

Wind Resource Summary for Tappen, ND

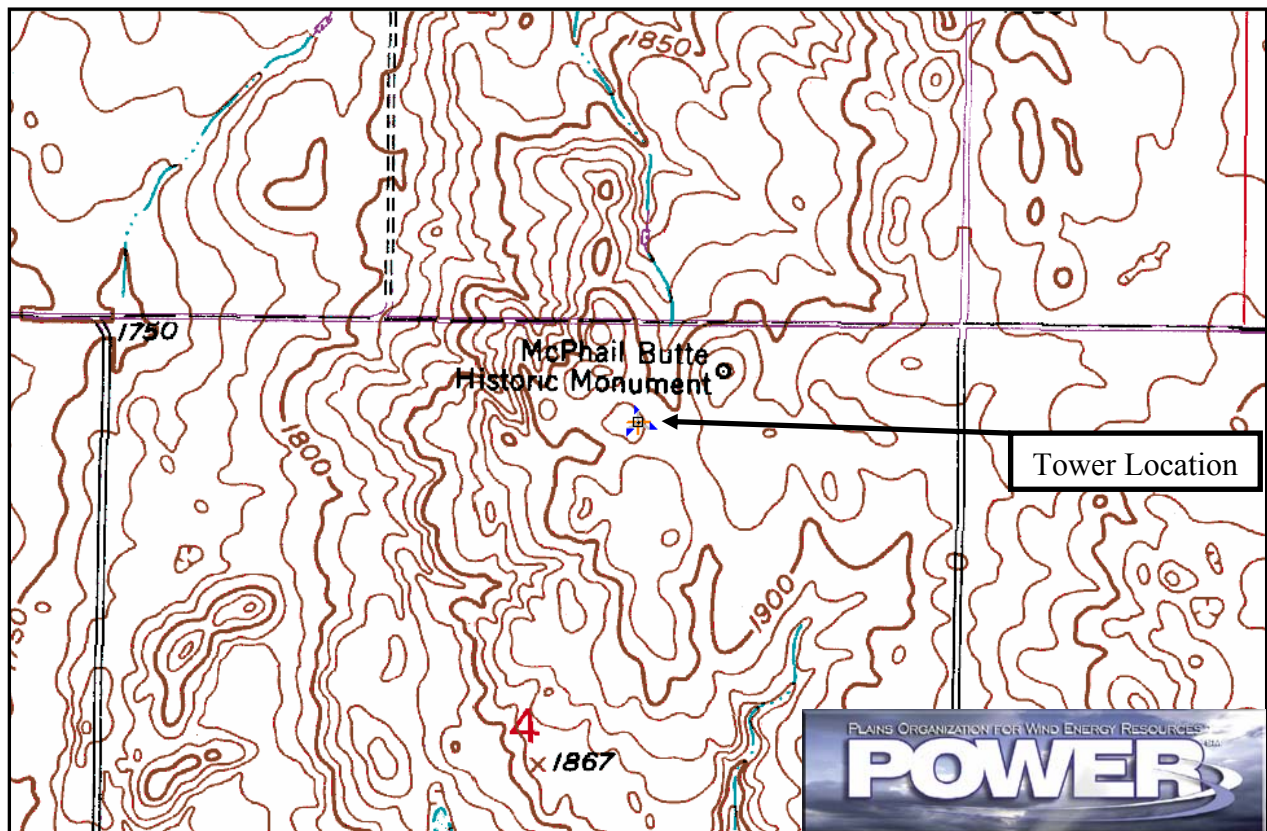
North Dakota Anemometer Loan Program – Site ALP0304

Monitoring Period^a: 10/17/2003 – 10/17/2005

Site Description:

Latitude: N 46° 58' 44"	Township: 140 N
Longitude: W 99° 38' 38"	Range: 71 W
Elevation: 1910 feet	Section: 4
Tower Type: NRG Tilt-Up	Tower Height: 66 feet

The site is 7.3 miles north of the town of Tappen. The tower is located in pasture that is a mile from the McPhail State Wildlife Management Area. The vegetation around the area is predominantly grass. Overall, the site has good exposure to the wind; however, the rough terrain may cause significant amounts of turbulence in the wind. *The site recorded a 102 mph gust on 6/26/2005 at 11:29 p.m.*



Summary Wind Data	66 ft AGL ^b
Mean Wind Speed	15.4 mph
Maximum, 10-min Mean Wind Speed	53.2 mph – 12/12/2004 2:20 a.m.
Estimated Wind Power Class ^c	Class 5 (344 W/m ²)

^a Data Recovery Rate was 94%.

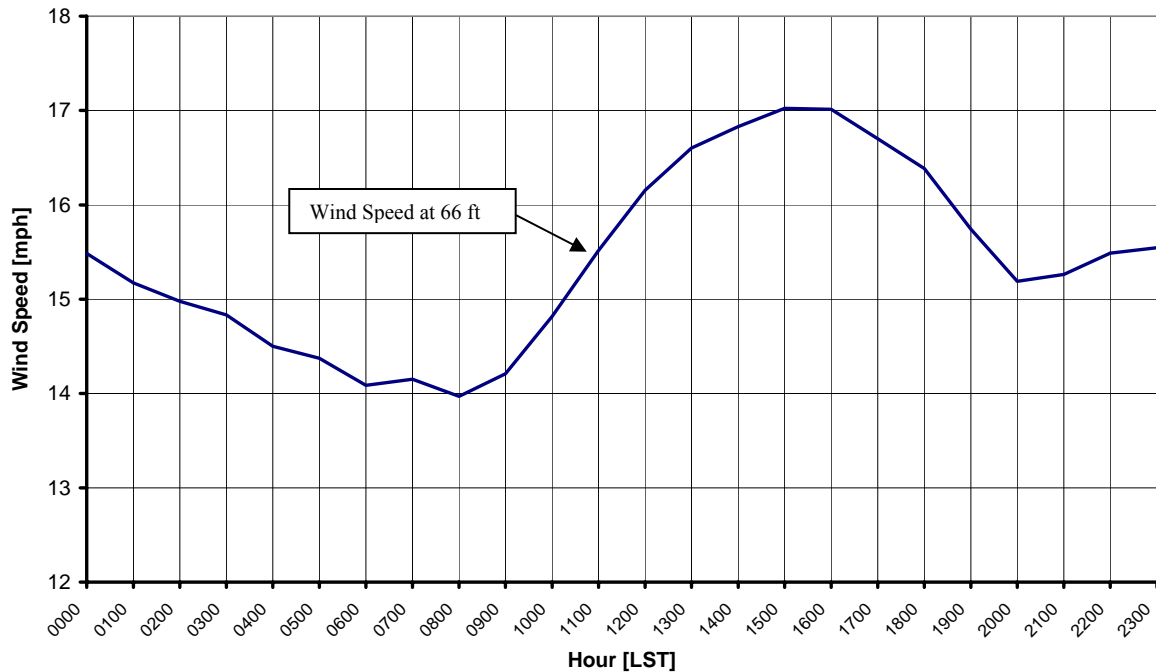
^b Above ground level.

^c Air temperature was not factored into calculation.

Average Hourly Wind Speeds

LST ^d	66 ft AGL	
	mph	m/s
0000	15.5	6.92
0100	15.2	6.78
0200	15.0	6.70
0300	14.8	6.63
0400	14.5	6.48
0500	14.4	6.43
0600	14.1	6.30
0700	14.2	6.33
0800	14.0	6.25
0900	14.2	6.35
1000	14.8	6.62
1100	15.5	6.94
1200	16.2	7.22
1300	16.6	7.42
1400	16.8	7.52
1500	17.0	7.61
1600	17.0	7.61
1700	16.7	7.47
1800	16.4	7.33
1900	15.7	7.04
2000	15.2	6.79
2100	15.3	6.82
2200	15.5	6.92
2300	15.5	6.95

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10/17/2003 – 10/17/2005



^d Local Standard Time



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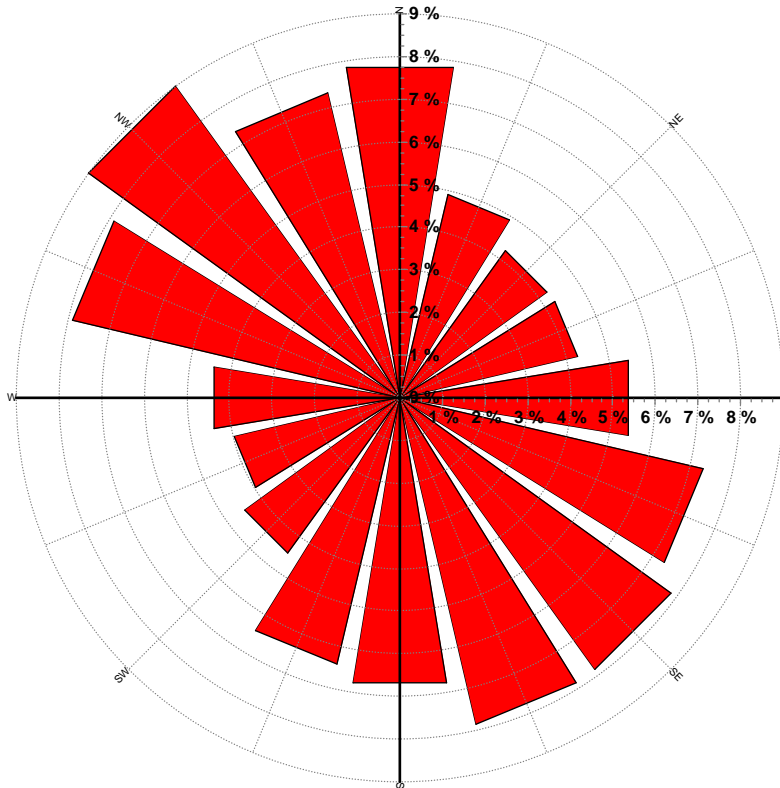
Creation Date: 11/22/2005

Wind Directional Frequency

Winds from the... Frequency (%)

NNW	7.3
NW	9.0
WNW	7.9
W	4.4
WSW	4.0
SW	4.5
SSW	6.4
S	6.8
SSE	7.9
SE	7.8
ESE	7.3
E	5.4
ENE	4.3
NE	4.2
NNE	4.9
N	7.8

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Wind Rose for 66 ft AGL
10/17/2003 – 10/17/2005



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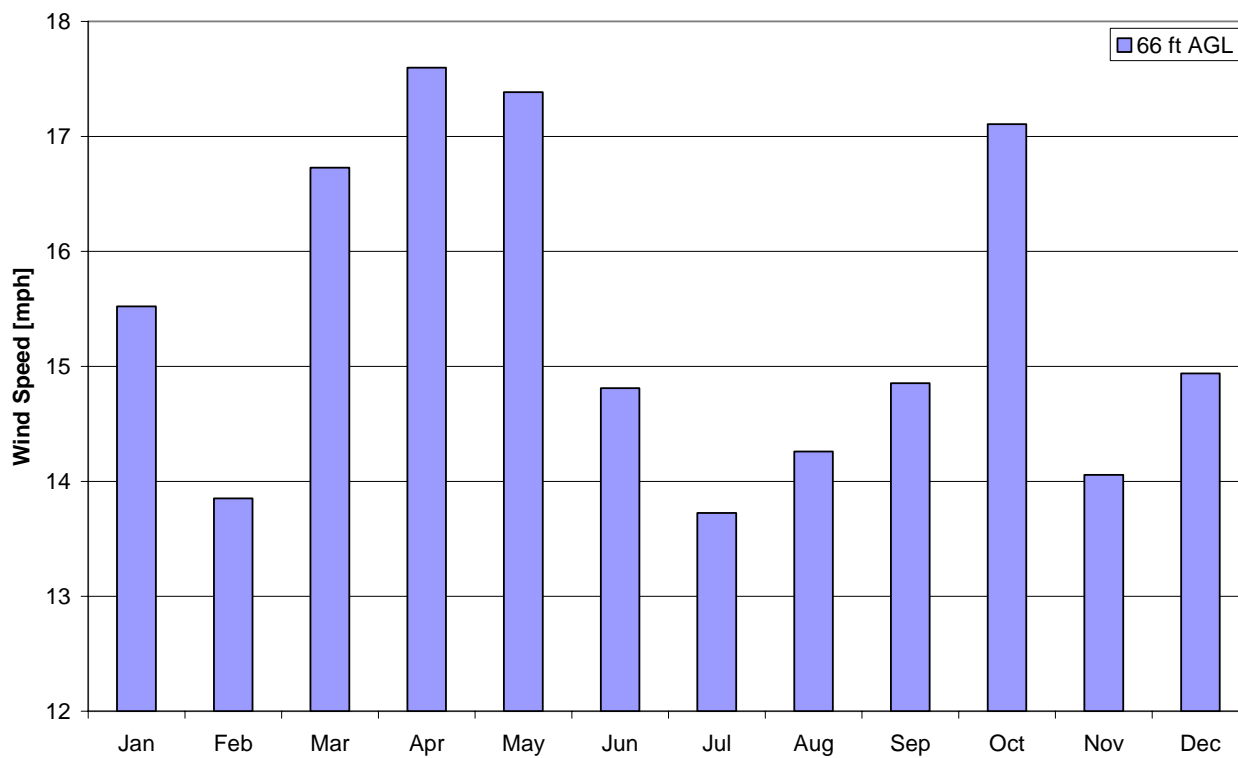
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Monthly Wind Speed Averages

66 ft AGL

Month	mph	m/s
Jan	15.5	6.94
Feb	13.9	6.19
Mar	16.7	7.48
Apr	17.6	7.87
May	17.4	7.77
Jun	14.8	6.62
Jul	13.7	6.14
Aug	14.3	6.37
Sep	14.9	6.64
Oct	17.1	7.65
Nov	14.1	6.28
Dec	14.9	6.68

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