

PROCESSED CLIMATIC DATA

VOL. 5

WATANA STATION

R&M

**SUSITNA HYDROELECTRIC PROJECT
PROCESSED CLIMATIC DATA
VOLUME 5
WATANA STATION**

UNIVERSITY OF ALASKA
ARCTIC ENVIRONMENTAL INFORMATION
ANALYSIS CENTER
2075 STREET
ANCHORAGE, AK 99501

PREPARED BY:



PREPARED FOR:



ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT

TASK 3 - HYDROLOGY

PROCESSED CLIMATIC DATA
VOLUME 5 - WATANA STATION

MARCH 1982

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ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT

TASK 3 - HYDROLOGY

PROCESSED CLIMATIC DATA

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PROCESSED CLIMATIC DATA
VOLUME 5
WATANA STATION
APRIL 8, 1980 THRU SEPTEMBER 30, 1981

The Watana Climate Station was installed on April 8, 1980 about one mile north of the Susitna River about midway between Tsusena and Deadman Creek. It is located on map Talkeetna Mountains (D-4) NW $\frac{1}{4}$ Section 27, R5E, T32N, Seward Meridian. The data were collected using a Meteorology Research Incorporated (MRI) Digital Weather Station. Data thru June 30, 1981 were processed by MRI and all subsequent data by R&M Consultants. An explanation of the parameters measured is located at the back of this report.

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING APRIL , 1980

DAY 01

DAY 02

DAY 03

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

DAY 04

DAY 05

DAY 06

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

DAY 07

DAY 08

DAY 09

HOUR NDNG	DEW							HOUR NDNG	DEW							HOUR NDNG	DEW								
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		
	DEG C	DEG C	%	DEG.	M/S	DEG.	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	MW		
0300	*	*	*	*	*	*	*	0300	*	*	*	*	*	*	*	0300	-7.0	-11.6	70	027	1.8	033	3.8	000	
0600	*	*	*	*	*	*	*	0600	*	*	*	*	*	*	*	0600	-8.0	-14.7	59	030	1.6	021	3.2	009	
0900	*	*	*	*	*	*	*	0900	*	*	*	*	*	*	*	0900	-1.0	-10.7	48	079	1.7	084	3.2	041	
1200	*	*	*	*	*	*	*	1200	*	*	*	*	*	*	*	1200	4.0	-7.6	43	049	2.3	052	4.4	059	
1500	*	*	*	*	*	*	*	1500	3.0	-7.9	45	068	4.9	072	7.6	039	1500	5.0	-7.9	39	056	2.7	068	5.1	044
1800	*	*	*	*	*	*	*	1800	1.0	-8.4	50	062	4.3	073	7.0	012	1800	2.0	-10.3	40	020	2.6	009	5.1	009
2100	*	*	*	*	*	*	*	2100	-3.0	-9.3	62	007	2.5	029	4.4	000	2100	-1.0	-9.7	52	008	2.5	012	5.1	000
2400	*	*	*	*	*	*	*	2400	-6.0	-11.8	64	008	2.1	349	3.2	000	2400	-4.0	-11.1	58	042	2.5	039	3.8	000

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING APRIL , 1980

DAY 10

DAY 11

DAY 12

HOUR NDNG	DEW		WIND DIR.	WIND SPD.	GUST MAX.			HOUR NDNG	DEW		WIND DIR.	WIND SPD.	GUST MAX.			HOUR NDNG	DEW		WIND DIR.	WIND SPD.	GUST MAX.		
	TEMP.	POINT			DIR.	DIR.	GUST		DIR.	GUST			TEMP.	POINT	DIR.		DIR.	GUST			DIR.	GUST	TEMP.
	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	-6.0	-11.8	64	048	2.5	047	3.8 000	0300	-1.0	-3.9	81	062	3.2	069	6.3 000	0300	0.0	-3.3	79	059	4.0	075	7.0 000
0600	-5.0	-13.7	51	070	1.6	072	3.2 010	0600	0.0	-3.4	78	071	2.8	075	5.1 006	0600	1.0	-2.6	77	068	5.7	065	8.3 005
0900	-1.0	-12.1	43	064	1.0	035	2.5 043	0900	1.0	-4.3	68	070	3.5	070	5.7 023	0900	1.0	-2.8	76	070	4.6	066	7.6 015
1200	3.0	-8.5	43	039	2.5	044	3.8 044	1200	2.0	-3.6	67	054	3.9	048	6.3 037	1200	1.0	-3.7	71	185	1.5	231	8.9 035
1500	3.0	-7.9	45	057	3.3	066	5.1 035	1500	2.0	-2.4	73	051	4.0	062	5.7 030	1500	0.0	-4.7	71	242	4.9	232	7.6 024
1800	1.0	-6.4	58	062	3.5	064	5.1 006	1800	1.0	-3.0	75	052	3.5	046	6.3 003	1800	-1.0	*****	76	240	2.6	256	7.0 004
2100	-1.0	-6.0	69	036	3.0	038	4.4 000	2100	0.0	-3.1	80	045	2.9	044	4.4 000	2100	-2.0	-4.4	84	242	.9	276	3.2 000
2400	-2.0	-5.2	79	042	3.4	042	4.4 000	2400	0.0	-2.4	84	034	2.7	025	5.1 000	2400	-4.0	-5.4	90	177	.9	167	3.2 000

DAY 13

DAY 14

DAY 15

HOUR NDNG	DEW		WIND DIR.	WIND SPD.	GUST MAX.			HOUR NDNG	DEW		WIND DIR.	WIND SPD.	GUST MAX.			HOUR NDNG	DEW		WIND DIR.	WIND SPD.	GUST MAX.		
	TEMP.	POINT			DIR.	DIR.	GUST		DIR.	GUST			TEMP.	POINT	DIR.		DIR.	GUST			DIR.	GUST	TEMP.
	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	-4.0	-7.3	78	142	2.6	105	6.3 000	0300	-8.0	-8.4	97	356	.8	005	3.2 000	0300	-11.0	-17.9	57	353	2.1	343	3.2 000
0600	-3.0	-7.8	70	065	5.6	068	8.9 007	0600	-8.0	-8.4	97	347	2.2	349	3.8 017	0600	-8.0	-18.0	45	023	1.5	352	2.5 014
0900	-1.0	-7.0	64	065	5.3	058	8.3 032	0900	-4.0	-11.4	57	343	2.5	344	4.4 041	0900	-5.0	-15.8	43	037	1.3	026	3.2 045
1200	2.0	-10.0	41	082	4.1	078	8.9 041	1200	0.0	-12.1	40	357	2.4	355	3.8 063	1200	0.0	-11.8	41	034	2.8	038	5.1 062
1500	0.0	-5.7	66	236	3.3	224	7.6 035	1500	0.0	-14.5	33	319	1.8	308	5.1 047	1500	0.0	-12.1	40	058	4.0	075	7.6 048
1800	-2.0	-6.1	74	322	1.0	246	4.4 005	1800	-2.0	-14.2	39	338	2.3	309	4.4 012	1800	-3.0	-12.6	48	063	3.8	076	7.0 011
2100	-4.0	-11.3	00	249	1.2	235	3.8 000	2100	-8.0	-15.8	54	349	2.5	345	3.6 001	2100	-6.0	-11.6	65	023	3.2	026	5.1 000
2400	-4.0	*****	00	262	.8	263	1.9 000	2400	-10.0	-17.4	55	344	2.2	349	3.8 000	2400	-9.0	-13.9	68	044	2.3	047	5.1 000

DAY 16

DAY 17

DAY 18

HOUR NDNG	DEW		WIND DIR.	WIND SPD.	GUST MAX.			HOUR NDNG	DEW		WIND DIR.	WIND SPD.	GUST MAX.			HOUR NDNG	DEW		WIND DIR.	WIND SPD.	GUST MAX.		
	TEMP.	POINT			DIR.	DIR.	GUST		DIR.	GUST			TEMP.	POINT	DIR.		DIR.	GUST			DIR.	GUST	TEMP.
	DEG C	DEG C	% DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	% DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	% DEG.	M/S	DEG.	M/S	MW
0300	-10.0	-14.3	71	067	1.9	094	3.8 000	0300	-9.0	-13.9	68	029	2.5	042	4.4 000	0300	-7.0	-12.0	68	064	2.1	032	5.1 000
0600	-9.0	-15.2	61	031	1.6	004	3.2 010	0600	-7.0	-14.8	54	060	2.2	054	3.8 013	0600	-9.0	-13.7	69	073	2.2	065	4.4 008
0900	-3.0	-13.4	45	061	2.0	052	5.7 042	0900	-1.0	-10.7	48	054	2.5	052	5.7 047	0900	1.0	-10.6	42	092	3.3	095	5.7 055
1200	0.0	-11.2	43	043	3.2	061	5.7 059	1200	2.0	-8.3	47	062	4.9	079	8.3 064	1200	4.0	-9.5	37	060	3.5	077	5.1 047
1500	1.0	-9.7	45	034	3.4	014	5.7 046	1500	3.0	-8.5	43	079	4.9	075	7.6 049	1500	4.0	-8.5	40	065	3.8	085	8.3 030
1800	-2.0	-11.2	50	015	3.6	014	5.1 011	1800	1.0	-10.3	43	062	3.7	074	7.6 013	1800	2.0	-7.5	50	055	3.8	055	7.0 012
2100	-6.0	-11.6	65	009	3.4	009	5.7 000	2100	-3.0	-10.4	57	028	2.9	033	4.4 000	2100	-1.0	-8.8	56	035	2.9	051	5.1 000
2400	-8.0	-12.6	70	013	2.6	011	5.1 000	2400	-5.0	-11.9	59	010	2.4	009	4.4 000	2400	-3.0	-9.3	62	006	2.0	030	4.4 000

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION.
DATA TAKEN DURING APRIL , 1980

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	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	DIR.	SPD.	DIR.									
	DEG C	DEG C	% DEG.	M/S	DEG.		DEG C	DEG C	% DEG.	M/S	DEG.		DEG C	DEG C	% DEG.	M/S	DEG.									
0300	-5.0	-10.3	67	031	1.9	038	3.8	000	0300	-2.0	-6.1	74	003	1.3	354	3.2	000	0300	-1.0	-6.0	69	060	7.0	062	10.8	000
0600	-6.0	-13.5	56	052	1.9	029	3.8	013	0600	-2.0	-3.4	90	020	.8	004	1.9	009	0600	0.0	-4.9	70	069	7.4	072	13.3	009
0900	2.0	-11.3	37	175	.2	088	1.9	047	0900	2.0	-4.0	65	020	1.5	033	2.5	049	0900	2.0	-5.3	59	087	9.6	092	14.6	037
1200	5.0	-10.9	31	294	.8	287	3.8	065	1200	3.0	-4.3	59	004	2.8	000	5.1	049	1200	3.0	-5.5	54	095	10.5	097	15.9	031
1500	3.0	-9.4	40	283	3.3	287	6.3	041	1500	5.0	-7.0	42	036	2.9	082	6.3	070	1500	4.0	-4.8	53	100	7.5	099	12.7	025
1800	3.0	-7.6	46	300	3.2	297	5.7	006	1800	3.0	-4.6	58	039	3.9	046	7.0	015	1800	3.0	-5.3	55	105	3.9	097	9.5	008
2100	0.0	-6.1	64	339	1.4	303	2.5	000	2100	0.0	-6.3	63	043	3.8	060	7.0	000	2100	0.0	-7.6	57	061	2.4	085	6.3	000
2400	-2.0	-6.8	70	345	1.3	000	2.5	000	2400	-1.0	-6.8	65	064	6.1	065	10.2	000	2400	-2.0	-8.6	61	070	5.6	076	9.5	000

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	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	DIR.	SPD.	DIR.									
	DEG C	DEG C	% DEG.	M/S	DEG.		DEG C	DEG C	% DEG.	M/S	DEG.		DEG C	DEG C	% DEG.	M/S	DEG.									
0300	-2.0	-8.0	64	060	6.5	069	10.8	000	0300	-3.0	-8.7	65	038	2.4	050	4.4	000	0300	-7.0	-12.2	67	015	1.9	352	4.4	000
0600	-1.0	-6.8	65	064	5.9	062	8.9	008	0600	-2.0	-8.6	61	059	3.6	066	6.3	010	0600	-6.0	-13.0	58	009	2.3	352	4.4	010
0900	0.0	-6.7	61	064	7.1	066	10.8	033	0900	0.0	-9.3	50	139	1.3	185	3.8	030	0900	0.0	-11.5	42	014	1.9	353	3.8	048
1200	3.0	-6.5	50	074	6.1	077	10.2	045	1200	0.0	-4.3	73	208	.1	342	3.2	022	1200	4.0	-13.9	26	035	1.4	018	3.2	060
1500	5.0	-7.9	39	104	4.0	111	7.6	045	1500	1.0	-5.8	61	300	2.6	336	5.7	031	1500	5.0	-11.7	29	011	2.6	359	5.1	044
1800	3.0	-8.2	44	064	3.4	061	7.0	014	1800	-1.0	-7.0	64	333	1.6	321	4.4	005	1800	4.0	-8.8	39	008	2.9	014	5.1	023
2100	0.0	-6.5	62	054	2.0	074	4.4	000	2100	-5.0	-9.5	71	007	1.9	016	3.8	000	2100	-2.0	-9.0	59	341	2.6	345	4.4	000
2400	-2.0	-7.6	66	050	2.4	044	4.4	000	2400	-6.0	-10.7	70	011	1.9	017	3.8	000	2400	-3.0	-9.8	60	012	2.1	359	3.8	000

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	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	DIR.	SPD.	DIR.	NDNG	TEMP.	POINT	DIR.	SPD.	DIR.									
	DEG C	DEG C	% DEG.	M/S	DEG.		DEG C	DEG C	% DEG.	M/S	DEG.		DEG C	DEG C	% DEG.	M/S	DEG.									
0300	-6.0	-12.0	63	011	1.7	013	3.2	000	0300	1.0	-4.3	68	019	2.3	037	4.4	000	0300	1.0	-4.3	68	045	3.0	046	4.4	000
0600	-5.0	-11.0	63	039	1.4	004	2.5	011	0600	3.0	-5.3	55	038	2.9	075	8.3	027	0600	-1.0	-5.3	73	078	1.9	088	3.8	011
0900	3.0	-8.8	42	038	1.6	053	4.4	052	0900	5.0	-4.7	50	083	5.1	084	8.9	052	0900	5.0	-6.7	43	040	1.4	023	3.2	043
1200	4.0	-7.6	43	068	4.8	074	8.3	060	1200	6.0	-4.9	46	087	6.4	101	12.1	051	1200	7.0	-7.2	36	046	2.4	054	4.4	045
1500	4.0	-6.4	47	070	6.1	074	8.9	041	1500	7.0	-6.1	39	096	7.1	094	10.8	055	1500	8.0	-8.2	31	006	2.6	000	3.8	055
1800	3.0	-3.9	61	062	3.9	063	6.3	008	1800	5.0	-6.7	43	096	4.7	087	10.8	010	1800	7.0	-8.7	32	030	2.0	010	4.4	018
2100	2.0	-4.2	64	028	3.1	054	6.3	000	2100	1.0	-4.3	68	045	2.5	048	7.0	000	2100	3.0	-4.8	57	034	2.3	046	5.1	000
2400	2.0	-3.8	66	064	4.6	067	8.3	000	2400	2.0	-4.2	64	027	2.7	041	5.1	000	2400	2.0	-2.8	71	049	2.6	071	5.7	000

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING APRIL , 1980

DAY 28

DAY 29

DAY 30

HOUR NDNG	DAY 28								HOUR NDNG	DAY 29								HOUR NDNG	DAY 30							
	TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST M/S	MAX. RAD MW		TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST M/S	MAX. RAD MW		TEMP. DEG C	DEW POINT DEG C	RH %	WIND DIR. DEG.	WIND SPD. M/S	GUST DIR. DEG.	GUST M/S	MAX. RAD MW
0300	-1.0	*****	80	084	.9	103	4.4	000	0300	-4.0	-7.8	75	016	1.6	006	2.5	000	0300	-3.0	-8.0	69	039	2.0	051	3.2	000
0600	0.0	-4.9	70	350	2.0	346	3.2	015	0600	0.0	-8.6	53	025	1.4	031	3.8	017	0600	-2.0	-7.4	67	074	1.7	071	3.2	013
0900	4.0	-5.6	50	013	.8	009	2.5	050	0900	3.0	-5.8	53	053	3.9	066	7.0	054	0900	4.0	-5.9	49	069	2.7	067	5.7	031
1200	6.0	-5.5	44	012	1.8	034	3.2	073	1200	5.0	-7.0	42	079	4.9	083	9.5	069	1200	7.0	-5.5	41	087	2.8	112	7.0	051
1500	7.0	-6.5	38	001	2.8	355	4.4	055	1500	6.0	-7.4	38	107	4.3	091	8.9	055	1500	7.0	-6.1	39	108	5.0	105	7.6	043
1800	5.0	-7.0	42	004	2.4	004	4.4	018	1800	5.0	-8.6	37	135	3.0	147	5.1	018	1800	7.0	-7.2	36	108	2.6	116	7.0	007
2100	0.0	-4.7	71	345	2.6	340	4.4	000	2100	0.0	-6.3	63	024	1.6	005	3.8	000	2100	2.0	-4.0	65	346	2.1	345	3.2	000
2400	-2.0	-6.6	71	355	2.0	343	3.8	000	2400	-2.0	-7.4	67	005	1.7	338	3.8	000	2400	0.0	-4.5	72	347	1.7	326	3.2	000

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

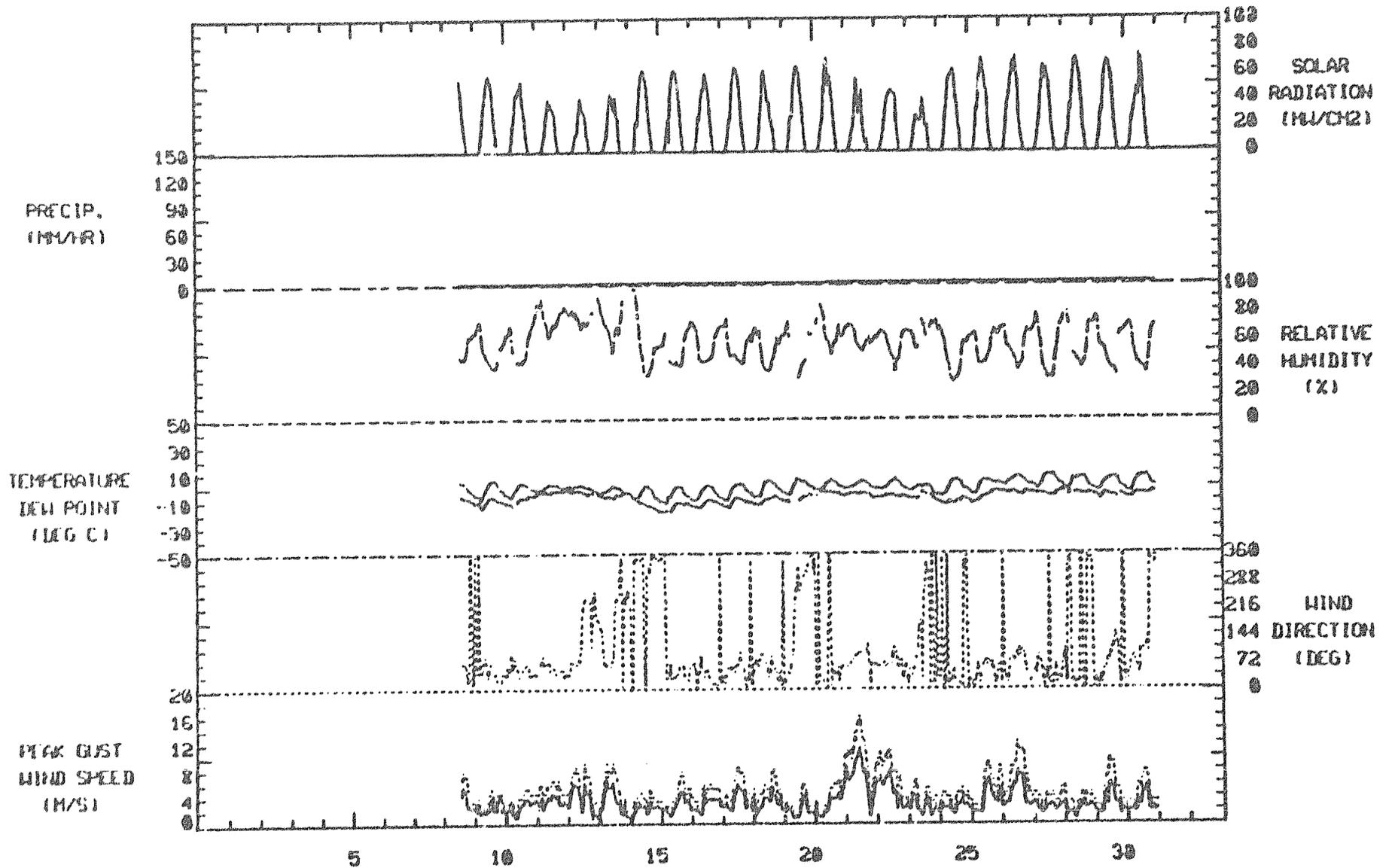
MONTHLY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING APRIL, 1980

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P°VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	01
02	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	02
03	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	03
04	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	04
05	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	05
06	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	06
07	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	07
08	4.0	-6.0	-1.0	***	*****	3.4	072	7.6	ENE	54	-9.4	1.4	3840	08
09	5.0	-10.0	-2.5	039	2.1	2.3	068	5.1	NE	52	-10.5	0.0	4866	09
10	3.0	-8.0	-2.5	050	2.5	2.6	066	5.1	NE	56	-9.0	0.0	4240	10
11	2.0	-3.0	-1.5	055	3.3	3.4	069	6.3	NE	76	-3.3	0.0	3025	11
12	3.0	-4.0	-1.5	096	.7	3.5	231	8.9	ENE	76	-3.8	.4	2705	12
13	2.0	-5.0	-1.5	081	1.3	3.2	068	8.9	ENE	66	-22.3	.2	3430	13
14	2.0	-11.0	-4.5	344	2.1	2.1	308	5.1	NNW	58	-12.8	0.0	5245	14
15	0.0	-13.0	-6.5	039	2.5	2.7	075	7.6	NNE	52	-14.2	0.0	5010	15
16	1.0	-10.0	-4.5	031	2.6	2.8	052	5.7	NE	56	-12.4	0.0	4740	16
17	3.0	-10.0	-3.5	053	3.0	3.4	079	8.3	ENE	54	-11.1	0.0	5350	17
18	5.0	-9.0	-2.0	059	2.8	3.1	085	8.3	ENE	52	-10.0	0.0	4450	18
19	6.0	-6.0	0.0	329	1.2	1.9	287	6.3	WNW	53	-9.5	0.0	5245	19
20	6.0	-3.0	1.5	038	2.7	3.0	065	10.2	N	64	-5.3	1.0	5285	20
21	4.0	-2.0	1.0	083	6.5	6.8	097	15.9	ENE	61	-6.0	0.0	3585	21
22	7.0	-2.0	2.5	068	4.5	4.7	069	10.8	ENE	56	-7.3	0.0	4440	22
23	1.0	-7.0	-3.0	.18	1.2	2.3	066	6.3	N	65	-8.0	.2	3125	23
24	5.0	-8.0	-1.5	009	2.1	2.3	359	5.1	NNE	48	-11.3	0.0	5505	24
25	4.0	-6.0	-1.0	056	3.2	3.5	074	8.9	ENE	55	-7.2	0.0	5290	25
26	7.0	0.0	3.5	074	3.7	4.3	101	12.1	E	55	-5.1	0.0	6035	26
27	9.0	-2.0	3.5	040	2.2	2.4	071	5.7	NE	53	-6.0	0.0	5645	27
28	8.0	-3.0	2.5	002	1.8	2.0	103	4.4	N	58	-5.8	0.0	6285	28
29	7.0	-4.0	1.5	070	2.1	2.9	083	9.5	N	54	-7.4	0.0	6377	29
30	8.0	-4.0	2.0	073	1.9	2.7	105	7.6	ESE	55	-6.1	0.0	5260	30
MONTH	9.0	-13.0	-1.7	051	2.3	3.1	097	15.9	ENE	58	-8.9	3.2	108979	

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

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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



LATONA LEATHER STATION

DATA START: 08 APRIL, 1980

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING APRIL, 1980

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	GREATER THAN 20.0	
N	.19	11.04	1.86	0.00	0.00	0.00	0.00	13.08
NNE	.28	10.76	4.08	0.00	0.00	0.00	0.00	15.12
NE	.46	10.48	8.63	.19	0.00	0.00	0.00	19.76
ENE	.65	5.75	12.15	4.08	0.00	0.00	0.00	22.63
E	.37	3.15	2.41	2.13	.46	0.00	0.00	8.53
ESE	.19	1.02	2.41	.37	0.00	0.00	0.00	3.99
SE	.09	.28	.46	0.00	0.00	0.00	0.00	.83
SSE	0.00	.65	.09	0.00	0.00	0.00	0.00	.74
S	.56	.19	0.00	0.00	0.00	0.00	0.00	.74
SSW	.09	.37	0.00	0.00	0.00	0.00	0.00	.46
SW	0.00	.37	.56	.09	0.00	0.00	0.00	1.02
WSW	.19	.93	.83	0.00	0.00	0.00	0.00	1.95
W	.37	.46	0.00	0.00	0.00	0.00	0.00	.83
WNW	.09	.37	.56	0.00	0.00	0.00	0.00	1.02
NW	.46	1.30	.46	0.00	0.00	0.00	0.00	2.23
NNW	.37	6.22	.46	0.00	0.00	0.00	0.00	7.05
CALM								0.00
TOTAL	4.36	53.34	34.97	6.86	.46	0.00	0.00	100.00

NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

1078 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING MAY , 1980

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	
01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	01	
02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	02	
03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	03	
04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	04	
05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	05	
06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	06	
07	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	07	
08	0.0	0.0	0.0	0.0	0.0	.4	.8	.2	.4	0.0	.6	.6	.6	.2	0.0	.2	.2	.2	.2	0.0	0.0	0.0	.2	***	08	
09	****	****	****	****	****	****	****	****	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	09
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.2	.8	.4	.4	.2	.2	0.0	20	
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.6	.4	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	
22	0.0	0.0	0.0	0.0	0.0	.2	0.0	.2	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.2	0.0	27	
28	.2	.4	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.2	0.0	0.0	.2	.2	28	
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.2	.2	.6	.2	0.0	.4	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.2	31	

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION.
DATA TAKEN DURING MAY , 1980

DAY 01

DAY 02

DAY 03

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	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	-2.0	-5.5	77	027	1.5	025	3.2	000	0300	-1.0	-4.8	76	269	1.5	245	3.2	000	0300	0.0	*****	**	259	1.1	256	3.2	000
0600	1.0	-6.7	57	028	1.9	000	3.2	024	0600	1.0	-8.8	88	245	2.9	247	5.1	013	0600	0.0	-4	97	251	2.5	246	6.3	013
0900	5.0	-4.7	50	056	3.7	052	5.7	056	0900	3.0	-5.8	84	229	3.3	236	5.1	035	0900	3.0	-1.2	74	241	3.2	239	5.7	045
1200	7.0	-5.8	40	070	4.5	078	8.3	071	1200	6.0	-8.6	62	244	4.7	257	7.6	066	1200	5.0	-6.1	45	255	3.2	232	6.3	056
1500	6.0	-6.1	42	047	3.2	037	7.0	041	1500	6.0	-2.5	55	261	3.7	246	7.0	021	1500	5.0	-4.9	49	191	2.3	199	5.1	035
1800	6.0	-7.0	39	003	3.0	002	5.1	019	1800	4.0	-1.6	67	265	3.4	233	5.7	009	1800	5.0	-5.8	46	331	.8	030	2.5	006
2100	3.0	-5.0	56	354	2.3	001	3.8	000	2100	1.0	*****	**	218	.9	239	4.4	000	2100	-1.0	-5.1	74	351	1.8	345	3.2	000
2400	1.0	*****	61	354	1.8	354	3.2	000	2400	1.0	*****	**	095	1.0	085	2.5	000	2400	-3.0	-6.3	78	004	2.0	349	3.2	000

DAY 04

DAY 05

DAY 06

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	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	-4.0	-6.3	84	012	1.8	032	3.2	000	0300	2.0	-5.0	60	024	3.0	030	4.4	000	0300	4.0	-1.6	67	355	.9	315	3.2	000
0600	-1.0	-8.1	59	059	1.7	072	3.2	019	0600	4.0	-5.6	50	038	3.0	042	5.1	017	0600	3.0	-1.6	72	046	.9	310	3.2	013
0900	4.0	-4.8	53	068	3.1	064	5.7	057	0900	8.0	-4.6	41	087	4.1	098	8.3	024	0900	8.0	-.3	56	075	3.6	083	8.9	071
1200	7.0	-5.2	42	072	4.7	082	8.3	066	1200	10.0	-4.2	37	098	5.6	097	9.5	046	1200	9.0	.1	54	108	4.4	085	7.6	041
1500	8.0	-4.3	42	095	4.2	092	10.2	033	1500	11.0	-4.0	35	091	4.6	094	8.3	059	1500	9.0	-2.7	44	129	5.0	116	9.5	023
1800	7.0	-4.2	45	045	3.1	056	5.1	020	1800	10.0	-4.5	36	104	2.5	090	5.7	021	1800	7.0	-3.1	49	089	3.8	116	7.0	017
2100	4.0	-3.9	57	024	2.7	014	5.1	000	2100	4.0	-2.7	62	028	2.4	055	3.8	000	2100	4.0	1.5	84	091	2.8	072	7.0	000
2400	4.0	-4.1	56	029	3.4	033	4.4	000	2400	4.0	-1.6	67	355	2.2	355	.8	000	2400	2.0	*****	**	242	3.4	250	7.6	000

DAY 07

DAY 08

DAY 09

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	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	0.0	*****	**	280	1.0	250	4.4	000	0300	1.0	-10.9	41	042	1.2	004	2.5	000	0300	*****	*****	**	***	*****	***	*****	***
0600	2.0	1.4	96	008	1.1	005	1.9	022	0600	3.0	-9.4	40	036	1.4	001	4.4	007	0600	*****	*****	**	***	*****	***	*****	***
0900	4.0	-.8	71	055	1.7	051	4.4	034	0900	2.0	-8.5	46	255	2.2	252	4.4	024	0900	4.0	-7.9	42	021	1.2	***	*****	049
1200	7.0	-3.1	49	358	2.4	335	4.4	038	1200	2.0	-10.3	40	241	2.6	240	3.8	021	1200	9.0	-5.0	37	061	1.4	349	3.8	077
1500	9.0	-2.7	44	014	3.3	017	5.7	062	1500	3.0	-9.4	40	233	4.1	224	7.0	022	1500	8.0	-5.9	37	225	3.3	220	7.6	062
1800	7.0	-4.5	44	024	3.7	014	5.7	020	1800	3.0	-9.4	40	229	4.1	226	7.6	009	1800	6.0	-9.6	32	228	4.5	228	8.3	010
2100	5.0	-7.9	39	017	3.3	016	5.1	000	2100	-1.0	*****	60	244	1.5	244	5.1	001	2100	3.0	-10.8	36	263	3.2	249	7.0	002
2400	3.0	-7.6	46	015	2.5	025	5.1	000	2400	*****	*****	**	055	0.0	055	0.0	***	2400	1.0	-10.3	43	049	.8	353	2.5	000

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY , 1980

DAY 10

DAY 11

DAY 12

HOUR NDNG	DEW								HOUR NDNG	DEW								HOUR NDNG	DEW							
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	MAX. M/S		TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	MAX. M/S		TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	MAX. M/S
0300	2.0	-10.3	40	038	2.3	055	5.1	001	0300	-2.0	-11.2	50	255	1.2	210	2.5	000	0300	-3.0	-8.5	66	019	1.5	356	3.2	000
0600	2.0	-10.0	41	047	2.7	048	5.1	010	0600	0.0	-10.1	47	273	1.3	269	2.5	005	0600	-2.0	-7.8	65	040	1.4	031	2.5	014
0900	1.0	-8.8	88	182	1.0	247	7.6	019	0900	2.0	-6.9	52	236	2.6	238	5.1	051	0900	5.0	-4.9	49	072	3.5	073	7.0	052
1200	6.0	-6.1	42	225	4.3	226	8.9	078	1200	4.0	-8.5	40	232	3.7	228	7.0	081	1200	8.0	-5.6	38	081	5.1	062	8.3	073
1500	5.0	-6.1	45	248	4.8	267	7.6	027	1500	5.0	-6.1	45	266	3.4	237	7.0	036	1500	10.0	-4.5	36	133	3.6	132	8.3	067
1800	4.0	-8.5	40	243	4.1	256	7.0	018	1800	5.0	-5.2	48	255	4.1	240	8.3	031	1800	10.0	-4.9	35	180	1.6	250	7.0	033
2100	1.0	-10.9	41	247	2.5	230	5.7	003	2100	1.0	-7.4	54	268	2.9	278	5.7	001	2100	5.0	-7.6	40	279	2.6	254	5.7	002
2400	0.0	-11.8	41	229	2.4	230	6.3	000	2400	0.0	-8.3	54	350	1.2	332	2.5	000	2400	2.0	-6.9	52	336	1.4	347	2.5	000

DAY 13

DAY 14

DAY 15

HOUR NDNG	DEW								HOUR NDNG	DEW								HOUR NDNG	DEW							
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	MAX. M/S		TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	MAX. M/S		TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	MAX. M/S
0300	-1.0	-7.2	63	259	1.7	269	3.2	000	0300	3.0	-3.4	63	049	1.4	053	3.8	000	0300	0.0	*****	95	235	.3	234	1.9	000
0600	1.0	*****	56	350	1.4	332	3.2	017	0600	1.0	*****	63	032	1.0	033	3.2	010	0600	1.0	-9.2	47	115	.2	166	1.9	021
0900	5.0	-6.1	45	298	.4	330	2.5	052	0900	5.0	-3.2	56	245	2.6	247	5.1	035	0900	4.0	-4.1	56	011	1.5	344	3.2	045
1200	8.0	-3.9	43	309	1.6	301	5.1	072	1200	7.0	-3.1	49	241	3.4	231	6.3	034	1200	7.0	-4.0	46	350	1.8	012	3.8	078
1500	10.0	-3.1	40	286	2.6	296	5.1	067	1500	8.0	-3.0	46	291	3.2	297	5.7	055	1500	9.0	-2.7	44	005	1.5	053	4.4	064
1800	9.0	-4.3	39	294	3.2	311	6.3	019	1800	8.0	-3.6	44	303	2.7	309	5.1	012	1800	9.0	-3.0	43	357	1.7	357	5.1	022
2100	4.0	-6.1	48	334	1.7	325	3.2	002	2100	1.0	-10.9	41	252	2.7	229	9.5	001	2100	6.0	-1.5	59	000	1.8	020	3.2	001
2400	2.0	-4.0	65	351	2.2	338	3.2	000	2400	0.0	-11.8	41	262	2.6	251	9.5	000	2400	5.0	-3.9	53	041	2.5	028	3.8	000

DAY 16

DAY 17

DAY 18

HOUR NDNG	DEW								HOUR NDNG	DEW								HOUR NDNG	DEW							
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	MAX. M/S		TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	MAX. M/S		TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	MAX. M/S
0300	3.0	-3.0	65	063	2.1	025	3.8	000	0300	4.0	-6.7	46	084	4.2	090	7.6	000	0300	2.0	-5.7	57	070	4.6	076	9.5	000
0600	4.0	*****	61	061	1.3	038	3.8	011	0600	6.0	-1.5	59	088	5.6	082	10.8	018	0600	3.0	-5.0	56	068	5.0	076	10.8	005
0900	10.0	-3.8	38	092	2.5	065	6.3	052	0900	6.0	-6.7	40	100	6.0	083	11.4	015	0900	6.0	-4.9	46	073	7.3	077	15.2	014
1200	11.0	-3.3	37	128	4.5	127	10.2	065	1200	9.0	-4.7	38	118	7.2	109	12.1	080	1200	8.0	-4.6	41	097	10.3	098	16.5	022
1500	12.0	-2.4	37	136	4.9	143	8.3	045	1500	9.0	-6.2	34	118	9.1	122	14.0	061	1500	10.0	-3.8	38	093	8.7	097	15.2	028
1800	11.0	-2.9	38	124	4.8	126	9.5	021	1800	7.0	-7.6	35	114	8.4	112	12.7	031	1800	9.0	-5.8	35	089	8.0	088	12.7	014
2100	9.0	-2.7	44	104	5.0	102	8.9	003	2100	5.0	-6.7	43	103	6.4	111	10.8	002	2100	6.0	-6.4	41	093	5.1	093	10.8	002
2400	5.0	-7.9	39	050	2.9	055	6.3	000	2400	3.0	-5.8	53	075	5.4	087	10.2	000	2400	3.0	-6.0	52	035	2.5	049	5.7	000

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY , 1980

DAY 19									DAY 20							DAY 21										
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	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	0.0	-7.8	56	027	1.8	036	3.8	001	0300	3.0	-4.1	60	248	3.8	249	7.6	000	0300	0.0	-6.5	62	245	2.6	246	5.7	000
0600	1.0	-6.4	58	070	1.7	079	3.2	010	0600	4.0	-2.9	61	247	3.2	242	5.1	010	0600	0.0	-5.9	65	242	2.6	244	5.1	004
0900	10.0	-6.1	32	130	1.0	108	2.5	054	0900	5.0	-2.4	59	250	4.4	255	7.0	011	0900	1.0	-4.9	65	225	1.7	218	3.2	023
1200	10.0	-4.5	36	032	1.6	088	8.9	037	1200	5.0	-2.0	61	253	4.7	256	7.6	016	1200	2.0	-4.6	62	233	2.1	230	3.8	019
1500	13.0	-6.7	25	022	1.6	075	10.8	028	1500	4.0	-2.5	63	238	5.9	229	8.9	028	1500	3.0	-3.9	61	241	2.2	249	5.1	022
1800	10.0	-3.1	40	141	2.8	132	7.0	018	1800	3.0	-3.2	64	243	4.7	236	8.3	009	1800	4.0	-3.2	60	250	2.9	229	5.1	013
2100	8.0	-3.9	43	222	2.2	203	5.1	002	2100	2.0	-4.2	64	237	4.4	239	7.6	001	2100	2.0	-5.0	60	249	3.1	260	5.7	001
2400	6.0	-2.2	56	257	2.9	251	5.7	000	2400	0.0	-5.9	65	238	2.9	234	5.1	000	2400	1.0	*****	61	246	1.2	230	2.5	000
DAY 22									DAY 23							DAY 24										
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	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	1.0	*****	60	217	.6	237	1.9	000	0300	2.0	-5.7	57	252	1.3	248	2.5	000	0300	0.0	-7.6	57	035	1.2	010	2.5	000
0600	1.0	*****	60	143	.4	103	1.3	004	0600	2.0	*****	57	231	.9	246	2.5	003	0600	5.0	-3.2	56	045	2.7	060	5.7	019
0900	2.0	-5.5	58	128	1.0	125	2.5	021	0900	5.0	-3.2	56	223	1.0	230	3.2	026	0900	7.0	-2.0	53	074	5.3	077	8.3	028
1200	6.0	-2.0	57	210	2.0	233	7.0	083	1200	9.0	-1.0	50	249	1.6	215	5.7	076	1200	10.0	-.3	49	086	5.0	084	8.9	026
1500	6.0	-2.2	56	246	4.1	226	8.3	021	1500	9.0	-1.5	48	248	4.0	244	7.0	037	1500	9.0	-.4	52	206	2.4	236	7.6	018
1800	6.0	-2.0	57	260	4.8	269	7.6	010	1800	7.0	-2.0	53	260	4.8	263	8.3	016	1800	11.0	-.6	45	180	.7	093	5.7	012
2100	4.0	-3.6	58	263	3.4	265	7.0	002	2100	5.0	-3.2	56	233	3.4	251	6.3	003	2100	9.0	-1.8	47	079	4.2	080	7.0	002
2400	3.0	*****	57	250	1.4	230	3.8	000	2400	3.0	*****	57	238	1.0	208	3.8	000	2400	7.0	-2.3	52	071	4.0	070	7.0	000
DAY 25									DAY 26							DAY 27										
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	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	4.0	-3.9	57	047	1.8	077	3.2	000	0300	4.0	*****	56	257	1.1	238	1.9	000	0300	2.0	*****	56	265	1.4	248	3.8	000
0600	5.0	-3.2	56	025	1.1	107	2.5	013	0600	6.0	-2.2	56	292	1.1	272	2.5	011	0600	4.0	-3.9	57	001	1.1	357	2.5	019
0900	10.0	-.3	49	102	1.5	095	3.8	051	0900	10.0	.2	51	067	1.2	069	4.4	041	0900	9.0	.1	54	097	1.8	108	3.8	052
1200	12.0	.3	45	167	1.7	163	5.1	044	1200	13.0	.6	43	075	1.9	110	5.7	033	1200	15.0	3.7	47	059	3.0	087	5.7	026
1500	11.0	-.3	46	193	2.3	241	7.0	043	1500	12.0	.0	44	237	3.2	242	7.0	023	1500	16.0	2.3	40	052	1.8	031	7.0	029
1800	9.0	-.2	53	260	5.2	245	8.9	020	1800	8.0	-.8	54	254	6.3	249	8.9	015	1800	14.0	1.2	42	124	1.9	157	8.9	013
2100	7.0	-1.5	55	274	3.8	275	7.6	002	2100	5.0	-3.4	55	248	5.2	258	8.3	002	2100	9.0	.1	54	255	2.4	240	6.3	001
2400	4.0	-3.9	57	256	2.2	258	4.4	000	2400	3.0	-5.0	56	231	3.4	228	6.3	000	2400	6.0	-2.5	55	330	1.5	009	3.8	000

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING MAY , 1980

DAY 28

DAY 29

DAY 30

DAY 28									DAY 29									DAY 30								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	5.0	-3.2	50	276	1.7	263	3.8	000	0300	2.2	-5.3	58	253	1.8	241	4.4	001	0300	6.0	-2.5	55	070	5.2	068	8.3	001
0600	6.0	*****	57	018	1.2	348	2.5	005	0600	4.3	-3.8	56	252	1.6	262	3.2	016	0600	6.0	-2.2	56	075	5.6	081	9.5	003
0900	6.0	-2.2	50	249	2.8	242	6.3	018	0900	6.7	-1.8	55	224	2.4	237	4.4	068	0900	6.0	-2.2	56	080	4.6	085	7.6	013
1200	6.4	-1.8	50	220	4.0	163	8.3	018	1200	9.7	-.9	48	234	1.8	214	5.7	038	1200	4.0	-3.9	57	225	2.6	238	7.6	019
1500	7.8	-.8	55	226	4.4	222	7.0	020	1500	12.7	-1.4	38	149	1.3	155	3.8	092	1500	5.0	-3.2	56	236	4.7	223	7.6	018
1800	6.6	-1.7	50	226	3.8	218	7.0	005	1800	11.5	-.4	44	095	2.8	095	7.0	010	1800	5.0	-3.2	56	239	2.9	270	6.3	010
2100	3.9	-3.9	57	231	3.8	221	7.0	000	2100	9.1	-.9	50	061	1.3	041	4.4	001	2100	3.0	-4.8	57	252	4.5	266	7.0	001
2400	2.6	-5.2	57	232	3.4	228	6.3	000	2400	7.4	-3.0	48	055	4.2	070	8.3	000	2400	2.0	-5.7	57	232	3.8	246	8.3	000

DAY 31

DAY 31

DAY 31

DAY 31									DAY 31									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	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	1.0	-6.4	58	233	1.8	223	4.4	001	0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***
0600	2.0	-5.7	57	230	1.8	217	3.2	014	0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***
0900	3.0	-5.3	55	239	2.9	227	4.4	026	0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***
1200	5.0	-3.9	53	248	3.6	256	5.7	033	1200	*****	*****	**	***	*****	***	*****	***	1200	*****	*****	**	***	*****	***	*****	***
1500	7.0	-2.3	52	266	5.2	257	9.5	041	1500	*****	*****	**	***	*****	***	*****	***	1500	*****	*****	**	***	*****	***	*****	***
1800	6.0	-2.7	54	237	5.6	246	10.2	010	1800	*****	*****	**	***	*****	***	*****	***	1800	*****	*****	**	***	*****	***	*****	***
2100	3.0	-5.5	54	255	4.3	253	7.6	001	2100	*****	*****	**	***	*****	***	*****	***	2100	*****	*****	**	***	*****	***	*****	***
2400	2.0	*****	54	264	2.0	261	6.3	000	2400	*****	*****	**	***	*****	***	*****	***	2400	*****	*****	**	***	*****	***	*****	***

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

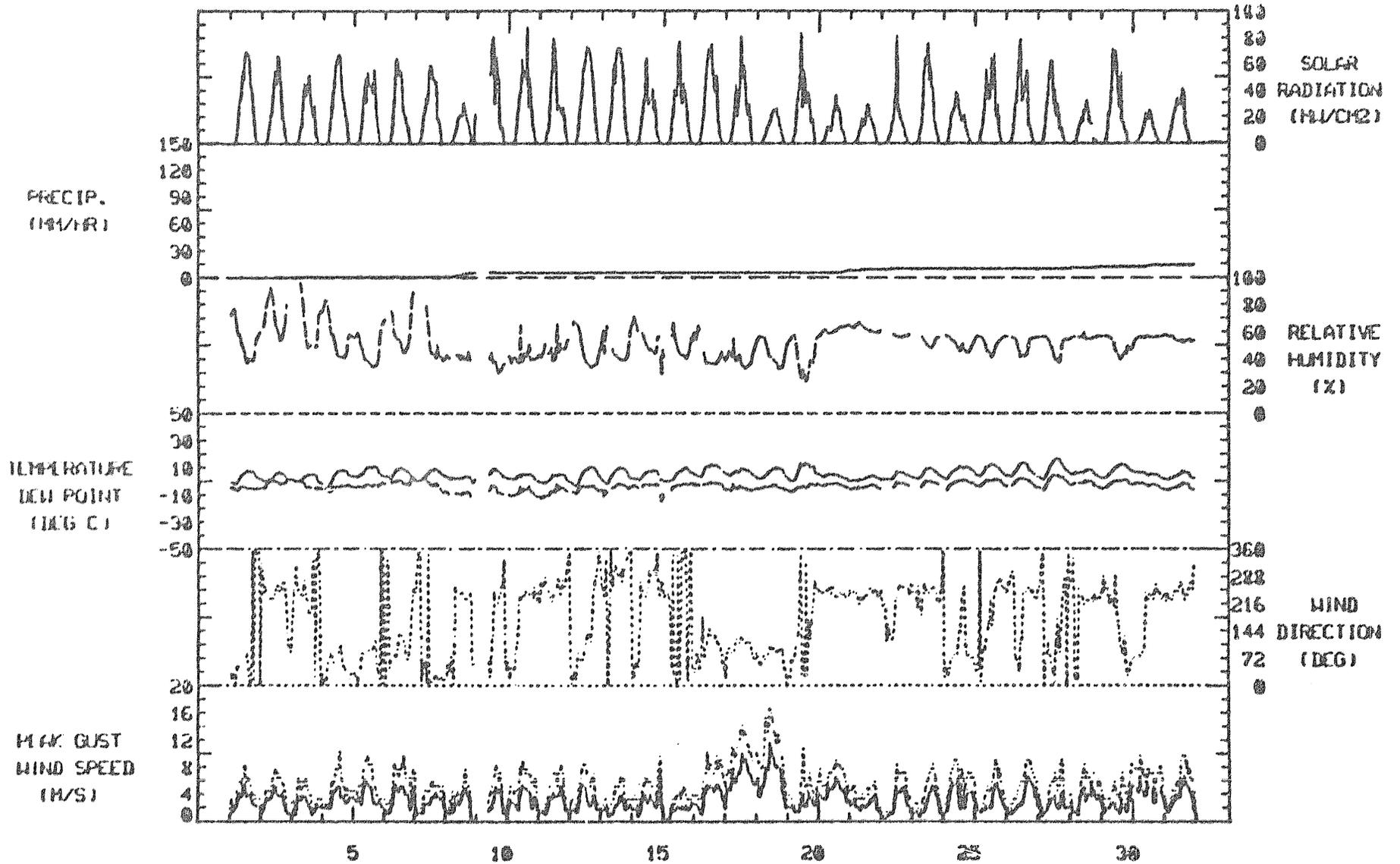
MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY, 1980

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SOM	DAY
01	8.0	-3.0	2.5	035	2.4	2.9	078	8.3	N	54	-5.8	0.0	6270	01
02	7.0	-1.0	3.0	248	2.4	2.9	257	7.6	WSW	71	-1.7	0.0	4820	02
03	5.0	-3.0	1.0	263	1.3	2.2	246	6.3	WSW	65	-4.3	.6	4115	03
04	8.0	-5.0	1.5	055	2.8	3.2	092	10.2	NNE	56	-5.1	0.0	5825	04
05	11.0	2.0	6.5	068	2.8	3.5	097	9.5	E	47	-4.0	0.0	5295	05
06	10.0	1.0	5.5	103	2.0	3.4	116	9.5	ENE	62	-1.1	0.0	4850	06
07	9.0	0.0	4.5	014	2.2	2.5	017	5.7	NNE	52	-3.6	.2	5360	07
08	*****	*****	*****	242	1.6	2.3	226	7.6	WSW	41	-9.7	4.8	2843	08
09	9.0	*****	*****	238	1.6	2.7	228	8.3	SW	37	-8.3	0.0	7920	09
10	6.0	-1.0	2.5	241	1.7	3.2	226	8.9	WSW	42	-8.1	0.0	5730	10
11	6.0	-2.0	2.0	257	2.3	2.7	240	8.3	W	48	-8.0	0.0	5275	11
12	10.0	-4.0	3.0	078	1.2	2.8	062	8.3	ENE	48	-6.4	0.0	7175	12
13	10.0	-3.0	3.5	308	1.6	2.0	311	6.3	NNW	49	-5.0	0.0	6770	13
14	8.0	0.0	4.0	272	1.8	2.6	229	9.5	WSW	52	-5.6	0.0	4285	14
15	10.0	0.0	5.0	009	1.2	1.5	357	5.1	NNW	50	-4.1	0.0	5455	15
16	12.0	2.0	7.0	106	3.1	3.7	127	10.2	SE	45	-3.7	0.0	6555	16
17	9.0	3.0	6.0	103	6.3	6.6	122	14.0	ESE	41	-5.7	0.0	5400	17
18	10.0	2.0	6.0	083	6.2	6.5	098	16.5	E	45	-5.3	0.0	2530	18
19	13.0	-1.0	6.0	092	.3	2.4	075	10.8	NE	42	-5.1	0.0	5470	19
20	5.0	0.0	2.5	244	4.2	4.3	229	8.9	WSW	62	-3.4	2.4	2705	20
21	4.0	0.0	2.0	242	2.3	2.3	246	5.7	WSW	63	-4.9	1.4	2335	21
22	8.0	1.0	4.5	244	1.9	2.3	226	8.3	W	57	-3.1	.8	3265	22
23	10.0	2.0	6.0	246	2.2	2.3	263	8.3	WSW	54	-2.8	0.0	5515	23
24	11.0	0.0	5.5	078	2.5	3.6	084	8.9	ENE	51	-2.3	0.0	3375	24
25	12.0	3.0	7.5	249	1.1	2.7	245	8.9	W	52	-1.6	0.0	5290	25
26	13.0	3.0	8.0	247	2.1	3.1	249	8.9	WSW	51	-1.5	0.0	5495	26
27	16.0	0.0	8.0	042	.5	2.2	157	8.9	NNE	51	.1	.4	4625	27
28	8.2	1.0	4.6	232	2.9	3.4	163	8.3	SW	56	-2.7	1.6	2829	28
29	12.7	2.1	7.4	142	.3	2.3	070	8.3	SW	50	-2.2	0.0	5455	29
30	7.0	2.0	4.5	215	1.2	4.4	081	9.5	SW	56	-3.4	2.0	2272	30
31	8.0	1.0	4.5	248	3.3	3.5	246	10.2	WSW	55	-4.5	.4	3580	31
MONTH	16.0	-5.0	4.6	205	.2	3.1	098	16.5	WSW	52	-4.3	14.6	148684	

GUST VLL. AT MAX. GUST MINUS 2 INTERVALS 13.3
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 15.9
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 15.9
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 14.6

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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



DAY OF THE MONTH

NATANA LEATHER STATION

DATA START: 01 MAY 1980

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING MAY , 1980

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	GREATER THAN 20.0	
N	.32	4.73	.32	0.00	0.00	0.00	0.00	5.37
NNE	.13	4.73	2.30	0.00	0.00	0.00	0.00	7.17
NE	.64	3.45	2.05	.06	0.00	0.00	0.00	6.21
ENE	.06	2.43	5.76	.51	.06	0.00	0.00	8.83
E	.32	2.11	3.71	1.98	.19	0.00	0.00	8.32
ESE	.38	1.54	1.28	1.34	.06	0.00	0.00	4.61
SE	.32	1.34	1.60	.19	0.00	0.00	0.00	3.45
SSE	.06	.77	.38	.06	0.00	0.00	0.00	1.28
S	.13	.96	.13	0.00	0.00	0.00	0.00	1.22
SSW	.32	.96	.45	0.00	0.00	0.00	0.00	1.73
SW	.58	4.67	7.93	.45	0.00	0.00	0.00	13.63
WSW	.32	7.36	12.41	.83	0.00	0.00	0.00	20.92
W	.51	3.39	4.22	.06	0.00	0.00	0.00	8.19
WNW	.32	1.47	.70	0.00	0.00	0.00	0.00	2.50
NW	.51	1.60	.06	0.00	0.00	0.00	0.00	2.18
NNW	.19	3.33	0.00	0.00	0.00	0.00	0.00	3.52
CALM								.90
TOTAL	5.12	44.85	43.31	5.50	.32	0.00	0.00	100.00

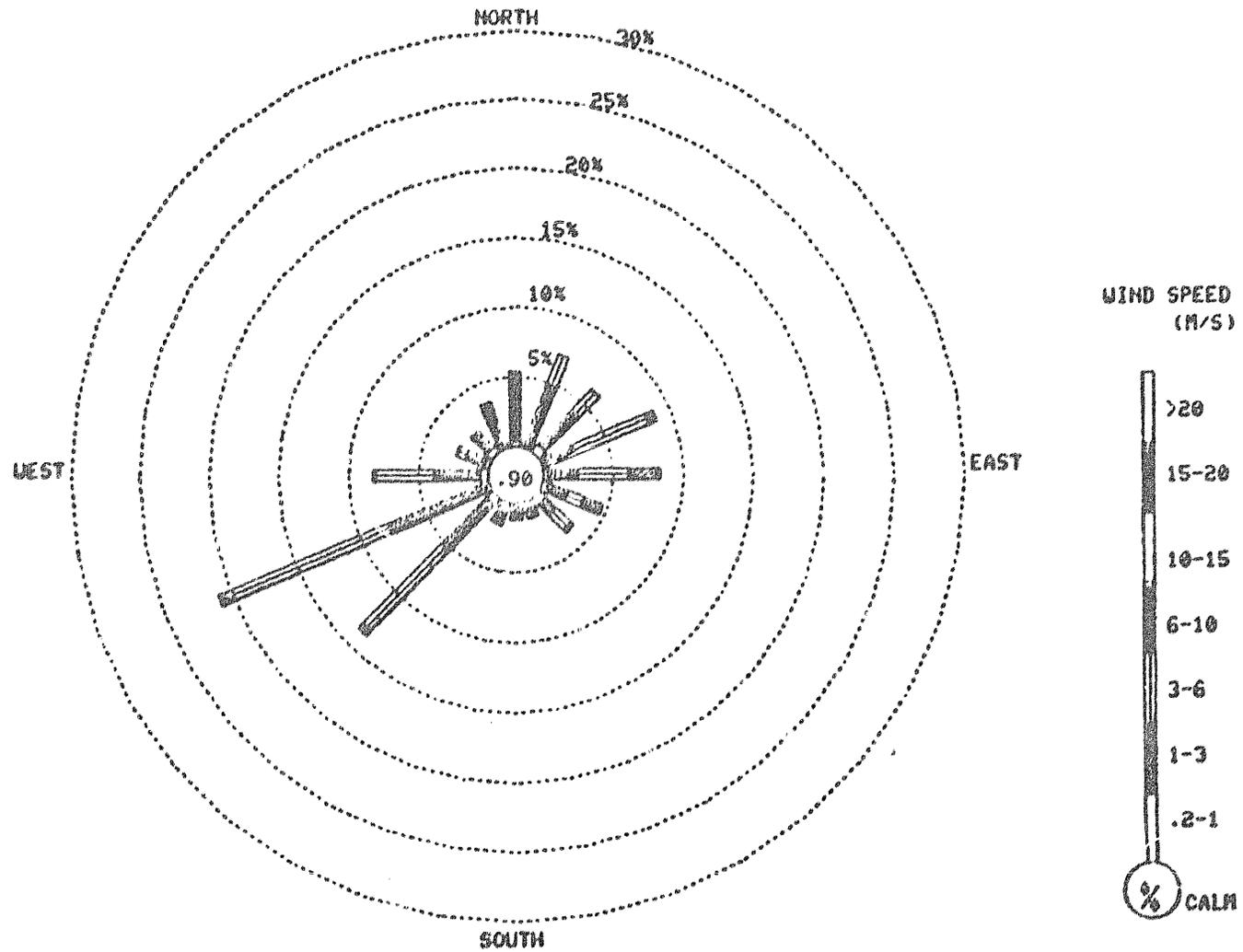
NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

1563 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

MAY, 1980



WIND ROSE PLOT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING JUNE , 1980

DAY 01									DAY 02									DAY 03								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD									
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW									
0300	1.0	-7.1	55	220	.6	198	2.5	001	0300	3.0	-5.5	54	014	1.4	349	3.2	001									
0600	2.0	-6.0	56	130	.7	101	2.5	014	0600	4.0	-4.8	53	267	1.1	251	4.4	010									
0900	6.0	-2.5	55	240	1.7	258	5.1	036	0900	7.0	-2.0	53	209	1.1	262	3.2	029									
1200	8.0	-1.4	52	258	3.6	280	6.3	054	1200	9.0	-.4	52	249	2.3	242	6.3	049									
1500	10.0	-1.2	46	265	3.0	253	6.3	091	1500	9.0	-.2	53	238	3.6	234	5.7	029									
1800	10.0	-.9	47	253	3.5	255	7.6	029	1800	8.0	-1.4	52	245	2.8	269	5.1	007									
2100	6.0	-3.0	53	286	2.3	272	6.3	001	2100	6.0	-3.5	51	239	2.5	232	3.8	001									
2400	3.0	-5.5	54	003	1.4	354	2.5	000	2400	5.0	-4.4	51	242	1.2	249	2.5	000									

DAY 04									DAY 05									DAY 06								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD									
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW									
0300	8.0	*****	51	259	1.2	260	2.5	002	0300	10.0	.2	51	264	2.1	263	3.2	001									
0600	10.0	.2	51	283	1.0	264	1.9	013	0600	12.0	2.4	52	260	1.4	270	2.5	009									
0900	14.0	3.9	51	220	.9	208	3.2	050	0900	14.0	3.9	51	231	3.0	230	5.7	031									
1200	17.0	5.5	47	222	2.0	206	5.1	070	1200	17.0	4.9	45	242	3.5	258	7.6	097									
1500	20.0	7.0	43	243	2.9	226	7.0	064	1500	18.0	6.4	47	264	4.5	264	8.9	022									
1800	18.0	6.4	47	256	4.8	248	8.3	018	1800	16.0	5.2	49	262	4.6	254	8.9	026									
2100	13.0	3.3	52	262	3.3	265	5.7	002	2100	12.7	*****	**	259	2.7	273	6.3	003									
2400	11.0	1.2	51	257	2.2	256	3.2	000	2400	10.0	*****	**	285	.5	280	1.9	001									

DAY 07									DAY 08									DAY 09								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD									
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW									
0300	8.3	*****	**	244	1.9	238	5.7	002	0300	5.6	*****	54	008	1.0	351	3.2	002									
0600	8.5	*****	**	244	3.4	232	6.3	003	0600	8.5	-2.6	46	127	.3	052	1.9	036									
0900	9.3	.1	53	238	4.2	236	6.3	016	0900	11.3	-1.9	40	015	1.0	047	5.1	048									
1200	11.3	1.7	52	236	6.1	235	9.5	117	1200	13.9	-1.8	34	346	2.1	338	5.1	078									
1500	12.3	2.1	50	238	5.5	223	9.5	092	1500	13.9	-2.2	33	268	2.5	239	7.1	025									
1800	11.9	1.4	49	250	5.2	246	8.9	030	1800	14.2	-2.4	32	254	3.9	256	7.1	039									
2100	8.7	-.5	53	278	3.3	263	6.3	003	2100	10.5	-.2	48	239	4.2	237	7.0	003									
2400	4.7	-3.9	54	352	1.8	327	3.8	001	2400	7.1	-.9	57	273	2.1	255	5.7	001									

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION.
DATA TAKEN DURING JUNE, 1980

DAY 10

DAY 11

DAY 12

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	7.5	-0.6	57	236	1.9	232	3.8	001	0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***
0600	8.1	-0.0	57	240	2.2	251	3.8	014	0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***
0900	7.3	-0.8	57	229	3.2	217	5.1	020	0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***
1200	*****	*****	52	242	1.6	243	4.4	036	1200	*****	*****	**	***	*****	***	*****	***	1200	*****	*****	**	***	*****	***	*****	***
1500	*****	*****	*****	*****	*****	*****	3.8	*****	1500	*****	*****	**	***	*****	***	*****	***	1500	*****	*****	**	***	*****	***	*****	***
1800	*****	*****	*****	*****	*****	*****	*****	*****	1800	*****	*****	**	***	*****	***	*****	***	1800	*****	*****	**	***	*****	***	*****	***
2100	*****	*****	*****	*****	*****	*****	*****	*****	2100	*****	*****	**	***	*****	***	*****	***	2100	*****	*****	**	***	*****	***	*****	***
2400	*****	*****	*****	*****	*****	*****	*****	*****	2400	*****	*****	**	***	*****	***	*****	***	2400	*****	*****	**	***	*****	***	*****	***

DAY 13

DAY 14

DAY 15

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

DAY 16

DAY 17

DAY 18

DAY 16									DAY 17									DAY 18								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.					
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	*****	*****	*****	*****	*****	*****	*****	*****	0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***
0600	*****	*****	*****	*****	*****	*****	*****	*****	0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***
0900	*****	*****	*****	*****	*****	*****	*****	*****	0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***
1200	*****	*****	*****	*****	*****	*****	*****	*****	1200	*****	*****	**	***	*****	***	*****	***	1200	*****	*****	**	***	*****	***	*****	***
1500	*****	*****	*****	*****	*****	*****	*****	*****	1500	*****	*****	**	***	*****	***	*****	***	1500	*****	*****	**	***	*****	***	*****	***
1800	*****	*****	*****	*****	*****	*****	*****	*****	1800	*****	*****	**	***	*****	***	*****	***	1800	*****	*****	**	***	*****	***	*****	***
2100	*****	*****	*****	*****	*****	*****	*****	*****	2100	*****	*****	**	***	*****	***	*****	***	2100	*****	*****	**	***	*****	***	*****	***
2400	*****	*****	*****	*****	*****	*****	*****	*****	2400	*****	*****	**	***	*****	***	*****	***	2400	*****	*****	**	***	*****	***	*****	***

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING JUNE , 1980

DAY 19

DAY 20

DAY 21

HOUR NDNG	DEW TEMP.	POINT RH	DIR. %	WIND SPD.	WIND DIR.	GUST DIR.	MAX. GUST	MAX. RAD	HOUR NDNG	DEW TEMP.	POINT RH	DIR. %	WIND SPD.	WIND DIR.	GUST DIR.	MAX. GUST	MAX. RAD	HOUR NDNG	DEW TEMP.	POINT RH	DIR. %	WIND SPD.	WIND DIR.	GUST DIR.	MAX. GUST	MAX. 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	*****	*****	**	***	****	***	****	***	0300	3.1	-4.9	56	242	2.0	245	4.4	001	0300	*****	*****	**	***	****	***	****	***
0600	*****	*****	**	***	****	***	****	***	0600	2.6	-5.4	56	215	1.4	185	3.2	005	0600	*****	*****	**	230	1.2	239	2.5	***
0900	*****	*****	**	***	****	***	****	***	0900	3.8	-4.3	56	217	2.1	220	3.8	039	0900	5.3	-3.4	54	082	.3	032	3.2	046
1200	6.6	-1.7	56	239	1.6	240	5.1	012	1200	4.8	-3.6	55	232	2.4	215	4.4	029	1200	7.8	-1.0	54	220	2.4	256	5.7	036
1500	6.3	-1.9	56	247	2.9	269	4.4	015	1500	4.8	-3.6	55	239	3.0	241	5.1	019	1500	8.7	-.2	54	245	3.8	240	7.0	053
1800	6.1	*****	56	211	1.0	246	3.2	004	1800	3.4	-4.4	57	251	2.7	250	4.4	007	1800	9.2	.0	53	244	3.1	250	7.6	016
2100	5.2	*****	55	133	.7	140	2.5	001	2100	2.6	-5.4	56	236	1.7	226	3.2	002	2100	7.4	-1.4	54	228	2.4	247	4.4	003
2400	4.7	*****	55	090	.7	083	1.9	001	2400	1.9	-6.1	56	197	.7	171	1.9	001	2400	5.2	-3.5	54	258	1.2	234	3.2	001

DAY 22

DAY 23

DAY 24

HOUR NDNG	DEW TEMP.	POINT RH	DIR. %	WIND SPD.	WIND DIR.	GUST DIR.	MAX. GUST	MAX. RAD	HOUR NDNG	DEW TEMP.	POINT RH	DIR. %	WIND SPD.	WIND DIR.	GUST DIR.	MAX. GUST	MAX. RAD	HOUR NDNG	DEW TEMP.	POINT RH	DIR. %	WIND SPD.	WIND DIR.	GUST DIR.	MAX. GUST	MAX. 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	3.9	-4.7	54	355	1.4	351	2.5	002	0300	4.7	-3.7	55	003	2.0	000	3.8	003	0300	6.2	*****	52	007	1.3	010	2.5	002
0600	7.5	*****	54	040	.9	044	2.5	023	0600	9.3	.1	53	052	.8	021	2.5	029	0600	8.8	-.6	52	100	.1	253	2.5	025
0900	11.2	.8	49	101	1.4	107	3.8	018	0900	13.7	.6	41	194	1.0	237	5.1	034	0900	12.1	2.4	52	231	2.6	228	4.4	045
1200	13.7	-1.2	36	035	1.5	040	5.7	039	1200	15.4	1.8	40	228	3.5	259	7.0	080	1200	14.0	3.4	49	231	3.2	221	5.7	044
1500	15.2	-1.5	32	351	1.7	007	4.4	026	1500	13.6	2.4	47	202	1.8	255	7.0	014	1500	15.0	4.0	48	242	3.9	246	7.0	109
1800	15.2	-2.4	30	317	2.2	326	5.7	037	1800	10.5	1.0	52	091	1.7	106	3.8	002	1800	13.7	2.8	48	233	3.3	220	7.6	029
2100	11.5	-2.5	38	333	3.0	324	5.7	004	2100	9.4	-.1	52	006	.1	212	5.7	004	2100	10.2	.7	52	242	2.8	257	5.7	002
2400	6.0	-2.7	54	039	1.6	085	3.8	001	2400	7.4	-2.2	51	018	1.0	103	2.5	001	2400	7.7	*****	51	238	1.8	243	4.4	001

DAY 25

DAY 26

DAY 27

HOUR NDNG	DEW TEMP.	POINT RH	DIR. %	WIND SPD.	WIND DIR.	GUST DIR.	MAX. GUST	MAX. RAD	HOUR NDNG	DEW TEMP.	POINT RH	DIR. %	WIND SPD.	WIND DIR.	GUST DIR.	MAX. GUST	MAX. RAD	HOUR NDNG	DEW TEMP.	POINT RH	DIR. %	WIND SPD.	WIND DIR.	GUST DIR.	MAX. GUST	MAX. 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	7.0	-2.8	50	027	1.4	042	4.4	002	0300	7.7	-1.9	51	050	1.9	045	3.2	002	0300	8.2	-1.4	51	264	1.7	264	3.2	002
0600	9.1	.2	54	057	4.0	074	8.3	021	0600	8.7	-1.0	51	019	1.2	038	2.5	011	0600	11.2	1.3	51	272	1.8	252	3.8	016
0900	12.0	2.1	51	078	5.1	083	8.9	020	0900	11.5	2.2	53	012	.7	335	2.5	034	0900	13.6	3.6	51	225	3.6	227	5.7	075
1200	13.0	2.7	50	081	4.5	079	7.6	036	1200	11.9	2.3	52	240	1.7	233	5.1	033	1200	16.3	5.5	49	222	3.8	221	6.3	103
1500	10.0	.2	51	076	4.8	064	8.9	019	1500	14.1	4.0	51	229	4.1	229	7.6	055	1500	14.4	4.6	52	234	3.8	244	7.6	015
1800	10.3	.8	52	050	3.3	077	6.3	010	1800	14.2	4.1	51	223	5.3	219	7.6	036	1800	13.7	3.4	50	228	3.3	240	7.0	010
2100	8.2	-1.4	51	047	2.9	044	5.1	001	2100	11.4	2.1	53	226	4.7	226	7.6	003	2100	12.7	2.2	49	244	1.5	245	4.4	002
2400	7.7	-1.9	51	045	1.8	037	3.2	001	2400	9.1	-.6	51	239	2.9	233	5.1	001	2400	10.0	-.1	50	245	2.3	234	5.7	001

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING JUNE , 1980

DAY 28

DAY 29

DAY 30

DAY 28								DAY 29								DAY 30										
HOUR	DEW	WIND		WIND		GUST MAX.		HOUR	DEW	WIND		WIND		GUST MAX.		HOUR	DEW	WIND		WIND		GUST MAX.				
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	NDNG		
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S			
0300	8.0	-1.6	51	230	3.2	231	5.7	001	0300	6.5	-3.0	51	233	3.2	217	5.7	001	0300	5.1	-5.1	48	233	4.1	245	6.3	001
0600	7.4	-2.7	49	232	2.8	219	4.4	012	0600	7.0	-2.8	50	230	1.9	258	4.4	003	0600	4.0	-5.9	49	227	4.2	227	7.0	006
0900	11.4	1.8	52	230	3.5	233	5.7	081	0900	7.3	-2.6	50	221	2.3	219	4.4	012	0900	4.3	-5.6	49	229	4.3	227	6.3	031
1200	9.4	-.3	51	216	4.7	214	7.0	025	1200	7.5	-2.4	50	228	3.3	246	5.7	013	1200	5.1	-4.6	50	237	3.6	233	5.7	030
1500	10.9	1.3	52	224	4.2	221	7.6	055	1500	7.6	-2.3	50	233	2.5	233	3.8	008	1500	8.5	-1.4	50	232	4.1	241	6.3	059
1800	10.8	1.0	51	224	5.6	219	8.3	044	1800	6.9	-2.7	51	230	2.4	227	3.8	005	1800	6.8	-2.7	51	233	3.8	239	6.3	008
2100	8.7	-1.0	51	220	4.8	217	7.6	003	2100	6.5	-3.0	51	247	2.2	251	3.8	001	2100	6.0	-4.0	49	236	2.2	240	4.4	002
2400	7.5	-2.6	49	221	4.1	216	6.3	001	2400	6.3	-4.0	48	234	3.3	227	6.3	001	2400	5.2	-4.8	49	256	2.2	271	4.4	001

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

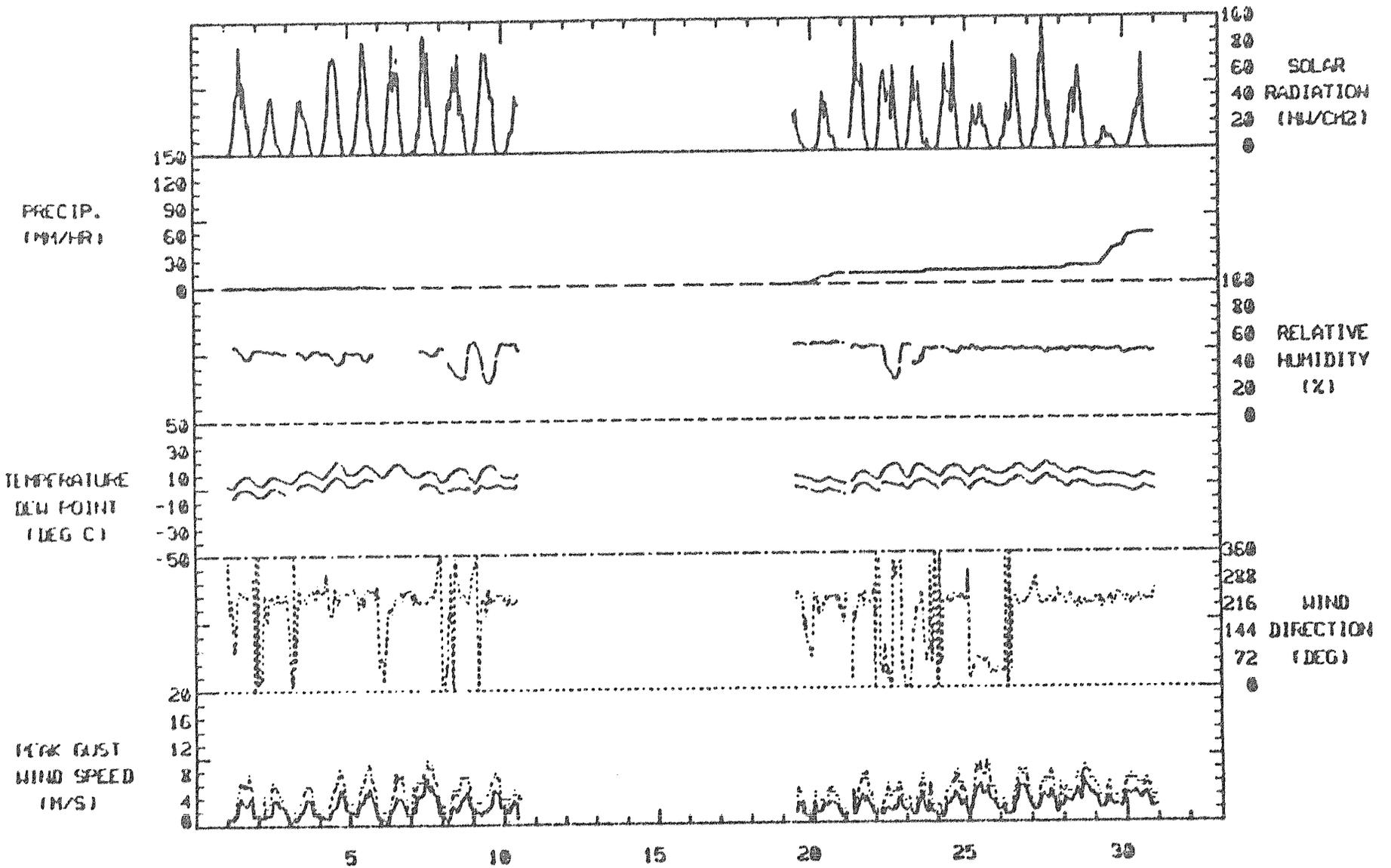
MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING JUNE, 1980

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	10.0	1.0	5.5	262	1.7	2.3	255	7.6	WSW	52	-3.4	1.2	5673	01
02	11.0	2.0	6.5	246	1.7	2.2	242	6.3	WSW	53	-2.8	0.0	3343	02
03	14.0	5.0	9.5	255	1.5	1.9	244	6.3	WSW	51	.8	0.0	3763	03
04	21.0	8.0	14.5	252	2.2	2.4	248	8.3	W	48	3.9	0.0	6935	04
05	13.5	10.0	11.8	255	2.7	2.9	264	8.9	W	50	3.8	0.0	6260	05
06	18.7	8.3	13.5	248	1.6	2.0	231	7.6	WSW	**	*****	****	6473	06
07	13.1	4.7	8.9	248	3.5	4.0	235	9.5	WSW	51	.2	****	6423	07
08	15.5	4.3	9.9	273	1.5	2.5	256	7.6	WSW	41	-1.7	****	6710	08
09	17.0	3.5	10.3	253	2.1	2.7	240	7.6	WSW	44	-.5	****	7353	09
10	*****	*****	*****	***	*****	2.3	217	5.1	WSW	56	-.4	****	3835	10
11	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	11
12	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	12
13	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	13
14	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	14
15	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	15
16	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	16
17	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	17
18	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	****	***	18
19	7.6	4.6	6.1	***	*****	1.5	240	5.1	WSW	56	-1.8	.8	2478	19
20	5.8	1.8	3.8	233	1.9	2.1	241	5.1	WSW	56	-4.7	10.2	3200	20
21	10.3	1.3	5.8	237	2.0	2.5	250	7.6	WSW	54	-1.6	0.0	7060	21
22	16.4	3.6	10.0	003	1.3	1.9	040	5.7	N	43	-2.0	0.0	6773	22
23	15.4	4.2	9.8	206	.2	2.0	259	7.0	N	49	-.0	2.6	4700	23
24	15.0	5.1	10.1	240	2.1	2.5	220	7.6	SW	51	2.1	0.0	6143	24
25	16.4	1.3	5.9	064	3.3	3.6	083	8.9	NE	51	-.0	.4	3415	25
26	15.2	7.6	11.4	233	1.9	2.9	229	7.6	SW	51	1.4	.2	5238	26
27	17.4	8.2	12.8	237	2.6	2.8	244	7.6	SW	50	2.4	.4	6078	27
28	11.8	7.1	9.5	224	4.1	4.2	219	8.3	SW	51	-.5	3.4	5263	28
29	7.8	6.0	6.9	232	2.6	2.7	227	6.3	WSW	50	-2.8	22.0	1375	29
30	8.5	3.7	6.1	234	3.5	3.6	227	7.0	SW	49	-4.3	13.8	3710	30
MONTH	21.0	1.0	9.1	244	1.7	2.6	235	9.5	WSW	50	-.6	55.0	112196	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 8.9
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 8.9
 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 SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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



DAY OF THE MONTH

UATANA WEATHER STATION

DATA START: 01 JUNE, 1980

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING JUNE, 1980

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	GREATER THAN 20.0	
N	.35	4.14	0.00	0.00	0.00	0.00	0.00	4.49
NNE	.85	2.10	.10	0.00	.05	0.00	0.00	3.10
NE	.70	2.55	1.00	0.00	0.00	0.00	0.00	4.24
ENE	.60	1.20	1.40	0.00	0.00	0.00	0.00	3.20
E	.80	1.05	.90	0.00	0.00	0.00	0.00	2.75
ESE	.75	1.30	0.00	0.00	0.00	0.00	0.00	2.05
SE	.40	.50	0.00	0.00	0.00	0.00	0.00	.90
SSE	.65	.70	0.00	0.00	0.00	0.00	0.00	1.35
S	.40	1.55	.05	0.00	0.00	0.00	0.00	2.00
SSW	.50	3.00	1.00	.10	0.00	0.00	0.00	4.59
SW	1.10	8.19	16.08	.55	0.00	0.00	0.00	25.91
WSW	.25	14.48	11.58	.20	0.00	0.00	0.00	26.51
W	.55	6.59	4.54	0.00	0.00	0.00	0.00	11.68
WNW	.20	1.65	.10	0.00	0.00	0.00	0.00	1.95
NW	.35	1.15	.45	0.00	0.00	0.00	0.00	1.95
NNW	.30	2.50	.20	0.00	0.00	0.00	0.00	3.00
CALM								.35
TOTAL	8.74	52.62	37.39	.85	.05	0.00	0.00	100.00

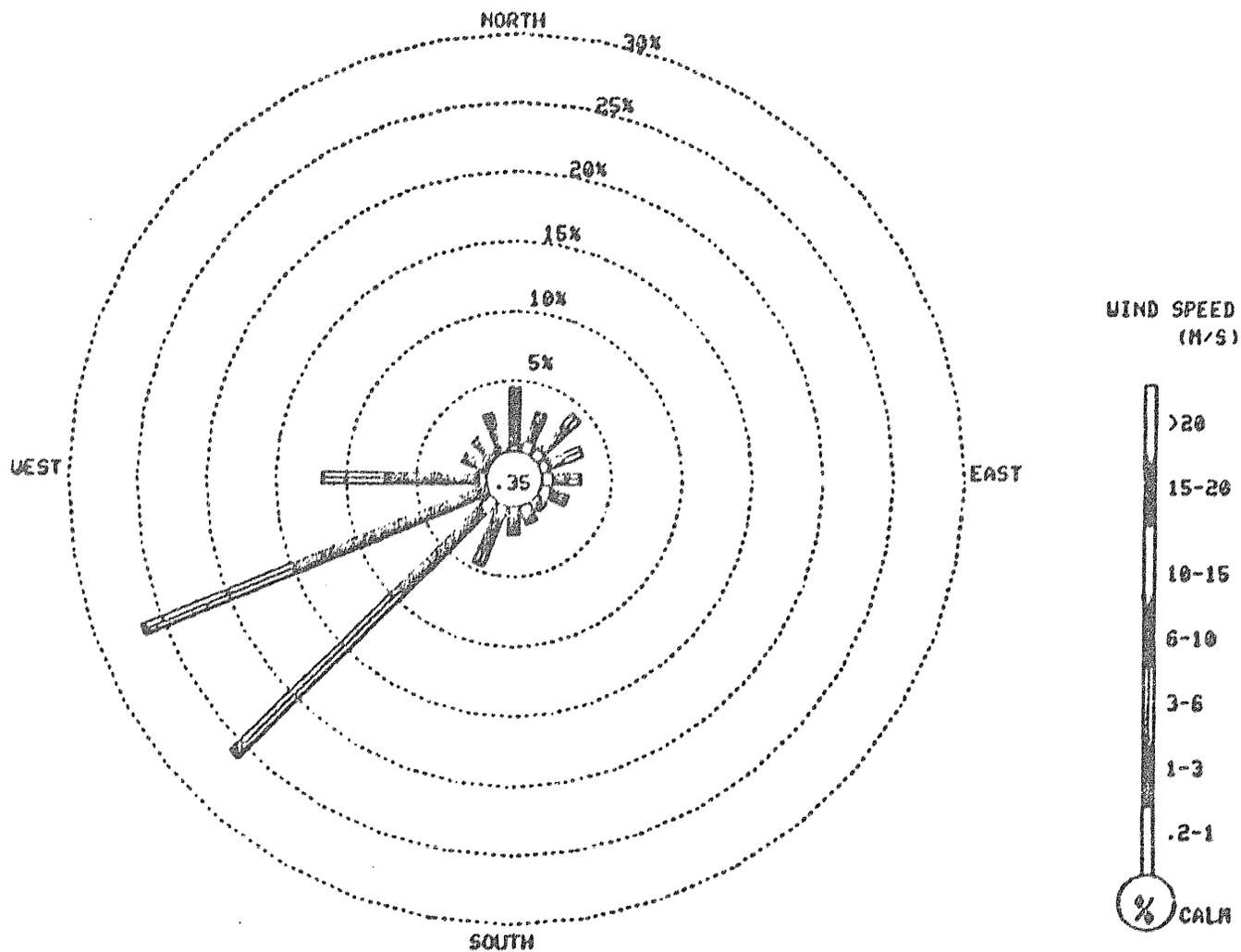
NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

2003 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

JUNE, 1980



WIND ROSE PLOT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION.
DATA TAKEN DURING JULY , 1980

DAY 01

DAY 02

DAY 03

DAY 01									DAY 02									DAY 03								
HOUR	DEW	WIND			GUST MAX.			HOUR	DEW	WIND			GUST MAX.			HOUR	DEW	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	5.0	-5.2	48	250	2.0	246	3.8	001	0300	6.0	-3.2	52	265	1.4	254	3.2	003	0300	6.0	-4.0	49	240	3.2	237	5.1	002
0600	6.4	-3.4	50	238	2.1	240	3.8	015	0600	8.3	-1.4	51	339	1.0	348	2.5	017	0600	6.2	-4.1	48	249	1.9	253	3.2	010
0900	8.3	-1.6	50	233	3.3	220	5.7	029	0900	13.6	1.1	43	255	1.3	183	4.4	075	0900	8.1	-1.8	50	241	2.8	239	5.1	033
1200	12.9	2.6	50	254	1.7	233	4.4	120	1200	17.4	2.5	37	264	.8	297	4.4	089	1200	9.4	-.3	51	240	2.8	244	5.1	020
1500	13.5	2.9	49	246	1.2	236	6.3	038	1500	18.3	1.2	32	251	2.7	284	7.0	076	1500	10.1	.3	51	225	4.0	208	8.3	034
1800	13.7	2.5	47	228	4.7	218	7.0	033	1800	14.4	.5	39	257	4.9	263	10.2	012	1800	9.6	.1	52	230	3.9	225	7.0	015
2100	9.1	-.3	52	251	3.0	242	6.3	003	2100	11.1	1.2	51	251	4.2	252	7.6	002	2100	7.4	-2.5	50	243	3.5	237	7.0	001
2400	6.0	-3.8	50	248	2.0	237	5.1	001	2400	7.4	-2.2	51	237	3.8	232	7.0	001	2400	6.2	-3.3	51	252	1.7	240	3.8	001

DAY 04

DAY 05

DAY 06

DAY 04									DAY 05									DAY 06								
HOUR	DEW	WIND			GUST MAX.			HOUR	DEW	WIND			GUST MAX.			HOUR	DEW	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	6.0	-3.5	51	250	2.1	249	3.2	002	0300	6.3	-3.2	51	349	1.9	349	3.2	002	0300	9.4	*****	47	359	.5	064	1.9	001
0600	7.4	-2.5	50	252	2.4	250	4.4	016	0600	9.3	.1	53	065	.9	034	1.9	029	0600	11.0	.6	49	019	.7	023	2.5	010
0900	11.4	1.5	51	232	3.2	240	5.7	076	0900	14.5	*****	50	111	1.2	102	3.2	034	0900	13.3	3.0	50	068	2.4	039	4.4	027
1200	13.9	1.7	44	229	3.6	214	7.0	101	1200	17.0	5.5	47	182	.9	154	3.8	020	1200	14.6	4.5	51	086	.7	094	3.8	055
1500	15.5	1.5	39	239	2.2	255	5.7	068	1500	12.5	2.3	50	239	3.9	233	7.6	021	1500	16.7	5.6	48	310	1.3	285	3.2	047
1800	15.2	2.3	42	235	3.2	238	7.0	033	1800	12.6	2.1	49	227	3.0	227	5.1	011	1800	12.3	1.5	48	212	1.0	245	6.3	013
2100	11.5	*****	52	249	2.7	235	5.7	002	2100	11.1	.1	47	250	2.1	247	3.8	001	2100	10.3	-.6	47	230	3.0	230	5.7	001
2400	7.2	-2.9	49	272	1.2	270	3.2	001	2400	9.8	-1.4	46	253	1.1	265	2.5	001	2400	9.6	-1.0	48	241	2.4	228	5.1	001

DAY 07

DAY 08

DAY 09

DAY 07									DAY 08									DAY 09								
HOUR	DEW	WIND			GUST MAX.			HOUR	DEW	WIND			GUST MAX.			HOUR	DEW	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	8.8	-1.4	49	245	1.9	220	3.2	001	0300	7.7	-2.5	49	257	1.6	258	2.5	002	0300	7.2	-2.6	50	238	2.4	234	4.4	002
0600	9.2	-1.1	49	243	2.0	243	3.8	013	0600	8.8	-1.2	50	256	1.7	252	3.8	015	0600	7.7	-2.2	50	235	2.9	223	5.7	013
0900	9.8	-.5	49	246	2.1	249	4.4	016	0900	11.8	1.9	51	241	2.9	240	5.7	062	0900	9.0	-.4	52	221	3.9	224	6.3	029
1200	13.5	3.5	51	253	1.3	227	3.2	072	1200	11.9	2.0	51	233	4.0	221	7.6	045	1200	11.9	2.3	52	235	4.2	242	7.0	075
1500	10.6	.5	50	234	3.6	220	7.0	015	1500	14.0	3.6	50	249	3.4	231	6.3	024	1500	12.7	2.4	50	232	4.5	226	7.0	028
1800	10.2	-.1	49	220	2.8	225	5.1	006	1800	11.1	1.2	51	228	5.1	234	9.5	036	1800	11.7	1.8	51	232	5.6	218	8.3	021
2100	9.3	-1.0	49	234	2.0	256	3.8	002	2100	9.2	-1.1	49	239	4.3	234	7.6	002	2100	8.6	-1.1	51	232	4.0	246	7.6	002
2400	7.8	-2.4	49	251	1.8	236	4.4	001	2400	7.0	-2.8	50	242	2.2	247	5.1	001	2400	5.6	-3.9	51	255	2.4	238	5.1	001

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING JULY , 1980

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	4.9	-4.5	51	265	1.9	270	2.5	002	0300	7.5	-2.4	50	040	1.8	049	5.7	001	0300	9.5	-0.5	50	062	2.1	057	6.3	001
0600	8.7	-1.0	51	250	2.3	241	4.4	019	0600	7.9	-2.0	50	069	4.8	066	8.3	005	0600	9.9	-0.4	49	066	4.6	073	8.3	011
0900	12.6	2.4	50	238	2.4	221	4.4	071	0900	10.2	.1	50	067	3.2	075	5.1	024	0900	11.3	1.2	50	064	4.5	071	7.0	025
1200	13.9	1.1	42	240	2.0	235	4.4	055	1200	11.9	1.7	50	076	3.3	072	5.7	025	1200	13.7	3.0	50	070	3.5	065	6.3	053
1500	14.4	2.5	45	240	2.3	226	6.3	036	1500	12.7	2.2	49	001	1.9	064	3.8	021	1500	12.9	2.3	49	067	.6	087	4.4	017
1800	10.8	1.0	51	241	4.0	245	7.0	015	1800	11.0	.3	48	281	2.1	258	4.4	004	1800	11.3	.9	49	236	2.1	241	5.1	013
2100	7.2	-2.9	49	235	2.3	251	6.3	001	2100	9.6	-.7	49	252	1.9	261	4.4	001	2100	9.6	-.7	49	214	2.2	220	3.8	001
2400	6.7	-3.1	50	263	.4	233	1.9	001	2400	9.0	-1.5	48	102	.4	212	1.9	001	2400	8.7	*****	48	227	1.3	195	3.2	001

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
0300	8.7	-2.4	46	247	1.7	238	3.8	002	0300	8.5	-2.3	47	293	1.7	276	3.8	003	0300	8.6	-2.2	47	038	1.0	008	3.2	002
0600	9.5	-2.0	45	237	2.7	231	4.4	020	0600	10.7	.0	48	319	1.4	296	2.5	017	0600	10.0	*****	48	341	.0	346	2.5	011
0900	11.4	1.0	49	226	4.4	225	6.3	025	0900	14.4	4.0	50	239	1.9	247	4.4	037	0900	12.3	1.8	49	177	.5	252	2.5	039
1200	13.7	3.4	50	239	4.4	232	7.0	046	1200	16.7	3.3	41	246	2.4	271	7.0	075	1200	14.9	4.8	51	221	2.2	212	7.6	085
1500	15.0	4.6	50	224	5.2	226	8.9	035	1500	17.1	3.3	40	294	1.8	328	6.3	086	1500	12.4	2.2	50	219	4.8	220	8.3	024
1800	14.0	3.0	50	229	5.3	228	7.6	016	1800	15.8	4.7	48	155	1.3	245	5.7	011	1800	12.0	1.5	49	228	3.6	219	5.7	010
2100	12.3	1.5	48	231	4.2	224	7.0	003	2100	9.8	-.2	50	047	1.7	005	4.4	002	2100	10.3	.2	50	240	2.9	235	5.1	001
2400	9.4	-1.5	47	247	2.8	224	4.4	001	2400	9.9	*****	47	010	1.0	019	2.5	001	2400	9.0	-1.3	49	243	2.9	236	5.1	001

DAY 16									DAY 17									DAY 18								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	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	6.6	-2.2	47	240	2.7	250	4.4	001	0300	8.9	-2.2	46	240	2.2	240	3.8	001	0300	9.4	-1.2	48	252	1.4	236	3.8	002
0600	8.5	-2.3	47	235	3.2	227	5.7	006	0600	8.9	-2.5	45	231	2.6	231	4.4	007	0600	10.4	-.8	46	252	2.3	242	3.8	018
0900	10.3	-.3	48	228	3.4	229	5.1	030	0900	9.6	-1.3	47	220	3.6	225	5.7	027	0900	14.4	4.0	50	235	2.5	219	5.1	075
1200	13.3	2.7	49	222	4.3	221	7.6	048	1200	11.1	.7	49	234	3.7	232	6.3	048	1200	16.9	5.4	47	224	2.9	207	6.3	036
1500	11.4	.7	48	226	3.4	235	6.3	006	1500	13.6	3.3	50	240	3.1	245	5.1	026	1500	19.3	3.8	36	217	1.6	204	4.4	039
1800	10.4	-.8	46	241	2.2	254	4.4	007	1800	14.4	4.0	50	218	2.4	210	4.4	024	1800	18.4	3.7	38	247	2.4	248	5.7	024
2100	9.4	-1.2	48	247	1.9	242	3.2	001	2100	10.8	-.2	47	240	2.4	246	5.7	001	2100	15.5	4.7	49	269	1.9	255	4.4	002
2400	9.1	-2.3	45	243	2.0	252	3.2	001	2400	9.7	-1.2	47	232	1.0	254	2.5	001	2400	7.4	-1.9	52	345	2.4	346	4.4	001

R&M CONSULTANTS, INC.

SUSIWA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING JULY , 1980

DAY 19

DAY 20

DAY 21

DAY 19								DAY 20								DAY 21										
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	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	6.8	****	51	012	1.3	348	3.8	002	0300	8.8	-0.6	52	041	1.2	078	2.5	002	0300	9.0	-0.7	51	035	1.5	015	2.5	001
0600	9.6	.4	53	077	.9	088	2.5	020	0600	10.9	1.1	51	073	1.1	076	2.5	027	0600	10.6	.8	51	076	1.1	095	3.2	026
0900	16.9	5.4	47	217	1.0	241	3.2	069	0900	19.5	2.7	33	197	.7	235	3.2	069	0900	17.5	4.0	41	156	.6	118	2.5	068
1200	20.8	3.0	31	126	.9	039	6.3	086	1200	20.8	-0.6	24	047	2.2	083	6.3	020	1200	21.4	.5	25	222	1.5	171	4.4	037
1500	21.9	****	**	050	3.4	053	7.0	045	1500	23.2	-35.0	01	345	2.0	024	5.7	078	1500	21.2	.3	25	262	3.6	264	7.0	054
1800	20.8	-0.6	24	032	3.3	042	6.3	019	1800	22.0	6.2	36	037	3.3	049	6.3	036	1800	20.8	1.6	28	260	3.3	270	6.3	024
2100	13.6	1.1	43	022	2.3	025	5.1	002	2100	13.7	.9	42	067	2.5	051	5.7	001	2100	15.5	4.7	49	239	3.3	240	5.7	001
2400	13.0	1.8	47	039	1.7	024	5.7	001	2400	11.0	.6	49	025	1.7	027	3.8	001	2400	13.3	2.1	47	239	2.5	220	5.7	001

DAY 22

DAY 23

DAY 24

DAY 22								DAY 23								DAY 24										
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	10.7	-0.6	46	258	2.0	244	3.2	002	0300	8.3	-1.6	50	038	1.5	014	2.5	002	0300	12.1	1.3	48	261	2.4	259	4.4	001
0600	13.6	3.3	50	332	1.2	343	2.5	028	0600	11.1	1.2	51	067	1.5	095	3.2	027	0600	13.2	2.3	48	233	2.0	228	5.7	012
0900	18.3	5.4	43	214	.8	196	2.5	068	0900	19.6	5.6	40	110	1.7	103	3.2	068	0900	15.7	5.2	50	237	4.8	251	8.3	046
1200	20.5	4.0	34	147	1.8	148	5.7	076	1200	22.6	1.0	24	112	2.4	138	5.7	097	1200	17.6	6.4	48	253	5.8	249	9.5	053
1500	21.6	1.2	26	160	1.4	177	5.1	024	1500	22.7	1.0	24	103	2.5	116	7.0	049	1500	17.4	6.2	48	242	6.8	245	9.5	059
1800	17.5	4.0	41	340	1.5	308	7.0	008	1800	21.4	.5	25	024	1.2	335	5.1	022	1800	14.2	4.1	51	230	6.1	232	10.2	006
2100	15.1	4.7	50	265	1.5	249	3.2	001	2100	14.5	4.1	50	255	2.0	261	3.8	001	2100	12.7	1.9	48	254	3.1	243	6.3	001
2400	11.9	1.7	50	350	2.0	345	3.8	001	2400	12.7	2.4	50	255	2.7	255	4.4	001	2400	11.5	.8	48	236	3.1	246	6.3	001

DAY 25

DAY 26

DAY 27

DAY 25								DAY 26								DAY 27										
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	10.8	-0.5	46	237	2.9	235	4.4	001	0300	8.6	-1.3	50	290	.2	111	3.8	002	0300	9.5	-0.5	50	237	2.8	245	5.7	001
0600	10.7	.3	49	246	2.9	251	5.1	007	0600	8.9	-1.1	50	060	.9	086	2.5	017	0600	9.2	****	50	229	.7	239	4.4	003
0900	11.6	1.1	49	239	2.9	226	5.7	027	0900	13.5	3.2	50	182	.8	237	4.4	072	0900	9.9	-0.4	49	213	1.3	230	5.1	012
1200	11.1	.4	48	233	3.0	229	5.7	008	1200	14.3	3.3	48	237	3.0	228	6.3	040	1200	9.2	-0.8	50	245	4.2	246	10.2	016
1500	11.9	1.1	48	245	3.1	255	5.7	027	1500	15.0	4.3	49	240	4.4	246	8.3	030	1500	10.0	-0.3	49	244	4.2	248	7.6	014
1800	11.4	.7	48	241	4.0	246	6.3	006	1800	12.4	2.4	51	229	4.7	239	8.3	013	1800	9.2	-0.8	50	222	1.8	231	3.8	004
2100	10.6	****	49	239	2.7	248	6.3	001	2100	11.3	1.2	50	248	2.3	245	5.1	001	2100	8.3	****	49	162	.5	166	1.9	001
2400	9.1	-0.9	50	286	.9	263	3.2	001	2400	10.2	-0.1	49	243	2.6	234	6.3	001	2400	7.5	-2.6	49	059	.4	059	2.5	001

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING JULY , 1980

DAY 28

DAY 29

DAY 30

DAY 28								DAY 29								DAY 30										
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD									
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	6.8	*****	51	356	1.0	329	3.2	001	0300	5.2	-4.5	50	034	1.1	021	2.5	001	0300	7.7	-2.2	50	062	2.1	080	4.4	001
0600	6.1	*****	51	353	.6	354	3.2	003	0600	6.3	-3.2	51	077	.4	024	1.9	011	0600	8.0	-1.9	50	061	2.1	077	3.8	011
0900	6.7	*****	51	123	.9	087	1.9	007	0900	10.2	.4	51	082	2.4	088	5.7	029	0900	11.5	1.9	52	077	3.4	093	5.7	050
1200	9.4	-.1	52	205	.7	239	2.5	055	1200	12.5	*****	52	071	2.2	070	4.4	039	1200	14.4	3.4	48	081	3.2	092	5.7	091
1500	12.0	2.4	52	235	2.7	235	5.1	034	1500	13.3	2.1	47	231	.6	086	3.8	020	1500	11.9	2.3	52	052	2.2	337	6.3	016
1800	11.9	2.3	52	232	2.6	217	5.7	022	1800	10.7	.6	50	004	1.3	339	4.4	016	1800	13.0	*****	51	081	1.1	343	3.8	014
2100	9.4	*****	51	245	1.6	208	5.1	001	2100	8.8	-1.2	50	031	.7	033	2.5	001	2100	*****	*****	**	072	1.2	072	1.9	***
2400	7.5	-2.4	50	083	1.2	093	2.5	001	2400	8.2	-1.7	50	063	2.2	067	3.8	001	2400	*****	*****	**	***	***	***	***	***

DAY 31

DAY 31

DAY 31

DAY 31								DAY 31								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	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW			
0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***
0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***
0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***
1200	*****	*****	**	***	*****	***	*****	***	1200	*****	*****	**	***	*****	***	*****	***	1200	*****	*****	**	***	*****	***	*****	***
1500	*****	*****	**	***	*****	***	*****	***	1500	*****	*****	**	***	*****	***	*****	***	1500	*****	*****	**	***	*****	***	*****	***
1800	*****	*****	**	***	*****	***	*****	***	1800	*****	*****	**	***	*****	***	*****	***	1800	*****	*****	**	***	*****	***	*****	***
2100	*****	*****	**	***	*****	***	*****	***	2100	*****	*****	**	***	*****	***	*****	***	2100	*****	*****	**	***	*****	***	*****	***
2400	*****	*****	**	***	*****	***	*****	***	2400	*****	*****	**	***	*****	***	*****	***	2400	*****	*****	**	***	*****	***	*****	***

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

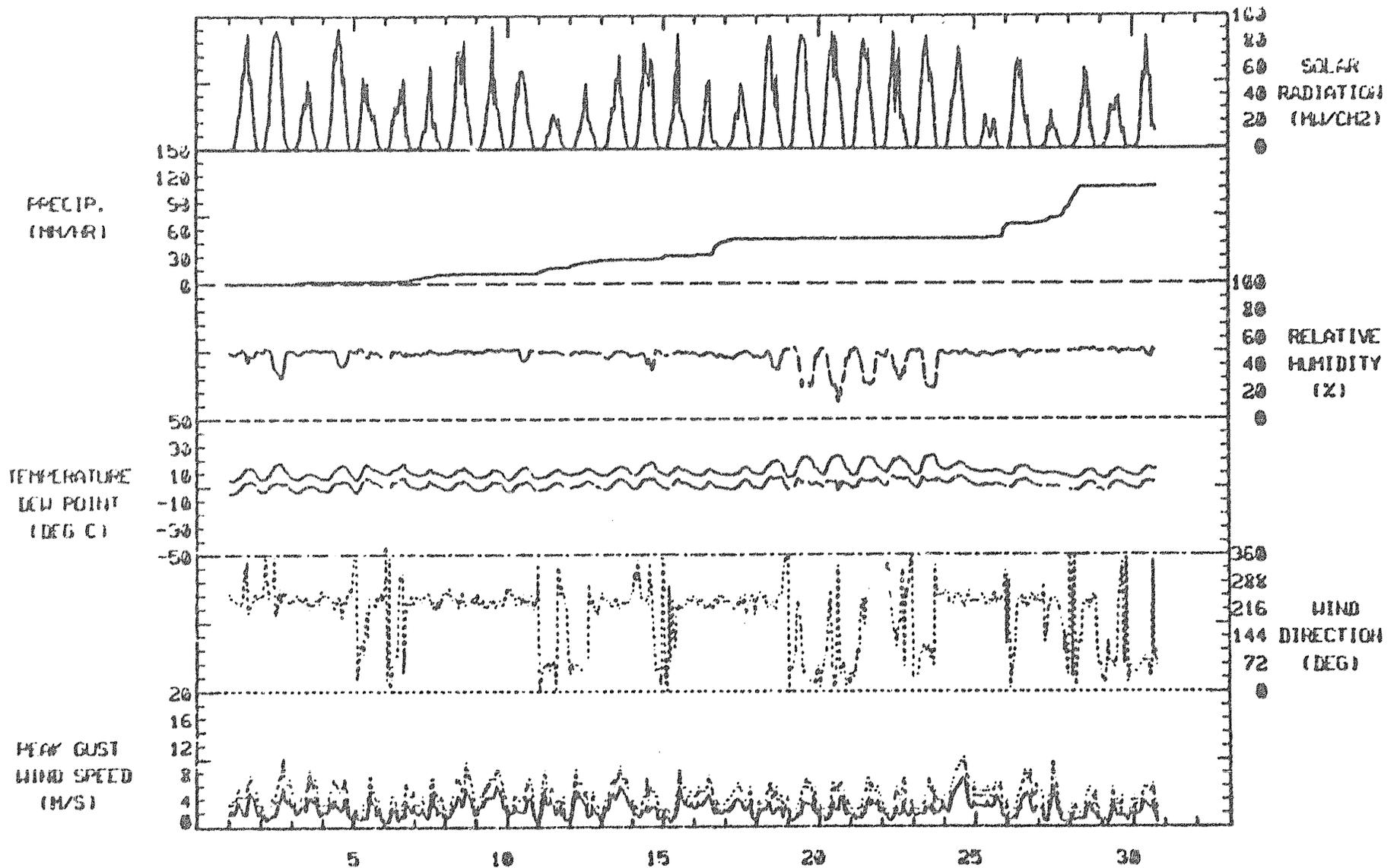
MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING JULY, 1980

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P*VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	14.9	5.0	10.0	241	2.5	2.8	218	7.6	SW	49	-.8	0.0	6875	01
02	18.3	5.2	11.8	255	2.4	2.8	263	10.2	WSW	45	-.0	0.0	8515	02
03	10.8	5.9	8.4	238	2.9	3.0	208	8.3	WSW	50	-2.0	2.4	3855	03
04	17.0	6.0	11.5	242	2.5	2.7	214	7.0	WSW	47	-.3	0.0	8000	04
05	17.7	4.5	11.1	240	1.0	2.0	233	7.6	WSW	49	.8	.2	4600	05
06	17.6	9.3	13.4	251	.4	1.9	245	6.3	SW	49	1.9	2.8	4205	06
07	14.3	7.8	11.0	239	2.2	2.2	220	7.0	WSW	49	-.3	4.8	3455	07
08	15.2	6.8	11.0	240	3.1	3.2	234	9.5	WSW	50	.2	.8	6995	08
09	13.2	5.6	9.4	233	3.7	3.8	218	8.3	SW	51	-.5	0.0	5405	09
10	14.9	4.9	9.9	244	2.2	2.3	245	7.0	WSW	49	-.6	1.4	5800	10
11	13.2	6.7	10.0	051	1.4	2.6	066	8.3	ENE	50	-.3	6.6	2308	11
12	14.2	8.6	11.4	077	1.3	2.8	073	8.3	ENE	49	.8	6.6	3228	12
13	16.0	8.6	12.3	233	3.8	3.8	226	8.9	SW	48	1.0	.8	5123	13
14	18.9	7.0	13.3	284	.8	2.0	271	7.0	WSW	46	1.8	1.6	7105	14
15	16.1	8.3	12.2	230	1.9	2.6	220	8.3	SW	49	1.0	2.6	4543	15
16	13.6	8.3	11.0	233	2.9	2.9	221	7.6	SW	48	-.7	15.4	3035	16
17	15.3	8.7	12.0	232	2.6	2.7	232	6.3	SW	47	.1	3.6	3810	17
18	19.8	7.4	13.6	251	1.8	2.3	207	6.3	WSW	45	2.2	0.0	7148	18
19	22.4	6.5	14.5	041	1.4	2.1	053	7.0	NNE	39	1.9	.2	8045	19
20	23.9	7.6	15.8	041	1.5	2.2	083	6.3	NE	35	-3.1	0.0	8293	20
21	22.0	7.6	14.8	249	1.4	2.4	264	7.0	WSW	39	1.7	0.0	7682	21
22	22.0	10.2	16.1	277	.5	1.8	308	7.0	WSW	43	3.0	.2	6663	22
23	23.8	7.5	15.6	096	.6	2.2	116	7.0	WSW	39	1.8	0.0	7405	23
24	17.9	11.5	14.7	242	4.3	4.4	232	10.2	WSW	49	3.5	0.0	5938	24
25	12.4	9.1	10.8	242	2.7	2.9	246	6.3	WSW	48	.3	11.2	2098	25
26	15.6	6.1	11.9	236	2.1	2.6	246	8.3	WSW	49	1.5	5.4	5843	26
27	10.5	7.5	9.0	235	1.8	2.2	246	10.2	SW	50	-.9	17.2	1763	27
28	12.7	6.0	9.5	233	.7	1.6	217	5.7	SW	51	.5	23.0	4110	28
29	13.8	5.2	9.5	059	1.1	1.7	088	5.7	ENE	51	-1.1	.2	3673	29
30	*****	*****	*****	070	2.3	2.5	337	6.3	ENE	50	.7	.6	7253	30
31	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	31
MONTH	23.9	4.5	11.9	240	1.3	2.6	263	10.2	WSW	47	.5	107.6	162765	

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

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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



DAY OF THE MONTH WATANA WEATHER STATION

DATA START: 01 JULY 1980

R&M CONSULTANTS, INC.
SUSITHA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR LATANA WEATHER STATION
DATA TAKEN DURING JULY , 1980

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	GREATER THAN 20.0	
N	.35	1.96	.03	0.00	0.00	0.00	0.00	2.34
NNE	.35	2.41	.35	0.00	0.00	0.00	0.00	3.11
NE	.63	2.48	1.36	0.00	0.00	0.00	0.00	4.48
ENE	.98	3.67	2.94	0.00	0.00	0.00	0.00	7.59
E	.59	2.62	.94	0.00	0.00	0.00	0.00	4.16
ESE	.63	2.03	.21	0.00	0.00	0.00	0.00	2.87
SE	.59	1.01	.03	0.00	0.00	0.00	0.00	1.64
SSE	.35	.84	0.00	0.00	0.00	0.00	0.00	1.19
S	.14	.87	0.00	0.00	0.00	0.00	0.00	1.01
SSW	.66	1.96	.66	.07	0.00	0.00	0.00	3.36
SW	.66	8.89	15.33	.66	0.00	0.00	0.00	25.54
WSW	.42	17.77	9.45	.52	0.00	0.00	0.00	28.17
W	.45	5.42	1.33	.10	0.00	0.00	0.00	7.31
WNW	.38	1.36	.14	0.00	0.00	0.00	0.00	1.89
NW	.35	1.26	.24	0.00	0.00	0.00	0.00	1.85
NNW	.24	2.97	.17	0.00	0.00	0.00	0.00	3.39
CALM								.07
TOTAL	7.80	57.56	33.21	1.36	0.00	0.00	0.00	100.00

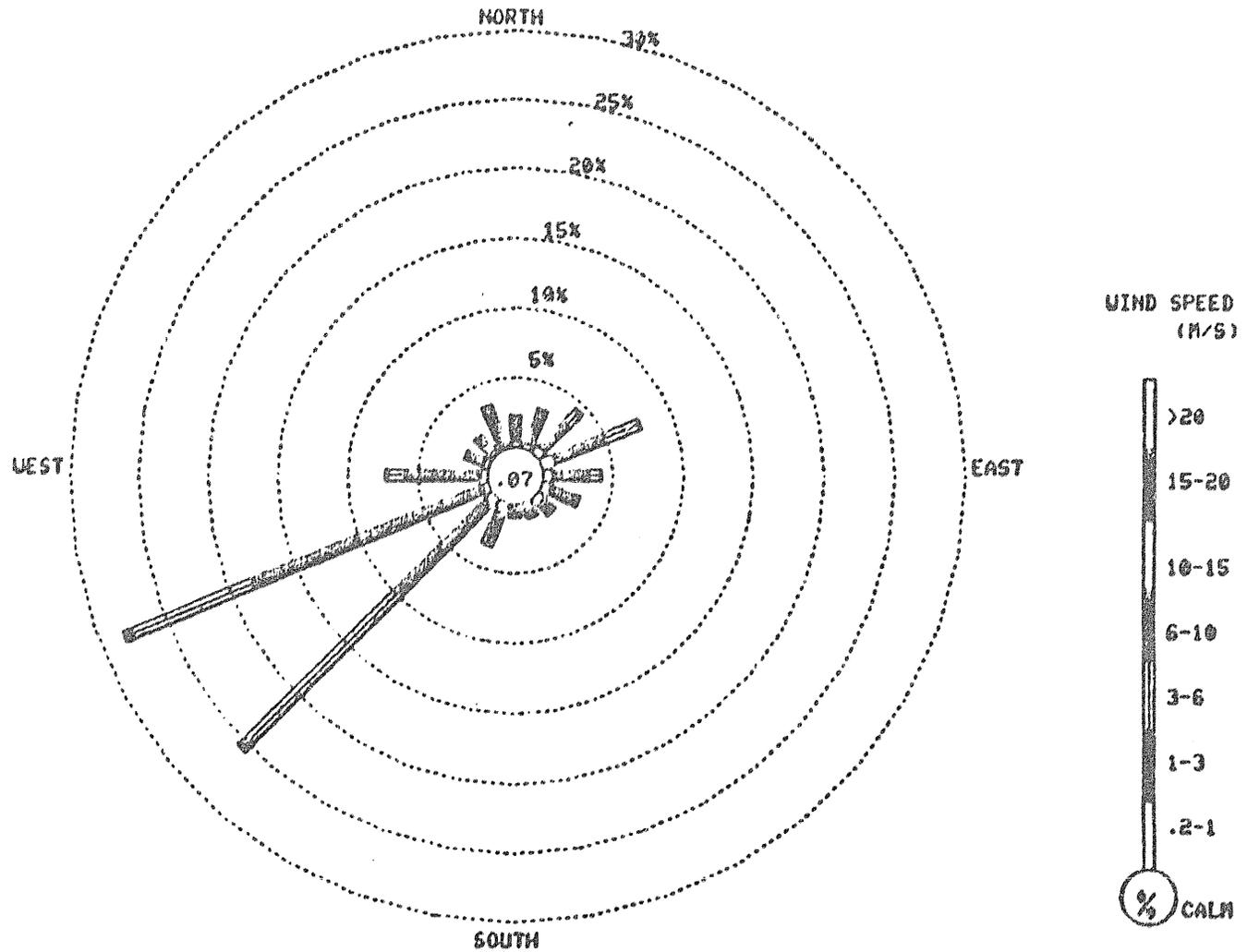
NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

2358 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

JULY, 1980



WIND ROSE PLOT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION.
DATA TAKEN DURING AUGUST, 1980

DAY 01

DAY 02

DAY 03

HOUR NDNG	DEW TEMP.	POINT RH	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD	HOUR NDNG	DEW TEMP.	POINT RH	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD	HOUR NDNG	DEW TEMP.	POINT RH	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	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	*	*	*	*	*	*	*	0300	*	*	*	*	*	*	*	0300	*	*	*	*	*	*	*
0600	*	*	*	*	*	*	*	0600	*	*	*	*	*	*	*	0600	*	*	*	*	*	*	*
0900	*	*	*	*	*	*	*	0900	*	*	*	*	*	*	*	0900	*	*	*	*	*	*	*
1200	*	*	*	*	*	*	*	1200	*	*	*	*	*	*	*	1200	*	*	*	*	*	*	*
1500	*	*	*	*	*	*	*	1500	*	*	*	*	*	*	*	1500	*	*	*	*	*	*	*
1800	*	*	*	*	*	*	*	1800	*	*	*	*	*	*	*	1800	*	*	*	*	*	*	*
2100	*	*	*	*	*	*	*	2100	*	*	*	*	*	*	*	2100	*	*	*	*	*	*	*
2400	*	*	*	*	*	*	*	2400	*	*	*	*	*	*	*	2400	*	*	*	*	*	*	*

DAY 04

DAY 05

DAY 06

HOUR NDNG	DEW TEMP.	POINT RH	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD	HOUR NDNG	DEW TEMP.	POINT RH	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD	HOUR NDNG	DEW TEMP.	POINT RH	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	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	*	*	*	*	*	*	*	0300	*	*	*	*	*	*	*	0300	*	*	*	*	*	*	*
0600	*	*	*	*	*	*	*	0600	*	*	*	*	*	*	*	0600	*	*	*	*	*	*	*
0900	*	*	*	*	*	*	*	0900	*	*	*	*	*	*	*	0900	*	*	*	*	*	*	*
1200	*	*	*	*	*	*	*	1200	*	*	*	*	*	*	*	1200	*	*	*	*	*	*	*
1500	*	*	*	*	*	*	*	1500	*	*	*	*	*	*	*	1500	*	*	*	*	*	*	*
1800	*	*	*	*	*	*	*	1800	*	*	*	*	*	*	*	1800	*	*	*	*	*	*	*
2100	*	*	*	*	*	*	*	2100	*	*	*	*	*	*	*	2100	*	*	*	*	*	*	*
2400	*	*	*	*	*	*	*	2400	*	*	*	*	*	*	*	2400	*	*	*	*	*	*	*

DAY 07

DAY 08

DAY 09

HOUR NDNG	DEW TEMP.	POINT RH	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD	HOUR NDNG	DEW TEMP.	POINT RH	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD	HOUR NDNG	DEW TEMP.	POINT RH	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	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	*	*	*	*	*	*	*	0300	*	*	*	*	*	*	*	0300	*	*	*	*	*	*	*
0600	*	*	*	*	*	*	*	0600	*	*	*	*	*	*	*	0600	*	*	*	*	*	*	*
0900	*	*	*	*	*	*	*	0900	*	*	*	*	*	*	*	0900	*	*	*	*	*	*	*
1200	*	*	*	*	*	*	*	1200	*	*	*	*	*	*	*	1200	*	*	*	*	*	*	*
1500	*	*	*	*	*	*	*	1500	*	*	*	*	*	*	*	1500	*	*	*	*	*	*	*
1800	*	*	*	*	*	*	*	1800	*	*	*	*	*	*	*	1800	*	*	*	*	*	*	*
2100	*	*	*	*	*	*	*	2100	*	*	*	*	*	*	*	2100	*	*	*	*	*	*	*
2400	*	*	*	*	*	*	*	2400	*	*	*	*	*	*	*	2400	*	*	*	*	*	*	*

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING AUGUST , 1980

DAY 28

DAY 29

DAY 30

HOUR NDNG	DEW							HOUR NDNG	DEW							HOUR NDNG	DEW									
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST			
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***
0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***
0900	8.3	6.4	88	246	2.5	351	5.1	044	0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***
1200	10.8	6.9	77	234	3.4	228	7.0	081	1200	*****	*****	**	***	*****	***	*****	***	1200	*****	*****	**	***	*****	***	*****	***
1500	10.5	5.8	73	231	4.0	239	7.0	045	1500	*****	*****	**	***	*****	***	*****	***	1500	*****	*****	**	***	*****	***	*****	***
1800	8.8	6.6	86	240	3.3	243	5.1	004	1800	*****	*****	**	***	*****	***	*****	***	1800	*****	*****	**	***	*****	***	*****	***
2100	6.0	5.4	96	254	1.3	259	3.2	001	2100	*****	*****	**	***	*****	***	*****	***	2100	*****	*****	**	***	*****	***	*****	***
2400	5.9	*****	98	266	1.7	275	2.5	001	2400	*****	*****	**	***	*****	***	*****	***	2400	*****	*****	**	***	*****	***	*****	***

DAY 31

DAY 31

DAY 31

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

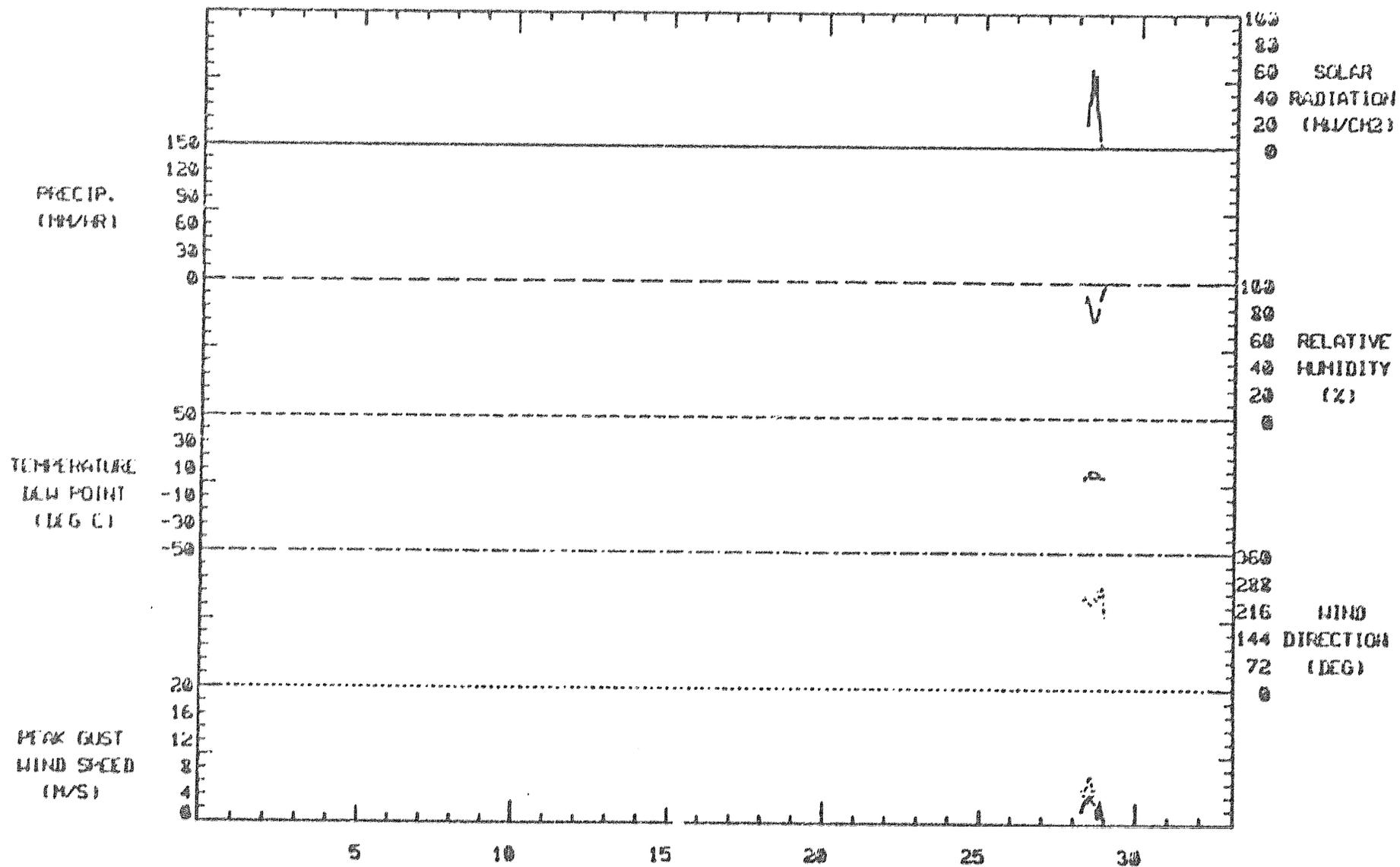
MONTHLY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING AUGUST, 1980

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	01
02	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	02
03	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	03
04	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	04
05	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	05
06	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	06
07	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	07
08	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	08
09	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	09
10	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	10
11	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	11
12	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	12
13	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	13
14	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	14
15	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	15
16	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	16
17	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	17
18	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	18
19	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	19
20	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	20
21	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	21
22	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	22
23	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	23
24	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	24
25	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	25
26	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	26
27	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	27
28	11.6	5.1	8.4	241	2.7	2.8	228	7.0	WSW	84	6.2	0.0	5068	28
29	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	29
30	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	30
31	*****	*****	*****	*****	*****	*****	*****	*****	MSG	***	*****	*****	***	31
MONTH	11.6	5.1	8.4	241	2.7	2.8	228	7.0	WSW	84	6.2	0.0	5068	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 4.4
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 3.8
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 7.0
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 7.0

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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



DAY OF THE MONTH WATANA LEATHER STATION

DATA START: 01 AUGUST , 1980

R&H CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING AUGUST , 1980

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	GREATER THAN 20.0	
N	1.61	0.00	0.00	0.00	0.00	0.00	0.00	1.61
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	1.61	0.00	0.00	0.00	0.00	0.00	0.00	1.61
ESE	1.61	0.00	0.00	0.00	0.00	0.00	0.00	1.61
SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SSW	3.23	0.00	1.61	0.00	0.00	0.00	0.00	4.84
SW	1.61	6.45	20.97	0.00	0.00	0.00	0.00	29.03
WSW	1.61	14.52	30.65	0.00	0.00	0.00	0.00	46.77
W	0.00	12.90	0.00	1.61	0.00	0.00	0.00	14.52
WNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CALM								0.00
TOTAL	11.29	33.87	53.23	1.61	0.00	0.00	0.00	100.00

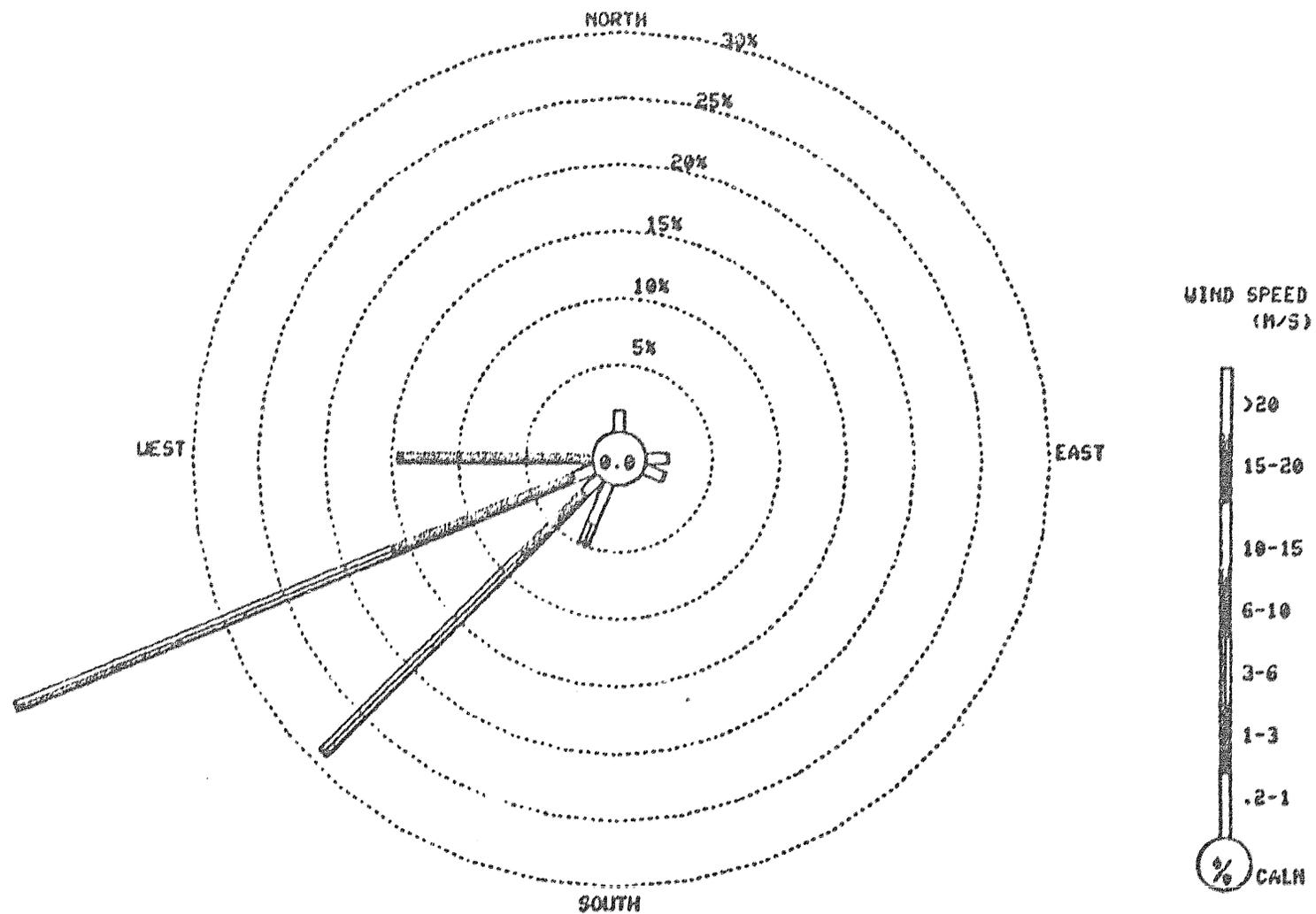
NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

62 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

AUGUST, 1980



WIND ROSE PLOT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING SEPTEMBER, 1980

DAY 10

DAY 11

DAY 12

DAY 10									DAY 11									DAY 12								
HOUR	DEW	WIND			GUST			HOUR	DEW	WIND			GUST			HOUR	DEW	WIND			GUST					
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	1.0	*****	**	034	.2	021	1.9	001	0300	-1.9	*****	95	038	1.1	356	2.5	001	0300	-1.1	-3.7	83	034	1.9	036	3.2	001
0600	.5	*****	00	047	.7	016	1.9	003	0600	-1.8	-6.1	73	059	1.1	035	2.5	013	0600	-.9	-5.2	73	059	1.7	073	3.2	008
0900	4.8	3.0	88	107	.2	217	1.9	035	0900	4.3	-.2	73	104	1.3	104	2.5	040	0900	5.3	.0	69	069	3.8	075	7.6	023
1200	8.5	2.9	68	263	.5	308	3.8	074	1200	11.3	3.0	57	120	1.6	110	4.4	057	1200	7.1	.4	63	075	6.3	076	10.2	020
1500	9.3	*****	22	290	.7	308	4.4	020	1500	12.9	4.0	55	115	2.3	092	5.1	038	1500	6.9	.5	64	079	5.7	080	10.8	006
1800	8.0	.6	60	344	.8	307	2.5	005	1800	9.8	1.3	56	117	2.2	134	5.7	005	1800	4.9	2.4	84	051	2.5	055	7.0	001
2100	2.2	-.9	80	348	2.2	338	3.8	001	2100	2.8	-2.2	70	010	2.1	351	3.8	001	2100	3.4	2.7	95	059	4.6	061	7.6	001
2400	0.0	-2.1	86	000	2.1	351	3.2	001	2400	1.8	-2.4	74	006	2.3	357	3.2	001	2400	2.6	2.2	97	059	5.1	059	8.3	001

DAY 13

DAY 14

DAY 15

DAY 13									DAY 14									DAY 15								
HOUR	DEW	WIND			GUST			HOUR	DEW	WIND			GUST			HOUR	DEW	WIND			GUST					
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	1.8	1.7	99	049	3.7	044	7.6	001	0300	4.3	4.0	98	020	1.6	031	3.2	001	0300	7.4	-11.5	25	098	2.1	087	3.2	001
0600	2.4	2.1	98	062	2.9	061	5.1	002	0600	5.5	5.2	98	042	3.6	043	7.0	001	0600	6.9	-13.0	23	096	1.7	088	3.8	001
0900	3.0	2.9	99	064	3.5	063	6.3	005	0900	6.3	5.1	92	064	4.6	073	8.9	007	0900	8.3	*****	45	067	.6	005	1.9	004
1200	3.9	3.6	98	063	2.8	063	5.1	014	1200	7.0	5.1	88	085	3.5	081	8.3	012	1200	9.0	*****	**	257	.6	249	2.5	011
1500	5.6	4.4	92	082	2.4	064	4.4	021	1500	7.7	6.6	93	086	1.9	088	3.8	003	1500	8.1	-2.1	49	308	1.3	281	3.2	004
1800	4.4	4.3	99	080	2.3	083	3.8	001	1800	7.2	-28.0	06	046	1.4	083	3.8	001	1800	7.4	-3.6	46	110	1.1	138	3.2	002
2100	4.0	-1.0	70	031	1.5	061	3.2	001	2100	7.4	-8.0	33	044	.8	001	2.5	001	2100	6.7	-1.3	57	321	1.1	331	2.5	001
2400	4.2	-1.3	68	016	1.6	007	3.2	001	2400	7.4	-9.2	30	089	2.4	093	3.8	001	2400	6.3	3.4	82	342	.8	344	2.5	001

DAY 16

DAY 17

DAY 18

DAY 16									DAY 17									DAY 18								
HOUR	DEW	WIND			GUST			HOUR	DEW	WIND			GUST			HOUR	DEW	WIND			GUST					
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	6.0	-45.4	01	010	.8	005	1.9	000	0300	-.8	-2.1	91	004	1.8	355	3.2	001	0300	.9	-2.9	76	066	1.7	072	3.2	001
0600	2.6	.5	86	008	1.6	345	3.2	006	0600	-.1	-3.2	80	047	1.6	019	3.2	004	0600	.5	-4.6	69	048	1.6	072	3.2	004
0900	7.8	4.0	77	068	1.1	111	3.8	037	0900	5.5	1.2	74	088	1.6	107	3.2	036	0900	*****	*****	61	061	.2	118	3.2	039
1200	11.1	3.8	61	117	2.7	110	4.4	053	1200	10.1	2.1	58	113	2.4	083	5.1	052	1200	9.4	1.5	58	057	1.4	052	5.7	036
1500	11.7	4.1	60	159	1.4	142	3.8	036	1500	11.1	2.8	57	067	2.7	082	7.0	031	1500	7.9	.1	58	354	2.9	337	5.7	011
1800	8.5	1.8	63	207	.9	197	3.8	003	1800	5.8	-.1	66	067	2.9	062	5.1	002	1800	4.4	-.9	69	069	1.9	077	4.4	002
2100	3.5	.3	80	080	2.5	094	4.4	001	2100	3.1	-.8	76	064	2.2	056	3.2	001	2100	2.2	-1.6	76	095	1.0	094	4.4	001
2400	2.2	-.3	84	019	1.9	067	3.2	001	2400	2.6	-2.0	72	070	2.0	077	3.2	001	2400	2.2	-2.2	73	055	1.4	035	3.8	001

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION.
DATA TAKEN DURING SEPTEMBER, 1980

DAY 19									DAY 20									DAY 21									
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.										
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	MAX.	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	1.3	-1.3	83	090	1.7	076	3.8	001	0300	.6	-1.8	84	038	1.4	011	2.5	001	0300	*****	*****	**	069	2.2	069	3.8	***	
0600	.5	-3.7	74	357	1.7	009	3.2	003	0600	2.6	-1.1	77	071	2.0	059	5.1	002	0600	*****	*****	**	066	2.7	066	3.8	***	
0900	6.8	-.1	62	006	.8	307	3.8	035	0900	5.1	-1.0	65	068	2.9	055	5.7	021	0900	*****	*****	**	***	***	***	***	***	
1200	9.5	1.6	58	208	1.7	225	5.1	032	1200	7.2	-.1	60	056	2.9	059	6.3	022	1200	*****	*****	**	***	***	***	***	***	
1500	10.2	1.7	56	303	2.2	330	7.6	036	1500	8.2	.3	58	077	1.7	132	3.8	017	1500	*****	*****	**	***	***	***	***	***	
1800	7.7	-.4	57	316	3.7	302	8.3	003	1800	6.2	-.9	61	294	.5	034	3.2	002	1800	*****	*****	**	***	***	***	***	***	
2100	3.0	-1.6	72	006	1.0	314	4.4	001	2100	*****	*****	63	073	3.3	075	6.3	002	2100	*****	*****	**	***	***	***	***	***	
2400	1.0	-1.8	82	038	1.3	053	3.2	001	2400	3.4	-1.0	73	076	3.9	075	6.3	001	2400	*****	*****	**	***	***	***	***	***	

DAY 22									DAY 23									DAY 24									
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.										
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	MAX.	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	*****	*****	**	***	***	***	***	***	0300	*****	*****	**	***	***	***	***	***	0300	*****	*****	**	***	***	***	***	***	
0600	*****	*****	**	***	***	***	***	***	0600	*****	*****	**	***	***	***	***	***	0600	*****	*****	**	***	***	***	***	***	
0900	*****	*****	**	***	***	***	***	***	0900	*****	*****	**	***	***	***	***	***	0900	*****	*****	**	***	***	***	***	***	
1200	*****	*****	**	***	***	***	***	***	1200	*****	*****	**	***	***	***	***	***	1200	*****	*****	**	***	***	***	***	***	
1500	*****	*****	**	***	***	***	***	***	1500	*****	*****	**	***	***	***	***	***	1500	*****	*****	**	***	***	***	***	***	
1800	*****	*****	**	***	***	***	***	***	1800	*****	*****	**	***	***	***	***	***	1800	*****	*****	**	***	***	***	***	***	
2100	*****	*****	**	***	***	***	***	***	2100	*****	*****	**	***	***	***	***	***	2100	*****	*****	**	***	***	***	***	***	
2400	*****	*****	**	***	***	***	***	***	2400	*****	*****	**	***	***	***	***	***	2400	*****	*****	**	***	***	***	***	***	

DAY 25									DAY 26									DAY 27									
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.										
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	MAX.	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	*****	*****	**	***	***	***	***	***	0300	*****	*****	**	***	***	***	***	***	0300	*****	*****	**	***	***	***	***	***	
0600	*****	*****	**	***	***	***	***	***	0600	*****	*****	**	***	***	***	***	***	0600	*****	*****	**	***	***	***	***	***	
0900	*****	*****	**	***	***	***	***	***	0900	*****	*****	**	***	***	***	***	***	0900	*****	*****	**	***	***	***	***	***	
1200	*****	*****	**	***	***	***	***	***	1200	*****	*****	**	***	***	***	***	***	1200	*****	*****	**	***	***	***	***	***	
1500	*****	*****	**	***	***	***	***	***	1500	*****	*****	**	***	***	***	***	***	1500	*****	*****	**	***	***	***	***	***	
1800	*****	*****	**	***	***	***	***	***	1800	*****	*****	**	***	***	***	***	***	1800	*****	*****	**	***	***	***	***	***	
2100	*****	*****	**	***	***	***	***	***	2100	*****	*****	**	***	***	***	***	***	2100	*****	*****	**	***	***	***	***	***	
2400	*****	*****	**	***	***	***	***	***	2400	*****	*****	**	***	***	***	***	***	2400	*****	*****	**	***	***	***	***	***	

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING SEPTEMBER , 1980

DAY 28

DAY 29

DAY 30

DAY 28									DAY 29									DAY 30								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD									
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW									
0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***
0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***
0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***
1200	*****	*****	**	***	*****	***	*****	***	1200	*****	*****	**	***	*****	***	*****	***	1200	*****	*****	**	***	*****	***	*****	***
1500	*****	*****	**	***	*****	***	*****	***	1500	*****	*****	**	***	*****	***	*****	***	1500	*****	*****	**	***	*****	***	*****	***
1800	*****	*****	**	***	*****	***	*****	***	1800	*****	*****	**	***	*****	***	*****	***	1800	*****	*****	**	***	*****	***	*****	***
2100	*****	*****	**	***	*****	***	*****	***	2100	*****	*****	**	***	*****	***	*****	***	2100	*****	*****	**	***	*****	***	*****	***
2400	*****	*****	**	***	*****	***	*****	***	2400	*****	*****	**	***	*****	***	*****	***	2400	*****	*****	**	***	*****	***	*****	***

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

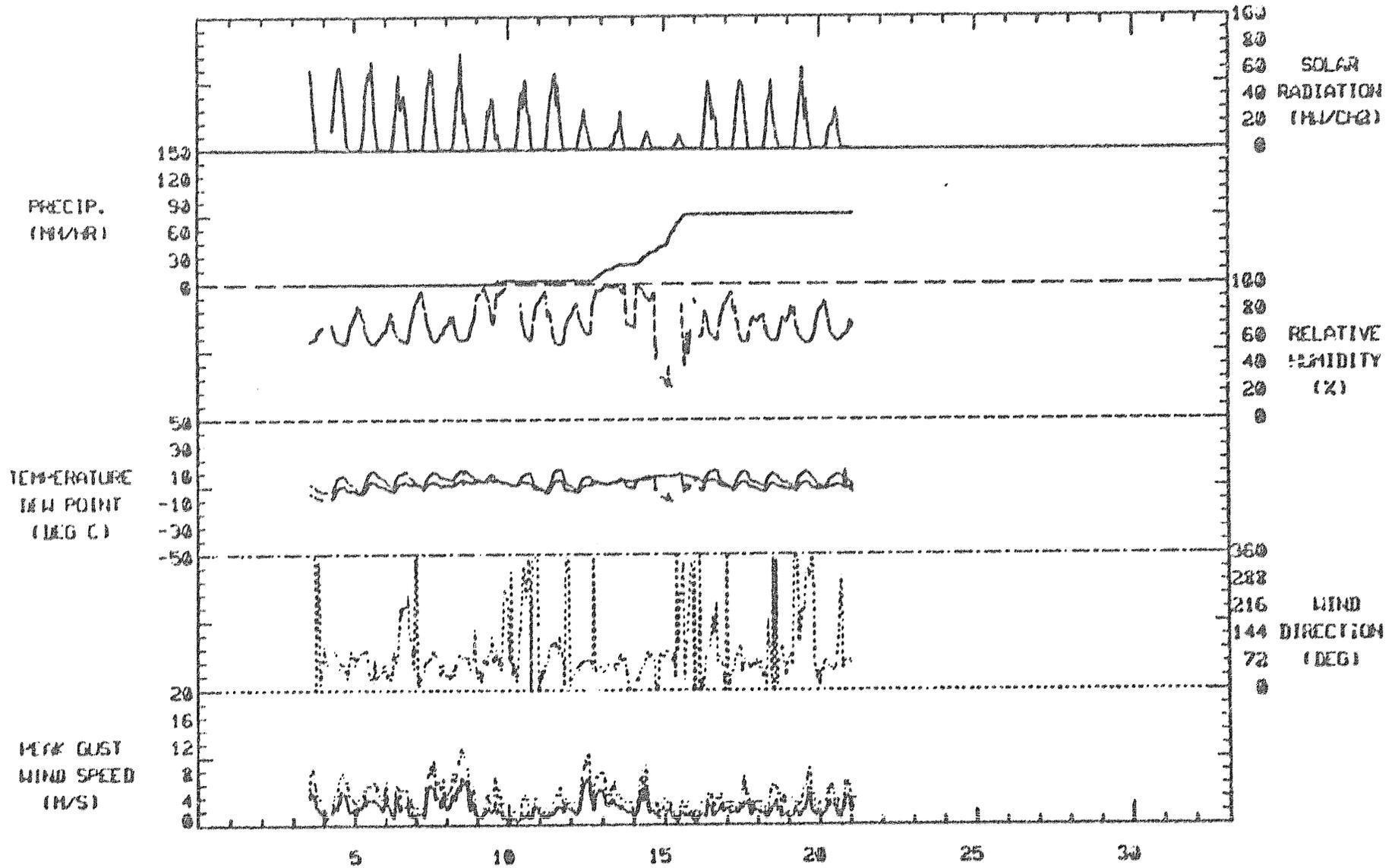
MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING SEPTEMBER , 1980

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	*****	*****	*****	***	****	*****	***	****	MSG	**	*****	****	***	01
02	*****	*****	*****	***	****	*****	***	****	MSG	**	*****	****	***	02
03	2.6	-4.5	-1.0	***	****	3.0	356	8.3	N	62	-7.5	0.0	4654	03
04	8.7	-3.9	2.4	073	2.4	2.6	080	7.6	ENE	63	-3.2	0.0	5670	04
05	12.4	-3.2	4.6	065	2.5	2.9	042	6.3	E	66	-1.3	0.0	4615	05
06	11.7	-.5	5.6	087	.7	2.4	054	6.3	NE	67	.2	0.0	4017	06
07	11.1	-1.8	4.7	072	3.1	3.5	109	9.5	E	72	.8	0.0	4290	07
08	12.7	4.4	8.6	073	3.8	4.2	089	11.4	E	68	2.7	0.0	3993	08
09	11.0	2.2	6.6	084	1.2	1.8	088	7.0	E	89	3.7	4.0	2583	09
10	10.6	-.2	5.2	351	.8	1.3	308	4.4	N	73	.7	0.0	3783	10
11	12.9	-3.5	4.7	073	1.1	1.9	134	5.7	ESE	70	-.4	0.0	4630	11
12	7.2	-2.1	2.6	065	3.8	4.0	080	10.8	ENE	79	-.1	7.6	1795	12
13	5.6	1.7	3.7	058	2.5	2.6	044	7.6	ENE	91	2.1	9.8	1473	13
14	7.7	4.2	5.9	063	2.3	2.6	073	8.9	E	78	-2.4	20.4	833	14
15	9.3	6.3	7.8	059	.4	1.4	088	3.8	E	47	-4.7	35.2	695	15
16	12.1	1.7	6.9	074	.9	1.9	110	4.4	N	70	-3.9	0.0	3630	16
17	11.3	-2.3	4.5	067	1.9	2.2	082	7.0	ENE	73	-.3	0.0	3960	17
18	9.7	-.1	4.8	050	1.3	1.9	052	5.7	ENE	67	-1.5	.2	2872	18
19	11.0	-.8	5.1	342	.8	2.1	302	8.3	NNW	67	-.7	0.0	3588	19
20	8.5	-.5	4.0	066	2.2	2.5	059	6.3	ENE	69	-.8	0.0	2085	20
21	*****	*****	*****	***	****	2.3	069	3.8	ENE	72	*****	.4	240	21
22	*****	*****	*****	***	****	*****	***	****	MSG	**	*****	*****	***	22
23	*****	*****	*****	***	****	*****	***	****	MSG	**	*****	*****	***	23
24	*****	*****	*****	***	****	*****	***	****	MSG	**	*****	*****	***	24
25	*****	*****	*****	***	****	*****	***	****	MSG	**	*****	*****	***	25
26	*****	*****	*****	***	****	*****	***	****	MSG	**	*****	*****	***	26
27	*****	*****	*****	***	****	*****	***	****	MSG	**	*****	*****	***	27
28	*****	*****	*****	***	****	*****	***	****	MSG	**	*****	*****	***	28
29	*****	*****	*****	***	****	*****	***	****	MSG	**	*****	*****	***	29
30	*****	*****	*****	***	****	*****	***	****	MSG	**	*****	*****	***	30
MONTH	12.9	-4.5	4.8	065	1.8	2.5	089	11.4	ENE	71	-.9	77.6	59388	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 8.9
GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 9.5
GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 10.8
GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 10.2

NOTE: RELAT. HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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



DAY OF THE MONTH

WATANA LEATHER STATION

DATA START: 01 SEPTEMBER, 1980

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING SEPTEMBER , 1980

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	GREATER THAN 20.0	
N	.44	6.76	.82	0.00	0.00	0.00	0.00	8.02
NNE	.76	7.26	1.58	0.00	0.00	0.00	0.00	9.60
NE	1.01	8.52	4.48	.06	0.00	0.00	0.00	14.08
ENE	1.01	11.36	9.09	1.07	0.00	0.00	0.00	22.54
E	1.64	11.05	4.61	1.70	0.00	0.00	0.00	19.00
ESE	.69	6.12	1.39	.06	0.00	0.00	0.00	8.27
SE	.19	2.34	.06	0.00	0.00	0.00	0.00	2.59
SSE	.32	.76	0.00	0.00	0.00	0.00	0.00	1.07
S	.13	.69	0.00	0.00	0.00	0.00	0.00	.82
SSW	.25	.82	.06	0.00	0.00	0.00	0.00	1.14
SW	.06	1.26	.32	0.00	0.00	0.00	0.00	1.64
WSW	.19	1.01	.06	0.00	0.00	0.00	0.00	1.26
W	.38	.69	0.00	0.00	0.00	0.00	0.00	1.07
WNW	.44	.63	.32	0.00	0.00	0.00	0.00	1.39
NW	.32	.88	.25	0.00	0.00	0.00	0.00	1.45
NNW	.51	3.98	1.33	0.00	0.00	0.00	0.00	5.81
CALM								.25
TOTAL	8.35	64.14	24.37	2.90	0.00	0.00	0.00	100.00

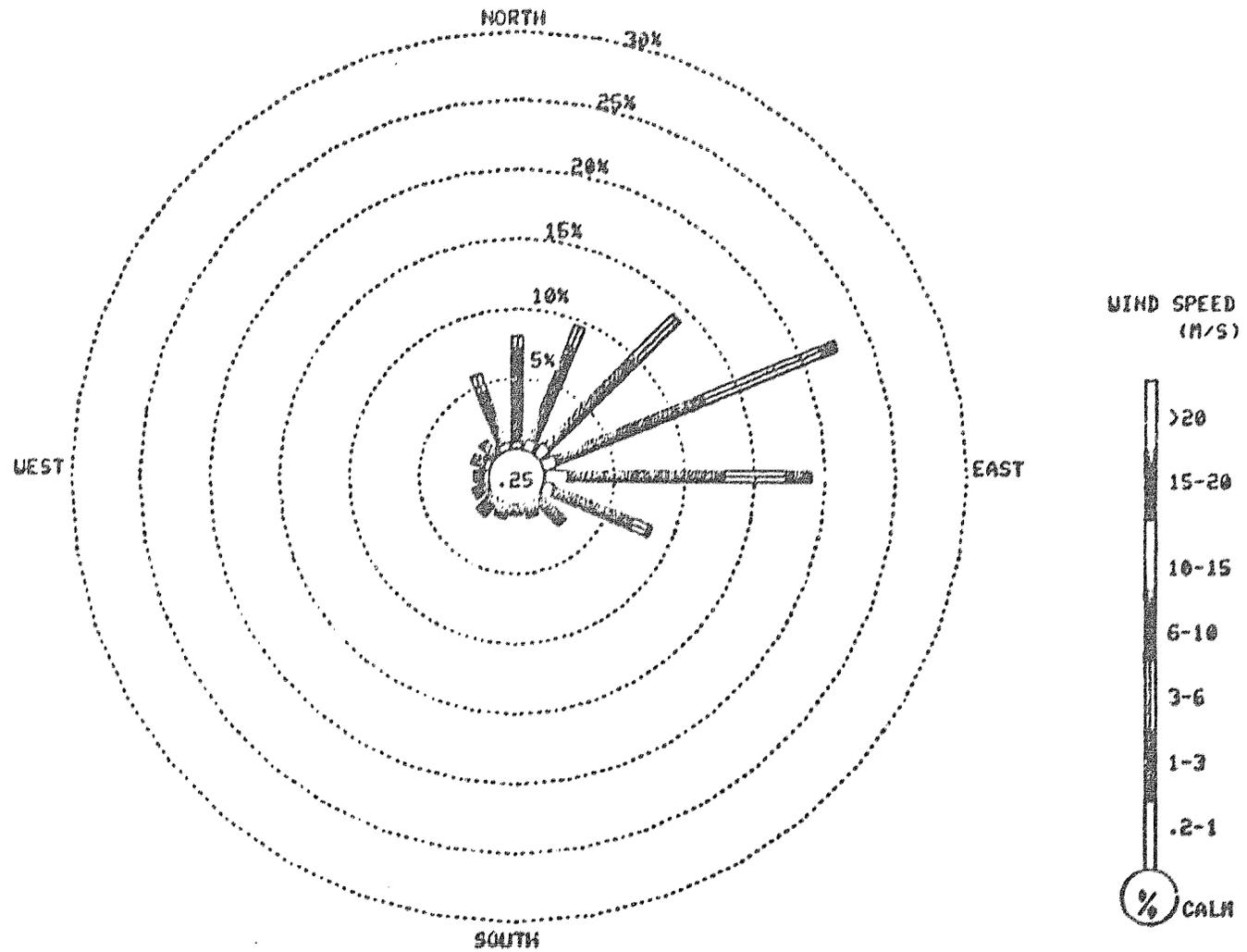
NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

1584 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

SUSITHA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

SEPTEMBER, 1980



WIND ROSE PLOT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING OCTOBER, 1980

DAY 19									DAY 20						DAY 21											
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	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	1.6	-6.3	50	074	5.9	072	9.5	***	0300	-2	-13.3	37	044	3.6	057	6.3	***	0300	-5.9	-11.7	64	075	1.1	098	1.9	***
0600	1.3	-6.9	55	067	5.4	071	8.3	***	0600	-8	-13.2	39	033	3.5	029	6.3	***	0600	-4.1	-9.8	65	070	2.0	035	5.1	***
0900	1.1	-7.8	52	067	4.4	075	7.6	***	0900	1.4	-13.3	33	068	3.4	066	9.5	***	0900	-1.8	-10.7	51	043	3.3	034	5.7	***
1200	2.5	-9.0	43	066	5.9	069	10.2	***	1200	.7	-12.1	38	072	5.6	073	10.2	***	1200	-.3	-10.4	47	053	4.9	059	8.3	***
1500	2.0	-9.4	43	066	5.9	062	10.2	***	1500	1.3	-11.0	40	070	5.8	067	8.9	***	1500	.8	-9.9	45	059	5.2	057	8.3	***
1800	1.9	-10.1	41	067	4.8	075	11.4	***	1800	-.7	-11.0	46	075	4.1	076	9.5	***	1800	-.6	-11.2	45	057	4.8	065	7.6	***
2100	2.5	-10.2	39	045	3.8	065	8.3	***	2100	-1.9	*****	59	109	.6	090	2.5	***	2100	.1	-11.7	41	056	4.7	069	8.3	***
2400	.3	-11.9	40	050	4.3	074	8.9	***	2400	-4.2	-11.6	57	083	1.3	095	3.8	***	2400	.4	-12.1	39	071	7.9	070	12.1	***

DAY 22									DAY 23						DAY 24											
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	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	.2	-12.6	38	073	7.6	081	13.3	***	0300	-.3	-12.4	40	058	3.5	057	5.7	***	0300	1.3	-8.9	47	049	4.3	068	7.6	***
0600	.4	-12.7	37	053	6.5	068	12.7	***	0600	-1.6	-10.8	50	069	3.4	064	7.0	***	0600	2.8	-9.3	41	074	7.5	085	13.3	***
0900	1.1	-13.2	34	055	7.3	060	12.7	***	0900	1.9	-10.1	41	062	3.6	054	6.3	***	0900	4.3	-9.3	37	061	6.4	071	12.7	***
1200	2.3	-13.7	30	028	2.7	064	9.5	***	1200	4.7	-10.0	34	061	5.1	076	10.8	***	1200	4.1	-8.4	40	074	7.1	071	11.4	***
1500	2.4	-13.2	31	061	4.7	069	10.2	***	1500	2.5	-10.5	38	068	5.1	071	10.2	***	1500	3.3	-8.5	42	077	5.6	091	11.4	***
1800	1.1	-12.5	36	060	5.6	066	10.2	***	1800	1.8	-10.5	40	090	7.5	101	12.1	***	1800	1.9	-8.4	47	058	4.4	062	7.6	***
2100	.8	-13.1	35	070	6.7	070	10.8	***	2100	-.1	-10.5	46	070	4.1	069	7.6	***	2100	.6	-8.2	52	055	4.4	062	7.0	***
2400	-.8	-13.2	39	051	4.1	057	7.6	***	2400	.5	-9.9	46	060	3.9	047	7.0	***	2400	.3	-8.0	54	036	3.6	032	6.3	***

DAY 25									DAY 26						DAY 27											
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	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	-8.5	57	067	4.1	060	7.6	***	0300	-2.5	-8.5	64	044	1.7	046	4.4	***	0300	-5.7	-11.7	63	067	2.3	053	5.1	***
0600	-.8	-8.6	56	044	2.2	058	5.7	***	0600	-1.9	-7.5	66	041	3.3	048	5.7	***	0600	-5.6	-11.8	62	069	1.8	044	4.4	***
0900	-1.7	*****	53	056	2.8	064	5.1	***	0900	-.8	-8.6	56	046	3.7	059	6.3	***	0900	-3.4	-13.2	47	073	1.6	073	3.8	***
1200	1.3	-7.6	52	254	1.6	264	5.7	***	1200	-.1	-7.9	56	072	5.0	074	8.3	***	1200	.9	-11.6	39	071	1.8	069	3.8	***
1500	1.7	*****	53	221	1.5	242	3.2	***	1500	.2	-9.9	47	066	3.6	072	6.3	***	1500	.7	-13.5	34	069	4.0	064	6.3	***
1800	-3.3	-8.4	68	341	.5	022	3.2	***	1800	-3.5	-10.2	60	058	4.1	071	7.6	***	1800	-1.8	-13.2	42	054	4.2	059	7.0	***
2100	-4.0	-10.7	60	357	2.0	349	3.2	***	2100	-2.5	-10.2	56	040	3.1	043	5.1	***	2100	-2.4	-13.1	44	053	4.3	045	6.3	***
2400	-6.1	-12.3	62	025	1.8	353	3.2	***	2400	-4.5	-11.4	59	056	3.5	043	5.7	***	2400	-3.2	-10.4	58	052	4.1	057	6.3	***

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING OCTOBER, 1980

DAY 28

DAY 29

DAY 30

HOUR NDNG	DEW		WIND		WIND		GUST		MAX. RAD	HOUR NDNG	DEW		WIND		WIND		GUST		MAX. RAD	HOUR NDNG	DEW		WIND		WIND		GUST		MAX. RAD
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	DIR.			TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	DIR.			TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	DIR.	
	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	-1.1	-9.6	53	042	3.7	040	7.0	***	0300	-3.2	-6.4	79	241	2.3	236	4.4	***	0300	-5.0	-8.8	75	347	1.0	347	1.9	014			
0600	-1.7	-9.4	50	061	3.3	051	5.7	***	0600	-4.0	-7.3	78	245	1.2	240	3.2	***	0600	-4.5	-9.0	71	347	1.0	347	1.9	015			
0900	-2.6	-10.0	57	047	3.9	035	6.3	***	0900	-3.4	*****	78	287	.4	235	2.5	***	0900	-3.3	-11.4	54	350	2.4	359	3.8	***			
1200	-.8	-10.8	47	043	4.1	040	6.3	***	1200	-1.6	*****	64	091	.1	099	1.9	***	1200	-2.6	-11.0	53	058	2.6	024	4.4	***			
1500	-1.7	-7.3	66	043	3.1	055	7.0	***	1500	-2.4	*****	69	212	.3	172	1.3	***	1500	-3.6	-12.4	51	081	2.4	085	4.4	***			
1800	-2.3	*****	74	004	1.4	355	3.8	***	1800	-3.6	-6.8	79	358	.5	349	1.3	011	1800	-8.9	-13.3	71	052	1.8	045	3.2	***			
2100	-2.5	-5.4	81	247	1.6	238	4.4	***	2100	-3.8	-7.5	76	347	1.2	347	1.9	011	2100	-11.6	-16.0	70	083	2.5	088	4.4	***			
2400	-2.6	-5.6	80	245	2.5	239	5.1	***	2400	-4.4	-8.0	76	347	1.1	347	1.9	012	2400	-11.7	-17.4	63	062	2.3	078	4.4	***			

DAY 31

DAY 31

DAY 31

HOUR NDNG	DEW		WIND		WIND		GUST		MAX. RAD	HOUR NDNG	DEW		WIND		WIND		GUST		MAX. RAD	HOUR NDNG	DEW		WIND		WIND		GUST		MAX. RAD
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	DIR.			TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	DIR.			TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	DIR.	
	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	-12.3	-18.2	62	051	2.5	071	3.8	***	0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***	*****	***	
0600	-13.6	-19.2	63	072	2.4	043	4.4	***	0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***	*****	***	
0900	-10.7	-20.2	46	088	2.7	085	4.4	***	0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***	*****	***	
1200	-6.4	-16.8	44	095	2.4	071	4.4	***	1200	*****	*****	**	***	*****	***	*****	***	1200	*****	*****	**	***	*****	***	*****	***	*****	***	
1500	-5.6	-16.9	41	092	2.5	106	3.8	***	1500	*****	*****	**	***	*****	***	*****	***	1500	*****	*****	**	***	*****	***	*****	***	*****	***	
1800	-9.6	-18.0	51	070	1.7	056	3.8	***	1800	*****	*****	**	***	*****	***	*****	***	1800	*****	*****	**	***	*****	***	*****	***	*****	***	
2100	-13.7	-19.5	62	080	2.4	063	4.4	***	2100	*****	*****	**	***	*****	***	*****	***	2100	*****	*****	**	***	*****	***	*****	***	*****	***	
2400	-13.1	*****	61	077	2.3	060	4.4	***	2400	*****	*****	**	***	*****	***	*****	***	2400	*****	*****	**	***	*****	***	*****	***	*****	***	

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

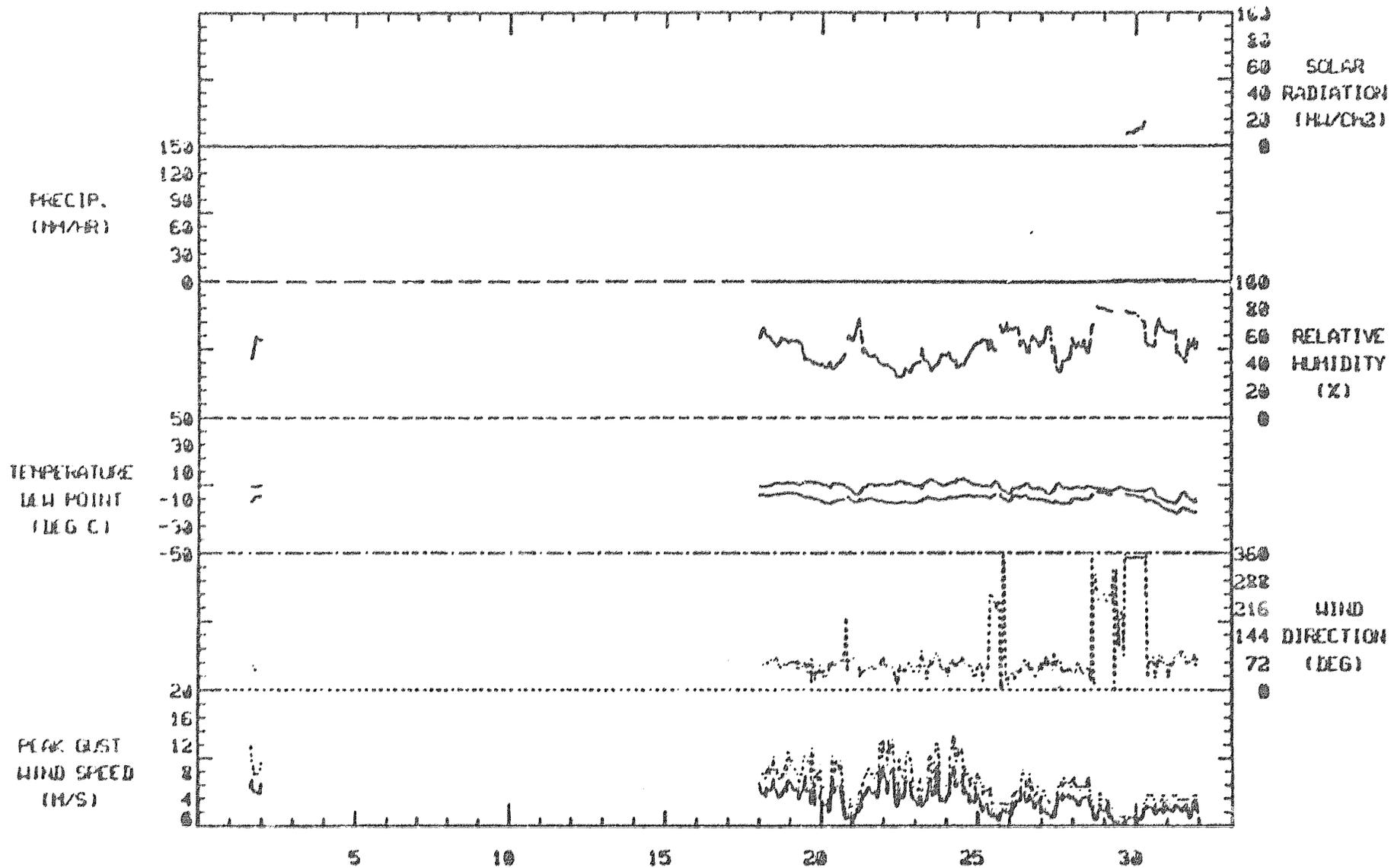
MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING OCTOBER, 1980

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	01
02	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	02
03	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	03
04	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	04
05	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	05
06	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	06
07	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	07
08	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	08
09	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	09
10	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	10
11	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	11
12	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	12
13	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	13
14	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	14
15	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	15
16	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	16
17	-0.1	-1.5	-0.8	***	*****	5.4	080	12.1	ENE	54	-8.7	0.0	***	17
18	2.3	-1.4	.5	070	5.3	5.3	071	10.8	ENE	58	-6.8	0.0	***	18
19	2.9	.2	1.5	064	5.0	5.2	075	11.4	ENE	47	-8.9	0.0	***	19
20	2.0	-3.3	-0.7	064	3.4	3.6	073	10.2	ENE	42	-12.2	0.0	***	20
21	1.1	-8.4	-3.7	060	4.2	4.3	070	12.1	ENE	50	-10.9	0.0	***	21
22	3.9	-1.3	1.3	059	5.5	5.8	081	13.3	ENE	35	-13.0	0.0	***	22
23	4.7	-3.2	.8	070	4.4	4.7	101	12.1	ENE	41	-10.6	0.0	***	23
24	5.1	-0.4	2.4	063	5.3	5.5	085	13.3	ENE	44	-8.6	0.0	***	24
25	3.6	-6.5	-1.5	037	1.1	2.2	060	7.6	ENE	58	-9.3	0.0	***	25
26	1.7	-7.6	-3.0	055	3.4	3.5	074	8.3	NE	58	-9.3	0.0	***	26
27	2.0	-7.3	-2.7	061	3.0	3.1	059	7.0	ENE	49	-12.3	0.0	***	27
28	-0.8	-3.3	-2.1	039	1.9	3.0	040	7.0	NE	61	-8.3	.2	***	28
29	-1.1	-4.4	-2.8	284	.5	1.0	236	4.4	NNW	78	-7.2	1.4	2606	29
30	-2.0	-11.7	-6.9	048	1.6	2.1	024	4.4	NNW	63	-12.4	0.0	3585	30
31	-4.5	-14.5	-9.5	079	2.3	2.4	043	4.4	E	54	-18.4	0.0	***	31
MONTH	5.1	-14.5	-1.8	061	3.3	3.8	081	13.3	ENE	53	-10.5	1.6	6191	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 12.7
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 12.1
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 11.4
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 8.9

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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



DAY OF THE MONTH WATANA LEATHER STATION

DATA START: 01 OCTOBER, 1980

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING OCTOBER , 1980

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	GREATER THAN 20.0	
N	.29	1.52	.22	0.00	0.00	0.00	0.00	2.03
NNE	.36	3.12	3.41	0.00	0.00	0.00	0.00	6.88
NE	.14	4.20	18.62	.72	0.00	0.00	0.00	23.70
ENE	.58	5.72	22.83	10.80	.07	0.00	0.00	40.00
E	.58	6.52	3.19	1.96	.07	0.00	0.00	12.32
ESE	.43	.80	.07	0.00	0.00	0.00	0.00	1.30
SE	.29	.07	0.00	0.00	0.00	0.00	0.00	.36
SSE	.14	0.00	0.00	0.00	0.00	0.00	0.00	.14
S	.29	.14	0.00	0.00	0.00	0.00	0.00	.43
SSW	.36	.14	0.00	0.00	0.00	0.00	0.00	.51
SW	.43	1.30	.22	0.00	0.00	0.00	0.00	1.96
WSW	.36	2.32	.43	0.00	0.00	0.00	0.00	3.12
W	.29	.29	.07	0.00	0.00	0.00	0.00	.65
WNW	.29	0.00	0.00	0.00	0.00	0.00	0.00	.29
NW	.36	0.00	0.00	0.00	0.00	0.00	0.00	.36
NNW	1.45	4.06	0.00	0.00	0.00	0.00	0.00	5.51
CALM								.43
TOTAL	6.67	30.22	49.06	13.48	.14	0.00	0.00	100.00

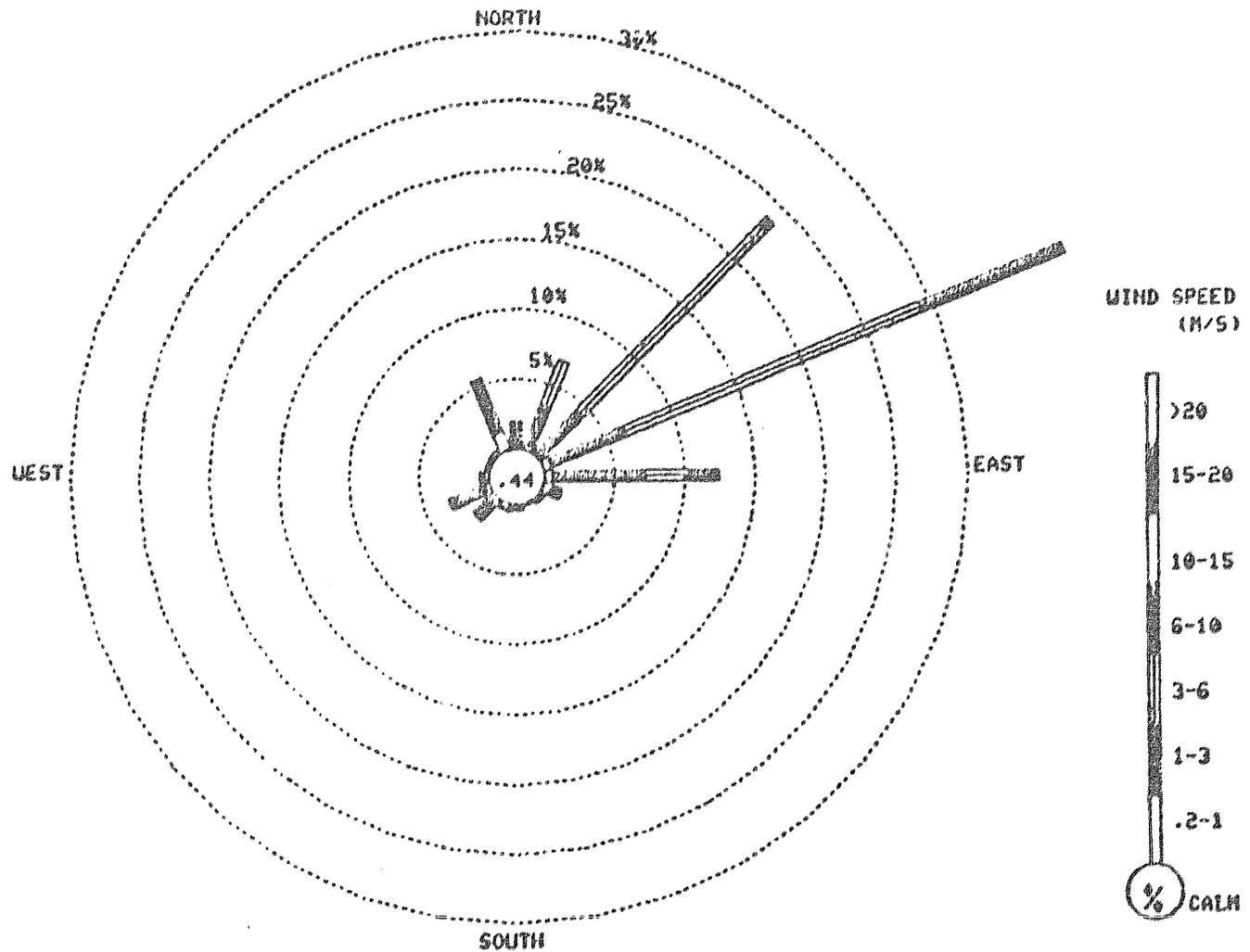
NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

1380 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

SUSITMA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

OCTOBER, 1980



WIND ROSE PLOT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING NOVEMBER , 1980

DAY 10

DAY 11

DAY 12

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	-12.7	-21.3	49	046	5.4	054	8.3	***	0300	-7.8	-17.8	45	049	5.3	055	7.6	***	0300	-9.6	-20.2	42	067	3.0	051	5.1	***
0600	-13.4	-20.6	55	044	4.8	046	8.3	***	0600	-6.7	-17.0	44	048	5.2	054	7.0	***	0600	-7.5	-18.9	40	054	5.0	060	9.5	***
0900	-11.8	-19.5	53	042	4.8	050	7.0	***	0900	-6.5	-16.9	44	043	4.9	052	7.0	***	0900	-6.6	-18.1	40	049	5.2	061	8.9	***
1200	-9.4	-19.2	45	041	4.6	052	7.0	***	1200	-5.9	-17.5	40	045	4.9	058	7.6	***	1200	-6.1	-16.2	45	045	5.1	064	9.5	***
1500	-9.2	-18.8	46	047	5.3	052	7.6	***	1500	-6.7	-18.8	38	048	4.6	053	6.3	***	1500	-7.0	-17.3	44	066	7.8	069	12.7	***
1800	-9.4	-19.0	46	044	5.5	050	8.3	***	1800	-6.5	-19.2	36	041	4.4	058	5.7	***	1800	-6.7	-15.3	51	066	5.9	071	10.2	***
2100	-9.8	-19.9	48	048	5.6	053	8.3	***	2100	-9.7	-20.1	43	050	4.0	041	7.0	***	2100	-6.1	-13.3	57	062	5.7	075	10.2	***
2400	-8.6	-18.3	46	048	5.4	044	8.3	***	2400	-13.6	-20.4	57	079	2.6	081	5.1	***	2400	-5.0	-12.3	57	064	6.2	066	10.2	***

DAY 13

DAY 14

DAY 15

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
0300	-3.9	-11.3	57	064	5.5	058	9.5	***	0300	-11.8	-16.2	70	068	1.9	063	3.2	***	0300	-7.5	-14.4	58	057	3.0	051	6.3	***
0600	-3.8	-11.4	56	070	6.1	072	9.5	***	0600	-12.0	*****	70	066	1.3	071	2.5	***	0600	-6.8	-14.9	53	041	3.6	045	5.7	***
0900	-4.1	-12.1	54	063	4.2	073	8.3	***	0900	-9.9	-18.7	49	044	1.2	011	3.2	***	0900	-7.8	-15.6	54	047	4.2	044	6.3	***
1200	-4.6	-12.1	56	072	1.5	069	4.4	***	1200	-5.2	-14.6	48	086	1.2	052	2.5	***	1200	-8.5	-16.0	55	089	2.5	067	5.7	***
1500	-4.9	-12.4	56	071	1.3	083	3.2	***	1500	-5.9	-12.3	61	066	2.8	053	5.1	***	1500	-7.9	-15.5	55	095	3.5	099	5.7	***
1800	-7.0	-13.3	61	047	1.5	067	3.2	***	1800	-7.0	-12.4	66	052	4.2	046	5.7	***	1800	-5.9	-14.3	52	091	3.2	089	6.3	***
2100	-8.7	-14.2	65	055	1.7	062	3.2	***	2100	-7.1	-12.8	64	057	4.5	052	7.0	***	2100	-3.8	-8.4	71	060	4.0	077	7.6	***
2400	-9.4	-14.5	67	058	1.9	062	3.2	***	2400	-7.1	-13.4	61	058	4.6	064	6.3	***	2400	-3.6	-8.7	68	064	4.7	061	7.6	***

DAY 16

DAY 17

DAY 18

DAY 16									DAY 17									DAY 18								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	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	-4.4	-9.9	66	067	3.4	069	7.0	***	0300	-7.5	*****	70	049	.6	004	2.5	***	0300	-5.6	-13.3	55	056	4.2	048	7.0	***
0600	-4.1	-11.0	59	075	2.7	053	7.6	***	0600	-6.9	*****	71	057	.6	033	2.5	***	0600	-10.2	-15.2	67	077	2.3	063	4.4	***
0900	-3.9	-11.3	57	064	4.8	068	8.3	***	0900	-6.4	-11.0	70	093	1.3	086	3.2	***	0900	-3.5	-14.7	42	081	2.3	068	5.7	***
1200	-4.0	-12.5	52	077	3.0	087	5.7	***	1200	-6.1	-11.3	67	084	2.1	088	4.4	***	1200	-3.3	-15.1	40	059	3.9	056	8.3	***
1500	-6.2	-13.0	59	080	2.3	057	5.1	***	1500	-7.5	-12.1	70	067	2.0	068	3.8	***	1500	-4.8	-14.5	47	061	5.3	076	10.2	***
1800	-8.2	-13.1	68	075	1.7	048	3.2	***	1800	-4.7	-11.6	59	060	1.5	029	4.4	***	1800	-6.7	-14.8	53	058	4.7	068	7.6	***
2100	-10.4	-14.9	70	081	1.7	059	3.2	***	2100	-4.7	-11.8	58	046	2.5	048	5.7	***	2100	-5.2	-12.7	56	044	4.7	053	7.0	***
2400	-9.2	*****	66	078	1.5	082	3.8	***	2400	-4.6	-11.3	60	043	4.1	053	6.3	***	2400	-5.5	-13.0	56	038	4.6	042	7.0	***

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION.
DATA TAKEN DURING NOVEMBER , 1980

DAY 19

DAY 20

DAY 21

HOUR NDNG	DEW			WIND			GUST MAX.			HOUR NDNG	DEW			WIND			GUST MAX.			HOUR NDNG	DEW			WIND			GUST MAX.								
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	TEMP.		POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	TEMP.	POINT		RH	DIR.	SPD.	DIR.	GUST	RAD	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	-6.4	-12.2	64	046	4.4	053	7.0	***	0300	-5.0	-15.8	43	054	2.5	054	5.1	***	0300	-10.1	****	69	089	1.3	082	2.5	***									
0600	-5.5	-10.9	66	048	4.7	042	6.3	***	0600	-4.1	-15.5	41	070	3.1	055	7.0	***	0600	-10.3	****	70	085	1.4	091	2.5	***									
0900	-3.8	-10.5	60	046	4.6	059	7.0	***	0900	-5.3	-15.0	47	055	3.0	078	7.0	***	0900	-10.4	-15.6	66	075	2.0	071	3.2	***									
1200	-2.0	-10.2	54	065	5.5	071	6.9	***	1200	-5.4	-11.6	62	063	1.3	078	3.8	***	1200	-10.4	-17.0	59	085	1.6	096	3.2	***									
1500	-3.1	-11.7	52	056	3.9	070	8.3	***	1500	-6.7	****	72	062	1.3	071	3.2	***	1500	-8.3	-14.6	61	080	1.5	054	3.2	***									
1800	-3.7	-12.2	52	041	3.2	060	7.0	***	1800	-8.3	-12.0	75	068	1.9	064	1.9	***	1800	-8.6	-13.9	66	043	2.3	058	5.7	***									
2100	-2.0	-13.0	43	032	4.0	030	6.3	***	2100	-9.4	-13.7	71	063	1.3	076	2.5	***	2100	-6.4	-12.8	61	033	3.4	038	5.7	***									
2400	-2.9	-15.7	37	065	3.4	050	7.6	***	2400	-9.1	-14.0	68	080	1.3	042	2.5	***	2400	-6.7	-13.3	60	041	4.2	040	6.3	***									

DAY 22

DAY 23

DAY 24

HOUR NDNG	DEW			WIND			GUST MAX.			HOUR NDNG	DEW			WIND			GUST MAX.			HOUR NDNG	DEW			WIND			GUST MAX.								
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	TEMP.		POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	TEMP.	POINT		RH	DIR.	SPD.	DIR.	GUST	RAD	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	-7.1	-13.2	62	045	4.9	041	7.6	***	0300	-6.3	-14.0	55	006	1.6	344	3.2	***	0300	-2.9	-12.5	48	041	4.7	052	9.5	***									
0600	-5.0	-12.1	58	056	5.2	070	8.9	***	0600	-6.6	-13.2	60	052	1.4	041	2.5	***	0600	-1.6	-13.9	39	043	4.7	069	9.5	***									
0900	-4.7	-12.2	56	062	5.1	071	9.5	***	0900	-5.0	-12.5	56	054	2.3	053	5.7	***	0900	-1.1	-14.6	33	067	5.7	080	9.5	***									
1200	-3.8	-12.8	50	060	4.7	069	8.9	***	1200	-5.5	-13.7	53	057	4.0	053	5.7	***	1200	-1.1	-12.5	39	069	4.8	074	8.3	***									
1500	-3.0	-11.8	51	054	4.7	065	9.5	***	1500	-5.8	-12.6	59	051	3.8	046	7.6	***	1500	-2.9	-12.0	50	065	3.4	075	7.6	***									
1800	-2.6	-12.2	48	046	2.8	058	5.1	***	1800	-6.6	-12.4	64	043	5.0	049	7.0	***	1800	-5.8	-11.8	63	021	2.9	037	5.7	***									
2100	-4.9	-13.6	51	036	2.5	060	4.4	***	2100	-6.3	-11.7	66	048	5.3	056	8.3	***	2100	-2.4	-8.6	63	036	3.2	073	6.3	***									
2400	-5.8	-14.2	52	004	2.0	349	3.8	***	2400	-5.2	-11.6	61	052	4.8	073	9.5	***	2400	-2.2	-8.6	62	062	4.5	077	8.3	***									

DAY 25

DAY 26

DAY 27

HOUR NDNG	DEW			WIND			GUST MAX.			HOUR NDNG	DEW			WIND			GUST MAX.			HOUR NDNG	DEW			WIND			GUST MAX.								
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	TEMP.		POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	TEMP.	POINT		RH	DIR.	SPD.	DIR.	GUST	RAD	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	-2.2	-9.2	59	061	5.7	063	8.9	***	0300	-2.9	-10.1	58	058	4.3	068	7.6	***	0300	-4.3	-8.8	71	045	3.0	042	4.4	***									
0600	-3.6	-9.7	63	060	4.8	076	8.9	***	0600	-3.3	-9.4	63	067	4.5	073	8.3	***	0600	-5.0	-9.3	72	053	3.0	058	4.4	***									
0900	-2.4	-9.4	59	056	4.3	067	7.6	***	0900	-3.3	-9.4	63	050	3.6	068	5.7	***	0900	-5.7	****	73	050	1.4	073	3.2	***									
1200	-1.9	-9.6	52	066	4.8	068	7.6	***	1200	-5.0	-11.4	61	056	3.2	042	5.1	***	1200	-4.6	****	68	083	2	048	2.5	***									
1500	-2.0	-9.9	55	069	4.7	075	8.9	***	1500	-4.6	-12.1	56	093	1.3	069	3.8	***	1500	-6.0	-12.0	63	020	2.2	016	4.4	***									
1800	-2.9	-9.5		065	3.8	071	7.0	***	1800	-4.2	-11.1	59	070	2	181	3.8	***	1800	-6.3	-13.3	58	023	2.5	020	5.7	***									
2100	-2.8	-9.0	63	064	4.4	052	7.6	***	2100	-2.5	-6.7	73	059	2.5	065	6.3	***	2100	-7.1	****	63	054	1.7	036	4.4	***									
2400	-2.9	-9.7	60	060	4.5	072	7.6	***	2400	-3.8	-9.1	67	056	3.5	075	7.6	***	2400	-7.2	-15.0	54	045	1.9	045	5.1	***									

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

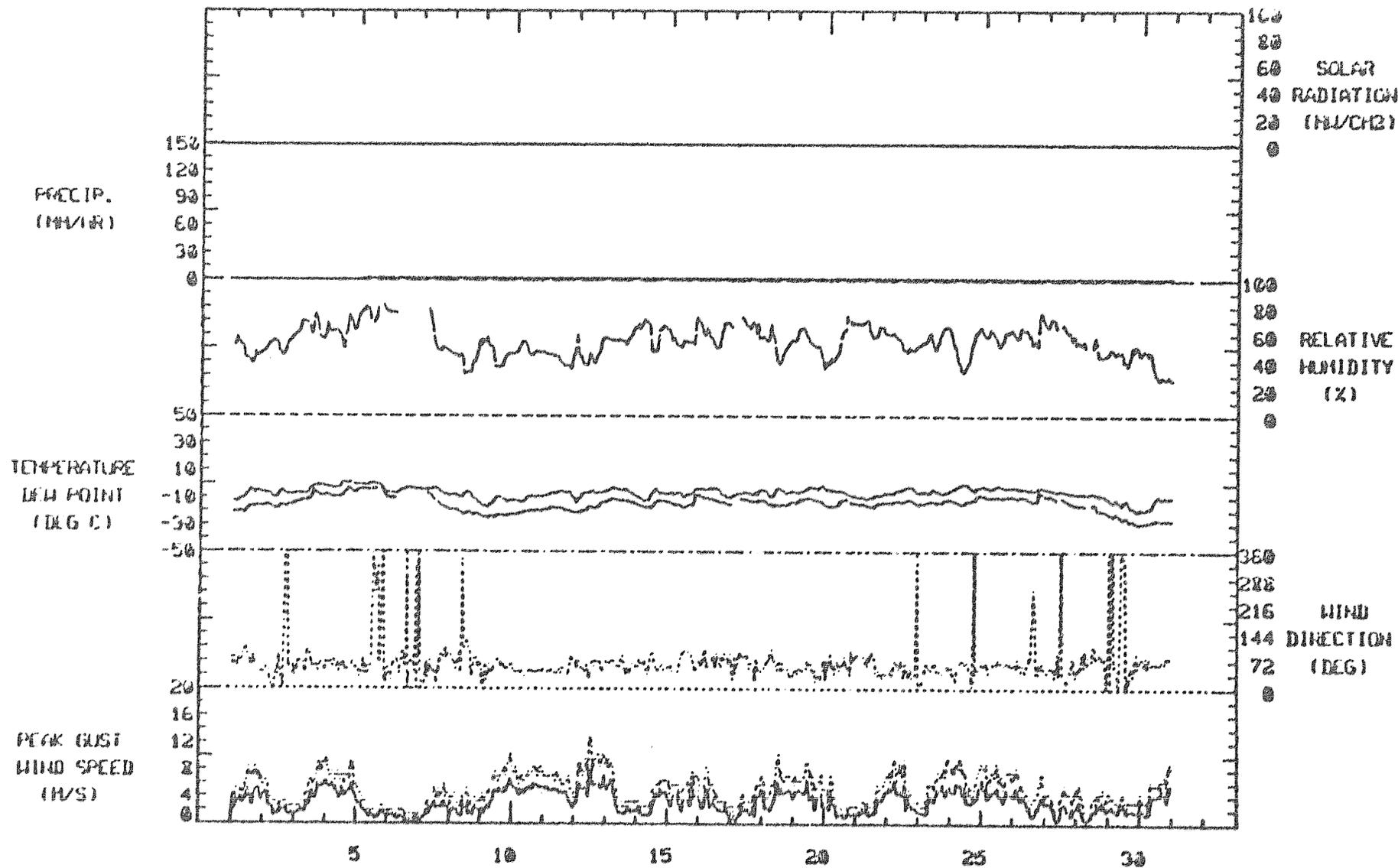
MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING NOVEMBER , 1980

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	-3.6	-15.0	-9.3	069	3.6	3.8	065	8.3	ENE	47	-17.6	0.0	***	01
02	-4.6	-11.1	-7.9	034	2.0	2.3	061	6.3	NE	53	-15.5	0.0	***	02
03	-0.8	-8.1	-4.4	062	3.2	3.4	066	8.9	ENE	65	-9.5	0.0	***	03
04	1.7	-3.9	-1.1	061	4.9	5.0	066	9.5	ENE	64	-7.2	0.0	***	04
05	.7	-7.1	-3.2	039	1.3	1.6	052	5.7	NE	76	-5.8	1.4	***	05
06	-2.4	-7.6	-5.0	053	.6	.8	076	1.9	ENE	77	-9.0	0.0	***	06
07	-2.9	-9.6	-6.3	064	1.7	1.9	107	5.7	E	55	-13.1	0.0	***	07
08	-6.0	-16.7	-11.4	077	1.5	1.9	115	5.1	ENE	43	-20.9	0.0	***	08
09	-9.3	-17.9	-13.6	059	3.7	3.9	069	10.2	ENE	45	-22.6	0.0	***	09
10	-8.5	-13.7	-11.1	045	5.2	5.2	054	8.3	NE	49	-19.4	0.0	***	10
11	-5.5	-13.9	-9.7	049	4.4	4.5	055	7.6	NE	42	-18.5	0.0	***	11
12	-4.8	-14.9	-9.9	059	5.4	5.6	069	12.7	ENE	47	-16.5	0.0	***	12
13	-2.7	-10.7	-6.7	064	2.9	3.1	058	9.5	ENE	58	-12.7	0.0	***	13
14	-3.1	-12.9	-8.0	060	2.7	2.8	052	7.0	ENE	62	-14.4	0.0	***	14
15	-3.2	-9.9	-6.6	066	3.4	3.6	077	7.0	E	58	-13.5	0.0	***	15
16	-1.8	-10.5	-6.1	073	2.6	2.8	068	8.3	ENE	61	-12.2	0.0	***	16
17	-4.3	-8.8	-6.6	060	1.7	1.9	053	6.3	E	66	-11.5	.2	***	17
18	-2.5	-10.2	-6.4	057	3.9	4.1	076	10.2	NE	52	-14.2	0.0	***	18
19	-.9	-6.8	-3.8	050	4.1	4.3	071	8.9	NE	54	-12.1	0.0	***	19
20	-2.2	-9.9	-6.1	063	1.8	2.0	055	7.0	ENE	56	-13.9	0.0	***	20
21	-6.1	-11.3	-8.7	057	2.0	2.2	040	6.3	E	64	-14.5	0.0	***	21
22	-1.9	-7.1	-4.5	050	3.9	4.1	071	9.5	NE	53	-12.8	0.0	***	22
23	-2.9	-7.5	-5.2	048	3.5	3.6	073	9.5	NE	58	-12.7	0.0	***	23
24	.9	-6.5	-2.8	053	4.1	4.5	052	9.5	ENE	49	-11.8	0.0	***	24
25	-.7	-4.2	-2.4	062	4.6	4.7	063	8.9	ENE	60	-9.5	0.0	***	25
26	-2.2	-5.2	-3.7	060	2.8	3.2	073	8.3	NE	63	-9.9	0.0	***	26
27	-3.5	-7.5	-5.5	042	1.9	2.1	020	5.7	NE	64	-11.7	.4	***	27
28	-6.7	-13.8	-10.3	074	1.7	1.9	048	5.7	E	49	-17.6	0.0	***	28
29	-10.4	-21.1	-15.8	023	1.7	2.1	346	4.4	ENE	46	-24.9	0.0	***	29
30	-8.0	-19.7	-13.9	070	3.5	3.5	076	8.9	ENE	35	-25.6	0.0	***	30
MONTH	1.7	-21.1	-7.2	057	3.0	3.2	069	12.7	ENE	56	-14.4	2.0	***	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 7.0
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 10.2
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 12.1
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 10.2

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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



DAY OF THE MONTH WATANA LEATHER STATION

DATA START: 01 NOVEMBER, 1980

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING NOVEMBER , 1980

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	GREATER THAN 20.0	
N	.63	2.67	.35	0.00	0.00	0.00	0.00	3.65
NNE	.73	5.00	2.64	0.00	0.00	0.00	0.00	8.37
NE	1.01	7.74	22.22	.59	0.00	0.00	0.00	31.56
ENE	1.67	11.39	18.72	3.44	0.00	0.00	0.00	35.21
E	1.77	9.86	2.78	.03	0.00	0.00	0.00	14.44
ESE	.63	1.60	.63	0.00	0.00	0.00	0.00	2.85
SE	.07	.17	0.00	0.00	0.00	0.00	0.00	.24
SSE	.07	.03	0.00	0.00	0.00	0.00	0.00	.10
S	.07	.21	0.00	0.00	0.00	0.00	0.00	.28
SSW	.03	0.00	0.00	0.00	0.00	0.00	0.00	.03
SW	.17	0.00	0.00	0.00	0.00	0.00	0.00	.17
WSW	.10	.14	0.00	0.00	0.00	0.00	0.00	.24
W	.03	.10	0.00	0.00	0.00	0.00	0.00	.14
WNW	.10	.10	0.00	0.00	0.00	0.00	0.00	.21
NW	.21	.07	0.00	0.00	0.00	0.00	0.00	.28
NNW	.35	1.39	.28	0.00	0.00	0.00	0.00	2.01
CALM								.21
TOTAL	7.64	40.49	47.60	4.06	0.00	0.00	0.00	100.00

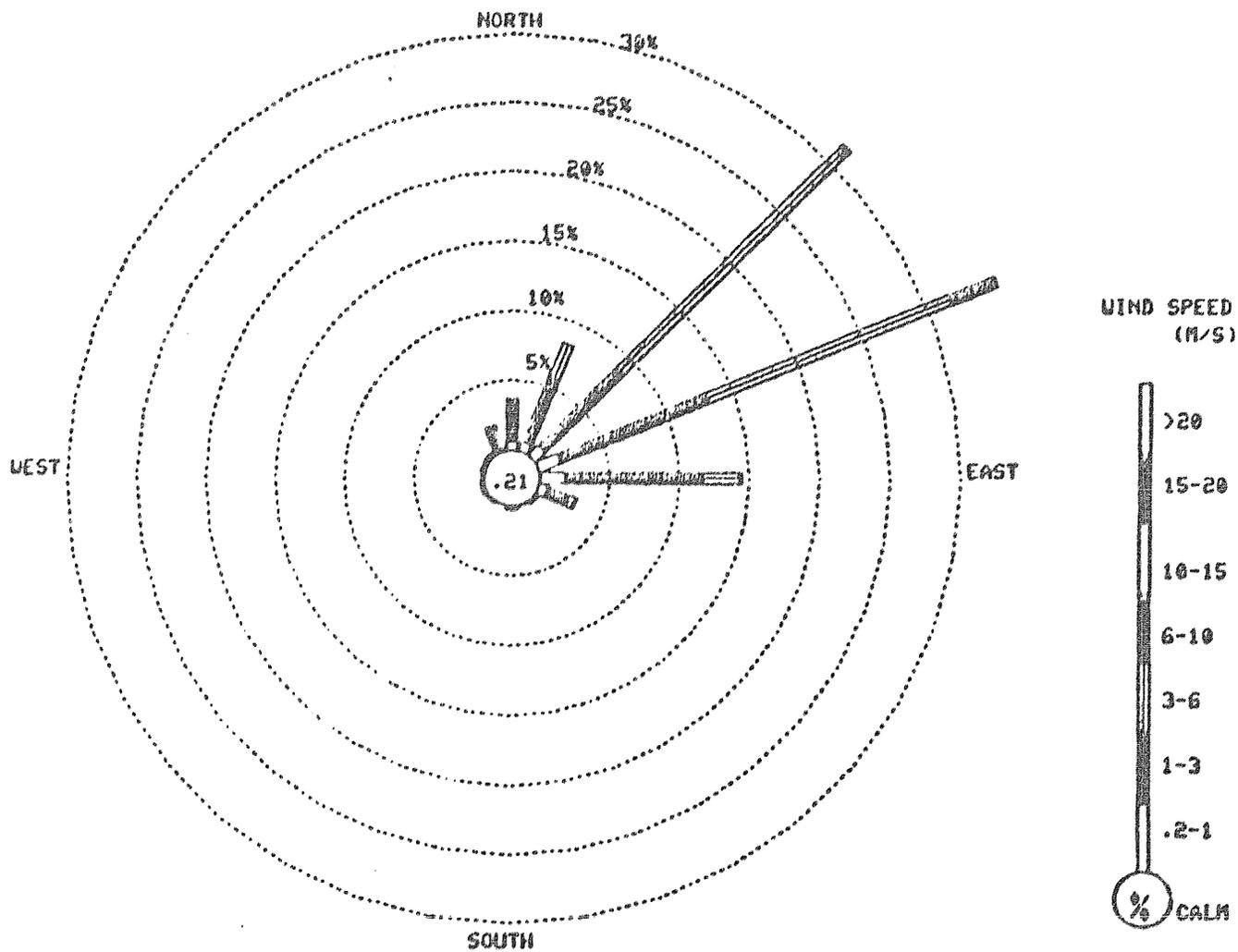
NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

2880 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

NOVEMBER, 1980



WIND ROSE PLOT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION.
DATA TAKEN DURING DECEMBER , 1980

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	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	-25.3	20	074	6.2	081	9.5	***	0300	-19.7	-27.5	50	047	1.9	038	3.2	***	0300	-17.2	-25.9	47	068	1.9	065	3.8	***
0600	-15.0	-26.5	37	068	5.3	067	8.9	***	0600	-19.4	-27.0	51	072	1.8	085	3.8	***	0600	-17.6	-26.3	47	062	1.9	076	4.4	***
0900	-16.5	-26.5	42	078	1.7	081	3.2	***	0900	-18.5	-26.6	49	050	1.9	044	3.2	***	0900	-18.5	-26.6	49	063	2.0	080	3.8	***
1200	-16.6	-26.6	42	077	2.0	080	3.2	***	1200	-16.5	-26.2	43	065	1.2	082	3.8	***	1200	-16.2	-25.2	46	082	1.5	097	3.8	***
1500	-16.8	-26.3	44	078	1.7	088	3.2	***	1500	-17.4	-26.1	47	075	1.8	077	3.8	***	1500	-15.8	-24.4	48	086	1.3	067	2.5	***
1800	-17.9	-27.0	45	048	2.2	051	3.8	***	1800	-17.7	-26.1	48	056	1.7	077	3.2	***	1800	-16.4	-24.5	50	082	1.8	063	5.1	***
2100	-18.5	-26.6	49	061	2.0	052	3.2	***	2100	-17.7	-25.9	49	060	1.6	078	3.2	***	2100	-16.5	*****	50	067	1.6	041	4.4	***
2400	-17.5	-26.2	47	062	1.9	048	3.2	***	2400	-17.2	-25.9	47	069	1.8	073	3.2	***	2400	-16.4	-24.7	49	086	1.4	088	5.7	***

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	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	-17.8	-25.8	50	065	1.8	058	4.4	***	0300	-20.2	-27.0	55	058	1.7	091	3.2	***	0300	-17.3	-24.0	56	070	2.1	082	5.1	***
0600	-18.8	-26.3	52	061	2.2	062	3.2	***	0600	-19.2	-26.0	55	063	2.4	043	3.8	***	0600	-13.4	-24.2	40	079	2.3	064	4.4	***
0900	-19.0	-26.5	52	073	1.5	080	3.2	***	0900	-19.1	-25.9	55	063	2.1	068	3.8	***	0900	-15.3	-28.4	32	074	2.8	075	5.7	***
1200	-16.5	-25.3	47	071	1.8	073	3.2	***	1200	-17.5	-24.9	53	085	2.1	090	3.8	***	1200	-16.2	-29.5	31	079	2.1	073	5.1	***
1500	-17.8	-25.8	50	058	1.3	082	2.5	***	1500	-17.7	-24.8	54	070	1.5	090	3.2	***	1500	-19.0	-29.0	41	084	2.9	099	7.0	***
1800	-18.7	-25.8	54	058	1.8	061	3.8	***	1800	-16.7	-23.7	55	072	1.4	082	3.2	***	1800	-22.3	-30.6	47	093	4.2	088	6.3	***
2100	-19.4	-26.6	53	059	1.7	050	3.2	***	2100	-17.4	*****	56	086	1.5	095	3.2	***	2100	-17.6	-28.9	37	094	3.7	083	7.0	***
2400	-19.5	-26.5	54	057	1.6	061	3.2	***	2400	-15.8	-22.8	55	080	1.7	076	3.2	***	2400	-17.8	-28.7	38	074	5.9	079	8.9	***

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	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	-19.4	-29.6	40	079	4.7	077	6.3	***	0300	-19.1	-33.1	28	079	2.9	079	5.1	***	0300	-16.8	-31.8	26	062	3.8	059	6.3	***
0600	-21.1	-30.4	43	084	4.3	075	7.0	***	0600	-16.4	-33.2	22	084	5.8	077	8.3	***	0600	-21.1	-34.1	30	050	2.7	077	5.7	***
0900	-21.9	-30.2	47	068	3.0	051	6.3	***	0900	-17.9	-33.2	25	081	5.4	080	7.6	***	0900	-18.8	-33.2	27	050	4.2	065	7.0	***
1200	-20.0	-30.2	40	078	3.9	066	6.3	***	1200	-18.1	-32.9	26	076	3.1	075	5.1	***	1200	-21.1	-34.1	30	057	1.5	077	5.1	***
1500	-20.6	-30.5	41	094	1.9	095	5.1	***	1500	-21.1	-34.1	30	090	3.0	087	5.7	***	1500	-22.9	-35.7	30	046	2.5	055	4.4	***
1800	-21.0	-31.3	39	031	1.3	048	2.5	***	1800	-19.3	-33.2	28	076	2.6	074	5.1	***	1800	-23.5	-35.9	31	075	2.6	082	5.1	***
2100	-19.4	-30.7	36	043	2.4	022	4.4	***	2100	-21.3	-34.6	29	072	2.7	060	4.4	***	2100	-25.3	-36.9	33	079	3.4	086	5.1	***
2400	-18.5	-31.8	30	057	3.3	050	5.7	***	2400	-17.7	-32.6	26	031	2.6	051	5.1	***	2400	-25.5	-36.7	34	080	3.2	076	5.1	***

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATAJKA WEATHER STATION
DATA TAKEN DURING DECEMBER, 1980

DAY 19									DAY 20									DAY 21								
HOUR	DEW	WIND	WIND	GUST	MAX.				HOUR	DEW	WIND	WIND	GUST	MAX.				HOUR	DEW	WIND	WIND	GUST	MAX.			
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	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	-27.1	-41.8	23	066	5.0	056	7.0	***	0300	-19.3	-36.6	20	052	4.8	053	8.3	***	0300	-25.8	-40.3	24	081	3.1	080	5.7	***
0600	-22.7	-38.1	23	062	3.8	092	6.3	***	0600	-23.5	-39.6	21	067	5.9	062	8.9	***	0600	-22.7	-38.9	21	065	3.3	070	5.1	***
0900	-21.1	-37.6	21	066	3.4	064	7.0	***	0900	-25.1	-39.7	24	086	4.3	076	8.9	***	0900	-21.9	-38.3	21	061	2.8	079	5.1	***
1200	-20.5	-37.6	20	071	3.8	054	10.2	***	1200	-16.6	-35.3	18	085	2.7	069	8.3	***	1200	-21.4	-37.9	21	056	2.6	037	5.1	***
1500	-19.0	-36.8	19	060	5.3	057	8.9	***	1500	-25.0	-39.3	25	088	3.3	085	7.6	***	1500	-20.2	-36.4	22	079	2.7	085	4.4	***
1800	-19.1	-35.5	22	068	5.0	068	8.9	***	1800	-23.8	-38.6	24	069	3.0	079	5.7	***	1800	-20.5	-37.6	20	060	3.0	075	5.1	***
2100	-23.5	-38.4	24	074	3.1	061	7.6	***	2100	-23.9	-38.7	24	041	2.9	067	5.1	***	2100	-21.1	-37.6	21	066	2.9	069	5.1	***
2400	-19.6	-36.8	20	060	5.3	053	8.9	***	2400	-23.1	-39.3	21	069	4.0	081	5.7	***	2400	-20.9	-36.6	23	085	2.3	085	4.4	***

DAY 22									DAY 23									DAY 24								
HOUR	DEW	WIND	WIND	GUST	MAX.				HOUR	DEW	WIND	WIND	GUST	MAX.				HOUR	DEW	WIND	WIND	GUST	MAX.			
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	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	-20.9	-36.6	23	078	2.7	067	5.1	***	0300	-23.8	-39.9	21	084	2.7	088	4.4	***	0300	-18.5	-35.9	20	073	4.5	075	5.7	***
0600	-21.4	-37.0	23	069	3.5	094	5.7	***	0600	-23.3	-38.6	23	081	2.7	094	5.1	***	0600	-20.7	-36.8	22	072	2.7	065	5.7	***
0900	-22.6	-38.0	23	080	2.2	087	5.1	***	0900	-23.3	-38.6	23	077	2.9	093	5.1	***	0900	-20.0	-36.2	22	075	1.8	084	3.2	***
1200	-21.4	-37.0	23	078	2.5	072	5.7	***	1200	-23.3	-39.5	21	081	2.7	088	5.1	***	1200	-19.3	-35.6	22	075	1.8	078	3.8	***
1500	-22.3	-38.6	21	082	2.3	087	3.8	***	1500	-23.6	-39.7	21	082	2.0	079	4.4	***	1500	-20.7	-36.8	22	078	2.9	083	4.4	***
1800	-22.5	-39.2	20	081	2.3	099	3.8	***	1800	-23.1	-38.4	23	077	2.4	078	3.8	***	1800	-19.9	-36.1	22	095	4.5	089	8.9	***
2100	-22.7	-38.1	23	081	2.3	078	5.7	***	2100	-22.1	-37.6	23	071	3.0	037	5.7	***	2100	-18.7	-35.1	22	099	5.0	091	8.3	***
2400	-23.0	-39.2	21	077	2.1	082	3.8	***	2400	-19.4	-36.6	20	072	2.9	073	5.1	***	2400	-21.9	-37.0	24	094	4.1	093	7.0	***

DAY 25									DAY 26									DAY 27								
HOUR	DEW	WIND	WIND	GUST	MAX.				HOUR	DEW	WIND	WIND	GUST	MAX.				HOUR	DEW	WIND	WIND	GUST	MAX.			
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	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	-20.0	-35.8	23	086	3.4	075	5.1	***	0300	-27.8	-40.0	30	096	3.8	090	6.3	***	0300	-22.9	-39.1	21	074	3.1	060	6.3	***
0600	-17.4	-35.5	19	092	4.6	074	7.6	***	0600	-26.7	-39.3	29	092	3.4	097	5.1	***	0600	-23.5	-38.8	23	070	3.9	054	6.3	***
0900	-23.3	-38.2	24	099	4.5	094	7.0	***	0900	-26.7	-39.3	29	087	3.5	089	5.1	***	0900	-19.1	-36.4	20	072	3.9	052	7.0	***
1200	-22.4	-37.8	23	099	4.3	096	8.3	***	1200	-25.5	-39.7	25	090	3.3	101	7.0	***	1200	-21.7	-37.2	23	083	3.7	086	8.3	***
1500	-23.4	-37.5	24	106	4.2	102	7.0	***	1500	-24.5	-38.8	25	090	3.0	095	5.7	***	1500	-23.5	-39.6	21	073	6.9	085	11.4	***
1800	-22.7	-37.7	24	094	6.0	090	6.3	***	1800	-22.7	-38.1	23	078	3.5	066	6.3	***	1800	-23.8	-38.2	23	069	7.3	066	10.2	***
2100	-23.4	-38.7	23	091	3.6	092	7.6	***	2100	-20.7	-37.7	20	071	4.9	073	7.6	***	2100	-24.8	-39.5	24	062	7.5	062	10.8	***
2400	-28.6	-41.0	29	089	3.8	088	6.3	***	2400	-24.3	-39.0	28	065	3.7	071	6.5	***	2400	-25.7	-41.0	22	053	7.7	054	10.8	***

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING DECEMBER , 1980

DAY 28

DAY 29

DAY 30

HOUR NDNG	DAY 28								DAY 29								DAY 30									
	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD MW	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD MW	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD MW		
	DEG C	DEG C		DEG.	M/S	DEG.	M/S		DEG C	DEG C		DEG.	M/S	DEG.	M/S		DEG C	DEG C		DEG.	M/S	DEG.	M/S			
0300	-25.4	-40.8	22	061	7.8	064	10.2	***	0300	-25.2	-39.4	25	098	4.3	103	7.0	***	0300	-14.7	-26.9	35	058	4.8	059	7.6	***
0600	-23.0	-39.7	20	054	6.5	054	9.5	***	0600	-26.4	-39.1	29	103	4.6	105	8.3	***	0600	-16.0	-26.8	39	088	2.1	049	6.3	***
0900	-27.0	-42.1	22	051	4.2	070	8.3	***	0900	-20.2	-34.8	26	093	5.3	085	8.3	***	0900	-15.5	*****	41	080	.6	106	1.9	***
1200	-22.7	-38.1	23	044	3.2	027	4.4	***	1200	-15.1	-31.6	23	082	5.0	076	10.2	***	1200	-14.7	-25.4	40	098	1.0	109	1.9	***
1500	-27.6	-41.1	26	054	2.2	035	4.4	***	1500	-15.0	-31.5	23	082	6.6	083	10.8	***	1500	-13.4	-23.7	42	094	1.7	095	2.5	***
1800	-26.9	-41.7	23	076	2.1	063	3.8	***	1800	-14.9	-32.4	21	079	5.8	075	9.5	***	1800	-7.5	-18.3	42	080	2.1	072	5.1	***
2100	-27.8	-41.3	26	085	2.4	092	4.4	***	2100	-15.4	-28.1	33	059	7.4	064	12.1	***	2100	-6.4	-17.6	41	051	4.8	058	7.0	***
2400	-26.8	-39.7	28	082	3.2	086	7.0	***	2400	-15.6	-27.7	35	059	6.7	060	10.2	***	2400	-4.2	-15.6	41	059	6.0	060	9.5	***

DAY 31

DAY 31

DAY 31

HOUR NDNG	DAY 31								DAY 31								DAY 31									
	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD MW	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD MW	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD MW		
	DEG C	DEG C		DEG.	M/S	DEG.	M/S		DEG C	DEG C		DEG.	M/S	DEG.	M/S		DEG C	DEG C		DEG.	M/S	DEG.	M/S			
0300	-3.1	-15.2	39	059	5.7	079	11.4	***	0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***
0600	.7	-10.9	42	074	6.5	090	13.3	***	0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***
0900	1.8	-11.2	38	083	7.9	078	14.0	***	0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***
1200	2.8	-10.6	37	089	5.7	091	8.9	***	1200	*****	*****	**	***	*****	***	*****	***	1200	*****	*****	**	***	*****	***	*****	***
1500	1.2	-11.4	39	082	5.8	073	9.5	***	1500	*****	*****	**	***	*****	***	*****	***	1500	*****	*****	**	***	*****	***	*****	***
1800	1.8	-11.2	38	067	2.0	071	6.3	***	1800	*****	*****	**	***	*****	***	*****	***	1800	*****	*****	**	***	*****	***	*****	***
2100	1.1	-10.8	41	076	6.1	081	9.5	***	2100	*****	*****	**	***	*****	***	*****	***	2100	*****	*****	**	***	*****	***	*****	***
2400	.3	-11.9	40	066	5.3	074	9.5	***	2400	*****	*****	**	***	*****	***	*****	***	2400	*****	*****	**	***	*****	***	*****	***

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

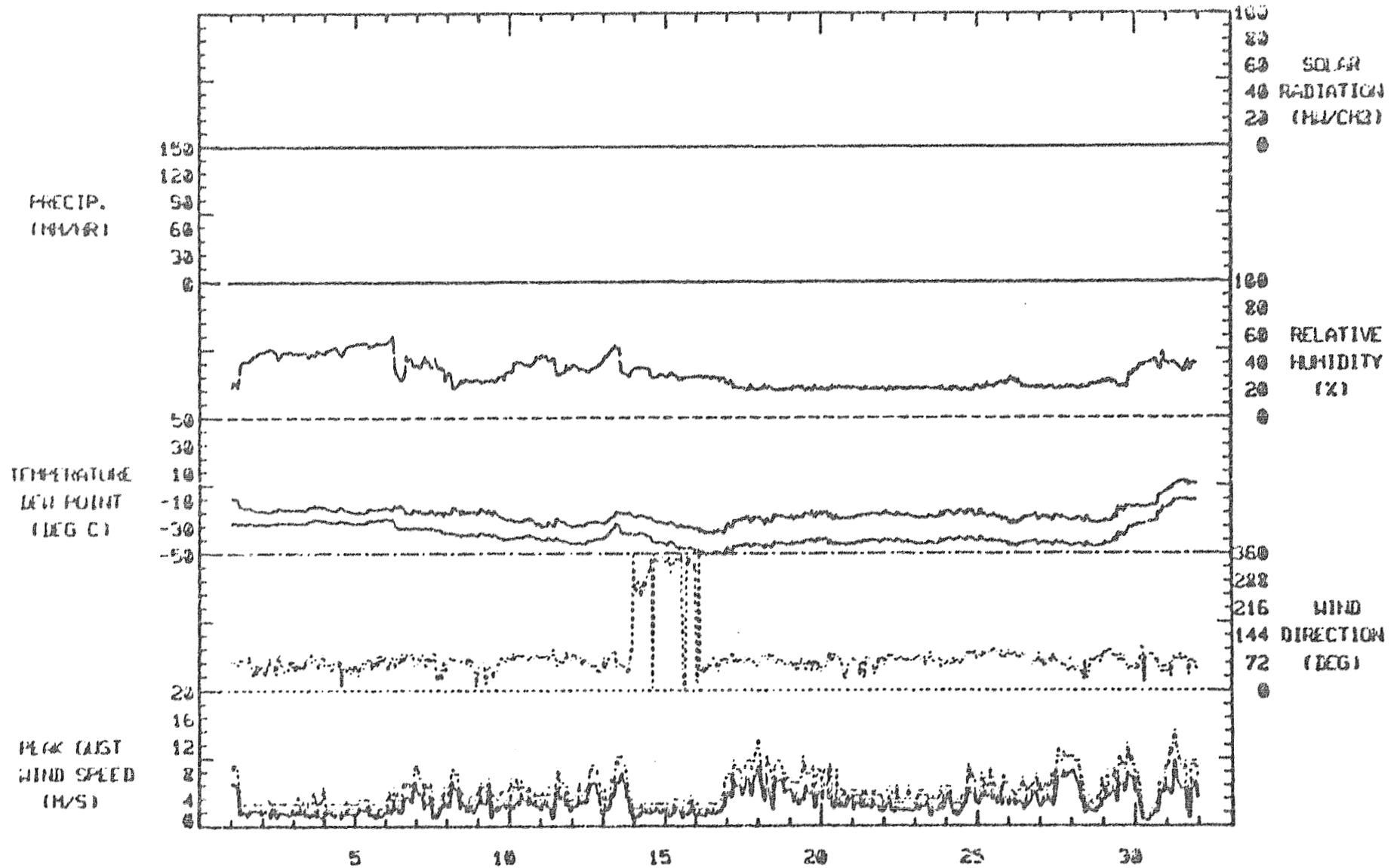
MONTHLY SUMMARY FOR WATAHA WEATHER STATION
 DATA TAKEN DURING DECEMBER , 1980

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	-9.0	-19.4	-14.2	069	2.8	2.9	081	9.5	ENE	40	-26.4	0.0	***	01
02	-15.8	-20.6	-18.2	061	1.7	1.8	085	3.8	ENE	48	-26.4	0.0	***	02
03	-12.4	-19.1	-15.8	073	1.7	1.7	088	5.7	ENE	48	-25.4	0.0	***	03
04	-14.1	-20.3	-17.2	063	1.7	1.8	058	4.4	ENE	51	-26.1	0.0	***	04
05	-15.2	-20.5	-17.9	072	1.8	1.9	043	3.8	ENE	55	-25.0	0.0	***	05
06	-13.4	-22.3	-17.8	081	3.2	3.3	079	8.9	E	42	-27.9	0.0	***	06
07	-16.6	-23.5	-20.0	071	3.0	3.2	077	8.3	ENE	39	-30.6	0.0	***	07
08	-15.6	-23.4	-19.5	076	3.4	3.6	077	8.3	E	27	-33.4	0.0	***	08
09	-16.1	-25.8	-21.0	063	2.9	3.1	065	7.0	ENE	29	-34.8	0.0	***	09
10	-21.5	-30.3	-25.9	087	3.5	3.5	085	7.0	E	40	-35.6	0.0	***	10
11	-23.6	-31.6	-27.6	081	3.2	3.2	067	8.3	E	39	-37.7	0.0	***	11
12	-25.7	-31.4	-28.6	068	3.9	4.0	068	8.9	ENE	37	-38.1	0.0	***	12
13	-18.5	-28.3	-23.4	072	4.1	4.3	072	10.8	ENE	42	-31.9	0.0	***	13
14	-22.0	-27.9	-25.0	317	1.5	1.9	267	3.8	NNW	34	-36.4	0.0	***	14
15	-26.4	-32.5	-29.5	344	1.9	2.0	341	4.4	NNW	30	-41.7	0.0	***	15
16	-27.6	-36.7	-32.2	065	1.9	2.1	082	7.0	ENE	29	-44.9	0.0	***	16
17	-22.3	-34.2	-28.3	077	5.8	5.9	065	11.4	ENE	23	-40.7	0.0	***	17
18	-19.4	-29.5	-24.5	076	5.7	5.8	067	12.7	ENE	21	-40.3	0.0	***	18
19	-17.8	-27.1	-22.5	065	4.3	4.5	054	10.2	ENE	22	-37.8	0.0	***	19
20	-16.6	-26.0	-21.3	069	3.7	3.9	062	8.9	E	22	-38.4	0.0	***	20
21	-19.5	-26.1	-22.8	069	2.8	2.9	080	5.7	ENE	22	-37.9	0.0	***	21
22	-12.7	-23.2	-18.0	082	2.5	2.5	094	5.7	E	21	-38.0	0.0	***	22
23	-15.1	-24.4	-19.8	078	2.6	2.7	037	5.7	ENE	22	-38.6	0.0	***	23
24	-15.6	-22.8	-19.2	085	3.3	3.4	089	8.9	ENE	21	-36.2	0.0	***	24
25	-14.8	-28.6	-21.7	095	4.0	4.1	096	8.3	E	24	-37.8	0.0	***	25
26	-20.0	-29.4	-24.7	085	3.6	3.7	073	7.6	E	25	-39.0	0.0	***	26
27	-18.6	-26.7	-22.7	068	5.5	5.6	065	11.4	ENE	22	-38.7	0.0	***	27
28	-21.7	-28.7	-25.2	061	3.7	3.9	064	10.2	ENE	24	-40.6	0.0	***	28
29	-13.6	-27.0	-20.3	080	5.5	5.8	064	12.1	E	27	-33.1	0.0	***	29
30	-4.2	-16.4	-10.3	066	2.8	3.0	060	9.5	E	40	-22.1	.2	***	30
31	3.8	-4.8	-5.5	076	5.6	5.8	078	14.0	ENE	39	-11.6	0.0	***	31
MONTH	3.8	-30.7	-21.1	072	3.2	3.5	078	14.0	ENE	32	-34.0	.2	***	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 13.3
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 13.3
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 12.7
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 10.8

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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



DAY OF THE MONTH LATANA WEATHER STATION

DATA START: 01 DECEMBER, 1980

R&I CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATAHA WEATHER STATION
DATA TAKEN DURING DECEMBER , 1980

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	GREATER THAN 20.0	
N	.20	1.14	.07	0.00	0.00	0.00	0.00	1.41
NNE	.10	2.39	.97	0.00	0.00	0.00	0.00	3.46
NE	.27	5.11	3.63	1.51	0.00	0.00	0.00	10.52
ENE	.30	15.39	14.89	8.67	.03	0.00	0.00	39.28
E	.50	14.92	18.28	1.78	.07	0.00	0.00	35.55
ESE	.24	1.58	2.12	0.00	0.00	0.00	0.00	3.93
SE	.07	.17	0.00	0.00	0.00	0.00	0.00	.24
SSE	.10	.03	0.00	0.00	0.00	0.00	0.00	.13
S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW	.03	0.00	0.00	0.00	0.00	0.00	0.00	.03
WSW	0.00	.34	0.00	0.00	0.00	0.00	0.00	.34
W	.03	.47	0.00	0.00	0.00	0.00	0.00	.50
WNW	.07	.57	0.00	0.00	0.00	0.00	0.00	.64
NW	.07	.67	0.00	0.00	0.00	0.00	0.00	.74
NNW	.03	3.09	.10	0.00	0.00	0.00	0.00	3.23
CALM								0.00
TOTAL	2.02	45.87	40.05	11.96	.10	0.00	0.00	100.00

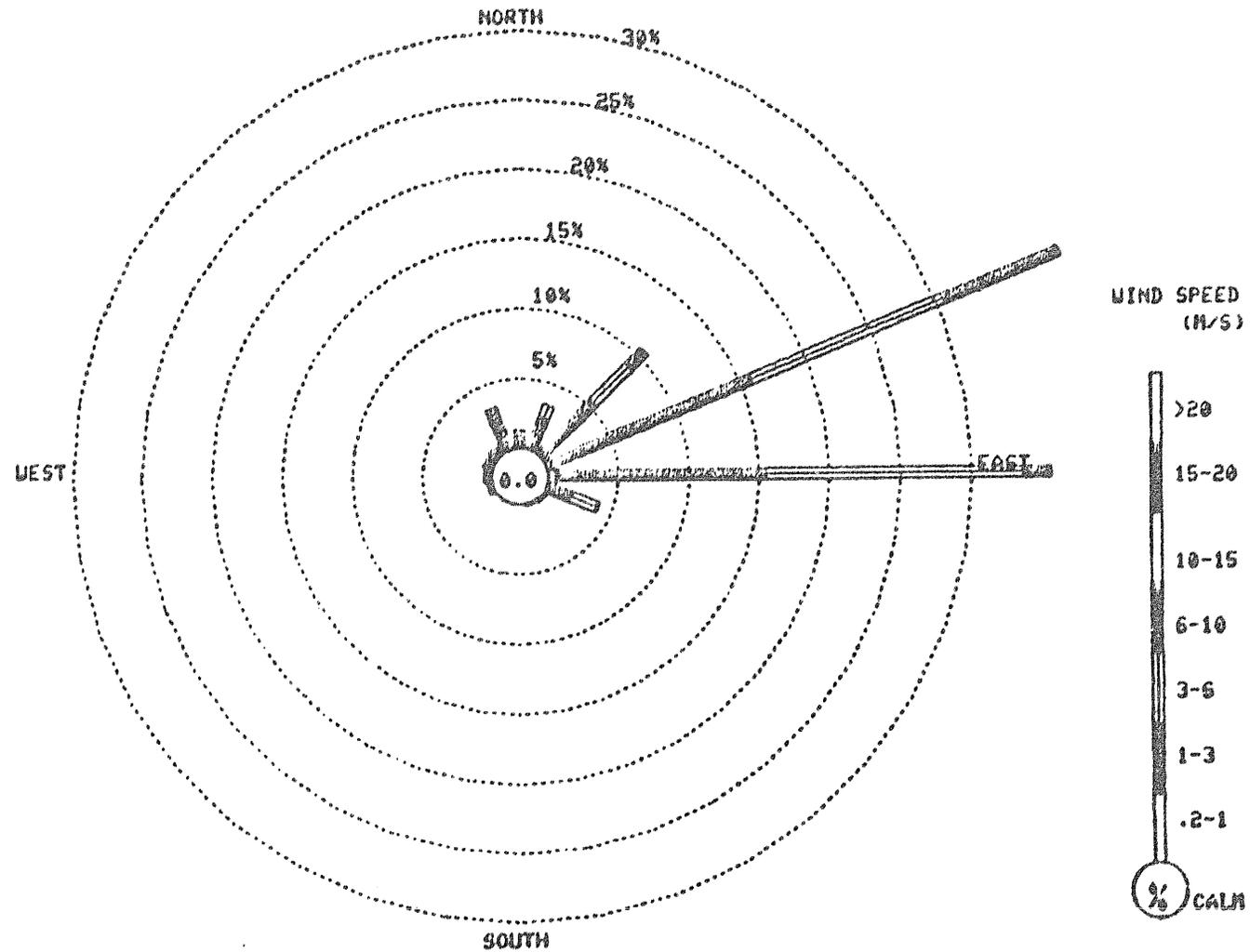
NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

2976 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

DECEMBER, 1980



WIND ROSE PLOT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING JANUARY, 1981

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	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	-12.6	36	064	4.7	075	8.9	***	0300	-.1	*****	39	068	1.5	084	5.7	***	0300	-11.8	-20.2	50	091	2.1	091	3.8	***
0600	1.0	-13.6	33	065	6.0	074	10.2	***	0600	-1.2	*****	41	359	1.0	288	3.2	***	0600	-12.9	-21.2	50	091	2.0	091	3.2	***
0900	1.3	-13.0	34	070	7.2	059	11.4	***	0900	-2.8	-13.8	43	091	1.4	091	3.8	***	0900	-8.4	-18.9	43	092	2.4	091	5.1	***
1200	1.5	-12.8	34	062	5.6	058	10.2	***	1200	-4.1	-15.2	42	091	1.1	091	3.2	***	1200	-5.8	-18.3	37	092	3.7	092	6.3	***
1500	2.4	-13.2	31	059	5.5	070	10.2	***	1500	-6.6	-16.2	47	091	1.8	091	3.2	***	1500	-3.2	-18.1	31	077	4.3	076	7.0	***
1800	2.1	-6.1	55	074	5.6	062	9.5	***	1800	-8.1	-16.6	51	091	2.1	091	3.8	***	1800	-3.9	-18.3	32	064	4.8	058	7.6	***
2100	1.2	-10.1	43	088	7.8	085	14.6	***	2100	-10.9	-18.5	54	091	2.0	091	3.8	***	2100	-3.9	-17.3	35	055	4.6	061	8.9	***
2400	2.3	-12.5	33	084	4.2	103	9.5	***	2400	-11.2	-19.4	51	091	2.0	091	3.2	***	2400	-4.6	-14.1	48	061	5.2	063	7.6	***
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	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	-4.4	-13.6	49	062	4.4	058	7.0	***	0300	-10.1	-17.7	54	066	1.6	080	3.2	***	0300	-4.8	-19.5	31	073	3.3	079	8.3	***
0600	-4.9	-14.6	47	065	4.5	064	7.0	***	0600	-10.4	-18.0	54	073	2.0	075	3.2	***	0600	-6.3	-17.2	42	060	5.3	081	9.5	***
0900	-5.0	-15.0	46	050	3.7	054	6.3	***	0900	-8.8	-16.5	54	068	2.1	084	3.8	***	0900	-5.0	-16.3	41	066	7.2	075	10.8	***
1200	-4.7	-14.9	45	047	2.6	046	5.1	***	1200	-7.8	-15.4	55	045	2.2	033	4.4	***	1200	-4.3	-17.6	35	065	7.0	068	11.4	***
1500	-5.7	-15.3	47	055	1.4	027	3.8	***	1500	-10.7	-19.0	51	073	2.7	081	5.7	***	1500	-5.5	-18.7	35	077	10.2	077	14.6	***
1800	-6.4	-15.0	51	053	1.2	063	2.5	***	1800	-9.8	-18.9	48	087	2.3	094	4.4	***	1800	-5.6	-18.8	35	062	7.9	067	13.3	***
2100	-7.8	-15.6	54	071	1.0	066	2.5	***	2100	-10.5	-19.7	47	090	2.9	088	5.1	***	2100	-4.7	-18.0	35	070	9.1	076	13.3	***
2400	-8.9	-16.2	56	063	1.4	065	3.2	***	2400	-10.9	-21.1	43	082	2.6	088	4.4	***	2400	-4.6	-17.5	36	071	7.9	078	13.3	***
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	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	-3.5	-16.9	35	072	8.0	076	12.7	***	0300	-4.2	-15.3	42	058	2.5	063	4.4	***	0300	-5.9	-17.8	39	074	2.6	088	5.7	***
0600	-3.1	-16.5	35	066	9.0	070	10.8	***	0600	-4.7	-14.7	46	061	1.8	067	3.8	***	0600	-2.7	-21.1	23	042	4.3	065	7.0	***
0900	-.8	-15.2	33	023	3.6	065	10.8	***	0900	-5.8	*****	47	064	1.2	052	3.2	***	0900	-3.3	-20.7	25	062	6.2	064	9.5	***
1200	1.0	-14.8	30	072	5.7	076	12.7	***	1200	-5.6	-16.0	44	084	1.8	081	3.2	***	1200	-3.0	-20.9	24	061	6.3	075	11.4	***
1500	.1	-15.6	30	073	5.8	081	12.1	***	1500	-8.3	-16.3	53	083	1.6	094	2.5	***	1500	-4.2	-20.6	27	060	5.8	063	10.2	***
1800	-1.9	-16.9	31	032	2.4	066	7.0	***	1800	-8.4	-15.9	55	076	2.5	074	5.1	***	1800	-5.0	-19.7	31	052	5.6	077	12.1	***
2100	-1.3	-16.4	31	071	4.3	068	7.6	***	2100	-2.2	-16.5	33	064	4.5	071	7.6	***	2100	-4.9	-16.3	41	058	5.2	050	8.9	***
2400	-2.7	-15.8	36	069	5.7	070	9.5	***	2400	-5.8	-16.8	42	088	3.1	051	5.7	***	2400	-4.6	-16.3	40	064	5.8	071	10.2	***

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING JANUARY , 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	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	-2.9	-15.4	38	068	6.6	073	11.4	***	0300	-4.0	-13.0	50	061	4.4	064	7.6	***	0300	-5.1	*****	48	071	2.4	054	5.7	***
0600	-3.8	-15.0	42	064	5.7	071	8.9	***	0600	-4.3	-13.5	49	056	4.4	067	7.0	***	0600	-5.6	*****	51	082	.9	078	2.5	***
0900	-4.7	-14.4	47	046	4.5	043	6.3	***	0900	-3.7	-14.0	45	055	4.6	069	7.0	***	0900	-2.9	-13.0	46	080	1.1	053	3.2	***
1200	-3.4	-14.9	41	047	4.1	037	5.7	***	1200	-2.1	-12.3	46	056	4.1	080	7.6	***	1200	-3.5	-14.4	43	046	1.4	031	3.2	***
1500	-6.2	-15.8	47	053	3.2	071	5.7	***	1500	-2.9	-12.2	49	065	4.6	056	7.0	***	1500	-4.2	-14.0	47	040	1.9	074	4.4	***
1800	-6.0	-15.6	47	053	3.6	070	6.3	***	1800	-2.4	-13.1	44	063	5.8	075	10.8	***	1800	-4.2	-13.7	48	048	2.9	054	5.1	***
2100	-7.7	-16.4	50	075	2.4	070	5.7	***	2100	-3.2	-13.9	44	073	6.3	078	10.2	***	2100	-5.2	-14.1	50	039	2.5	056	4.4	***
2400	-1.8	-11.2	49	076	1.9	048	5.7	***	2400	-4.1	-14.7	44	059	4.2	052	6.3	***	2400	-4.6	-14.6	46	050	3.3	071	7.6	***
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
0300	-6.6	-14.9	52	075	2.3	076	6.3	***	0300	-2.6	-18.3	29	070	6.6	075	14.0	***	0300	3.3	-7.9	44	057	3.6	047	8.9	***
0600	-4.4	-16.7	38	057	3.6	064	8.3	***	0600	-1.6	-13.0	42	059	5.6	064	9.5	***	0600	2.7	-6.0	53	065	4.7	072	10.8	***
0900	-4.5	-18.5	33	060	6.2	070	10.8	***	0900	-1.7	-13.4	41	050	5.1	057	10.2	***	0900	2.7	-8.2	45	083	8.0	081	12.7	***
1200	-2.9	-20.3	25	060	4.8	099	12.7	***	1200	-.4	-11.3	44	068	4.9	062	9.5	***	1200	2.7	-8.8	43	079	6.8	088	10.8	***
1500	-4.1	-19.2	30	037	4.6	048	8.9	***	1500	-.1	-8.6	53	058	5.7	084	10.8	***	1500	2.3	-8.5	45	075	3.9	068	7.0	***
1800	-3.4	-19.9	27	022	3.1	004	8.3	***	1800	0.0	-7.8	56	054	5.1	074	11.4	***	1800	.3	-6.2	62	193	.4	078	6.3	***
2100	-1.2	-19.8	23	031	3.0	027	9.5	***	2100	1.9	-6.3	55	055	5.3	058	10.8	***	2100	-.2	*****	65	219	1.7	238	3.8	***
2400	-1.5	-17.4	29	045	3.6	071	7.6	***	2400	3.2	-7.7	45	072	4.8	091	12.1	***	2400	-.8	*****	66	147	.6	185	2.5	***
DAY 16									DAY 17									DAY 18								
HOUR	DEW		WIND		WIND		GUST MAX.		HOUR	DEW		WIND		WIND		GUST MAX.		HOUR	DEW		WIND		WIND		GUST MAX.	
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	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	-1.9	-7.9	64	072	1.0	064	3.2	***	0300	-1.9	-13.0	43	074	5.9	080	10.8	***	0300	-.3	-17.6	26	063	8.1	070	12.7	***
0600	-5.4	-12.5	58	026	1.4	067	3.2	***	0600	-1.0	-13.7	38	069	5.0	078	9.5	***	0600	-.1	-12.2	40	067	5.9	074	14.0	***
0900	-2.8	-13.5	44	047	2.9	047	6.3	***	0900	-.9	-13.6	38	055	4.9	066	9.5	***	0900	.2	-13.3	36	078	6.8	091	13.3	***
1200	-.9	-13.9	37	040	2.8	040	6.3	***	1200	-.1	-15.0	32	053	3.9	066	7.0	***	1200	-.2	-13.6	36	057	4.4	067	8.9	***
1500	-.8	-15.6	32	052	3.0	034	6.3	***	1500	-.3	-15.5	31	022	2.1	043	4.4	***	1500	-.9	-13.7	33	065	5.0	068	8.9	***
1800	-1.1	-16.6	30	031	2.0	094	6.3	***	1800	-.7	-15.1	33	071	2.9	067	6.3	***	1800	-1.9	-13.5	41	080	3.4	074	7.0	***
2100	-1.5	-15.5	34	043	3.9	071	12.1	***	2100	-1.0	-16.1	31	039	2.7	057	6.3	***	2100	-.3	-15.1	32	050	2.4	065	5.1	***
2400	-1.7	-13.1	42	066	6.6	067	11.4	***	2400	.8	-18.7	22	064	7.0	062	12.7	***	2400	.5	-15.6	29	078	2.9	041	5.7	***

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION,
DATA TAKEN DURING JANUARY , 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	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	-15.0	30	055	3.0	055	7.0	***	0300	-7.0	-18.7	39	069	5.2	075	8.9	***	0300	-11.3	-22.3	40	070	1.7	081	4.4	***
0600	-1.1	-15.9	32	074	2.7	080	6.3	***	0600	-6.5	-18.0	40	062	5.6	065	8.3	***	0600	-8.1	-22.0	32	079	3.1	077	6.3	***
0900	.9	-14.1	32	071	2.8	061	7.0	***	0900	-7.0	-19.1	38	068	5.8	074	8.9	***	0900	-5.3	-20.7	29	058	5.1	078	9.5	***
1200	-.9	*****	62	117	1.8	086	7.0	***	1200	-6.6	-20.0	34	054	4.9	053	8.3	***	1200	-5.8	-19.3	34	055	5.9	058	8.9	***
1500	-2.1	-13.1	43	237	7.1	242	13.3	***	1500	-6.8	-19.8	35	057	5.0	070	8.3	***	1500	-6.1	-18.6	37	053	6.0	056	9.5	***
1800	-3.7	*****	43	254	5.8	264	11.4	***	1800	-10.9	-21.1	43	040	3.9	034	7.0	***	1800	-5.6	-19.8	32	053	6.1	060	9.5	***
2100	-5.4	-13.6	53	080	1.4	065	3.8	***	2100	-11.5	-23.1	38	080	2.5	076	4.4	***	2100	-4.9	-19.2	32	057	6.1	058	8.9	***
2400	-6.3	-19.4	35	069	4.4	075	8.3	***	2400	-11.7	-22.7	40	072	2.2	065	4.4	***	2400	-5.1	-19.0	33	050	6.0	057	9.5	***

DAY 22									DAY 23									DAY 24								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	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	-4.3	-18.7	32	048	5.3	048	8.9	***	0300	-4.6	-15.4	43	047	3.7	045	6.3	***	0300	-3.6	-13.1	48	018	1.3	322	4.4	***
0600	-3.1	-18.0	31	042	5.4	059	8.9	***	0600	-3.2	-14.7	41	047	3.5	045	6.3	***	0600	-3.3	-14.8	41	054	1.8	089	5.1	***
0900	-1.6	-15.9	33	069	5.2	063	8.3	***	0900	-2.4	-14.3	40	039	4.3	038	6.3	***	0900	-1.5	-16.2	32	065	4.2	068	8.9	***
1200	-2.3	-16.2	34	072	5.3	083	9.5	***	1200	-1.5	-13.8	39	050	4.8	045	8.3	***	1200	-.8	-17.6	27	072	5.8	072	8.9	***
1500	-2.3	-16.2	34	052	4.7	051	8.3	***	1500	0.0	-12.8	38	066	6.8	062	10.8	***	1500	-.8	-19.5	23	050	5.0	055	10.2	***
1800	-2.9	-16.7	34	041	4.7	042	7.0	***	1800	.7	-12.8	36	076	7.2	083	11.4	***	1800	-.8	-20.0	22	016	4.5	022	8.3	***
2100	-3.0	-16.1	36	047	4.6	052	6.3	***	2100	-.6	-13.3	38	084	6.2	081	11.4	***	2100	-.1	-21.7	18	017	3.4	005	8.9	***
2400	-4.0	-16.0	39	041	4.4	048	6.3	***	2400	-3.8	-13.6	47	026	1.1	106	4.4	***	2400	-1.6	-23.6	17	061	4.1	079	9.5	***

DAY 25									DAY 26									DAY 27								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	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	.5	-21.2	18	064	3.9	083	11.4	***	0300	-5.2	-15.7	44	052	1.7	088	3.8	***	0300	-6.9	*****	56	020	.7	007	1.9	***
0600	.6	-24.8	13	065	5.4	069	11.4	***	0600	-6.9	-16.2	48	009	1.6	346	3.2	***	0600	-8.2	-15.7	55	054	.9	052	2.5	***
0900	0.0	-23.0	16	048	3.7	083	10.2	***	0900	-6.8	*****	48	014	1.3	353	3.2	***	0900	-9.0	*****	55	065	1.0	029	2.5	***
1200	1.2	-19.4	20	073	5.3	090	12.1	***	1200	-6.0	-15.4	48	281	.8	242	2.5	***	1200	-6.2	-17.4	41	074	.9	059	3.2	***
1500	-.4	-18.2	25	067	5.9	062	12.1	***	1500	-5.1	-12.0	59	255	1.6	251	2.5	***	1500	-8.3	-17.0	50	114	.5	094	1.9	***
1800	-1.5	-16.2	32	076	6.0	087	10.8	***	1800	-4.9	*****	59	261	1.2	263	2.5	***	1800	-9.4	-19.2	45	051	1.3	077	2.5	***
2100	-1.9	-15.5	35	059	4.6	055	7.6	***	2100	-5.9	-12.9	58	283	.2	156	1.9	***	2100	-12.1	-20.0	52	064	1.5	056	2.5	***
2400	-3.9	-15.7	40	080	2.6	079	5.1	***	2400	-7.4	-14.8	56	011	1.1	358	2.5	***	2400	-13.4	-21.9	49	068	1.4	090	2.5	***

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING JANUARY , 1981

DAY 28

DAY 29

DAY 30

HOUR NDNG	DEW		WIND		WIND		GUST		MAX. RAD	HOUR NDNG	DEW		WIND		WIND		GUST		MAX. RAD	HOUR NDNG	DEW		WIND		WIND		GUST		MAX. RAD
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	M/S	MW			TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	M/S	MW			TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	M/S	MW	
0300	-15.7	*****	51	051	1.2	075	2.5	***	0300	-12.2	-22.3	43	070	8.3	070	13.3	***	0300	-2.6	-18.7	28	073	7.4	075	12.1	***			
0600	-16.0	-24.6	48	047	1.4	054	2.5	***	0600	-11.7	-22.7	40	052	6.2	066	10.2	***	0600	-2.1	-17.1	31	074	6.1	070	10.8	***			
0900	-16.8	-25.5	47	063	1.4	061	3.2	***	0900	-10.6	-22.6	37	046	5.6	046	8.3	***	0900	-1.4	-16.9	30	072	6.4	073	12.1	***			
1200	-11.6	-23.5	37	071	2.7	086	6.3	***	1200	-8.1	-21.0	35	043	4.9	040	7.6	***	1200	.3	-21.4	18	066	5.7	063	10.2	***			
1500	-11.3	-23.5	36	067	5.4	068	8.3	***	1500	-6.7	-19.1	37	046	5.3	043	8.3	***	1500	.9	-20.3	19	067	6.0	063	10.2	***			
1800	-13.4	-24.0	41	061	7.0	068	11.4	***	1800	-4.3	-16.6	38	055	6.2	061	10.2	***	1800	.2	-19.2	22	063	4.4	067	7.0	***			
2100	-12.6	-22.4	44	065	7.4	060	13.3	***	2100	-3.4	-16.5	36	069	7.1	070	11.4	***	2100	0.0	-16.9	27	067	5.9	073	9.5	***			
2400	-12.2	-22.3	43	070	9.5	065	14.6	***	2400	-2.4	-17.0	32	069	7.2	082	12.7	***	2400	-1.4	-16.1	32	051	3.8	057	7.0	***			

DAY 31

DAY 31

DAY 31

HOUR NDNG	DEW		WIND		WIND		GUST		MAX. RAD	HOUR NDNG	DEW		WIND		WIND		GUST		MAX. RAD	HOUR NDNG	DEW		WIND		WIND		GUST		MAX. RAD
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	M/S	MW			TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	M/S	MW			TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	M/S	MW	
0300	-.7	-15.9	31	064	2.1	059	4.4	***	0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***	*****	***	
0600	-1.8	-8.9	59	029	1.3	069	3.8	***	0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***	*****	***	
0900	-4.0	*****	43	037	.9	352	3.2	***	0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***	*****	***	
1200	-1.2	-14.9	35	057	1.7	071	3.8	***	1200	*****	*****	**	***	*****	***	*****	***	1200	*****	*****	**	***	*****	***	*****	***	*****	***	
1500	-1.9	-15.8	34	067	3.8	057	6.3	***	1500	*****	*****	**	***	*****	***	*****	***	1500	*****	*****	**	***	*****	***	*****	***	*****	***	
1800	-3.0	-16.1	30	049	3.5	044	5.1	***	1800	*****	*****	**	***	*****	***	*****	***	1800	*****	*****	**	***	*****	***	*****	***	*****	***	
2100	-2.5	-16.0	35	053	4.2	063	7.0	***	2100	*****	*****	**	***	*****	***	*****	***	2100	*****	*****	**	***	*****	***	*****	***	*****	***	
2400	-.8	-15.6	32	048	4.9	045	7.6	***	2400	*****	*****	**	***	*****	***	*****	***	2400	*****	*****	**	***	*****	***	*****	***	*****	***	

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

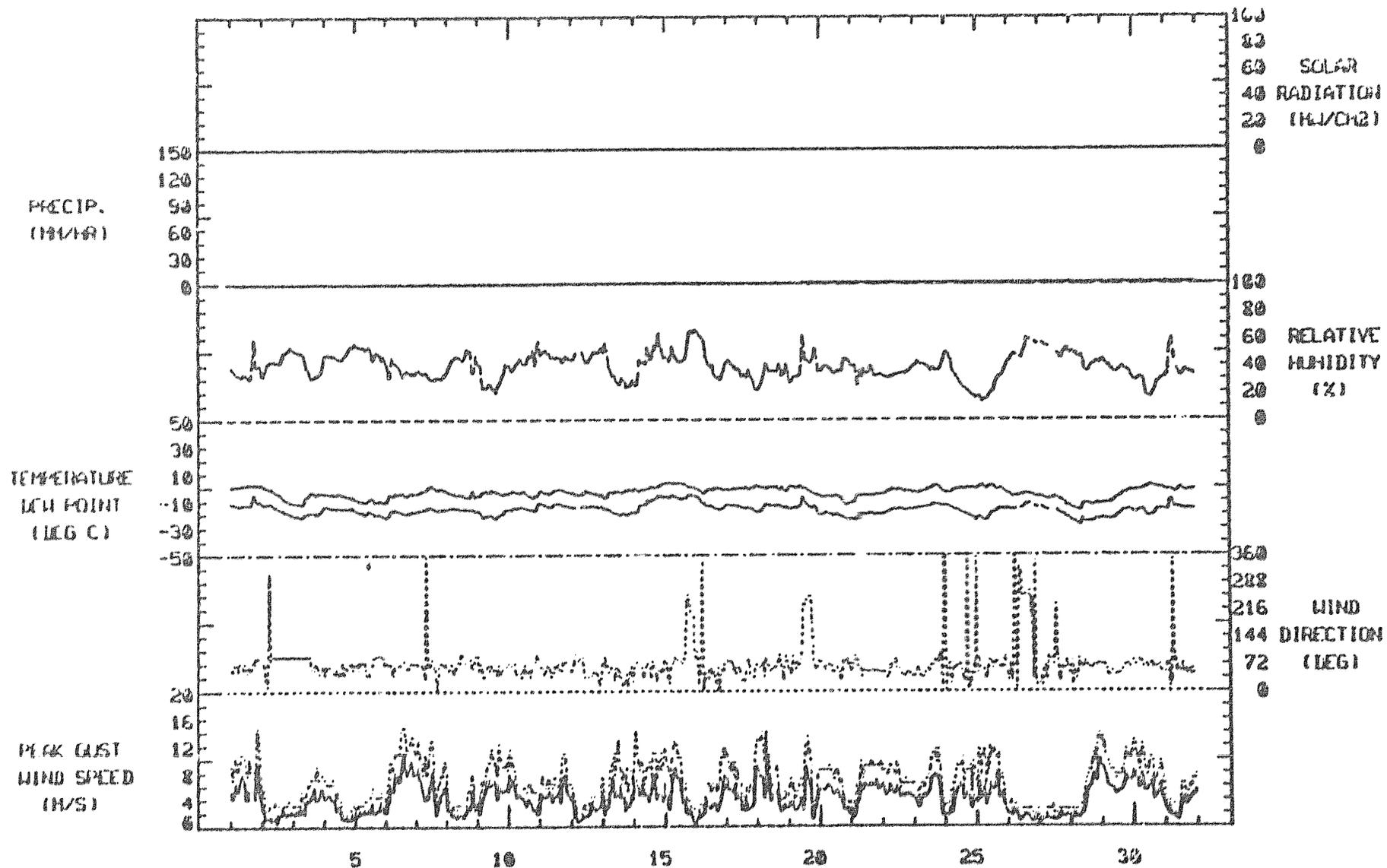
MONTHLY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING JANUARY , 1981

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	3.4	.4	1.9	071	5.7	5.9	085	14.6	ENE	37	-11.7	0.0	***	01
02	2.2	-11.6	-4.7	083	1.5	1.7	084	5.7	E	46	-16.6	0.0	***	02
03	-2.4	-13.3	-7.8	074	3.5	3.7	061	8.9	E	41	-18.3	0.0	***	03
04	-4.3	-9.0	-6.7	058	2.5	2.6	058	7.0	NE	49	-15.0	0.0	***	04
05	-5.8	-11.8	-8.8	074	2.2	2.4	081	5.7	E	51	-18.3	0.0	***	05
06	-3.6	-10.9	-7.3	068	7.2	7.3	077	14.6	ENE	37	-18.0	0.0	***	06
07	1.2	-4.8	-1.8	064	5.0	5.3	076	12.7	ENE	33	-16.0	0.0	***	07
08	-2.2	-9.4	-5.8	072	2.3	2.4	071	7.6	ENE	45	-15.9	0.0	***	08
09	-1.5	-6.7	-4.1	059	5.2	5.3	077	12.1	ENE	30	-19.1	0.0	***	09
10	-1.8	-9.2	-5.5	059	4.0	4.1	073	11.4	ENE	45	-14.8	.2	***	10
11	-1.1	-5.1	-3.1	062	4.8	4.9	075	10.8	ENE	47	-13.3	0.0	***	11
12	-1.9	-9.2	-5.6	053	2.0	2.1	071	7.6	ENE	48	-14.0	0.0	***	12
13	-1.2	-9.9	-5.6	049	3.8	4.2	099	12.7	ENE	33	-18.3	0.0	***	13
14	3.4	-3.5	-.0	061	5.3	5.6	075	14.0	ENE	46	-10.8	0.0	***	14
15	3.5	-.9	1.3	079	3.2	4.1	081	12.7	ENE	50	-7.6	.2	***	15
16	.1	-5.7	-2.8	050	2.9	3.2	071	12.1	ENE	44	-13.6	0.0	***	16
17	.9	-2.4	-.8	060	4.2	4.4	062	12.7	ENE	35	-15.1	0.0	***	17
18	.9	-3.0	-1.3	068	4.8	5.0	074	14.0	ENE	35	-14.3	0.0	***	18
19	1.3	-6.5	-2.6	109	.4	3.9	242	13.3	ENE	40	-15.3	.8	***	19
20	-5.8	-13.6	-9.7	062	4.3	4.4	075	8.9	ENE	38	-20.3	0.0	***	20
21	-4.8	-12.6	-8.7	057	5.0	5.1	078	9.5	NE	35	-20.1	0.0	***	21
22	-1.1	-5.3	-3.2	052	4.9	5.0	083	9.5	NE	34	-16.7	0.0	***	22
23	1.4	-5.1	-1.9	061	4.5	4.8	083	11.4	NE	39	-13.8	0.0	***	23
24	-.1	-5.0	-2.6	048	3.5	4.0	055	10.2	ENE	30	-18.3	0.0	***	24
25	1.6	-3.9	-1.2	067	4.6	5.0	090	12.1	ENE	23	-19.2	0.0	***	25
26	-4.2	-8.3	-6.3	342	.6	1.4	088	3.8	WSW	51	-14.5	.2	***	26
27	-6.2	-14.4	-10.3	062	1.0	1.2	059	3.2	ENE	51	-18.6	0.0	***	27
28	-11.3	-17.7	-14.5	065	4.5	4.6	065	14.6	ENE	43	-23.7	0.0	***	28
29	-2.2	-12.3	-7.3	058	6.2	6.4	070	13.3	NE	38	-19.7	0.0	***	29
30	1.7	-3.2	-.7	068	5.7	5.8	075	12.1	ENE	26	-18.3	0.0	***	30
31	-.1	-4.2	-2.2	053	2.8	2.9	045	7.6	ENE	38	-14.7	.2	***	31
MONTH	3.5	-17.7	-4.5	062	3.8	4.2	085	14.6	ENE	40	-16.3	1.6	***	

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

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS
 HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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



DAY OF THE MONTH

LIATANA WEATHER STATION

DATA STARTS 01 JANUARY, 1961

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING JANUARY , 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	GREATER TO THAN 20.0	
N	.27	2.22	.74	0.00	0.00	0.00	0.00	3.23
NNE	.34	3.23	3.83	0.00	0.00	0.00	0.00	7.39
NE	.47	4.70	16.83	2.12	0.00	0.00	0.00	24.13
ENE	.81	6.10	17.54	15.42	.47	0.00	0.00	42.34
E	.97	9.01	3.46	2.96	.17	0.00	0.00	16.57
ESE	.27	.84	.27	0.00	0.00	0.00	0.00	1.38
SE	0.00	.07	0.00	0.00	0.00	0.00	0.00	.07
SSE	.20	.13	0.00	0.00	0.00	0.00	0.00	.34
S	.03	.13	0.00	0.00	0.00	0.00	0.00	.17
SSW	.03	.24	0.00	0.00	0.00	0.00	0.00	.27
SW	.17	.13	.10	.10	0.00	0.00	0.00	.50
WSW	.17	.87	.10	.34	0.00	0.00	0.00	1.48
W	.17	.37	0.00	.10	0.00	0.00	0.00	.64
WNW	.03	.13	0.00	0.00	0.00	0.00	0.00	.17
W	.03	.37	0.00	0.00	0.00	0.00	0.00	.40
WNW	.07	.60	.27	0.00	0.00	0.00	0.00	.94
CALM								0.00
TOTAL	4.03	31.15	43.15	21.03	.64	0.00	0.00	100.00

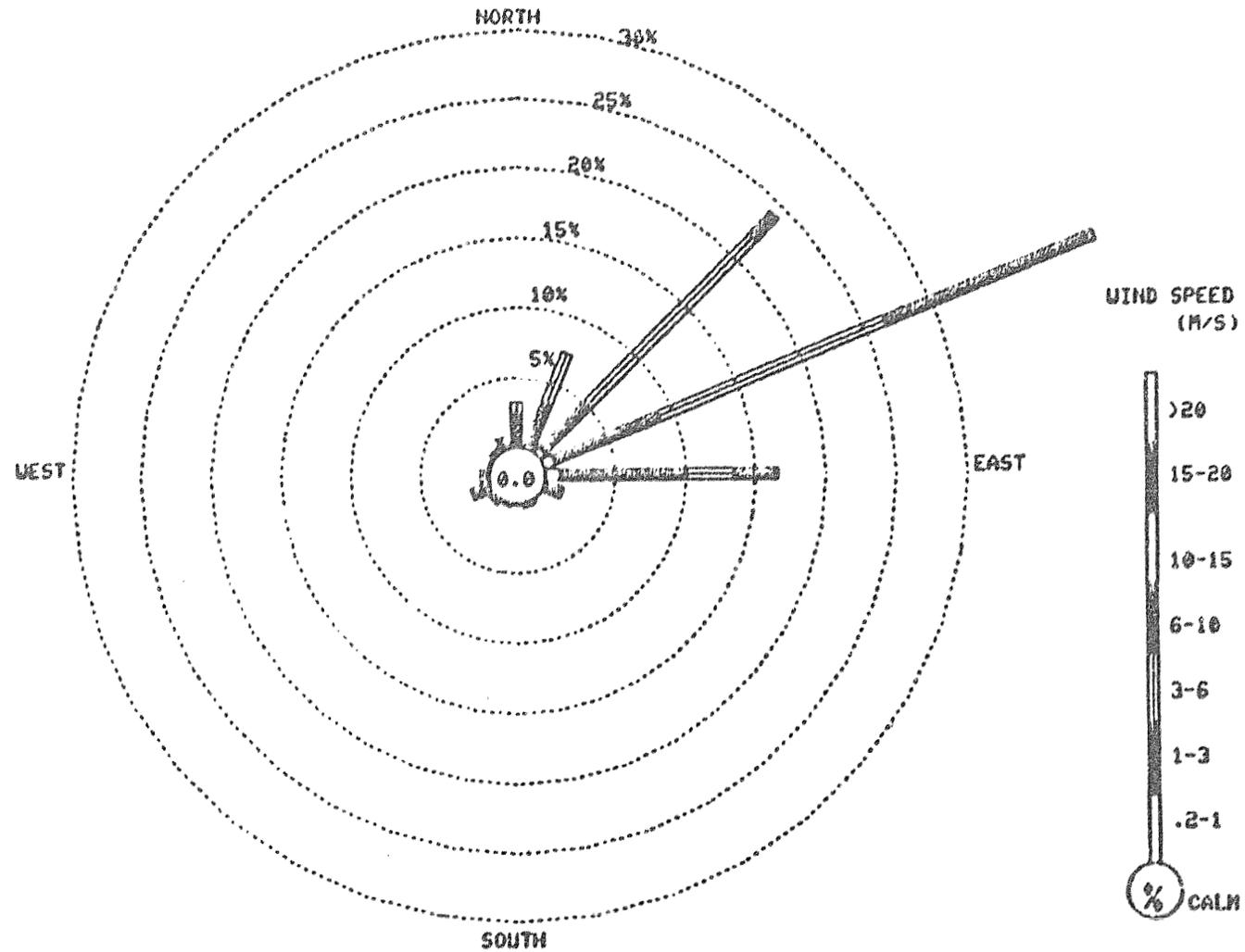
NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

2976 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

SUSITHA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

JANUARY, 1981



WIND ROSE PLOT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION.
DATA TAKEN DURING FEBRUARY, 1981

DAY 01									DAY 02									DAY 03								
HOUR	DEW	WIND	WIND	GUST	MAX.	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	-1.2	-13.2	40	080	6.0	088	10.2	***	0300	.7	-14.3	32	069	5.2	082	10.2	***	0300	-3.0	-12.6	48	066	3.7	057	5.7	001
0600	-1.6	-14.2	38	081	6.8	096	10.2	***	0600	.3	-14.2	33	086	7.9	086	13.3	***	0600	-4.1	-11.5	57	082	2.3	092	4.4	001
0900	-1.4	-14.7	36	085	7.0	092	14.0	***	0900	1.4	-14.0	31	064	6.6	067	14.0	***	0900	-4.6	-11.9	57	080	1.0	105	2.5	002
1200	.4	-13.8	34	083	4.9	084	10.8	***	1200	6.3	****	10	076	4.3	085	12.1	***	1200	-4.2	-13.7	48	075	1.4	059	3.8	009
1500	1.5	-13.2	33	077	5.0	086	10.8	***	1500	-.7	-14.8	34	238	2.9	226	6.3	***	1500	-2.9	-11.5	52	049	3.4	053	5.7	002
1800	-3.4	-13.0	48	001	2.2	044	4.4	***	1800	-2.3	****	42	273	1.0	257	3.2	***	1800	-2.5	-11.9	49	026	2.7	034	4.4	001
2100	-2.5	-11.9	49	017	1.6	341	3.8	***	2100	-3.5	-18.3	31	023	1.8	038	3.8	001	2100	-2.4	-12.3	47	061	3.4	057	5.1	001
2400	-1.5	-14.4	37	032	3.0	028	5.1	***	2400	-2.4	-17.0	32	074	3.2	074	7.6	001	2400	-2.3	-12.8	45	071	3.5	069	5.7	001

DAY 04									DAY 05									DAY 06								
HOUR	DEW	WIND	WIND	GUST	MAX.	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	-2.3	-13.6	42	052	3.3	078	5.1	001	0300	-5.2	****	52	084	1.0	063	1.9	001	0300	-2.5	-11.9	49	065	4.1	065	6.3	001
0600	-2.6	-9.6	59	050	3.3	057	5.7	001	0600	-4.5	****	58	084	.7	087	1.3	001	0600	-2.5	-10.0	57	060	3.7	042	6.3	001
0900	-2.5	-11.1	52	035	2.3	034	3.8	006	0900	-4.8	-12.3	56	100	.8	086	1.3	002	0900	-2.4	-9.9	57	050	3.5	070	5.7	001
1200	-2.7	-11.1	53	081	1.3	055	3.2	005	1200	-3.5	****	50	099	.6	094	1.9	004	1200	-2.0	-9.7	56	045	2.4	035	4.4	004
1500	-3.1	****	58	088	1.1	090	2.5	001	1500	-1.8	-10.5	52	087	1.1	076	3.2	002	1500	-2.2	-9.7	57	204	.1	068	1.9	002
1800	-3.3	-10.1	60	087	.8	069	1.9	001	1800	-1.9	-10.3	53	066	2.5	068	5.1	001	1800	-2.2	****	65	246	1.0	250	1.9	001
2100	-3.4	****	59	083	.5	117	1.9	000	2100	-1.8	-10.0	54	056	3.4	078	5.1	001	2100	-2.9	****	61	216	.6	158	1.9	001
2400	-4.2	-12.0	55	088	.9	090	1.9	001	2400	-1.7	-10.1	53	063	3.7	068	6.3	001	2400	-3.2	****	63	352	.3	347	1.9	001

DAY 07									DAY 08									DAY 09								
HOUR	DEW	WIND	WIND	GUST	MAX.	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	-3.7	****	60	024	0.0	054	0.0	001	0300	-4.8	****	58	080	0.0	094	0.0	001	0300	-4.4	-13.4	50	057	3.5	060	5.7	001
0600	-5.8	****	57	053	0.0	071	0.0	001	0600	-4.6	****	58	064	0.0	084	0.0	001	0600	-3.8	-12.6	51	062	3.4	085	5.7	001
0900	-7.7	****	56	064	0.0	081	0.0	002	0900	-4.5	****	55	066	0.0	072	0.0	002	0900	-3.7	-13.5	47	068	3.5	065	6.3	003
1200	-5.4	****	59	081	0.0	084	0.0	003	1200	-2.5	****	43	076	0.0	028	0.0	006	1200	-2.5	-13.8	42	058	3.3	063	6.3	011
1500	-5.0	****	54	093	0.0	089	0.0	002	1500	-2.3	-10.2	55	080	.5	096	1.9	002	1500	-3.3	-13.9	44	070	3.0	079	5.1	003
1800	-5.0	****	54	072	0.0	095	0.0	001	1800	-2.4	-10.8	53	056	2.3	062	5.1	001	1800	-4.5	****	55	073	1.6	066	3.8	001
2100	-5.0	****	54	082	0.0	080	0.0	001	2100	-1.8	-11.2	49	064	3.0	062	5.1	001	2100	-4.7	****	60	161	.2	090	1.9	001
2400	-5.4	****	57	053	0.0	072	0.0	001	2400	-2.5	-11.4	51	065	3.0	057	5.1	001	2400	-4.7	****	59	220	.1	118	1.9	001

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING FEBRUARY , 1981

DAY 10

DAY 11

DAY 12

HOUR NDNG	DEW			WIND			GUST MAX.			HOUR NDNG	DEW			WIND			GUST MAX.			HOUR NDNG	DEW			WIND			GUST MAX.		
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW	TEMP. DEG C		POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW	TEMP. DEG C	POINT DEG C		RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW			
0300	-4.7	*****	59	328	.1	307	1.3	001	0300	-8.7	-21.9	34	102	3.4	111	5.7	001	0300	-14.6	-29.2	28	038	5.5	038	7.6	002			
0600	-4.1	*****	59	072	0.0	335	0.0	001	0600	-8.3	-22.9	30	038	2.8	028	5.7	001	0600	-14.6	-29.5	27	039	6.0	037	8.3	002			
0900	-4.2	-10.9	60	239	.9	240	3.8	001	0900	-8.4	-25.0	25	027	4.2	033	7.6	003	0900	-13.0	-30.8	21	044	6.2	045	8.9	010			
1200	-3.5	-14.4	43	229	2.4	234	4.4	004	1200	-8.3	-24.9	25	042	4.4	039	6.3	012	1200	-12.8	-30.6	21	064	7.3	064	10.2	022			
1500	-4.1	-13.9	47	227	2.2	248	3.8	003	1500	-7.9	-23.8	27	036	4.7	045	7.0	016	1500	-13.3	-30.1	23	068	6.0	071	8.9	012			
1800	-5.3	*****	59	260	1.0	251	2.5	001	1800	-10.2	-23.2	34	042	4.1	036	6.3	002	1800	-16.2	-30.5	28	045	4.8	054	7.0	002			
2100	-6.7	-14.8	53	340	.7	330	1.9	001	2100	-10.9	-24.8	31	053	5.6	065	9.5	001	2100	-16.6	-30.9	28	047	5.2	056	7.6	002			
2400	-8.5	-20.1	39	100	1.7	114	4.4	001	2400	-12.2	-27.9	26	058	6.8	067	11.4	002	2400	-15.9	-29.6	30	059	5.5	055	8.3	002			

DAY 13

DAY 14

DAY 15

HOUR NDNG	DEW			WIND			GUST MAX.			HOUR NDNG	DEW			WIND			GUST MAX.			HOUR NDNG	DEW			WIND			GUST MAX.		
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW	TEMP. DEG C		POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW	TEMP. DEG C	POINT DEG C		RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW			
0300	-15.6	-29.3	30	054	4.0	061	7.0	002	0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***			
0600	*****	*****	32	050	2.8	058	5.7	002	0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***			
0900	-16.5	-32.0	25	025	2.8	055	4.9	008	0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***			
1200	*****	*****	**	030	3.2	020	4.4	*****	1200	*****	*****	**	***	*****	***	*****	***	1200	*****	*****	**	***	*****	***	*****	***			
1500	*****	*****	**	***	*****	***	*****	*****	1500	*****	*****	**	***	*****	***	*****	***	1500	*****	*****	**	***	*****	***	*****	***			
1800	*****	*****	**	***	*****	***	*****	*****	1800	*****	*****	**	***	*****	***	*****	***	1800	*****	*****	**	***	*****	***	*****	***			
2100	*****	*****	**	***	*****	***	*****	*****	2100	*****	*****	**	***	*****	***	*****	***	2100	*****	*****	**	***	*****	***	*****	***			
2400	*****	*****	**	***	*****	***	*****	*****	2400	*****	*****	**	***	*****	***	*****	***	2400	*****	*****	**	***	*****	***	*****	***			

DAY 16

DAY 17

DAY 18

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

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION.
DATA TAKEN DURING FEBRUARY , 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.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	TEMP.	POINT	RH	DIR.	SPD.	
	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S	
0300	*****	*****	**	***	***	***	0300	*****	*****	**	***	***	0300	*****	*****	**	***	***
0600	*****	*****	**	***	***	***	0600	*****	*****	**	***	***	0600	*****	*****	**	***	***
0900	*****	*****	**	***	***	***	0900	*****	*****	**	***	***	0900	*****	*****	**	***	***
1200	*****	*****	**	***	***	***	1200	*****	*****	**	***	***	1200	*****	*****	**	***	***
1500	*****	*****	**	***	***	***	1500	*****	*****	**	***	***	1500	*****	*****	**	***	***
1800	*****	*****	**	***	***	***	1800	*****	*****	**	***	***	1800	*****	*****	**	***	***
2100	*****	*****	**	***	***	***	2100	*****	*****	**	***	***	2100	*****	*****	**	***	***
2400	*****	*****	**	***	***	***	2400	*****	*****	**	***	***	2400	*****	*****	**	***	***

DAY 22

DAY 23

DAY 24

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

DAY 25

DAY 26

DAY 27

HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	TEMP.	POINT	RH	DIR.	SPD.	
	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S	
0300	*****	*****	**	***	***	***	0300	*****	*****	**	***	***	0300	-5.0	-13.0	54	062	1.6
0600	*****	*****	**	***	***	***	0600	*****	*****	**	***	***	0600	-5.9	-13.8	54	063	1.3
0900	*****	*****	**	***	***	***	0900	*****	*****	**	***	***	0900	-3.5	-16.2	37	049	2.0
1200	*****	*****	**	***	***	***	1200	*****	*****	**	***	***	1200	-1.1	-17.4	28	067	3.5
1500	*****	*****	**	***	***	***	1500	-2.8	-19.3	27	273	1.1	259	1.9	012	1500	-2.3	-16.5
1800	*****	*****	**	***	***	***	1800	-3.9	*****	47	163	.4	090	2.5	001	1800	-5.4	-15.3
2100	*****	*****	**	***	***	***	2100	-4.4	-11.1	60	025	.7	349	1.9	001	2100	-7.1	-15.6
2400	*****	*****	**	***	***	***	2400	-4.2	-12.5	53	045	1.3	067	3.2	001	2400	-8.2	-16.7

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING FEBRUARY , 1981

DAY 28

DAY 29

DAY 30

HOUR NDNG	DEW		WIND		WIND GUST MAX.		HOUR NDNG	DEW		WIND		WIND GUST MAX.		HOUR NDNG	DEW		WIND		WIND GUST MAX.			
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.		GUST M/S	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S		DIR. DEG.	GUST M/S	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.
0300	-8.4	-17.6	48	018	1.3	028	3.8	001	0300	*****	*****	**	**	*****	**	*****	**	**	*****	**	*****	**
0600	-8.5	-16.7	52	056	1.9	022	3.2	001	0600	*****	*****	**	**	*****	**	*****	**	**	*****	**	*****	**
0900	-4.6	-19.3	31	054	5.0	054	9.5	010	0900	*****	*****	**	**	*****	**	*****	**	**	*****	**	*****	**
1200	-3.2	-21.0	24	071	6.9	074	10.8	026	1200	*****	*****	**	**	*****	**	*****	**	**	*****	**	*****	**
1500	-2.9	-21.3	23	068	5.7	078	10.2	020	1500	*****	*****	**	**	*****	**	*****	**	**	*****	**	*****	**
1800	-4.4	-18.4	33	041	3.9	046	7.0	001	1800	*****	*****	**	**	*****	**	*****	**	**	*****	**	*****	**
2100	-3.6	-18.1	32	052	5.4	062	9.5	001	2100	*****	*****	**	**	*****	**	*****	**	**	*****	**	*****	**
2400	-4.8	-16.8	39	035	3.3	052	7.6	001	2400	*****	*****	**	**	*****	**	*****	**	**	*****	**	*****	**

R&M CONSULTANTS, INC.

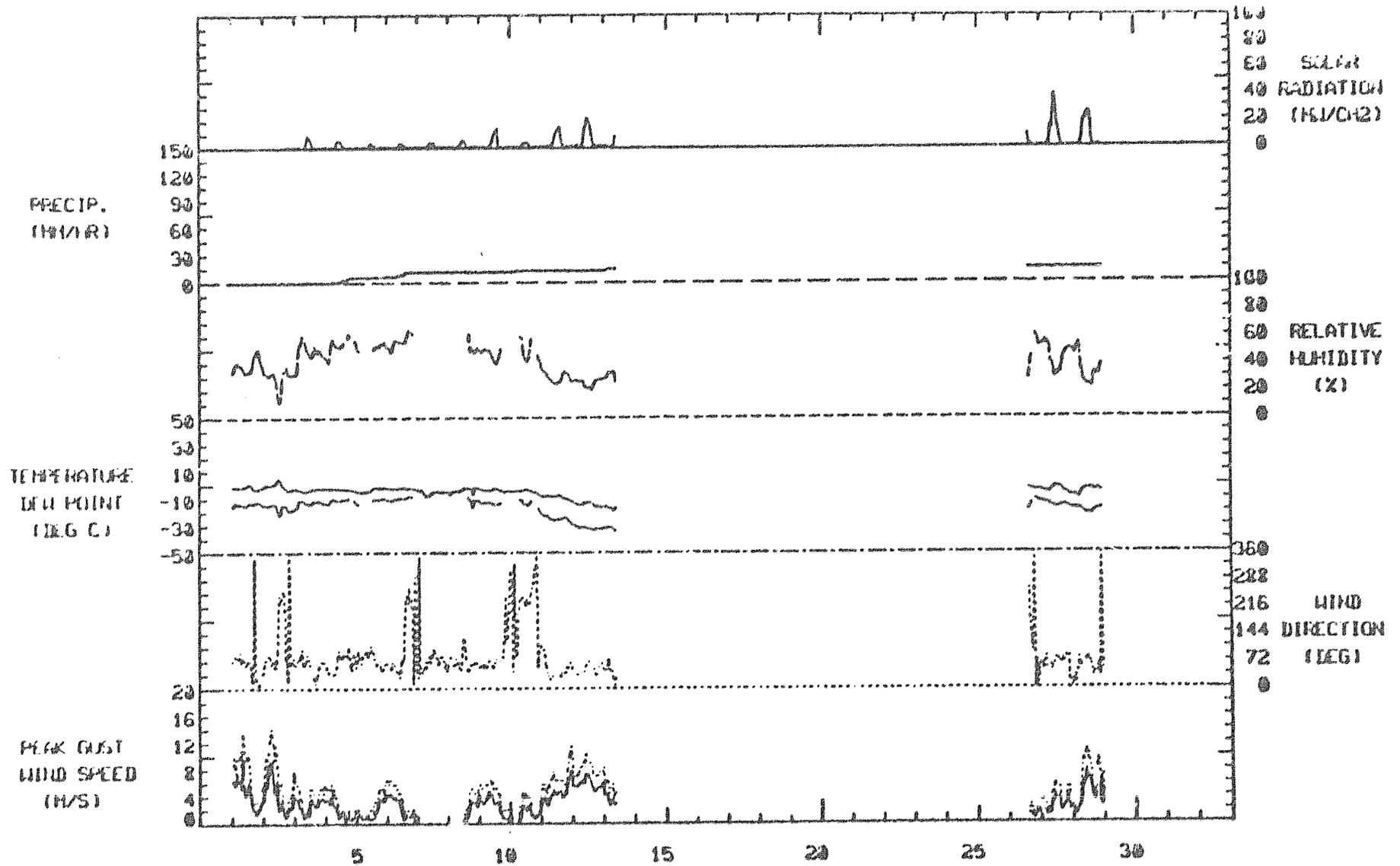
SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING FEBRUARY, 1981

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	1.5	-4.8	-1.7	068	4.2	4.7	092	14.0	E	40	-13.5	0.0	***	01
02	6.8	-4.7	1.1	072	3.1	4.4	067	14.0	ENE	30	-15.4	0.0	277	02
03	-2.0	-5.0	-3.5	062	2.6	2.7	057	5.7	ENE	48	-12.3	.2	543	03
04	-1.9	-4.4	-3.2	060	1.6	1.7	057	5.7	NE	53	-11.2	5.8	430	04
05	-1.6	-5.8	-3.7	070	1.7	1.8	068	6.3	E	53	-10.7	.8	353	05
06	-1.0	-3.6	-2.3	055	1.5	2.1	065	6.3	ENE	56	-10.2	5.0	348	06
07	-3.3	-8.2	-5.8	066	0.0	0.0	054	0.0	E	**	*****	0.0	380	07
08	-1.6	-5.2	-3.4	063	1.2	1.2	062	5.1	ENE	52	-10.9	0.0	428	08
09	-1.9	-4.8	-3.4	064	2.3	2.6	065	6.3	ENE	49	-13.4	0.0	785	09
10	-3.3	-8.5	-5.9	230	.6	1.2	234	4.4	SW	49	-14.8	1.4	385	10
11	-7.6	-12.9	-10.3	049	4.2	4.5	067	11.4	NE	30	-24.3	0.0	1033	11
12	-12.3	-17.0	-14.6	052	5.7	5.9	064	10.2	NE	26	-30.2	0.0	1611	12
13	*****	*****	*****	***	*****	3.3	061	7.0	NE	32	-30.6	2.0	555	13
14	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	14
15	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	15
16	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	16
17	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	17
18	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	18
19	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	19
20	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	20
21	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	21
22	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	22
23	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	23
24	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	24
25	*****	*****	*****	***	*****	*****	***	*****	MSG	**	*****	*****	***	25
26	-2.6	-11.6	-7.1	***	*****	1.1	067	3.2	E	50	-14.3	0.0	638	26
27	-.9	-8.7	-4.8	065	2.3	2.4	083	6.3	ENE	45	-15.6	0.0	1893	27
28	-2.5	-10.2	-6.4	055	4.1	4.3	074	10.8	ENE	35	-18.6	0.0	1795	28
MONTH	6.8	-17.0	-5.0	060	2.4	2.8	092	14.0	ENE	43	-16.4	15.2	11452	

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

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.
 ***** SEE GENERAL NOTES AT THE BACK OF THE REPORT *****



DAY OF THE MONTH

WATANA LEATHER STATION

DATA START: 01 FEBRUARY, 1981

R&I CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING FEBRUARY , 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	GREATER THAN 20.0	
N	.28	2.34	0.00	0.00	0.00	0.00	0.00	2.62
NNE	.57	3.83	3.48	.07	0.00	0.00	0.00	7.94
NE	.78	4.82	14.11	1.77	0.00	0.00	0.00	21.49
ENE	1.35	7.73	13.26	4.75	.14	0.00	0.00	27.23
E	3.26	4.54	2.84	2.55	.21	0.00	0.00	13.40
ESE	1.63	1.77	.64	.07	0.00	0.00	0.00	4.11
SE	.50	.14	0.00	0.00	0.00	0.00	0.00	.64
SSE	.14	.14	0.00	0.00	0.00	0.00	0.00	.28
S	.14	.07	0.00	0.00	0.00	0.00	0.00	.21
SSW	0.00	.35	0.00	0.00	0.00	0.00	0.00	.35
SW	.35	1.49	.28	0.00	0.00	0.00	0.00	2.13
WSW	.71	2.27	.14	0.00	0.00	0.00	0.00	3.12
W	.64	.85	0.00	0.00	0.00	0.00	0.00	1.49
WNW	.50	.14	0.00	0.00	0.00	0.00	0.00	.64
NW	.21	0.00	0.00	0.00	0.00	0.00	0.00	.21
NNW	.50	.92	0.00	0.00	0.00	0.00	0.00	1.42
CALM								12.70
TOTAL	11.56	31.42	34.75	9.22	.35	0.00	0.00	100.00

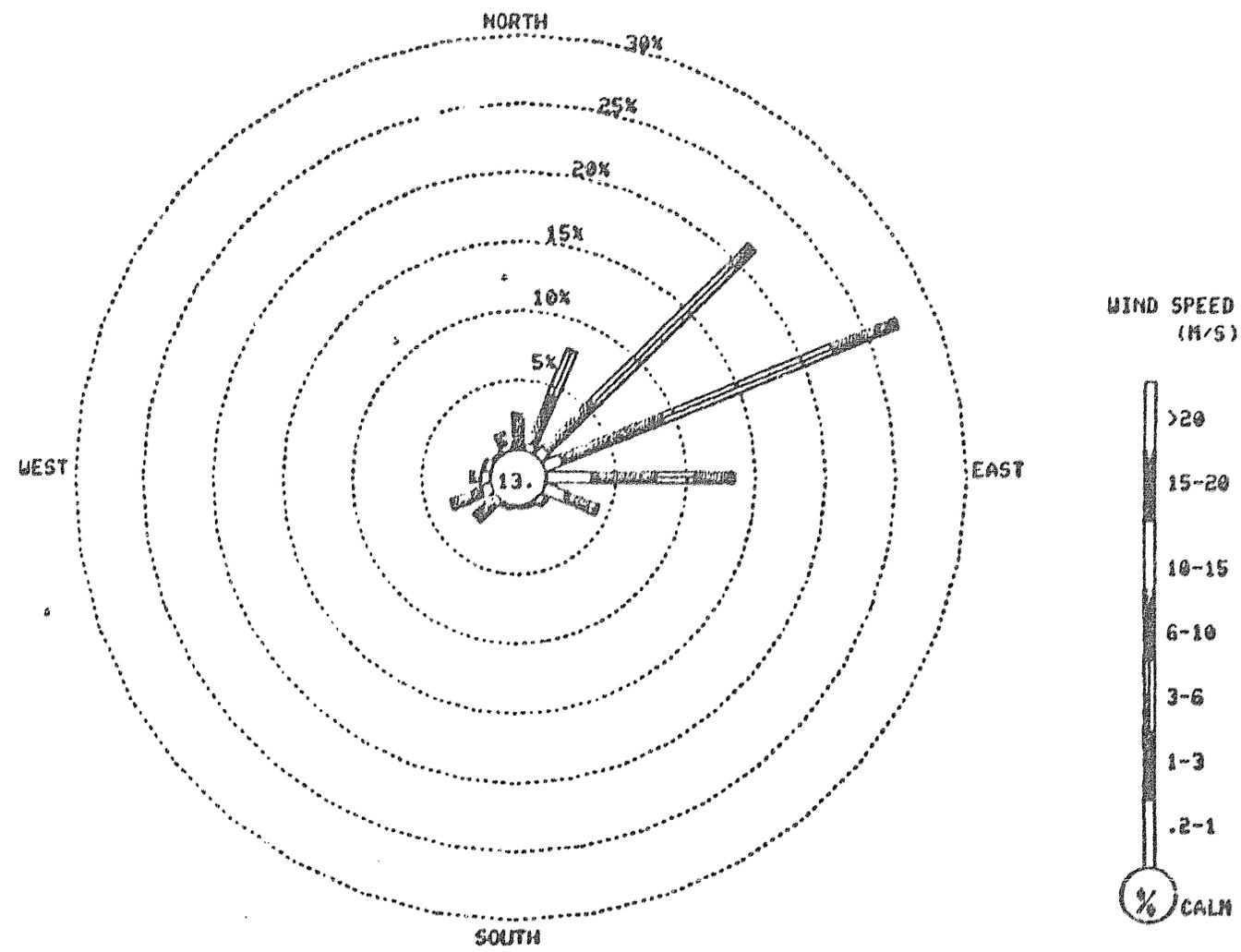
NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

1410 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

FEBRUARY, 1981



WIND ROSE PLOT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION.
DATA TAKEN DURING MARCH , 1981

DAY 01

DAY 02

DAY 03

DAY 01									DAY 02									DAY 03								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.	HOUR				
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	-3.3	-10.7	35	070	6.2	069	13.4	001	0300	-1.9	-10.8	51	068	3.5	075	6.3	001	0300	-11.6	-19.8	51	081	1.1	061	1.9	001
0600	-2.9	-16.7	34	072	6.3	078	10.8	001	0600	-3.5	-10.0	61	223	1.1	237	5.7	001	0600	-13.7	-22.0	50	084	1.2	085	2.5	001
0900	-2.1	-17.1	31	080	5.2	083	8.9	011	0900	-3.4	-11.7	53	231	3.6	230	5.7	011	0900	-9.7	-22.1	36	086	1.1	105	2.5	026
1200	.2	-18.6	23	078	8.2	081	12.1	029	1200	-3.3	-12.6	49	236	4.3	237	7.6	017	1200	-7.9	-23.3	28	094	1.4	106	2.5	018
1500	.6	-18.3	23	075	6.1	069	9.5	011	1500	-3.3	-13.1	47	240	4.8	242	8.3	013	1500	-5.7	-24.7	21	100	.2	105	1.9	031
1800	.2	-16.8	27	068	4.1	072	7.6	002	1800	-5.3	-14.5	49	257	2.6	252	5.7	001	1800	-9.8	-21.3	39	350	1.6	342	2.5	001
2100	-.7	-15.1	33	068	5.5	076	9.5	002	2100	-7.0	-14.4	56	252	.7	228	1.9	001	2100	-13.4	-23.2	44	063	1.6	078	3.2	001
2400	-1.6	-12.7	43	069	5.1	071	8.3	001	2400	-10.8	*****	52	052	.5	069	2.5	001	2400	-15.8	-25.6	43	081	2.2	083	4.4	001

DAY 04

DAY 05

DAY 06

DAY 04									DAY 05									DAY 06								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.	HOUR				
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	-15.2	-23.8	48	057	1.8	051	3.2	001	0300	-7.5	-21.5	32	057	5.3	067	8.9	001	0300	-9.9	-25.1	28	065	1.7	044	5.1	001
0600	-15.7	-24.3	48	069	2.0	071	3.2	001	0600	-6.9	-22.1	29	058	5.6	057	8.3	002	0600	-11.5	-24.7	33	043	1.4	022	3.2	001
0900	-11.3	-27.1	26	075	2.0	076	3.8	027	0900	-4.5	-23.1	22	062	5.7	061	8.3	014	0900	-7.8	-27.5	19	097	1.3	081	3.2	020
1200	-7.3	-24.1	25	064	4.1	074	8.3	040	1200	-3.5	-25.1	17	056	5.6	060	9.5	026	1200	-2.6	-27.3	13	066	1.2	037	3.2	037
1500	-8.6	-23.6	29	071	5.3	079	8.9	010	1500	-3.2	-24.9	17	059	6.2	070	10.8	015	1500	-3.3	-25.6	16	009	2.1	047	3.8	024
1800	-7.8	-21.8	32	049	5.0	041	8.3	002	1800	-3.6	-25.9	16	065	6.3	074	10.8	002	1800	-8.6	-24.4	27	009	2.5	011	3.8	002
2100	-8.4	-22.3	32	043	4.6	043	8.9	002	2100	-5.5	-25.0	20	060	4.7	079	9.5	002	2100	-11.6	-24.4	34	358	2.8	011	4.4	001
2400	-7.2	-21.6	31	053	4.7	073	9.5	002	2400	-5.9	-24.3	22	061	3.2	082	6.3	001	2400	-13.0	-24.4	38	066	2.2	051	3.8	001

DAY 07

DAY 08

DAY 09

DAY 07									DAY 08									DAY 09								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.	HOUR				
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	-14.5	-23.9	45	073	2.5	068	3.8	001	0300	*****	*****	**	***	*****	***	*****	***	0300	-3.6	-23.4	20	066	5.1	079	10.8	002
0600	-9.7	-22.4	35	057	2.4	035	5.7	001	0600	*****	*****	**	***	*****	***	*****	***	0600	-7.2	-24.0	25	058	5.9	065	10.2	002
0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***	0900	4.1	-16.4	21	053	5.3	066	8.9	***
1200	*****	*****	**	050	3.4	053	6.3	***	1200	*****	*****	**	***	*****	***	*****	***	1200	-1.7	-21.3	21	065	4.6	057	8.3	030
1500	-4.5	-27.3	15	063	4.1	049	6.3	024	1500	*****	*****	**	***	*****	***	*****	***	1500	.1	-20.9	19	061	3.8	062	7.0	017
1800	-5.0	-24.6	20	044	4.4	044	6.1	002	1800	-4.2	-23.4	21	058	5.2	068	7.0	004	1800	-1.7	-16.8	31	072	3.4	085	6.3	002
2100	-10.9	*****	**	076	2.8	077	13.6	***	2100	-5.2	-23.7	22	031	3.6	080	7.0	002	2100	-3.3	-13.1	47	068	4.2	069	9.5	001
2400	-12.4	*****	**	075	2.6	086	4.4	002	2400	-3.3	-22.6	21	052	2.6	031	5.1	002	2400	-5.2	-13.4	53	062	3.8	077	7.0	001

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MARCH 1981

DAY 10

DAY 11

DAY 12

DAY 10									DAY 11									DAY 12											
HR	NDNG	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD	HR	NDNG	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD	HR	NDNG	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	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		-5.5	-14.4	50	034	3.6	039	5.7	001	0300		-5.1	-19.0	33	059	5.1	067	10.2	001	0300		-1.2	-17.5	28	077	7.4	074	11.4	002
0600		-7.4	-15.4	53	053	4.6	059	6.3	001	0600		-3.7	-14.6	43	077	5.7	070	8.9	001	0600		-3.2	-17.7	32	077	6.8	069	11.4	001
0900	*****	*****	*****	**	064	5.0	069	7.0	***	0900		-1.7	-14.0	39	054	4.1	065	7.6	016	0900		-1.7	-17.2	30	077	5.2	082	10.2	027
1200	*****	*****	*****	**	050	5.8	064	7.6	***	1200		1.2	-12.4	36	067	7.2	070	15.2	021	1200		.9	-18.1	23	062	5.4	067	8.3	038
1500		-1.5	-20.1	23	073	5.9	073	8.9	029	1500		2.6	-10.4	38	062	6.0	090	14.0	012	1500		-.3	-18.6	24	070	5.5	073	8.3	013
1800		-4.9	-18.5	34	061	4.4	074	8.3	001	1800		1.4	-12.9	34	080	2.7	101	8.9	001	1800		-2.1	-17.1	31	073	4.8	075	8.3	002
2100		-4.0	-18.2	34	041	3.9	058	5.7	001	2100		-1.1	-15.1	34	079	6.6	071	11.4	001	2100		-2.7	-16.5	34	069	3.9	075	7.6	001
2400		-4.3	-18.0	34	055	4.6	061	7.0	001	2400		-1.1	-16.2	31	073	8.5	075	12.1	001	2400		-4.8	-18.4	34	049	3.7	064	6.3	002

DAY 13

DAY 14

DAY 15

DAY 13									DAY 14									DAY 15											
HR	NDNG	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD	HR	NDNG	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD	HR	NDNG	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	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		-6.0	-19.8	33	040	3.9	036	5.7	001	0300		-2.6	-22.1	21	049	4.5	039	8.9	002	0300		-9.7	-20.6	41	040	1.5	349	3.8	001
0600		-6.1	-20.3	32	043	3.7	056	7.0	002	0600		-3.3	-22.6	21	040	2.5	026	5.1	002	0600		-10.6	-22.9	36	062	1.8	071	3.2	001
0900		-4.3	-23.0	22	062	4.6	076	9.5	016	0900		-1.6	-21.8	20	071	3.9	070	9.5	017	0900		-7.5	-25.2	23	084	1.4	033	3.8	031
1200		-3.3	-25.0	17	059	5.3	090	10.2	021	1200		-1.3	-19.9	23	073	6.4	070	10.8	019	1200		2.9	*****	15	108	.8	***	2.5	047
1500		-.2	-23.8	15	039	4.0	070	14.0	021	1500		-.5	-19.8	22	077	5.2	080	8.9	021	1500		0.0	-26.1	12	027	.9	036	2.5	030
1800		-2.3	-21.8	21	073	6.1	078	12.7	002	1800		-2.5	-17.8	30	041	2.5	078	4.4	002	1800		-6.4	-23.8	24	353	2.0	005	3.2	002
2100		-2.0	-19.6	25	054	4.5	061	8.9	002	2100		-4.1	-19.6	29	014	2.8	037	4.4	002	2100		-10.3	-24.0	32	348	2.9	342	4.4	001
2400		-2.5	-20.4	24	033	3.5	066	10.2	002	2400		-7.5	-21.5	32	030	3.0	039	5.1	002	2400		-10.4	-23.7	33	005	2.4	344	3.8	001

DAY 16

DAY 17

DAY 18

DAY 16									DAY 17									DAY 18											
HR	NDNG	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD	HR	NDNG	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	RAD	HR	NDNG	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST MAX.	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		-11.2	-24.1	34	044	2.0	011	3.2	002	0300		-1.8	-21.9	20	057	5.8	072	12.1	002	0300		.8	-24.6	13	058	5.2	072	8.3	002
0600		-12.8	-24.6	37	074	2.1	076	3.8	001	0600		-2.1	-22.2	20	056	6.0	068	11.4	002	0600		.4	-24.9	13	061	4.2	064	8.9	002
0900		-7.6	-25.8	22	069	1.6	080	3.2	024	0900		-1.2	-24.6	15	060	7.0	068	10.8	019	0900		.7	-28.6	09	045	5.0	059	9.5	013
1200		-1.9	-24.5	16	054	3.3	046	5.7	036	1200		1.4	-22.5	15	042	5.2	065	8.9	032	1200		6.3	-22.1	11	059	6.5	059	10.2	052
1500		-2.2	-24.1	17	056	3.6	071	5.7	022	1500		1.9	-22.9	14	082	4.4	087	10.2	018	1500		7.4	-22.3	10	087	5.9	095	11.4	035
1800		-4.0	-22.2	23	039	3.9	044	6.3	002	1800		2.6	-24.0	12	075	3.7	088	10.8	002	1800		5.0	-23.1	11	080	8.7	088	12.7	002
2100		-2.8	-21.2	23	052	5.7	059	8.9	001	2100		1.4	-23.3	14	055	4.1	072	8.3	002	2100		3.1	-23.7	12	081	5.4	079	13.3	002
2400		-3.9	-22.6	22	058	6.0	066	10.2	002	2400		.9	-24.5	13	047	3.0	064	6.3	001	2400		0.0	-23.7	15	112	1.0	077	5.7	002

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MARCH , 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.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	TEMP.	POINT	RH	DIR.	SPD.	DIR.								
	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW						
0300	-1.7	-23.7	17	027	1.5	051	3.2	002	0300	-8.4	-16.2	54	018	2.0	353	3.8	001	0300	-9.6	-22.8	32	091	3.1	106	5.1	001
0600	-3.6	-20.5	20	294	1.3	272	3.8	003	0600	-8.7	-18.3	46	083	2.6	084	4.4	002	0600	-12.3	-25.0	34	039	2.3	079	4.4	002
0900	-0.8	*****	22	302	.7	252	3.2	018	0900	-2.8	-21.2	23	093	2.2	112	4.4	039	0900	-6.4	-26.9	18	085	3.1	069	5.1	030
1200	4.1	*****	18	267	1.0	309	2.5	040	1200	1.2	-22.0	16	089	3.8	089	7.0	050	1200	-0.7	-26.7	12	087	3.7	080	6.3	050
1500	.7	-9.7	40	226	2.3	212	4.4	017	1500	.9	-22.9	15	059	4.3	068	7.6	033	1500	-0.1	-26.2	12	080	3.8	084	6.3	034
1800	-0.9	-9.6	52	248	1.7	247	3.8	001	1800	-2.6	-25.1	16	050	3.6	050	5.7	002	1800	-3.5	-25.8	16	075	4.2	077	7.6	003
2100	-3.1	-15.9	37	298	1.3	294	3.8	001	2100	-6.0	-24.4	22	057	2.6	050	5.1	002	2100	-5.9	-26.5	18	041	3.6	050	5.7	002
2400	-7.2	-18.9	39	344	2.2	341	3.8	001	2400	-9.2	-23.0	32	084	3.2	095	6.3	001	2400	-8.9	-27.4	21	029	3.3	046	6.3	002
DAY 22										DAY 23							DAY 24									
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	TEMP.	POINT	RH	DIR.	SPD.	DIR.								
	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW						
0300	-9.1	-28.6	19	020	3.1	342	5.1	002	0300	-6.1	-18.9	36	056	4.8	069	8.3	001	0300	-5.3	-16.6	41	045	2.9	061	5.7	001
0600	-9.4	-28.8	19	030	3.1	039	4.4	003	0600	-6.4	-19.2	36	061	4.6	064	8.3	002	0600	-6.0	-16.4	44	005	1.8	014	3.2	002
0900	-5.0	-28.4	14	045	3.4	044	6.3	031	0900	-4.2	-20.1	28	057	4.9	065	8.9	022	0900	-1.6	-20.2	23	030	1.6	051	3.8	035
1200	-2.6	-26.5	14	068	5.6	068	8.3	051	1200	-1.4	-21.0	21	071	5.6	074	8.3	052	1200	.7	-20.4	19	055	2.5	046	3.8	054
1500	-2.5	-26.4	14	082	5.7	079	8.3	027	1500	-0.8	-20.0	22	066	5.5	071	8.3	034	1500	1.2	-20.0	19	042	2.2	078	3.8	035
1800	-4.5	-23.7	21	077	5.3	079	8.3	003	1800	-2.8	-17.7	31	068	5.3	077	9.5	002	1800	-2.6	-18.3	29	030	2.2	004	3.8	003
2100	-6.3	-22.0	28	042	3.4	058	5.1	001	2100	-3.5	-17.6	33	043	4.0	047	7.0	001	2100	-6.7	-19.1	37	000	2.4	337	3.8	001
2400	-6.6	-19.0	37	050	4.1	044	7.0	001	2400	-3.9	-17.3	35	056	3.8	045	5.1	001	2400	-8.4	-19.7	40	354	2.3	348	3.8	001
DAY 25										DAY 26							DAY 27									
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	TEMP.	POINT	RH	DIR.	SPD.	DIR.	TEMP.	POINT	RH	DIR.	SPD.	DIR.								
	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S	DEG.	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW						
0300	-8.8	-18.7	45	050	2.0	047	3.2	001	0300	-3.6	-16.3	37	048	3.9	053	7.6	001	0300	-3.2	-9.1	64	254	2.8	249	4.4	000
0600	-9.9	-21.4	39	072	2.0	071	3.2	006	0600	-4.0	-17.3	35	057	4.6	062	7.0	002	0600	-3.1	-9.4	62	261	1.8	262	3.2	002
0900	-2.3	-21.3	22	070	3.0	065	5.7	039	0900	-2.4	-15.9	35	047	4.1	053	6.3	011	0900	-1.4	-11.9	45	222	1.6	210	3.2	018
1200	1.3	-19.9	19	072	4.1	079	7.0	053	1200	.1	-18.7	23	066	4.9	069	7.6	030	1200	1.1	-15.1	29	210	1.6	202	3.2	036
1500	.8	-20.4	19	075	5.8	080	8.9	036	1500	.7	-17.7	24	050	3.0	058	7.6	010	1500	1.7	-17.4	23	285	1.1	297	4.4	022
1800	-1.6	-18.8	26	075	5.8	074	8.9	004	1800	-0.1	-15.8	30	030	2.1	032	3.8	003	1800	-0.8	*****	34	325	.9	294	4.4	002
2100	-4.7	-18.0	35	057	4.5	068	7.6	001	2100	-2.1	-12.0	47	044	2.5	065	4.4	001	2100	-4.4	-13.1	51	073	1.3	055	2.5	001
2400	-5.4	-17.5	33	026	3.1	037	5.1	001	2400	-3.1	-12.9	47	349	.7	255	3.8	001	2400	-5.8	-14.9	49	047	1.2	083	2.5	001

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MARCH , 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	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW									
0300	-8.6	-16.1	55	051	1.4	042	2.5	001	0300	-10.2	-22.2	37	358	2.0	357	3.2	001	0300	-10.7	-19.2	50	045	1.3	054	3.2	001
0600	-9.0	-18.1	48	054	1.5	071	2.5	002	0600	-10.5	-20.5	44	008	1.7	348	2.5	004	0600	-9.2	-24.5	28	035	1.7	359	2.5	010
0900	-6.5	-19.2	36	096	1.4	083	2.5	024	0900	-5.3	-28.0	15	049	1.1	065	3.2	038	0900	-4.9	-26.3	17	096	1.1	072	1.9	049
1200	1.6	-25.8	11	082	.9	100	2.5	054	1200	-.3	-26.3	12	052	2.3	038	4.4	061	1200	.5	-25.7	12	050	.8	036	2.5	058
1500	.6	-22.5	16	358	1.6	006	3.2	027	1500	.8	-23.0	15	065	3.8	091	7.0	045	1500	-.3	-25.5	13	354	1.2	032	2.5	017
1800	-2.4	-20.9	23	013	2.2	009	3.8	004	1800	-3.1	-30.4	10	067	3.3	073	5.7	004	1800	-3.3	-22.1	22	346	1.8	334	3.2	004
2100	-4.9	-19.9	30	015	1.7	354	3.2	002	2100	-8.0	-20.9	35	024	2.9	039	3.8	002	2100	-6.3	-22.0	28	354	2.0	005	2.5	001
2400	-7.0	-20.3	34	016	1.6	023	3.2	001	2400	-8.9	-20.2	40	025	1.2	354	3.8	001	2400	-5.8	-18.6	36	336	1.5	000	2.5	001

DAY 31									DAY 31									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	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW										
0300	-5.9	-15.5	47	343	1.6	351	3.2	001	0300	*****	*****	**	***	*****	***	*****	***	0300	*****	*****	**	***	*****	***	*****	***	*****
0600	-5.8	-15.2	48	059	1.0	004	3.8	003	0600	*****	*****	**	***	*****	***	*****	***	0600	*****	*****	**	***	*****	***	*****	***	*****
0900	-3.3	-20.2	26	033	1.1	015	3.8	026	0900	*****	*****	**	***	*****	***	*****	***	0900	*****	*****	**	***	*****	***	*****	***	*****
1200	-1.6	-26.5	13	045	2.7	040	5.1	045	1200	*****	*****	**	***	*****	***	*****	***	1200	*****	*****	**	***	*****	***	*****	***	*****
1500	-1.6	-24.3	16	046	1.9	053	3.8	030	1500	*****	*****	**	***	*****	***	*****	***	1500	*****	*****	**	***	*****	***	*****	***	*****
1800	-6.4	-28.9	15	354	2.0	359	3.8	007	1800	*****	*****	**	***	*****	***	*****	***	1800	*****	*****	**	***	*****	***	*****	***	*****
2100	-11.8	-27.5	26	339	3.0	342	4.4	002	2100	*****	*****	**	***	*****	***	*****	***	2100	*****	*****	**	***	*****	***	*****	***	*****
2400	-8.6	-22.5	32	004	2.4	339	3.8	002	2400	*****	*****	**	***	*****	***	*****	***	2400	*****	*****	**	***	*****	***	*****	***	*****

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MARCH, 1981

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	1.1	-4.3	-1.6	073	5.8	5.9	069	13.4	ENE	31	-16.5	0.0	1713	01
02	-1.4	-10.8	-6.1	237	1.6	2.8	242	8.3	WSW	52	-12.5	.2	1398	02
03	-2.8	-15.8	-9.3	071	1.1	1.4	083	4.4	E	41	-22.7	0.0	2075	03
04	-6.7	-16.4	-11.6	058	3.6	3.7	073	9.5	ENE	34	-23.6	0.0	2685	04
05	-2.8	-8.0	-5.4	060	5.3	5.4	070	10.8	ENE	22	-24.0	0.0	1945	05
06	-2.3	-13.0	-7.7	036	1.6	2.0	044	5.1	N	25	-25.4	10.0	2563	06
07	-1.6	-15.9	-8.8	061	3.0	3.1	077	13.6	ENE	31	-24.6	3.0	1721	07
08	-2.4	-12.6	-7.5	***	****	3.6	068	7.0	NNE	21	-23.3	2.0	524	08
09	.6	-7.2	-3.3	063	4.5	4.6	079	10.8	ENE	28	-18.7	1.0	2168	09
10	0.0	-7.4	-3.7	055	4.5	4.6	073	8.9	ENE	38	-17.4	0.0	1821	10
11	3.8	-5.1	-.7	072	5.7	6.0	070	15.2	ENE	37	-14.3	0.0	1563	11
12	1.2	-4.8	-1.8	071	5.3	5.4	074	11.4	ENE	29	-17.6	0.0	2415	12
13	.5	-7.3	-3.4	053	4.3	4.7	070	14.0	NE	24	-21.7	0.0	2208	13
14	.1	-7.5	-3.7	055	3.6	4.0	070	10.8	ENE	24	-20.6	0.0	2033	14
15	3.4	-13.1	-4.9	024	1.4	1.8	342	4.4	N	28	-23.7	0.0	3368	15
16	-1.1	-4.2	-2.7	054	3.5	3.6	066	10.2	NE	25	-23.6	0.0	2857	16
17	2.8	-4.1	-.7	059	4.8	5.1	072	12.1	NE	16	-23.3	0.0	2290	17
18	7.4	-1.0	3.2	070	5.0	5.4	079	13.3	ENE	12	-24.1	0.0	2753	18
19	4.1	-7.5	-1.7	291	.9	1.8	212	4.4	WSW	31	-16.4	.6	2380	19
20	1.8	-9.5	-3.8	068	2.8	3.1	068	7.6	E	27	-21.6	0.0	3930	20
21	.2	-12.4	-6.1	068	3.1	3.5	077	7.6	E	21	-25.9	0.0	3798	21
22	-2.0	-11.8	-6.9	057	4.0	4.3	068	8.3	ENE	20	-25.4	0.0	3945	22
23	-.3	-6.9	-3.6	061	4.8	4.8	077	9.5	ENE	30	-19.0	0.0	3418	23
24	1.4	-9.0	-3.8	027	2.1	2.3	061	5.7	N	31	-18.9	0.0	3775	24
25	1.6	-10.7	-4.6	065	3.7	3.8	080	8.9	ENE	30	-19.5	0.0	4345	25
26	.8	-4.3	-1.8	050	3.1	3.4	053	7.6	NE	33	-15.8	0.0	1978	26
27	5.0	-6.7	-.8	257	.7	1.7	249	4.4	WSW	45	-13.0	1.2	2778	27
28	2.2	-10.1	-4.0	034	1.3	1.6	009	3.8	NNE	32	-20.4	0.0	3700	28
29	1.1	-11.2	-5.1	042	2.1	2.4	091	7.0	NE	26	-23.9	0.0	4528	29
30	2.0	-11.2	-4.6	014	1.1	1.5	054	3.2	N	26	-23.0	0.0	4795	30
31	-1.1	-11.8	-6.4	013	1.7	2.1	040	5.1	NNW	28	-22.6	.4	3718	31
MONTH	7.4	-16.4	-4.3	058	2.9	3.5	070	15.2	ENE	29	-20.7	18.4	85181	

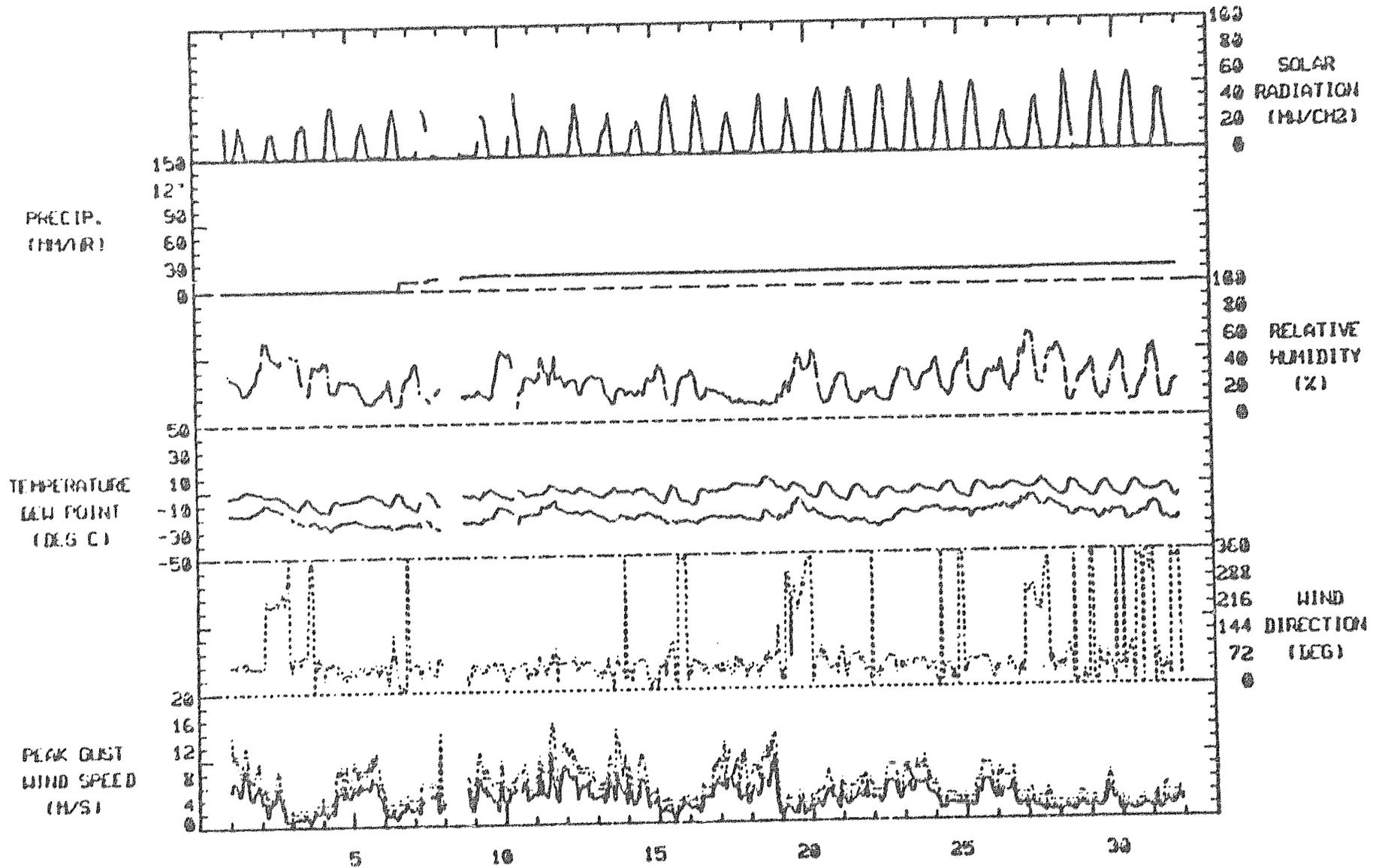
GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 13.3
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 14.0
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 12.7
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 12.1

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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

R/M CONSULTANT, INC.

SUSITNA HYDROELECTRIC PROJECT



WATANA LEATHER STATION

DATA START: 01 MARCH, 1981

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MARCH , 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	GREATER THAN 20.0	
N	.18	6.28	.67	0.00	0.00	0.00	0.00	7.12
NNE	.11	5.96	3.58	0.00	0.00	0.00	0.00	9.65
NE	.53	6.77	15.33	.84	0.00	0.00	0.00	23.47
ENE	.46	7.65	17.47	8.03	.14	0.00	0.00	33.74
E	.42	4.63	4.10	1.93	.07	0.00	0.00	11.15
ESE	.56	1.12	.53	.14	0.00	0.00	0.00	2.35
SE	.35	.07	0.00	0.00	0.00	0.00	0.00	.42
SSE	.21	.04	0.00	0.00	0.00	0.00	0.00	.25
S	0.00	.07	.04	0.00	0.00	0.00	0.00	.11
SSW	.11	.60	.04	0.00	0.00	0.00	0.00	.74
SW	.07	.56	.91	0.00	0.00	0.00	0.00	1.54
WSW	.21	1.30	.88	0.00	0.00	0.00	0.00	2.39
W	.35	1.19	0.00	0.00	0.00	0.00	0.00	1.54
WNW	.25	.46	0.00	0.00	0.00	0.00	0.00	.70
NW	.21	.49	0.00	0.00	0.00	0.00	0.00	.70
NNW	.11	3.23	.77	0.00	0.00	0.00	0.00	4.10
CALM								.04
TOTAL	4.10	40.41	44.30	10.94	.21	0.00	0.00	100.00

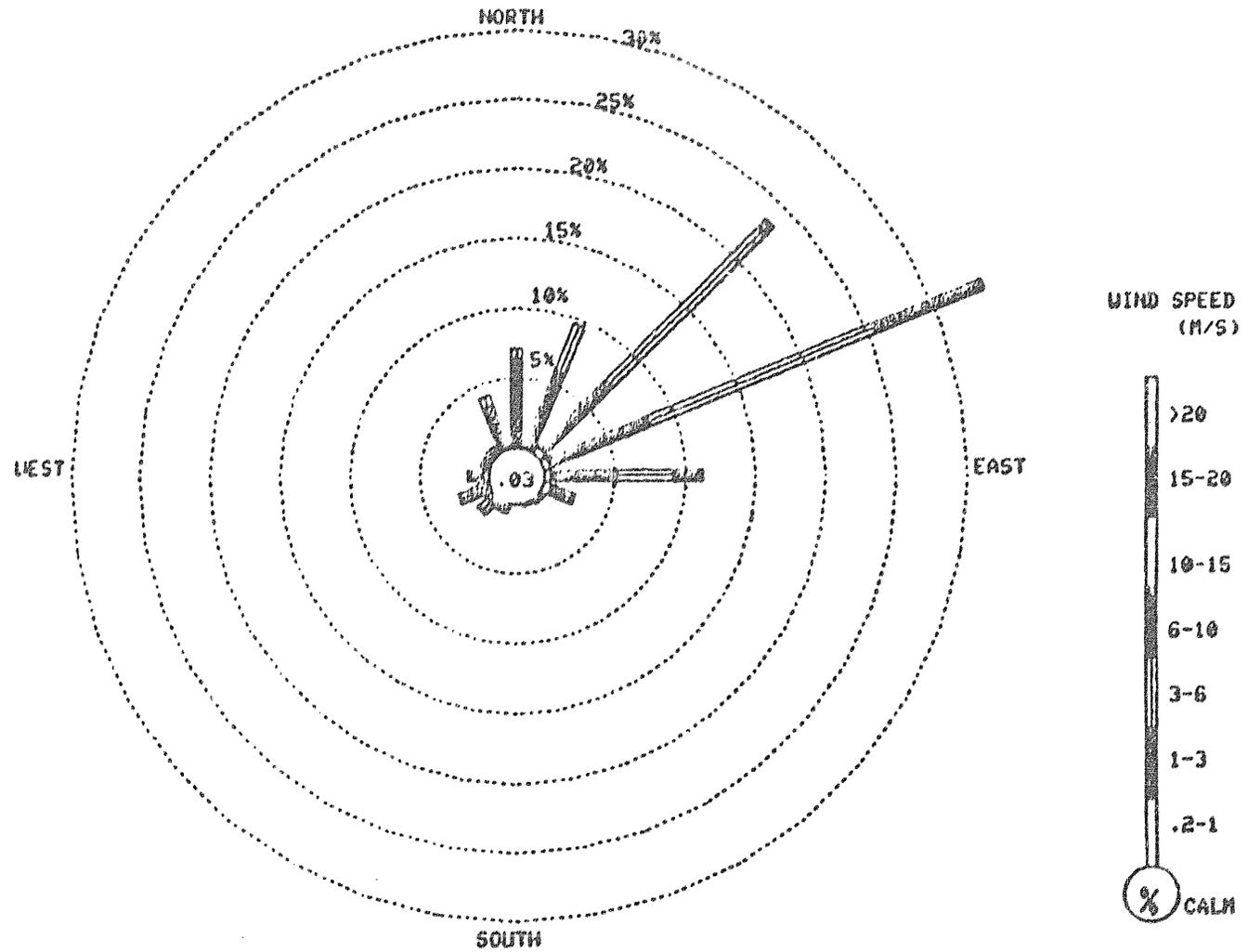
NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

2851 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

MARCH, 1981



WIND ROSE PLOT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING APRIL , 1981

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	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	-6.7	-19.4	36	048	3.2	056	6.3	001	0300	-6.3	*****	52	335	1.4	343	2.5	001	0300	-12.4	-25.1	34	014	1.7	354	3.2	001
0600	-9.1	-17.7	50	127	.2	130	2.5	003	0600	-6.9	-13.9	58	259	2.3	250	3.8	002	0600	-13.9	-29.7	25	034	1.2	012	2.5	007
0900	-6.0	*****	41	001	.4	253	1.9	012	0900	-3.3	-17.4	33	254	2.6	229	5.1	040	0900	-6.9	*****	15	059	1.2	026	2.5	041
1200	-2.5	-17.8	30	057	1.8	096	3.8	044	1200	-3.2	-19.3	28	242	4.6	248	7.6	032	1200	-3.7	-28.2	13	026	1.8	032	3.2	059
1500	-2.5	-17.5	31	027	1.8	048	3.8	021	1500	-2.7	-22.1	21	265	4.7	252	7.0	045	1500	-3.1	-27.7	13	006	3.3	010	5.1	044
1800	-3.9	-13.7	47	358	1.5	008	2.5	003	1800	-4.8	-21.5	26	278	3.2	292	5.7	004	1800	-6.1	-26.7	18	012	2.9	009	5.1	008
2100	-6.1	-14.2	53	351	1.2	355	2.5	001	2100	-9.4	-22.8	33	325	1.6	345	3.2	002	2100	-11.7	-25.2	32	346	2.8	351	4.4	001
2400	-7.2	-16.5	48	346	1.9	350	2.5	001	2400	-10.9	-24.1	33	352	2.4	346	3.2	001	2400	-14.5	-26.7	35	355	2.3	348	3.8	001
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	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	-14.5	-25.8	38	014	1.7	350	3.2	001	0300	-14.1	-29.1	27	013	2.0	352	3.2	002	0300	-13.1	-26.8	31	040	1.5	030	3.2	002
0600	-14.3	-33.4	18	016	1.5	002	2.5	009	0600	-15.1	-30.8	25	044	1.5	074	2.5	006	0600	-14.7	-28.2	31	058	1.5	063	2.5	006
0900	-8.7	-30.7	15	086	1.0	092	2.5	043	0900	-7.3	-28.9	16	094	1.4	088	3.8	042	0900	-7.6	-29.8	15	089	1.1	085	2.5	048
1200	1.7	*****	15	357	.1	106	1.3	063	1200	-2.9	-26.8	14	043	1.0	020	2.5	063	1200	-2.8	*****	14	041	1.1	045	3.2	048
1500	-2.0	-26.0	14	273	2.7	287	5.1	045	1500	-3.7	-28.2	13	352	1.4	350	3.2	020	1500	-3.1	-27.7	13	326	1.6	326	3.8	026
1800	-5.0	-27.7	15	299	2.0	277	5.1	008	1800	-5.6	-28.2	15	329	1.5	310	3.8	006	1800	-5.8	-27.0	17	351	1.5	325	3.2	007
2100	-11.8	-29.3	22	350	2.5	006	3.8	002	2100	-10.9	-26.8	26	351	2.4	353	3.8	002	2100	-10.0	-26.0	26	343	2.3	342	3.8	002
2400	-13.4	-29.7	24	348	2.7	348	3.8	002	2400	-11.5	-27.3	26	008	1.9	004	3.2	002	2400	-9.9	*****	27	018	1.5	351	3.2	002
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	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	-10.9	-24.5	32	046	1.0	017	2.5	002	0300	-13.2	-25.8	34	002	2.3	001	3.8	001	0300	-6.6	-17.2	43	265	1.7	239	6.3	001
0600	-13.1	-26.8	31	033	1.0	010	2.5	006	0600	-13.4	-28.5	27	016	1.4	036	2.5	010	0600	-7.3	-25.0	23	106	3.6	092	6.3	011
0900	-1.6	*****	14	070	.8	048	2.5	045	0900	-6.9	*****	15	081	.7	000	2.5	038	0900	-5.7	-29.0	14	090	5.9	078	9.5	047
1200	-1.9	-26.0	14	017	1.2	005	3.2	064	1200	-2.0	-26.0	14	255	.8	231	5.1	061	1200	-4.2	-27.8	14	059	5.0	034	8.3	067
1500	-1.6	-25.7	14	040	1.6	011	3.2	028	1500	-1.9	-26.8	13	238	5.4	244	8.9	045	1500	-3.8	-27.5	14	062	5.9	047	8.9	049
1800	-3.7	-28.2	13	277	1.1	257	3.8	006	1800	-2.7	-26.6	14	272	3.6	258	7.0	004	1800	-5.8	-27.0	17	074	3.6	059	7.0	011
2100	-9.0	-25.5	25	047	.6	277	3.8	002	2100	-3.9	-23.7	20	243	2.3	276	4.4	002	2100	-9.3	-31.2	15	067	2.1	069	3.8	001
2400	-12.5	-25.6	33	360	1.9	347	3.2	002	2400	-5.7	-23.2	24	249	2.8	246	4.4	002	2400	-10.4	-30.8	17	011	1.9	344	3.2	002

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION.
DATA TAKEN DURING APRIL , 1981

DAY 10

DAY 11

DAY 12

HOUR NDNG	DEW							HOUR NDNG	DEW							HOUR NDNG	DEW									
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST MAX.		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST MAX.		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST MAX.			
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S			
0300	-12.4	-32.5	17	041	2.2	073	4.4	001	0300	-14.9	-32.9	20	083	1.5	092	4.4	002	0300	-11.0	-31.3	17	016	2.6	029	5.1	002
0600	-13.1	-32.5	18	053	1.6	052	3.8	011	0600	-11.6	-32.4	16	055	3.1	041	5.7	012	0600	-12.3	-33.0	16	060	1.9	028	5.1	012
0900	-7.1	-28.7	16	071	3.6	067	7.6	041	0900	-3.8	-26.1	16	069	3.5	055	5.7	049	0900	-4.4	-25.3	18	095	1.6	084	5.7	050
1200	-5.3	-28.7	14	053	5.2	071	7.6	068	1200	-1.3	-24.7	15	049	4.8	051	7.0	069	1200	-1.0	-24.5	15	053	3.0	066	4.4	069
1500	-4.7	-28.2	14	049	5.3	045	8.3	051	1500	-0.8	-24.3	15	048	4.6	051	7.6	052	1500	-1.1	-23.8	16	060	4.3	080	8.3	052
1800	-7.0	-29.3	15	034	4.7	040	7.0	012	1800	-2.9	-26.8	14	044	3.7	045	5.7	013	1800	-3.6	-25.9	16	025	4.9	036	7.6	013
2100	-13.4	-32.7	18	031	3.6	042	6.3	002	2100	-8.3	-30.4	15	030	3.3	039	4.4	002	2100	-7.4	-29.0	16	022	4.0	021	7.0	002
2400	-13.0	-31.3	20	043	1.9	031	4.4	002	2400	-10.1	-31.2	16	045	1.9	015	3.8	002	2400	-10.5	-29.7	19	080	2.0	097	4.4	002

DAY 13

DAY 14

DAY 15

HOUR NDNG	DEW							HOUR NDNG	DEW							HOUR NDNG	DEW									
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST MAX.		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST MAX.		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST MAX.			
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S			
0300	-13.6	-31.3	21	067	1.9	079	3.8	002	0300	-15.7	-31.3	25	066	2.0	063	4.4	002	0300	-15.0	-34.0	18	051	1.7	046	3.2	002
0600	-12.6	*****	17	076	2.0	084	3.8	012	0600	-10.9	-33.9	13	069	2.5	069	6.3	013	0600	-13.9	-33.1	18	052	2.3	069	3.8	015
0900	-6.3	-29.5	14	061	3.4	063	6.3	050	0900	-8.4	-29.8	16	057	4.6	067	7.0	051	0900	-5.8	-27.0	17	081	2.5	061	5.7	053
1200	-2.5	-25.0	16	043	3.9	053	5.7	070	1200	-6.7	-29.8	14	033	5.1	044	7.6	073	1200	-3.6	-27.3	14	039	4.3	035	7.0	072
1500	-3.8	-27.5	14	059	4.2	087	8.9	053	1500	-4.6	-27.4	15	058	5.9	067	9.5	062	1500	-3.5	-25.8	16	057	4.6	079	8.3	055
1800	-5.6	-26.2	15	024	4.4	021	6.3	013	1800	-6.1	-28.6	15	067	5.8	062	8.9	015	1800	-5.8	-27.0	17	028	4.8	029	7.6	015
2100	-9.6	-31.4	15	038	3.3	032	5.1	002	2100	-10.0	-31.1	16	048	4.5	042	7.0	002	2100	-9.7	-30.9	16	041	3.6	033	5.7	002
2400	-11.2	-31.5	17	059	3.0	042	5.1	002	2400	-12.7	-32.7	17	049	3.2	044	5.7	001	2400	-11.3	-31.6	17	045	2.0	043	5.1	002

DAY 16

DAY 17

DAY 18

HOUR NDNG	DEW							HOUR NDNG	DEW							HOUR NDNG	DEW									
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST MAX.		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST MAX.		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST MAX.			
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S			
0300	-15.1	-34.1	18	011	3.4	017	6.3	002	0300	-14.9	-31.0	24	044	2.1	049	3.2	002	0300	-8.9	-29.0	18	044	2.9	046	4.4	002
0600	-12.1	-32.2	17	034	1.6	351	5.1	016	0600	-13.2	-32.5	18	070	1.9	065	3.2	014	0600	-5.4	-28.8	14	050	4.2	053	7.0	015
0900	-6.6	-27.1	18	078	1.9	050	5.1	053	0900	-5.4	-28.8	14	064	2.6	062	5.7	053	0900	-1.6	-26.5	13	054	4.7	056	8.3	054
1200	-4.7	-25.5	18	077	4.2	100	7.6	072	1200	-1.9	-26.8	13	057	4.4	059	7.6	072	1200	.5	-24.8	13	071	6.1	075	8.9	069
1500	-3.3	-23.8	19	075	3.6	091	7.6	055	1500	-.9	-26.0	13	073	5.1	076	7.6	055	1500	.9	-22.2	16	072	5.8	073	10.2	049
1800	-5.2	-27.9	15	053	3.1	072	5.1	015	1800	-3.1	-27.7	13	069	4.8	078	7.6	016	1800	-.9	-26.8	12	069	4.1	069	6.3	008
2100	-11.8	-32.0	17	007	2.7	022	3.8	002	2100	-6.3	-28.8	15	042	3.8	045	5.7	002	2100	-2.8	-26.7	14	054	2.9	067	5.7	002
2400	-13.2	-32.5	18	011	2.4	003	3.8	001	2400	-8.2	-28.4	18	045	3.4	042	5.7	002	2400	-4.1	-26.3	16	052	2.4	027	5.7	002

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING APRIL , 1981

DAY 19

DAY 20

DAY 21

DAY 19									DAY 20									DAY 21								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.	HOUR				
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	-4.8	-25.6	16	040	3.8	051	7.0	002	0300	-4.6	-20.5	28	057	2.0	034	5.7	002	0300	-5.1	-19.4	32	050	2.0	070	3.8	001
0600	-3.8	-27.5	14	034	3.2	029	5.1	015	0600	-1.5	-20.6	22	037	1.8	024	3.8	013	0600	-3.2	-22.6	21	061	1.9	037	3.2	016
0900	-.9	-26.8	12	055	3.3	060	5.7	044	0900	3.5	-20.8	15	056	2.8	074	5.7	060	0900	3.1	-23.7	12	082	2.3	095	5.1	055
1200	1.1	-24.4	13	064	3.5	071	5.7	043	1200	5.0	-23.1	11	066	4.9	069	8.3	055	1200	5.3	-23.9	10	070	4.1	070	7.0	072
1500	2.5	-25.1	11	071	3.9	069	6.3	055	1500	5.8	-23.5	10	068	4.3	070	7.0	051	1500	5.8	-23.5	10	068	4.9	077	7.6	056
1800	.8	-25.5	12	078	4.2	078	7.0	016	1800	4.2	-23.7	11	053	2.7	067	5.1	013	1800	4.0	-23.9	11	061	3.5	069	7.0	017
2100	-2.8	-22.2	21	037	2.8	058	4.4	002	2100	.1	-18.2	24	360	1.4	059	4.4	002	2100	-.3	-20.7	20	024	2.6	034	3.8	001
2400	-2.5	-21.4	22	043	3.4	048	5.1	002	2400	-2.3	-18.1	29	003	1.8	338	3.2	001	2400	-2.6	-21.0	23	014	1.8	015	3.2	001

DAY 22

DAY 23

DAY 24

DAY 22									DAY 23									DAY 24								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.	HOUR				
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	-4.7	-21.4	26	026	2.1	028	3.2	001	0300	-5.2	-19.5	32	010	1.5	358	2.5	001	0300	-3.4	-17.9	32	009	1.6	344	2.5	002
0600	-3.0	-22.9	20	059	2.3	066	3.8	015	0600	-2.9	-22.9	20	021	1.3	008	2.5	014	0600	-1.7	-20.3	23	055	1.1	023	2.5	021
0900	3.5	-24.3	11	062	1.5	046	3.2	055	0900	4.7	*****	11	087	.4	047	1.9	053	0900	4.5	-23.5	11	102	1.1	045	3.8	057
1200	7.1	-22.5	10	029	2.6	030	4.4	073	1200	5.6	-20.8	13	328	.9	345	3.2	079	1200	5.3	-22.9	11	024	2.6	000	5.1	042
1500	7.1	-23.7	09	007	3.2	006	5.1	058	1500	6.1	-22.3	11	022	2.0	042	3.8	059	1500	6.7	-22.8	10	072	2.3	067	5.7	069
1800	5.9	-23.5	10	350	1.6	003	3.8	018	1800	4.5	-23.5	11	023	2.3	023	4.4	017	1800	5.1	-24.1	10	089	1.7	133	5.7	018
2100	.4	-20.7	19	332	1.7	301	2.5	002	2100	-.3	-19.1	23	005	2.0	345	3.8	002	2100	.6	*****	37	025	.4	089	6.3	001
2400	-2.8	-22.2	21	348	2.1	347	3.2	002	2400	-2.5	-20.0	25	017	1.9	351	3.2	002	2400	-1.3	*****	44	293	1.0	283	2.5	001

DAY 25

DAY 26

DAY 27

DAY 25									DAY 26									DAY 27								
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.	HOUR			DEW	WIND	WIND	GUST	MAX.	HOUR				
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	-3.9	-12.9	50	352	1.1	352	2.5	001	0300	-6.0	-15.6	47	353	2.1	342	3.2	001	0300	-6.1	-20.3	32	344	2.6	344	3.8	002
0600	-1.7	*****	41	356	1.5	353	3.2	012	0600	-1.8	-18.5	27	003	1.5	349	3.2	027	0600	-2.6	*****	20	006	1.5	351	3.2	018
0900	3.4	-18.8	18	355	1.0	344	2.5	056	0900	3.4	*****	12	056	.7	037	1.9	058	0900	3.9	*****	11	235	.3	081	2.5	059
1200	5.7	-23.6	10	314	1.1	328	2.5	080	1200	4.5	-23.5	11	331	1.1	001	3.2	052	1200	5.8	-23.5	10	015	.7	056	3.8	078
1500	5.1	-24.1	10	358	1.0	047	3.8	063	1500	4.5	-24.6	10	320	1.8	295	3.8	024	1500	6.6	-21.9	11	008	1.3	041	3.8	062
1800	2.2	-16.0	25	299	1.0	346	5.1	007	1800	4.2	-24.8	10	311	2.1	318	4.4	016	1800	6.0	*****	13	096	.8	034	3.8	015
2100	-.4	-12.2	41	241	2.5	240	5.7	001	2100	-2.0	-17.4	30	339	2.2	347	3.2	001	2100	-1.2	-18.4	26	340	2.1	326	3.2	002
2400	-3.6	-14.5	43	290	1.4	257	2.5	001	2400	-4.4	-19.1	31	340	2.5	350	3.8	002	2400	.2	-19.7	21	000	1.3	340	3.8	002

REM CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING APRIL , 1981

DAY 28									DAY 29									DAY 30								
HR	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST SPD.	RAD	HR	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST SPD.	RAD	HR	TEMP.	DEW POINT	RH %	WIND DIR.	WIND SPD.	GUST DIR.	GUST SPD.	RAD
NDNG	DEG C	DEG C	DEG	DEG	M/S	DEG	M/S	MW	NDNG	DEG C	DEG C	DEG	DEG	M/S	DEG	M/S	MW	NDNG	DEG C	DEG C	DEG	DEG	M/S	DEG	M/S	MW
0300	-1.8	-17.2	30	019	1.0	352	2.5	002	0300	-0.9	*****	65	065	.8	085	1.9	001	0300	-2.2	-15.4	36	006	1.9	355	3.2	001
0600	-1.6	-18.3	27	067	.9	026	1.9	016	0600	-0.8	*****	65	297	.4	337	1.9	007	0600	.4	-16.6	27	035	1.4	036	2.5	020
0900	3.8	-23.1	12	140	.8	097	2.5	049	0900	3.0	-12.2	32	178	.5	195	2.5	059	0900	6.3	-19.4	14	073	2.4	083	5.1	049
1200	5.9	-23.5	10	240	3.2	252	7.0	060	1200	5.5	-17.1	18	227	3.2	238	7.0	031	1200	8.6	-22.6	09	068	4.7	078	8.3	072
1500	5.4	-23.9	10	245	4.2	256	6.3	030	1500	7.1	-22.5	10	242	4.0	253	7.0	069	1500	8.4	-22.7	09	072	4.6	081	7.0	036
1800	1.2	-10.1	43	252	4.0	242	7.0	007	1800	5.5	-20.9	13	279	3.1	229	5.7	020	1800	7.7	-23.2	09	072	3.4	073	5.7	012
2100	0.0	*****	66	218	.8	250	3.8	001	2100	1.7	-18.4	21	332	1.7	303	3.8	002	2100	4.3	-19.4	16	348	1.1	354	3.8	002
2400	-0.5	*****	68	311	.4	271	1.3	001	2400	-1.9	-15.5	35	351	2.2	352	3.2	001	2400	3.1	*****	23	28 ^F	.9	262	1.9	001

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATAHA WEATHER STATION
 DATA TAKEN DURING APRIL, 1981

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	-2.0	-9.1	-5.6	024	1.3	1.6	056	6.3	N	41	-16.7	.6	2378	01
02	-1.7	-11.1	-6.4	276	2.3	3.0	248	7.6	W	36	-20.2	0.0	3553	02
03	-3.1	-14.7	-8.9	011	2.0	2.2	010	5.1	N	25	-27.0	0.0	4883	03
04	1.7	-15.9	-7.1	337	1.3	2.0	287	5.1	NNW	23	-29.0	0.0	5168	04
05	.1	-16.1	-8.0	013	1.4	1.7	088	3.8	N	21	-28.2	0.0	4510	05
06	.9	-14.7	-6.9	016	1.2	1.6	326	3.8	NNW	22	-27.6	0.0	4578	06
07	2.3	-13.4	-5.6	022	.9	1.4	257	3.8	NNE	22	-26.0	0.0	5010	07
08	-1.2	-14.1	-7.7	264	1.6	2.6	244	8.9	WSW	21	-25.8	0.0	4845	08
09	-3.3	-12.0	-7.7	071	3.0	3.9	078	9.5	ENE	19	-26.9	0.0	5643	09
10	-3.9	-15.4	-9.6	047	3.4	3.6	045	8.3	NE	16	-30.5	0.0	5780	10
11	-.5	-15.3	-7.9	051	3.2	3.4	051	7.6	NE	17	-28.6	0.0	5925	11
12	-.2	-14.2	-7.2	045	2.8	3.1	080	8.3	NNE	17	-27.8	0.0	5880	12
13	-2.3	-15.1	-8.7	050	3.2	3.4	087	8.9	NE	17	-29.2	0.0	6060	13
14	-4.5	-16.8	-10.6	055	4.1	4.3	067	9.5	ENE	17	-30.6	0.0	5743	14
15	-2.7	-16.3	-9.5	047	3.1	3.3	079	8.3	NE	17	-29.6	0.0	6315	15
16	-3.0	-15.4	-9.2	046	2.5	3.0	100	7.6	ENE	18	-29.4	0.0	6345	16
17	-.9	-15.6	-8.3	059	3.4	3.5	059	7.6	ENE	16	-28.7	0.0	6368	17
18	1.2	-9.9	-4.3	061	4.1	4.2	073	10.2	ENE	15	-26.4	0.0	5853	18
19	3.2	-5.6	-1.2	054	3.4	3.5	051	7.0	NE	15	-24.8	0.0	6110	19
20	6.2	-5.9	.2	052	2.5	2.9	069	8.3	ENE	19	-21.1	0.0	5760	20
21	6.0	-5.9	.1	058	2.7	3.0	077	7.6	ENE	18	-22.3	0.0	6268	21
22	7.1	-5.4	.9	017	1.9	2.2	006	5.1	NNE	16	-22.7	0.0	6178	22
23	6.8	-5.5	.7	015	1.4	1.7	023	4.4	NNE	18	-21.1	0.0	6385	23
24	6.7	-4.2	1.3	048	1.1	2.0	089	6.3	NNE	21	-21.9	0.0	5518	24
25	6.0	-4.1	.9	313	.9	1.6	240	5.7	NNW	28	-17.4	0.0	5145	25
26	6.0	-6.5	-.3	339	1.6	1.8	318	4.4	NNW	24	-20.5	0.0	6288	26
27	6.8	-6.6	.1	358	1.1	1.6	344	3.8	NNW	19	-20.8	0.0	6818	27
28	6.9	-2.9	2.0	246	1.3	2.1	242	7.6	WSW	21	-19.4	.4	5250	28
29	7.4	-2.2	2.6	270	1.2	2.1	238	7.0	WSW	23	-17.8	.2	5733	29
30	9.4	-3.3	3.0	057	2.1	2.7	078	8.3	ENE	18	-19.9	0.0	5988	30
MONTH	9.4	-16.8	-4.3	037	1.7	2.6	073	10.2	ENE	21	-24.6	1.2	166270	

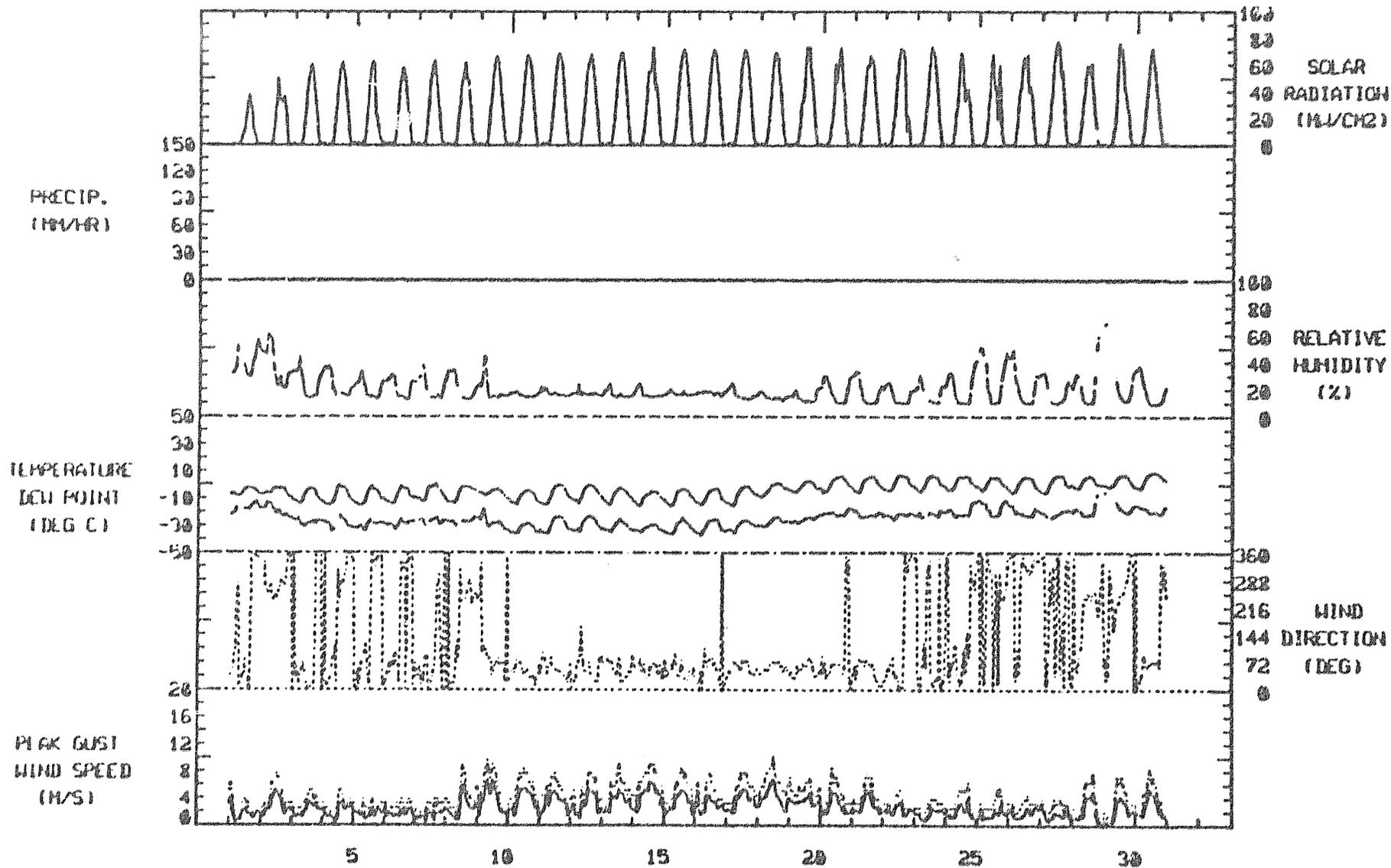
GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 8.9
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 8.9
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 8.9
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 8.3

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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

RHM CONSULTANT, INC.

SUSITNA HYDROELECTRIC PROJECT



DAY OF THE MONTH

WATANA WEATHER STATION

DATA START: 01 APRIL . 1981

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING APRIL , 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	GREATER THAN 20.0	
N	.45	8.89	1.15	0.00	0.00	0.00	0.00	10.49
NNE	.90	9.34	5.31	.03	0.00	0.00	0.00	15.59
NE	.80	7.57	9.44	.17	0.00	0.00	0.00	17.99
ENE	.87	7.19	9.86	1.15	0.00	0.00	0.00	19.06
E	.76	4.97	1.67	.21	0.00	0.00	0.00	7.60
ESE	.90	1.35	.56	.03	0.00	0.00	0.00	2.85
SE	.38	.35	.10	0.00	0.00	0.00	0.00	.83
SSE	.14	.10	0.00	0.00	0.00	0.00	0.00	.24
S	.24	.07	0.00	0.00	0.00	0.00	0.00	.31
SSW	.14	.28	.07	0.00	0.00	0.00	0.00	.49
SW	.21	.76	.94	.10	0.00	0.00	0.00	2.01
WSW	.14	1.28	2.33	.07	0.00	0.00	0.00	3.82
W	.63	1.86	1.08	0.00	0.00	0.00	0.00	3.58
WNW	.42	1.39	.73	0.00	0.00	0.00	0.00	2.53
NW	.38	2.57	.10	0.00	0.00	0.00	0.00	3.06
NNW	.66	8.30	.38	0.00	0.00	0.00	0.00	9.34
CALM								.21
TOTAL	8.02	56.28	33.72	1.77	0.00	0.00	0.00	100.00

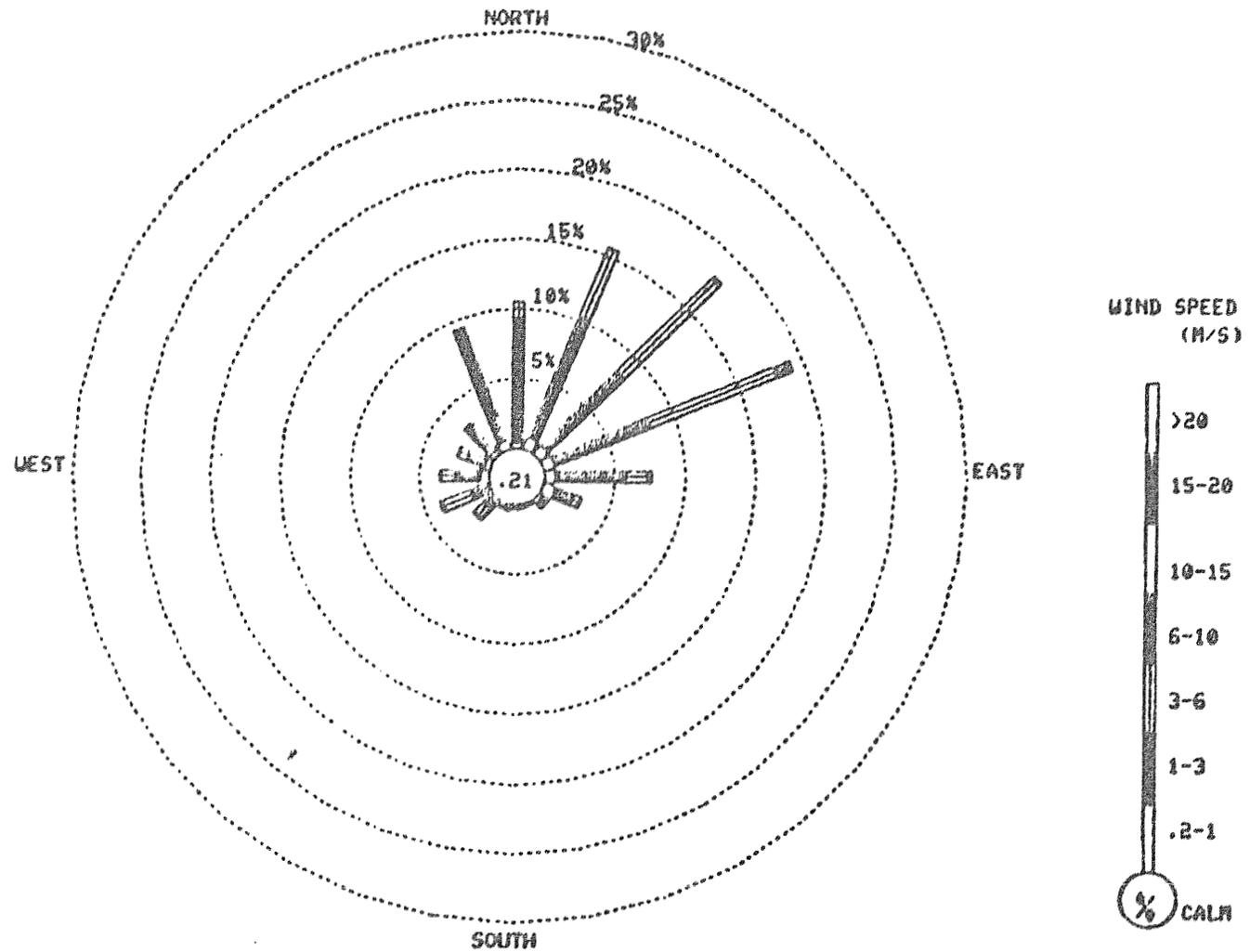
NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

2480 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

APRIL, 1981



WIND ROSE PLOT

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATAMA WEATHER STATION.
DATA TAKEN DURING MAY, 1981

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	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	1.8	-8.7	46	267	1.2	275	3.2	001	0300	-1.1	*****	31	348	0.0	049	.6	001	0300	-1.1	-12.5	42	067	.6	353	1.9	001
0600	.1	-6.2	63	270	1.1	269	2.5	002	0600	1.7	-20.2	18	353	.8	354	3.2	022	0600	0.0	*****	41	079	1.2	081	1.9	016
0900	.6	-8.2	52	251	1.7	248	2.5	018	0900	4.6	*****	11	313	1.3	000	3.8	061	0900	4.9	-16.9	19	117	.9	144	2.5	036
1200	2.6	-7.2	49	240	2.7	233	4.4	029	1200	5.4	-20.1	14	277	1.8	260	5.7	086	1200	6.7	-16.1	18	099	2.3	085	4.4	033
1500	3.7	-10.9	34	232	4.2	234	6.3	020	1500	6.8	-19.0	14	270	3.5	286	8.9	064	1500	7.4	-16.2	17	099	.8	072	4.4	050
1800	1.7	-7.7	50	212	3.1	228	5.1	005	1800	4.6	-18.5	17	247	4.2	230	7.0	007	1800	4.3	-13.7	26	232	4.3	238	7.0	012
2100	.8	-8.8	49	248	1.6	211	3.8	001	2100	2.7	*****	23	264	1.9	268	5.7	002	2100	1.6	*****	39	213	1.7	202	5.7	001
2400	-.1	*****	36	313	.1	303	1.9	001	2400	1.6	*****	30	295	.3	323	1.9	001	2400	1.0	-11.2	40	015	1.0	010	3.2	001
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	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	-15.5	27	052	3.4	065	7.0	002	0300	-1.0	-15.0	34	015	2.1	026	3.2	001	0300	-.2	-13.0	38	002	1.7	346	3.2	001
0600	4.0	-17.1	20	067	5.2	059	7.6	026	0600	1.8	-14.9	28	019	1.2	343	3.2	018	0600	.4	-13.8	34	042	1.4	013	2.5	019
0900	6.3	-17.1	17	076	5.8	076	8.9	055	0900	6.3	-17.8	16	164	.7	254	4.4	061	0900	10.1	-19.1	11	114	1.6	134	3.8	062
1200	9.1	-21.0	10	091	6.1	097	9.5	055	1200	7.8	-19.0	13	297	1.5	252	4.4	031	1200	12.9	-22.1	07	016	1.2	342	4.4	081
1500	9.0	-22.2	09	105	5.7	112	10.2	038	1500	9.2	-20.9	10	237	1.9	224	7.0	058	1500	14.3	-19.5	08	339	2.2	324	5.1	063
1800	7.3	-22.4	10	091	5.1	106	7.6	018	1800	8.0	-19.8	12	231	3.2	205	5.7	015	1800	13.0	-20.5	08	291	2.5	282	5.1	021
2100	3.7	-17.9	19	065	3.8	079	7.0	002	2100	4.3	-16.3	21	272	1.6	226	4.4	002	2100	4.3	-18.1	18	339	2.3	337	3.8	002
2400	1.4	-16.6	25	037	3.3	040	5.1	002	2400	1.7	-14.2	30	347	1.8	355	3.2	001	2400	2.5	-16.2	24	342	2.7	336	3.8	002
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	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	1.0	-14.4	31	011	1.6	351	3.8	002	0300	2.5	-18.3	20	052	1.5	021	3.2	002	0300	4.4	*****	16	008	1.2	304	3.8	002
0600	4.0	-16.0	22	065	1.5	094	3.8	021	0600	5.7	-17.6	17	078	1.8	062	3.2	022	0600	4.3	*****	19	086	.7	067	1.9	007
0900	13.5	-21.6	07	095	2.7	075	6.3	060	0900	14.7	-20.7	07	102	3.0	101	5.1	062	0900	10.3	-21.2	09	200	.6	230	4.4	051
1200	15.3	-20.3	07	040	4.1	026	8.3	078	1200	17.0	-20.8	06	075	4.0	074	8.9	078	1200	13.1	-21.9	07	252	3.5	257	7.6	060
1500	16.3	-16.7	09	019	5.1	027	8.3	063	1500	17.3	-15.9	09	032	4.2	086	8.3	063	1500	12.5	-20.9	08	244	6.0	249	8.9	037
1800	15.3	-17.4	09	018	4.4	011	7.6	023	1800	17.0	-16.1	09	025	3.3	010	7.0	023	1800	10.3	-21.2	09	249	5.5	223	8.9	013
2100	6.1	-18.0	16	009	3.1	012	5.1	002	2100	7.2	-23.6	09	020	1.7	087	4.4	002	2100	7.4	-19.3	13	253	2.5	267	6.3	002
2400	4.8	*****	18	354	2.2	343	4.4	002	2400	6.7	-17.5	16	351	2.8	343	3.8	002	2400	5.4	-16.5	19	289	1.5	301	2.5	002

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION,
DATA TAKEN DURING MAY 1981

DAY 10									DAY 11									DAY 12								
HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	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	4.1	*****	37	259	1.3	274	3.2	001	0300	2.2	*****	47	266	1.4	246	3.2	001	0300	2.9	-14.0	28	358	1.8	350	3.2	002
0600	4.3	-5.9	48	254	1.2	234	2.5	010	0600	5.1	*****	23	009	1.1	349	3.2	018	0600	5.1	-16.8	19	045	1.3	359	3.2	024
0900	5.1	-7.5	40	251	2.6	256	4.4	025	0900	8.5	-18.5	13	176	1.3	188	5.1	079	0900	11.1	-22.0	08	073	3.9	066	7.0	063
1200	6.2	-10.2	30	256	3.9	260	5.7	020	1200	10.1	-22.7	08	216	2.1	250	4.4	038	1200	12.7	-20.7	08	088	5.2	091	8.3	030
1500	7.6	-11.3	25	256	4.1	252	5.7	029	1500	10.8	-22.2	08	221	1.9	159	5.1	030	1500	13.2	-20.4	08	083	3.6	074	7.0	032
1800	8.2	-14.9	18	250	2.8	261	6.3	012	1800	10.3	-21.2	09	258	2.5	281	5.1	016	1800	13.5	-20.1	08	082	3.2	077	6.3	030
2100	4.7	-11.6	30	254	3.1	232	6.3	002	2100	7.6	*****	10	277	1.4	257	3.8	002	2100	9.4	-21.9	09	072	2.3	096	5.7	002
2400	3.2	-9.9	38	251	1.7	260	3.8	001	2400	4.3	-15.2	23	305	2.0	350	3.2	001	2400	6.0	-19.6	14	016	1.8	024	3.2	002
DAY 13									DAY 14									DAY 15								
HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	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	3.7	-16.8	21	348	2.2	350	3.8	002	0300	3.0	*****	63	036	.8	152	2.5	001	0300	3.4	-4.7	56	311	1.4	279	2.5	001
0600	6.3	-15.8	19	248	2.0	244	4.4	019	0600	5.0	*****	49	351	1.1	352	2.5	015	0600	6.2	*****	43	300	.9	325	1.9	017
0900	10.4	-21.2	09	234	3.0	232	5.7	081	0900	10.1	-9.2	25	233	2.7	232	5.1	054	0900	9.6	-9.1	26	234	1.2	259	2.5	033
1200	11.5	-21.7	08	234	2.0	232	5.1	035	1200	9.4	-8.8	27	231	.6	203	5.1	013	1200	7.6	-8.2	32	001	1.2	350	6.3	010
1500	13.6	-20.1	08	234	3.1	199	7.0	060	1500	11.1	-11.8	19	210	2.7	222	5.7	025	1500	9.8	-11.6	21	001	1.1	049	8.3	032
1800	9.9	-12.8	19	221	1.2	225	7.0	017	1800	9.8	-10.5	23	145	1.0	104	5.1	025	1800	11.2	-14.6	15	031	2.4	025	8.9	020
2100	6.3	*****	51	152	.6	209	4.4	001	2100	6.8	-6.3	39	265	1.6	260	3.2	001	2100	5.7	-3.2	53	083	3.0	068	8.9	001
2400	5.3	-2.4	58	259	1.3	274	2.5	001	2400	5.2	-5.6	46	273	1.2	252	2.5	001	2400	4.9	-3.7	54	047	1.5	075	3.8	001
DAY 16									DAY 17									DAY 18								
HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	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	3.3	-5.7	52	040	1.4	007	3.2	001	0300	2.8	-7.2	48	261	2.2	252	3.8	001	0300	4.2	-4.4	54	239	2.3	235	4.4	001
0600	6.1	-7.0	39	064	1.7	076	3.8	026	0600	4.7	-7.6	41	261	1.7	269	2.5	012	0600	5.0	-4.7	50	252	1.3	263	2.5	008
0900	12.1	-13.9	15	107	1.8	104	3.2	066	0900	9.0	-11.2	23	251	2.3	264	5.1	032	0900	8.4	-11.7	23	228	1.7	229	3.2	048
1200	14.8	-20.7	07	146	1.4	118	5.1	082	1200	11.9	-16.7	12	229	3.1	236	7.0	081	1200	11.0	-14.8	15	179	.9	125	4.4	100
1500	13.3	-21.8	07	075	2.7	063	8.9	062	1500	13.9	-21.3	07	246	3.3	252	7.0	064	1500	9.2	-9.0	27	264	2.0	253	7.6	022
1800	10.1	-14.7	16	276	1.8	204	7.0	014	1800	13.6	-21.6	07	245	3.0	234	7.0	029	1800	9.6	-8.6	27	165	.6	253	6.3	030
2100	7.4	-12.5	23	238	1.5	227	3.2	002	2100	6.6	-9.5	31	241	5.1	231	9.5	001	2100	5.8	*****	41	235	.7	247	5.1	001
2400	4.2	-9.0	38	261	1.8	260	3.2	001	2400	5.7	-7.3	39	243	3.1	240	5.1	001	2400	3.4	-6.7	48	037	1.1	017	3.2	001

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY , 1981

DAY 19

DAY 20

DAY 21

DAY 19									DAY 20									DAY 21								
HOUR	DEW	WIND	WIND	GUST	MAX.	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	2.5	-6.7	51	356	2.3	355	3.2	001	0300	4.8	-11.9	29	053	1.6	061	4.4	001	0300	.4	****	64	207	.6	212	1.9	002
0600	4.7	-8.6	38	044	3.4	041	5.1	010	0600	5.9	-12.8	25	076	4.1	080	7.6	012	0600	1.3	-6.9	55	095	.7	104	2.5	013
0900	8.5	-12.2	22	060	3.8	071	7.0	031	0900	7.6	-14.1	20	083	5.6	083	8.9	029	0900	5.6	-15.2	21	115	1.4	145	3.2	085
1200	10.1	-14.7	16	072	3.3	071	7.0	028	1200	12.1	-21.2	08	094	5.5	083	9.5	048	1200	7.8	-19.0	13	322	1.5	265	6.3	100
1500	10.2	-12.5	19	044	.5	065	5.1	037	1500	7.3	-13.2	22	215	3.3	248	12.1	029	1500	8.6	-19.3	12	263	2.7	224	8.3	039
1800	10.2	-21.3	09	115	2.0	089	8.9	006	1800	3.7	-5.9	50	271	4.4	267	9.5	004	1800	5.8	-15.0	21	211	2.2	249	7.6	007
2100	5.3	-6.1	44	278	.8	090	8.3	001	2100	1.4	-5.4	61	201	1.0	236	5.7	001	2100	2.3	-10.7	38	248	1.2	285	3.8	002
2400	3.5	-8.0	43	010	.3	073	3.2	001	2400	.5	****	64	237	1.2	267	6.3	001	2400	.2	-11.6	41	331	1.5	346	3.2	001

DAY 22

DAY 23

DAY 24

DAY 22									DAY 23									DAY 24								
HOUR	DEW	WIND	WIND	GUST	MAX.	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	-1.0	-13.3	39	347	2.3	345	3.2	002	0300	3.4	-7.3	46	247	1.3	251	2.5	002	0300	1.8	-11.2	38	031	1.8	003	3.2	002
0600	1.9	****	30	053	1.0	358	2.5	025	0600	3.7	-7.0	46	310	.2	258	1.9	015	0600	4.5	-12.2	29	068	2.0	087	3.8	021
0900	8.4	-21.5	10	223	.9	233	3.8	068	0900	9.5	-16.0	15	127	1.3	143	3.2	067	0900	12.5	-26.0	05	098	2.7	082	6.3	049
1200	10.4	-21.2	09	138	1.5	112	7.6	049	1200	11.4	-20.4	09	107	3.0	102	7.0	020	1200	16.0	-16.9	09	075	3.2	075	7.0	072
1500	9.4	-20.8	10	079	3.4	091	8.9	025	1500	10.0	-14.8	16	068	3.8	088	10.8	014	1500	15.9	-15.7	10	085	2.3	116	6.3	024
1800	8.0	-13.1	21	223	2.6	229	5.1	019	1800	10.2	-19.0	11	017	3.0	014	7.6	018	1800	11.2	-13.8	16	198	2.6	234	8.3	007
2100	5.8	-9.4	33	230	2.4	230	4.4	001	2100	6.8	-14.2	21	047	1.8	017	4.4	002	2100	7.0	-4.5	44	229	3.3	223	5.7	001
2400	3.9	-7.4	44	251	1.6	256	2.5	001	2400	3.0	-12.2	32	357	1.6	341	3.8	001	2400	5.4	-1.8	60	239	2.7	233	4.4	001

DAY 25

DAY 26

DAY 27

DAY 25									DAY 26									DAY 27								
HOUR	DEW	WIND	WIND	GUST	MAX.	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	4.9	****	65	266	1.1	257	1.9	001	0300	4.7	-10.4	33	010	1.5	348	3.2	002	0300	9.4	-3.6	40	003	1.0	337	2.5	001
0600	6.8	-4.7	44	266	.7	307	1.9	023	0600	7.8	-13.3	21	071	1.3	088	3.2	027	0600	10.3	****	35	076	.6	006	2.5	013
0900	12.3	-12.9	16	242	2.2	233	5.7	071	0900	14.5	-13.7	13	110	2.5	111	4.4	065	0900	11.7	-5.0	31	235	1.4	239	3.2	033
1200	13.6	-16.4	11	228	3.7	234	7.0	075	1200	18.2	-19.9	06	110	2.2	119	5.1	072	1200	12.4	-5.7	26	225	2.6	217	5.1	012
1500	14.5	-20.9	07	229	3.4	239	7.0	024	1500	18.2	-19.9	06	033	2.8	040	5.7	017	1500	10.2	-.4	48	234	4.1	241	6.3	024
1800	15.9	-21.6	06	241	2.6	265	7.0	031	1800	17.1	-19.0	07	068	1.7	068	5.7	008	1800	8.5	-.9	52	235	4.6	229	7.6	003
2100	9.6	-14.4	17	011	1.5	255	5.1	002	2100	12.7	-9.8	20	088	3.4	088	7.6	002	2100	7.5	1.3	65	224	4.8	222	7.0	001
2400	7.5	-10.9	26	043	1.4	071	3.2	001	2400	10.4	-5.7	32	051	2.5	070	4.4	001	2400	6.7	2.5	75	229	4.4	232	7.0	001

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY , 1981

DAY 28									DAY 29									DAY 30								
HR	WIND	TEMP.	DEW	POINT	RH	DIR.	SPD.	GUST	HR	WIND	TEMP.	DEW	POINT	RH	DIR.	SPD.	GUST	HR	WIND	TEMP.	DEW	POINT	RH	DIR.	SPD.	GUST
NDNG	DIR.	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	NDNG	DIR.	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	NDNG	DIR.	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S
0300		6.0	1.8	75	233	3.9	225	5.7	0300		3.7	-3.9	58	047	2.2	045	4.4	0300		8.6	-9.5	27	262	2.6	239	6.3
0600		5.8	1.5	74	234	3.6	237	5.7	0600		8.3	-6.4	35	068	2.5	068	5.1	0600		12.1	-13.1	16	255	2.5	230	5.1
0900		6.4	-.9	60	232	3.4	229	5.7	0900		13.6	-11.1	17	080	4.2	078	8.3	0900		15.5	-17.3	09	229	4.5	233	7.6
1200		7.2	-2.1	52	233	3.8	237	6.3	1200		17.4	-18.7	07	079	4.7	074	7.6	1200		18.0	-20.0	06	233	4.9	232	7.6
1500		6.9	-2.4	52	219	3.7	229	7.6	1500		20.8	-14.6	08	069	3.9	074	7.0	1500		18.4	-19.7	06	241	5.4	236	10.2
1800		7.3	-5.5	40	234	2.4	232	5.1	1800		22.0	-19.2	05	066	2.5	064	5.1	1800		15.3	-16.2	10	241	6.5	237	10.2
2100		6.7	*****	45	081	.2	239	1.9	2100		15.7	-20.0	07	032	1.0	058	3.2	2100		11.1	-10.5	21	229	6.4	232	9.5
2400		4.1	-2.8	61	036	1.6	030	2.5	2400		11.3	-12.3	18	337	2.5	343	3.8	2400		8.5	-2.9	45	244	4.0	239	7.0

DAY 31									DAY 31									DAY 31								
HR	WIND	TEMP.	DEW	POINT	RH	DIR.	SPD.	GUST	HR	WIND	TEMP.	DEW	POINT	RH	DIR.	SPD.	GUST	HR	WIND	TEMP.	DEW	POINT	RH	DIR.	SPD.	GUST
NDNG	DIR.	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	NDNG	DIR.	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	NDNG	DIR.	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S
0300		6.8	.4	64	235	3.5	234	5.7	0300		*****	*****	**	***	****	***	****	0300		*****	*****	**	***	****	***	****
0600		6.3	.5	67	244	3.1	232	5.1	0600		*****	*****	**	***	****	***	****	0600		*****	*****	**	***	****	***	****
0900		6.8	-1.7	55	236	2.0	214	5.1	0900		*****	*****	**	***	****	***	****	0900		*****	*****	**	***	****	***	****
1200		8.5	-2.9	45	229	3.9	226	5.7	1200		*****	*****	**	***	****	***	****	1200		*****	*****	**	***	****	***	****
1500		10.6	-7.8	27	237	3.1	247	7.0	1500		*****	*****	**	***	****	***	****	1500		*****	*****	**	***	****	***	****
1800		12.2	-12.3	17	199	1.1	213	3.8	1800		*****	*****	**	***	****	***	****	1800		*****	*****	**	***	****	***	****
2100		8.3	*****	43	262	1.5	240	4.4	2100		*****	*****	**	***	****	***	****	2100		*****	*****	**	***	****	***	****
2400		7.7	-10.3	27	012	.6	063	5.7	2400		*****	*****	**	***	****	***	****	2400		*****	*****	**	***	****	***	****

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY, 1981

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	4.7	-0.6	2.0	239	1.9	2.0	234	6.3	WSW	48	-8.2	3.2	3125	01
02	7.7	-2.1	2.8	272	1.5	1.9	286	8.9	WSW	17	-19.4	0.0	6838	02
03	7.8	-1.8	3.0	157	.5	1.9	238	7.0	E	29	-14.4	0.0	4095	03
04	10.2	-0.1	5.1	077	4.5	4.9	112	10.2	ENE	18	-18.7	0.0	5895	04
05	9.8	-1.0	4.4	287	.8	2.1	224	7.0	WSW	20	-17.2	0.0	5110	05
06	15.3	-1.8	6.8	349	1.4	2.2	324	5.1	NNW	19	-17.8	0.0	7448	06
07	17.2	.2	8.7	028	2.7	3.2	026	8.3	NNE	15	-17.8	0.0	7483	07
08	18.2	1.8	10.0	047	2.3	3.0	074	8.9	E	12	-18.8	0.0	7635	08
09	13.2	2.7	8.0	253	2.2	2.9	249	8.9	WSW	12	-20.2	0.0	4243	09
10	8.5	3.0	6.1	254	2.6	2.7	261	6.3	W	32	-10.2	0.0	3208	10
11	11.9	.2	6.1	260	1.0	1.9	188	5.1	W	18	-20.0	0.0	5590	11
12	14.1	2.6	8.4	069	2.6	3.0	091	8.3	ENE	13	-19.4	0.0	5255	12
13	13.6	3.7	8.6	245	1.5	2.4	199	7.0	WSW	21	-15.8	1.0	5578	13
14	13.2	2.8	8.0	239	.8	2.0	222	5.7	WSW	34	-8.7	.6	4735	14
15	13.6	3.1	8.4	022	.9	2.2	025	8.9	NW	34	-7.9	6.8	4923	15
16	15.7	2.0	8.9	090	.3	2.2	063	8.9	ENE	25	-13.2	0.0	6288	16
17	15.0	2.0	8.8	245	2.9	3.0	231	9.5	WSW	26	-12.8	0.0	5220	17
18	11.0	3.7	7.4	238	.9	1.9	253	7.6	WSW	37	-8.5	3.6	5150	18
19	11.0	1.3	6.4	053	1.6	2.6	089	8.9	ENE	30	-11.3	0.0	3746	19
20	13.4	.4	6.9	102	1.1	4.0	248	12.1	E	31	-12.1	7.6	4723	20
21	9.3	0.0	4.6	254	.6	1.9	224	8.3	E	30	-14.0	0.0	6450	21
22	11.4	-2.2	4.6	206	.3	2.2	091	8.9	SW	25	-15.2	0.0	5653	22
23	14.0	2.9	8.5	058	1.2	2.3	088	10.8	ENE	23	-13.9	0.0	6663	23
24	16.6	1.4	9.0	119	.8	2.8	234	8.3	E	24	-12.8	1.2	5653	24
25	16.1	4.5	10.3	245	1.4	2.3	234	7.0	SW	22	-14.5	.2	6888	25
26	19.2	4.0	11.6	071	1.9	2.4	088	7.6	NE	17	-14.0	0.0	5993	26
27	13.6	6.9	10.3	231	2.6	3.0	229	7.6	SW	46	-1.7	.8	2605	27
28	7.0	4.1	5.9	232	2.4	2.9	229	7.6	SW	60	-1.5	6.6	2153	28
29	22.1	3.4	12.8	062	2.6	3.1	078	8.3	ENE	22	-13.3	.2	8618	29
30	19.2	8.3	13.8	239	4.6	4.7	236	10.2	SW	16	-13.7	.4	7725	30
31	12.5	6.2	9.4	237	2.2	2.5	247	7.0	WSW	46	-4.8	11.8	4040	31
MONTH	22.1	-2.2	7.6	255	.3	2.6	248	12.1	WSW	26	-13.3	44.0	168715	

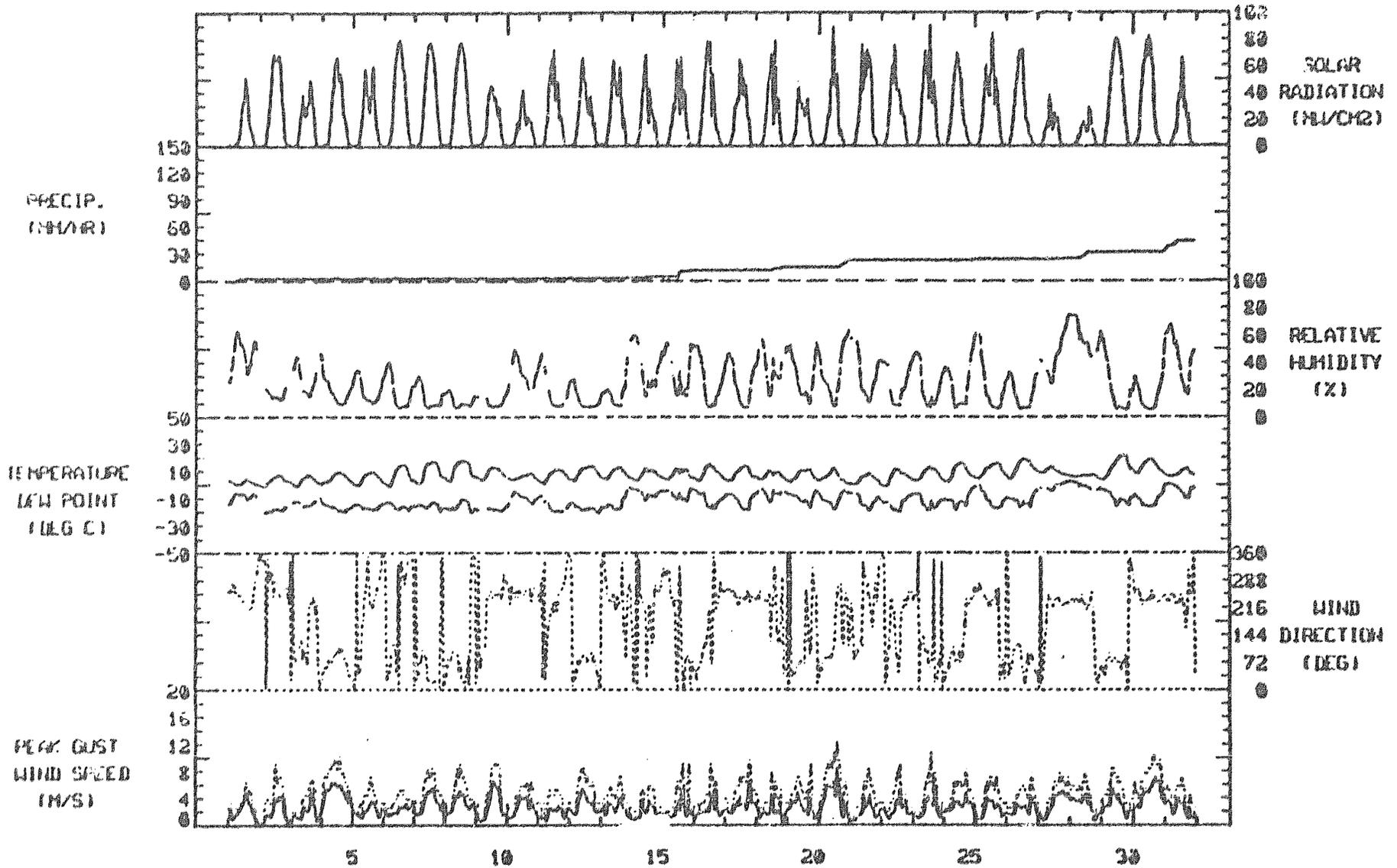
GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 11.4
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 11.4
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 10.2
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 8.3

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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

RHM CONSULTANT, INC.

SUSITNA HYDROELECTRIC PROJECT



DAY OF THE MONTH

UATANA LEATHER STATION

DATA START: 01 MAY 1981

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING MAY , 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	GREATER THAN 20.0	
N	.37	4.30	.77	0.00	0.00	0.00	0.00	5.44
NNE	.30	3.93	1.88	.03	0.00	0.00	0.00	6.15
NE	.30	3.60	1.95	0.00	0.00	0.00	0.00	5.85
ENE	.60	3.86	4.64	.20	0.00	0.00	0.00	9.31
E	.84	3.97	3.66	.60	0.00	0.00	0.00	9.07
ESE	.87	3.29	1.34	.40	0.00	0.00	0.00	5.91
SE	.24	1.28	.20	.03	0.00	0.00	0.00	1.75
SSE	.34	.81	.03	0.00	0.00	0.00	0.00	1.18
S	.07	1.08	.13	0.00	0.00	0.00	0.00	1.28
SSW	.44	1.58	.87	0.00	0.00	0.00	0.00	2.89
SW	.37	4.64	8.87	.77	0.00	0.00	0.00	14.65
WSW	.60	9.41	5.61	.67	0.00	0.00	0.00	16.30
W	.44	5.85	1.85	.17	0.00	0.00	0.00	8.30
WNW	.71	1.78	.30	0.00	0.00	0.00	0.00	2.79
NW	.30	2.02	.44	0.00	0.00	0.00	0.00	2.76
NNW	.34	4.37	.47	0.00	0.00	0.00	0.00	5.17
CALM								1.21
TOTAL	7.12	55.75	33.03	2.89	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

2976 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION.
DATA TAKEN DURING JUNE, 1981

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	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	5.4	-4.3	50	071	3.8	064	8.9	002	0300	1.1	-7.0	55	347	1.5	357	2.5	003	0300	5.0	-9.9	66	258	.8	264	2.5	001
0600	7.6	-10.4	27	068	.6	074	3.8	022	0600	2.9	-6.6	50	086	.4	242	3.2	018	0600	6.9	*****	37	252	.9	232	2.5	025
0900	11.5	-16.0	11	087	4.2	091	8.3	071	0900	8.6	-9.0	28	241	3.5	228	6.3	092	0900	10.9	-14.1	16	085	2.0	085	5.1	033
1200	14.1	-21.2	07	084	4.5	092	7.6	081	1200	11.9	-14.9	14	229	4.9	243	7.6	090	1200	11.7	-21.5	08	089	3.8	107	8.3	027
1500	15.7	-17.1	09	100	5.0	107	10.2	073	1500	13.3	-20.3	08	232	4.5	247	8.3	050	1500	11.2	-13.1	17	211	1.7	243	8.3	068
1800	10.3	-13.1	18	172	3.8	119	9.5	027	1800	12.2	-19.8	09	234	4.6	228	7.6	016	1800	10.5	-13.7	17	238	3.2	231	7.0	014
2100	6.3	-9.3	32	226	3.1	234	8.3	002	2100	6.9	-6.6	38	359	2.1	296	6.3	002	2100	6.5	-4.1	47	235	1.9	191	5.7	001
2400	3.2	-6.6	49	329	.9	356	2.5	001	2400	5.1	-3.6	54	357	1.4	349	3.8	001	2400	5.6	*****	55	234	1.3	236	3.2	001
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	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	4.6	-3.3	57	220	1.7	232	4.4	001	0300	3.7	-4.9	54	234	4.7	239	8.3	001	0300	3.4	-7.0	47	259	2.0	248	3.8	002
0600	5.0	-4.4	51	236	2.2	222	4.4	016	0600	2.3	-6.4	53	248	3.8	237	6.3	003	0600	6.4	-9.7	31	256	2.0	251	3.2	030
0900	8.7	-8.1	30	229	3.7	233	5.7	056	0900	2.9	-5.9	53	237	3.1	228	5.1	016	0900	10.2	-14.6	16	247	2.0	249	3.8	087
1200	10.4	-10.5	22	262	1.9	239	6.3	068	1200	5.7	-6.7	41	241	3.0	243	5.7	055	1200	12.7	-20.7	08	166	1.1	150	4.4	100
1500	9.6	-13.0	19	235	3.1	205	8.3	022	1500	8.0	-10.5	26	247	3.7	264	7.0	031	1500	14.6	-16.7	10	206	1.1	280	5.7	081
1800	7.7	-8.5	31	233	5.0	236	8.9	013	1800	7.6	-12.4	23	251	3.5	246	5.7	013	1800	7.4	-6.1	38	169	2.2	133	9.5	019
2100	6.1	-5.1	45	287	1.7	249	5.7	001	2100	5.7	-8.0	37	270	1.9	286	5.1	002	2100	6.2	-3.0	52	228	3.6	237	7.6	001
2400	4.9	-2.8	58	257	1.6	234	3.8	001	2400	3.3	-6.5	49	267	1.6	243	2.5	001	2400	4.5	-2.5	61	238	3.7	232	5.7	001
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	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	4.0	-2.3	64	247	2.8	241	4.4	002	0300	2.6	-7.7	47	241	2.9	228	5.7	002	0300	.1	*****	66	091	.0	099	.6	001
0600	5.0	-5.5	47	238	3.2	225	5.1	015	0600	5.0	-7.0	42	252	2.9	252	4.4	014	0600	1.8	*****	46	061	.4	068	1.3	012
0900	8.0	-8.2	31	222	4.0	218	6.3	077	0900	8.2	-8.5	30	246	2.6	249	4.4	031	0900	5.8	-9.0	34	105	.8	124	2.5	053
1200	11.7	-14.2	15	211	4.3	214	8.3	087	1200	9.0	-10.6	24	211	1.2	086	7.6	040	1200	9.0	-13.5	19	082	2.1	059	5.1	040
1500	12.8	-20.7	08	234	4.3	244	7.6	072	1500	4.2	-4.9	52	087	4.2	075	7.6	006	1500	8.3	-12.3	22	053	1.9	174	8.3	022
1800	12.4	-17.3	11	242	5.2	231	8.9	032	1800	3.1	-4.7	57	192	2.5	214	7.6	008	1800	7.1	-10.3	28	245	5.8	221	10.2	011
2100	9.7	-17.5	13	246	4.9	252	8.3	003	2100	.3	*****	63	217	1.8	220	4.4	001	2100	5.5	-9.3	34	234	3.0	220	7.0	003
2400	6.0	-10.8	29	238	3.8	235	5.7	001	2400	.1	*****	67	160	.1	194	1.3	000	2400	2.3	-5.9	55	257	1.5	230	3.8	001

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING JUNE , 1981

DAY 10

DAY 11

DAY 12

HOUR NDNG	DEW							HOUR NDNG	DEW							HOUR NDNG	DEW						
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST
	DEG C	DEG C	%	DEG.	M/S	DEG.	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	MW
0300	.2	-11.6	41	342	1.2	341	3.2 004	0300	2.8	-12.8	31	345	2.3	340	3.2 004	0300	.5	-5.4	65	008	1.7	349	3.2 002
0600	5.7	*****	26	019	.9	344	2.5 034	0600	7.3	*****	17	000	1.0	340	3.2 025	0600	4.3	-10.7	33	073	.9	100	2.5 029
0900	10.2	-19.0	11	187	.8	193	3.8 071	0900	12.1	-19.9	09	234	1.4	234	4.4 041	0900	11.8	-11.9	18	109	.9	225	4.4 071
1200	13.1	-20.4	08	136	1.5	180	4.4 088	1200	16.4	-15.3	10	195	1.6	211	3.8 063	1200	15.7	-17.1	09	197	1.5	153	4.4 098
1500	15.4	-17.3	09	250	.7	204	5.7 077	1500	14.6	-19.3	08	218	.8	094	10.2 080	1500	15.9	-15.7	10	225	1.9	248	7.0 036
1800	12.1	-21.2	08	228	4.5	220	9.5 039	1800	6.8	-2.7	51	228	2.8	213	9.5 002	1800	16.6	-15.2	10	244	3.4	232	6.3 034
2100	7.3	-13.2	22	239	4.2	220	8.9 004	2100	6.1	*****	51	312	1.1	310	4.4 002	2100	12.5	-19.6	09	254	4.1	244	7.0 006
2400	4.4	-12.7	28	261	2.0	255	3.2 002	2400	1.8	-7.1	52	007	1.4	337	2.5 001	2400	7.7	-20.0	12	248	2.6	241	5.1 001

DAY 13

DAY 14

DAY 15

HOUR NDNG	DEW							HOUR NDNG	DEW							HOUR NDNG	DEW						
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST
	DEG C	DEG C	%	DEG.	M/S	DEG.	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	MW
0300	4.9	-15.8	21	277	2.0	263	3.8 004	0300	5.1	-11.6	29	276	2.0	236	4.4 004	0300	7.6	-4.0	44	249	2.7	230	4.4 003
0600	9.4	-21.9	09	317	.9	345	2.5 032	0600	9.0	-14.9	17	272	1.7	236	3.2 030	0600	7.5	-6.0	38	238	2.4	212	3.8 012
0900	14.7	-19.2	08	225	1.1	191	3.2 072	0900	13.7	-21.5	07	225	4.0	212	7.0 071	0900	10.2	-7.6	28	228	3.0	230	5.7 066
1200	20.0	-18.6	06	104	1.6	126	5.7 055	1200	16.8	-19.2	07	229	5.0	243	8.3 080	1200	14.4	-12.9	14	231	2.8	224	5.1 082
1500	21.2	-2.7	20	046	2.7	061	8.3 077	1500	16.3	-16.7	09	233	5.9	241	10.8 029	1500	13.0	-11.6	17	348	1.0	000	10.2 049
1800	15.9	-15.7	10	224	2.7	223	10.8 013	1800	14.4	-21.0	07	227	5.4	233	8.3 022	1800	10.3	-6.7	30	229	5.4	228	9.5 012
2100	11.2	-17.2	12	229	4.5	232	8.9 003	2100	11.1	-17.3	12	246	3.1	236	5.7 003	2100	9.7	-7.2	30	221	5.6	219	8.9 006
2400	6.8	-10.6	28	244	3.0	244	5.1 002	2400	9.2	-10.5	24	249	2.3	244	4.4 002	2400	7.8	-4.1	43	229	3.0	203	6.3 001

DAY 16

DAY 17

DAY 18

HOUR NDNG	DEW							HOUR NDNG	DEW							HOUR NDNG	DEW						
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST
	DEG C	DEG C	%	DEG.	M/S	DEG.	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	MW
0300	6.3	-4.6	46	240	2.5	227	5.1 002	0300	5.6	-11.6	28	346	2.0	335	2.5 004	0300	6.1	-8.7	34	337	1.9	335	3.8 003
0600	8.5	-4.8	39	279	1.4	272	2.5 011	0600	11.3	*****	12	356	1.3	354	3.2 031	0600	11.4	*****	17	006	1.2	345	3.2 037
0900	12.5	-12.0	17	238	2.0	218	5.1 071	0900	16.6	-21.1	06	236	1.4	238	3.8 071	0900	16.1	-15.6	10	231	3.1	239	5.7 065
1200	17.3	-18.8	07	242	1.9	209	4.4 085	1200	21.2	-15.9	07	177	1.4	241	4.4 063	1200	17.4	-20.5	06	229	3.3	229	6.3 026
1500	19.5	-15.6	08	214	.3	324	7.0 075	1500	22.4	-15.0	07	029	1.6	059	7.6 075	1500	18.9	-16.1	08	293	2.4	335	12.1 070
1800	13.3	-13.7	14	302	3.2	282	10.8 017	1800	21.3	-11.5	10	048	2.6	053	5.7 010	1800	13.8	-19.9	08	235	2.4	292	8.3 021
2100	10.3	-13.8	17	243	2.9	237	6.3 004	2100	13.3	-13.7	14	247	2.7	240	8.9 003	2100	10.5	-7.9	27	240	4.9	247	8.3 003
2400	7.6	-6.3	37	266	1.7	253	3.2 001	2400	10.7	-12.1	19	297	1.3	240	3.8 002	2400	7.4	-2.7	49	257	2.5	254	4.4 001

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING JUNE , 1981

DAY 19

DAY 20

DAY 21

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	5.3	****	56	295	1.5	261	3.2	003	0300	4.1	-12.9	28	001	1.8	353	3.8	003						
0600	9.0	-8.2	29	337	.5	324	3.2	031	0600	7.3	****	17	011	1.2	336	3.2	020						
0900	18.5	-16.4	08	203	1.2	208	5.7	073	0900	13.6	-21.6	07	115	1.2	105	2.5	059						
1200	19.3	-15.8	08	006	1.9	010	6.3	088	1200	18.4	-15.0	09	238	1.1	286	4.4	076						
1500	19.7	-14.0	09	352	2.5	341	7.6	048	1500	17.5	-15.7	09	227	3.3	226	7.0	027						
1800	19.0	-14.6	09	046	3.8	034	7.0	034	1800	14.0	-21.3	07	218	5.0	235	9.5	009						
2100	14.4	-13.8	13	049	3.0	046	5.7	006	2100	10.5	-11.0	21	241	4.1	237	11.4	003						
2400	7.6	-22.2	10	012	2.3	040	3.8	001	2400	7.9	-1.5	52	240	4.1	236	7.6	001						

DAY 22

DAY 23

DAY 24

DAY 22								DAY 23								DAY 24							
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.						
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD						
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW						
0300	7.7	-.9	55	258	2.7	258	5.1	001	0300	5.6	-7.7	38	347	1.9	336	3.2	003						
0600	8.8	-2.9	44	236	3.5	233	5.1	012	0600	8.3	-8.8	29	054	.8	344	2.5	029						
0900	11.9	-6.6	27	225	4.7	218	8.3	066	0900	15.4	-21.9	06	155	1.0	116	3.8	076						
1200	16.1	-12.4	13	215	5.4	217	7.6	106	1200	17.0	-19.0	07	144	1.7	107	5.1	092						
1500	14.9	-16.5	10	216	5.2	208	8.9	039	1500	16.7	-19.3	07	203	2.1	239	6.3	015						
1800	12.8	-12.5	16	236	4.2	231	6.3	014	1800	15.3	-20.3	07	195	.6	280	8.3	008						
2100	10.0	-7.8	28	247	3.8	252	7.0	004	2100	10.5	-6.5	30	250	2.6	256	5.7	003						
2400	6.7	-6.1	40	297	1.5	250	3.2	001	2400	8.5	-3.5	43	254	2.3	243	4.4	001						

DAY 25

DAY 26

DAY 27

DAY 25								DAY 26								DAY 27							
HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.						
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD						
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW						
0300	7.7	-3.0	47	239	3.4	238	6.3	002	0300	9.0	-8.2	29	255	4.2	257	8.3	002						
0600	8.5	-4.1	41	248	3.1	256	5.1	016	0600	7.4	-4.5	43	254	3.6	251	6.3	007						
0900	10.3	-7.6	28	227	4.2	221	7.6	037	0900	7.1	-4.2	45	236	3.0	229	5.1	006						
1200	14.1	-10.7	17	215	5.5	219	8.3	083	1200	6.8	-4.1	46	252	3.8	253	6.3	006						
1500	15.3	-13.0	13	225	5.0	214	7.6	035	1500	6.6	-4.3	46	258	3.2	264	6.3	003						
1800	14.9	-12.5	14	237	5.0	224	8.3	022	1800	6.9	-4.0	46	254	1.8	250	3.8	002						
2100	10.9	-8.5	25	256	4.2	257	7.6	003	2100	6.9	-4.6	44	254	3.4	251	8.9	001						
2400	10.6	-7.8	27	248	2.4	245	5.7	001	2400	6.1	-6.0	42	259	3.3	254	5.7	001						

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING JUNE, 1981

DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQM	DAY
01	16.8	2.2	9.5	104	2.0	3.7	107	10.2	E	20	-12.5	0.0	7238	01
02	13.9	1.1	7.5	249	1.9	3.1	247	8.3	SW	30	-11.0	.6	7160	02
03	13.4	4.7	9.0	202	.7	2.4	107	8.3	WSW	33	-11.2	4.2	5178	03
04	12.9	4.3	8.6	240	2.5	3.0	236	8.9	SW	38	-7.0	6.8	5450	04
05	8.5	2.2	5.4	246	3.1	3.2	239	8.3	WSW	41	-7.6	13.6	4170	05
06	14.6	3.1	8.9	228	1.9	2.7	133	9.5	WSW	30	-10.0	1.0	6760	06
07	13.2	4.0	8.6	235	4.0	4.1	231	8.9	WSW	29	-12.1	0.0	8215	07
08	11.8	.1	5.9	214	1.2	2.8	086	7.6	WSW	41	-7.2	11.2	3173	08
09	11.7	0.0	5.9	234	.7	2.1	221	10.2	E	31	-10.1	.8	5605	09
10	15.4	-.1	7.6	238	1.3	2.4	220	9.5	WSW	21	-16.5	0.0	9145	10
11	16.4	1.7	9.1	274	.7	2.3	094	10.2	NNW	28	-12.9	5.2	5633	11
12	17.8	.3	9.0	243	1.4	2.4	248	7.0	WSW	22	-14.4	0.0	8698	12
13	22.3	4.1	13.2	240	1.1	2.9	223	10.8	WSW	14	-15.2	0.0	7618	13
14	18.5	4.4	11.5	238	3.5	3.7	241	10.8	SW	14	-16.6	0.0	7753	14
15	16.7	7.2	12.0	232	3.0	3.6	000	10.2	SW	30	-7.5	1.8	6260	15
16	21.2	6.2	13.7	258	1.8	2.4	282	10.8	WSW	23	-11.2	0.0	7513	16
17	22.7	5.1	13.9	326	.6	2.1	240	8.9	NNW	14	-14.4	0.0	8728	17
18	19.3	5.4	12.4	254	2.1	3.1	335	12.1	WSW	19	-13.0	.4	6475	18
19	20.2	4.2	12.2	017	1.5	2.4	341	7.6	NE	17	-15.0	0.0	8858	19
20	19.4	4.1	11.8	236	1.9	2.9	237	11.4	SW	15	-14.2	.6	6540	20
21	10.4	7.7	9.0	241	2.8	2.9	234	6.3	WSW	47	-2.2	10.6	2625	21
22	16.4	6.6	11.5	233	3.7	3.9	208	8.9	SW	30	-8.2	0.0	6775	22
23	18.7	4.0	11.4	226	.7	2.1	280	8.3	WSW	20	-13.4	1.6	6528	23
24	17.1	6.6	11.9	252	2.7	3.4	236	9.5	WSW	31	-7.3	8.4	6110	24
25	16.1	7.5	11.8	235	4.0	4.2	219	8.3	SW	28	-8.4	.2	6075	25
26	10.1	6.1	8.1	253	3.3	3.3	251	8.9	WSW	42	-5.0	6.2	953	26
27	6.5	2.5	4.5	247	1.9	3.2	247	8.3	WSW	45	-5.9	29.4	1223	27
28	6.2	1.3	4.8	76	1.2	2.0	272	6.3	SW	43	-6.9	10.8	3498	28
29	7.5	.8	4.1	279	.7	1.5	247	6.3	NNW	44	-6.6	8.8	2693	29
30	9.6	.4	5.0	241	1.6	2.6	213	10.8	WSW	40	-9.6	7.6	5178	30
MONTH	22.7	-.1	9.3	241	1.7	2.9	335	12.1	WSW	29	-10.4	129.8	177820	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 4.4
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 5.1
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 6.3
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 6.3

NOTE: RELATIVE HUMIDITY READINGS ARE UNRELIABLE WHEN WIND SPEED ARE <1.0 METERS PER SECOND. SUCH READINGS HAVE NOT BEEN INCLUDED IN THE DAILY OR MONTHLY MEAN FOR RELATIVE HUMIDITY AND DEW POINT.

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

R&M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING JUNE , 1981

DAY 28

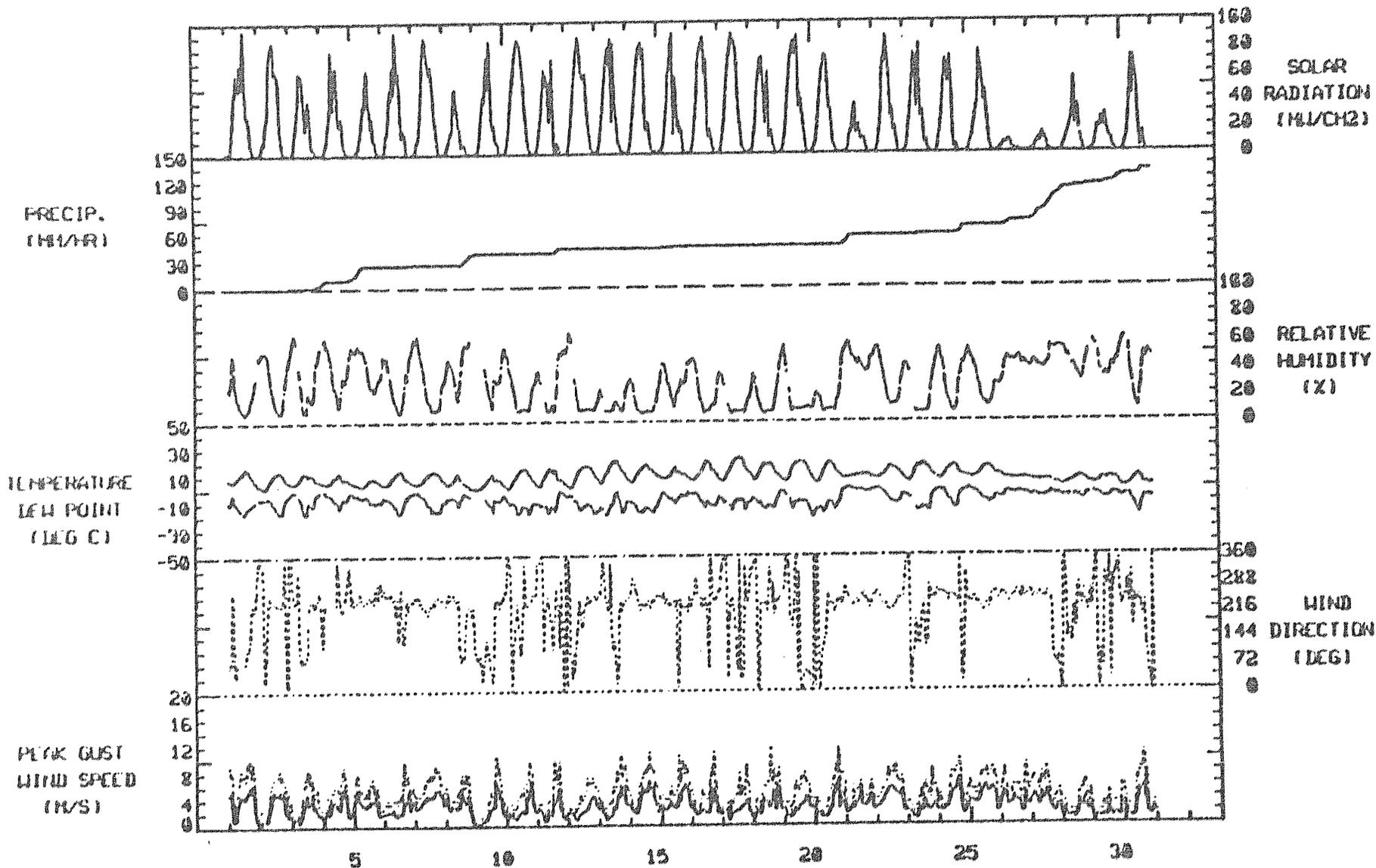
DAY 29

DAY 30

HOUR NDNG	DEW		WIND		WIND GUST MAX.			HOUR NDNG	DEW		WIND		WIND GUST MAX.			HOUR NDNG	DEW		WIND		WIND GUST MAX.		
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S		TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S		TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S
0300	1.6	-6.6	55	353	1.8	347	3.2 001	0300	2.6	-4.5	60	324	.8	352	2.5 003	0300	.6	-5.9	62	253	1.7	242	3.8 002
0600	3.0	-6.8	49	158	.7	353	2.5 007	0600	4.0	-5.1	52	032	.7	028	1.9 011	0600	2.3	-5.4	57	276	.8	283	2.5 010
0900	4.4	*****	43	145	1.1	115	2.5 015	0900	6.5	-8.4	34	073	1.0	098	3.2 021	0900	5.8	-11.9	27	245	1.3	242	5.7 074
1200	6.8	-6.3	39	205	1.0	259	3.2 052	1200	5.7	-8.0	37	284	1.1	255	5.1 019	1200	7.7	-20.0	12	242	4.5	240	8.3 041
1500	7.7	-6.6	36	263	2.8	241	5.7 028	1500	7.5	*****	36	351	.9	277	2.5 018	1500	6.8	-10.6	28	222	4.8	213	10.8 024
1800	7.1	-9.5	30	250	3.2	272	6.3 014	1800	6.9	-6.6	38	295	1.7	270	3.2 014	1800	2.4	-7.1	50	208	2.2	242	7.6 010
2100	5.1	-5.7	46	222	2.2	230	4.4 002	2100	5.1	-6.9	42	327	1.4	292	5.1 001	2100	1.4	-8.0	50	050	1.1	091	2.5 002
2400	3.5	*****	56	250	1.4	236	5.1 001	2400	.8	-6.9	57	236	3.1	247	6.3 001	2400	2.1	-7.6	49	358	1.8	351	3.2 001

R&M CONSULTANT, INC.

SUSITNA HYDROELECTRIC PROJECT



DAY OF THE MONTH

WATANA WEATHER STATION

DATA START: 01 JUNE, 1981

R&M CONSULTANTS, INC.

SUSITUA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING JUNE , 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	GREATER THAN 20.0	
N	.45	3.61	.38	0.00	0.00	0.00	0.00	4.44
NNE	.45	1.35	.38	0.00	0.00	0.00	0.00	2.19
NE	.42	1.35	.59	.03	0.00	0.00	0.00	2.40
ENE	.59	1.49	1.11	.03	0.00	0.00	0.00	3.23
E	.69	1.74	1.84	.07	0.00	0.00	0.00	4.34
ESE	.73	1.81	.76	.07	0.00	0.00	0.00	3.37
SE	.24	1.60	.28	0.00	0.00	0.00	0.00	2.12
SSE	.14	1.22	0.00	0.00	0.00	0.00	0.00	1.35
S	.35	1.42	.10	0.00	0.00	0.00	0.00	1.88
SSW	.24	1.74	2.43	.17	0.00	0.00	0.00	4.58
SW	.45	5.31	14.58	1.35	0.00	0.00	0.00	21.70
WSW	.52	13.72	14.10	.76	0.00	0.00	0.00	29.10
W	.52	5.83	2.08	.03	0.00	0.00	0.00	8.47
WNW	.24	2.12	.38	0.00	0.00	0.00	0.00	2.74
NW	.35	1.25	.24	0.00	0.00	0.00	0.00	1.84
NNW	.21	5.07	.35	0.00	0.00	0.00	0.00	5.63
CALM								.63
TOTAL	6.60	50.63	39.62	2.53	0.00	0.00	0.00	100.00

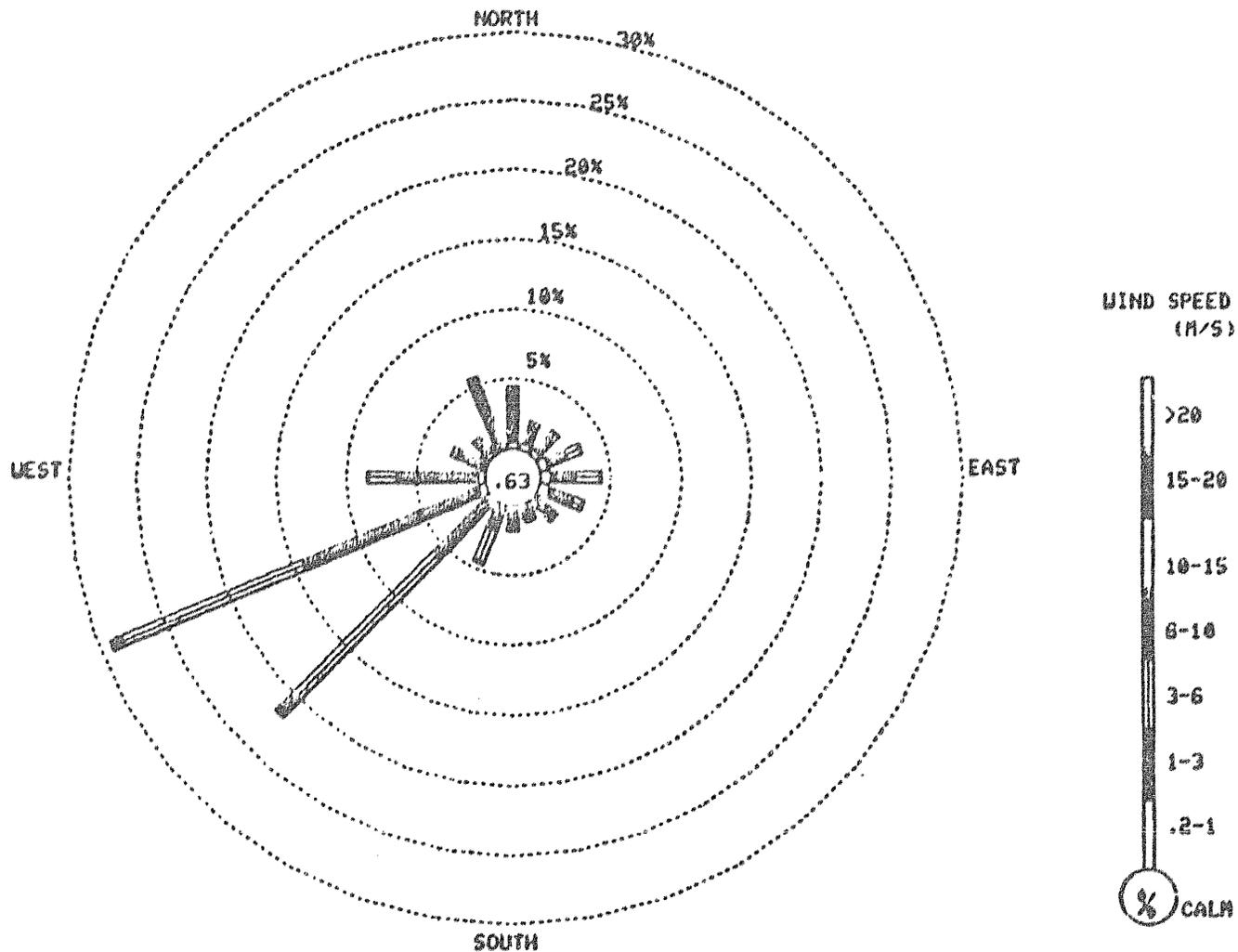
NOTE: ALL FREQUENCIES EXPRESSED IN PERCENT.

2880 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

SUSITNA HYDROELECTRIC PROJECT

WATANA WEATHER STATION

JUNE, 1981



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING July, 1981

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	.2	0.0	.4	.4	1
6	.4	.2	0.0	.2	0.0	0.0	0.0	.2	0.0	2.6	1.0	2.4	1.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	.4	.6	1.8	5.0	3.2	1.4	1.8	0.0	1
8	1.6	3.0	4.4	1.4	1.8	.8	0.0	.4	1.0	.6	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	1.8	1.2	.8	1.0	1.2	2.2	2.0	2.8	2.0	2.4	2.8	1
10	2.4	1.8	1.4	1.6	1.6	1.6	1.0	.6	.6	1.0	2.0	2.4	2.2	2.0	1.4	.6	.8	0.0	.2	0.0	0.0	0.0	0.0	.2	1
11	.8	.4	.4	0.0	.6	.6	.4	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	1
12	.2	0.0	.8	1.2	1.8	1.0	.8	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
13	0.0	0.0	0.0	0.0	.4	.6	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
14	0.0	0.0	0.0	0.0	0.0	0.0	.2	.6	.2	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	.2	1
15	0.0	.4	.2	.2	.2	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	.4	.8	1.2	1.2	.6	.2	.4	0.0	1
16	0.0	0.0	0.0	1.0	2.4	1.0	.6	.6	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
17	.4	1.4	.2	0.0	0.0	.2	0.0	0.0	0.0	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	1
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	0.0	.2	.4	.4	1
19	.2	0.0	.2	.2	.2	.2	0.0	0.0	0.0	.2	.2	0.0	0.0	0.0	0.0	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
20	0.0	.2	0.0	.2	0.0	0.0	.4	.4	1.2	2.0	1.4	.6	.2	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.8	0.0	.2	0.0	.4	.8	.6	.8	2
23	1.0	1.2	.4	1.0	1.4	.8	.4	.2	.6	0.0	0.0	0.0	.2	.4	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	.4	.2	2
24	1.4	.4	.6	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.2	.4	0.0	0.0	0.0	0.0	2
25	0.0	.6	0.0	.2	1.0	.6	1.8	1.8	0.0	0.0	0.0	0.0	1.2	2.6	1.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	.2	0.0	1.2	.2	0.0	0.0	0.0	0.0	.8	.2	.2	2
29	.4	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.6	2
30	.6	0.0	.6	.6	.8	.8	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.8	2
31	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	1.6	.6	.2	.2	0.0	.4	2

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

HOURLY PRECIPITATION SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING July, 1981

PRECIPITATION VALUES ARE IN MILLIMETERS

HOUR ENDING

DATE	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DATE	
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	
6	.4	.2	0.0	.2	0.0	0.0	0.0	.2	0.0	2.6	1.0	2.4	1.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	.4	.6	1.8	5.0	3.2	1.4	1.8	0.0	7	
8	1.6	3.0	4.4	1.4	1.8	.8	0.0	.4	1.0	.6	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	1.8	1.2	.8	1.0	1.2	2.2	2.0	2.8	2.0	2.4	2.8	9	
10	2.4	1.8	1.4	1.6	1.6	1.6	1.0	.6	.6	1.0	2.0	2.4	2.2	2.0	1.4	.6	.8	0.0	.2	0.0	0.0	0.0	0.0	.2	10	
11	.8	.4	.4	0.0	.6	.6	.4	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	11	
12	.2	0.0	.3	1.2	1.8	1.0	.8	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	
13	0.0	0.0	0.0	0.0	.4	.6	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	
14	0.0	0.0	0.0	0.0	0.0	0.0	.2	.6	.2	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	.2	14	
15	0.0	.4	.2	.2	.2	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	.4	.8	1.2	1.2	.6	.2	.4	0.0	15	
16	0.0	0.0	0.0	1.0	2.4	1.0	.6	.6	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	
17	.4	1.4	.2	0.0	0.0	.2	0.0	0.0	0.0	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	17	
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	0.0	.2	.4	.4	18	
19	.2	0.0	.2	.2	.2	.2	0.0	0.0	0.0	.2	.2	0.0	0.0	0.0	0.0	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	
20	0.0	.2	0.0	.2	0.0	0.0	.4	.4	1.2	2.0	1.4	.6	.2	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.8	0.0	.2	0.0	.4	.8	.6	.8	22	
23	1.0	1.2	.4	1.0	1.4	.8	.4	.2	.6	0.0	0.0	0.0	.2	.4	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	.4	.2	23	
24	1.4	.4	.6	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.2	.4	0.0	0.0	0.0	0.0	24	
25	0.0	.6	0.0	.2	1.0	.6	1.8	1.8	0.0	0.0	0.0	0.0	0.0	1.2	2.6	1.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	1.2	.2	0.0	0.0	0.0	0.0	.8	.2	.2	28	
29	.4	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.6	29
30	.6	0.0	.6	.6	.8	.8	.2	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.8	30
31	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4	1.6	.6	.2	.2	0.0	.4	31	

R & M CONSULTANTS, INC.

SUSSETNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 1981

DAY 01

DAY 02

DAY 03

DAY 01								DAY 02								DAY 03										
HOUR	DEW		WIND		GUST MAX.		NDNG	HOUR	DEW		WIND		GUST MAX.		NDNG	HOUR	DEW		WIND		GUST MAX.		NDNG			
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		RAD	TEMP.	POINT	RH	DIR.	SPD.	DIR.		GUST	RAD	
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW				
0300	1.9	*****	46	023	1.1	005	3.2	2	0300	4.9	*****	29	003	1.0	005	2.5	2	0300	3.4	-27.9	8	292	1.1	327	4.4	3
0600	4.5	-7.4	42	062	.4	082	4.4	17	0600	6.7	-11.6	26	264	.7	331	2.5	25	0600	9.5	*****	9	259	1.2	253	3.2	40
0900	7.8	-14.4	19	117	1.0	072	3.8	34	0900	10.2	-22.8	8	336	4.5	329	7.6	62	0900	11.6	-20.4	9	319	4.0	322	7.0	58
1200	10.6	-22.5	8	003	1.7	073	7.0	36	1200	11.5	-18.1	11	335	4.6	328	7.6	59	1200	12.0	-16.7	12	321	4.7	323	7.6	41
1500	11.1	-22.1	8	097	4.0	113	8.3	33	1500	10.8	-21.0	9	334	4.3	333	7.6	20	1500	13.9	-16.2	11	344	2.4	325	5.7	39
1800	7.7	-13.9	20	043	3.6	061	7.0	13	1800	11.1	-20.8	9	340	3.3	335	5.7	29	1800	13.8	-14.2	13	320	2.9	313	5.7	41
2100	6.6	-11.2	27	058	2.5	076	5.1	3	2100	8.7	-22.6	9	325	3.0	335	6.3	3	2100	9.5	-20.8	10	355	2.2	333	5.7	4
2400	4.4	-9.5	36	032	1.5	044	3.2	1	2400	6.4	*****	16	319	1.1	332	5.7	2	2400	7.7	-23.4	9	015	1.4	006	2.5	1

DAY 04

DAY 05

DAY 06

DAY 04								DAY 05								DAY 06										
HOUR	DEW		WIND		GUST MAX.		NDNG	HOUR	DEW		WIND		GUST MAX.		NDNG	HOUR	DEW		WIND		GUST MAX.		NDNG			
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		RAD	TEMP.	POINT	RH	DIR.	SPD.	DIR.		GUST	RAD	
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW				
0300	5.3	-17.2	18	004	1.4	019	3.2	3	0300	7.8	-11.1	25	261	2.6	264	6.3	2	0300	6.8	*****	60	072	1.0	054	2.5	1
0600	9.3	*****	9	023	.9	007	3.2	31	0600	8.7	-10.8	24	250	3.0	256	6.3	8	0600	7.6	*****	54	045	.7	008	1.9	5
0900	13.5	-17.7	10	131	1.5	109	4.4	78	0900	10.6	-12.1	19	250	3.3	255	5.7	26	0900	9.1	*****	40	068	.4	359	1.9	25
1200	14.2	-19.8	8	253	2.0	257	5.7	41	1200	12.2	-17.6	11	259	4.8	261	8.3	48	1200	9.4	-3.6	40	294	1.1	252	4.4	25
1500	12.9	-20.8	8	231	5.1	226	8.9	38	1500	11.0	-14.7	15	267	4.5	275	7.6	10	1500	11.5	-7.5	26	244	2.8	229	5.1	38
1800	12.6	-21.0	8	219	4.8	230	8.3	12	1800	9.7	-5.2	35	309	.9	272	4.4	9	1800	12.7	-11.1	18	222	3.8	221	6.3	33
2100	10.2	-13.1	18	262	3.1	272	9.5	2	2100	8.4	-4.5	40	075	1.7	101	3.2	2	2100	10.1	-6.4	31	228	2.9	218	6.3	3
2400	8.7	-11.4	23	275	2.3	292	5.7	2	2400	7.6	-2.8	48	057	1.6	066	3.2	1	2400	8.6	-4.7	39	272	1.3	251	3.2	1

DAY 07

DAY 08

DAY 09

DAY 07								DAY 08								DAY 09										
HOUR	DEW		WIND		GUST MAX.		NDNG	HOUR	DEW		WIND		GUST MAX.		NDNG	HOUR	DEW		WIND		GUST MAX.		NDNG			
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		RAD	TEMP.	POINT	RH	DIR.	SPD.	DIR.		GUST	RAD	
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW				
0300	7.7	-4.3	41	267	1.7	267	2.5	2	0300	4.4	-4.1	54	053	1.7	076	3.2	1	0300	8.7	-2.6	45	214	2.3	221	4.4	1
0600	8.0	-4.9	40	253	1.6	269	3.2	2	0600	5.2	-4.4	50	043	1.7	060	3.3	4	0600	8.5	*****	44	256	1.4	251	3.9	1
0900	9.4	-7.9	31	237	3.8	245	9.5	13	0900	5.8	-2.3	56	088	1.5	093	3.8	6	0900	8.4	*****	47	273	.3	276	2.5	2
1200	10.8	-8.3	27	238	5.5	237	8.9	17	1200	6.8	-1.4	56	091	1.7	089	3.2	4	1200	9.4	-.8	49	114	.9	089	2.5	13
1500	11.0	-11.8	19	226	8.3	228	14.6	13	1500	7.8	-2.3	49	098	2.0	085	3.3	4	1500	9.4	-2.0	45	177	.7	255	3.8	17
1800	9.3	-5.3	35	244	5.7	239	11.4	5	1800	3.6	-1.3	50	097	1.7	102	3.2	4	1800	9.4	-2.0	45	250	3.0	262	4.4	9
2100	3.7	-5.8	53	315	1.4	339	7.6	1	2100	9.7	-2.7	42	077	.6	257	3.3	1	2100	9.5	*****	53	177	.8	300	2.5	2
2400	4.2	-4.1	55	391	1.3	119	3.3	1	2400	8.8	-1.9	47	253	2.7	251	5.1	1	2400	8.1	*****	61	276	.5	333	1.9	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 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	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	7.7	2.6	70	055	.6	059	1.9	1	0300	7.9	1.9	65	240	1.5	264	3.2	1	0300	8.9	-.2	53	268	1.0	245	3.9	1
0600	7.6	-1.6	52	071	3.1	084	7.0	4	0600	7.7	2.0	67	227	2.4	224	5.7	7	0600	7.5	-.4	57	100	.5	231	2.5	3
0900	9.0	-2.4	45	079	4.4	086	7.0	17	0900	9.4	-3.3	41	224	3.8	222	6.3	28	0900	8.3	.3	57	110	1.5	092	3.2	7
1200	9.5	-.7	49	073	3.7	075	7.0	12	1200	10.6	-4.0	36	236	4.1	236	6.3	42	1200	10.4	-3.1	39	187	.7	245	4.4	15
1500	9.6	-1.8	45	004	1.6	061	3.2	13	1500	10.6	-5.2	33	248	4.9	251	7.6	19	1500	12.5	-6.6	26	239	4.5	231	8.9	31
1800	10.0	*****	46	336	1.4	335	3.2	9	1800	10.5	-5.6	32	256	4.8	257	8.3	7	1800	12.3	-6.8	26	236	4.7	239	8.3	16
2100	9.4	2.5	62	306	.7	262	2.5	1	2100	9.5	-4.6	37	255	3.3	256	6.3	1	2100	9.0	-3.7	41	230	3.4	234	5.1	2
2400	8.7	2.8	66	273	1.3	275	2.5	0	2400	8.6	-.2	54	246	2.7	249	5.7	1	2400	9.0	*****	39	225	1.3	238	3.8	1

DAY 13

DAY 14

DAY 15

HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	7.9	*****	48	282	.3	243	1.9	1	0300	8.1	-1.2	52	052	1.1	038	1.9	1	0300	8.0	*****	67	218	.2	221	1.3	1
0600	8.2	.5	58	234	1.4	227	3.2	6	0600	8.3	-.5	54	344	.6	009	1.9	7	0600	9.8	-1.6	45	070	1.3	052	3.8	20
0900	8.8	-.8	51	244	2.0	243	3.2	11	0900	10.3	-2.1	42	239	2.1	222	4.4	37	0900	11.4	-3.3	36	073	3.7	083	7.0	38
1200	10.9	-3.7	36	240	2.8	234	5.1	63	1200	11.2	-5.0	32	232	3.7	232	6.3	25	1200	13.5	-4.3	29	091	3.6	085	7.0	28
1500	11.9	-5.7	29	248	3.8	245	7.0	34	1500	11.3	-4.9	32	238	3.9	240	7.0	23	1500	13.8	-5.0	27	107	.7	129	3.8	16
1800	11.2	-5.9	30	252	4.1	238	7.6	12	1800	10.6	-3.3	38	245	2.4	232	4.4	8	1800	12.2	*****	49	109	.6	102	3.2	4
2100	9.8	-4.3	37	238	2.8	240	6.3	2	2100	9.0	1.7	60	223	1.5	204	2.5	1	2100	10.5	3.1	60	272	1.2	273	3.8	1
2400	9.8	*****	39	151	.3	193	1.9	1	2400	8.2	1.8	64	229	1.1	246	1.9	0	2400	10.1	*****	62	197	.5	247	1.9	0

DAY 16

DAY 17

DAY 18

HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	DEG.	M/S	MW	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW	
0300	10.2	*****	61	032	.5	100	1.3	1	0300	10.0	3.3	63	245	1.3	256	2.5	1	0300	9.4	2.3	61	244	2.0	234	4.4	1
0600	10.6	*****	53	040	1.3	047	2.5	7	0600	10.6	4.1	64	233	1.5	230	3.2	13	0600	9.4	-.8	49	246	2.1	239	3.8	14
0900	11.9	.3	45	199	.8	212	3.2	27	0900	11.9	-.4	43	230	2.5	246	5.1	24	0900	11.8	-5.7	27	243	3.2	249	7.0	53
1200	13.2	-.9	38	235	3.3	224	5.1	25	1200	16.3	-6.1	21	233	2.5	235	5.7	94	1200	12.7	-7.4	24	240	5.1	230	7.6	25
1500	14.3	-4.6	26	237	3.9	233	6.3	40	1500	16.0	-9.1	17	247	4.3	251	7.6	31	1500	11.7	-6.3	28	259	5.0	250	7.6	21
1800	14.2	-2.4	32	237	3.7	243	5.7	15	1800	14.6	-3.3	19	257	4.4	254	7.6	8	1800	11.6	-8.4	23	254	4.3	250	8.3	13
2100	12.2	-.1	43	243	2.5	252	3.8	2	2100	11.9	-3.6	34	244	2.7	248	5.7	1	2100	9.2	-1.0	49	259	2.5	256	5.7	1
2400	10.3	2.9	60	243	2.0	235	4.4	1	2400	10.1	1.7	56	249	1.9	251	4.4	1	2400	8.5	.7	58	238	1.2	227	3.2	0

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 1981

DAY 19

DAY 20

DAY 21

HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	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	8.0	.3	58	219	1.7	227	3.2	1	0300	8.7	****	60	259	.8	233	1.9	1	0300	8.2	****	61	259	1.5	238	2.5	1
0600	8.3	****	59	225	.7	250	1.9	6	0600	9.4	****	55	196	.7	195	1.3	8	0600	10.0	.6	52	242	1.6	237	5.1	22
0900	9.7	-1.7	45	183	.9	170	1.9	16	0900	10.2	-.4	48	240	.8	198	1.9	10	0900	12.2	-5.0	30	224	2.7	221	4.4	32
1200	12.0	-5.2	30	229	1.7	274	4.4	36	1200	11.1	-2.5	39	241	2.7	238	4.4	36	1200	13.0	-5.2	28	232	3.5	225	6.3	36
1500	12.6	-4.7	30	237	4.1	224	7.0	45	1500	11.4	-1.8	40	239	3.6	249	6.3	36	1500	15.1	-10.6	16	229	4.8	235	7.6	30
1800	11.9	-4.0	33	243	3.6	238	6.3	20	1800	11.2	-1.7	41	237	3.8	232	7.0	8	1800	14.0	-10.7	17	257	4.9	259	7.6	22
2100	10.0	-3.4	39	250	3.2	249	5.7	1	2100	9.5	.1	52	233	3.3	217	5.1	1	2100	10.2	-5.5	33	260	3.1	262	6.3	2
2400	8.6	****	55	238	1.4	233	3.8	1	2400	8.9	1.6	60	263	2.0	265	3.2	0	2400	8.9	-1.9	47	264	1.5	251	2.5	1

DAY 22

DAY 23

DAY 24

HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	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	8.7	-1.7	48	253	1.4	256	2.5	1	0300	9.7	3.3	64	169	.6	195	1.9	1	0300	10.2	4.2	66	208	.8	181	1.9	1
0600	10.3	-1.8	43	254	1.8	242	3.2	18	0600	9.7	****	66	173	.6	214	1.9	7	0600	10.8	4.3	64	097	.3	210	1.9	7
0900	13.3	-6.9	24	247	2.7	240	5.1	31	0900	11.1	-.8	44	113	.8	121	1.9	20	0900	13.5	-1.0	37	063	2.5	075	5.7	30
1200	13.6	-9.4	21	245	3.5	250	6.3	32	1200	12.5	-1.2	39	205	1.1	251	4.4	29	1200	15.4	-4.6	25	079	4.8	083	7.6	35
1500	13.1	-5.6	27	232	3.6	229	5.7	26	1500	13.2	-.6	39	250	2.4	254	3.8	22	1500	15.3	-5.2	24	083	5.2	087	8.9	27
1800	12.4	-2.8	35	230	2.7	229	5.7	5	1800	13.4	-.0	40	241	2.5	245	4.4	15	1800	11.7	1.9	51	090	2.4	077	7.6	3
2100	10.6	-1.2	44	237	2.4	235	7.0	1	2100	11.6	2.6	54	221	1.8	213	3.2	1	2100	-1.1	-9.7	52	238	2.9	259	8.9	1
2400	9.7	****	60	243	1.2	232	3.2	0	2400	10.7	****	62	202	.9	244	2.5	0	2400	-12.4	-18.2	62	177	1.2	175	2.5	0

DAY 25

DAY 26

DAY 27

HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	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	9.3	.5	54	048	.5	126	1.9	1	0300	6.9	-.3	60	251	1.1	253	1.9	1	0300	5.7	-4.5	48	337	1.8	333	3.2	1
0600	10.0	-.8	47	044	2.1	041	4.4	6	0600	8.5	-1.6	49	241	1.2	251	2.5	9	0600	9.4	-7.4	30	001	-1.2	355	2.5	24
0900	11.6	-2.0	39	055	2.8	069	5.7	31	0900	11.2	-5.4	31	238	2.3	214	4.4	26	0900	13.6	-11.8	16	190	1.0	237	4.4	64
1200	13.3	-3.6	31	088	3.5	086	6.3	24	1200	12.2	-9.6	21	222	3.6	219	6.3	26	1200	15.2	-26.1	4	237	3.6	244	6.3	105
1500	10.9	.3	48	210	2.0	241	7.6	8	1500	14.3	-26.7	4	229	3.3	237	6.3	39	1500	17.0	-27.1	3	255	4.4	250	7.6	77
1800	11.8	-4.1	33	251	4.6	262	7.6	20	1800	14.2	-12.1	15	259	4.0	267	6.3	27	1800	14.2	-26.0	4	258	4.1	231	7.6	17
2100	9.6	-4.5	37	254	3.5	252	7.6	1	2100	10.5	-7.8	27	257	2.9	252	5.7	2	2100	11.9	-5.7	29	259	2.6	262	5.1	1
2400	8.0	-1.0	53	246	1.4	239	3.8	1	2400	9.6	****	43	257	1.6	254	3.8	1	2400	10.2	-4.0	37	243	1.5	236	3.2	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR MATANA WEATHER STATION
DATA TAKEN DURING July, 1981

DAY 28

DAY 29

DAY 30

DAY 28								DAY 29								DAY 30										
HOUR	DEW	WIND	WIND	GUST	MAX.			HOUR	DEW	WIND	WIND	GUST	MAX.			HOUR	DEW	WIND	WIND	GUST	MAX.					
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW		DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	9.6	*****	44	248	.8	254	3.2	1	0300	8.9	1.1	58	228	.8	208	3.2	1	0300	8.0	.5	59	286	.7	256	3.8	0
0600	11.1	-3.5	36	243	1.0	267	1.9	14	0600	10.2	-3.6	38	248	2.1	240	3.8	27	0600	8.3	*****	60	251	1.0	247	2.5	7
0900	13.6	-7.2	23	234	1.8	241	4.4	36	0900	10.3	-3.5	38	237	2.8	233	5.1	22	0900	10.5	-4.1	36	257	.6	253	3.8	23
1200	13.8	-6.5	24	237	2.7	224	5.1	27	1200	13.2	-9.3	20	238	3.5	225	5.7	35	1200	12.4	-26.1	5	239	3.0	245	5.1	45
1500	11.0	-2.9	38	246	4.3	254	7.0	12	1500	14.4	-26.6	4	237	3.7	254	7.0	33	1500	13.3	-9.9	19	230	4.1	225	7.0	35
1800	9.8	-1.6	45	235	3.6	241	6.3	4	1800	12.1	-26.3	5	261	3.6	245	7.6	12	1800	12.5	-6.6	26	230	3.6	229	6.3	8
2100	8.9	-.7	51	245	2.7	238	5.1	0	2100	10.0	-27.8	5	257	1.9	271	3.8	0	2100	11.0	-27.1	5	246	2.2	234	4.4	0
2400	8.8	*****	56	252	1.6	257	4.4	0	2400	8.0	*****	6	253	1.1	250	4.4	0	2400	9.8	-1.3	46	252	1.0	243	1.9	1

DAY 31

HOUR	DEW	WIND	WIND	GUST	MAX.			
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD
	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	MW
0300	8.9	-.4	52	275	1.1	260	2.5	1
0600	10.0	-.5	48	258	1.7	247	3.2	13
0900	11.2	-3.1	37	237	2.2	230	3.8	21
1200	12.6	-7.0	25	237	3.0	218	5.1	25
1500	12.6	-27.9	4	251	2.9	246	5.1	10
1800	10.5	-27.4	5	251	2.8	238	7.0	6
2100	10.4	-27.5	5	250	1.8	251	4.4	0
2400	9.4	*****	6	220	1.6	212	3.8	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 1981

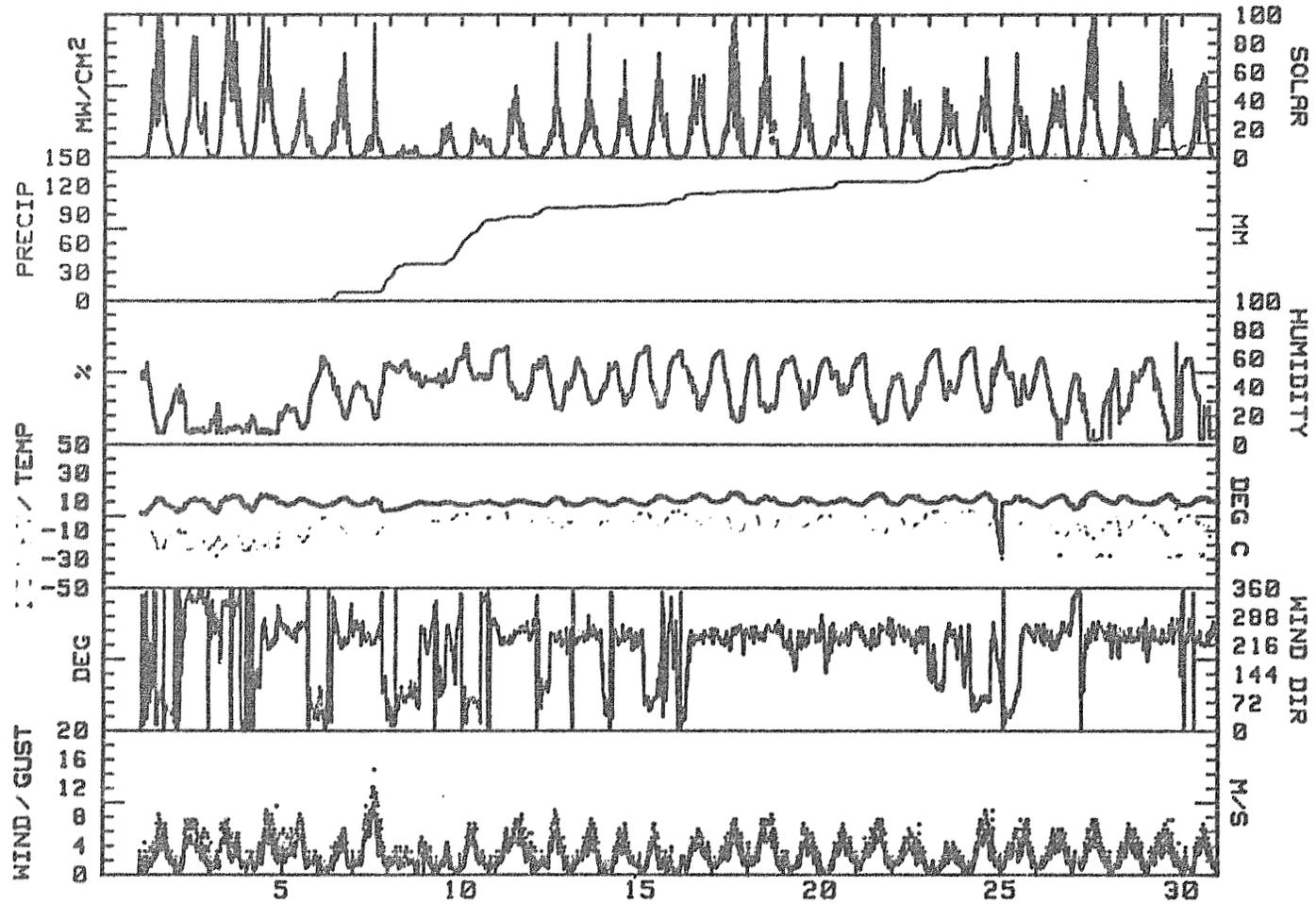
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY DAY WH/SQM
1	12.7	1.2	7.0	057	1.6	2.4	113	8.3	ENE	27	-13.5	0.0	6335 1
2	12.5	2.7	7.6	333	2.7	2.9	329	7.6	NNW	16	-19.5	0.0	5525 2
3	14.1	2.3	8.2	326	2.2	2.6	323	7.6	NW	23	-18.2	0.0	7728 3
4	15.0	3.4	9.2	243	1.8	2.8	272	9.5	SW	12	-18.2	0.0	6178 4
5	12.2	7.4	9.8	263	1.9	2.9	261	8.3	W	26	-10.4	1.4	2913 5
6	12.9	6.7	9.8	239	1.1	1.9	221	6.3	SW	39	-5.7	8.2	3893 6
7	12.2	3.5	7.9	239	3.0	4.0	228	14.6	WSW	37	-6.5	14.4	2158 7
8	9.9	4.3	7.1	083	.9	1.8	251	5.1	E	50	-2.9	15.2	693 8
9	9.9	7.8	8.9	224	.8	1.4	221	4.4	WSW	48	-2.1	20.4	1548 9
10	10.6	7.6	9.1	054	1.4	2.2	084	7.0	ENE	53	-.4	25.4	1833 10
11	11.1	7.7	9.4	243	3.4	3.5	257	8.3	WSW	45	-2.5	5.8	3225 11
12	13.0	7.5	10.3	228	1.8	2.5	231	8.9	WSW	43	-3.2	6.8	2855 12
13	11.9	7.7	9.8	244	2.1	2.3	238	7.6	WSW	41	-3.4	1.4	3145 13
14	12.3	7.7	10.0	238	1.7	2.1	240	7.0	SW	46	-1.9	1.6	3108 14
15	14.4	7.9	11.2	086	1.0	1.8	083	7.0	E	48	-1.5	6.2	3920 15
16	15.3	9.9	12.6	238	1.8	2.3	233	6.3	WSW	44	-.9	5.8	4118 16
17	16.5	9.8	13.2	244	2.6	2.7	251	7.6	WSW	39	-2.4	2.8	4963 17
18	14.0	8.5	11.3	249	3.2	3.3	250	8.3	WSW	40	-3.1	1.4	4060 18
19	12.9	7.9	10.4	235	2.1	2.2	224	7.0	WSW	44	-2.6	1.8	3260 19
20	12.4	8.6	10.5	240	2.1	2.2	232	7.0	WSW	48	-1.0	6.8	3165 20
21	16.3	8.2	12.3	244	2.9	3.0	235	7.6	WSW	35	-5.1	0.0	6025 21
22	14.3	8.5	11.4	241	2.4	2.5	235	7.0	WSW	38	-3.6	3.8	3793 22
23	14.0	9.5	11.8	220	1.1	1.5	251	4.4	WSW	50	.1	8.4	3175 23
24	16.5	-20.2	-1.9	094	1.5	2.8	087	8.9	ENE	47	-2.9	5.6	3620 24
25	13.9	-25.5	-5.9	267	.3	2.8	241	7.6	WSW	43	-2.8	11.2	3513 25
26	14.6	6.9	10.8	244	2.4	2.6	219	6.3	WSW	33	-7.8	0.0	4270 26
27	17.0	5.0	11.0	258	2.0	2.7	250	7.6	WSW	21	-14.8	0.0	6890 27
28	14.1	8.8	11.5	242	2.3	2.4	25A	7.0	WSW	38	-4.1	2.8	2728 28
29	15.4	8.0	11.7	245	2.4	2.5	245	7.6	WSW	29	-12.3	5.2	4468 29
30	13.5	7.9	10.7	239	2.0	2.1	225	7.0	WSW	30	-13.7	4.6	3885 30
31	12.7	8.3	10.8	246	2.1	2.2	238	7.0	WSW	27	-12.1	3.6	2355 31
MONTH	17.0	-25.5	9.3	248	1.4	2.5	228	14.6	WSW	37	-6.4	170.6	119359

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 12.1
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 11.4
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 11.4
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 11.4

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

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

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
WATANA WEATHER STATION
July, 1981



R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING July, 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	
N	.61	2.08	.24	0.00	0.00	0.00	0.00	2.92
NNE	.54	1.38	.03	0.00	0.00	0.00	0.00	1.95
NE	.40	2.55	.24	0.00	0.00	0.00	0.00	3.19
ENE	.77	2.08	2.18	0.00	0.00	0.00	0.00	5.04
E	.84	2.18	1.55	.03	0.00	0.00	0.00	4.61
ESE	1.21	2.55	.20	0.00	0.00	0.00	0.00	3.97
SE	.47	.94	0.00	0.00	0.00	0.00	0.00	1.41
SSE	1.01	.44	0.00	0.00	0.00	0.00	0.00	1.45
S	.67	.71	.03	0.00	0.00	0.00	0.00	1.41
SSW	.84	1.98	.67	0.00	0.00	0.00	0.00	3.50
SW	1.45	8.13	9.14	.50	.03	0.00	0.00	19.26
WSW	1.65	16.13	12.87	.30	0.00	0.00	0.00	30.96
W	.91	7.23	3.70	0.00	0.00	0.00	0.00	11.83
WNW	.54	1.01	.10	0.00	0.00	0.00	0.00	1.65
NW	.44	.64	1.14	0.00	0.00	0.00	0.00	2.22
NNW	.47	2.02	1.78	0.00	0.00	0.00	0.00	4.27
CALM								.37
TOTAL	12.81	52.07	33.88	.34	.03	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
2075 VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August, 1981

DAY 01

DAY 02

DAY 03

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	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	-26.6	6	101	1.2	098	1.9	0	0300	8.0	-27.5	6	075	4.0	081	7.6	0	0300	8.8	*****	6	012	1.0	047	1.9	0
0600	9.4	-26.5	6	102	1.3	099	2.5	4	0600	8.4	-27.2	6	057	2.5	072	5.1	6	0600	9.2	-26.6	6	053	.9	033	2.5	14
0900	10.1	-27.7	5	082	3.0	077	5.1	17	0900	9.1	-26.7	6	061	2.7	059	5.1	22	0900	12.8	-27.8	4	111	2.2	122	5.1	58
1200	10.9	-27.1	5	095	3.4	077	5.1	21	1200	11.5	-26.7	5	071	2.6	126	5.7	47	1200	17.3	-26.9	3	129	2.6	122	5.1	77
1500	11.3	-26.9	5	092	2.9	101	5.1	10	1500	13.2	-27.5	4	067	3.0	075	6.3	36	1500	*****	*****	35	049	1.8	354	7.6	16
1800	11.1	-27.0	5	090	1.1	069	3.2	3	1800	11.9	-26.4	5	102	2.9	078	6.3	7	1800	16.0	-27.7	3	081	2.8	091	6.3	25
2100	10.0	-27.8	5	099	1.1	084	3.2	0	2100	10.2	-27.6	5	091	1.6	101	3.2	0	2100	11.7	-26.6	5	069	2.8	090	4.4	0
2400	8.3	-27.3	6	093	3.4	084	7.0	0	2400	8.9	-1.0	50	079	1.9	080	3.2	0	2400	10.1	-27.7	5	066	2.8	063	6.3	0

DAY 04

DAY 05

DAY 06

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	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	4.0	-27.5	8	029	1.8	355	3.8	0	0300	*****	*****	35	342	2.8	345	5.1	0	0300	9.7	-26.2	6	061	4.4	091	8.3	0
0600	6.8	-10.6	28	044	1.8	100	3.8	22	0600	*****	*****	31	343	3.4	339	7.0	7	0600	*****	*****	34	064	5.1	074	8.9	18
0900	14.3	-26.7	4	107	2.3	093	5.1	55	0900	*****	*****	34	346	4.6	350	7.6	69	0900	*****	*****	33	331	5.5	328	8.9	18
1200	*****	*****	35	081	2.8	351	7.6	58	1200	*****	*****	34	348	6.1	350	10.8	64	1200	*****	*****	33	330	4.9	329	7.0	92
1500	*****	*****	35	031	3.1	109	8.9	75	1500	*****	*****	34	349	6.8	349	11.4	39	1500	*****	*****	34	337	4.6	332	7.6	17
1800	*****	*****	35	351	5.8	344	9.5	22	1800	*****	*****	33	336	4.9	346	10.2	11	1800	*****	*****	33	341	1.7	339	7.0	10
2100	*****	*****	34	349	4.5	351	8.9	0	2100	11.9	-26.4	5	358	2.9	327	8.3	0	2100	*****	*****	33	336	4.1	337	9.5	0
2400	*****	*****	34	348	2.2	349	5.1	0	2400	10.0	-20.4	10	070	5.0	091	10.8	0	2400	*****	*****	32	329	6.6	327	10.9	0

DAY 07

DAY 08

DAY 09

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	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	*****	*****	33	330	6.0	318	10.2	0	0300	*****	*****	34	337	6.0	339	10.2	0	0300	*****	*****	33	341	.9	348	1.9	0
0600	*****	*****	33	329	5.8	331	9.5	2	0600	*****	*****	20	339	5.8	340	10.9	11	0600	*****	*****	33	332	1.5	330	2.5	7
0900	*****	*****	34	334	5.7	335	9.5	6	0900	*****	*****	34	337	5.9	335	9.5	48	0900	*****	*****	32	330	1.8	332	3.8	31
1200	*****	*****	34	335	6.3	335	10.8	31	1200	*****	*****	79	341	5.1	338	9.5	56	1200	*****	*****	33	337	1.3	339	3.2	69
1500	*****	*****	34	339	6.6	342	10.2	8	1500	*****	*****	34	347	4.3	340	8.3	3	1500	*****	*****	32	342	2.9	345	5.7	22
1800	*****	*****	34	338	6.2	335	9.5	3	1800	*****	*****	33	344	2.1	348	5.7	3	1800	*****	*****	33	345	4.7	345	7.6	13
2100	*****	*****	34	336	6.0	337	10.2	0	2100	*****	*****	34	343	.9	348	3.8	0	2100	*****	*****	33	344	1.6	346	5.7	0
2400	*****	*****	34	339	5.4	341	8.9	0	2400	*****	*****	34	343	1.4	345	3.3	0	2400	*****	*****	34	341	.6	338	1.9	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August, 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	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	****	****	34	345	.8	343	1.9	0	0300	5.8	-27.5	7	215	1.0	224	3.8	0	0300	4.8	****	7	235	1.2	241	3.2	0
0600	****	****	34	337	.9	338	2.5	10	0600	7.3	****	6	235	.5	238	1.9	10	0600	****	****	34	344	1.3	355	3.2	8
0900	****	****	33	335	2.3	333	4.4	49	0900	9.4	-26.5	6	220	1.2	226	3.2	44	0900	****	****	34	349	1.6	354	3.2	18
1200	****	****	34	336	3.7	338	6.3	11	1200	10.2	-27.6	5	202	1.5	210	3.8	31	1200	****	****	34	344	2.6	344	5.1	16
1500	****	****	32	346	2.4	345	5.7	16	1500	11.9	-26.4	5	229	1.3	272	4.4	24	1500	****	****	34	346	2.4	343	5.7	9
1800	9.5	-26.4	6	253	1.0	333	4.4	3	1800	8.4	-27.2	6	204	.8	250	5.1	4	1800	****	****	34	352	2.2	351	1.4	4
2100	7.4	-27.9	6	257	2.6	268	6.3	0	2100	6.8	****	7	249	.9	250	3.2	0	2100	****	****	34	352	.8	352	2.5	0
2400	6.5	****	7	256	.2	259	2.5	0	2400	5.9	-27.5	7	243	1.7	251	3.8	0	2400	****	****	35	353	1.7	352	3.2	0

DAY 13

DAY 14

DAY 15

HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	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	****	****	32	350	1.2	352	3.2	0	0300	****	****	34	344	1.0	343	2.5	0	0300	-24.4	-41.8	18	326	4.5	317	7.6	0
0600	****	****	34	351	1.0	353	1.9	8	0600	****	****	34	343	1.9	343	3.2	5	0600	****	****	34	311	2.3	213	9.3	6
0900	****	****	34	351	1.4	355	2.5	22	0900	****	****	11	343	3.0	342	5.1	19	0900	****	****	34	352	2.6	353	5.7	6
1200	****	****	34	351	1.8	351	5.1	24	1200	****	****	34	344	3.3	344	5.7	48	1200	****	****	34	351	1.6	349	3.8	8
1500	****	****	34	350	2.7	350	5.7	18	1500	****	****	34	351	2.9	351	7.6	26	1500	****	****	34	349	2.2	349	3.8	16
1800	****	****	62	349	4.4	351	9.5	1	1800	****	****	3	349	1.7	350	3.8	3	1800	****	****	34	350	2.7	350	4.4	8
2100	****	****	34	345	2.4	345	8.9	0	2100	****	****	34	350	1.2	350	3.2	0	2100	****	****	34	350	1.3	351	3.2	0
2400	****	****	34	349	2.5	350	6.3	0	2400	****	****	34	338	1.1	334	3.2	0	2400	****	****	34	344	.8	345	1.9	0

DAY 16

DAY 17

DAY 18

HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.	HOUR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	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	****	****	34	341	1.4	341	2.5	0	0300	-25.7	-34.9	42	359	.8	335	3.8	1	0300	****	****	35	354	2.1	354	3.2	0
0600	****	****	34	347	1.2	352	1.4	7	0600	3.3	-18.2	19	015	1.5	357	3.8	21	0600	****	****	35	354	2.2	354	4.4	8
0900	****	****	35	350	2.5	350	5.1	6	0900	6.8	-18.9	14	073	4.4	077	7.6	59	0900	****	****	16	354	3.8	354	7.0	27
1200	3.7	-27.7	8	327	2.2	364	5.1	48	1200	****	****	35	355	4.0	057	7.6	73	1200	****	****	35	354	4.8	354	7.6	45
1500	5.7	-8.7	35	244	2.6	237	5.7	59	1500	****	****	35	352	2.5	352	7.0	18	1500	****	****	44	351	4.8	354	7.6	11
1800	5.7	-27.6	7	255	1.5	217	4.4	15	1800	****	****	35	354	2.0	355	6.5	4	1800	****	****	35	350	3.9	348	6.3	6
2100	-1	-29.3	9	347	2.1	358	3.8	0	2100	****	****	35	354	2.3	354	4.4	0	2100	****	****	35	351	2.2	351	1.4	0
2400	****	****	59	305	2.1	346	3.8	1	2400	****	****	35	354	2.9	354	5.7	0	2400	****	****	35	352	1.7	353	3.2	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August, 1981

DAY 19

DAY 20

DAY 21

HOUR	DEW							HOUR	DEW							HOUR	DEW									
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST			
NDNG	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	NDNG	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	NDNG	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S			
0300	****	****	35	352	1.2	351	2.5	0	0300	7.1	-29.1	6	029	1.5	057	4.4	0	0300	6.9	-26.7	7	048	2.9	052	5.7	0
0600	****	****	35	352	1.4	353	3.2	12	0600	7.8	-27.6	6	047	2.9	055	5.7	3	0600	8.0	6.8	92	040	2.2	072	7.0	17
0900	****	****	35	353	2.8	353	5.1	40	0900	9.2	-26.6	6	054	3.6	060	7.6	10	0900	11.2	-26.9	5	073	5.5	070	8.9	58
1200	****	****	35	353	3.8	353	6.3	25	1200	9.4	-26.5	6	063	3.7	058	7.6	12	1200	****	****	35	012	3.8	079	8.3	71
1500	****	****	17	353	4.1	353	7.6	21	1500	10.9	-27.1	5	037	4.0	014	8.3	18	1500	****	****	35	354	3.0	355	8.3	2
1800	****	****	32	354	1.9	353	3.8	3	1800	8.8	-26.9	6	046	3.4	037	7.6	3	1800	****	****	35	355	2.9	355	8.3	1
2100	6.4	-27.1	7	322	1.9	318	3.8	0	2100	8.1	-27.4	6	043	1.9	059	5.1	0	2100	****	****	35	334	1.3	353	4.4	0
2400	6.3	-27.2	7	332	1.9	340	3.8	0	2400	5.9	-27.5	7	033	2.2	006	6.3	0	2400	****	****	35	355	1.5	355	3.2	0

DAY 22

DAY 23

DAY 24

HOUR	DEW							HOUR	DEW							HOUR	DEW									
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST			
NDNG	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	NDNG	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	NDNG	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S			
0300	****	****	35	355	1.8	355	3.2	0	0300	****	****	34	349	1.6	350	1.9	0	0300	****	****	35	348	1.2	296	2.5	0
0600	****	****	35	355	2.0	355	4.4	11	0600	****	****	65	346	1.7	346	2.5	8	0600	****	****	35	353	1.5	355	4.4	22
0900	****	****	35	355	2.5	355	4.4	21	0900	****	****	34	348	1.2	347	3.2	26	0900	****	****	35	354	1.7	355	2.5	54
1200	****	****	35	355	2.4	355	4.4	13	1200	****	****	35	351	2.0	350	4.4	34	1200	****	****	35	354	1.6	354	4.4	67
1500	****	****	35	355	2.7	355	5.1	15	1500	****	****	35	354	1.6	354	5.1	25	1500	****	****	35	355	2.6	355	5.7	34
1800	****	****	35	354	2.9	354	5.7	4	1800	****	****	35	355	2.6	355	5.7	8	1800	****	****	35	356	3.1	355	5.7	5
2100	****	****	34	353	2.2	353	4.4	0	2100	****	****	35	355	1.9	355	3.8	0	2100	****	****	35	356	1.9	356	4.4	0
2400	****	****	34	353	1.2	353	2.5	0	2400	****	****	35	355	1.2	355	2.5	0	2400	****	****	35	356	1.4	356	2.5	0

DAY 25

DAY 26

DAY 27

HOUR	DEW							HOUR	DEW							HOUR	DEW									
	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST		TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST			
NDNG	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	NDNG	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S	NDNG	DEG C	DEG C	%	DEG.	M/S	DEG.	M/S			
0300	****	****	35	355	1.1	001	2.5	0	0300	****	****	35	354	1.5	354	2.5	0	0300	-45.6	****	25	351	2.2	355	3.8	0
0600	****	****	35	354	1.0	355	2.5	8	0600	****	****	35	353	1.7	354	3.2	19	0600	11.3	-26.9	5	343	1.3	345	2.5	17
0900	****	****	35	353	1.3	353	6.3	31	0900	****	****	35	354	1.6	354	3.8	53	0900	16.8	-27.2	3	253	1.5	246	3.8	52
1200	****	****	35	354	1.8	354	4.4	90	1200	****	****	35	354	3.3	355	5.7	63	1200	****	****	35	278	1.9	245	3.2	65
1500	****	****	35	355	2.1	355	4.4	47	1500	****	****	35	353	1.8	353	3.8	44	1500	****	****	35	355	1.5	355	3.8	45
1800	****	****	35	355	3.0	355	5.7	3	1800	****	****	35	354	4.7	353	8.3	8	1800	****	****	35	355	1.5	355	5.1	7
2100	****	****	35	355	1.3	355	3.2	0	2100	****	****	35	354	4.0	353	8.3	0	2100	****	****	35	355	3.1	355	6.3	0
2400	****	****	35	355	1.8	357	3.2	0	2400	****	****	35	356	2.6	354	4.4	0	2400	****	****	45	355	1.9	355	3.8	0

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

THREE HOUR SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING August, 1981

DAY 28

DAY 29

DAY 30

HOUR NDNG	DEW		WIND		WIND GUST MAX.		HOUR NDNG	DEW		WIND		WIND GUST MAX.		HOUR NDNG	DEW		WIND		WIND GUST MAX.							
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.		GUST M/S	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S		DIR. DEG.	GUST M/S	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S			
0300	****	****	35	355	1.3	355	2.5	0	0300	8.4	-27.2	6	323	1.1	356	2.5	0	0300	9.2	-26.6	6	255	2.0	239	3.8	0
0600	9.5	****	6	357	1.3	356	1.9	6	0600	7.5	-2.6	49	260	.7	240	2.5	3	0600	9.3	-26.5	6	245	2.5	235	4.4	2
0900	13.2	****	4	112	.6	128	2.5	54	0900	10.4	.1	49	244	1.3	217	4.4	16	0900	10.4	-27.5	5	246	3.1	243	4.4	15
1200	22.4	-28.8	1	147	1.3	148	3.2	66	1200	12.6	-27.9	4	225	3.4	228	5.7	20	1200	13.3	-27.4	4	232	4.8	235	7.0	66
1500	****	****	35	049	1.0	100	4.4	41	1500	13.3	-27.4	4	224	3.8	220	5.7	10	1500	12.0	-26.4	5	231	5.5	220	7.6	23
1800	****	****	35	353	2.4	353	4.4	7	1800	12.1	-26.3	5	253	4.0	239	6.3	1	1800	9.9	-27.9	5	228	5.3	225	7.6	1
2100	****	****	35	353	1.8	353	3.8	0	2100	10.5	-27.4	5	246	3.1	262	6.3	0	2100	8.2	-27.3	6	229	4.3	230	7.0	0
2400	****	****	35	356	2.1	355	3.2	0	2400	9.5	-26.4	6	244	2.3	246	4.4	0	2400	7.5	-27.8	6	226	4.4	223	7.0	0

DAY 31

HOUR NDNG	DEW		WIND		WIND GUST MAX.			
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	
0300	7.2	-3.7	46	242	3.4	233	5.7	1
0600	2.5	-8.3	45	234	3.4	253	6.3	23
0900	4.1	-10.9	33	239	3.6	250	6.3	52
1200	15.1	-25.1	4	255	1.7	247	4.4	63
1500	14.6	-26.5	4	321	1.5	281	3.8	40
1800	12.8	-27.8	4	339	2.3	348	4.4	4
2100	7.7	-27.7	6	022	1.2	030	5.8	0
2400	-26.2	****	18	002	2.0	002	3.8	2

R & M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
DATA TAKEN DURING August, 1981

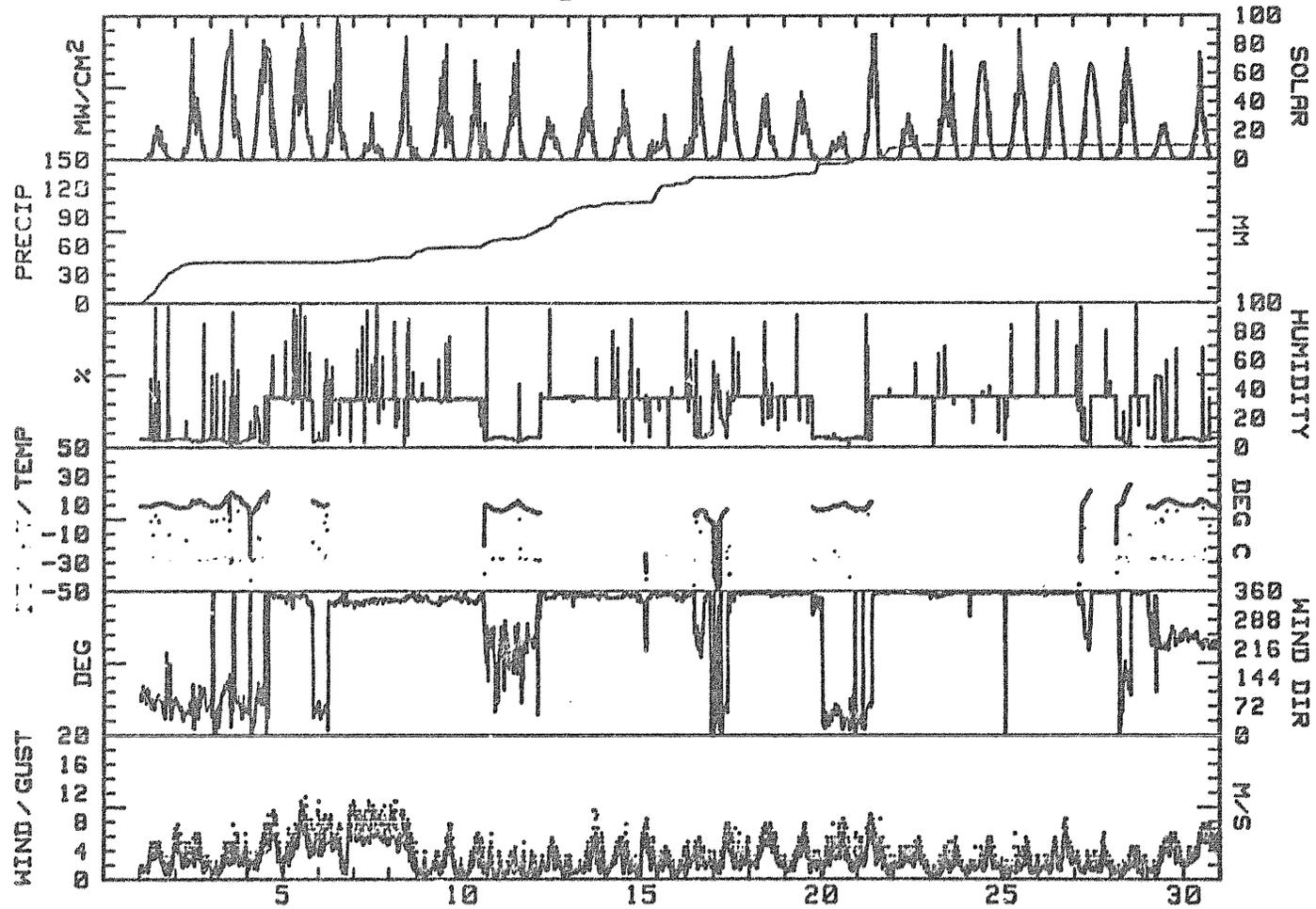
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY DAY WH/SDH
1	11.6	8.3	10.0	088	2.2	2.3	084	7.0	E	10	-24.6	35.6	1433 1
2	13.6	7.9	10.8	075	2.6	2.7	081	7.6	ENE	7	-26.2	7.4	3600 2
3	19.0	-1.1	9.0	078	1.9	2.3	354	7.6	ENE	10	-25.3	0.0	6258 3
4	19.3	-25.1	-2.9	020	2.3	3.5	344	9.5	N	23	-23.5	0.0	7130 4
5	13.2	10.0	11.6	355	4.0	4.8	349	11.4	NNW	33	-25.9	0.0	5568 5
6	10.4	9.3	9.9	352	3.6	4.7	327	10.8	NNW	28	-22.9	.8	3918 6
7	*****	*****	*****	335	6.0	6.0	335	10.8	NNW	37	*****	4.2	1338 7
8	*****	*****	*****	340	3.9	4.0	340	10.8	NNW	35	*****	8.6	3078 8
9	*****	*****	*****	340	1.9	1.9	345	7.6	NNW	34	*****	2.2	3553 9
10	10.3	-18.5	-4.1	319	1.4	1.9	338	6.3	NNW	24	-26.2	7.2	2935 10
11	12.9	5.8	9.4	224	1.1	1.3	250	5.1	WSW	7	-26.5	7.2	3378 11
12	5.7	4.3	5.0	343	1.5	1.8	343	5.7	N	30	-28.1	22.6	1918 12
13	*****	*****	*****	349	2.2	2.2	351	9.5	N	34	*****	8.2	2938 13
14	*****	*****	*****	345	2.0	2.0	351	7.6	NNW	35	*****	1.6	2263 14
15	-24.4	-37.3	-30.9	339	2.2	2.5	213	8.3	N	33	-44.9	19.4	1300 15
16	6.5	-2.2	2.2	326	1.4	2.1	237	5.7	NNW	23	-26.6	6.2	3930 16
17	6.8	-48.1	-20.7	013	2.2	2.8	077	7.6	N	33	-24.5	0.0	4990 17
18	*****	*****	*****	352	3.2	3.2	354	7.6	N	35	*****	1.6	2735 18
19	9.5	6.0	7.3	348	2.3	2.4	353	7.6	N	28	-27.3	12.8	2843 19
20	11.1	5.8	8.5	046	2.8	3.0	014	8.3	NE	6	-27.4	4.8	1183 20
21	11.7	6.0	8.9	026	2.5	3.1	070	8.9	N	25	-25.6	12.0	4338 21
22	*****	*****	*****	354	2.2	2.2	354	5.7	N	35	*****	2.4	1923 22
23	*****	*****	*****	353	1.5	1.5	355	5.7	N	35	*****	0.0	3945 23
24	*****	*****	*****	354	1.9	1.9	355	5.7	N	35	*****	0.0	5345 24
25	*****	*****	*****	355	1.7	1.7	353	6.3	N	36	*****	0.0	4453 25
26	*****	*****	*****	354	2.6	2.6	353	8.3	N	36	*****	0.0	5405 26
27	19.4	-45.6	-13.1	341	1.5	1.8	355	6.3	N	28	-26.5	0.0	5530 27
28	23.6	-17.1	3.3	008	1.0	1.6	100	4.4	N	24	-27.3	0.0	4690 28
29	13.5	7.5	10.5	243	2.3	2.6	239	6.3	WSW	16	-21.6	0.0	1553 29
30	13.5	7.5	10.5	234	4.0	4.8	220	7.6	SW	6	-26.3	.6	3040 30
31	16.2	-27.2	-5.5	273	1.5	2.6	253	6.3	WSW	18	-21.2	.2	5063 31
MONTH	23.6	-48.1	2.0	351	1.7	2.7	349	11.4	N	26	-26.4	165.6	111586

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 8.3
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 10.2
 GUST VEL. AT MAX. GUST PLUS 1 INTERVAL 8.9
 GUST VEL. AT MAX. GUST PLUS 2 INTERVALS 10.2

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

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

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
WATANA WEATHER STATION
August, 1981



R & M CONSULTANTS, INC.

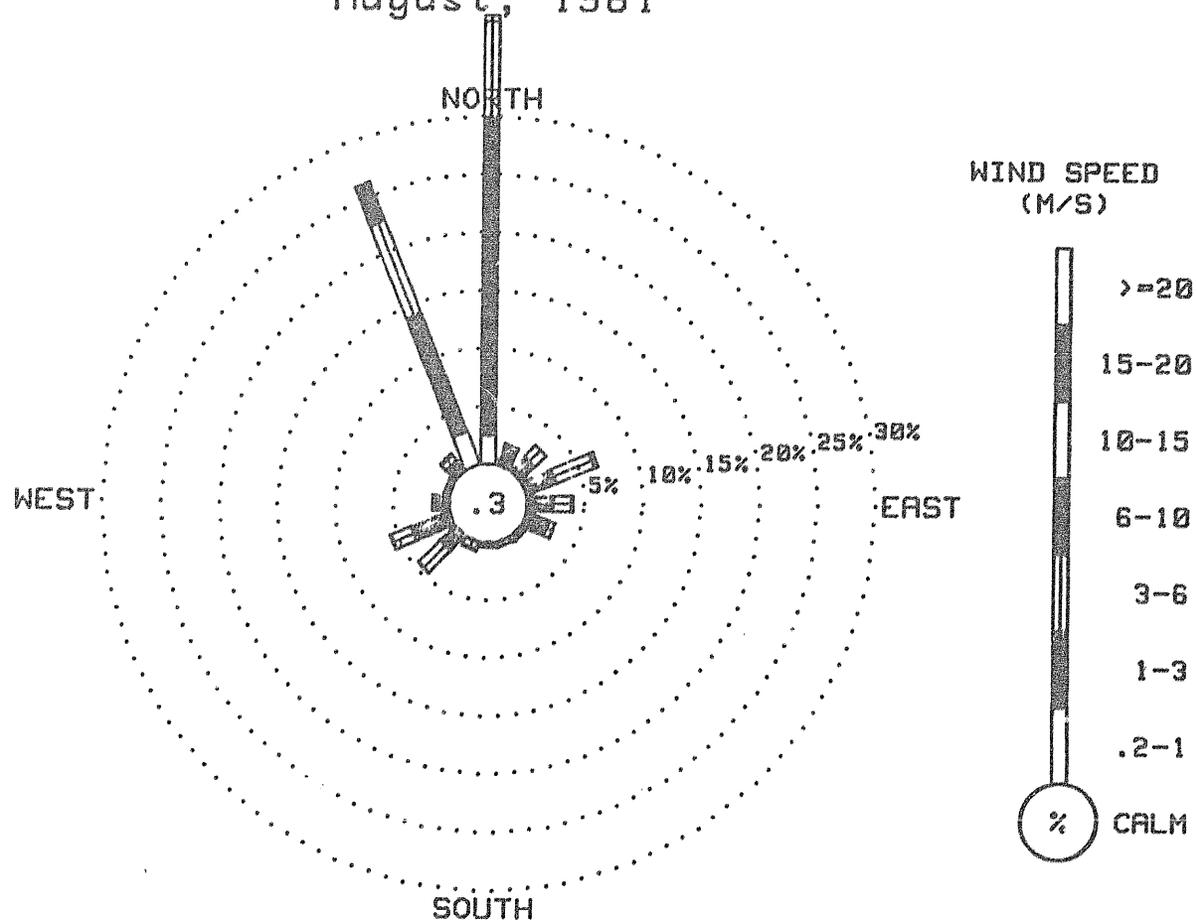
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING August, 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	
N	2.49	27.42	8.13	.54	0.00	0.00	0.00	38.58
NNE	.30	1.38	.27	.03	0.00	0.00	0.00	1.98
NE	.13	1.61	1.31	0.00	0.00	0.00	0.00	3.06
ENE	.27	2.52	3.53	.30	0.00	0.00	0.00	6.62
E	.34	1.98	1.58	.13	0.00	0.00	0.00	4.03
ESE	.27	1.88	.60	0.00	0.00	0.00	0.00	2.76
SE	.13	.40	.10	0.00	0.00	0.00	0.00	.64
SSE	.10	.40	0.00	0.00	0.00	0.00	0.00	.50
S	.13	.30	0.00	0.00	0.00	0.00	0.00	.44
SSW	.17	.54	.10	.03	0.00	0.00	0.00	.84
SW	.20	1.65	2.65	.03	0.00	0.00	0.00	4.54
WSW	.37	3.26	1.92	.07	0.00	0.00	0.00	5.61
W	.30	.87	.37	0.00	0.00	0.00	0.00	1.55
WNW	.10	.40	.03	0.00	0.00	0.00	0.00	.54
NW	.17	1.01	.60	.17	0.00	0.00	0.00	1.95
NNW	3.06	10.92	8.57	3.56	0.00	0.00	0.00	26.11
CALM								.27
TOTAL	8.53	56.55	29.77	4.37	0.00	0.00	0.00	100.00

NOTE: ALL FREQUENCIES ARE EXPRESSED IN PERCENT
 29% VALID WIND OBSERVATIONS USED TO DEVELOP FREQUENCY SUMMARY

R&M CONSULTANTS, INC.
 SUSITNA HYDROELECTRIC PROJECT
 WATANA WEATHER STATION
 August, 1981



WIND ROSE PLOT

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 01

DAY 02

DAY 03

HOUR NDNG	DEW			WIND			WIND GUST MAX.			HOUR NDNG	DEW			WIND			WIND GUST MAX.			HOUR NDNG	DEW			WIND			WIND GUST MAX.		
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MM	TEMP. DEG C		POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MM	TEMP. DEG C	POINT DEG C		RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MM			
0300	-27.7	-39.4	32	145	1.5	179	2.5	1	0300	*****	*****	66	340	1.1	355	2.5	1	0300	6.3	*****	50	244	.6	182	1.9	0			
0600	-26.1	-37.9	32	164	1.4	167	3.2	16	0600	*****	*****	67	354	.5	355	1.3	2	0600	8.7	*****	37	041	.1	084	2.5	21			
0900	-22.4	-39.2	20	214	1.7	219	3.2	53	0900	*****	*****	74	355	1.2	355	3.2	12	0900	9.5	-6.1	33	122	1.5	116	2.5	23			
1200	14.5	-26.6	4	222	2.3	196	4.4	63	1200	*****	*****	69	355	2.8	355	5.7	26	1200	12.4	-9.4	21	103	.8	338	3.8	26			
1500	*****	*****	35	014	1.6	356	4.4	38	1500	10.7	-3.2	38	283	2.1	355	6.3	22	1500	12.9	-27.7	4	209	.4	356	2.5	15			
1800	*****	*****	35	355	2.9	355	5.7	4	1800	8.8	-4.9	38	259	2.8	268	5.1	2	1800	10.4	-9.9	23	146	1.0	170	3.8	1			
2100	*****	*****	35	355	1.7	355	3.8	0	2100	7.7	-3.9	44	253	1.3	260	3.2	1	2100	8.5	-7.8	31	046	.8	080	3.8	1			
2400	*****	*****	53	355	1.3	355	2.5	1	2400	6.4	*****	48	254	1.2	252	1.9	1	2400	7.3	*****	39	343	.8	351	1.9	1			

DAY 04

DAY 05

DAY 06

HOUR NDNG	DEW			WIND			WIND GUST MAX.			HOUR NDNG	DEW			WIND			WIND GUST MAX.			HOUR NDNG	DEW			WIND			WIND GUST MAX.		
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MM	TEMP. DEG C		POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MM	TEMP. DEG C	POINT DEG C		RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MM			
0300	6.8	*****	50	267	.7	258	1.9	1	0300	7.7	-6.6	36	044	2.8	049	6.3	1	0300	5.1	-7.8	39	039	3.4	044	4.4	1			
0600	5.5	-5.3	46	082	1.3	095	3.2	8	0600	7.8	-4.7	41	056	2.6	053	4.4	8	0600	6.9	-8.4	33	038	3.8	035	5.7	11			
0900	9.4	-12.5	20	068	3.6	077	5.7	27	0900	10.2	-8.6	26	075	4.4	084	7.6	66	0900	10.7	-9.7	23	051	3.8	069	6.3	52			
1200	11.1	-10.5	21	079	5.4	081	8.3	49	1200	12.6	-9.8	20	079	5.0	081	8.3	60	1200	10.1	-10.7	22	077	4.7	081	6.3	9			
1500	11.1	-12.4	18	082	5.5	081	8.3	20	1500	13.2	-13.8	14	076	4.7	083	7.6	17	1500	6.5	-5.6	42	094	2.4	217	10.8	4			
1800	8.8	-9.8	28	079	4.8	064	7.6	1	1800	9.1	-4.2	39	208	.8	073	5.1	1	1800	6.0	*****	44	231	.7	293	8.3	1			
2100	7.9	-5.7	38	057	3.7	061	6.3	1	2100	7.3	-4.2	44	050	.8	066	2.5	1	2100	3.8	-6.8	46	009	1.4	005	2.5	1			
2400	7.2	-6.3	38	050	3.2	050	6.3	1	2400	6.6	-6.2	40	044	2.4	061	5.1	1	2400	4.6	-6.7	44	352	1.8	346	3.2	0			

DAY 07

DAY 08

DAY 09

HOUR NDNG	DEW			WIND			WIND GUST MAX.			HOUR NDNG	DEW			WIND			WIND GUST MAX.			HOUR NDNG	DEW			WIND			WIND GUST MAX.		
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MM	TEMP. DEG C		POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MM	TEMP. DEG C	POINT DEG C		RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MM			
0300	2.2	-8.0	47	054	1.1	008	2.5	1	0300	3.7	-7.2	45	067	.8	068	2.5	1	0300	1.4	*****	35	040	1.0	046	2.5	1			
0600	2.5	-10.5	38	026	1.4	345	3.2	12	0600	4.2	-8.0	41	071	1.0	074	3.2	10	0600	1.8	*****	35	032	1.2	047	2.5	10			
0900	7.3	-10.6	27	086	2.3	068	5.1	29	0900	9.1	-10.5	24	092	1.4	092	3.2	45	0900	6.0	-14.2	22	097	1.2	105	3.2	18			
1200	3.4	-11.6	23	097	2.8	100	5.1	22	1200	12.0	-21.5	8	117	2.8	117	5.1	62	1200	11.0	-15.5	14	106	2.2	096	3.2	21			
1500	6.7	-11.4	23	074	3.9	075	6.3	24	1500	12.5	-19.7	9	093	3.2	098	7.6	33	1500	7.9	-3.3	31	090	2.3	085	5.7	7			
1800	6.4	-9.6	31	073	2.3	076	5.7	1	1800	8.5	-21.6	10	069	2.6	077	6.3	2	1800	6.1	-4.7	46	059	2.1	074	4.4	1			
2100	4.3	-7.9	42	036	1.2	059	2.5	1	2100	5.3	-15.3	21	004	1.3	083	3.8	1	2100	5.1	*****	44	031	.9	017	1.9	1			
2400	4.3	-7.2	44	075	1.6	078	3.6	1	2400	2.1	-13.0	32	027	1.4	029	3.2	1	2400	4.6	-7.3	42	026	.9	033	2.5	1			

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 10

DAY 11

DAY 12

HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	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	4.1	-6.0	48	338	1.2	010	3.2	1	0300	1.9	****	44	353	1.4	340	2.5	0	0300	2.4	-6.7	51	075	.9	075	2.5	1
0600	4.3	****	50	290	.9	299	1.9	5	0600	2.5	****	43	059	.9	003	1.9	4	0600	4.1	-8.4	40	028	1.2	348	2.5	10
0900	6.6	****	36	266	.4	293	1.9	35	0900	5.2	****	32	106	.8	112	2.5	19	0900	7.9	-14.4	19	081	3.1	022	5.7	45
1200	7.7	-10.2	27	347	1.1	340	3.2	24	1200	8.7	-9.4	27	183	1.0	173	2.5	27	1200	9.3	-15.3	16	093	3.8	097	7.0	65
1500	9.6	-26.3	6	354	1.8	356	3.8	17	1500	7.5	-8.3	32	184	1.7	213	4.4	9	1500	10.9	-22.3	8	089	4.0	115	7.0	30
1800	6.4	-6.7	39	304	.3	023	3.2	1	1800	5.9	-8.2	36	287	.7	204	3.8	1	1800	8.0	-16.4	16	068	3.0	089	7.6	2
2100	5.5	****	41	310	.7	305	1.9	1	2100	5.1	****	39	231	.3	202	5.7	1	2100	5.9	-17.3	17	060	3.2	076	7.0	1
2400	2.9	-9.2	41	354	1.4	341	2.5	1	2400	4.1	****	46	259	1.0	268	2.5	1	2400	3.9	-11.8	31	065	2.2	075	6.3	1

DAY 13

DAY 14

DAY 15

HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	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	2.4	-13.2	31	037	1.3	040	2.5	1	0300	2.1	-12.7	33	054	3.0	048	4.4	1	0300	4.9	-11.8	29	043	2.9	045	5.1	1
0600	1.8	-12.5	34	072	1.3	079	2.5	2	0600	-.9	-12.9	40	068	2.1	064	4.4	8	0600	4.6	-11.2	31	062	5.3	074	10.2	2
0900	6.1	-16.5	18	073	2.7	073	6.3	22	0900	3.4	-13.1	29	095	1.9	099	3.8	22	0900	5.1	-10.0	33	073	5.7	072	8.9	20
1200	9.4	-17.7	13	083	2.8	065	5.7	56	1200	9.0	-16.3	15	096	3.1	106	4.4	40	1200	8.5	-12.7	21	074	4.3	079	7.6	41
1500	6.8	-12.5	24	181	1.4	180	7.0	27	1500	12.3	-17.5	11	089	3.1	064	5.7	24	1500	10.2	-14.6	16	051	1.3	071	5.1	17
1800	3.7	-12.0	31	060	1.9	046	4.4	1	1800	7.9	-23.2	9	077	4.8	090	8.3	1	1800	7.6	-11.3	25	243	2.1	234	3.8	0
2100	3.3	-12.0	32	035	2.4	038	4.4	1	2100	5.6	-19.9	14	037	2.9	072	5.7	1	2100	5.6	****	34	255	.8	253	3.2	1
2400	1.9	-12.1	35	045	2.7	036	4.4	1	2400	5.4	-12.2	27	058	2.5	071	5.1	1	2400	3.4	-12.3	31	047	1.4	062	3.2	1

DAY 16

DAY 17

DAY 18

HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.	HR	DEW	WIND	WIND	GUST	MAX.									
NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	NDNG	TEMP.	POINT	RH	DIR.	SPD.	DIR.	GUST	RAD	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	3.6	-9.5	39	063	2.0	068	4.4	1	0300	5.2	-17.2	18	066	5.0	067	8.3	1	0300	6.0	-19.6	14	047	2.5	040	6.3	1
0600	4.3	-10.7	33	035	1.6	037	3.2	7	0600	4.1	-16.3	21	061	4.3	064	7.0	6	0600	5.6	-17.6	17	072	4.2	079	8.3	8
0900	7.0	-15.1	19	067	3.3	071	6.3	52	0900	8.1	-18.8	13	060	3.9	079	7.6	40	0900	6.8	-16.6	17	066	4.5	072	8.9	13
1200	10.6	-13.3	11	086	3.6	083	5.7	41	1200	10.3	-22.7	8	085	4.4	086	7.6	50	1200	8.4	-18.5	13	076	4.0	072	6.3	12
1500	9.5	-20.8	10	087	2.8	077	5.7	10	1500	12.4	-16.3	12	085	3.2	068	7.6	25	1500	9.2	-18.9	12	078	4.1	081	7.0	10
1800	7.7	-22.2	10	073	3.9	072	2.3	1	1800	7.8	-23.3	9	037	3.1	031	5.7	1	1800	7.5	-16.7	16	076	2.3	071	5.1	1
2100	6.3	-19.9	14	075	5.4	073	3.7	1	2100	6.3	-23.3	12	028	4.5	027	7.0	1	2100	6.4	-19.9	28	054	2.9	066	5.1	1
2400	5.3	-17.4	17	065	5.1	066	3.3	1	2400	6.4	-23.2	10	037	3.3	026	6.3	1	2400	5.7	-11.9	25	059	3.8	058	8.3	1

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

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

DAY 19

DAY 20

DAY 21

HOUR NDNG	DEW				WIND				GUST MAX.				HOUR NDNG	DEW				WIND				GUST MAX.				HOUR NDNG	DEW				WIND				GUST MAX.			
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.		SPD. M/S	DIR. DEG.	GUST M/S	RAD MW	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW		TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW				
0300	6.6	-10.7	28	052	3.6	058	7.6	1	0300	2.7	-6.7	50	058	1.0	085	3.2	1	0300	.4	-8.3	52	317	.9	328	1.9	1												
0600	6.0	-10.0	31	072	6.5	075	9.5	2	0600	2.7	-8.1	45	080	2.0	094	3.2	3	0600	.1	-8.1	54	292	.5	266	3.2	3												
0900	5.9	-6.1	42	069	4.2	074	8.9	4	0900	4.3	-7.6	42	087	2.5	088	4.4	21	0900	3.4	*****	39	296	.2	231	1.9	21												
1200	7.0	-8.3	33	037	2.4	040	3.8	8	1200	7.4	-10.5	27	109	2.5	091	5.1	52	1200	6.5	-14.3	21	073	.9	046	4.4	29												
1500	6.2	-6.9	39	019	2.2	027	5.1	6	1500	5.9	-10.1	31	072	1.3	000	5.1	15	1500	6.4	-4.2	47	035	3.4	031	5.7	24												
1800	4.5	-7.4	42	015	1.2	008	3.2	1	1800	2.8	-9.0	42	307	2.0	337	5.7	1	1800	3.1	-16.6	22	016	3.6	004	6.3	0												
2100	3.8	*****	44	053	1.0	359	1.9	1	2100	1.7	-7.4	51	335	.3	270	3.2	1	2100	1.6	-17.9	22	028	2.0	016	4.4	0												
2400	3.4	-6.4	49	017	.3	298	1.9	1	2400	-4	-9.3	51	337	1.2	033	2.5	1	2400	.4	-18.4	23	054	1.2	030	3.2	0												

DAY 22

DAY 23

DAY 24

HOUR NDNG	DEW				WIND				GUST MAX.				HOUR NDNG	DEW				WIND				GUST MAX.				HOUR NDNG	DEW				WIND				GUST MAX.			
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.		SPD. M/S	DIR. DEG.	GUST M/S	RAD MW	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW		TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW				
0300	.6	-18.2	23	082	1.3	080	3.2	0	0300	-2.2	*****	41	034	.6	350	1.9	1	0300	-1	*****	54	***	0.0	***	0.0	1												
0600	.3	*****	23	027	.3	079	2.5	3	0600	-2.7	-12.5	47	085	1.0	060	2.5	3	0600	-6	*****	48	***	0.0	***	0.0	1												
0900	4.4	-28.6	7	029	1.1	030	3.8	36	0900	1.8	-14.5	29	097	1.2	109	3.2	34	0900	-5	*****	38	***	0.0	***	0.0	6												
1200	6.2	-27.2	7	028	.6	183	3.8	45	1200	4.0	-20.4	15	250	.6	310	3.2	19	1200	-9	*****	31	***	0.0	***	0.0	8												
1500	7.4	*****	6	176	1.5	161	3.8	17	1500	2.0	-12.7	33	308	1.9	324	4.4	8	1500	-4	*****	26	058	.2	059	2.5	6												
1800	3.4	-27.9	8	259	1.6	262	3.8	0	1800	1.0	*****	45	052	.6	350	2.5	1	1800	-2.6	-11.4	51	056	1.9	056	3.2	1												
2100	-7	-21.5	19	336	1.7	340	3.2	1	2100	-2	*****	51	306	.1	261	1.3	1	2100	-3.8	-13.3	48	056	1.7	056	3.2	1												
2400	-6	*****	25	017	1.2	346	3.2	0	2400	-5	*****	53	097	.4	094	1.9	1	2400	-4.1	-13.8	47	056	2.7	056	4.4	1												

DAY 25

DAY 26

DAY 27

HOUR NDNG	DEW				WIND				GUST MAX.				HOUR NDNG	DEW				WIND				GUST MAX.				HOUR NDNG	DEW				WIND				GUST MAX.			
	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.		SPD. M/S	DIR. DEG.	GUST M/S	RAD MW	TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW		TEMP. DEG C	POINT DEG C	RH %	DIR. DEG.	SPD. M/S	DIR. DEG.	GUST M/S	RAD MW				
0300	-4.4	-13.8	48	056	2.1	056	3.8	1	0300	-8.7	-22.2	33	020	1.6	020	3.2	1	0300	-11.5	-24.4	34	019	2.1	019	3.2	1												
0600	-4.2	-13.4	49	056	1.6	056	2.5	1	0600	-9.9	-24.7	29	021	1.7	020	3.2	8	0600	-12.4	-25.2	34	019	1.8	019	2.5	6												
0900	-8	*****	20	056	1.1	056	3.2	11	0900	-5.3	*****	14	047	1.1	021	2.5	32	0900	-7.0	-29.3	15	040	1.0	019	2.5	47												
1200	.7	-24.7	13	041	1.8	047	5.1	16	1200	-5	-24.0	15	130	1.1	119	3.2	38	1200	-2	-21.1	19	066	.2	029	2.5	57												
1500	-6	-26.6	12	026	3.3	027	7.0	10	1500	.1	-22.8	16	056	1.7	076	3.8	28	1500	-1.3	-22.6	18	341	.9	006	1.9	24												
1800	-6.0	-24.3	21	022	2.5	023	5.1	1	1800	-7.5	-24.7	24	019	1.7	019	3.8	1	1800	-4.6	-23.2	21	008	1.6	009	2.5	1												
2100	-5.8	-24.6	21	022	1.2	023	3.2	1	2100	-9.7	-24.5	29	019	3.1	019	4.4	1	2100	-5.3	-19.2	33	009	1.4	009	2.5	1												
2400	-7.0	-22.5	28	020	1.2	021	3.2	2	2400	-11.0	-23.7	34	019	2.3	019	3.8	1	2400	-5.1	-13.0	36	009	1.9	009	3.8	1												

R & M CONSULTANTS, INC.

SUSITNA HYDROELECTRIC PROJECT

MONTHLY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING September, 1981

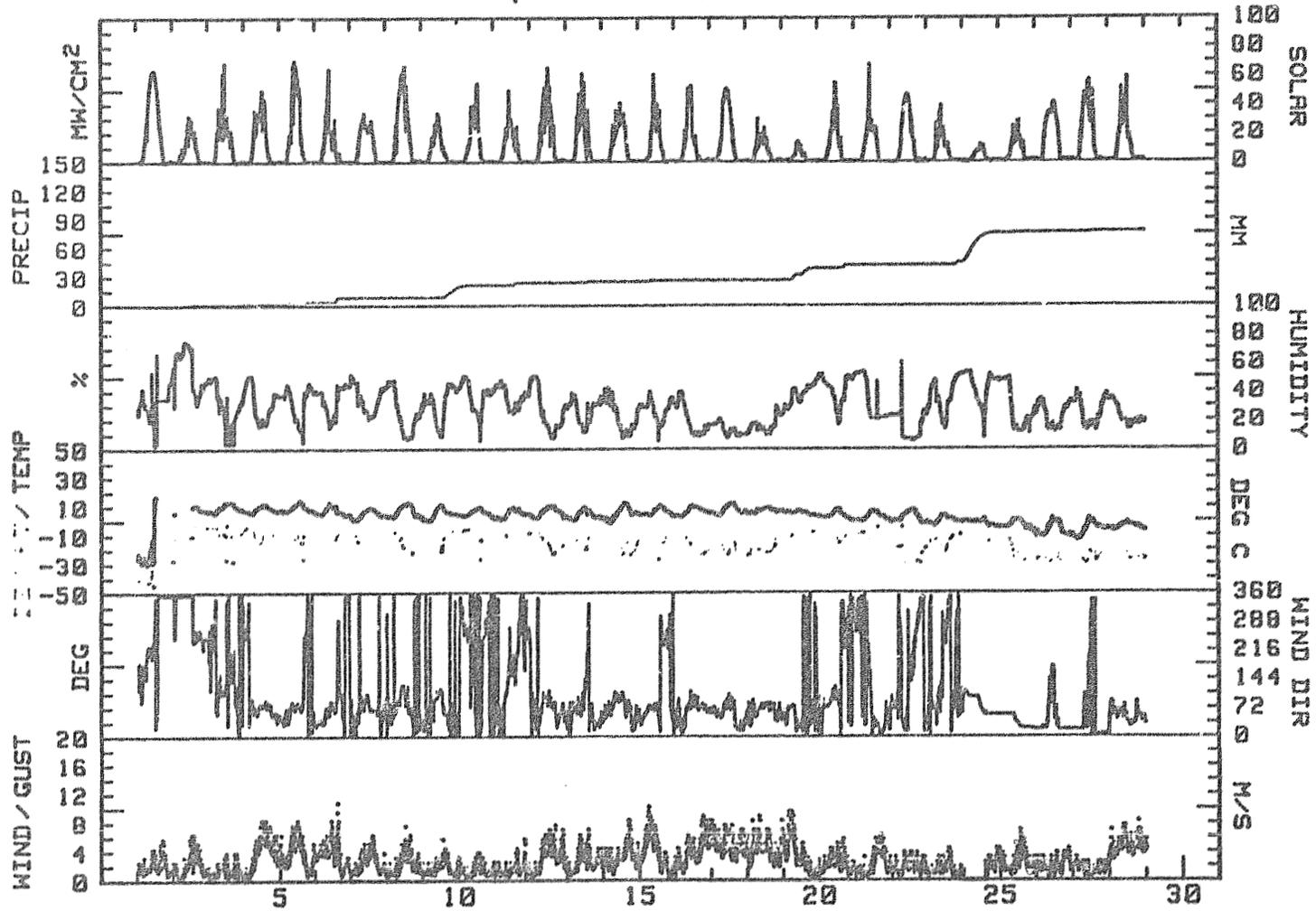
DAY	MAX. TEMP. DEG C	MIN. TEMP. DEG C	MEAN TEMP. DEG C	RES. WIND DIR. DEG	RES. WIND SPD. M/S	AVG. WIND SPD. M/S	MAX. GUST DIR. DEG	MAX. GUST SPD. M/S	P'VAL DIR.	MEAN RH %	MEAN DP DEG C	PRECIP MM	DAY'S SOLAR ENERGY WH/SQ	DAY
1	17.4	-30.2	-6.4	321	.3	1.9	355	5.7	N	32	-37.3	0.0	5233	1
2	10.8	5.6	8.2	301	1.2	1.9	355	6.3	N	55	-4.4	1.8	1948	2
3	13.2	5.5	9.4	112	.3	1.2	338	3.8	ESE	29	-11.9	.4	2983	3
4	11.8	5.5	8.7	072	3.3	3.6	081	8.3	ENE	32	-9.0	.2	3098	4
5	14.5	6.4	10.5	067	2.7	3.2	031	8.3	ENE	37	-7.3	2.4	4190	5
6	12.9	3.7	8.3	052	2.3	3.2	717	10.8	NE	35	-8.2	4.4	2423	6
7	9.1	.8	5.0	072	2.0	2.2	675	6.3	ENE	35	-9.6	.2	2755	7
8	13.0	2.1	7.6	075	1.5	2.0	098	7.6	E	25	-15.1	0.0	4530	8
9	11.6	.3	6.0	069	1.3	1.6	085	5.7	ENE	32	-11.5	10.0	1993	9
10	9.6	2.5	6.1	334	.9	1.3	356	3.8	NNW	37	-8.9	2.6	2615	10
11	9.3	1.2	5.3	211	.2	1.4	202	5.7	S	36	-8.9	2.4	2220	11
12	10.9	2.2	6.6	075	2.6	2.8	089	7.6	ENE	26	-14.4	0.0	3768	12
13	9.5	.9	5.2	064	1.7	2.4	180	7.0	ENE	27	-13.8	1.0	2890	13
14	12.7	-1.3	5.7	072	2.8	3.0	090	8.3	E	23	-15.8	0.0	2823	14
15	10.9	3.2	7.1	062	2.2	3.1	074	10.2	ENE	27	-11.9	.8	2415	15
16	10.6	2.9	6.8	071	3.4	3.5	078	8.9	ENE	20	-16.5	.2	2695	16
17	12.5	3.7	8.1	058	3.8	4.1	067	8.3	ENE	13	-19.4	0.0	3625	17
18	9.2	5.1	7.2	067	3.6	3.7	072	8.9	ENE	17	-17.2	0.0	1573	18
19	7.5	3.3	5.4	054	2.5	2.8	075	9.5	ENE	38	-8.2	12.2	820	19
20	8.4	-.4	4.0	064	.9	2.0	337	5.7	E	42	-8.9	3.4	2315	20
21	6.8	-.3	3.3	024	1.4	1.8	004	6.3	NNE	34	-14.4	0.0	2200	21
22	7.7	-1.8	3.0	009	.4	1.5	030	3.8	NNE	15	-23.9	0.0	3140	22
23	4.0	-3.2	.4	036	.3	1.1	324	4.4	E	37	-14.9	3.0	1713	23
24	1.4	-4.2	-1.4	056	.8	.8	056	4.4	NE	43	-13.0	30.6	748	24
25	1.0	-8.7	-3.9	036	1.8	1.9	027	7.0	NNE	28	-20.5	.6	1533	25
26	2.0	-11.0	-4.5	031	1.6	1.8	019	4.4	NNE	23	-24.7	.2	3380	26
27	2.1	-13.3	-5.6	014	1.3	1.5	009	3.8	N	26	-23.2	.8	3728	27
28	-.8	-6.7	-3.8	054	4.2	4.4	064	8.3	NE	23	-22.7	0.0	2810	28
29	****	****	****	***	****	****	***	****	***	**	****	****	****	29
30	****	****	****	***	****	****	***	****	***	**	****	****	****	30
MONTH	17.4	-30.2	4.0	057	1.6	2.3	217	10.8	ENE	30	-14.8	77.2	76148	

GUST VEL. AT MAX. GUST MINUS 2 INTERVALS 5.1
 GUST VEL. AT MAX. GUST MINUS 1 INTERVAL 9.5
 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
WATANA WEATHER STATION
September, 1981



R & M CONSULTANTS, INC.

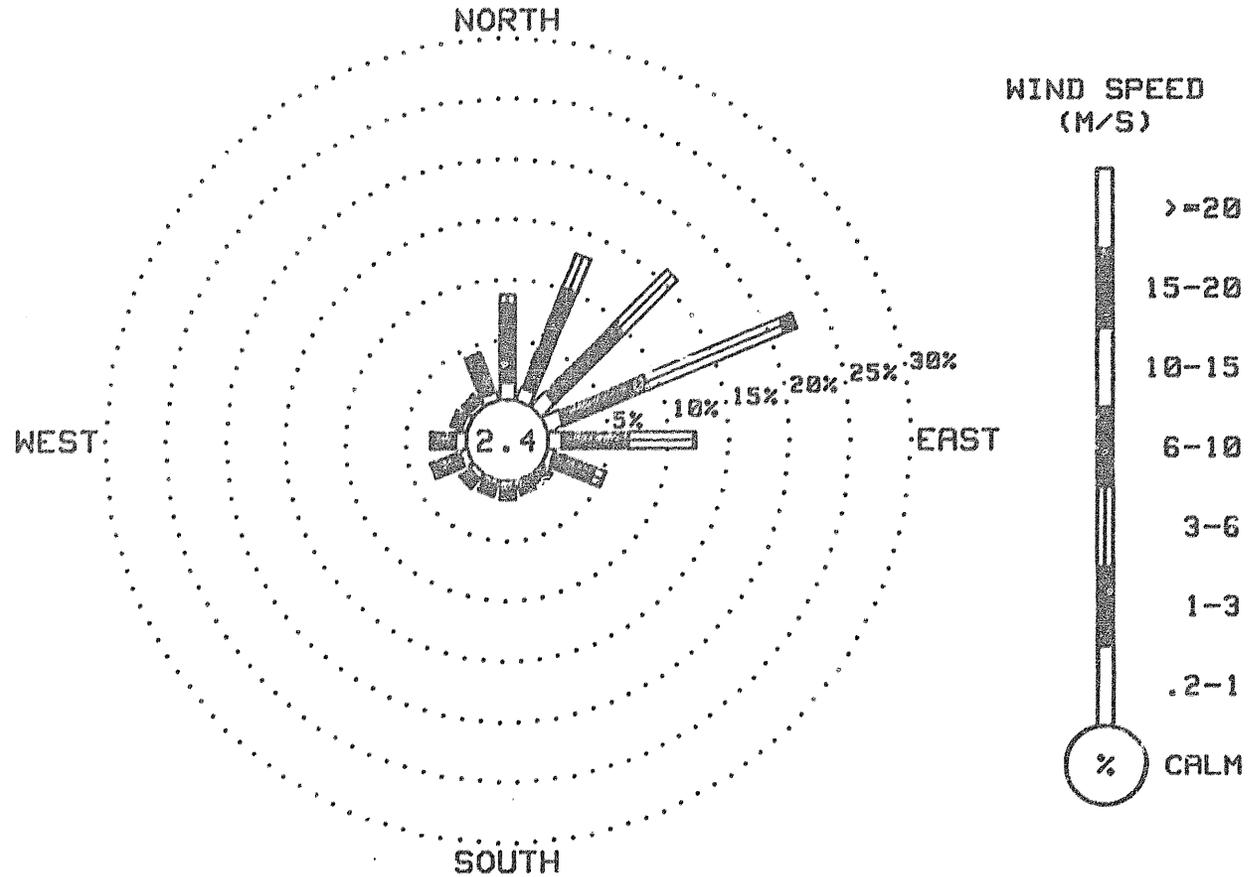
SUSITNA HYDROELECTRIC PROJECT

WIND FREQUENCY SUMMARY FOR WATANA WEATHER STATION
 DATA TAKEN DURING September, 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	
N	1.45	6.51	.74	0.00	0.00	0.00	0.00	8.71
NNE	1.15	8.97	2.94	0.00	0.00	0.00	0.00	13.06
NE	1.64	8.04	6.25	0.00	0.00	0.00	0.00	15.92
ENE	1.49	7.59	12.17	1.04	0.00	0.00	0.00	22.28
E	1.26	5.39	5.39	.19	0.00	0.00	0.00	12.24
ESE	.67	3.53	.97	0.00	0.00	0.00	0.00	5.17
SE	.33	.89	.04	0.00	0.00	0.00	0.00	1.26
SSE	.26	.93	.04	0.00	0.00	0.00	0.00	1.23
S	.37	1.12	.07	0.00	0.00	0.00	0.00	1.56
SSW	.37	.89	.11	0.00	0.00	0.00	0.00	1.38
SW	.48	.93	.11	.04	0.00	0.00	0.00	1.56
WSW	.71	2.19	.33	0.00	0.00	0.00	0.00	3.24
W	.97	1.82	.19	0.00	0.00	0.00	0.00	2.98
WNW	.56	.96	.04	0.00	0.00	0.00	0.00	1.45
NW	.48	.73	.07	0.00	0.00	0.00	0.00	1.34
NNW	.74	3.20	.30	0.00	0.00	0.00	0.00	4.24
CALM								2.38
TOTAL	12.95	53.65	29.76	1.26	0.00	0.00	0.00	100.00

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

R&M CONSULTANTS, INC.
SUSITNA HYDROELECTRIC PROJECT
WATANA WEATHER STATION
September, 1981



WIND ROSE PLOT

R & M CONSULTANTS, INC.

CLIMATE DATA SUMMARIES
DOCUMENTATION

A. GRAPHICAL DATA PLOT

1. GRAPHICAL REPRESENTATION OF VALID RECORDED AND/OR COMPUTED DATA.

B. HOURLY PRECIPITATION SUMMARY TABLE

1. HOURLY PRECIPITATION VALUES ARE CALCULATED AS THE DIFFERENCE BETWEEN VALID CONSEQUITIVE HOURLY READINGS. WHEN EITHER OF THE HOURLY PRECIPITATION READINGS IS INVALID, NO VALUE IS REPORTED AND ZERO PRECIPITATION IS ASSUMED.
2. A NON-AUTOMATIC ROLL-OVER TO ZERO, AS WHEN THE TAPE IS CHANGED, MUST BE FLAGGED WITH A NEGATIVE ONE (-1) AS THE PRECIPITATION VALUE.

C. 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 ARITHMETICALLY MEANED FROM ALL VALID READINGS.
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) WHEN THE WIND SPEED IS LESS THAN 1 m/s, WHEN THE DEWPOINT CALCULATES TO A VALUE GREATER THAN THE RECORDED TEMPERATURE, WHEN OR THE DEWPOINT CALCULATES TO LESS THAN MINUS 47 DEGREES OR MORE THAN 27 DEGREES, THE DEWPOINT IS NOT USED.
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 1m/s, WHEN THE DEWPOINT IS CALCULATED TO A VALUE GREATER THAN THE RECORDED TEMPERATURE, OR WHEN THE DEWPOINT CALCULATES TO LESS THAN MINUS 47 DEGRESS OR MORE THAN 27 DEGREES.
3. THE RELATIVE HUMIDITY REPORTED IS THE HUMIDITY RECORDED AT THE SPECIFIED TIME.
4. THE WIND DIRECTION REPORTED IS THE THREE-HOUR VECTORIAL RESULTANT SUM OF DATA RECORDED UP TO THE SPECIFIED TIME.
5. THE WIND SPEED REPORTED IS THE THREE-HOUR VECTORIAL RESULTANT OF DATA RECORDED UP TO THE SPECIFIED TIME.
6. THE GUST DIRECTION REPORTED IS THE DIRECTION OF THE MAXIMUM GUST RECORDED DURING THE PRECEDING THREE-HOUR PERIOD.
7. THE GUST REPORTED IS THE MAXIMUM RECORDED DURING THE THREE-HOUR PERIOD.
8. THE RADIATION REPORTED IS THE SOLAR RADIATION INTENSITY RECORDED AT THE SPECIFIED TIME.

WIND FREQUENCY SUMMARY TABLE

1. REPORTED DATA ARE DETERMINED FROM ALL VALID READINGS.

WIND ROSE GRAPHICAL PLOT

1. PLOT IS A GRAPHICAL REPRESENTATION OF THE WIND FREQUENCY SUMMARY TABLE.

G. GENERAL NOTES

1. THE FIRST DAY OF EACH MONTH MUST HAVE THE PRECEDING DAY'S LAST READING AT 2400 HOURS, INSERTED AS THE FIRST READING OF THE FIRST DAY OF THE MONTH, AT 0000 HOURS, PRIOR TO RUNNING THE SUMMARY. THIS PROVIDES AN INITIAL VALUE FOR PRECIPITATION SUMMARY TABLE.
2. FLAGGED DATA IS NOT USED. WHEN AN ENTIRE LINE IS FLAGGED, NO DATA IN THAT LINE IS USED.
3. BAD DATA CAN BE USER-FLAGGED AS BEING BAD DATA BY REPLACING THE RAW DATA WITH THE VALUE '999'.
4. MISSING DATA IS ASSUMED TO BE BAD DATA.
5. IF A DATA LINE IS SHIFTED OVER AT ANY POINT, THE ENTIRE LINE WILL BE TREATED AS BAD DATA.
6. THE FOLLOWING ARE THE VALID DATA RANGES; DATA OUTSIDE THESE RANGES ARE NOT USED:

TIME : 0000 through 2400 - at specified time intervals.
TEMP : -50 through +35
WIND : 0 through 99.9 and less than or equal to GUST
DIR : 0 through 360
RH : 0 through 99
PRCP : 0 through 99.8 & greater than last PRCP except in the case of an automatic roll-over. The difference between PRCPs cannot exceed 30mm. A '-1' implies a manual re-start.
SOL : 0 through 150
GUST : 0 through 99.9
BATT : 9 through 14.5

7. THE FOLLOWING ARE THE DIRECTION RANGES USED IN THE PREVAILING DIRECTION, WIND FREQUENCY AND WIND ROSE SUMMARIES:

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