5 | ***** | 28 |
| 1200 | -.3 | ***** | 12 | 178 | .5 | 214 | 1.9 | 44 1200 | -2.4 | -22.3 | 20 |
| 1500 | 1.6 | ***** | 12 | 153 | .7 | 123 | 1.9 | 39 1500 | -2.7 | -23.2 | 19 |
| 1800 | -3.7 | -18.5 | 31 | 143 | .5 | 140 | 1.9 | 2 1800 | -5.7 | ***** | 42 |
| 2100 | -9.9 | ***** | 58 | 189 | .4 | 171 | 2.5 | 1 2100 | -8.0 | ***** | 60 |
| 2400 | -12.3 | ***** | 65 | 169 | .2 | 156 | 1.3 | 1 2400 | -8.0 | ***** | 55 |

DAY 25

DAY 26

DAY 27

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

| | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|---------|-------|-------|----|
| 0300 | -9.0 | -30.2 | 16 | 004 | 5.2 | 001 | 8.3 | 2 0300 | -15.0 | -34.0 | 18 |
| 0600 | -9.4 | -29.3 | 18 | 330 | 2.9 | 004 | 7.0 | 4 0600 | -15.1 | -34.1 | 18 |
| 0900 | -8.2 | -30.3 | 15 | 344 | 4.2 | 356 | 7.6 | 27 0900 | -12.7 | -32.7 | 17 |
| 1200 | -5.7 | -28.2 | 15 | 345 | 4.4 | 352 | 7.6 | 53 1200 | -9.2 | -28.6 | 19 |
| 1500 | -6.8 | -29.1 | 15 | 351 | 4.5 | 352 | 8.3 | 24 1500 | -7.1 | -25.8 | 21 |
| 1800 | -9.3 | -31.2 | 15 | 358 | 4.9 | 001 | 7.6 | 2 1800 | -11.2 | -29.7 | 20 |
| 2100 | -11.4 | -31.6 | 17 | 357 | 5.1 | 000 | 8.9 | 2 2100 | -18.2 | ***** | 30 |
| 2400 | -13.4 | -32.7 | 18 | 358 | 4.6 | 000 | 8.3 | 2 2400 | -28.5 | ***** | 36 |

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -25.7 | ***** | 37 | 036 | .5 | 030 | 1.3 | 2 | 0300 | -23.5 | ***** | 38 | 035 | .3 | 067 | 1.3 | 2 | 0300 | -17.8 | ***** | 37 | 247 | 1.0 | 297 | 3.2 | 2 |
| 0600 | -30.1 | ***** | 33 | 040 | .3 | 029 | 1.3 | 4 | 0600 | -23.1 | ***** | 36 | 008 | .1 | 085 | 1.9 | 5 | 0600 | -18.1 | -29.6 | 36 | 241 | .7 | 238 | 1.9 | 4 |
| 0900 | -15.5 | ***** | 22 | 196 | .3 | 233 | 1.9 | 41 | 0900 | -13.1 | -30.8 | 21 | 184 | .2 | 222 | 1.9 | 53 | 0900 | -11.5 | -32.3 | 16 | 277 | .9 | 323 | 3.8 | 48 |
| 1200 | -7.5 | -26.1 | 21 | 217 | 1.3 | 219 | 3.2 | 61 | 1200 | -6.5 | -25.3 | 21 | 200 | 1.2 | 195 | 2.5 | 45 | 1200 | -8.7 | -28.2 | 19 | 334 | 2.9 | 342 | 5.1 | 61 |
| 1500 | -6.5 | -25.8 | 20 | 216 | 1.9 | 228 | 3.2 | 36 | 1500 | -5.8 | -25.2 | 20 | 250 | .7 | 325 | 3.2 | 38 | 1500 | -8.1 | -26.6 | 21 | 353 | 3.0 | 000 | 5.1 | 41 |
| 1800 | -10.9 | ***** | 19 | 221 | 1.0 | 207 | 2.5 | 4 | 1800 | -9.2 | -30.4 | 16 | 350 | 1.8 | 004 | 3.8 | 3 | 1800 | -11.4 | -28.4 | 23 | 338 | 2.4 | 336 | 5.1 | 5 |
| 2100 | -17.4 | ***** | 36 | 227 | .5 | 220 | 1.3 | 2 | 2100 | -13.2 | -30.9 | 21 | 338 | .6 | 000 | 3.2 | 2 | 2100 | -16.8 | ***** | 25 | 349 | 1.4 | 000 | 3.5 | 2 |
| 2400 | -25.9 | ***** | 40 | 033 | .2 | 036 | 1.3 | 2 | 2400 | -12.2 | -30.6 | 20 | 329 | .9 | 332 | 5.7 | 2 | 2400 | -20.3 | ***** | 29 | 217 | .4 | 237 | 2.5 | 2 |

DAY 31

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

| | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -29.3 | ***** | 34 | 055 | .4 | 125 | 1.3 | 2 |
| 0600 | -30.0 | ***** | 26 | 044 | .5 | 034 | 1.3 | 5 |
| 0900 | -15.4 | -31.4 | 24 | 268 | .5 | 328 | 5.7 | 58 |
| 1200 | -11.8 | -30.2 | 20 | 350 | 2.9 | 337 | 5.1 | 62 |
| 1500 | -10.6 | -27.8 | 23 | 332 | 2.9 | 335 | 5.1 | 42 |
| 1800 | -13.8 | -31.9 | 20 | 345 | 3.3 | 350 | 5.7 | 6 |
| 2100 | -16.6 | -35.3 | 18 | 355 | 3.6 | 003 | 6.3 | 2 |
| 2400 | -16.8 | -34.9 | 19 | 353 | 4.0 | 343 | 7.6 | 2 |

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

| DAY | RES. | | | RES. | | | AVG. | MAX. | MAX. | | | | DAY'S | |
|-------|------------------------|------------------------|------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------|-----------------|---------------------|--------------|---------------------------|-----|
| | MAX. TEMP. DEG C | MIN. TEMP. DEG C | MEAN TEMP. DEG C | WIND DIR. DEG | WIND SPD. M/S | WIND SPD. M/S | GUST DIR. DEG | GUST SPD. M/S | P'VAL DIR. | MEAN RH % | MEAN DP DEG C | PRECIP MM | SOLAR ENERGY WH/SQM | DAY |
| 1 | -10.5 | -41.1 | -25.8 | 122 | .2 | .8 | 042 | 3.2 | NE | 29 | -36.9 | **** | 2990 | 1 |
| 2 | -12.8 | -41.5 | -27.2 | 159 | .2 | .6 | 073 | 2.5 | SSW | 28 | -34.6 | **** | 3080 | 2 |
| 3 | -13.5 | -39.5 | -26.5 | 175 | .1 | .4 | 207 | 1.9 | SSW | 29 | -35.8 | **** | 3113 | 3 |
| 4 | -15.1 | -40.7 | -27.9 | 176 | .1 | .4 | 197 | 1.9 | NNE | 31 | -33.0 | **** | 2755 | 4 |
| 5 | -8.8 | -33.8 | -21.3 | 119 | .1 | .4 | 182 | 2.5 | NE | 32 | -29.6 | **** | 3068 | 5 |
| 6 | -9.3 | -32.1 | -20.7 | 224 | .2 | .4 | 220 | 3.2 | SW | 35 | -32.3 | **** | 1995 | 6 |
| 7 | -2.7 | -25.3 | -14.0 | 250 | .4 | .6 | 255 | 2.5 | WSW | 43 | -21.4 | **** | 1480 | 7 |
| 8 | -3.4 | -25.3 | -14.4 | 284 | .5 | .9 | 245 | 4.4 | W | 43 | -22.1 | **** | 1110 | 8 |
| 9 | -6.9 | -25.6 | -16.3 | 235 | .7 | .8 | 245 | 2.5 | WSW | 45 | -20.0 | **** | 713 | 9 |
| 10 | -2.5 | -23.1 | -12.8 | 322 | .9 | 1.3 | 319 | 6.3 | NW | 37 | -24.8 | **** | 1533 | 10 |
| 11 | -6.2 | -24.3 | -15.3 | 255 | .4 | .6 | 234 | 2.5 | SW | 52 | -19.9 | **** | 873 | 11 |
| 12 | -8.0 | -32.0 | -20.0 | 321 | 1.2 | 1.6 | 347 | 6.3 | NNW | 52 | -30.3 | **** | 1780 | 12 |
| 13 | -9.8 | -37.8 | -23.8 | 221 | .7 | 1.0 | 266 | 4.4 | SW | 32 | -33.1 | **** | 2705 | 13 |
| 14 | -11.4 | -39.4 | -25.4 | 242 | .3 | .6 | 254 | 3.2 | WSW | 32 | -32.0 | **** | 2163 | 14 |
| 15 | -7.3 | -16.0 | -11.7 | 222 | .2 | .4 | 192 | 1.9 | SSW | 38 | -28.6 | **** | 1145 | 15 |
| 16 | -5.5 | -13.8 | -9.7 | 017 | .1 | .2 | 348 | 1.9 | NNE | 37 | **** | **** | 1345 | 16 |
| 17 | 3.0 | -13.2 | -5.1 | 116 | 1.3 | 1.4 | 137 | 7.6 | ESE | 29 | -22.1 | **** | 2118 | 17 |
| 18 | 1.8 | -13.7 | -6.0 | 113 | .6 | 1.1 | 077 | 3.8 | E | 26 | -21.6 | **** | 2560 | 18 |
| 19 | 3.4 | -17.8 | -7.2 | 116 | 1.1 | 1.3 | 121 | 6.3 | ESE | 32 | -21.0 | **** | 3270 | 19 |
| 20 | 4.3 | -13.1 | -4.4 | 154 | 1.1 | 1.5 | 162 | 5.7 | ESE | 28 | -21.8 | **** | 3965 | 20 |
| 21 | 3.6 | -13.7 | -5.1 | 149 | 1.2 | 1.8 | 115 | 5.7 | ESE | 29 | -20.9 | **** | 3180 | 21 |
| 22 | 2.8 | -15.1 | -6.2 | 168 | .4 | .5 | 171 | 2.5 | SW | 39 | -21.8 | **** | 4038 | 22 |
| 23 | -1.1 | -20.9 | -11.0 | 221 | .6 | .8 | 226 | 3.2 | SSW | 43 | -22.8 | **** | 3398 | 23 |
| 24 | -1.8 | -11.9 | -6.9 | 351 | 2.6 | 2.9 | 350 | 8.3 | N | 30 | -25.7 | **** | 3805 | 24 |
| 25 | -5.3 | -13.4 | -9.4 | 352 | 4.4 | 4.5 | 000 | 8.9 | N | 16 | -29.9 | **** | 3418 | 25 |
| 26 | -6.8 | -28.5 | -17.7 | 341 | 1.9 | 2.1 | 354 | 8.9 | N | 21 | -31.2 | **** | 4120 | 26 |
| 27 | -6.3 | -33.5 | -19.9 | 234 | .4 | .7 | 254 | 2.5 | NNE | 28 | -26.8 | **** | 4878 | 27 |
| 28 | -5.9 | -30.3 | -18.1 | 217 | .5 | .8 | 219 | 3.2 | SSW | 28 | -27.2 | **** | 4508 | 28 |
| 29 | -4.2 | -26.2 | -15.2 | 317 | .4 | 1.0 | 332 | 5.7 | SSW | 26 | -27.7 | **** | 4228 | 29 |
| 30 | -6.9 | -20.9 | -13.9 | 327 | 1.2 | 1.8 | 342 | 5.1 | NNW | 25 | -30.0 | **** | 4890 | 30 |
| 31 | -10.1 | -31.9 | -21.0 | 349 | 2.1 | 2.4 | 343 | 7.6 | N | 24 | -31.8 | **** | 5213 | 31 |
| MONTH | 4.3 | -41.5 | -15.5 | 331 | .3 | 1.2 | 000 | 8.9 | SSW | 33 | -27.2 | **** | 89430 | |

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

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

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

R & M CONSULTANTS, INC.

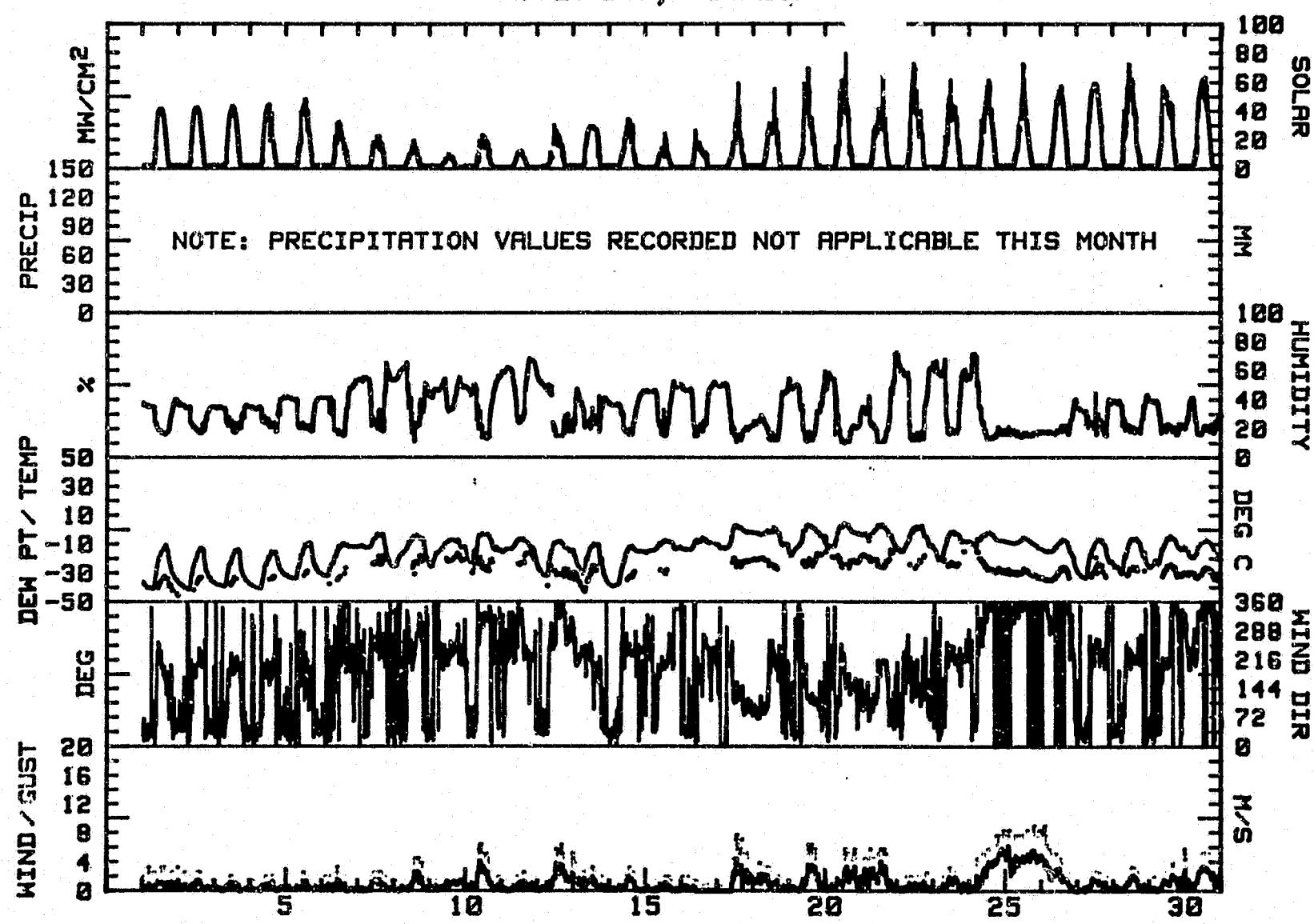
SUSITNA HYDROELECTRIC PROJECT

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

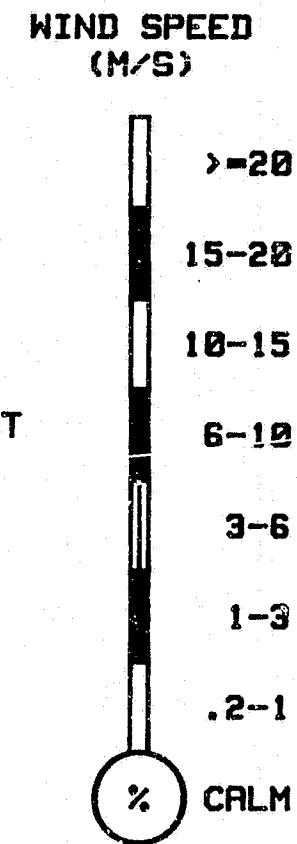
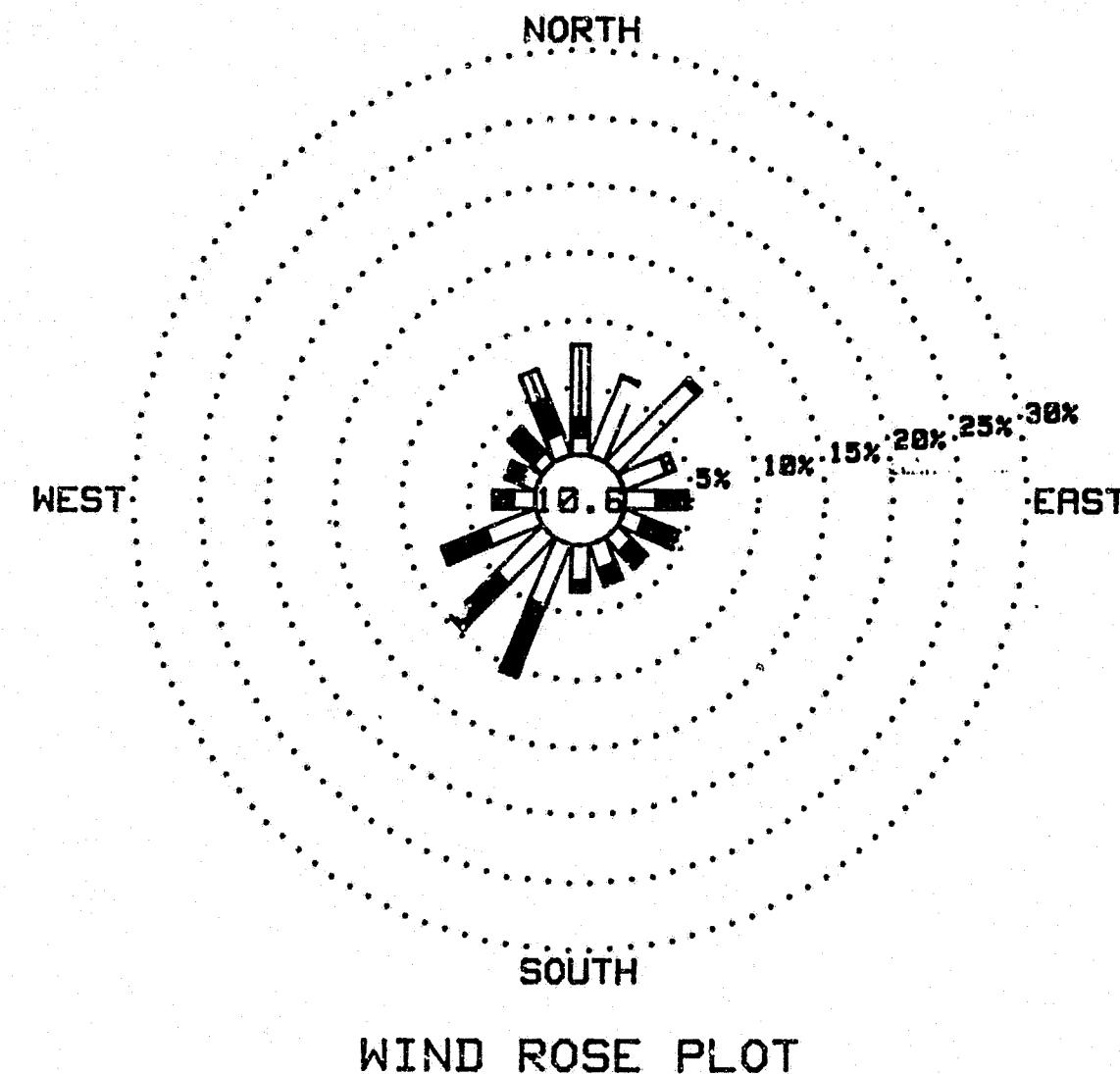
| DIRECTION | VELOCITY (M/S) | | | | | | | | TOTAL |
|-----------|----------------|------------|------------|-------------|--------------|--------------|-----------------|--------|-------|
| | 0.2 TO 1.0 | 1.0 TO 3.0 | 3.0 TO 6.0 | 6.0 TO 10.0 | 10.0 TO 15.0 | 15.0 TO 20.0 | 20.0 OR GREATER | | |
| N | 1.38 | 1.28 | 5.45 | .03 | 0.00 | 0.00 | 0.00 | 8.14 | |
| NNE | 6.12 | .13 | .10 | 0.00 | 0.00 | 0.00 | 0.00 | 6.36 | |
| NE | 8.34 | .37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.71 | |
| ENE | 3.43 | .57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.00 | |
| E | 2.39 | 2.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.67 | |
| ESE | 1.58 | 2.29 | .54 | 0.00 | 0.00 | 0.00 | 0.00 | 4.40 | |
| SE | 1.48 | 1.14 | .44 | 0.00 | 0.00 | 0.00 | 0.00 | 3.06 | |
| SSE | 1.95 | .91 | .34 | 0.00 | 0.00 | 0.00 | 0.00 | 3.19 | |
| S | 2.62 | .74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.36 | |
| SSW | 4.91 | 5.25 | .37 | 0.00 | 0.00 | 0.00 | 0.00 | 10.52 | |
| SW | 4.84 | 4.67 | .03 | 0.00 | 0.00 | 0.00 | 0.00 | 9.55 | |
| WSW | 4.03 | 3.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.50 | |
| W | 1.68 | 1.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.13 | |
| WNW | 1.21 | 1.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.42 | |
| NW | 1.08 | 2.05 | .44 | 0.00 | 0.00 | 0.00 | 0.00 | 3.56 | |
| NNW | 1.82 | 2.66 | 2.35 | 0.00 | 0.00 | 0.00 | 0.00 | 6.83 | |
| CALM | | | | | | | | 10.59 | |
| TOTAL | 48.86 | 30.46 | 10.05 | .03 | 0.00 | 0.00 | 0.00 | 100.00 | |

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2974 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
March, 1982



R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
March, 1982



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

R & M CONSULTANTS, INC.
SUSTAINABLE HYDROELECTRIC PROJECT

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

DAY 01

DAY 02

DAY 03

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -17.2 | -35.3 | 19 | 351 | 3.7 | 349 | 7.6 | 2 | 0300 | -18.3 | -34.3 | 23 | 271 | 1.7 | 279 | 3.8 | 2 | 0300 | -32.4 | ***** | 31 | 239 | .3 | 242 | 1.9 | 2 |
| 0600 | -17.0 | -33.7 | 22 | 352 | 4.0 | 351 | 7.6 | 8 | 0600 | -24.4 | -38.8 | 25 | 255 | 1.9 | 259 | 5.1 | 9 | 0600 | -30.3 | ***** | 24 | 033 | .4 | 042 | 1.3 | 10 |
| 0900 | -14.1 | -30.8 | 23 | 333 | 4.0 | 335 | 7.6 | 47 | 0900 | -14.9 | -32.4 | 21 | 269 | 1.6 | 308 | 5.1 | 48 | 0900 | -19.3 | -34.4 | 25 | 190 | .5 | 198 | 1.9 | 45 |
| 1200 | -11.6 | -28.6 | 23 | 339 | 4.1 | 328 | 7.6 | 62 | 1200 | -12.0 | -29.0 | 23 | 342 | 3.0 | 313 | 5.1 | 63 | 1200 | -10.9 | -28.0 | 23 | 195 | 1.2 | 189 | 1.9 | 64 |
| 1500 | -10.9 | -28.5 | 22 | 347 | 4.3 | 003 | 7.0 | 42 | 1500 | -10.7 | -27.9 | 23 | 339 | 3.0 | 345 | 5.7 | 43 | 1500 | -7.8 | -21.4 | 33 | 208 | 1.2 | 211 | 1.9 | 43 |
| 1800 | -14.2 | -30.4 | 24 | 340 | 3.8 | 335 | 7.0 | 6 | 1800 | -14.3 | -30.5 | 24 | 349 | 2.7 | 340 | 4.4 | 6 | 1800 | -10.1 | ***** | 28 | 225 | 1.0 | 203 | 1.9 | 6 |
| 2100 | -17.3 | -34.4 | 21 | 336 | 2.5 | 349 | 5.1 | 2 | 2100 | -22.0 | -38.8 | 20 | 293 | 1.0 | 355 | 3.8 | 2 | 2100 | -24.2 | ***** | 28 | 107 | .1 | 189 | 1.3 | 2 |
| 2400 | -17.7 | -34.3 | 22 | 320 | 2.1 | 346 | 5.7 | 2 | 2400 | -26.9 | ***** | 26 | 232 | 1.2 | 242 | 2.5 | 2 | 2400 | -27.8 | ***** | 34 | 025 | .3 | 359 | 1.3 | 2 |

DAY 04

DAY 05

DAY 06

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -29.7 | ***** | 33 | 036 | .3 | 037 | 1.3 | 2 | 0300 | -18.4 | ***** | 40 | 292 | .1 | 229 | 1.3 | 2 | 0300 | -11.5 | ***** | 34 | 117 | .0 | 046 | 1.3 | 2 |
| 0600 | -26.2 | ***** | 24 | 037 | .1 | 107 | .6 | 10 | 0600 | -19.5 | ***** | 32 | 073 | .2 | 132 | 1.3 | 8 | 0600 | -10.6 | ***** | 26 | 074 | .2 | 023 | 1.3 | 7 |
| 0900 | -15.0 | ***** | 24 | 145 | .3 | 060 | 1.3 | 49 | 0900 | -8.1 | -26.1 | 22 | 159 | .5 | 214 | 1.9 | 49 | 0900 | -4.5 | ***** | 33 | 137 | .2 | 070 | 1.3 | 52 |
| 1200 | -5.8 | ***** | 32 | 205 | .7 | 201 | 1.9 | 54 | 1200 | -1.6 | -22.3 | 19 | 194 | 1.0 | 237 | 2.5 | 67 | 1200 | 3.6 | -13.3 | 28 | 178 | .6 | 201 | 1.9 | 66 |
| 1500 | -4.4 | ***** | 27 | 220 | .9 | 219 | 2.5 | 34 | 1500 | -.2 | -19.4 | 22 | 225 | 1.0 | 197 | 2.5 | 31 | 1500 | 1.2 | -19.3 | 20 | 239 | 1.2 | 249 | 2.5 | 33 |
| 1800 | -6.2 | ***** | 23 | 233 | .5 | 242 | 1.9 | 6 | 1800 | -4.2 | ***** | 33 | 228 | 1.0 | 210 | 2.5 | 6 | 1800 | -1.4 | ***** | 16 | 247 | 1.0 | 256 | 2.5 | 4 |
| 2100 | -8.1 | ***** | 15 | 221 | .5 | 280 | 1.3 | 2 | 2100 | -10.7 | ***** | 24 | 202 | .3 | 211 | 1.3 | 2 | 2100 | -1.9 | ***** | 13 | 229 | .4 | 251 | 1.9 | 2 |
| 2400 | -16.2 | ***** | 31 | 224 | .5 | 213 | 1.3 | 2 | 2400 | -11.3 | ***** | 27 | 029 | .0 | 223 | 1.3 | 2 | 2400 | -4.1 | ***** | 19 | 179 | .2 | 009 | 1.3 | 2 |

DAY 07

DAY 08

DAY 09

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|
| 0300 | -7.4 | ***** | 40 | 205 | .6 | 202 | 1.9 | 1 | 0300 | -14.2 | ***** | 49 | 160 | .3 | 141 | 1.9 | 1 | 0300 | -16.0 | ***** | 50 | 282 | .5 | 257 | 3.2 | 1 |
| 0600 | -6.2 | -20.7 | 31 | 226 | 1.2 | 211 | 2.5 | 6 | 0600 | -12.9 | ***** | 42 | 029 | .3 | 050 | 1.3 | 6 | 0600 | -16.4 | ***** | 47 | 086 | .3 | 144 | 1.9 | 8 |
| 0900 | 2.6 | -24.1 | 12 | 296 | 1.4 | 339 | 5.1 | 49 | 0900 | -5.4 | -28.7 | 14 | 187 | .4 | 201 | 1.9 | 29 | 0900 | -2.7 | -26.5 | 14 | 223 | .8 | 225 | 2.5 | 40 |
| 1200 | 3.8 | -23.1 | 12 | 320 | 2.2 | 321 | 6.3 | 75 | 1200 | -.2 | -20.6 | 19 | 249 | .4 | 214 | 1.9 | 43 | 1200 | 0.0 | -21.5 | 18 | 323 | 1.8 | 346 | 5.7 | 67 |
| 1500 | 3.0 | -24.7 | 11 | 305 | 4.5 | 299 | 7.6 | 47 | 1500 | .3 | -25.9 | 12 | 281 | 1.1 | 347 | 5.1 | 30 | 1500 | -.5 | -23.3 | 16 | 336 | 3.9 | 339 | 7.0 | 46 |
| 1800 | -.1 | -26.2 | 12 | 307 | 2.6 | 289 | 7.0 | 5 | 1800 | -1.5 | -21.0 | 21 | 307 | 2.7 | 299 | 6.3 | 6 | 1800 | -2.5 | -24.9 | 16 | 333 | 3.2 | 337 | 7.0 | 9 |
| 2100 | -9.7 | ***** | 24 | 331 | .3 | 335 | 5.1 | 2 | 2100 | -3.9 | -21.6 | 24 | 288 | 1.7 | 303 | 4.4 | 2 | 2100 | -6.9 | -24.2 | 24 | 348 | 1.4 | 355 | 3.8 | 2 |
| 2400 | -10.8 | ***** | 46 | 061 | .4 | 284 | 2.5 | 1 | 2400 | -6.5 | -14.1 | 55 | 278 | 1.2 | 295 | 2.5 | 1 | 2400 | -11.8 | -27.1 | 27 | 284 | .8 | 336 | 3.2 | 2 |

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 10

DAY 11

DAY 12

| HOUR | DEW | WIND | WIND GUST MAX. | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | | | | |
|------|-------|-------|----------------|-------|------------|------|------|------|------|-------|-------|-------|------------|-----|------|------|------|------|-------|-------|------------|------|------|------|------|-------|-------|---|------|-----|----|
| | DEG C | DEG C | % | DEG. | M/S | DEG. | M/S | MW | | DEG C | DEG C | % | DEG. | M/S | DEG. | M/S | MW | | DEG C | DEG C | % | DEG. | M/S | MW | | DEG C | DEG C | % | DEG. | M/S | MW |
| 0300 | -18.5 | ***** | 50 | 241 | .5 | 229 | 2.5 | 1 | 0300 | -8.4 | ***** | 51 | 332 | 1.2 | 338 | 3.8 | 1 | 0300 | -8.0 | -29.4 | 16 | 344 | 3.5 | 342 | 6.3 | 2 | | | | | |
| 0600 | -18.5 | ***** | 34 | 019 | .4 | 012 | 1.9 | 9 | 0600 | -8.2 | -18.7 | 43 | 327 | 1.7 | 351 | 5.1 | 6 | 0600 | -6.9 | -27.9 | 17 | 346 | 3.5 | 343 | 6.3 | 20 | | | | | |
| 0900 | -7.9 | ***** | 18 | 226 | .5 | 232 | 1.9 | 49 | 0900 | -4.2 | -23.3 | 21 | 297 | 1.7 | 317 | 5.1 | 41 | 0900 | -4.7 | -25.4 | 18 | 359 | 4.1 | 000 | 7.0 | 41 | | | | | |
| 1200 | -4.7 | -25.4 | 18 | 135 | 1.6 | 137 | 3.8 | 49 | 1200 | -1.1 | -26.1 | 13 | 344 | 3.4 | 006 | 6.3 | 66 | 1200 | -1.0 | -21.8 | 19 | 359 | 3.6 | 349 | 6.3 | 44 | | | | | |
| 1500 | -2.2 | -24.7 | 16 | 141 | 1.3 | 152 | 3.2 | 40 | 1500 | -.2 | -21.1 | 19 | 029 | 3.2 | 356 | 5.7 | 47 | 1500 | -1.3 | -23.9 | 16 | 038 | 3.5 | 035 | 6.3 | 30 | | | | | |
| 1800 | -4.3 | -27.8 | 14 | 300 | 1.3 | 317 | 3.2 | 6 | 1800 | -3.3 | -22.6 | 21 | 055 | 2.4 | 044 | 5.7 | 7 | 1800 | -3.7 | -25.9 | 16 | 040 | 2.7 | 035 | 5.7 | 5 | | | | | |
| 2100 | -6.7 | -14.5 | 54 | 010 | .3 | 357 | 3.2 | 1 | 2100 | -7.3 | -27.6 | 18 | 349 | 1.5 | 359 | 5.1 | 2 | 2100 | -7.1 | -28.7 | 16 | 354 | 3.1 | 006 | 6.3 | 2 | | | | | |
| 2400 | -6.9 | ***** | 53 | 350 | 1.2 | 348 | 2.5 | 1 | 2400 | -7.5 | -29.0 | 16 | 347 | 2.5 | 341 | 5.1 | 2 | 2400 | -7.6 | -29.8 | 15 | 005 | 4.8 | 007 | 7.6 | 2 | | | | | |

DAY 13

DAY 14

DAY 15

| HOUR | DEW | WIND | WIND GUST MAX. | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | | | | |
|------|-------|-------|----------------|-------|------------|------|------|------|------|-------|-------|-------|------------|-----|------|------|------|------|-------|-------|------------|------|------|------|------|-------|-------|---|------|-----|----|
| | DEG C | DEG C | % | DEG. | M/S | DEG. | M/S | MW | | DEG C | DEG C | % | DEG. | M/S | DEG. | M/S | MW | | DEG C | DEG C | % | DEG. | M/S | MW | | DEG C | DEG C | % | DEG. | M/S | MW |
| 0300 | -8.3 | -30.3 | 15 | 008 | 4.7 | 000 | 7.0 | 2 | 0300 | -10.0 | -30.4 | 17 | 345 | 1.6 | 328 | 3.8 | 2 | 0300 | -15.3 | ***** | 50 | 041 | .2 | 315 | 1.9 | 1 | | | | | |
| 0600 | -8.4 | -30.4 | 15 | 004 | 4.1 | 004 | 6.3 | 8 | 0600 | -10.1 | -28.8 | 20 | 350 | 1.5 | 348 | 3.8 | 11 | 0600 | -10.4 | ***** | 26 | 223 | .1 | 242 | 1.9 | 17 | | | | | |
| 0900 | -5.8 | -27.0 | 17 | 359 | 3.7 | 003 | 7.0 | 41 | 0900 | -3.4 | ***** | 21 | 010 | .7 | 347 | 2.5 | 54 | 0900 | .6 | ***** | 15 | 188 | .5 | 205 | 1.9 | 64 | | | | | |
| 1200 | -3.2 | -23.6 | 19 | 357 | 4.0 | 002 | 6.3 | 70 | 1200 | -.8 | -21.6 | 19 | 230 | 1.1 | 212 | 2.5 | 86 | 1200 | 2.2 | -19.7 | 18 | 192 | 1.5 | 179 | 6.3 | 64 | | | | | |
| 1500 | -2.6 | -22.0 | 21 | 349 | 3.4 | 343 | 5.7 | 51 | 1500 | 1.1 | -20.0 | 19 | 221 | 1.3 | 216 | 3.2 | 51 | 1500 | 2.4 | -22.4 | 14 | 147 | 2.8 | 154 | 5.7 | 43 | | | | | |
| 1800 | -6.4 | -27.4 | 17 | 355 | 3.8 | 258 | 7.0 | 8 | 1800 | -4.1 | -27.7 | 14 | 216 | 2.0 | 232 | 3.8 | 7 | 1800 | .8 | ***** | 18 | 156 | 1.7 | 154 | 4.4 | 8 | | | | | |
| 2100 | -8.3 | -30.3 | 15 | 357 | 3.8 | 006 | 7.0 | 2 | 2100 | -12.5 | ***** | 46 | 198 | .9 | 187 | 3.8 | 1 | 2100 | -5.7 | -20.6 | 30 | 197 | .4 | 195 | 1.9 | 2 | | | | | |
| 2400 | -9.4 | -30.6 | 16 | 352 | 2.9 | 357 | 5.7 | 2 | 2400 | -15.5 | ***** | 54 | 210 | .1 | 262 | 1.3 | 1 | 2400 | -12.6 | ***** | 55 | 215 | .2 | 197 | 1.9 | 1 | | | | | |

DAY 16

DAY 17

DAY 18

| HOUR | DEW | WIND | WIND GUST MAX. | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | POINT | NDNG TEMP. | RH | DIR. | SPD. | DIR. | GUST | RAD | | | | |
|------|-------|-------|----------------|-------|------------|------|------|------|------|-------|-------|-------|------------|-----|------|------|------|------|-------|-------|------------|------|------|------|------|-------|-------|---|------|-----|----|
| | DEG C | DEG C | % | DEG. | M/S | DEG. | M/S | MW | | DEG C | DEG C | % | DEG. | M/S | DEG. | M/S | MW | | DEG C | DEG C | % | DEG. | M/S | MW | | DEG C | DEG C | % | DEG. | M/S | MW |
| 0300 | -14.0 | ***** | 49 | 059 | .3 | 060 | 1.9 | 1 | 0300 | -8.4 | -26.4 | 22 | 261 | 1.6 | 283 | 4.4 | 2 | 0300 | -7.8 | -16.0 | 52 | 011 | .3 | 060 | 2.5 | 1 | | | | | |
| 0600 | -8.9 | ***** | 19 | 227 | .6 | 204 | 1.9 | 16 | 0600 | -7.5 | -27.7 | 18 | 263 | 1.1 | 311 | 3.2 | 11 | 0600 | -11.6 | ***** | 44 | 104 | .2 | 107 | 1.3 | 7 | | | | | |
| 0900 | -1.0 | -26.9 | 12 | 246 | 1.7 | 252 | 3.2 | 60 | 0900 | -3.8 | -27.4 | 14 | 307 | 1.7 | 325 | 4.4 | 48 | 0900 | -2.0 | -24.5 | 16 | 152 | .4 | 157 | 1.9 | 62 | | | | | |
| 1200 | 1.9 | -20.6 | 17 | 327 | 2.4 | 336 | 5.7 | 69 | 1200 | -.1 | -23.5 | 15 | 332 | 2.7 | 348 | 5.1 | 66 | 1200 | -.1 | -22.9 | 16 | 180 | 1.7 | 201 | 6.3 | 72 | | | | | |
| 1500 | 2.6 | -20.0 | 17 | 342 | 3.1 | 341 | 5.1 | 33 | 1500 | -.7 | -23.0 | 15 | 336 | 2.5 | 341 | 4.4 | 44 | 1500 | 1.1 | -24.3 | 13 | 205 | 2.3 | 165 | 5.7 | 52 | | | | | |
| 1800 | -.5 | -23.3 | 16 | 342 | 2.7 | 333 | 5.1 | 9 | 1800 | -1.9 | -25.9 | 14 | 344 | 2.1 | 337 | 3.8 | 10 | 1800 | -1.3 | -22.6 | 18 | 263 | 1.3 | 271 | 3.2 | 8 | | | | | |
| 2100 | -3.3 | -27.8 | 13 | 002 | 3.2 | 007 | 5.7 | 2 | 2100 | -4.4 | -27.2 | 15 | 000 | 2.2 | 006 | 5.7 | 2 | 2100 | -9.6 | ***** | 28 | 005 | 1.0 | 352 | 3.2 | 2 | | | | | |

R & M CONSULTANTS, INC.

SUSITNA HYDRO ELECTRIC PROJECT

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

DAY 19

DAY 20

DAY 21

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|------|-------|----|-----|-----|-----|-----|----|------|------|-------|----|-----|-----|-----|-----|----|
| 0300 | -18.3 | ***** | 48 | 043 | .3 | 024 | 1.9 | 1 | 0300 | -1.9 | -10.7 | 51 | 106 | 1.5 | 100 | 5.1 | 1 | 0300 | -8.9 | ***** | 50 | 179 | .3 | 081 | 1.9 | 1 |
| 0600 | -12.7 | -22.9 | 43 | 267 | .3 | 245 | 1.9 | 12 | 0600 | -4.6 | -15.7 | 42 | 108 | 2.1 | 116 | 6.3 | 7 | 0600 | -6.7 | ***** | 26 | 229 | .4 | 246 | 1.3 | 12 |
| 0900 | -4.2 | -23.3 | 21 | 256 | 1.3 | 251 | 2.5 | 43 | 0900 | 1.4 | -21.0 | 17 | 233 | .6 | 114 | 1.9 | 46 | 0900 | .7 | -25.6 | 12 | 224 | .8 | 238 | 1.9 | 54 |
| 1200 | -3.6 | -21.8 | 23 | 338 | 1.6 | 350 | 4.4 | 41 | 1200 | 2.6 | -25.0 | 11 | 133 | 2.9 | 129 | 7.6 | 62 | 1200 | 1.8 | -25.7 | 11 | 223 | 1.5 | 227 | 3.2 | 53 |
| 1500 | -1.1 | -21.3 | 20 | 353 | 2.9 | 351 | 5.7 | 22 | 1500 | 3.2 | -24.6 | 11 | 135 | 3.7 | 128 | 6.3 | 36 | 1500 | 3.6 | -24.3 | 11 | 223 | 1.7 | 214 | 3.2 | 66 |
| 1800 | -4.1 | -12.8 | 51 | 007 | 2.4 | 020 | 5.1 | 4 | 1800 | 2.2 | -25.4 | 11 | 158 | 2.4 | 142 | 6.3 | 10 | 1800 | 1.6 | -19.6 | 19 | 237 | 1.4 | 231 | 3.2 | 10 |
| 2100 | -2.5 | -12.1 | 48 | 037 | 1.2 | 015 | 3.8 | 1 | 2100 | -3.7 | ***** | 31 | 163 | .3 | 172 | 2.5 | 2 | 2100 | -1.4 | ***** | 40 | 247 | .9 | 248 | 1.9 | 1 |
| 2400 | -2.7 | ***** | 51 | 018 | .5 | 058 | 3.2 | 1 | 2400 | -5.0 | -18.9 | 33 | 106 | 1.2 | 115 | 2.5 | 2 | 2400 | -2.6 | ***** | 40 | 246 | .5 | 263 | 1.9 | 2 |

DAY 22

DAY 23

DAY 24

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|------|-------|----|-----|-----|-----|-----|----|
| 0300 | -3.9 | ***** | 31 | 240 | .2 | 237 | 1.9 | 2 | 0300 | -14.7 | ***** | 53 | 273 | .1 | 216 | 1.3 | 1 | 0300 | -4.1 | ***** | 42 | 069 | .9 | 073 | 2.5 | 1 |
| 0600 | -4.6 | ***** | 23 | 221 | .8 | 219 | 2.5 | 13 | 0600 | -9.8 | ***** | 34 | 048 | .2 | 070 | 1.3 | 12 | 0600 | -3.3 | ***** | 36 | 082 | .9 | 077 | 1.9 | 15 |
| 0900 | .4 | -25.8 | 12 | 225 | 1.2 | 213 | 3.2 | 55 | 0900 | -2.5 | ***** | 13 | 225 | .6 | 183 | 1.9 | 41 | 0900 | .4 | -23.3 | 15 | 123 | 1.5 | 110 | 3.2 | 63 |
| 1200 | 4.1 | -23.9 | 11 | 236 | 2.0 | 241 | 4.4 | 80 | 1200 | 1.6 | -22.1 | 15 | 194 | .9 | 213 | 2.5 | 61 | 1200 | 2.6 | -22.3 | 14 | 200 | .8 | 268 | 3.2 | 73 |
| 1500 | 3.4 | -23.4 | 12 | 243 | 2.3 | 234 | 4.4 | 55 | 1500 | .4 | -24.9 | 13 | 202 | 1.5 | 199 | 3.2 | 35 | 1500 | 4.4 | -20.8 | 14 | 224 | 1.2 | 251 | 3.2 | 48 |
| 1800 | 2.0 | -22.8 | 14 | 266 | 1.7 | 248 | 3.8 | 13 | 1800 | -1.3 | -20.9 | 21 | 288 | .5 | 212 | 3.2 | 12 | 1800 | 1.6 | -20.2 | 18 | 107 | 2.2 | 101 | 4.4 | 9 |
| 2100 | -4.9 | -19.9 | 30 | 278 | .6 | 292 | 2.5 | 2 | 2100 | -2.3 | ***** | 39 | 066 | .9 | 076 | 1.9 | 1 | 2100 | .3 | -17.5 | 25 | 079 | 2.0 | 082 | 3.8 | 2 |
| 2400 | -10.1 | ***** | 38 | 233 | .9 | 230 | 2.5 | 1 | 2400 | -3.0 | ***** | 54 | 049 | .5 | 119 | 1.3 | 1 | 2400 | 0.0 | -17.8 | 25 | 078 | 1.7 | 075 | 3.2 | 2 |

DAY 25

DAY 26

DAY 27

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|-------|----|-----|-----|-----|-----|----|------|------|-------|----|-----|-----|-----|-----|----|------|-----|-------|----|-----|-----|-----|-----|----|
| 0300 | -1.3 | ***** | 31 | 091 | 1.0 | 078 | 3.2 | 2 | 0300 | -8.2 | ***** | 58 | 128 | .3 | 187 | 2.5 | 1 | 0300 | -.9 | ***** | 61 | 025 | 1.4 | 057 | 3.8 | 1 |
| 0600 | -3.3 | ***** | 27 | 180 | .5 | 097 | 3.2 | 15 | 0600 | -4.6 | ***** | 48 | 069 | .5 | 111 | 1.9 | 7 | 0600 | .3 | -10.6 | 44 | 353 | 1.4 | 003 | 3.8 | 13 |
| 0900 | 4.1 | -22.9 | 12 | 127 | 2.5 | 124 | 6.3 | 72 | 0900 | .5 | -19.9 | 20 | 326 | 1.2 | 323 | 3.2 | 68 | 0900 | 2.7 | -12.1 | 33 | 073 | .9 | 100 | 5.7 | 37 |
| 1200 | 5.5 | -20.8 | 13 | 141 | 4.1 | 133 | 7.6 | 72 | 1200 | 3.8 | -23.1 | 12 | 329 | 1.6 | 336 | 3.8 | 51 | 1200 | 5.8 | -23.6 | 10 | 094 | 3.2 | 099 | 6.3 | 52 |
| 1500 | 5.1 | -21.1 | 13 | 171 | 3.3 | 153 | 6.3 | 50 | 1500 | 2.5 | -24.1 | 12 | 235 | .9 | 244 | 3.2 | 41 | 1500 | 7.7 | -20.0 | 12 | 113 | 2.4 | 112 | 4.4 | 68 |
| 1800 | 2.1 | -22.7 | 14 | 166 | 2.3 | 180 | 5.1 | 12 | 1800 | 1.7 | -24.8 | 12 | 035 | 1.7 | 040 | 4.4 | 10 | 1800 | 5.1 | -24.2 | 10 | 113 | 1.6 | 124 | 3.8 | 9 |
| 2100 | -1.4 | -24.0 | 16 | 147 | 1.0 | 171 | 4.4 | 2 | 2100 | 0.0 | ***** | 22 | 008 | 1.7 | 033 | 3.2 | 2 | 2100 | 3.6 | ***** | 18 | 136 | 1.3 | 132 | 4.4 | 2 |
| 2400 | -2.9 | -8.7 | 64 | 029 | .3 | 338 | 3.8 | 1 | 2400 | .1 | -16.0 | 29 | 354 | 2.0 | 357 | 5.1 | 2 | 2400 | 2.2 | -19.1 | 19 | 118 | 1.7 | 116 | 5.1 | 2 |

R & M CONSULTANTS, INC.
SUSETNA HYDROELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|-------|----|-----|-----|-----|-----|----|------|------|-------|----|-----|-----|-----|-----|----|------|------|-------|----|-----|-----|-----|-----|----|
| 0300 | .1 | -19.7 | 21 | 122 | 1.7 | 121 | 5.7 | 2 | 0300 | -7.9 | ***** | 55 | 106 | .3 | 141 | 1.9 | 1 | 0300 | -9.6 | ***** | 56 | 238 | .1 | 219 | 1.3 | 1 |
| 0600 | 1.9 | -25.6 | 11 | 099 | 1.9 | 104 | 3.8 | 26 | 0600 | -2.9 | ***** | 20 | 207 | .4 | 208 | 1.3 | 27 | 0600 | -4.8 | ***** | 24 | 228 | .8 | 177 | 1.3 | 19 |
| 0900 | 4.0 | -23.9 | 11 | 105 | 2.6 | 088 | 5.1 | 61 | 0900 | .6 | -24.7 | 13 | 184 | .7 | 213 | 2.5 | 59 | 0900 | .3 | -25.9 | 12 | 252 | 1.3 | 238 | 3.2 | 59 |
| 1200 | 5.6 | -19.9 | 14 | 144 | 2.7 | 152 | 7.0 | 63 | 1200 | 3.4 | -21.6 | 14 | 203 | 1.3 | 202 | 2.5 | 79 | 1200 | 3.2 | -19.6 | 17 | 232 | 1.9 | 234 | 3.2 | 78 |
| 1500 | 5.8 | -17.4 | 17 | 211 | 1.3 | 177 | 5.1 | 51 | 1500 | 3.8 | -21.3 | 14 | 208 | 1.9 | 210 | 3.8 | 70 | 1500 | 4.2 | -19.4 | 16 | 216 | 2.0 | 226 | 3.8 | 56 |
| 1800 | 3.2 | -23.6 | 12 | 225 | 1.4 | 213 | 2.5 | 12 | 1800 | 1.8 | -20.7 | 17 | 298 | 1.5 | 333 | 5.1 | 16 | 1800 | 2.6 | -20.0 | 17 | 241 | 1.5 | 236 | 3.2 | 17 |
| 2100 | -.8 | -19.9 | 22 | 163 | .6 | 223 | 2.5 | 2 | 2100 | -2.1 | ***** | 31 | 287 | .5 | 319 | 2.5 | 2 | 2100 | -2.6 | ***** | 32 | 332 | 1.1 | 001 | 3.2 | 2 |
| 2400 | -4.2 | ***** | 40 | 099 | 1.1 | 129 | 2.5 | 1 | 2400 | -5.7 | -19.9 | 32 | 232 | .9 | 218 | 1.9 | 2 | 2400 | -8.4 | ***** | 33 | 244 | 1.2 | 246 | 2.5 | 2 |

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

| DAY | RES. | | | RES. | | | AVG. | MAX. | MAX. | | | | DAY'S SOLAR ENERGY WH/SQM | |
|-------|---------------|---------------|---------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------|---------------|------------|-------------|------------------------------------|----|
| | MAX. DEG C | MIN. DEG C | MEAN DEG C | WIND DIR. DEG | WIND SPD. M/S | WIND SPD. M/S | GUST DIR. DEG | GUST SPD. M/S | P'VAL % | MEAN DEG C | MEAN RH | DP DEG C | PRECIP MM | |
| 1 | -10.4 | -18.0 | -14.2 | 341 | 3.5 | 3.6 | 349 | 7.6 | NNW | 21 | -32.4 | 0.0 | 5198 | 1 |
| 2 | -10.7 | -26.9 | -18.8 | 308 | 1.5 | 2.2 | 345 | 5.7 | W | 22 | -33.7 | 0.0 | 5300 | 2 |
| 3 | -7.6 | -33.9 | -28.8 | 207 | .4 | .7 | 242 | 1.9 | SSW | 28 | -28.1 | 0.0 | 5428 | 3 |
| 4 | -3.1 | -30.5 | -16.8 | 213 | .4 | .5 | 219 | 2.5 | SW | 26 | -22.4 | 0.0 | 5198 | 4 |
| 5 | 2.6 | -21.3 | -9.4 | 207 | .4 | .7 | 237 | 2.5 | SSW | 26 | -22.4 | 0.0 | 5313 | 5 |
| 6 | 3.6 | -11.8 | -4.1 | 221 | .4 | .7 | 249 | 2.5 | WSW | 24 | -19.1 | .6 | 4655 | 6 |
| 7 | 4.3 | -13.6 | -4.7 | 300 | 1.4 | 1.9 | 299 | 7.6 | NW | 22 | -23.7 | 3.8 | 4248 | 7 |
| 8 | 1.8 | -14.6 | -6.4 | 282 | .8 | 1.2 | 299 | 6.3 | WNW | 29 | -21.7 | .2 | 3673 | 8 |
| 9 | .1 | -19.1 | -9.5 | 326 | 1.3 | 1.8 | 339 | 7.0 | NNW | 28 | -23.1 | 0.0 | 5408 | 9 |
| 10 | -7.7 | -21.6 | -11.2 | 195 | .0 | 1.1 | 137 | 3.8 | SE | 32 | -23.4 | 0.0 | 5060 | 10 |
| 11 | .2 | -10.3 | -5.1 | 355 | 1.8 | 2.3 | 006 | 6.3 | NNW | 26 | -22.9 | .2 | 5023 | 11 |
| 12 | -.6 | -8.4 | -4.5 | 004 | 3.4 | 3.6 | 007 | 7.6 | N | 16 | -26.9 | 0.0 | 4285 | 12 |
| 13 | -2.1 | -9.4 | -5.8 | 358 | 3.8 | 3.8 | 000 | 7.0 | N | 17 | -27.8 | 0.0 | 5383 | 13 |
| 14 | 1.5 | -15.6 | -7.1 | 262 | .5 | 1.3 | 328 | 3.8 | SW | 24 | -26.0 | .4 | 6115 | 14 |
| 15 | 3.3 | -15.6 | -6.2 | 166 | .8 | 1.0 | 179 | 6.3 | SSE | 28 | -21.5 | 1.4 | 5508 | 15 |
| 16 | 3.2 | -14.3 | -5.6 | 329 | 1.4 | 2.0 | 336 | 5.7 | NNW | 24 | -23.9 | .2 | 6078 | 16 |
| 17 | 1.3 | -10.0 | -4.4 | 325 | 1.6 | 1.9 | 006 | 5.7 | NNW | 19 | -25.2 | .4 | 5495 | 17 |
| 18 | 1.8 | -17.1 | -7.7 | 209 | .4 | 1.1 | 201 | 6.3 | W | 29 | -23.8 | .2 | 6470 | 18 |
| 19 | -1.1 | -18.9 | -10.0 | 352 | 1.0 | 1.4 | 351 | 5.7 | N | 39 | -18.9 | 0.0 | 3418 | 19 |
| 20 | 4.3 | -5.2 | -.5 | 132 | 1.7 | 2.1 | 129 | 7.6 | SE | 26 | -20.0 | 3.4 | 5395 | 20 |
| 21 | 4.2 | -9.0 | -2.4 | 229 | .9 | 1.0 | 227 | 3.2 | SW | 27 | -23.6 | 0.0 | 5283 | 21 |
| 22 | 5.2 | -10.1 | -2.5 | 243 | 1.2 | 1.3 | 241 | 4.4 | WSW | 22 | -23.1 | 0.0 | 6623 | 22 |
| 23 | 2.3 | -15.0 | -6.4 | 192 | .2 | .8 | 199 | 3.2 | SSW | 31 | -22.8 | 0.0 | 5233 | 23 |
| 24 | 6.2 | -4.1 | 1.1 | 104 | 1.0 | 1.5 | 101 | 4.4 | ENE | 24 | -19.8 | 0.0 | 5935 | 24 |
| 25 | 6.0 | -5.0 | .5 | 147 | 1.7 | 2.1 | 133 | 7.6 | SE | 21 | -21.4 | 0.0 | 6508 | 25 |
| 26 | 4.5 | -8.6 | -2.1 | 355 | .9 | 1.4 | 357 | 5.1 | N | 30 | -20.5 | 1.8 | 5200 | 26 |
| 27 | 8.1 | -1.2 | 3.5 | 094 | 1.3 | 1.8 | 099 | 6.3 | ESE | 25 | -18.0 | .4 | 5218 | 27 |
| 28 | 6.6 | -4.2 | 1.2 | 135 | 1.2 | 1.8 | 152 | 7.0 | ESE | 18 | -20.9 | 0.0 | 6390 | 28 |
| 29 | 5.1 | -9.1 | -2.0 | 227 | .7 | 1.1 | 333 | 5.1 | SSW | 25 | -21.5 | 0.0 | 7430 | 29 |
| 30 | 4.5 | -9.8 | -2.7 | 243 | 1.0 | 1.2 | 226 | 3.8 | WSW | 26 | -21.6 | 0.0 | 6888 | 30 |
| MONTH | 8.1 | -33.9 | -6.1 | 331 | .4 | 1.3 | 349 | 7.6 | N | 25 | -23.3 | 13.2 | 163373 | |

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 5.7
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 6.3
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 7.6
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 5.1

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

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

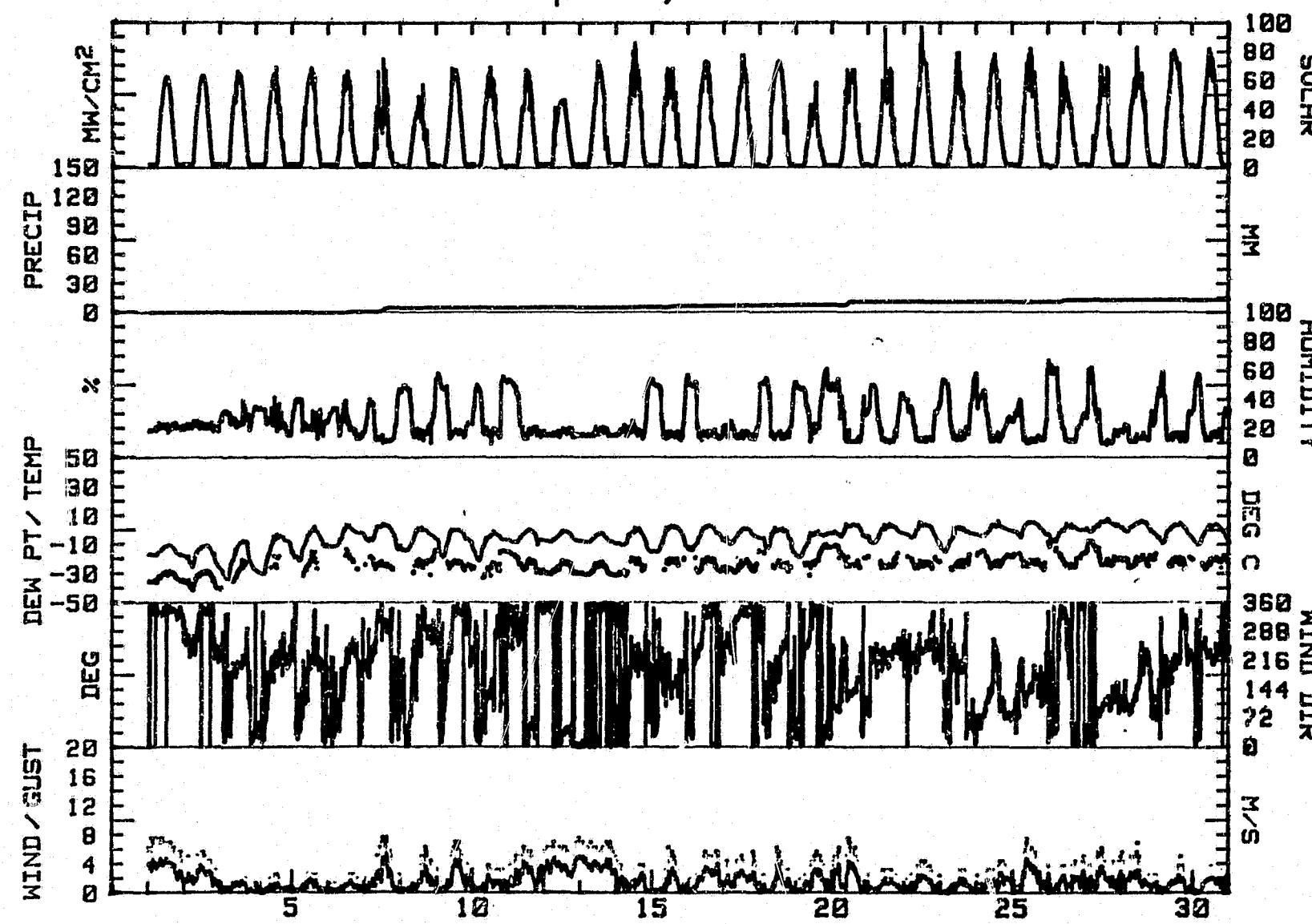
WIND FREQUENCY SUMMARY FOR TYONE WEATHER STATION
DATA TAKEN DURING April, 1982

| DIRECTION | VELOCITY (M/S) | | | | | | | | TOTAL |
|-----------|------------------|------------------|------------------|-------------------|--------------------|--------------------|-----------------------|-------|--------|
| | 0.2 TO 1.0 | 1.0 TO 3.0 | 3.0 TO 6.0 | 6.0 TO 10.0 | 10.0 TO 15.0 | 15.0 TO 20.0 | 20.0 OR GREATER | | |
| | 1.0 | 3.0 | 6.0 | 10.0 | 15.0 | 20.0 | | | |
| N | 1.11 | 4.13 | 5.97 | 0.00 | 0.00 | 0.00 | 0.00 | 11.22 | |
| NNE | 2.85 | 1.18 | .38 | 0.00 | 0.00 | 0.00 | 0.00 | 4.41 | |
| NE | 2.74 | .97 | .63 | 0.00 | 0.00 | 0.00 | 0.00 | 4.34 | |
| ENE | 2.19 | 1.53 | .03 | 0.00 | 0.00 | 0.00 | 0.00 | 3.75 | |
| E | 1.74 | 2.15 | .59 | 0.00 | 0.00 | 0.00 | 0.00 | 4.48 | |
| ESE | 1.63 | 2.92 | .49 | 0.00 | 0.00 | 0.00 | 0.00 | 5.03 | |
| SE | 1.49 | 1.81 | 1.15 | 0.00 | 0.00 | 0.00 | 0.00 | 4.44 | |
| SSE | 1.35 | 1.32 | .63 | 0.00 | 0.00 | 0.00 | 0.00 | 3.30 | |
| S | 1.98 | 1.88 | .31 | 0.00 | 0.00 | 0.00 | 0.00 | 4.17 | |
| SSW | 3.82 | 4.93 | .07 | 0.00 | 0.00 | 0.00 | 0.00 | 8.82 | |
| SW | 4.27 | 6.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.52 | |
| WSW | 2.95 | 6.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.86 | |
| W | 1.32 | 2.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.10 | |
| WNW | .90 | 1.56 | .42 | 0.00 | 0.00 | 0.00 | 0.00 | 2.88 | |
| NW | .87 | 2.81 | .76 | 0.00 | 0.00 | 0.00 | 0.00 | 4.44 | |
| NNW | .63 | 5.80 | 4.90 | 0.00 | 0.00 | 0.00 | 0.00 | 11.32 | |
| CALM | | | | | | | | | 2.92 |
| TOTAL | 31.84 | 48.92 | 16.32 | 0.00 | 0.00 | 0.00 | 0.00 | | 100.00 |

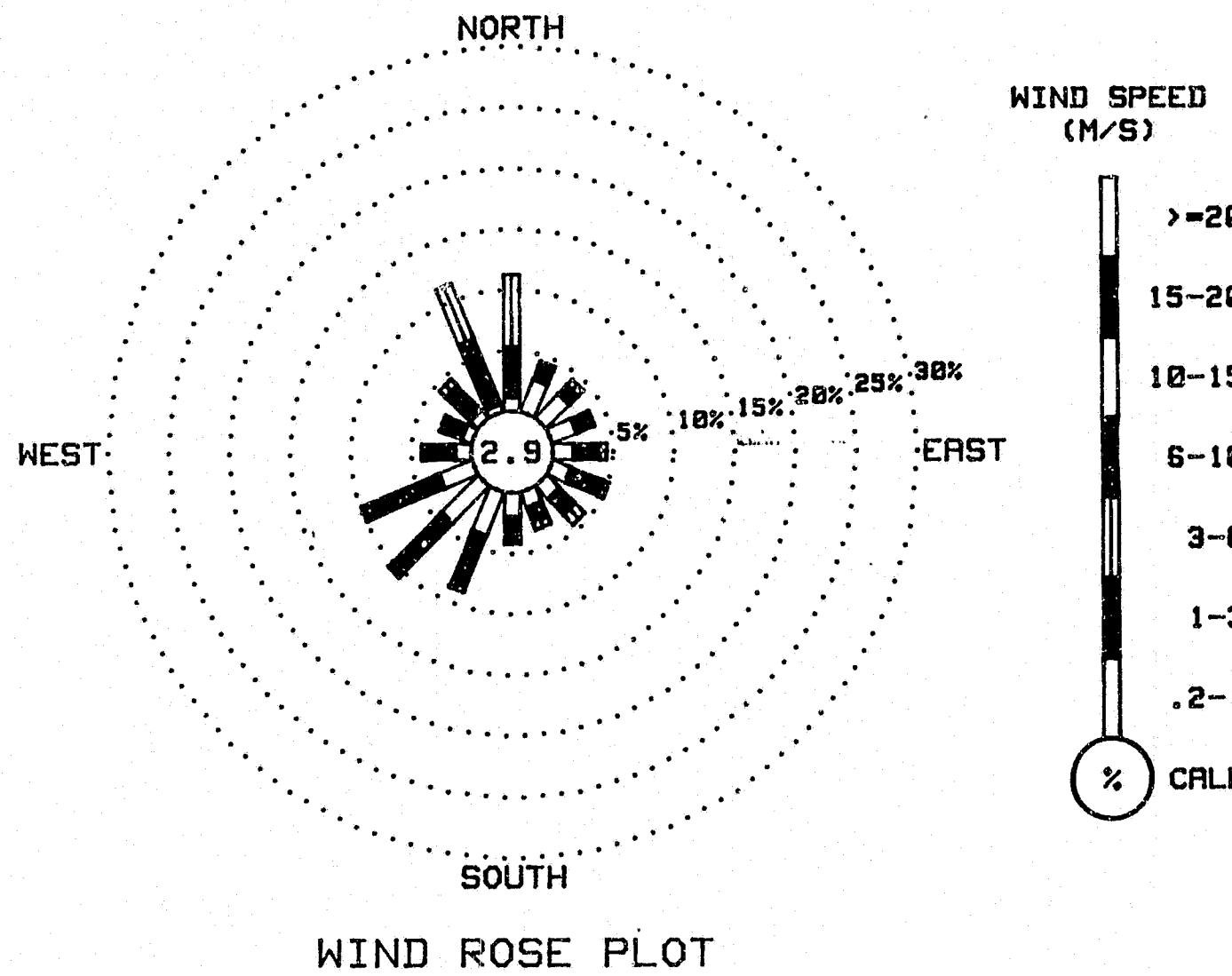
NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT

2880 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
April, 1982



R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
TYONE WEATHER STATION
April, 1982



R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE 0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 DATE

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

DAY 02

DAY 03

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------|-------|----|-----|-----|-----|-----|----|------|-------|-------|----|-----|-----|-----|-----|----|------|------|-------|----|-----|-----|-----|-----|----|
| 0300 | -10.5 | -22.5 | 37 | 243 | 1.1 | 233 | 2.5 | 2 | 0300 | -11.8 | ***** | 57 | 269 | .3 | 281 | 1.3 | 1 | 0300 | -5.8 | ***** | 32 | 223 | .7 | 230 | 2.5 | 2 |
| 0600 | -6.5 | -27.5 | 17 | 253 | .9 | 253 | 3.2 | 35 | 0600 | -5.7 | -26.9 | 17 | 265 | .4 | 263 | 3.2 | 33 | 0600 | -4.3 | ***** | 20 | 253 | 1.1 | 260 | 2.5 | 12 |
| 0900 | -9 | -26.8 | 12 | 246 | 1.8 | 238 | 3.8 | 65 | 0900 | 1.1 | -25.2 | 12 | 258 | 1.9 | 256 | 3.2 | 64 | 0900 | 1.4 | -20.4 | 18 | 295 | .8 | 012 | 2.5 | 67 |
| 1200 | 3.2 | -19.6 | 17 | 229 | 2.0 | 239 | 3.8 | 80 | 1200 | 2.5 | -22.4 | 14 | 325 | 1.9 | 350 | 5.1 | 79 | 1200 | 3.2 | -21.0 | 15 | 196 | 1.0 | 219 | 3.2 | 81 |
| 1500 | 3.8 | -20.5 | 15 | 222 | 1.8 | 215 | 3.2 | 59 | 1500 | 3.3 | -14.5 | 26 | 333 | 2.5 | 342 | 5.1 | 57 | 1500 | 3.0 | -18.4 | 19 | 216 | 1.7 | 214 | 3.8 | 62 |
| 1800 | 4.0 | -18.2 | 18 | 214 | 1.6 | 209 | 3.2 | 20 | 1800 | 1.4 | -26.0 | 11 | 330 | 2.2 | 332 | 4.4 | 19 | 1800 | 1.9 | -19.3 | 19 | 220 | 1.3 | 204 | 3.2 | 16 |
| 2100 | -3.2 | ***** | 20 | 239 | .8 | 229 | 1.9 | 2 | 2100 | -3.0 | ***** | 20 | 340 | 1.7 | 336 | 3.2 | 2 | 2100 | -2.2 | ***** | 64 | 208 | .8 | 192 | 3.2 | 1 |
| 2400 | -8.9 | ***** | 52 | 169 | .4 | 146 | 2.5 | 1 | 2400 | -6.8 | ***** | 32 | 244 | .9 | 261 | 1.9 | 2 | 2400 | -2.0 | ***** | 68 | 281 | .4 | 265 | 1.9 | 1 |

DAY 04

DAY 05

DAY 06

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|-------|----|-----|-----|-----|-----|----|------|------|-------|----|-----|-----|-----|-----|----|------|------|-------|----|-----|-----|-----|-----|----|
| 0300 | -3.1 | ***** | 60 | 234 | .2 | 353 | 1.9 | 1 | 0300 | -8.2 | ***** | 42 | 249 | .2 | 300 | 1.3 | 1 | 0300 | -4.1 | ***** | 42 | 206 | .5 | 216 | 1.9 | 1 |
| 0600 | -2.3 | ***** | 25 | 124 | .4 | 190 | 2.5 | 12 | 0600 | -3.7 | -27.4 | 14 | 240 | .7 | 259 | 2.5 | 35 | 0600 | .9 | ***** | 13 | 147 | .2 | 154 | 1.9 | 38 |
| 0900 | 1.6 | -23.1 | 14 | 336 | .8 | 029 | 2.5 | 46 | 0900 | 2.0 | -22.0 | 15 | 315 | .5 | 319 | 4.4 | 68 | 0900 | 4.5 | -23.6 | 11 | 186 | .7 | 151 | 2.5 | 67 |
| 1200 | 2.7 | -25.0 | 11 | 259 | 1.4 | 249 | 4.4 | 85 | 1200 | 3.5 | -21.6 | 14 | 292 | 1.6 | 217 | 4.4 | 66 | 1200 | 6.3 | -22.2 | 11 | 202 | 1.5 | 176 | 3.2 | 80 |
| 1500 | 3.5 | -23.3 | 12 | 241 | 2.1 | 225 | 3.8 | 78 | 1500 | 5.0 | -23.2 | 11 | 232 | 2.5 | 227 | 3.8 | 48 | 1500 | 6.7 | -17.4 | 16 | 246 | 1.7 | 239 | 3.2 | 58 |
| 1800 | 2.6 | -24.1 | 12 | 039 | 1.1 | 306 | 3.8 | 22 | 1800 | 3.5 | -23.3 | 12 | 222 | 1.8 | 234 | 3.2 | 13 | 1800 | 7.7 | -20.0 | 12 | 237 | 1.7 | 238 | 3.2 | 21 |
| 2100 | -2.6 | ***** | 28 | 065 | .4 | 104 | 1.9 | 2 | 2100 | 1.2 | ***** | 25 | 214 | .7 | 231 | 1.9 | 2 | 2100 | 1.1 | -19.4 | 20 | 231 | 1.0 | 245 | 1.9 | 2 |
| 2400 | -5.6 | ***** | 31 | 334 | .6 | 357 | 2.5 | 2 | 2400 | -1.8 | ***** | 37 | 219 | .3 | 245 | 1.3 | 1 | 2400 | -4 | ***** | 38 | 252 | .4 | 240 | 1.9 | 1 |

DAY 07

DAY 08

DAY 09

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-----|-------|----|-----|-----|-----|-----|----|------|-----|-------|----|-----|-----|-----|-----|-----|------|-----|-------|----|-----|-----|-----|-----|----|
| 0300 | 2.6 | -11.1 | 36 | 031 | .4 | 003 | 3.2 | 1 | 0300 | 1.2 | ***** | 59 | 095 | .2 | 182 | 1.9 | 1 | 0300 | 1.8 | -12.2 | 35 | 093 | 1.2 | 100 | 3.2 | 1 |
| 0600 | 3.6 | ***** | 32 | 343 | .8 | 005 | 3.2 | 12 | 0600 | 4.2 | ***** | 27 | 297 | .4 | 352 | 3.8 | 15 | 0600 | 1.9 | -8.6 | 46 | 065 | 1.4 | 058 | 3.8 | 11 |
| 0900 | 5.4 | -20.0 | 14 | 216 | .8 | 204 | 2.5 | 41 | 0900 | 5.6 | -18.3 | 16 | 204 | 1.2 | 213 | 3.2 | 59 | 0900 | 3.5 | -9.3 | 39 | 099 | 1.4 | 074 | 3.2 | 26 |
| 1200 | 7.0 | -23.9 | 9 | 212 | 2.0 | 218 | 3.8 | 82 | 1200 | 7.4 | -23.6 | 9 | 230 | 2.0 | 228 | 4.4 | 109 | 1200 | 5.6 | -16.9 | 18 | 141 | .9 | 105 | 1.9 | 27 |
| 1500 | 6.4 | -20.1 | 13 | 215 | 2.3 | 215 | 3.8 | 41 | 1500 | 7.7 | -23.4 | 9 | 228 | 1.7 | 214 | 3.2 | 48 | 1500 | 5.4 | -16.4 | 19 | 233 | 1.3 | 224 | 2.5 | 38 |
| 1800 | 5.0 | -17.4 | 18 | 233 | 1.0 | 224 | 3.2 | 10 | 1800 | 6.0 | ***** | 10 | 256 | .8 | 250 | 2.5 | 9 | 1800 | 5.4 | ***** | 26 | 131 | .4 | 172 | 2.5 | 12 |
| 2100 | 2.1 | ***** | 40 | 184 | .3 | 243 | 1.9 | 1 | 2100 | 2.0 | ***** | 36 | 221 | .4 | 197 | 1.3 | 1 | 2100 | 1.5 | ***** | 58 | 225 | .6 | 310 | 1.9 | 1 |
| 2400 | .4 | ***** | 55 | 042 | .3 | 111 | 1.3 | 1 | 2400 | 3.1 | -11.4 | 34 | 097 | .5 | 089 | 2.5 | 1 | 2400 | -8 | ***** | 71 | 116 | .2 | 177 | 1.3 | 1 |

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 10

DAY 11

DAY 12

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

| | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|-------|----|-----|-----|-----|-----|---------|------|-------|----|-----|-----|-----|-----|---------|------|-------|----|-----|-----|-----|-----|----|
| 0300 | -1.7 | ***** | 75 | 214 | .3 | 225 | 1.9 | 1 0300 | .1 | ***** | 73 | 089 | .9 | 088 | 2.5 | 1 0300 | -3.1 | ***** | 59 | 079 | .4 | 072 | 1.3 | 1 |
| 0600 | 1.8 | ***** | 54 | 251 | .1 | 029 | 1.3 | 15 0600 | 1.4 | -7.2 | 53 | 011 | .4 | 015 | 2.5 | 15 0600 | 2.2 | -19.1 | 19 | 031 | .3 | 042 | 1.9 | 17 |
| 0900 | 5.9 | ***** | 20 | 294 | .5 | 307 | 1.9 | 46 0900 | 3.1 | -6.9 | 48 | 329 | 1.0 | 316 | 3.2 | 39 0900 | 2.7 | -19.1 | 20 | 210 | 1.2 | 220 | 3.2 | 27 |
| 1200 | 5.2 | -15.4 | 21 | 229 | 1.3 | 224 | 3.2 | 41 1200 | 4.5 | -16.6 | 20 | 287 | 1.9 | 312 | 5.1 | 76 1200 | 5.4 | -23.9 | 10 | 245 | 1.7 | 299 | 3.8 | 50 |
| 1500 | 4.8 | -11.1 | 31 | 221 | 1.8 | 222 | 3.2 | 23 1500 | 5.7 | -23.7 | 10 | 319 | 2.6 | 319 | 5.7 | 41 1500 | 3.3 | -13.6 | 28 | 138 | .4 | 122 | 3.8 | 41 |
| 1800 | 2.7 | -5.4 | 55 | 212 | 1.7 | 207 | 3.2 | 7 1800 | 3.5 | -17.4 | 20 | 257 | 2.5 | 252 | 4.4 | 16 1800 | 4.1 | -17.5 | 19 | 294 | 1.3 | 341 | 3.8 | 18 |
| 2100 | .3 | ***** | 73 | 169 | .3 | 217 | 1.9 | 0 2100 | -.6 | ***** | 43 | 242 | .6 | 257 | 3.2 | 1 2100 | -1.1 | ***** | 48 | 288 | .8 | 319 | 2.5 | 1 |
| 2400 | .5 | ***** | 76 | 080 | .7 | 077 | 1.9 | 1 2400 | -1.6 | ***** | 52 | 129 | .4 | 079 | 1.3 | 1 2400 | 0.0 | ***** | 65 | 270 | .4 | 313 | 1.9 | 1 |

DAY 13

DAY 14

DAY 15

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

DAY 16

DAY 12

DAY 18

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

R & M CONSULTANTS, INC.

SUSITTNA HYDROELECTRIC PROJECT

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

DAY 19

DAY 20

DAY 21

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

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

DAY 22

DAY 23

DAY 24

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

DAY 25

DAY 26

DAY 27

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

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

D & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

DAY 28

DAY 29

DAY 30

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

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

DAY 31

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

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

R & M CONSULTANTS, INC.

SUSITTNA HYDROELECTRIC PROJECT

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

| DAY | MAX. TEMP. DEG C | MIN. TEMP. DEG C | MEAN TEMP. DEG C | RES. DIR. DEG | RES. SPD. M/S | AVG. WIND M/S | MAX. WIND DIR. DEG | GUST SPD. M/S | GUST P'VAL DIR. RH % | MAX. MEAN DEG C | MEAN DP PRECIP MM | DAY'S SOLAR ENERGY WH/SQM |
|-------|------------------------|------------------------|------------------------|---------------------|---------------------|---------------------|-----------------------------|---------------------|----------------------------|-----------------------|----------------------------|------------------------------------|
| 1 | 4.3 | -10.9 | -3.3 | 231 | 1.2 | 1.4 | 238 | 3.8 | WSW | 21 | -22.9 | 0.0 |
| 2 | 3.7 | -12.6 | -4.5 | 312 | 1.2 | 1.6 | 350 | 5.1 | NNW | 24 | -22.8 | 0.0 |
| 3 | 5.4 | -7.5 | -1.1 | 229 | .8 | 1.1 | 214 | 3.9 | SW | 30 | -19.4 | 0.0 |
| 4 | 4.8 | -5.6 | -.4 | 285 | .3 | 1.1 | 249 | 4.4 | WSW | 25 | -22.8 | 2.6 |
| 5 | 6.5 | -9.6 | -1.6 | 244 | .9 | 1.2 | 319 | 4.4 | SW | 21 | -22.5 | 0.0 |
| 6 | 8.0 | -4.9 | 1.6 | 224 | .9 | 1.1 | 176 | 3.2 | WSW | 21 | -19.5 | 0.0 |
| 7 | 8.1 | -.8 | 3.7 | 223 | .6 | 1.1 | 218 | 3.8 | SW | 26 | -19.0 | 0.0 |
| 8 | 9.1 | 0.0 | 4.6 | 226 | .7 | 1.0 | 228 | 4.4 | SSW | 26 | -19.7 | 0.0 |
| 9 | 6.5 | -.8 | 2.9 | 119 | .5 | 1.1 | 058 | 3.8 | ENE | 36 | -12.0 | .4 |
| 10 | 6.5 | -1.7 | 2.4 | 219 | .6 | 1.0 | 224 | 3.2 | SW | 51 | -10.9 | 4.0 |
| 11 | 5.7 | -1.8 | 2.0 | 296 | .8 | 1.4 | 319 | 5.7 | WSW | 41 | -13.0 | 2.6 |
| 12 | 5.5 | -3.1 | 1.2 | 257 | .5 | 1.1 | 299 | 3.8 | SSW | 35 | -16.0 | 1.0 |
| 13 | 5.2 | -.8 | 2.2 | 311 | 1.0 | 1.2 | 319 | 5.1 | NW | 43 | -16.1 | 1.4 |
| 14 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 15 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 16 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 17 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 18 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 19 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 20 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 21 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 22 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 23 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 24 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 25 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 26 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 27 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 28 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 29 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 30 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| 31 | **** | **** | **** | *** | *** | *** | *** | *** | *** | ** | **** | **** |
| MONTH | 9.1 | -12.6 | .7 | 249 | .6 | 1.2 | 319 | 5.7 | SW | 30 | -18.2 | 12.0 |
| | | | | | | | | | | | | 81052 |

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 5.1

GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 4.4

GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 5.1

GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 5.1

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

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

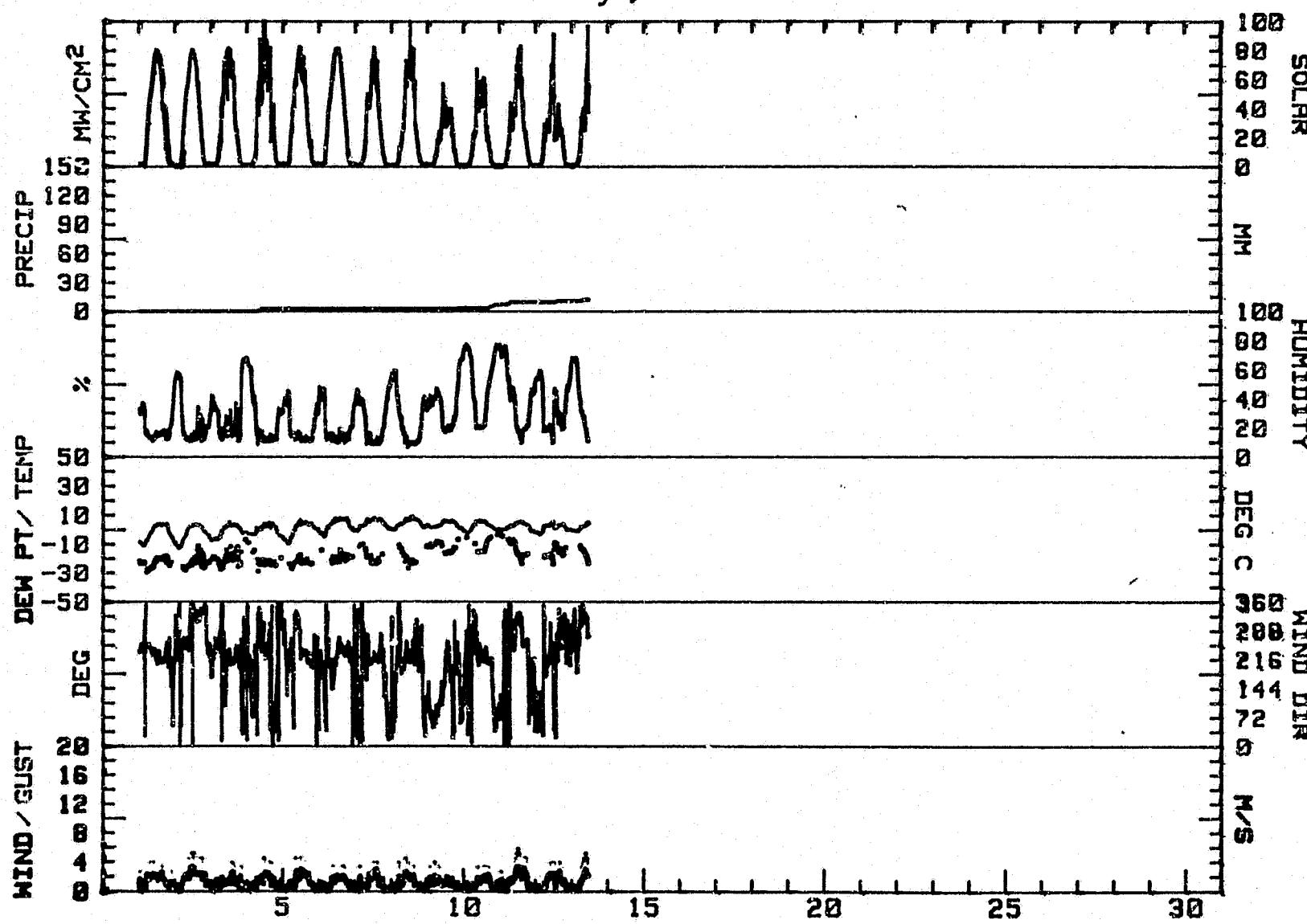
R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

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

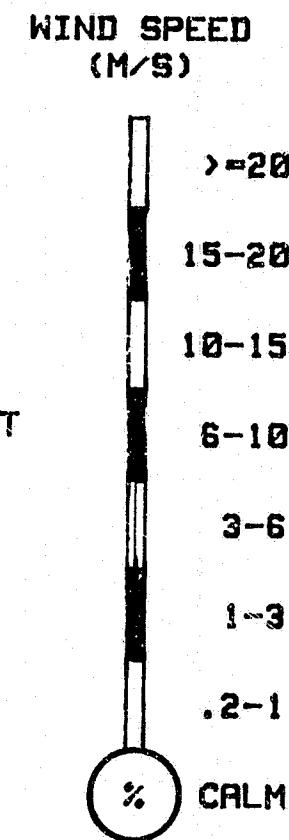
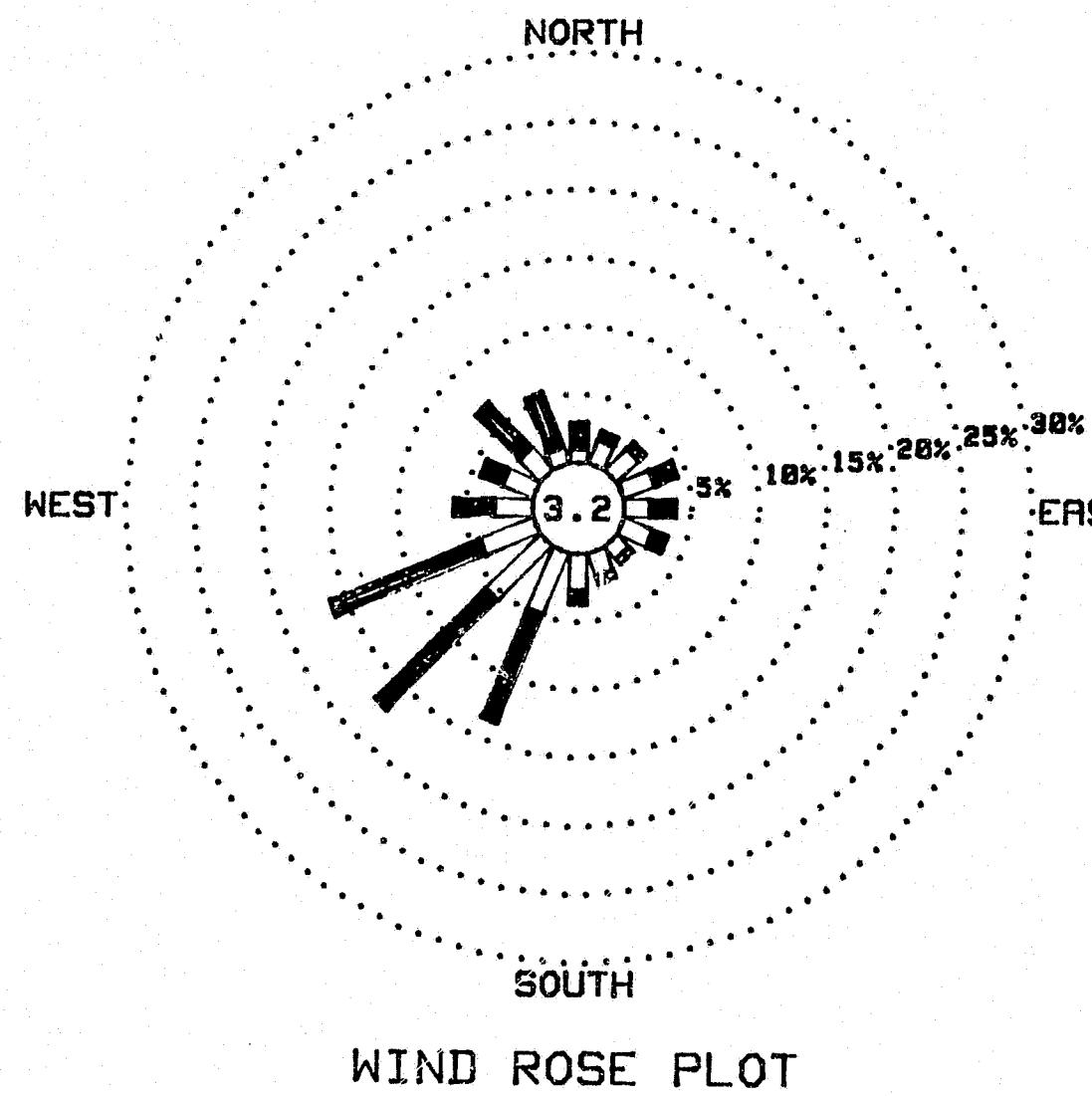
| DIRECTION | VELOCITY (M/S) | | | | | | | | TOTAL |
|-----------|----------------|------------|------------|-------------|--------------|--------------|-----------------|------|--------|
| | 0.2 TO 1.0 | 1.0 TO 3.0 | 3.0 TO 6.0 | 6.0 TO 10.0 | 10.0 TO 15.0 | 15.0 TO 20.0 | 20.0 OR GREATER | | |
| N | 1.00 | 1.67 | .25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.92 |
| NNE | 1.84 | .67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.51 |
| NE | 2.26 | .67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.92 |
| ENE | 2.51 | 1.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.26 |
| E | 1.92 | 1.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.84 |
| ESE | 2.34 | 1.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.51 |
| SE | 1.25 | .50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.75 |
| SSE | 1.75 | .58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.34 |
| S | 2.67 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.68 |
| SSW | 4.85 | 8.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 13.45 |
| SW | 5.60 | 11.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 17.04 |
| WSW | 4.26 | 11.78 | .08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 16.12 |
| W | 2.84 | 3.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.85 |
| WNW | 2.51 | 1.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.26 |
| NW | 2.26 | 4.26 | .33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.85 |
| NNW | 1.25 | 4.18 | .08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.51 |
| CALM | — | — | — | — | — | — | — | — | 3.17 |
| TOTAL | 41.10 | 54.97 | .75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 |

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
1197 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

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



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



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