

WIND-TUNNEL MODELLING OF HILL AND VEGETATION

INFLUENCE ON WIND POWER AVAILABILITY

TASK 3: Kibby Mountain, Maine Site Study

Prepared by

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for

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TABLE OF CONTENTS

1. INTRODUCTION	1
2. EXPERIMENTAL SETUP	2
2.1. Model Specifications	2
2.1.1 Topographic Database Transformation	2
2.1.2 Topographic Model Construction	2
2.1.3 Topographic Model Configurations	3
2.2. Wind Tunnel Configuration	4
2.3. Velocity Profile Measurements	4
2.3.1 Error Statement	6
3. TEST PROGRAM SPECIFICATION AND DATA	7
3.1. Test Program Specifications	7
3.2. Reference Velocity Profile Data	7
3.3. Topographic Model Velocity Profile Data	7
4. TEST PROGRAM RESULTS	9
4.1. Reference Velocity Profile Results	9
4.2. Topographic Model Velocity Profile Results	9
4.2.1 Normalized Velocity Profile Comparisons	9
4.2.2 Percent Power Decrease Comparisons	9
4.2.3 Percent Power Increase Comparisons	10
TABLES	11
FIGURES	68

LIST OF TABLES

<i>Table 1 Test Program Specifications</i>	<i>12</i>
<i>Table 2 Reference Velocity Profile Data</i>	<i>13</i>
<i>Table 3 Velocity Profile Data; Location 1; Southwest Wind Dir.</i>	<i>14</i>
<i>Table 4 Velocity Profile Data; Location 2; Southwest Wind Dir.</i>	<i>15</i>
<i>Table 5 Velocity Profile Data; Location 3; Southwest Wind Dir.</i>	<i>16</i>
<i>Table 6 Velocity Profile Data; Location 4; Southwest Wind Dir.</i>	<i>17</i>
<i>Table 7 Velocity Profile Data; Location 5; Southwest Wind Dir.</i>	<i>18</i>
<i>Table 8 Velocity Profile Data; Location 6; Southwest Wind Dir.</i>	<i>19</i>
<i>Table 9 Velocity Profile Data; Location 7; Southwest Wind Dir.</i>	<i>20</i>
<i>Table 10 Velocity Profile Data; Location 8; Southwest Wind Dir.</i>	<i>21</i>
<i>Table 11 Velocity Profile Data; Location 1; Northwest Wind Dir.</i>	<i>22</i>
<i>Table 12 Velocity Profile Data; Location 2; Northwest Wind Dir.</i>	<i>23</i>
<i>Table 13 Velocity Profile Data; Location 3; Northwest Wind Dir.</i>	<i>24</i>
<i>Table 14 Velocity Profile Data; Location 4; Northwest Wind Dir.</i>	<i>25</i>
<i>Table 15 Velocity Profile Data; Location 5; Northwest Wind Dir.</i>	<i>26</i>
<i>Table 16 Velocity Profile Data; Location 6; Northwest Wind Dir.</i>	<i>27</i>
<i>Table 17 Velocity Profile Data; Location 7; Northwest Wind Dir.</i>	<i>28</i>
<i>Table 18 Velocity Profile Data; Location 8; Northwest Wind Dir.</i>	<i>29</i>
<i>Table 19 Velocity Profile Data; Location 9; Northwest Wind Dir.</i>	<i>30</i>
<i>Table 20 Velocity Profile Data; Location 10; Northwest Wind Dir.</i>	<i>31</i>
<i>Table 21 Velocity Profile Data; Location 11; Northwest Wind Dir.</i>	<i>32</i>
<i>Table 22 Velocity Profile Data; Location 12; Northwest Wind Dir.</i>	<i>33</i>
<i>Table 23 Velocity Profile Data; Location 13; Northwest Wind Dir.</i>	<i>34</i>
<i>Table 24 Velocity Profile Data; Location 14; Northwest Wind Dir.</i>	<i>35</i>
<i>Table 25 Velocity Profile Data; Location 15; Northwest Wind Dir.</i>	<i>36</i>
<i>Table 26 Velocity Profile Data; Location 16; Northwest Wind Dir.</i>	<i>37</i>

Table 27 Velocity Profile Comparisons; Loc. 1 & 2; Southwest Wind Dir.	38
Table 28 Velocity Profile Comparisons; Loc. 3 & 4; Southwest Wind Dir.	39
Table 29 Velocity Profile Comparisons; Loc. 5 & 6; Southwest Wind Dir.	40
Table 30 Velocity Profile Comparisons; Loc. 7 & 8; Southwest Wind Dir.	41
Table 31 Velocity Profile Comparisons; Loc. 1 & 2; Northwest Wind Dir.	42
Table 32 Velocity Profile Comparisons; Loc. 3 & 4; Northwest Wind Dir.	43
Table 33 Velocity Profile Comparisons; Loc. 5 & 6; Northwest Wind Dir.	44
Table 34 Velocity Profile Comparisons; Loc. 7 & 8; Northwest Wind Dir.	45
Table 35 Velocity Profile Comparisons; Loc. 9 & 10; Northwest Wind Dir.	46
Table 36 Velocity Profile Comparisons; Loc. 11 & 12; Northwest Wind Dir.	47
Table 37 Velocity Profile Comparisons; Loc. 13 & 14; Northwest Wind Dir.	48
Table 38 Velocity Profile Comparisons; Loc. 15 & 16; Northwest Wind Dir.	49
Table 39 Turb. Int. Profile Comparisons; Loc. 1 & 2; Southwest Wind Dir.	50
Table 40 Turb. Int. Profile Comparisons; Loc. 3 & 4; Southwest Wind Dir.	51
Table 41 Turb. Int. Profile Comparisons; Loc. 5 & 6; Southwest Wind Dir.	52
Table 42 Turb. Int. Profile Comparisons; Loc. 7 & 8; Southwest Wind Dir.	53
Table 43 Turb. Int. Profile Comparisons; Loc. 1 & 2; Northwest Wind Dir.	54
Table 44 Turb. Int. Profile Comparisons; Loc. 3 & 4; Northwest Wind Dir.	55
Table 45 Turb. Int. Profile Comparisons; Loc. 5 & 6; Northwest Wind Dir.	56
Table 46 Turb. Int. Profile Comparisons; Loc. 7 & 8; Northwest Wind Dir.	57
Table 47 Turb. Int. Profile Comparisons; Loc. 9 & 10; Northwest Wind Dir.	58
Table 48 Turb. Int. Profile Comparisons; Loc. 11 & 12; Northwest Wind Dir.	59
Table 49 Turb. Int. Profile Comparisons; Loc. 13 & 14; Northwest Wind Dir.	60
Table 50 Turb. Int. Profile Comparisons; Loc. 15 & 16; Northwest Wind Dir.	61
Table 51 Normalized Velocity Profile Comparisons: Southwest Wind Dir.	62
Table 52 Normalized Velocity Profile Comparisons: Northwest Wind Dir.	63
Table 53 Percent Power Decrease Profile Comparisons; Southwest Wind Dir.	64
Table 54 Percent Power Decrease Profile Comparisons; Northwest Wind Dir.	65
Table 55 Percent Power Increase Profile Comparisons; Southwest Wind Dir.	66
Table 56 Percent Power Increase Profile Comparisons; Northwest Wind Dir.	67

LIST OF FIGURES

<i>Figure 1 Wind Power Site Area Shown On Maine State Map</i>	<i>69</i>
<i>Figure 2 Three Dim. Wire Frame Representation Of Site Area Topography</i>	<i>70</i>
<i>Figure 3 Modeled Topography Outlined On Site Area Topographic Map</i>	<i>71</i>
<i>Figure 4 Three Dimensional Wire Frame Representation Of Board B34</i>	<i>72</i>
<i>Figure 5 Photograph Of The Simulated 30' Tree Cover</i>	<i>73</i>
<i>Figure 6 Topographic Model In Wind Tunnel; Configuration C</i>	<i>73</i>
<i>Figure 7 Topographic Board Layout Schematic For Each Configuration</i>	<i>74</i>
<i>Figure 8 Tree Removal Areas At Each Of The Measurement Locations</i>	<i>75</i>
<i>Figure 9 Photographs Of Model Forest Clearings</i>	<i>76</i>
<i>Figure 10 Environmental Wind Tunnel Facility</i>	<i>77</i>
<i>Figure 11 Reference Velocity And Turbulence Profiles For Model And Field</i>	<i>78</i>
<i>Figure 12 Regression Results For Reference Velocity Profiles</i>	<i>79</i>
<i>Figure 13 Percent Power Decrease Comparisons: Locations 1,2,3</i>	<i>80</i>
<i>Figure 14 Percent Power Decrease Comparisons: Locations 4,5,6</i>	<i>81</i>
<i>Figure 15 Percent Power Decrease Comparisons: Locations 7,8,9,10</i>	<i>82</i>
<i>Figure 16 Percent Power Decrease Comparisons: Locations 11-16</i>	<i>83</i>

1 INTRODUCTION

US Wind Power Corporation contracted Dr. Robert N. Meroney and Dr. David E. Neff of Colorado State University to forecast wind turbine power performance in forested regions. The primary focus was the potential power benefits of cutting trees near wind turbine sites located on a variety of hill shapes and slopes. This project consisted of three different studies (tasks), each one summarized in a separate report. Task 1 reviews the literature database on analytical, numerical and empirical models suitable for describing potential wind generation benefits in forested environments. Task 2 uses a physical model (wind tunnel simulation) to estimate wind turbine power availability on two dimensional ridges with various forest clearings, ridge shapes and slopes. Task 3, the subject of this report, physical models the complex topography of a potential wind turbine site area to determine the effect of forest clearing on wind turbine power availability for several hilltops within the site area.

This Task 3 report describes the experimental methodology and measurement results obtained in physical modeling topography and tree clearing effects at a potential wind power site centered around Kibby Mountain, Maine. A model scale of 1:2000 was chosen to be representative of the atmospheric boundary layer winds. Measurements of wind speed at several different heights above the topographic model were obtained for 65 different run conditions consisting of;

- i) two wind directions, SW and NW,
- ii) two model topography setups per wind direction,
- iii) one tree height of thirty feet tall,
- iv) sixteen measurement locations,
- v) three hill/ridge top forest clearings specifications of no tree removal, highest tree top being level with hill top ground level and highest tree top being 100 feet lower than hill top ground level,
- vi) two below hill/ridge top forest clearings specifications of no tree removal and tree remove within a 600 foot radius.

These measured wind velocities are then normalized appropriately for comparative analysis of fractional speed ups and wind power availability.

2 EXPERIMENTAL SETUP

2.1 Model Specifications

The model study was to determine the effects of tree removal in the vicinity of sixteen potential wind turbine locations, studied from up to two wind directions. A model scale ratio of 1:2000 was selected to best represent atmospheric wind patterns over the desired wind power siting area. The location of the potential wind power site area is depicted on a map outlining the state of Maine in Figure 1. Figure 2 shows a three dimensional wire frame representation of this mountainous, tree covered wind power siting area. Figure 3 details the location of modeled topography overlayed on a topographic map of the field site area. Figure 3 also shows the location of all sixteen study areas.

2.1.1 Topographic Database Transformation

The wind power siting area is found on the four United States Geological Survey (USGS) 1:24000 scale quadrangle maps (Kibby Mountain, Jim Pond, Tumbletown Mountain and King & Bartlett Mountain). These maps cover the longitude, latitude area from (70°37'30",45°15') to (70°22'30",45°30'). All four maps lay in the Universal Transverse Mercator (UTM) zone 19 coordinate system. An electronic database of the elevations based on a 30 meter grid over the site area was composed from the USGS digital elevation models (DEM), available on digital 1/2" magnetic tape, of each quadrangle map. Since this UTM grid was aligned with grid north and the wind turbine site locations were to be studied for winds from the southwest and the northwest this UTM grid was transformed to a denser interpolated grid based upon the UTM grids diagonal segments (i.e. rotated 45° and with a grid spacing of 21.213 meters). The next step was to subtract a base elevation of 500 meters from all elevations since all topography at the site area was above 500 meters elevation. This transformed UTM grid and its associated elevations were then scaled down by a factor of 2000 to model scale. The resultant model grid size was 10.607 by 10.607 millimeters (mm) with a maximum height of 307 mm.

2.1.2 Topographic Model Construction

The site area topography was sectioned into twenty-four square zones, each zone representing 114 grid rows by 114 grid columns or in dimensional units 47.6" by 47.6" (1209 by 1209 mm) model scale. The topography for each zone was routed out of laminated 3"

(76.2 mm) layers of Minicell Foam™ using an automated three dimensional computer controlled routing system designed and constructed at CSU. The foam material was glued to 1/2" (12.7 mm) plywood prior to routing to provide a solid base layer. The routing system cut the foam with a 5/8" (15.87 mm) diameter by 4" (101.6 mm) long milling bit. The routing systems cut pattern was set to cut each grid row following the appropriate elevations. Since the bit diameter of 15.87 mm is greater than the row spacing a 10.607 mm there was an overlap as each row was cut. The computer program driving the cutting bits motion would scan forward to all adjacent grid elevations and adjust the cut height so as to insure that the bit would never cut deeper than the grids topographic surface. Once all rows were cut the foam was sanded down to the true smooth topographic surface. The area covered by each of the 24 zones along with a reference code for each model boards are shown in Figure 3. A three dimensional wire frame representation of a single boards elevation data is presented in Figure 4.

The tree cover was simulated with an artificial grass product consisting of bristles, 4.6 mm tall, connected to flexible matting, 1 mm thick. At a length scale ratio of 1:2000 these 4.6 mm tall bristles are representative of the 30 foot tall trees. Figure 5 displays a photograph of this simulated forest model. This artificial grass carpet was cut and glued to all 24 model topography boards. Significant landmarks, such as roads, rivers and mountain names, were designated on the model. Modeling of the effect of tree removal was accomplished by using dog hair clippers to shave the artificial grass from the designated area.

2.1.3 Topographic Model Configurations

Observation of the zone/board layout in Figure 3 shows that there were at a maximum four boards spanning each wind direction and five boards along each wind direction. This represents model size of ~16' by ~20' (4.84 m by 6.05 m) and a field size of 9.7 km by 12.1 km. The model topography was placed into wind tunnel which is 12' (3.66 m) wide. This allowed three spanwise boards (7.25 km in field units) and five lengthwise boards to be present in the wind tunnel during a testing sequence. Which three spanwise rows that were present during measurements at a particular location depended on the proximity of that location to the wall of the wind tunnel and the wind direction being studied. No measurements were taken within one meter of the wind tunnel wall. Table 1 lists the wind tunnel board configuration used for each measurement location and wind direction. Figure 6 is a photograph of the topographic model (Configuration C) in the wind tunnel. Figure 7 graphically depicts which boards were present during testing at each measurement location.

Each measurement location had two or three different tree cover specifications. Table 1 lists the specification used at each measurement location. Figure 8 shows a series of scaled drawings of the tree removal areas at each of the measurement locations. Figure 9 shows photographs of selected measurement locations subject to different forest clearings.

2.2 Wind Tunnel Configuration

The experiments were performed in the Environmental Wind Tunnel (EWT) facility at Colorado State University's Engineering Research Center. Figure 9 displays a schematic detailing the major features of this facility. This open circuit type wind tunnel has a speed range of 0 to 14m/s. The intake contraction ratio of 2.25:1 and flow straightening tubes upwind of the test section produces a stable, uniform flow. The test section length of ~17 meters along with eight Counihan type boundary layer initiators developed a properly scaled simulation of atmospheric boundary layer winds. The test section has a cross-sectional size of 3.66 meters wide by 2.13 meters tall. The model topography had a maximum height of 307 mm and an approximate average height of 130 mm. The wind tunnel's flexible ceiling was raised to compensate for the average model height of 130 mm thus the maximum local wind tunnel flow blockage ratio was ~ 7.8 percent.

The EWT's test section entrance had eight Counihan type boundary layer initiators evenly spaced across the tunnel width. These flow conditioners were 61 cm tall. The initial seven meters of the test section floor was covered with the 30' tree simulant carpet type roughness, this was followed by a 2.4 meter adjustable ramp leading up to the edge of the modeled topography. This ramp was also covered with the 30' tree simulant carpet type roughness. The 1:2000 scale topographic model extended downwind for the next 6.1 meters (12.1 km in field units).

2.3 Velocity Profile Measurements

Pitot-static probes were used as a velocity standard during the calibration of the hot film velocity measurement system and to provide two reference velocity measurement points for each hot film measurement point within all vertical velocity profiles. The principles of operation of pitot-static probes are described in any fundamental text on fluid mechanics and will not be discussed in detail here. The operational relationship for these probes is $U = (2g_c \Delta P / \rho)^{1/2}$, where $U \equiv$ velocity, $g_c \equiv$ gravitational conversion constant, $\Delta P \equiv$ difference between static and dynamic pressures, and $\rho \equiv$ air density. The air density, ρ , is calculated from the ideal gas law and ΔP is measured using an electronic manometer.

Single-hot-film (TSI 1210 Sensor) measurements were used to document the longitudinal mean velocities and the longitudinal turbulence levels for all velocity profiles in this test program. During calibration the hot film probe voltage was recorded at several velocities covering the range of interest. These voltage-velocity (E, U) pairs are then regressed to the equation $E^2 = A + BU^c$ via a least squares approach for various assumed values of the exponent c . Convergence to the minimum residual error was accelerated by using the secant method to find the best new estimate for the exponent c .

The hot-film-probe was mounted on a vertical traverse and positioned over the desired profile location in the wind tunnel. The anemometer's output voltages was digitized and stored within an IBM AT® computer. This voltage time series was converted to a velocity time series using the inverse of the calibration equation; $U = [(E^2 - A)/B]^{1/c}$. The velocity time series was then analyzed for pertinent statistical quantities, such as mean velocity and root-mean-square turbulent velocity fluctuations. The computer system moves the velocity probe to a vertical position, acquires and reduces the data, then moves on to the next vertical position, thus obtaining an entire vertical velocity profile automatically. Wind tunnel reference velocities were obtained via two pitot-static probes for each hot film velocity measurement point, one at a fix tunnel height above each profile location and one at the upwind edge of the ramp leading to the model, tunnel centerline, 1.2 meters in height. These reference velocities were used to normalize out any wind tunnel speed variations that existed between the different runs tested and during the acquisition of individual vertical profiles.

The variation of mean wind speed with height above the ground level (referred to as the boundary layer) is regressed upon to determine empirical equations that are known to correlate atmospheric data. The log-linear velocity profile relationship is:

$$U/u_* = 2.5 \ln[(z-d)/z_o]; \text{ where}$$

u_* = friction velocity,

d = displacement height,

z_o = roughness length.

The linear regression constants, u_* , d and z_o are determined by finding the maximum regression correlation, R^2 , for different assumed values of d . The power law velocity profile relationship is:

$$U/U_H = (z/H)^p; \text{ where}$$

U = mean wind speed at height z ,

U_H = wind speed at height, H ,

p = power law index.

The regression constant, p , is determined from a linear regression of the logarithm of the power law equation.

2.3.1 Error Statement

Pitot-static probe measurements have an absolute accuracy to within ± 2 percent of the actual velocity. Test conditions within the wind tunnel were always maintained to within ± 1.5 degrees centigrade and ± 3 mmHg atmospheric pressure variation. This variation in test temperature and pressure along with analog to digital conversion errors results in a relative error in pitot probe measurements of less than ± 1.0 percent.

The analytic curve fit between hot wire voltage and a velocity standard based on pitot probe measurements along with analog to digital conversion resulted in random errors of within ± 1.0 percent. Testing temperature and pressure variations (similar to those stated above) on the hot wire measurement system resulted in random errors of ± 2.3 percent. Thus the hot wire measurement system was accurate to within ± 2.5 percent of the pitot probes reported velocity. Since all hot wire measurements are normalized by a pitot probe measurement over the same time record and the hot wire velocity was calibrated against the pitot probe, the pitot probes bias errors of ± 2 percent of actual velocity does not affect the normalized velocity value.

The error introduced in a velocity measurement as the result of probe vertical positioning errors vary with the magnitude of the velocity gradient at the measurement location. The velocity gradient is greatest at the lower measurement points thus this is where the resultant error in velocity would be the greatest. Absolute vertical positioning error was estimated to be ± 1 mm. Surveying the data shows that the error in velocity due to random positioning errors of this magnitude is usually less than 1.5 percent but can be as high as 3 percent.

The total error in normalized velocity values is estimated to be less than ± 2.9 percent for the majority of data values but can be as high as 3.8 percent for a few select low height values. When one cubes the velocity values to look at power changes these errors become ± 8.7 and ± 11.4 percent errors in power values respectively.

3 TEST PROGRAM SPECIFICATION AND DATA

3.1 Test Program Specifications

A reference velocity profile at tunnel centerline just upwind of the ramp leading to the topographic model documented the approach flow over the simulated 30' tree height cover. Table 1 lists the run number and run conditions for the 65 requested model test conditions. These tests cover two wind directions (southwest and northwest), one tree cover height of 30', sixteen measurement locations and four forest clearing specifications (all trees removed, highest tree top being 100 feet lower than hill top ground level, highest tree top being level with hill top ground level and removal of all trees within a 600 foot radius.

3.2 Reference Velocity Profile Data

Table 2 summarizes the reference velocity profile data for both model and field conditions. The mean velocity profiles in field units are scaled to a 10 m/s wind speed at 305 meter height. Table 2 also shows the results of a regression analysis determining the equivalent field displacement height, d , roughness length, z_o , friction velocity, u_* , and power law index, p . All measurement points were included in the log-linear regression. The lowest two measure points were removed from the power regression. Figure 11 displays graphically both model and equivalent field velocity and turbulence profiles. Figure 12 displays regression curve fits for both the log linear law and the power law profile descriptions. The normalized height is the measurement height divided by a reference height of 15.24 cm (this is the equivalent of 305 meters in field units). Normalized velocity for this test sequence is defined as $(U_i/U_H)/(U_{ref2,i}/U_{ref2,H})$ where $ref2$ indicates the fixed upwind pitot probe velocity at 120 cm height, i indicates the velocities obtain while the hot film probe was at a particular height and H indicates the velocities obtained while the hot film probe was at the height, $H = 15.24$ cm. The "Ref. Correct Local Vel." in this table is defined as $U_i/(U_{ref2,i}/U_{ref2,mean})$ where $mean$ indicates the mean of all approach flow tunnel velocities listed in Table 2.

3.3 Topographic Model Velocity Profile Data

Tables 3 through 10 list the velocity profile data for each measurement location tested with a southwest wind direction. Tables 11 through 26 list the velocity profile data for each measurement location tested with a northwest wind direction. The column designated "Approach Velocity" is from a fixed upwind pitot probe at a 120 cm height. This pitot probe was sufficiently

far upwind of the model topography so as to be unaffected by model topography configuration changes. The column designated "Reference Velocity" is from a pitot probe above the measurement location at a fixed height within the wind tunnel. The column designated "Velocity Ratio" is Approach Velocity divided by Reference Velocity.

Tables 27 through 30 display both tabularly and graphically the comparisons of normalized velocity profiles at each location tested with a southwest wind direction. Tables 31 through 38 display both tabularly and graphically the comparisons of normalized velocity profiles at each location tested with a northwest wind direction. The normalized height is the measurement height divided by a reference height of 15.24 cm (this is the equivalent of 305 meters in field units). Normalized velocity is defined as $(U_i/U_{ref2,i})$ where *ref2* indicates the fixed upwind pitot probe velocity ("Approach Velocity") at 120 cm height and *i* indicates the velocities obtained while the hot film probe was at a particular height.

Tables 39 through 42 displays both tabularly and graphically the comparisons of local turbulent intensity profiles at each location tested with a southwest wind direction. Tables 43 through 50 displays both tabularly and graphically the comparisons of local turbulent intensity profiles at each location tested with a northwest wind direction. The local turbulent intensity is defined in percentage values as $100*(u'/U_i)$, where u' is the root-mean-square of velocity fluctuation at height *i*, and U_i is the mean velocity at height *i*.

4 TEST PROGRAM RESULTS

4.1 Reference Velocity Profile Results

The graphs in Figure 11 and the values of the regression parameters in Table 2 indicate that the simulant turf matting was representative of ~30' high trees. The displacement height was around 0.71 times the tree height. The roughness lengths was 1.1 meters, which is typical of atmospheric flow over forested areas. The power law index was 0.22, which again is typical of atmospheric flow over forested areas.

4.2 Topographic Model Velocity Profile Results

4.2.1 Normalized Velocity Profile Comparisons

Table 51 presents a comparison of normalized velocity profile results for all the measurement locations taken with a southwest wind direction orientation. This table is a summary representation of the velocity normalization data in Tables 27 through 30 but the normalized height is scale to field values. Table 52 presents a comparison of normalized velocity profile results for all the measurement locations taken with a northwest wind direction orientation. This table is a summary representation of the velocity normalization data in Tables 31 through 38. The velocity normalization in Tables 51 and 52 was defined as $(U_i/U_{ref2,i})$ where $ref2$ indicates the pitot probe velocity at the upwind reference location, i indicates the velocities obtain while the hot film probe was at a particular height.

4.2.2 Percent Power Decrease Comparisons

Table 53 presents a comparison of percent power decrease over maximum clear-cut option profile results for all the measurement locations taken with a southwest wind direction orientation. Table 54 presents a comparison of percent power decrease over maximum clear-cut option profile results for all the measurement locations taken with a northwest wind direction orientation. The percent power decrease over maximum clear-cut option factor was defined as $[1 - \{(U_i/U_{ref2,i})/(U_{Xxx,i}/U_{Xxx,ref2,i})\}^3] * 100$ where Xxx represents the run number for the maximum clear-cut profile at the same measurement location and wind direction, $ref2$ indicates the upwind pitot probe velocity at 120 cm height, i indicates the velocities obtain while the hot film probe was at a particular height.

Figures 13 through 16 display bar charts of the percent power decrease results. Included in these figures are tables listing the data. The error bound for the power comparisons in these charts, as previously stated, is approximately ± 10 percent. Trends seen within this error bound should only be considered lightly.

4.2.3 Percent Power Increase Comparisons

Table 55 presents a comparison of percent power increase over no clear-cut option profile results for all the measurement locations taken with a southwest wind direction orientation. Table 56 presents a comparison of percent power increase over no clear-cut option profile results for all the measurement locations taken with a northwest wind direction orientation. The percent power increase over no clear-cut option factor was defined as $[\{(U_i/U_{ref2,i})/(U_{Xxx,i}/U_{Xxx,ref2,i})\}^3 - 1] * 100$ where Xxx represents the run number for the no clear-cut profile at the same measurement location and wind direction, $ref2$ indicates the upwind pitot probe velocity at 120 cm height, i indicates the velocities obtained while the hot film probe was at a particular height.

TABLES

Fluid Dynamics and Diffusion Laboratory - Colorado State University
Wind Engineering Research and Application Specialists

USWP Task 3 Test Program

USW3 PRO.WK3

Sheet A:

03/26/93

Run Number	Wind Direction	Model Setup Configuration	Profile Location Number	Board Location Reference	Forest Clearing Specification
1	Southwest	A	1	B13	no cut
2	Southwest	A	1	B13	hilltop cut
3	Southwest	A	1	B13	-100' cut
4	Southwest	A	2	B13	no cut
5	Southwest	A	2	B13	hilltop cut
6	Southwest	A	2	B13	-100' cut
7	Southwest	A	3	B24	no cut
8	Southwest	A	3	B24	hilltop cut
9	Southwest	A	3	B24	-100' cut
10	Southwest	A	4	B24	no cut
11	Southwest	A	4	B24	hilltop cut
12	Southwest	A	4	B24	-100' cut
13	Southwest	A	5	B34	no cut
14	Southwest	A	5	B34	hilltop cut
15	Southwest	A	5	B34	-100' cut
16	Southwest	A	6	B34	no cut
17	Southwest	A	6	B34	hilltop cut
18	Southwest	A	6	B34	-100' cut
19	Southwest	A	7	B25	no cut
20	Southwest	A	7	B25	hilltop cut
21	Southwest	A	7	B25	-100' cut
22	Southwest	B	8	B44	no cut
23	Southwest	B	8	B44	hilltop cut
24	Southwest	B	8	B44	-100' cut
25	Northwest	C	2	B13	no cut
26	Northwest	C	2	B13	hilltop cut
27	Northwest	C	2	B13	-100' cut
28	Northwest	C	3	B24	no cut
29	Northwest	C	3	B24	hilltop cut
30	Northwest	C	3	B24	-100' cut
31	Northwest	C	4	B24	no cut
32	Northwest	C	4	B24	hilltop cut
33	Northwest	C	4	B24	-100' cut
34	Northwest	C	5	B34	no cut
35	Northwest	C	5	B34	hilltop cut
36	Northwest	C	5	B34	-100' cut
37	Northwest	C	6	B34	no cut
38	Northwest	C	6	B34	hilltop cut
39	Northwest	C	6	B34	-100' cut
40	Northwest	C	7	B25	no cut
41	Northwest	C	7	B25	hilltop cut
42	Northwest	C	7	B25	-100' cut
43	Northwest	C	8	B44	no cut
44	Northwest	C	8	B44	hilltop cut
45	Northwest	C	8	B44	-100' cut
46	Northwest	D	1	B13	no cut
47	Northwest	D	1	B13	hilltop cut
48	Northwest	D	1	B13	-100' cut
49	Northwest	D	9	B23	no cut
50	Northwest	D	9	B23	1200' cut
51	Northwest	D	10	B23	no cut
52	Northwest	D	10	B23	1200' cut
53	Northwest	D	11	B23	no cut
54	Northwest	D	11	B23	hilltop cut
55	Northwest	D	11	B23	-100' cut
56	Northwest	D	12	B23	no cut
57	Northwest	D	12	B23	1200' cut
58	Northwest	D	13	B23	no cut
59	Northwest	D	13	B23	1200' cut
60	Northwest	D	14	B33	no cut
61	Northwest	D	14	B33	1200' cut
62	Northwest	D	15	B33	no cut
63	Northwest	D	15	B33	1200' cut
64	Northwest	D	16	B34	no cut
65	Northwest	D	16	B34	1200' cut

TABLE 1 *Test Program Specifications*

USWP Task 3 Reference Velocity Profile Data

USW3VREF.WK3

03/24/93

Model Values (length scale = 1:2000)

Height (cm)	Local Velocity (cm/s)	Turbulent Intensity (%)	Tunnel Velocity (cm/s)	Ref. Correct Local Vel. (cm/s)	Normalized Height	Normalized Velocity
0.61	227	28.9	936	224	0.04	0.30
0.92	316	26.0	920	317	0.06	0.42
1.22	374	24.1	914	378	0.08	0.50
1.83	451	21.6	930	448	0.12	0.59
2.44	506	19.9	934	500	0.16	0.66
3.05	538	18.8	937	530	0.20	0.70
4.57	587	16.2	920	589	0.30	0.78
6.45	633	13.9	920	635	0.42	0.84
9.15	691	12.8	924	690	0.60	0.91
12.19	735	10.4	931	729	0.80	0.96
15.24	752	10.3	918	756	1.00	1.00
22.86	821	8.2	927	817	1.50	1.08
30.48	857	6.7	917	863	2.00	1.14
38.10	905	5.5	937	891	2.50	1.18
45.73	905	4.7	919	909	3.00	1.20
80.00	918	2.2	913	928	5.25	1.23
100.00	919	2.1	913	929	6.56	1.23
120.00	912	2.9	904	931	7.87	1.23
Mean Tunnel Velocity (cm/s) =			923			
Reference Velocity (cm/s) =			756			
Reference Height (cm) =			15.2			

Field Values

Height (ft)	Height (m)	Local Velocity (m/s)	Turbulent Intensity (%)	Normalized Height	Normalized Velocity
40	12.2	3.0	28.9	0.04	0.30
60	18.3	4.2	26.0	0.06	0.42
80	24.4	5.0	24.1	0.08	0.50
120	36.6	5.9	21.6	0.12	0.59
160	48.8	6.6	19.9	0.16	0.66
200	61.0	7.0	18.8	0.20	0.70
300	91.4	7.8	16.2	0.30	0.78
423	129.0	8.4	13.9	0.42	0.84
600	183.0	9.1	12.8	0.60	0.91
800	243.8	9.6	10.4	0.80	0.96
1000	304.8	10.0	10.3	1.00	1.00
1500	457.2	10.8	8.2	1.50	1.08
2000	609.6	11.4	6.7	2.00	1.14
2500	762.0	11.8	5.5	2.50	1.18
Reference Velocity (m/s) =		10.0			
Reference Height (m) =		304.8			
Displacement Height (m) =		6.5			
Friction Velocity (m/s) =		0.72			
Roughness Length (m) =		1.13			
Power Law Index =		0.22			

TABLE 2 *Reference Velocity Profile Data*

USWP Task 3 Test Results

SW Wind Dir.

USW3VEL0.WK3

Sheet A:

03/26/93

Velocity Profile Data

Run 001 Location 1 Board B13 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	525	28	1088	1097	0.99
1.2	745	20	1092	1101	0.99
1.5	831	15	1087	1095	0.99
1.8	847	14	1088	1097	0.99
2.4	854	14	1086	1097	0.99
3.1	839	13	1074	1086	0.99
4.6	851	13	1085	1099	0.99
6.5	866	14	1089	1098	0.99
9.2	882	15	1086	1097	0.99
12.2	925	13	1077	1088	0.99
15.2	989	10	1084	1091	0.99
22.9	1052	6	1077	1085	0.99
30.5	1085	4	1078	1092	0.99
Average =			1084	1094	0.99

Run 002 Location 1 Board B13 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	320	43	1092	1103	0.99
0.9	543	32	1083	1093	0.99
1.2	728	21	1087	1098	0.99
1.5	839	16	1103	1112	0.99
1.8	842	14	1087	1097	0.99
2.4	843	13	1084	1091	0.99
3.1	841	14	1091	1106	0.99
4.6	838	14	1087	1093	0.99
6.5	858	14	1089	1099	0.99
9.2	882	15	1084	1098	0.99
12.2	945	13	1087	1098	0.99
15.2	976	11	1089	1095	0.99
22.9	1066	6	1097	1103	0.99
30.5	1102	4	1096	1107	0.99
Average =			1090	1100	0.99

Run 003 Location 1 Board B13 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	579	23	1081	1094	0.99
0.9	768	18	1092	1103	0.99
1.2	807	16	1094	1108	0.99
1.5	844	15	1103	1113	0.99
1.8	830	14	1085	1100	0.99
2.4	838	13	1094	1107	0.99
3.1	835	14	1093	1102	0.99
4.6	822	15	1097	1107	0.99
6.5	867	16	1101	1108	0.99
9.2	870	16	1089	1104	0.99
12.2	937	14	1097	1107	0.99
15.2	981	11	1085	1096	0.99
22.9	1056	7	1090	1103	0.99
30.5	1100	4	1095	1105	0.99
Average =			1092	1104	0.99

TABLE 3 *Velocity Profile Data; Location 1; Southwest Wind Dir.*

USWP Task 3 Test Results

SW Wind Dir.

USW3VEL0.WK3

Sheet B:

03/26/93

Velocity Profile Data

Run 004 Location 2 Board B13 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	764	15	1099	1158	0.95
1.2	852	14	1095	1155	0.95
1.5	923	13	1111	1162	0.96
1.8	940	13	1095	1153	0.95
2.4	975	12	1096	1156	0.95
3.1	981	11	1084	1152	0.94
4.6	1014	11	1101	1159	0.95
6.5	1022	10	1101	1158	0.95
9.2	1037	10	1099	1159	0.95
12.2	1034	10	1088	1149	0.95
15.2	1089	8	1104	1159	0.95
22.9	1135	5	1099	1158	0.95
30.5	1147	3	1101	1158	0.95
Average =			1098	1157	0.95

Run 005 Location 2 Board B13 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	603	15	1065	1128	0.94
0.9	773	15	1059	1132	0.94
1.2	854	15	1053	1118	0.94
1.5	913	14	1081	1149	0.94
1.8	935	13	1077	1147	0.94
2.4	990	12	1077	1145	0.94
3.1	1010	11	1082	1149	0.94
4.6	1005	11	1069	1135	0.94
6.5	1036	11	1081	1149	0.94
9.2	1053	10	1070	1135	0.94
12.2	1070	10	1074	1140	0.94
15.2	1087	10	1074	1138	0.94
22.9	1170	5	1090	1154	0.94
30.5	1157	4	1069	1134	0.94
Average =			1073	1140	0.94

Run 006 Location 2 Board B13 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	794	14	1073	1143	0.94
0.9	858	14	1070	1141	0.94
1.2	897	14	1071	1140	0.94
1.5	938	14	1076	1144	0.94
1.8	956	14	1078	1148	0.94
2.4	997	12	1074	1141	0.94
3.1	985	11	1060	1131	0.94
4.6	1017	11	1076	1141	0.94
6.5	1048	10	1082	1144	0.95
9.2	1051	10	1076	1141	0.94
12.2	1061	10	1071	1136	0.94
15.2	1102	10	1076	1144	0.94
22.9	1142	6	1063	1131	0.94
30.5	1170	4	1071	1144	0.94
Average =			1073	1141	0.94

TABLE 4 *Velocity Profile Data; Location 2; Southwest Wind Dir.*

USWP Task 3 Test Results

SW Wind Dir.

USW3VEL0.WK3

Sheet C:

03/26/93

Velocity Profile Data

Run 007 Location 3 Board B24 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	640	17	1083	1136	0.95
1.2	818	14	1089	1136	0.96
1.5	893	13	1098	1145	0.96
1.8	918	12	1089	1136	0.96
2.4	947	11	1082	1131	0.96
3.1	940	10	1079	1128	0.96
4.6	963	10	1081	1131	0.96
6.5	978	10	1085	1137	0.95
9.2	999	10	1092	1145	0.95
12.2	1033	10	1098	1144	0.96
15.2	1042	9	1088	1139	0.96
22.9	1077	7	1082	1136	0.95
30.5	1114	5	1090	1142	0.95
Average =			1087	1137	0.96

Run 008 Location 3 Board B24 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	670	16	1094	1144	0.96
0.9	776	14	1086	1134	0.96
1.2	836	13	1080	1124	0.96
1.5	918	12	1097	1147	0.96
1.8	917	11	1083	1139	0.95
2.4	935	11	1092	1140	0.96
3.1	982	10	1089	1146	0.95
4.6	980	10	1097	1145	0.96
6.5	974	10	1096	1143	0.96
9.2	1000	10	1096	1145	0.96
12.2	1039	10	1096	1150	0.95
15.2	1059	9	1102	1148	0.96
22.9	1101	7	1096	1145	0.96
30.5	1128	5	1094	1146	0.95
Average =			1093	1143	0.96

Run 009 Location 3 Board B24 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	763	14	1086	1139	0.95
0.9	870	13	1102	1150	0.96
1.2	903	13	1094	1145	0.96
1.5	932	12	1084	1140	0.95
1.8	934	12	1083	1131	0.96
2.4	959	11	1094	1141	0.96
3.1	985	10	1092	1144	0.95
4.6	986	11	1074	1129	0.95
6.5	985	10	1080	1131	0.96
9.2	1011	10	1096	1142	0.96
12.2	1039	10	1088	1136	0.96
15.2	1038	9	1083	1131	0.96
22.9	1099	7	1095	1142	0.96
30.5	1137	5	1087	1145	0.95
Average =			1088	1139	0.96

TABLE 5 *Velocity Profile Data; Location 3; Southwest Wind Dir.*

USWP Task 3 Test Results

SW Wind Dir.

USW3VEL0.WK3

Sheet D:

03/26/93

Velocity Profile Data

Run 010 Location 4 Board B24 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	535	18	1075	1122	0.96
1.2	680	15	1085	1134	0.96
1.5	771	14	1069	1126	0.95
1.8	817	13	1077	1131	0.95
2.4	882	12	1075	1127	0.95
3.1	889	12	1068	1119	0.95
4.6	944	11	1083	1132	0.96
6.5	955	10	1075	1124	0.96
9.2	997	10	1085	1136	0.96
12.2	998	10	1076	1124	0.96
15.2	1053	9	1084	1134	0.96
22.9	1087	8	1087	1136	0.96
30.5	1112	6	1081	1128	0.96
Average =			1078	1129	0.96

Run 011 Location 4 Board B24 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	588	17	1079	1126	0.96
1.2	677	16	1087	1133	0.96
1.5	737	15	1081	1127	0.96
1.8	785	14	1091	1137	0.96
2.4	828	13	1080	1132	0.95
3.1	849	12	1079	1129	0.96
4.6	888	12	1080	1127	0.96
6.5	923	11	1081	1131	0.96
9.2	946	10	1072	1121	0.96
12.2	974	10	1080	1124	0.96
15.2	987	10	1068	1114	0.96
22.9	1057	8	1085	1132	0.96
30.5	1090	6	1082	1130	0.96
Average =			1080	1128	0.96

Run 012 Location 4 Board B24 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	524	17	1100	1148	0.96
0.9	651	15	1091	1139	0.96
1.2	745	15	1100	1149	0.96
1.5	788	14	1092	1141	0.96
1.8	838	14	1095	1146	0.95
2.4	873	13	1097	1146	0.96
3.1	904	12	1098	1147	0.96
4.6	941	11	1106	1149	0.96
6.5	961	11	1089	1141	0.95
9.2	977	10	1094	1144	0.96
12.2	1005	10	1093	1143	0.96
15.2	1030	10	1105	1149	0.96
22.9	1085	8	1098	1145	0.96
30.5	1117	6	1094	1142	0.96
Average =			1097	1145	0.96

TABLE 6 *Velocity Profile Data; Location 4; Southwest Wind Dir.*

USWP Task 3 Test Results

SW Wind Dir.

USW3VELO.WK3

Sheet E:

03/26/93

Velocity Profile Data

Run 013 Location 5 Board B34 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	332	30	1058	1093	0.97
1.2	623	20	1061	1100	0.96
1.5	849	14	1079	1119	0.96
1.8	883	12	1062	1096	0.97
2.4	925	12	1065	1112	0.96
3.1	915	11	1051	1093	0.96
4.6	922	11	1066	1095	0.97
6.5	927	11	1062	1095	0.97
9.2	932	11	1056	1090	0.97
12.2	933	12	1053	1088	0.97
15.2	945	11	1057	1082	0.98
22.9	1017	10	1065	1100	0.97
30.5	1053	9	1048	1085	0.97
Average =			1060	1096	0.97

Run 014 Location 5 Board B34 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	323	34	1065	1101	0.97
0.9	590	24	1057	1090	0.97
1.2	812	16	1062	1104	0.96
1.5	883	12	1053	1096	0.96
1.8	913	12	1068	1104	0.97
2.4	924	11	1068	1106	0.97
3.1	910	11	1050	1085	0.97
4.6	937	11	1067	1107	0.96
6.5	935	11	1063	1104	0.96
9.2	930	11	1056	1089	0.97
12.2	948	11	1064	1098	0.97
15.2	950	12	1057	1089	0.97
22.9	1032	11	1066	1110	0.96
30.5	1069	10	1061	1099	0.97
Average =			1061	1099	0.97

Run 015 Location 5 Board B34 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	657	19	1070	1105	0.97
0.9	823	15	1065	1102	0.97
1.2	893	13	1066	1104	0.97
1.5	900	12	1056	1093	0.97
1.8	895	12	1049	1080	0.97
2.4	907	12	1045	1084	0.96
3.1	901	12	1053	1091	0.97
4.6	912	11	1059	1092	0.97
6.5	910	11	1050	1084	0.97
9.2	931	12	1058	1091	0.97
12.2	937	12	1048	1082	0.97
15.2	947	12	1053	1084	0.97
22.9	1010	11	1054	1094	0.96
30.5	1063	9	1067	1100	0.97
Average =			1057	1092	0.97

TABLE 7 *Velocity Profile Data; Location 5; Southwest Wind Dir.*

USWP Task 3 Test Results

SW Wind Dir.

USW3VEL0.WK3

Sheet F:

03/26/93

Velocity Profile Data

Run 016 Location 6 Board B34 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	488	34	1050	1088	0.97
1.2	552	31	1074	1114	0.96
1.5	571	31	1050	1102	0.95
1.8	581	29	1049	1089	0.96
2.4	602	28	1052	1102	0.95
3.1	611	27	1064	1106	0.96
4.6	645	27	1057	1103	0.96
6.5	698	26	1057	1095	0.97
9.2	793	20	1051	1092	0.96
12.2	871	16	1054	1095	0.96
15.2	905	13	1056	1096	0.96
22.9	972	11	1063	1100	0.97
30.5	1018	10	1055	1097	0.96
Average =			1056	1098	0.96

Run 017 Location 6 Board B34 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	449	34	1069	1113	0.96
0.9	498	32	1058	1099	0.96
1.2	515	31	1051	1090	0.96
1.5	544	29	1056	1106	0.96
1.8	555	29	1054	1100	0.96
2.4	579	28	1072	1119	0.96
3.1	588	28	1059	1107	0.96
4.6	646	27	1067	1114	0.96
6.5	702	25	1065	1113	0.96
9.2	796	21	1065	1113	0.96
12.2	884	16	1064	1112	0.96
15.2	920	13	1050	1097	0.96
22.9	1001	11	1070	1116	0.96
30.5	1024	10	1061	1099	0.97
Average =			1061	1107	0.96

Run 018 Location 6 Board B34 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	471	34	1062	1101	0.96
0.9	519	32	1066	1111	0.96
1.2	545	30	1058	1105	0.96
1.5	553	29	1058	1107	0.96
1.8	566	29	1050	1100	0.95
2.4	588	28	1054	1107	0.95
3.1	597	28	1059	1103	0.96
4.6	641	28	1062	1109	0.96
6.5	718	25	1076	1124	0.96
9.2	802	21	1052	1102	0.95
12.2	893	15	1068	1111	0.96
15.2	936	13	1067	1116	0.96
22.9	978	11	1059	1106	0.96
30.5	1047	10	1068	1115	0.96
Average =			1061	1108	0.96

TABLE 8 *Velocity Profile Data; Location 6; Southwest Wind Dir.*

USWP Task 3 Test Results

SW Wind Dir.

USW3VEL0.WK3

Sheet G:

03/26/93

Velocity Profile Data

Run 019 Location 7 Board B25 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	568	21	1064	1141	0.93
1.2	839	16	1066	1142	0.93
1.5	905	13	1069	1144	0.93
1.8	942	12	1065	1143	0.93
2.4	935	12	1060	1136	0.93
3.1	953	12	1078	1150	0.94
4.6	947	12	1063	1140	0.93
6.5	988	11	1066	1138	0.94
9.2	1003	10	1067	1141	0.93
12.2	994	10	1051	1123	0.94
15.2	1040	9	1061	1135	0.94
22.9	1083	7	1054	1130	0.93
30.5	1130	5	1069	1144	0.93
Average =			1064	1139	0.93

Run 020 Location 7 Board B25 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	596	20	1077	1149	0.94
0.9	798	16	1065	1142	0.93
1.2	887	14	1061	1140	0.93
1.5	925	13	1077	1150	0.94
1.8	915	12	1060	1140	0.93
2.4	918	12	1062	1137	0.93
3.1	930	12	1065	1138	0.94
4.6	956	12	1066	1145	0.93
6.5	978	11	1075	1147	0.94
9.2	978	10	1057	1131	0.93
12.2	1024	9	1064	1141	0.93
15.2	1052	9	1072	1146	0.93
22.9	1118	7	1095	1159	0.94
30.5	1132	5	1083	1156	0.94
Average =			1070	1144	0.93

Run 021 Location 7 Board B25 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	792	16	1079	1154	0.94
0.9	875	14	1083	1153	0.94
1.2	897	13	1079	1151	0.94
1.5	912	13	1078	1148	0.94
1.8	913	13	1084	1154	0.94
2.4	939	12	1100	1159	0.95
3.1	925	12	1086	1152	0.94
4.6	949	11	1078	1153	0.93
6.5	981	11	1088	1157	0.94
9.2	1000	10	1080	1153	0.94
12.2	1030	9	1087	1155	0.94
15.2	1042	9	1085	1153	0.94
22.9	1091	6	1074	1150	0.93
30.5	1136	5	1089	1157	0.94
Average =			1084	1154	0.94

TABLE 9 *Velocity Profile Data; Location 7; Southwest Wind Dir.*

USWP Task 3 Test Results

SW Wind Dir.

USW3VEL0.WK3

Sheet H:

03/26/93

Velocity Profile Data

Run 022 Location 8 Board B44 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	528	24	1053	1116	0.94
1.2	730	18	1072	1128	0.95
1.5	822	15	1055	1106	0.95
1.8	859	13	1070	1126	0.95
2.4	893	12	1068	1127	0.95
3.1	898	12	1065	1122	0.95
4.6	895	12	1066	1127	0.95
6.5	891	13	1078	1132	0.95
9.2	870	14	1059	1117	0.95
12.2	909	13	1060	1122	0.95
15.2	925	14	1065	1121	0.95
22.9	986	12	1053	1115	0.94
30.5	1079	9	1069	1128	0.95
Average =			1064	1122	0.95

Run 023 Location 8 Board B44 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	542	21	1060	1110	0.95
0.9	702	18	1054	1117	0.94
1.2	807	15	1059	1123	0.94
1.5	825	14	1059	1112	0.95
1.8	855	12	1071	1126	0.95
2.4	867	12	1074	1128	0.95
3.1	877	12	1058	1121	0.94
4.6	860	12	1056	1113	0.95
6.5	869	13	1064	1126	0.94
9.2	887	13	1076	1134	0.95
12.2	889	14	1077	1133	0.95
15.2	918	14	1065	1127	0.94
22.9	1002	12	1068	1128	0.95
30.5	1060	10	1058	1118	0.95
Average =			1064	1123	0.95

Run 024 Location 8 Board B44 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	648	18	1073	1131	0.95
0.9	791	16	1060	1119	0.95
1.2	845	14	1069	1130	0.95
1.5	875	13	1078	1140	0.95
1.8	877	12	1060	1121	0.95
2.4	884	11	1068	1123	0.95
3.1	880	11	1063	1122	0.95
4.6	883	11	1077	1130	0.95
6.5	874	13	1067	1123	0.95
9.2	861	13	1060	1117	0.95
12.2	876	14	1068	1118	0.96
15.2	901	13	1072	1125	0.95
22.9	986	13	1066	1127	0.95
30.5	1059	9	1065	1121	0.95
Average =			1068	1125	0.95

TABLE 10 *Velocity Profile Data; Location 8; Southwest Wind Dir.*

USWP Task 3 Test Results

NW Wind Dir.

USW3VELO.WK3

Sheet I:

03/26/93

Velocity Profile Data

Run 046 Location 1 Board B13 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	574	21	1072	1126	0.95
1.2	862	16	1080	1133	0.95
1.5	933	14	1073	1127	0.95
1.8	949	13	1083	1131	0.96
2.4	974	12	1071	1128	0.95
3.1	982	12	1057	1115	0.95
4.6	981	12	1065	1120	0.95
6.5	993	13	1075	1128	0.95
9.2	1015	11	1074	1132	0.95
12.2	1055	11	1077	1133	0.95
15.2	1033	12	1068	1121	0.95
22.9	1082	10	1053	1109	0.95
30.5	1143	8	1075	1130	0.95
Average =			1071	1125	0.95

Run 047 Location 1 Board B13 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	703	18	1087	1134	0.96
0.9	859	15	1059	1121	0.94
1.2	930	13	1078	1134	0.95
1.5	959	13	1077	1135	0.95
1.8	954	13	1075	1128	0.95
2.4	976	12	1067	1125	0.95
3.1	983	12	1067	1126	0.95
4.6	976	12	1068	1123	0.95
6.5	1007	11	1077	1133	0.95
9.2	1016	12	1070	1127	0.95
12.2	1040	11	1068	1126	0.95
15.2	1037	11	1065	1123	0.95
22.9	1102	10	1079	1136	0.95
30.5	1133	7	1066	1124	0.95
Average =			1072	1128	0.95

Run 048 Location 1 Board B13 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	785	15	1057	1115	0.95
0.9	902	14	1065	1123	0.95
1.2	942	13	1060	1122	0.94
1.5	968	13	1081	1138	0.95
1.8	996	13	1089	1143	0.95
2.4	970	13	1072	1129	0.95
3.1	988	12	1068	1126	0.95
4.6	990	12	1075	1130	0.95
6.5	995	12	1078	1135	0.95
9.2	991	12	1066	1120	0.95
12.2	1022	11	1067	1123	0.95
15.2	1031	11	1061	1115	0.95
22.9	1095	10	1082	1136	0.95
30.5	1123	8	1074	1129	0.95
Average =			1071	1127	0.95

TABLE 11 *Velocity Profile Data; Location 1; Northwest Wind Dir.*

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet J:

03/26/93

Velocity Profile Data

Run 025 Location 2 Board B13 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	869	15	1086	1148	0.95
1.2	884	14	1077	1139	0.95
1.5	885	14	1063	1127	0.94
1.8	910	14	1075	1140	0.94
2.4	917	15	1080	1140	0.95
3.1	924	15	1081	1145	0.94
4.6	955	14	1095	1150	0.95
6.5	991	13	1090	1145	0.95
9.2	1019	11	1084	1142	0.95
12.2	1031	11	1078	1140	0.94
15.2	1043	10	1070	1137	0.94
22.9	1089	10	1081	1139	0.95
30.5	1149	8	1090	1145	0.95
Average =			1081	1142	0.95

Run 026 Location 2 Board B13 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	847	15	1081	1142	0.95
0.9	871	15	1085	1144	0.95
1.2	874	14	1070	1135	0.94
1.5	892	15	1075	1140	0.94
1.8	895	15	1085	1146	0.95
2.4	900	15	1072	1140	0.94
3.1	916	14	1071	1134	0.94
4.6	940	14	1075	1140	0.94
6.5	981	13	1072	1139	0.94
9.2	993	12	1070	1136	0.94
12.2	1030	11	1082	1141	0.95
15.2	1039	11	1071	1137	0.94
22.9	1084	10	1076	1137	0.95
30.5	1138	7	1069	1135	0.94
Average =			1075	1139	0.94

Run 027 Location 2 Board B13 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	837	15	1072	1137	0.94
0.9	878	15	1079	1141	0.95
1.2	897	14	1070	1135	0.94
1.5	898	14	1082	1144	0.95
1.8	900	15	1083	1145	0.95
2.4	901	15	1068	1135	0.94
3.1	920	15	1077	1141	0.94
4.6	938	15	1074	1138	0.94
6.5	979	13	1073	1139	0.94
9.2	1004	11	1073	1137	0.94
12.2	1023	11	1069	1137	0.94
15.2	1053	10	1087	1148	0.95
22.9	1107	10	1087	1149	0.95
30.5	1173	7	1094	1150	0.95
Average =			1078	1141	0.94

TABLE 12 *Velocity Profile Data; Location 2; Northwest Wind Dir.*

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet K:

03/26/93

Velocity Profile Data

Run 028 Location 3 Board B24 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	517	23	1117	1154	0.97
1.2	700	19	1112	1153	0.96
1.5	808	18	1118	1153	0.97
1.8	872	16	1112	1152	0.96
2.4	934	14	1103	1147	0.96
3.1	975	12	1112	1155	0.96
4.6	1016	11	1111	1154	0.96
6.5	1040	10	1120	1155	0.97
9.2	1054	10	1110	1153	0.96
12.2	1062	9	1114	1153	0.97
15.2	1065	9	1106	1149	0.96
22.9	1122	9	1118	1155	0.97
30.5	1141	7	1106	1147	0.96
Average =			1112	1152	0.97

Run 029 Location 3 Board B24 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	608	22	1097	1141	0.96
0.9	720	20	1088	1142	0.95
1.2	818	18	1087	1139	0.95
1.5	881	17	1107	1148	0.96
1.8	900	16	1104	1146	0.96
2.4	983	13	1108	1148	0.96
3.1	995	13	1109	1149	0.97
4.6	1024	12	1101	1150	0.96
6.5	1041	11	1102	1148	0.96
9.2	1076	10	1108	1149	0.96
12.2	1088	10	1102	1147	0.96
15.2	1081	10	1092	1139	0.96
22.9	1146	9	1108	1151	0.96
30.5	1188	7	1105	1149	0.96
Average =			1101	1146	0.96

Run 030 Location 3 Board B24 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	676	20	1104	1148	0.96
0.9	771	19	1097	1144	0.96
1.2	850	17	1103	1145	0.96
1.5	906	16	1114	1151	0.97
1.8	923	15	1097	1143	0.96
2.4	970	13	1106	1149	0.96
3.1	981	13	1106	1148	0.96
4.6	1038	11	1113	1152	0.97
6.5	1034	11	1094	1143	0.96
9.2	1064	10	1106	1148	0.96
12.2	1070	10	1102	1146	0.96
15.2	1087	10	1100	1146	0.96
22.9	1126	10	1099	1145	0.96
30.5	1168	7	1101	1145	0.96
Average =			1103	1147	0.96

TABLE 13 *Velocity Profile Data; Location 3; Northwest Wind Dir.*

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet L:

03/26/93

Velocity Profile Data

Run 031 Location 4 Board B24 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	480	22	1130	1151	0.98
1.2	554	21	1119	1143	0.98
1.5	628	20	1124	1147	0.98
1.8	690	18	1133	1153	0.98
2.4	742	18	1126	1150	0.98
3.1	778	16	1114	1139	0.98
4.6	851	16	1123	1148	0.98
6.5	910	14	1134	1152	0.98
9.2	937	12	1131	1153	0.98
12.2	960	12	1124	1146	0.98
15.2	1012	11	1132	1155	0.98
22.9	1070	9	1129	1152	0.98
30.5	1125	7	1131	1152	0.98
Average =			1127	1149	0.98

Run 032 Location 4 Board B24 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	446	25	1126	1151	0.98
0.9	533	23	1126	1151	0.98
1.2	601	21	1129	1151	0.98
1.5	655	20	1133	1152	0.98
1.8	714	18	1131	1155	0.98
2.4	721	18	1128	1147	0.98
3.1	757	18	1127	1150	0.98
4.6	830	16	1121	1148	0.98
6.5	891	14	1122	1147	0.98
9.2	925	13	1125	1149	0.98
12.2	963	11	1133	1153	0.98
15.2	979	11	1116	1143	0.98
22.9	1064	9	1128	1149	0.98
30.5	1116	7	1120	1147	0.98
Average =			1126	1150	0.98

Run 033 Location 4 Board B24 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	475	23	1126	1153	0.98
0.9	569	22	1126	1151	0.98
1.2	618	20	1123	1149	0.98
1.5	659	20	1128	1152	0.98
1.8	691	19	1131	1153	0.98
2.4	726	18	1117	1146	0.97
3.1	788	17	1125	1154	0.98
4.6	839	16	1134	1155	0.98
6.5	890	14	1127	1152	0.98
9.2	928	12	1127	1152	0.98
12.2	953	11	1121	1148	0.98
15.2	987	11	1126	1151	0.98
22.9	1046	9	1110	1139	0.97
30.5	1124	7	1129	1153	0.98
Average =			1125	1151	0.98

TABLE 14 *Velocity Profile Data; Location 4; Northwest Wind Dir.*

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet M:

03/26/93

Velocity Profile Data

Run 034 Location 5 Board B34 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	480	27	1112	1147	0.97
1.2	685	23	1113	1152	0.97
1.5	821	19	1106	1149	0.96
1.8	939	15	1112	1149	0.97
2.4	1025	12	1112	1149	0.97
3.1	1049	11	1109	1143	0.97
4.6	1057	11	1115	1150	0.97
6.5	1063	11	1110	1142	0.97
9.2	1068	10	1110	1147	0.97
12.2	1082	9	1096	1138	0.96
15.2	1133	8	1118	1151	0.97
22.9	1150	6	1100	1141	0.96
30.5	1177	5	1105	1146	0.96
Average =			1109	1147	0.97

Run 035 Location 5 Board B34 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	570	25	1106	1144	0.97
0.9	735	22	1111	1153	0.96
1.2	859	18	1105	1150	0.96
1.5	957	15	1111	1148	0.97
1.8	1027	12	1113	1147	0.97
2.4	1044	11	1108	1141	0.97
3.1	1072	10	1114	1151	0.97
4.6	1053	10	1117	1154	0.97
6.5	1065	10	1109	1149	0.97
9.2	1084	10	1107	1148	0.96
12.2	1086	9	1109	1146	0.97
15.2	1115	9	1105	1148	0.96
22.9	1167	6	1118	1154	0.97
30.5	1193	4	1116	1155	0.97
Average =			1111	1149	0.97

Run 036 Location 5 Board B34 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	661	20	1096	1137	0.96
0.9	835	17	1112	1151	0.97
1.2	968	14	1120	1157	0.97
1.5	1019	12	1121	1153	0.97
1.8	1044	11	1119	1157	0.97
2.4	1068	11	1132	1161	0.97
3.1	1048	11	1124	1158	0.97
4.6	1096	10	1126	1155	0.98
6.5	1072	10	1120	1154	0.97
9.2	1113	9	1129	1160	0.97
12.2	1094	9	1122	1158	0.97
15.2	1145	8	1127	1160	0.97
22.9	1166	6	1120	1156	0.97
30.5	1188	4	1127	1159	0.97
Average =			1121	1155	0.97

TABLE 15 Velocity Profile Data; Location 5; Northwest Wind Dir.

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet N:

03/26/93

Velocity Profile Data

Run 037 Location 6 Board B34 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	549	25	1096	1142	0.96
1.2	568	25	1090	1136	0.96
1.5	590	25	1100	1142	0.96
1.8	615	24	1101	1143	0.96
2.4	680	24	1094	1139	0.96
3.1	729	22	1098	1138	0.96
4.6	853	15	1096	1140	0.96
6.5	920	12	1098	1144	0.96
9.2	947	12	1104	1146	0.96
12.2	973	12	1104	1144	0.96
15.2	972	11	1088	1130	0.96
22.9	1060	10	1101	1145	0.96
30.5	1118	8	1102	1145	0.96
Average =			1098	1141	0.96

Run 038 Location 6 Board B34 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	519	27	1097	1142	0.96
0.9	557	25	1107	1144	0.97
1.2	578	26	1110	1148	0.97
1.5	589	26	1101	1141	0.96
1.8	615	26	1106	1146	0.96
2.4	654	25	1088	1132	0.96
3.1	733	22	1104	1143	0.97
4.6	826	16	1089	1129	0.97
6.5	901	12	1093	1139	0.96
9.2	943	12	1100	1144	0.96
12.2	944	11	1086	1133	0.96
15.2	981	11	1105	1144	0.97
22.9	1049	10	1098	1143	0.96
30.5	1099	8	1095	1143	0.96
Average =			1099	1141	0.96

Run 039 Location 6 Board B34 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	544	27	1104	1144	0.97
0.9	557	26	1104	1140	0.97
1.2	568	25	1093	1141	0.96
1.5	587	26	1108	1146	0.97
1.8	605	27	1106	1145	0.97
2.4	650	26	1089	1135	0.96
3.1	708	25	1102	1143	0.96
4.6	842	18	1104	1143	0.97
6.5	914	13	1107	1146	0.97
9.2	960	12	1113	1148	0.97
12.2	982	11	1101	1145	0.96
15.2	1010	11	1105	1145	0.96
22.9	1070	10	1101	1145	0.96
30.5	1122	8	1107	1149	0.96
Average =			1103	1144	0.96

TABLE 16 *Velocity Profile Data; Location 6; Northwest Wind Dir.*

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet O:

03/26/93

Velocity Profile Data

Run 040 Location 7 Board B25 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	669	20	1062	1097	0.97
1.2	715	19	1078	1111	0.97
1.5	719	18	1072	1106	0.97
1.8	747	19	1084	1118	0.97
2.4	774	19	1097	1129	0.97
3.1	767	19	1068	1106	0.97
4.6	812	18	1075	1111	0.97
6.5	872	16	1064	1099	0.97
9.2	913	12	1060	1093	0.97
12.2	955	11	1060	1092	0.97
15.2	997	10	1087	1112	0.98
22.9	1073	8	1073	1108	0.97
30.5	1118	6	1066	1102	0.97
Average =			1073	1106	0.97

Run 041 Location 7 Board B25 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	603	23	1065	1097	0.97
0.9	672	21	1068	1100	0.97
1.2	704	20	1072	1111	0.97
1.5	728	19	1079	1114	0.97
1.8	715	19	1062	1095	0.97
2.4	745	19	1070	1107	0.97
3.1	769	19	1087	1114	0.98
4.6	808	18	1066	1099	0.97
6.5	861	15	1074	1099	0.98
9.2	932	12	1083	1118	0.97
12.2	974	11	1080	1117	0.97
15.2	991	10	1069	1105	0.97
22.9	1047	8	1068	1093	0.98
30.5	1116	6	1060	1101	0.96
Average =			1072	1105	0.97

Run 042 Location 7 Board B25 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	642	21	1070	1110	0.96
0.9	680	20	1067	1100	0.97
1.2	701	20	1080	1106	0.98
1.5	706	20	1062	1100	0.97
1.8	722	19	1065	1100	0.97
2.4	749	19	1089	1118	0.97
3.1	754	19	1070	1108	0.97
4.6	796	18	1054	1091	0.97
6.5	854	15	1048	1082	0.97
9.2	928	12	1078	1109	0.97
12.2	959	11	1076	1103	0.98
15.2	986	10	1067	1103	0.97
22.9	1047	8	1058	1089	0.97
30.5	1119	6	1073	1109	0.97
Average =			1068	1102	0.97

TABLE 17 *Velocity Profile Data; Location 7; Northwest Wind Dir.*

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet P:

03/26/93

Velocity Profile Data

Run 043 Location 8 Board B44 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	637	18	1084	1080	1.00
1.2	692	18	1082	1082	1.00
1.5	737	15	1077	1068	1.01
1.8	753	15	1077	1075	1.00
2.4	789	14	1079	1073	1.01
3.1	798	14	1078	1073	1.00
4.6	792	13	1072	1066	1.01
6.5	802	13	1083	1075	1.01
9.2	818	13	1102	1094	1.01
12.2	827	13	1074	1065	1.01
15.2	860	13	1084	1074	1.01
22.9	952	11	1092	1087	1.01
30.5	1030	8	1091	1087	1.00
Average =			1083	1077	1.01

Run 044 Location 8 Board B44 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	470	25	1079	1076	1.00
0.9	598	20	1081	1078	1.00
1.2	682	18	1075	1071	1.00
1.5	740	16	1103	1102	1.00
1.8	760	16	1088	1085	1.00
2.4	797	14	1087	1087	1.00
3.1	811	13	1082	1075	1.01
4.6	809	13	1081	1078	1.00
6.5	816	13	1084	1078	1.01
9.2	838	12	1100	1096	1.00
12.2	851	13	1086	1079	1.01
15.2	873	13	1081	1074	1.01
22.9	961	12	1089	1079	1.01
30.5	1057	7	1094	1087	1.01
Average =			1086	1082	1.00

Run 045 Location 8 Board B44 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	514	22	1098	1092	1.01
0.9	643	19	1098	1091	1.01
1.2	703	17	1091	1090	1.00
1.5	743	16	1084	1081	1.00
1.8	783	15	1102	1093	1.01
2.4	809	14	1084	1081	1.00
3.1	823	14	1087	1080	1.01
4.6	820	13	1092	1085	1.01
6.5	825	13	1085	1076	1.01
9.2	836	13	1098	1089	1.01
12.2	844	13	1092	1081	1.01
15.2	872	13	1087	1082	1.00
22.9	981	11	1093	1088	1.01
30.5	1058	8	1095	1084	1.01
Average =			1092	1085	1.01

TABLE 18 *Velocity Profile Data; Location 8; Northwest Wind Dir.*

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet Q:

03/26/93

Velocity Profile Data

Run 049 Location 9 Board B23 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	574	22	1077	1090	0.99
1.2	718	18	1087	1100	0.99
1.5	776	16	1097	1109	0.99
1.8	773	16	1078	1086	0.99
2.4	808	15	1094	1101	0.99
3.1	817	16	1090	1102	0.99
4.6	836	15	1070	1078	0.99
6.5	865	14	1091	1104	0.99
9.2	864	13	1081	1089	0.99
12.2	897	13	1077	1084	0.99
15.2	929	13	1093	1103	0.99
22.9	945	12	1086	1093	0.99
30.5	1009	12	1087	1093	0.99
Average =			1085	1095	0.99

Run 050 Location 9 Board B23 1200' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	675	19	1083	1096	0.99
0.9	762	18	1099	1109	0.99
1.2	789	17	1101	1114	0.99
1.5	804	17	1097	1103	0.99
1.8	801	16	1088	1099	0.99
2.4	822	16	1103	1114	0.99
3.1	816	16	1074	1084	0.99
4.6	866	15	1103	1114	0.99
6.5	857	14	1096	1102	1.00
9.2	894	13	1101	1109	0.99
12.2	901	13	1087	1097	0.99
15.2	924	13	1100	1110	0.99
22.9	956	12	1086	1093	0.99
30.5	1035	11	1106	1116	0.99
Average =			1095	1104	0.99

TABLE 19 *Velocity Profile Data; Location 9; Northwest Wind Dir.*

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet R:

03/26/93

Velocity Profile Data

Run 051 Location 10 Board B23 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	706	17	1089	1121	0.97
1.2	762	16	1072	1095	0.98
1.5	795	16	1077	1100	0.98
1.8	811	16	1080	1112	0.97
2.4	824	16	1074	1106	0.97
3.1	854	16	1087	1118	0.97
4.6	864	15	1080	1113	0.97
6.5	896	14	1093	1121	0.98
9.2	905	15	1078	1107	0.97
12.2	936	14	1074	1105	0.97
15.2	981	13	1082	1110	0.97
22.9	1056	11	1078	1106	0.97
30.5	1103	8	1068	1097	0.97
Average =			1079	1109	0.97

Run 052 Location 10 Board B23 1200' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	729	17	1103	1133	0.97
0.9	781	16	1105	1137	0.97
1.2	764	16	1078	1107	0.97
1.5	798	16	1084	1120	0.97
1.8	807	15	1089	1119	0.97
2.4	840	16	1101	1130	0.97
3.1	855	15	1095	1133	0.97
4.6	878	15	1098	1131	0.97
6.5	893	14	1105	1134	0.97
9.2	910	14	1094	1127	0.97
12.2	930	14	1090	1123	0.97
15.2	969	13	1094	1125	0.97
22.9	1061	11	1097	1131	0.97
30.5	1137	7	1103	1137	0.97
Average =			1095	1128	0.97

TABLE 20 *Velocity Profile Data; Location 10; Northwest Wind Dir.*

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet S:

03/26/93

Velocity Profile Data

Run 053 Location 11 Board B23 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	572	20	1102	1133	0.97
1.2	615	19	1071	1105	0.97
1.5	662	18	1069	1100	0.97
1.8	691	18	1068	1098	0.97
2.4	743	17	1070	1105	0.97
3.1	777	16	1077	1102	0.98
4.6	846	14	1081	1113	0.97
6.5	870	14	1083	1109	0.98
9.2	883	13	1071	1102	0.97
12.2	921	12	1081	1112	0.97
15.2	935	13	1076	1105	0.97
22.9	1002	12	1088	1118	0.97
30.5	1077	10	1081	1113	0.97
Average =			1078	1109	0.97

Run 054 Location 11 Board B23 Hilltop Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	513	20	1089	1119	0.97
0.9	575	20	1077	1109	0.97
1.2	624	20	1075	1101	0.98
1.5	669	19	1079	1110	0.97
1.8	703	18	1072	1111	0.97
2.4	747	17	1064	1095	0.97
3.1	790	15	1070	1103	0.97
4.6	836	14	1082	1109	0.98
6.5	864	12	1070	1096	0.98
9.2	887	13	1072	1100	0.97
12.2	910	12	1073	1103	0.97
15.2	928	12	1073	1103	0.97
22.9	989	12	1063	1095	0.97
30.5	1045	10	1060	1088	0.97
Average =			1073	1103	0.97

Run 055 Location 11 Board B23 -100' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Velocity Approach (cm/s)	Velocity Reference (cm/s)	Velocity Ratio
0.6	569	19	1073	1105	0.97
0.9	618	19	1073	1108	0.97
1.2	647	18	1073	1100	0.98
1.5	682	18	1068	1100	0.97
1.8	713	18	1073	1102	0.97
2.4	758	16	1079	1110	0.97
3.1	774	16	1064	1094	0.97
4.6	835	14	1069	1102	0.97
6.5	858	13	1076	1103	0.98
9.2	893	12	1071	1106	0.97
12.2	914	12	1077	1111	0.97
15.2	920	12	1068	1098	0.97
22.9	991	12	1083	1109	0.98
30.5	1050	10	1071	1101	0.97
Average =			1073	1104	0.97

TABLE 21 Velocity Profile Data; Location 11; Northwest Wind Dir.

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet T:

03/26/93

Velocity Profile Data

Run 056 Location 12 Board B23 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	407	22	1115	1130	0.99
1.2	476	20	1111	1134	0.98
1.5	510	20	1107	1126	0.98
1.8	546	20	1108	1127	0.98
2.4	581	18	1111	1133	0.98
3.1	615	18	1112	1133	0.98
4.6	652	17	1108	1130	0.98
6.5	667	16	1092	1112	0.98
9.2	700	17	1093	1113	0.98
12.2	728	16	1102	1123	0.98
15.2	779	15	1100	1118	0.98
22.9	851	15	1115	1134	0.98
30.5	921	14	1106	1121	0.99
Average =			1106	1125	0.98

Run 057 Location 12 Board B23 1200' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	352	23	1104	1126	0.98
0.9	424	21	1092	1113	0.98
1.2	472	21	1094	1117	0.98
1.5	511	20	1102	1123	0.98
1.8	542	19	1099	1122	0.98
2.4	578	18	1110	1132	0.98
3.1	593	17	1100	1121	0.98
4.6	643	17	1105	1124	0.98
6.5	661	16	1097	1121	0.98
9.2	703	16	1094	1115	0.98
12.2	733	16	1090	1114	0.98
15.2	767	15	1103	1124	0.98
22.9	841	15	1102	1122	0.98
30.5	897	14	1094	1111	0.98
Average =			1099	1121	0.98

TABLE 22 *Velocity Profile Data; Location 12; Northwest Wind Dir.*

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet U:

03/26/93

Velocity Profile Data

Run 058 Location 13 Board B23 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	779	16	1114	1118	1.00
1.2	804	15	1091	1093	1.00
1.5	833	14	1088	1092	1.00
1.8	836	15	1095	1095	1.00
2.4	856	15	1102	1102	1.00
3.1	850	14	1098	1101	1.00
4.6	855	14	1099	1105	0.99
6.5	847	14	1096	1098	1.00
9.2	855	14	1099	1098	1.00
12.2	870	14	1106	1106	1.00
15.2	886	13	1104	1104	1.00
22.9	916	13	1096	1100	1.00
30.5	962	12	1101	1102	1.00
Average =			1099	1101	1.00

Run 059 Location 13 Board B23 1200' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	753	16	1092	1099	0.99
0.9	797	15	1095	1095	1.00
1.2	810	15	1097	1091	1.01
1.5	830	15	1088	1097	0.99
1.8	835	14	1089	1087	1.00
2.4	851	14	1094	1096	1.00
3.1	833	14	1093	1093	1.00
4.6	861	14	1100	1103	1.00
6.5	842	14	1094	1102	0.99
9.2	877	14	1098	1107	0.99
12.2	876	14	1107	1109	1.00
15.2	886	14	1097	1100	1.00
22.9	892	13	1083	1085	1.00
30.5	950	13	1089	1093	1.00
Average =			1094	1097	1.00

TABLE 23 *Velocity Profile Data; Location 13; Northwest Wind Dir.*

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet V:

03/26/93

Velocity Profile Data

Run 060 Location 14 Board B33 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	383	29	1087	1093	0.99
1.2	465	27	1095	1105	0.99
1.5	494	26	1090	1096	1.00
1.8	526	25	1096	1103	0.99
2.4	560	23	1092	1097	1.00
3.1	588	22	1110	1112	1.00
4.6	633	22	1104	1115	0.99
6.5	674	21	1104	1111	0.99
9.2	723	20	1099	1093	1.01
12.2	797	19	1101	1108	0.99
15.2	833	17	1095	1096	1.00
22.9	892	15	1092	1099	0.99
30.5	944	14	1094	1100	0.99
Average =			1097	1102	1.00

Run 061 Location 14 Board B33 1200' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	443	28	1100	1108	0.99
0.9	472	28	1104	1116	0.99
1.2	508	27	1108	1121	0.99
1.5	522	25	1102	1116	0.99
1.8	532	25	1101	1114	0.99
2.4	546	25	1094	1103	0.99
3.1	579	24	1104	1112	0.99
4.6	631	23	1111	1122	0.99
6.5	679	22	1113	1122	0.99
9.2	717	22	1101	1110	0.99
12.2	762	19	1090	1095	1.00
15.2	824	17	1104	1108	1.00
22.9	898	13	1101	1105	1.00
30.5	966	12	1104	1118	0.99
Average =			1103	1112	0.99

TABLE 24 Velocity Profile Data; Location 14; Northwest Wind Dir.

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet W;

03/26/93

Velocity Profile Data

Run 062 Location 15 Board B33 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	536	20	1075	1095	0.98
1.2	591	19	1072	1099	0.98
1.5	626	19	1066	1091	0.98
1.8	656	18	1076	1101	0.98
2.4	690	17	1074	1097	0.98
3.1	712	16	1081	1102	0.98
4.6	742	16	1083	1104	0.98
6.5	766	15	1074	1102	0.97
9.2	788	16	1093	1111	0.98
12.2	828	14	1092	1117	0.98
15.2	835	15	1073	1095	0.98
22.9	911	14	1077	1100	0.98
30.5	1005	12	1080	1105	0.98
Average =			1078	1101	0.98

Run 063 Location 15 Board B33 1200' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	494	20	1078	1101	0.98
0.9	563	20	1078	1101	0.98
1.2	616	19	1078	1101	0.98
1.5	642	18	1078	1101	0.98
1.8	663	18	1078	1101	0.98
2.4	699	16	1078	1101	0.98
3.1	699	16	1078	1101	0.98
4.6	747	16	1078	1101	0.98
6.5	756	16	1078	1101	0.98
9.2	782	15	1078	1101	0.98
12.2	820	14	1078	1101	0.98
15.2	833	15	1078	1101	0.98
22.9	913	14	1078	1101	0.98
30.5	1025	11	1078	1101	0.98
Average =			1078	1101	0.98

TABLE 25 *Velocity Profile Data; Location 15; Northwest Wind Dir.*

USWP Task 3 Test Results

NW Wind Dir.

USW3VEL0.WK3

Sheet X:

03/26/93

Velocity Profile Data

Run 064 Location 16 Board B34 No Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6					
0.9	737	16	1061	1093	0.97
1.2	807	14	1062	1086	0.98
1.5	875	13	1068	1104	0.97
1.8	884	12	1072	1095	0.98
2.4	896	12	1057	1084	0.98
3.1	912	11	1062	1090	0.97
4.6	921	11	1066	1094	0.97
6.5	920	11	1056	1082	0.98
9.2	947	11	1054	1090	0.97
12.2	949	11	1059	1086	0.98
15.2	971	11	1060	1094	0.97
22.9	1022	10	1064	1100	0.97
30.5	1064	8	1052	1090	0.96
Average =			1061	1091	0.97

Run 065 Location 16 Board B34 1200' Cut

Height (cm)	Velocity HW (cm/s)	Turbulent Intensity (%)	Approach Velocity (cm/s)	Reference Velocity (cm/s)	Velocity Ratio
0.6	762	16	1079	1113	0.97
0.9	837	16	1082	1118	0.97
1.2	879	13	1074	1114	0.96
1.5	891	13	1071	1106	0.97
1.8	911	12	1087	1119	0.97
2.4	903	12	1062	1095	0.97
3.1	912	12	1069	1102	0.97
4.6	945	11	1087	1119	0.97
6.5	944	11	1075	1112	0.97
9.2	960	11	1077	1107	0.97
12.2	991	11	1078	1115	0.97
15.2	997	11	1091	1121	0.97
22.9	1049	10	1079	1117	0.97
30.5	1107	8	1099	1132	0.97
Average =			1079	1114	0.97

TABLE 26 *Velocity Profile Data; Location 16; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL1.WK

Sheet A:

03/26/93

SW Wind Dir.

Velocity Profile Comparisons

Location 1

Height Norm.	Velocity Norm. #01 no	Velocity Norm. #02 top	Velocity Norm. #03 -100'
0.04		0.29	0.54
0.06	0.48	0.50	0.70
0.08	0.68	0.67	0.74
0.10	0.76	0.76	0.77
0.12	0.78	0.77	0.76
0.16	0.79	0.78	0.77
0.20	0.78	0.77	0.76
0.30	0.78	0.77	0.75
0.42	0.80	0.79	0.79
0.60	0.81	0.81	0.80
0.80	0.86	0.87	0.85
1.00	0.91	0.90	0.90
1.50	0.98	0.97	0.97
2.00	1.01	1.01	1.01
Ur@upwind =	1084	1090	1092
Ur@top =	1094	1100	1104
Href (cm) =	15.2	15.2	15.2

Velocity Profile Comparisons

Location 2

Height Norm.	Velocity Norm. #04 no	Velocity Norm. #05 top	Velocity Norm. #06 -100'
0.04		0.57	0.74
0.06	0.70	0.73	0.80
0.08	0.78	0.81	0.84
0.10	0.83	0.84	0.87
0.12	0.86	0.87	0.89
0.16	0.89	0.92	0.93
0.20	0.90	0.93	0.93
0.30	0.92	0.94	0.95
0.42	0.93	0.96	0.97
0.60	0.94	0.98	0.98
0.80	0.95	1.00	0.99
1.00	0.99	1.01	1.02
1.50	1.03	1.07	1.07
2.00	1.04	1.08	1.09
Ur@upwind =	1098	1073	1073
Ur@top =	1157	1140	1141
Href (cm) =	15.2	15.2	15.2

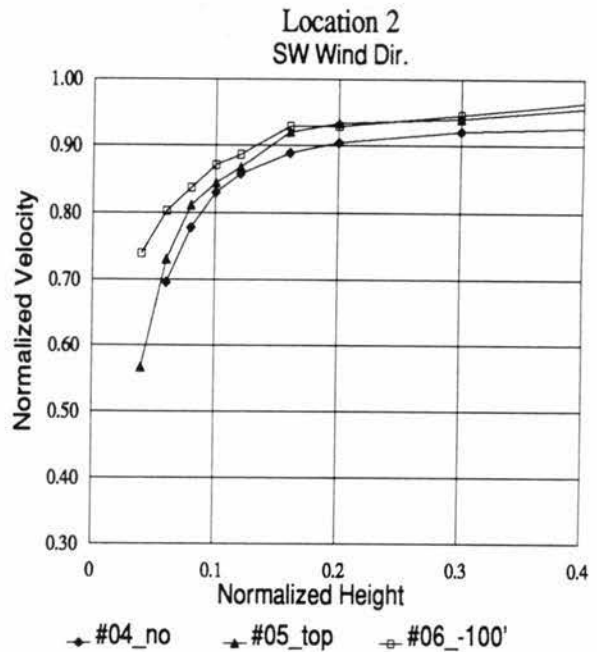
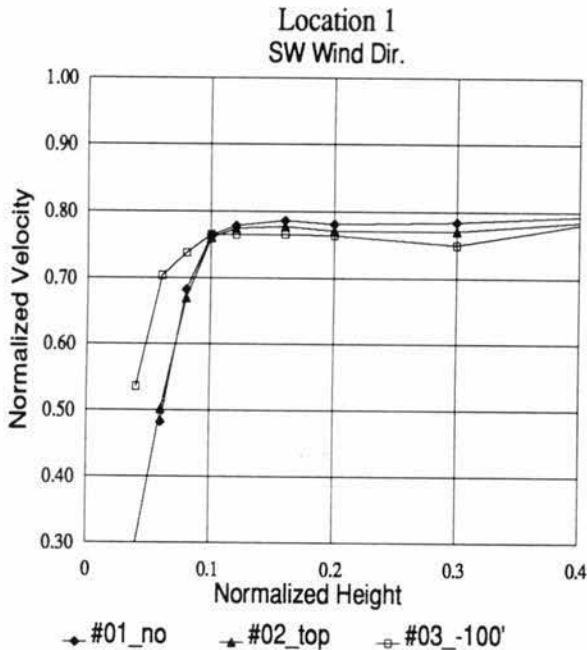


TABLE 27 *Velocity Profile Comparisons; Loc. 1 & 2; Southwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL1.WK

Sheet B:

03/26/93

Velocity Profile Comparisons

Location 3

Height Norm.	Velocity Norm. #07 no	Velocity Norm. #08 top	Velocity Norm. #09 -100'
0.04		0.61	0.70
0.06	0.59	0.72	0.79
0.08	0.75	0.77	0.82
0.10	0.81	0.84	0.86
0.12	0.84	0.85	0.86
0.16	0.88	0.86	0.88
0.20	0.87	0.90	0.90
0.30	0.89	0.89	0.92
0.42	0.90	0.89	0.91
0.60	0.92	0.91	0.92
0.80	0.94	0.95	0.95
1.00	0.96	0.96	0.96
1.50	1.00	1.00	1.00
2.00	1.02	1.03	1.05
Ur@upwind =	1087	1093	1088
Ur@top =	1137	1143	1139
Href (cm) =	15.2	15.2	15.2

SW Wind Dir.

Velocity Profile Comparisons

Location 4

Height Norm.	Velocity Norm. #10 no	Velocity Norm. #11 top	Velocity Norm. #12 -100'
0.04			0.48
0.06	0.50	0.55	0.60
0.08	0.63	0.62	0.68
0.10	0.72	0.68	0.72
0.12	0.76	0.72	0.77
0.16	0.82	0.77	0.80
0.20	0.83	0.79	0.82
0.30	0.87	0.82	0.85
0.42	0.89	0.85	0.88
0.60	0.92	0.88	0.89
0.80	0.93	0.90	0.92
1.00	0.97	0.92	0.93
1.50	1.00	0.97	0.99
2.00	1.03	1.01	1.02
Ur@upwind =	1078	1080	1097
Ur@top =	1129	1128	1145
Href (cm) =	15.2	15.2	15.2

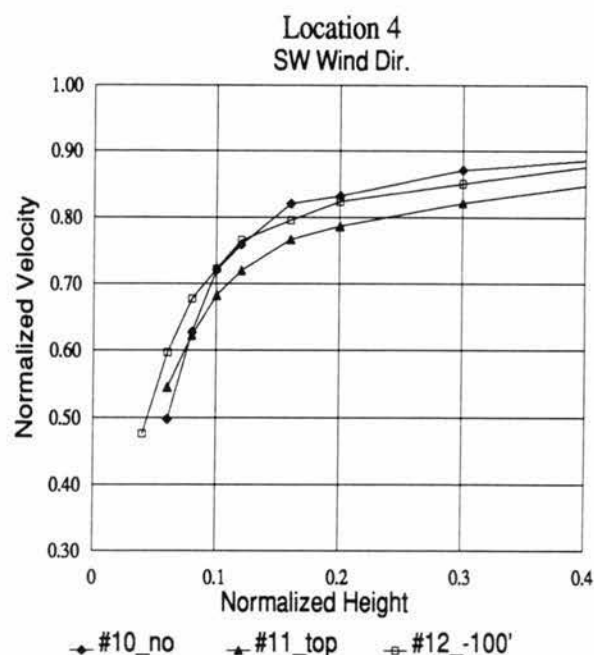
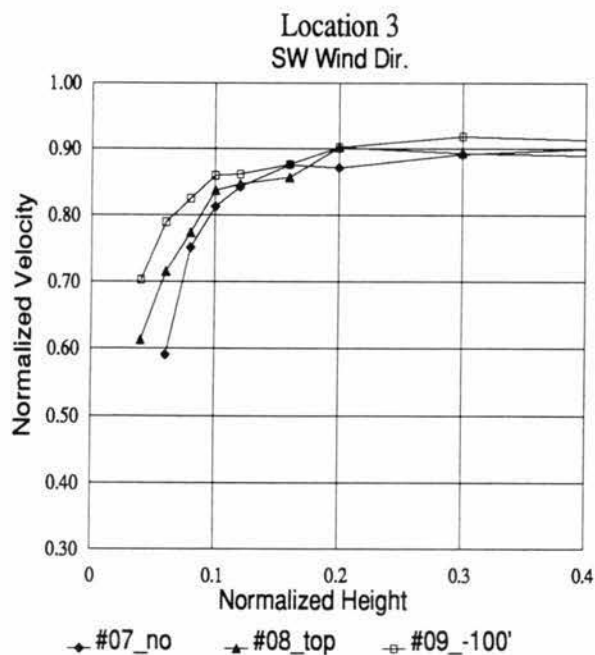


TABLE 28 *Velocity Profile Comparisons; Loc. 3 & 4; Southwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL1.WK

Sheet C:

03/26/93

SW Wind Dir.

Velocity Profile Comparisons

Location 5

Height Norm.	Velocity Norm. #13 no	Velocity Norm. #14 top	Velocity Norm. #15 -100'
0.04		0.30	0.61
0.06	0.31	0.56	0.77
0.08	0.59	0.77	0.84
0.10	0.79	0.84	0.85
0.12	0.83	0.85	0.85
0.16	0.87	0.87	0.87
0.20	0.87	0.87	0.86
0.30	0.87	0.88	0.86
0.42	0.87	0.88	0.87
0.60	0.88	0.88	0.88
0.80	0.89	0.89	0.89
1.00	0.89	0.90	0.90
1.50	0.95	0.97	0.96
2.00	1.00	1.01	1.00
Ur@upwind =	1060	1061	1057
Ur@top =	1096	1099	1092
Href (cm) =	15.2	15.2	15.2

Velocity Profile Comparisons

Location 6

Height Norm.	Velocity Norm. #16 no	Velocity Norm. #17 top	Velocity Norm. #18 -100'
0.04		0.42	0.44
0.06	0.47	0.47	0.49
0.08	0.51	0.49	0.52
0.10	0.54	0.52	0.52
0.12	0.55	0.53	0.54
0.16	0.57	0.54	0.56
0.20	0.57	0.56	0.56
0.30	0.61	0.61	0.60
0.42	0.66	0.66	0.67
0.60	0.75	0.75	0.76
0.80	0.83	0.83	0.84
1.00	0.86	0.88	0.88
1.50	0.91	0.94	0.92
2.00	0.96	0.96	0.98
Ur@upwind =	1056	1061	1061
Ur@top =	1098	1107	1108
Href (cm) =	15.2	15.2	15.2

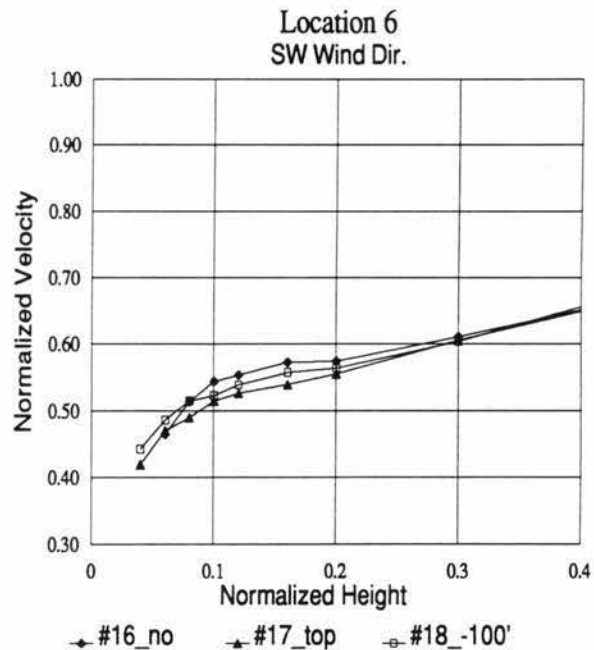
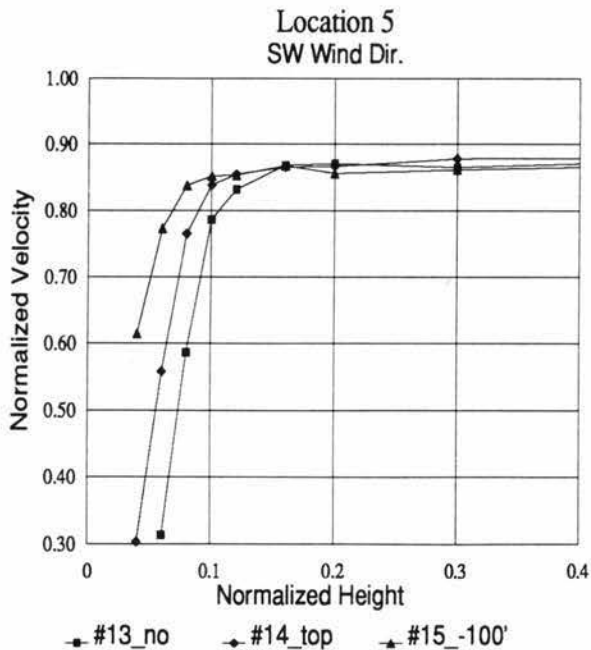


TABLE 29 *Velocity Profile Comparisons; Loc. 5 & 6; Southwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL1.WK

Sheet D:

03/26/93

SW Wind Dir.

Velocity Profile Comparisons

Location 7

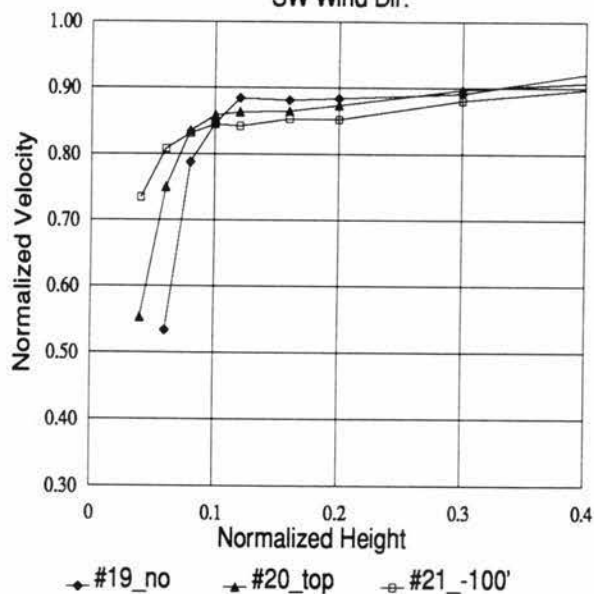
Height Norm.	Velocity Norm. #19 no	Velocity Norm. #20 top	Velocity Norm. #21 -100'
0.04		0.55	0.73
0.06	0.53	0.75	0.81
0.08	0.79	0.84	0.83
0.10	0.85	0.86	0.85
0.12	0.88	0.86	0.84
0.16	0.88	0.87	0.85
0.20	0.88	0.87	0.85
0.30	0.89	0.90	0.88
0.42	0.93	0.91	0.90
0.60	0.94	0.92	0.93
0.80	0.95	0.96	0.95
1.00	0.98	0.98	0.96
1.50	1.03	1.02	1.02
2.00	1.06	1.05	1.04
Ur@upwind =	1064	1070	1084
Ur@top =	1139	1144	1154
Href (cm) =	15.2	15.2	15.2

Velocity Profile Comparisons

Location 8

Height Norm.	Velocity Norm. #22 no	Velocity Norm. #23 top	Velocity Norm. #24 -100'
0.04		0.51	0.60
0.06	0.50	0.67	0.75
0.08	0.68	0.76	0.79
0.10	0.78	0.78	0.81
0.12	0.80	0.80	0.83
0.16	0.84	0.81	0.83
0.20	0.84	0.83	0.83
0.30	0.84	0.81	0.82
0.42	0.83	0.82	0.82
0.60	0.82	0.82	0.81
0.80	0.86	0.83	0.82
1.00	0.87	0.86	0.84
1.50	0.94	0.94	0.93
2.00	1.01	1.00	0.99
Ur@upwind =	1064	1064	1068
Ur@top =	1122	1123	1125
Href (cm) =	15.2	15.2	15.2

Location 7
SW Wind Dir.



Location 8
SW Wind Dir.

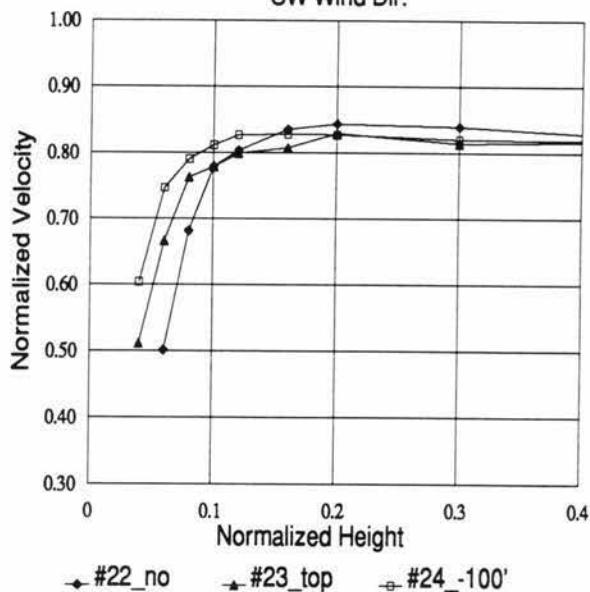


TABLE 30 *Velocity Profile Comparisons; Loc. 7 & 8; Southwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL1.WK

Sheet E:

03/26/93

NW Wind Dir.

Velocity Profile Comparisons

Location 1

Height Norm.	Velocity Norm. #46 no	Velocity Norm. #47 top	Velocity Norm. #48 -100'
0.04		0.65	0.74
0.06	0.54	0.81	0.85
0.08	0.80	0.86	0.89
0.10	0.87	0.89	0.90
0.12	0.88	0.89	0.91
0.16	0.91	0.91	0.90
0.20	0.93	0.92	0.93
0.30	0.92	0.91	0.92
0.42	0.92	0.93	0.92
0.60	0.95	0.95	0.93
0.80	0.98	0.97	0.96
1.00	0.97	0.97	0.97
1.50	1.03	1.02	1.01
2.00	1.06	1.06	1.05
Ur@upwind =	1071	1072	1071
Ur@top =	1125	1128	1127
Href (cm) =	15.2	15.2	15.2

Velocity Profile Comparisons

Location 2

Height Norm.	Velocity Norm. #25 no	Velocity Norm. #26 top	Velocity Norm. #27 -100'
0.04		0.78	0.78
0.06	0.80	0.80	0.81
0.08	0.82	0.82	0.84
0.10	0.83	0.83	0.83
0.12	0.85	0.82	0.83
0.16	0.85	0.84	0.84
0.20	0.85	0.86	0.85
0.30	0.87	0.87	0.87
0.42	0.91	0.92	0.91
0.60	0.94	0.93	0.94
0.80	0.96	0.95	0.96
1.00	0.97	0.97	0.97
1.50	1.01	1.01	1.02
2.00	1.05	1.06	1.07
Ur@upwind =	1081	1075	1078
Ur@top =	1142	1139	1141
Href (cm) =	15.2	15.2	15.2

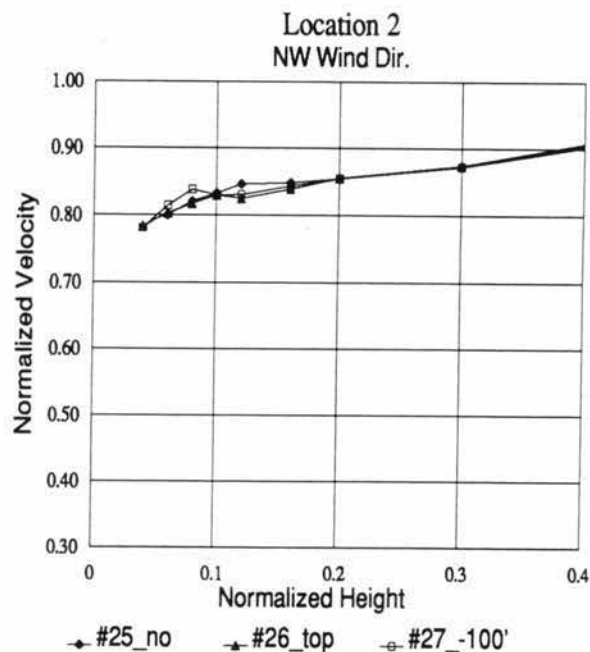
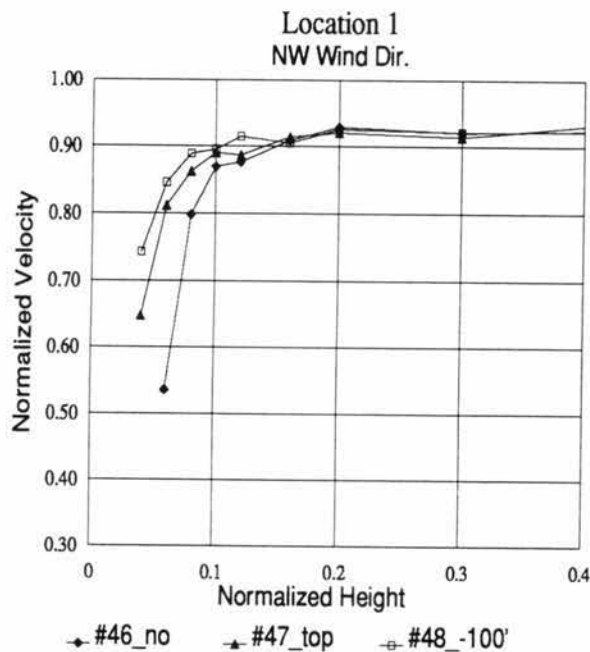


TABLE 31 *Velocity Profile Comparisons; Loc. 1 & 2; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL1.WK

Sheet F:

03/26/93

NW Wind Dir.

Velocity Profile Comparisons
Location 3

Height Norm.	Velocity Norm. #28 no	Velocity Norm. #29 top	Velocity Norm. #30 -100'
0.04		0.55	0.61
0.06	0.46	0.66	0.70
0.08	0.63	0.75	0.77
0.10	0.72	0.80	0.81
0.12	0.78	0.81	0.84
0.16	0.85	0.89	0.88
0.20	0.88	0.90	0.89
0.30	0.91	0.93	0.93
0.42	0.93	0.94	0.95
0.60	0.95	0.97	0.96
0.80	0.95	0.99	0.97
1.00	0.96	0.99	0.99
1.50	1.00	1.03	1.02
2.00	1.03	1.08	1.06
Ur@upwind =	1112	1101	1103
Ur@top =	1152	1146	1147
Href (cm) =	15.2	15.2	15.2

Velocity Profile Comparisons
Location 4

Height Norm.	Velocity Norm. #31 no	Velocity Norm. #32 top	Velocity Norm. #33 -100'
0.04		0.40	0.42
0.06	0.43	0.47	0.51
0.08	0.49	0.53	0.55
0.10	0.56	0.58	0.58
0.12	0.61	0.63	0.61
0.16	0.66	0.64	0.65
0.20	0.70	0.67	0.70
0.30	0.76	0.74	0.74
0.42	0.80	0.79	0.79
0.60	0.83	0.82	0.82
0.80	0.85	0.85	0.85
1.00	0.89	0.88	0.88
1.50	0.95	0.94	0.94
2.00	0.99	1.00	1.00
Ur@upwind =	1127	1126	1125
Ur@top =	1149	1150	1151
Href (cm) =	15.2	15.2	15.2

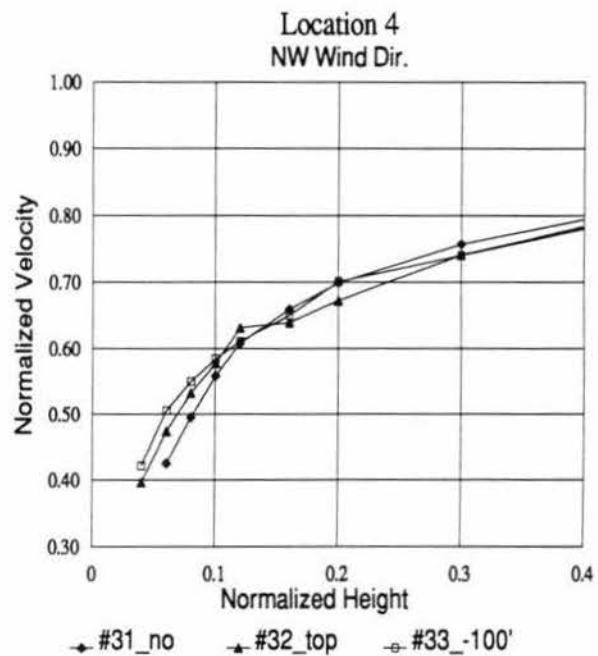
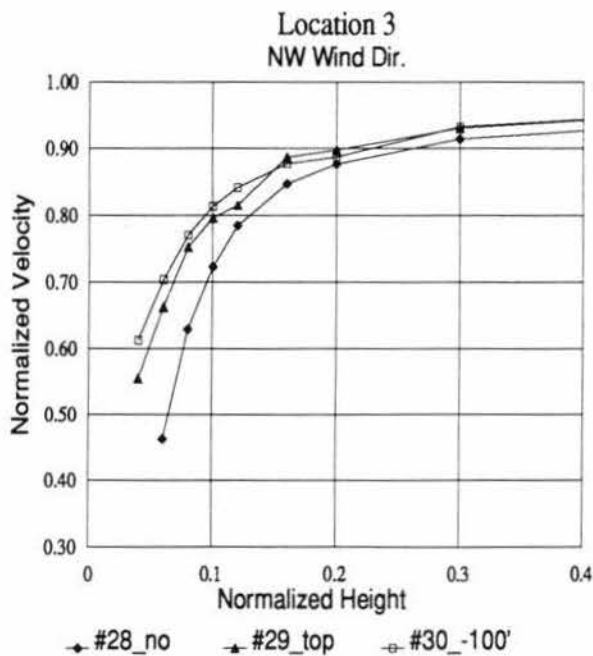


TABLE 32 *Velocity Profile Comparisons; Loc. 3 & 4; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL1.WK

Sheet G:

03/26/93

NW Wind Dir.

Velocity Profile Comparisons

Location 5

Height Norm.	Velocity Norm. #34 no	Velocity Norm. #35 top	Velocity Norm. #36 -100'
0.04		0.52	0.60
0.06	0.43	0.66	0.75
0.08	0.62	0.78	0.86
0.10	0.74	0.86	0.91
0.12	0.84	0.92	0.93
0.16	0.92	0.94	0.94
0.20	0.95	0.96	0.93
0.30	0.95	0.94	0.97
0.42	0.96	0.96	0.96
0.60	0.96	0.98	0.99
0.80	0.99	0.98	0.98
1.00	1.01	1.01	1.02
1.50	1.05	1.04	1.04
2.00	1.07	1.07	1.05
Ur@upwind =	1109	1111	1121
Ur@top =	1147	1149	1155
Href (cm) =	15.2	15.2	15.2

Velocity Profile Comparisons

Location 6

Height Norm.	Velocity Norm. #37 no	Velocity Norm. #38 top	Velocity Norm. #39 -100'
0.04		0.47	0.49
0.06	0.50	0.50	0.50
0.08	0.52	0.52	0.52
0.10	0.54	0.53	0.53
0.12	0.56	0.56	0.55
0.16	0.62	0.60	0.60
0.20	0.66	0.66	0.64
0.30	0.78	0.76	0.76
0.42	0.84	0.82	0.83
0.60	0.86	0.86	0.86
0.80	0.88	0.87	0.89
1.00	0.89	0.89	0.91
1.50	0.96	0.95	0.97
2.00	1.01	1.00	1.01
Ur@upwind =	1098	1099	1103
Ur@top =	1141	1141	1144
Href (cm) =	15.2	15.2	15.2

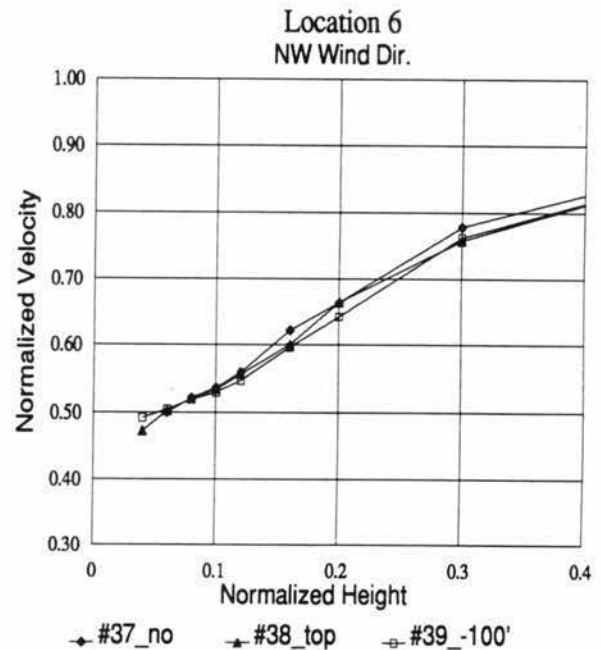
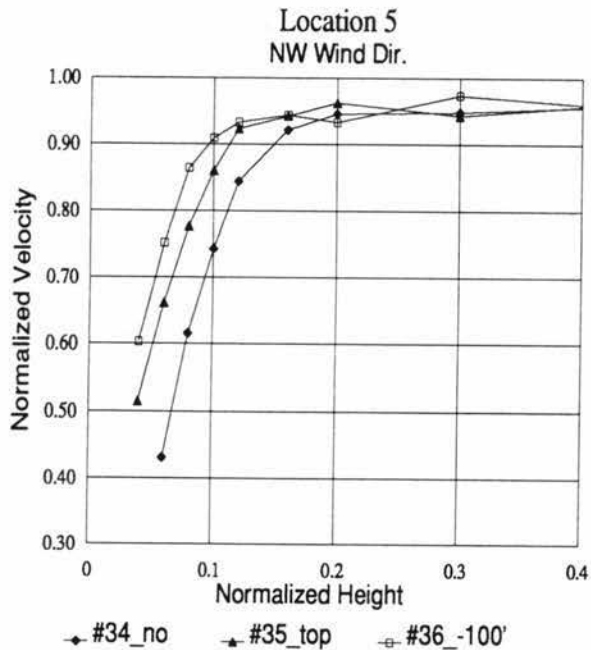


TABLE 33 *Velocity Profile Comparisons; Loc. 5 & 6; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL1.WK

Sheet H:

03/26/93

NW Wind Dir.

Velocity Profile Comparisons

Location 7

Height Norm.	Velocity Norm. #40 no	Velocity Norm. #41 top	Velocity Norm. #42 -100'
0.04		0.57	0.60
0.06	0.63	0.63	0.64
0.08	0.66	0.66	0.65
0.10	0.67	0.67	0.66
0.12	0.69	0.67	0.68
0.16	0.71	0.70	0.69
0.20	0.72	0.71	0.70
0.30	0.76	0.76	0.76
0.42	0.82	0.80	0.81
0.60	0.86	0.86	0.86
0.80	0.90	0.90	0.89
1.00	0.92	0.93	0.92
1.50	1.00	0.98	0.99
2.00	1.05	1.05	1.04
Ur@upwind =	1073	1072	1068
Ur@top =	1106	1105	1102
Href (cm) =	15.2	15.2	15.2

Velocity Profile Comparisons

Location 8

Height Norm.	Velocity Norm. #43 no	Velocity Norm. #44 top	Velocity Norm. #45 -100'
0.04		0.44	0.47
0.06	0.59	0.55	0.59
0.08	0.64	0.63	0.64
0.10	0.68	0.67	0.69
0.12	0.70	0.70	0.71
0.16	0.73	0.73	0.75
0.20	0.74	0.75	0.76
0.30	0.74	0.75	0.75
0.42	0.74	0.75	0.76
0.60	0.74	0.76	0.76
0.80	0.77	0.78	0.77
1.00	0.79	0.81	0.80
1.50	0.87	0.88	0.90
2.00	0.94	0.97	0.97
Ur@upwind =	1083	1086	1092
Ur@top =	1077	1082	1085
Href (cm) =	15.2	15.2	15.2

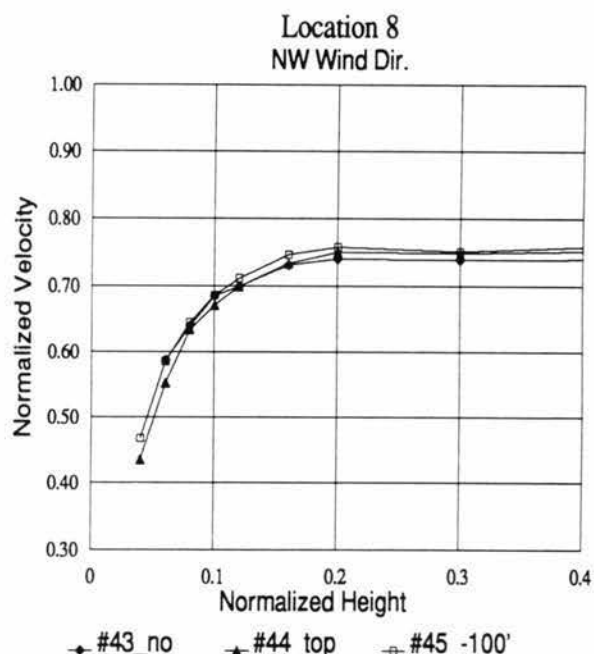
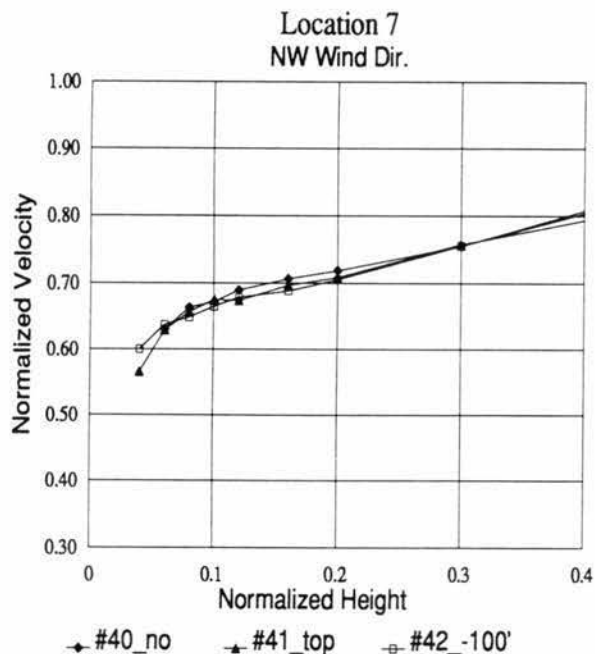


TABLE 34 *Velocity Profile Comparisons; Loc. 7 & 8; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL1.WK

Sheet I:

03/26/93

NW Wind Dir.

Velocity Profile Comparisons

Location 9

Height Norm.	Velocity Norm. #49 no	Velocity Norm. #50 1200'
0.04		0.62
0.06	0.53	0.69
0.08	0.66	0.72
0.10	0.71	0.73
0.12	0.72	0.74
0.16	0.74	0.75
0.20	0.75	0.76
0.30	0.78	0.79
0.42	0.79	0.78
0.60	0.80	0.81
0.80	0.83	0.83
1.00	0.85	0.84
1.50	0.87	0.88
2.00	0.93	0.94
Ur@upwind =		
Ur@top =		
Href (cm) =		

Velocity Profile Comparisons

Location 10

Height Norm.	Velocity Norm. #51 no	Velocity Norm. #52 1200'
0.04		0.66
0.06	0.65	0.71
0.08	0.71	0.71
0.10	0.74	0.74
0.12	0.75	0.74
0.16	0.77	0.76
0.20	0.79	0.78
0.30	0.80	0.80
0.42	0.82	0.81
0.60	0.84	0.83
0.80	0.87	0.85
1.00	0.91	0.89
1.50	0.98	0.97
2.00	1.03	1.03
Ur@upwind =		
Ur@top =		
Href (cm) =		

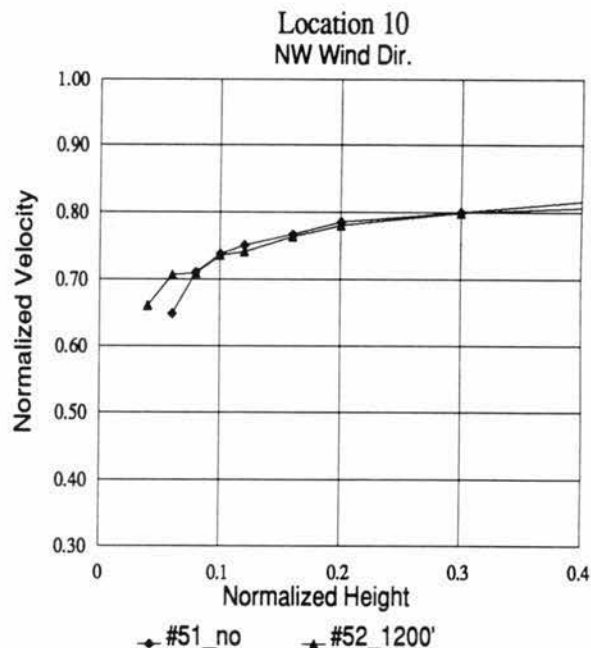
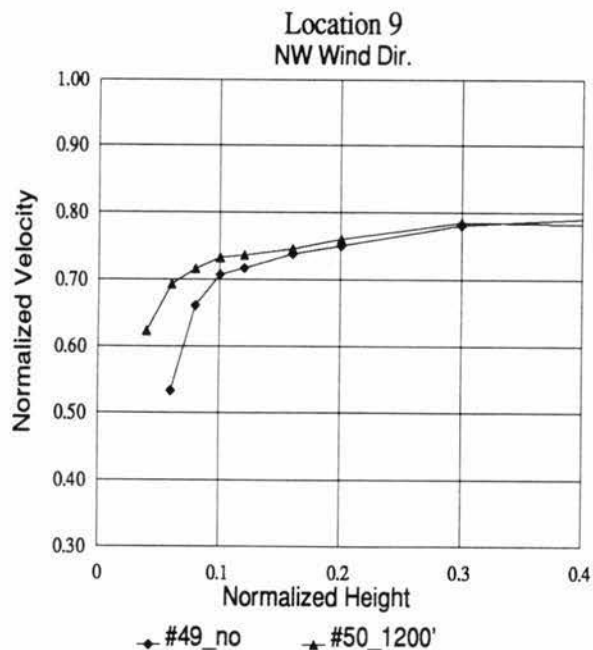


TABLE 35 *Velocity Profile Comparisons; Loc. 9 & 10; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL1.WK

Sheet J:

03/26/93

Velocity Profile Comparisons

Location 11

Height Norm.	Velocity Norm. #53 no	Velocity Norm. #54 top	Velocity Norm. #55 -100'
0.04		0.47	0.53
0.06	0.52	0.53	0.58
0.08	0.57	0.58	0.60
0.10	0.62	0.62	0.64
0.12	0.65	0.66	0.66
0.16	0.69	0.70	0.70
0.20	0.72	0.74	0.73
0.30	0.78	0.77	0.78
0.42	0.80	0.81	0.80
0.60	0.82	0.83	0.83
0.80	0.85	0.85	0.85
1.00	0.87	0.86	0.86
1.50	0.92	0.93	0.91
2.00	1.00	0.99	0.98
Ur@upwind =			
Ur@top =			
Href (cm) =			
	1078	1073	1073
	1109	1103	1104
	15.2	15.2	15.2

NW Wind Dir.

Velocity Profile Comparisons

Location 12

Height Norm.	Velocity Norm. #56 no	Velocity Norm. #57 1200'
0.04		0.32
0.06	0.36	0.39
0.08	0.43	0.43
0.10	0.46	0.46
0.12	0.49	0.49
0.16	0.52	0.52
0.20	0.55	0.54
0.30	0.59	0.58
0.42	0.61	0.60
0.60	0.64	0.64
0.80	0.66	0.67
1.00	0.71	0.70
1.50	0.76	0.76
2.00	0.83	0.82
Ur@upwind =		
Ur@top =		
Href (cm) =		
	1106	1099
	1125	1121
	15.2	15.2

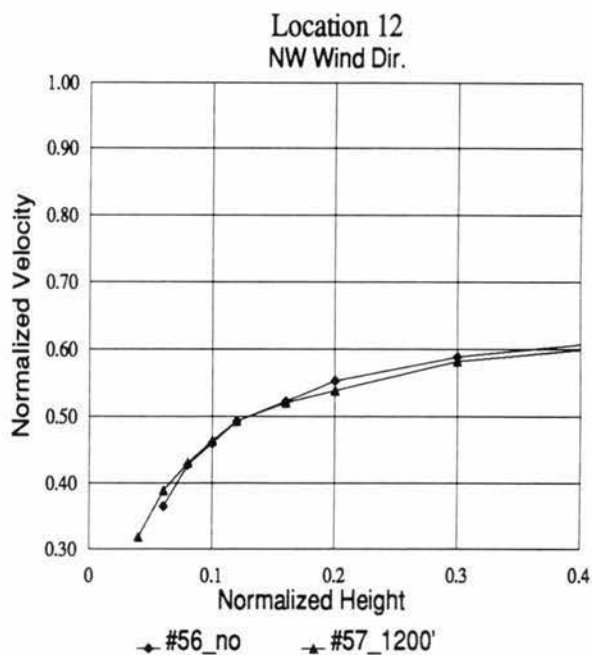
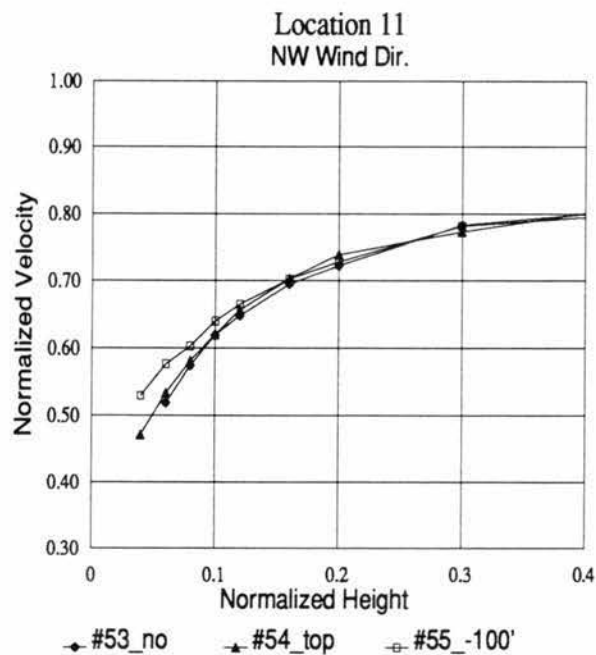


TABLE 36 *Velocity Profile Comparisons; Loc. 11 & 12; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL1.WK

Sheet K:

03/26/93

NW Wind Dir.

Velocity Profile Comparisons

Location 13

Height Norm.	Velocity Norm. #58 no	Velocity Norm. #59 1200'
0.04		0.69
0.06	0.70	0.73
0.08	0.74	0.74
0.10	0.77	0.76
0.12	0.76	0.77
0.16	0.78	0.78
0.20	0.77	0.76
0.30	0.78	0.78
0.42	0.77	0.77
0.60	0.78	0.80
0.80	0.79	0.79
1.00	0.80	0.81
1.50	0.84	0.82
2.00	0.87	0.87
Ur@upwind =	1099	1094
Ur@top =	1101	1097
Href (cm) =	15.2	15.2

Velocity Profile Comparisons

Location 14

Height Norm.	Velocity Norm. #60 no	Velocity Norm. #61 1200'
0.04		0.40
0.06	0.35	0.43
0.08	0.42	0.46
0.10	0.45	0.47
0.12	0.48	0.48
0.16	0.51	0.50
0.20	0.53	0.52
0.30	0.57	0.57
0.42	0.61	0.61
0.60	0.66	0.65
0.80	0.72	0.70
1.00	0.76	0.75
1.50	0.82	0.82
2.00	0.86	0.88
Ur@upwind =	1097	1103
Ur@top =	1102	1112
Href (cm) =	15.2	15.2

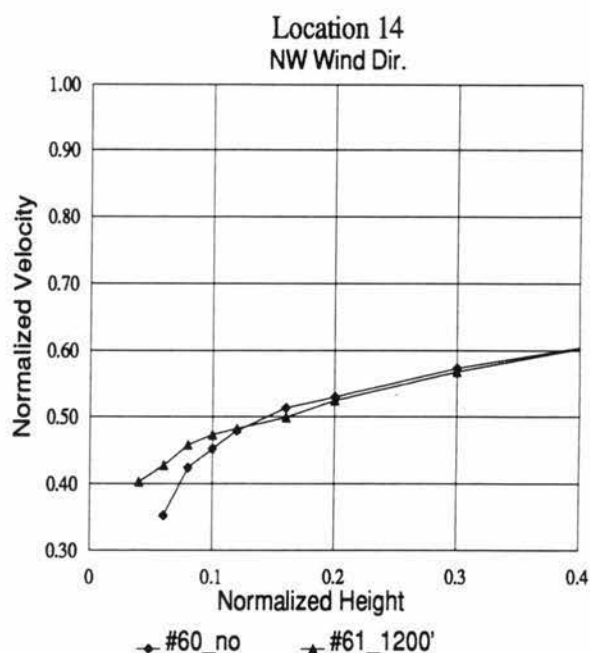
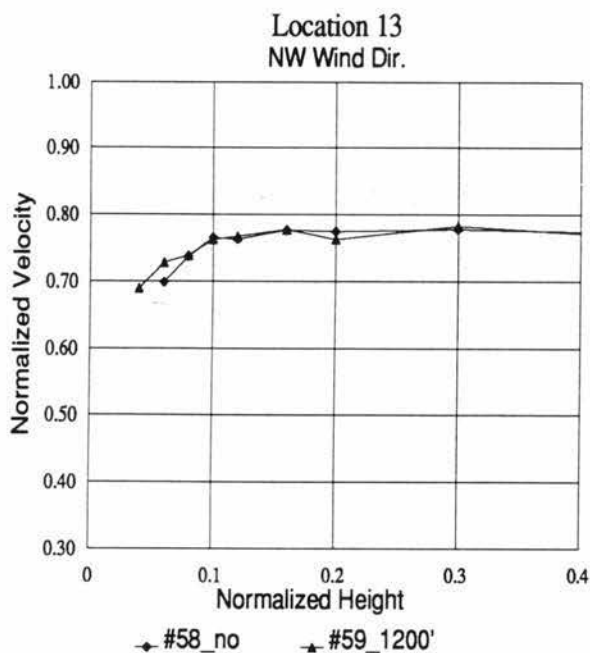


TABLE 37 *Velocity Profile Comparisons; Loc. 13 & 14; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL1.WK

Sheet L:

03/26/93

NW Wind Dir.

Velocity Profile Comparisons

Location 15

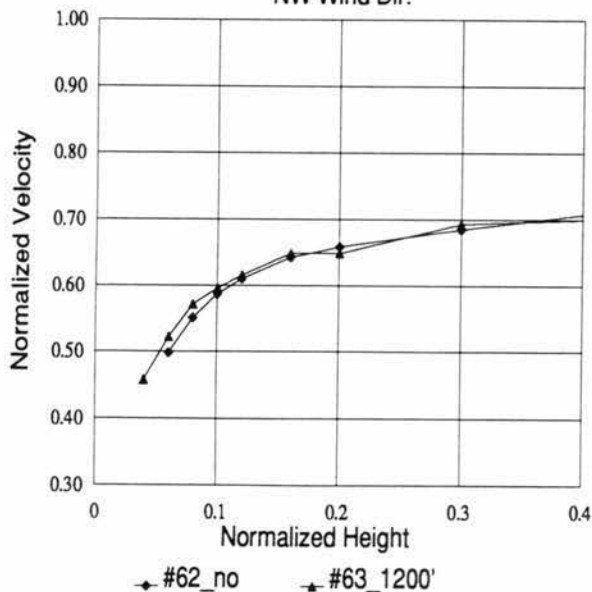
Height Norm.	Velocity Norm. #62 no	Velocity Norm. #63 1200'
0.04		0.46
0.06	0.50	0.52
0.08	0.55	0.57
0.10	0.59	0.60
0.12	0.61	0.62
0.16	0.64	0.65
0.20	0.66	0.65
0.30	0.68	0.69
0.42	0.71	0.70
0.60	0.72	0.73
0.80	0.76	0.76
1.00	0.78	0.77
1.50	0.85	0.85
2.00	0.93	0.95
Ur@upwind =	1078	1078
Ur@top =	1101	1101
Href (cm) =	15.2	15.2

Velocity Profile Comparisons

Location 16

Height Norm.	Velocity Norm. #64 no	Velocity Norm. #65 1200'
0.04		0.71
0.06	0.69	0.77
0.08	0.76	0.82
0.10	0.82	0.83
0.12	0.83	0.84
0.16	0.85	0.85
0.20	0.86	0.85
0.30	0.86	0.87
0.42	0.87	0.88
0.60	0.90	0.89
0.80	0.90	0.92
1.00	0.92	0.91
1.50	0.96	0.97
2.00	1.01	1.01
Ur@upwind =	1061	1079
Ur@top =	1091	1114
Href (cm) =	15.2	15.2

Location 15
NW Wind Dir.



Location 16
NW Wind Dir.

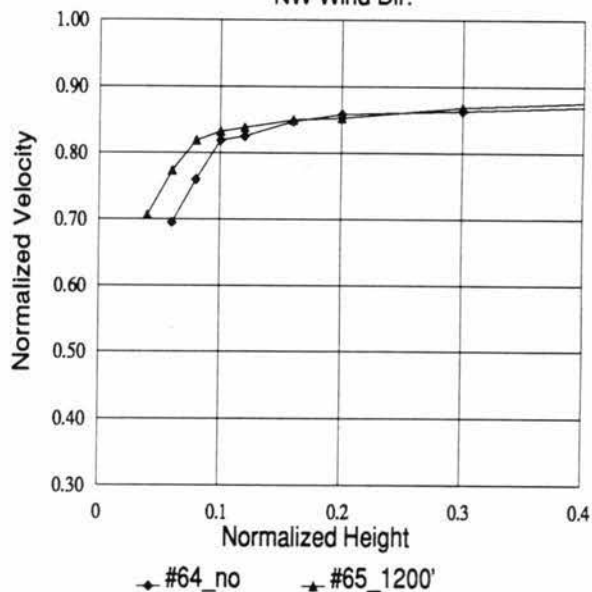


TABLE 38 *Velocity Profile Comparisons; Loc. 15 & 16; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL2.WK

Sheet A:

03/26/93

SW Wind Dir.

Turbulence Profile Comparisons

Location 1

Height Norm.	Turbulent Intensity (%) #01 no	Turbulent Intensity (%) #02 top	Turbulent Intensity (%) #03 -100'
0.04		43	23
0.06	28	32	18
0.08	20	21	16
0.10	15	16	15
0.12	14	14	14
0.16	14	13	13
0.20	13	14	14
0.30	13	14	15
0.42	14	14	16
0.60	15	15	16
0.80	13	13	14
1.00	10	11	11
1.50	6	6	7
2.00	4	4	4
Ur@upwind =	1084	1090	1092
Ur@top =	1094	1100	1104
Href (cm) =	15.2	15.2	15.2

Turbulence Profile Comparisons

Location 2

Height Norm.	Turbulent Intensity (%) #04 no	Turbulent Intensity (%) #05 top	Turbulent Intensity (%) #06 -100'
0.04		15	14
0.06	15	15	14
0.08	14	15	14
0.10	13	14	14
0.12	13	13	14
0.16	12	12	12
0.20	11	11	11
0.30	11	11	11
0.42	10	11	10
0.60	10	10	10
0.80	10	10	10
1.00	8	10	10
1.50	5	5	6
2.00	3	4	4
Ur@upwind =	1098	1073	1073
Ur@top =	1157	1140	1141
Href (cm) =	15.2	15.2	15.2

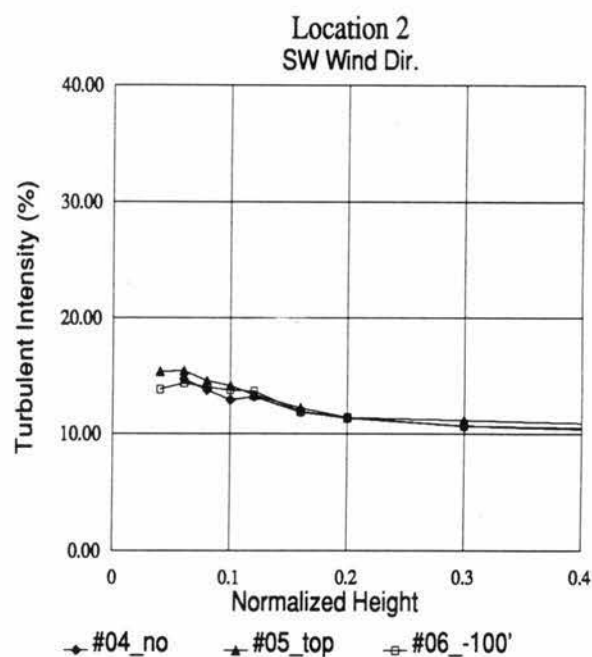
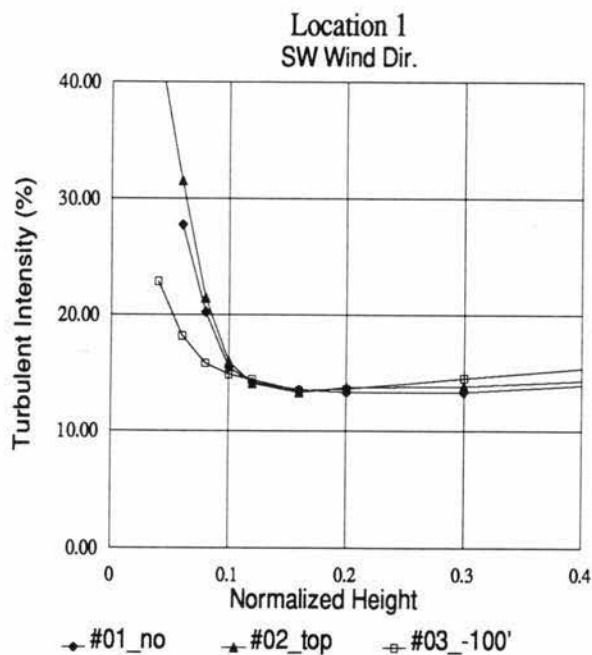


TABLE 39 *Turb. Int. Profile Comparisons; Loc. 1 & 2; Southwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL2.WK

Sheet B:

03/26/93

Turbulence Profile Comparisons

Location 3

Height Norm.	Turbulent Intensity (%) #07 no	Turbulent Intensity (%) #08 top	Turbulent Intensity (%) #09 -100'
0.04		16	14
0.06	17	14	13
0.08	14	13	13
0.10	13	12	12
0.12	12	11	12
0.16	11	11	11
0.20	10	10	10
0.30	10	10	11
0.42	10	10	10
0.60	10	10	10
0.80	10	10	10
1.00	9	9	9
1.50	7	7	7
2.00	5	5	5
Ur@upwind =	1087	1093	1088
Ur@top =	1137	1143	1139
Href (cm) =	15.2	15.2	15.2

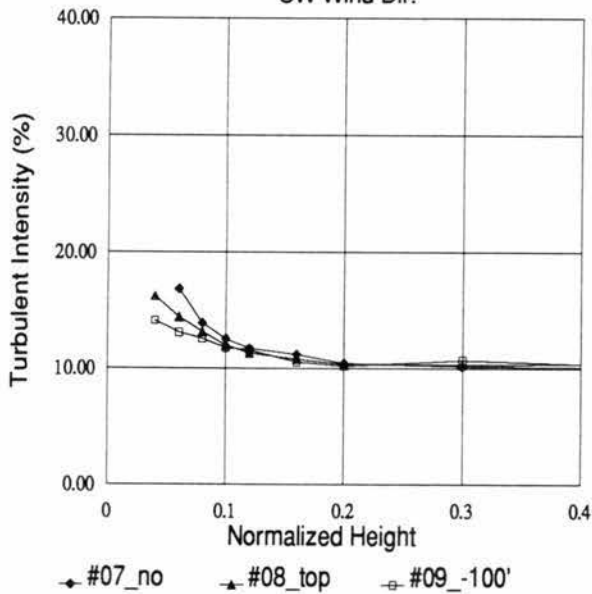
SW Wind Dir.

Turbulence Profile Comparisons

Location 4

Height Norm.	Turbulent Intensity (%) #10 no	Turbulent Intensity (%) #11 top	Turbulent Intensity (%) #12 -100'
0.04			17
0.06	18	17	15
0.08	15	16	15
0.10	14	15	14
0.12	13	14	14
0.16	12	13	13
0.20	12	12	12
0.30	11	12	11
0.42	10	11	11
0.60	10	10	10
0.80	10	10	10
1.00	9	10	10
1.50	8	8	8
2.00	6	6	6
Ur@upwind =	1078	1080	1097
Ur@top =	1129	1128	1145
Href (cm) =	15.2	15.2	15.2

Location 3
SW Wind Dir.



Location 4
SW Wind Dir.

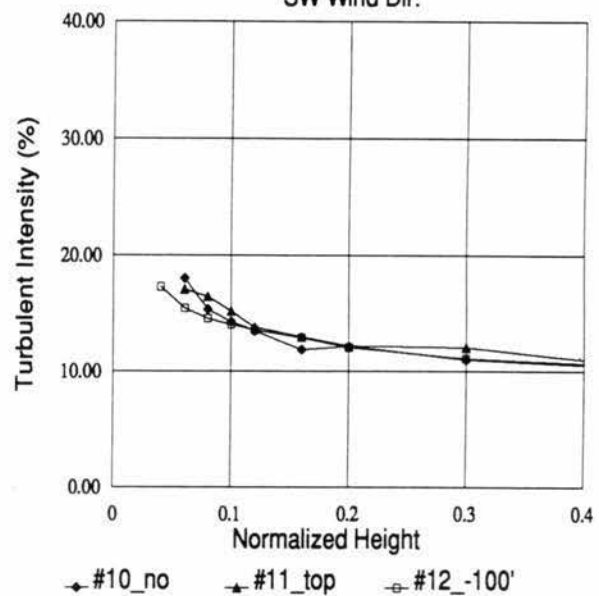


TABLE 40 Turb. Int. Profile Comparisons; Loc. 3 & 4; Southwest Wind Dir.

USWP Task 3 Test Results

USW3VEL2.WK

Sheet C:

03/26/93

Turbulence Profile Comparisons

Location 5

Height Norm.	Turbulent Intensity (%) #13 no	Turbulent Intensity (%) #14 top	Turbulent Intensity (%) #15 -100'
0.04		34	19
0.06	30	24	15
0.08	20	16	13
0.10	14	12	12
0.12	12	12	12
0.16	12	11	12
0.20	11	11	12
0.30	11	11	11
0.42	11	11	11
0.60	11	11	12
0.80	12	11	12
1.00	11	12	12
1.50	10	11	11
2.00	9	10	9
Ur@upwind =	1060	1061	1057
Ur@top =	1096	1099	1092
Href (cm) =	15.2	15.2	15.2

SW Wind Dir.

Turbulence Profile Comparisons

Location 6

Height Norm.	Turbulent Intensity (%) #16 no	Turbulent Intensity (%) #17 top	Turbulent Intensity (%) #18 -100'
0.04		34	34
0.06	34	32	32
0.08	31	31	30
0.10	31	29	29
0.12	29	29	29
0.16	28	28	28
0.20	27	28	28
0.30	27	27	28
0.42	26	25	25
0.60	20	21	21
0.80	16	16	15
1.00	13	13	13
1.50	11	11	11
2.00	10	10	10
Ur@upwind =	1056	1061	1061
Ur@top =	1098	1107	1108
Href (cm) =	15.2	15.2	15.2

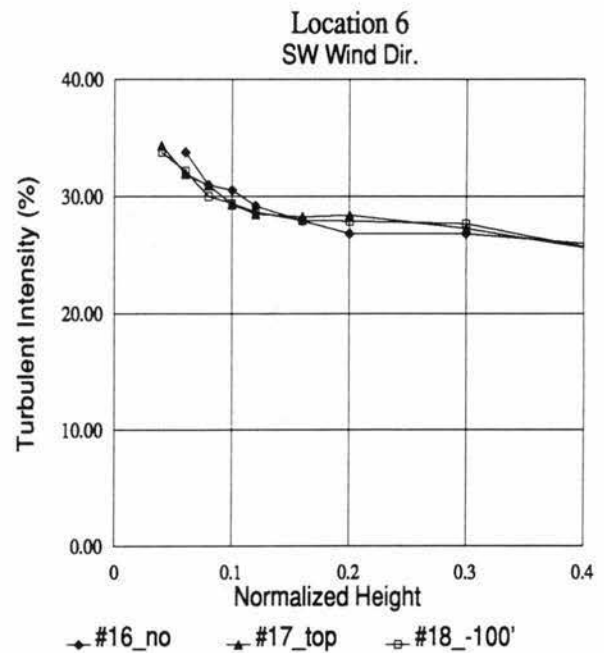
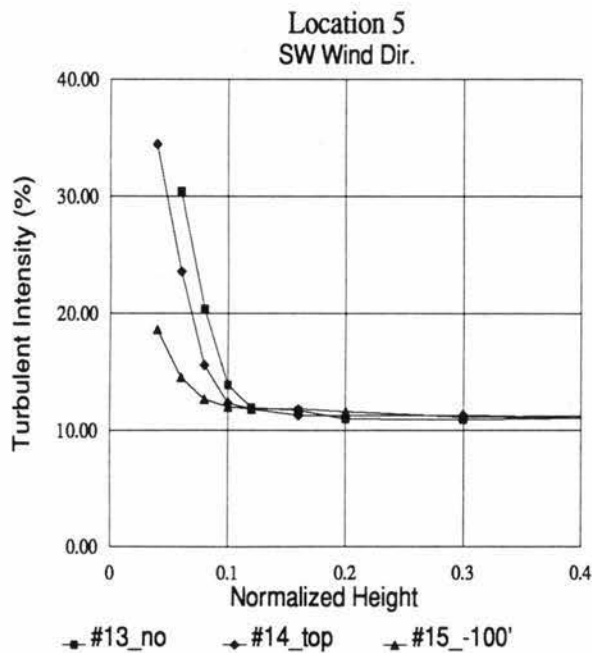


TABLE 41 *Turb. Int. Profile Comparisons; Loc. 5 & 6; Southwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL2.WK

Sheet D:

03/26/93

SW Wind Dir.

Turbulence Profile Comparisons

Location 7

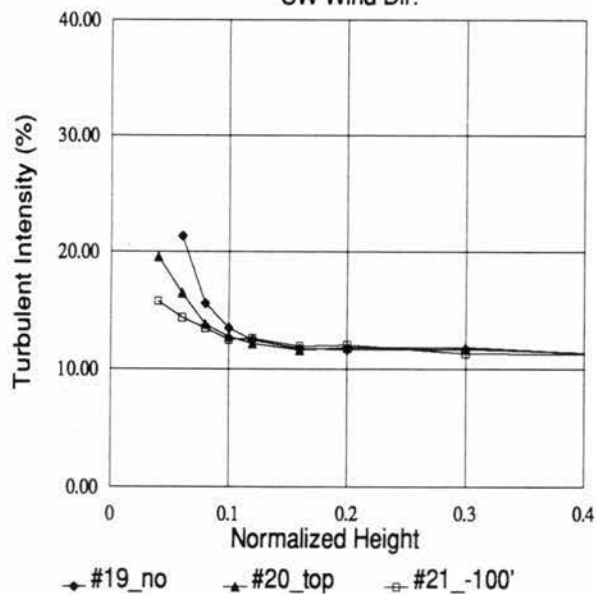
Height Norm.	Turbulent Intensity (%) #19 no	Turbulent Intensity (%) #20 top	Turbulent Intensity (%) #21 -100'
0.04		20	16
0.06	21	16	14
0.08	16	14	13
0.10	13	13	13
0.12	12	12	13
0.16	12	12	12
0.20	12	12	12
0.30	12	12	11
0.42	11	11	11
0.60	10	10	10
0.80	10	9	9
1.00	9	9	9
1.50	7	7	6
2.00	5	5	5
Ur@upwind =	1064	1070	1084
Ur@top =	1139	1144	1154
Href (cm) =	15.2	15.2	15.2

Turbulence Profile Comparisons

Location 8

Height Norm.	Turbulent Intensity (%) #22 no	Turbulent Intensity (%) #23 top	Turbulent Intensity (%) #24 -100'
0.04		21	18
0.06	24	18	16
0.08	18	15	14
0.10	15	14	13
0.12	13	12	12
0.16	12	12	11
0.20	12	12	11
0.30	12	12	11
0.42	13	13	13
0.60	14	13	13
0.80	13	14	14
1.00	14	14	13
1.50	12	12	13
2.00	9	10	9
Ur@upwind =	1064	1064	1068
Ur@top =	1122	1123	1125
Href (cm) =	15.2	15.2	15.2

Location 7
SW Wind Dir.



Location 8
SW Wind Dir.

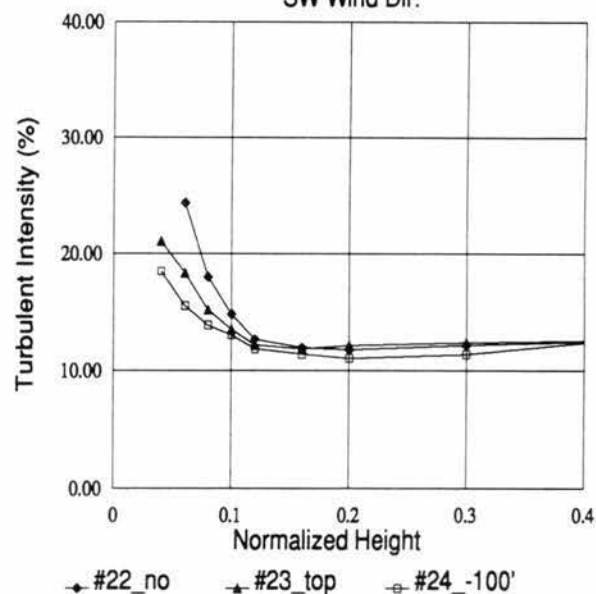


TABLE 42 Turb. Int. Profile Comparisons; Loc. 7 & 8; Southwest Wind Dir.

USWP Task 3 Test Results

USW3VEL2.WK

Sheet E:

03/26/93

Turbulence Profile Comparisons

Location 1

Height Norm.	Turbulent Intensity (%) #46 no	Turbulent Intensity (%) #47 top	Turbulent Intensity (%) #48 -100'
0.04		18	15
0.06	21	15	14
0.08	16	13	13
0.10	14	13	13
0.12	13	13	13
0.16	12	12	13
0.20	12	12	12
0.30	12	12	12
0.42	13	11	12
0.60	11	12	12
0.80	11	11	11
1.00	12	11	11
1.50	10	10	10
2.00	8	7	8
Ur@upwind =	1071	1072	1071
Ur@top =	1125	1128	1127
Href (cm) =	15.2	15.2	15.2

NW Wind Dir.

Turbulence Profile Comparisons

Location 2

Height Norm.	Turbulent Intensity (%) #25 no	Turbulent Intensity (%) #26 top	Turbulent Intensity (%) #27 -100'
0.04		15	15
0.06	15	15	15
0.08	14	14	14
0.10	14	15	14
0.12	14	15	15
0.16	15	15	15
0.20	15	14	15
0.30	14	14	15
0.42	13	13	13
0.60	11	12	11
0.80	11	11	11
1.00	10	11	10
1.50	10	10	10
2.00	8	7	7
Ur@upwind =	1081	1075	1078
Ur@top =	1142	1139	1141
Href (cm) =	15.2	15.2	15.2

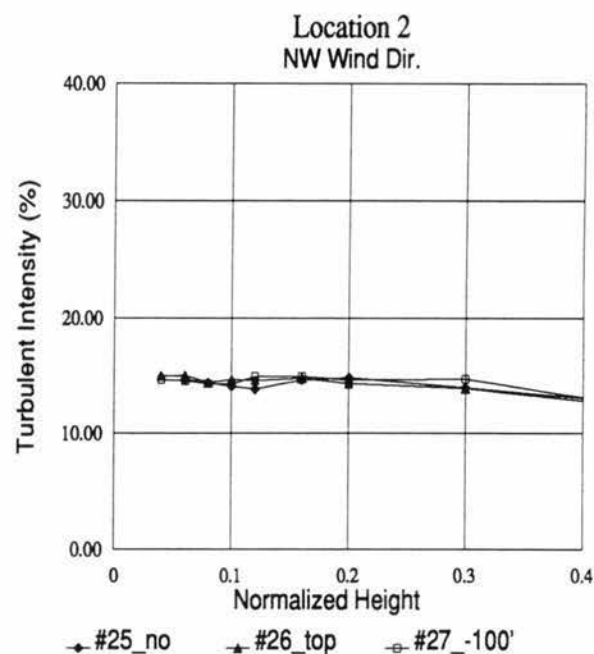
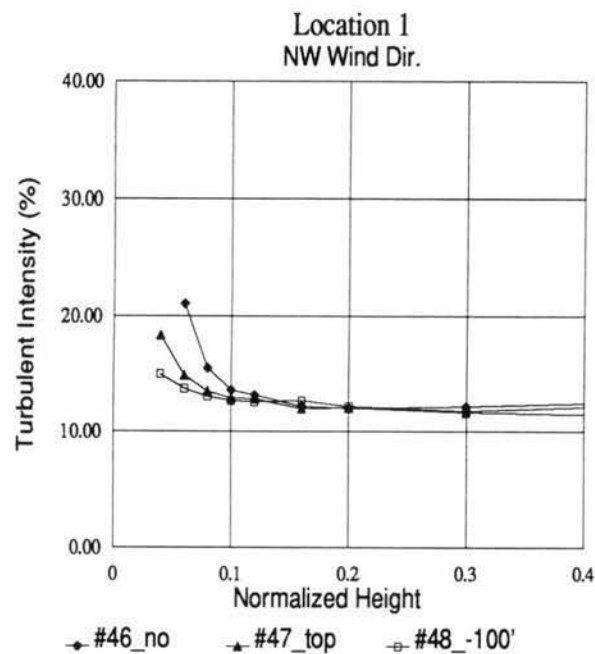


TABLE 43 *Turb. Int. Profile Comparisons; Loc. 1 & 2; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL2.WK

Sheet F:

03/26/93

Turbulence Profile Comparisons

Location 3

Height Norm.	Turbulent Intensity (%) #28 no	Turbulent Intensity (%) #29 top	Turbulent Intensity (%) #30 -100'
0.04		22	20
0.06	23	20	19
0.08	19	18	17
0.10	18	17	16
0.12	16	16	15
0.16	14	13	13
0.20	12	13	13
0.30	11	12	11
0.42	10	11	11
0.60	10	10	10
0.80	9	10	10
1.00	9	10	10
1.50	9	9	10
2.00	7	7	7
Ur@upwind =	1112	1101	1103
Ur@top =	1152	1146	1147
Href (cm) =	15.2	15.2	15.2

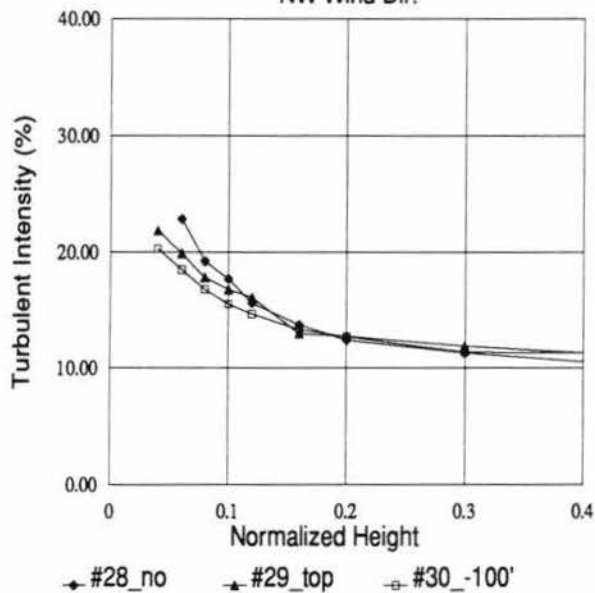
NW Wind Dir.

Turbulence Profile Comparisons

Location 4

Height Norm.	Turbulent Intensity (%) #31 no	Turbulent Intensity (%) #32 top	Turbulent Intensity (%) #33 -100'
0.04		25	23
0.06	22	23	22
0.08	21	21	20
0.10	20	20	20
0.12	18	18	19
0.16	18	18	18
0.20	16	18	17
0.30	16	16	16
0.42	14	14	14
0.60	12	13	12
0.80	12	11	11
1.00	11	11	11
1.50	9	9	9
2.00	7	7	7
Ur@upwind =	1127	1126	1125
Ur@top =	1149	1150	1151
Href (cm) =	15.2	15.2	15.2

Location 3
NW Wind Dir.



Location 4
NW Wind Dir.

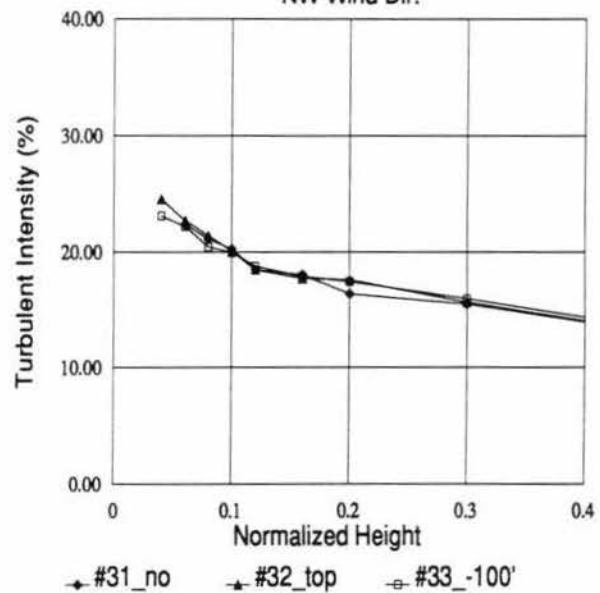


TABLE 44 *Turb. Int. Profile Comparisons; Loc. 3 & 4; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL2.WK

Sheet G:

03/26/93

Turbulence Profile Comparisons
Location 5

Height Norm.	Turbulent Intensity (%) #34 no	Turbulent Intensity (%) #35 top	Turbulent Intensity (%) #36 -100'
0.04		25	20
0.06	27	22	17
0.08	23	18	14
0.10	19	15	12
0.12	15	12	11
0.16	12	11	11
0.20	11	10	11
0.30	11	10	10
0.42	11	10	10
0.60	10	10	9
0.80	9	9	9
1.00	8	9	8
1.50	6	6	6
2.00	5	4	4
Ur@upwind =	1109	1111	1121
Ur@top =	1147	1149	1155
Href (cm) =	15.2	15.2	15.2

NW Wind Dir.

Turbulence Profile Comparisons
Location 6

Height Norm.	Turbulent Intensity (%) #37 no	Turbulent Intensity (%) #38 top	Turbulent Intensity (%) #39 -100'
0.04		27	27
0.06	25	25	26
0.08	25	26	25
0.10	25	26	26
0.12	24	26	27
0.16	24	25	26
0.20	22	22	25
0.30	15	16	18
0.42	12	12	13
0.60	12	12	12
0.80	12	11	11
1.00	11	11	11
1.50	10	10	10
2.00	8	8	8
Ur@upwind =	1098	1099	1103
Ur@top =	1141	1141	1144
Href (cm) =	15.2	15.2	15.2

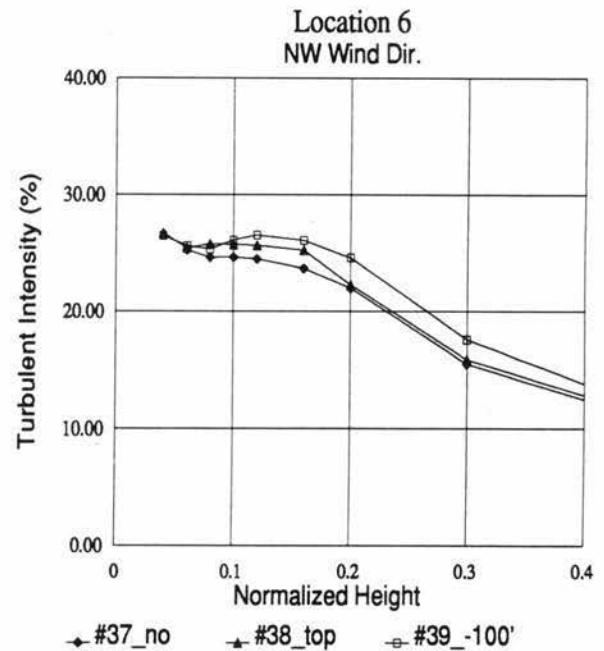
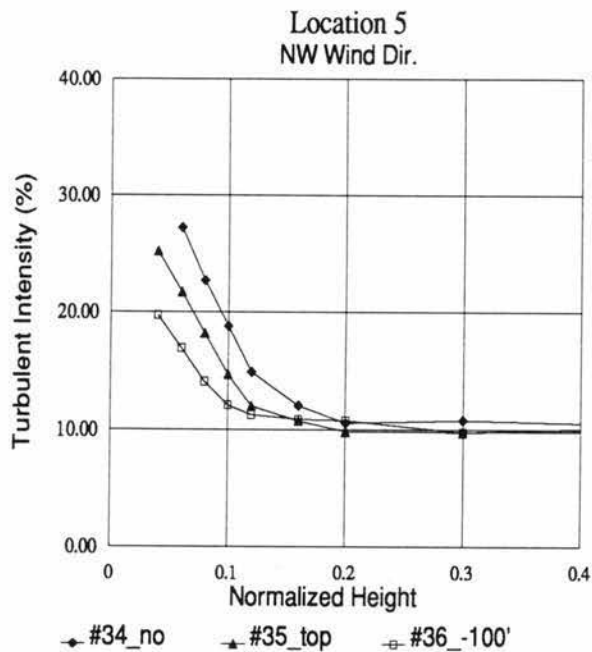


TABLE 45 *Turb. Int. Profile Comparisons; Loc. 5 & 6; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL2.WK

Sheet H:

03/26/93

Turbulence Profile Comparisons

Location 7

Height Norm.	Turbulent Intensity (%) #40 no	Turbulent Intensity (%) #41 top	Turbulent Intensity (%) #42 -100'
0.04		23	21
0.06	20	21	20
0.08	19	20	20
0.10	18	19	20
0.12	19	19	19
0.16	19	19	19
0.20	19	19	19
0.30	18	18	18
0.42	16	15	15
0.60	12	12	12
0.80	11	11	11
1.00	10	10	10
1.50	8	8	8
2.00	6	6	6
Ur@upwind =	1073	1072	1068
Ur@top =	1106	1105	1102
Href (cm) =	15.2	15.2	15.2

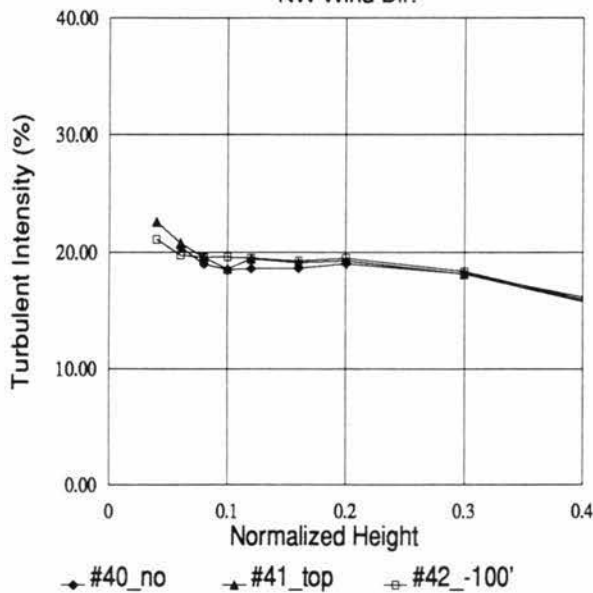
NW Wind Dir.

Turbulence Profile Comparisons

Location 8

Height Norm.	Turbulent Intensity (%) #43 no	Turbulent Intensity (%) #44 top	Turbulent Intensity (%) #45 -100'
0.04		25	22
0.06	18	20	19
0.08	18	18	17
0.10	15	16	16
0.12	15	16	15
0.16	14	14	14
0.20	14	13	14
0.30	13	13	13
0.42	13	13	13
0.60	13	12	13
0.80	13	13	13
1.00	13	13	13
1.50	11	12	11
2.00	8	7	8
Ur@upwind =	1083	1086	1092
Ur@top =	1077	1082	1085
Href (cm) =	15.2	15.2	15.2

Location 7
NW Wind Dir.



Location 8
NW Wind Dir.

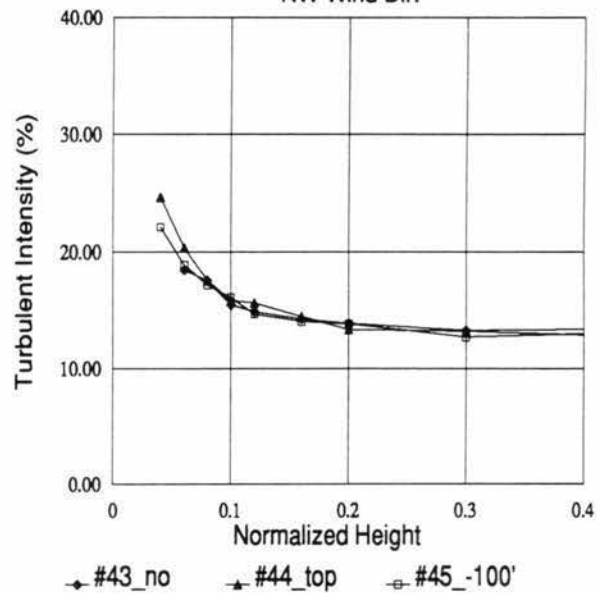


TABLE 46 *Turb. Int. Profile Comparisons; Loc. 7 & 8; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL2.WK

Sheet I:

03/26/93

Turbulence Profile Comparisons

Location 9

Height Norm.	Turbulent Intensity (%) #49 no	Turbulent Intensity (%) #50 1200'
0.04		19
0.06	22	18
0.08	18	17
0.10	16	17
0.12	16	16
0.16	15	16
0.20	16	16
0.30	15	15
0.42	14	14
0.60	13	13
0.80	13	13
1.00	13	13
1.50	12	12
2.00	12	11
Ur@upwind =	1085	1095
Ur@top =	1095	1104
Href (cm) =	15.2	15.2

NW Wind Dir.

Turbulence Profile Comparisons

Location 10

Height Norm.	Turbulent Intensity (%) #51 no	Turbulent Intensity (%) #52 1200'
0.04		17
0.06	17	16
0.08	16	16
0.10	16	16
0.12	16	15
0.16	16	16
0.20	16	15
0.30	15	15
0.42	14	14
0.60	15	14
0.80	14	14
1.00	13	13
1.50	11	11
2.00	8	7
Ur@upwind =	1079	1095
Ur@top =	1109	1128
Href (cm) =	15.2	15.2

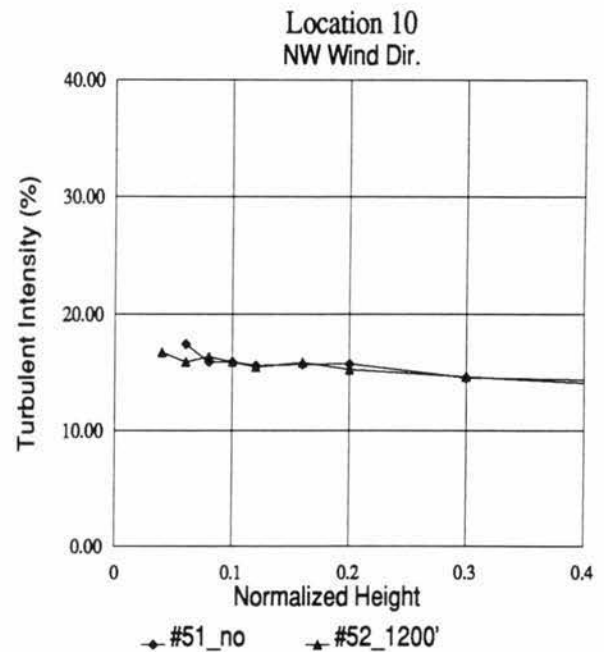
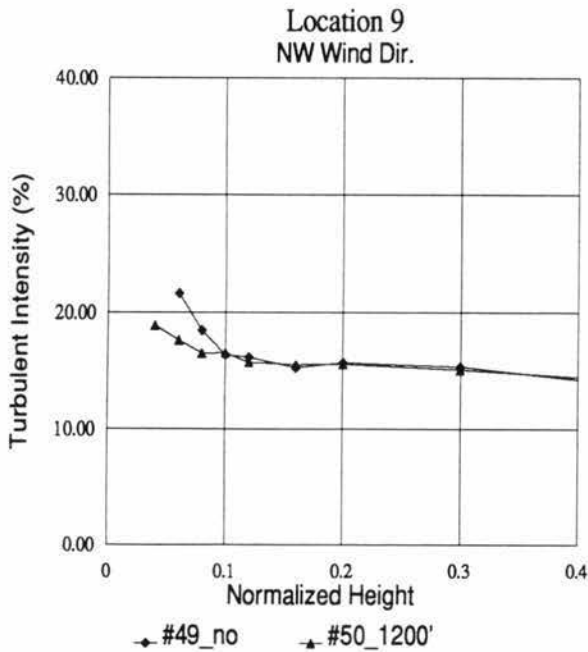


TABLE 47 *Turb. Int. Profile Comparisons; Loc. 9 & 10; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL2.WK

Sheet J:

03/26/93

Turbulence Profile Comparisons

Location 11

Height Norm.	Turbulent Intensity (%) #53 no	Turbulent Intensity (%) #54 top	Turbulent Intensity (%) #55 -100'
0.04		20	19
0.06	20	20	19
0.08	19	20	18
0.10	18	19	18
0.12	18	18	18
0.16	17	17	16
0.20	16	15	16
0.30	14	14	14
0.42	14	12	13
0.60	13	13	12
0.80	12	12	12
1.00	13	12	12
1.50	12	12	12
2.00	10	10	10
Ur@upwind =	1078	1073	1073
Ur@top =	1109	1103	1104
Href (cm) =	15.2	15.2	15.2

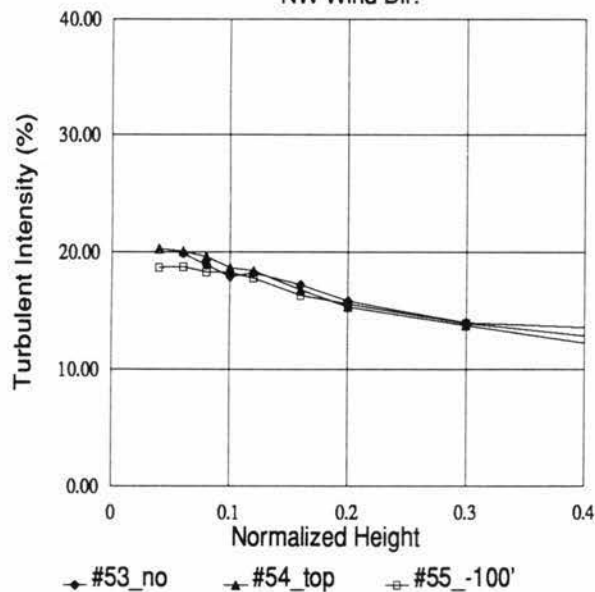
NW Wind Dir.

Turbulence Profile Comparisons

Location 12

Height Norm.	Turbulent Intensity (%) #56 no	Turbulent Intensity (%) #57 1200'
0.04		23
0.06	22	21
0.08	20	21
0.10	20	20
0.12	20	19
0.16	18	18
0.20	18	17
0.30	17	17
0.42	16	16
0.60	17	16
0.80	16	16
1.00	15	15
1.50	15	15
2.00	14	14
Ur@upwind =	1106	1099
Ur@top =	1125	1121
Href (cm) =	15.2	15.2

Location 11
NW Wind Dir.



Location 12
NW Wind Dir.

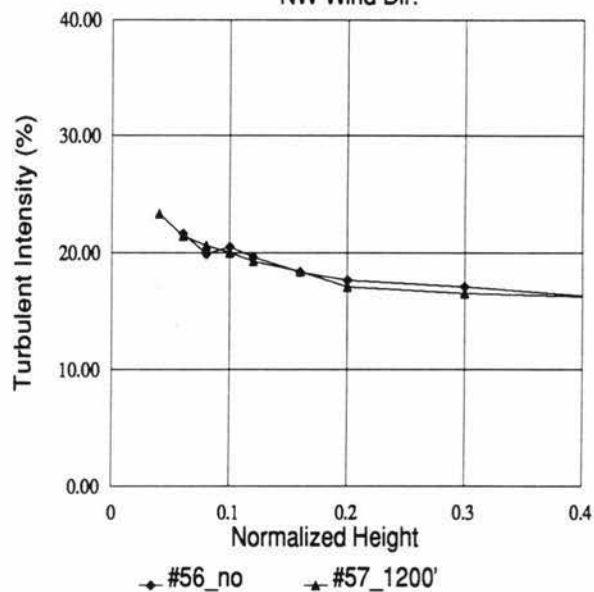


TABLE 48 Turb. Int. Profile Comparisons; Loc. 11 & 12; Northwest Wind Dir.

USWP Task 3 Test Results

USW3VEL2.WK

Sheet K:

03/26/93

NW Wind Dir.

Turbulence Profile Comparisons

Location 13

Height Norm.	Turbulent Intensity (%) #58 no	Turbulent Intensity (%) #59 1200'
0.04		16
0.06	16	15
0.08	15	15
0.10	14	15
0.12	15	14
0.16	15	14
0.20	14	14
0.30	14	14
0.42	14	14
0.60	14	14
0.80	14	14
1.00	13	14
1.50	13	13
2.00	12	13
Ur@upwind =	1099	1094
Ur@top =	1101	1097
Href (cm) =	15.2	15.2

Turbulence Profile Comparisons

Location 14

Height Norm.	Turbulent Intensity (%) #60 no	Turbulent Intensity (%) #61 1200'
0.04		28
0.06	29	28
0.08	27	27
0.10	26	25
0.12	25	25
0.16	23	25
0.20	22	24
0.30	22	23
0.42	21	22
0.60	20	22
0.80	19	19
1.00	17	17
1.50	15	13
2.00	14	12
Ur@upwind =	1097	1103
Ur@top =	1102	1112
Href (cm) =	15.2	15.2

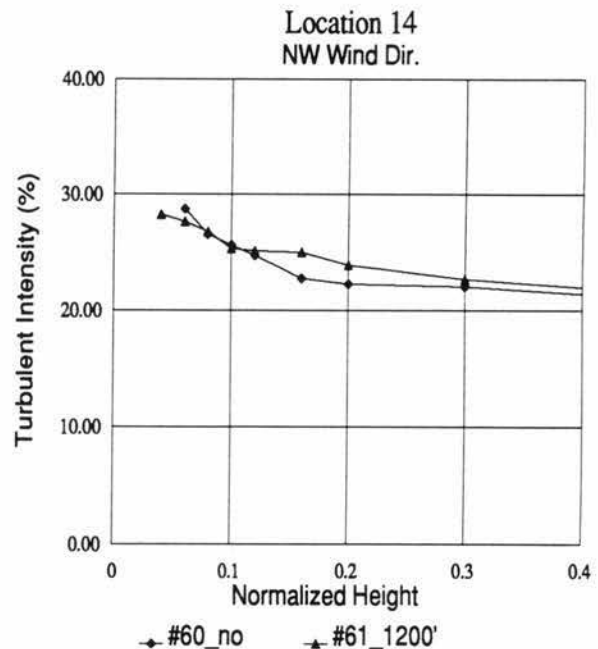
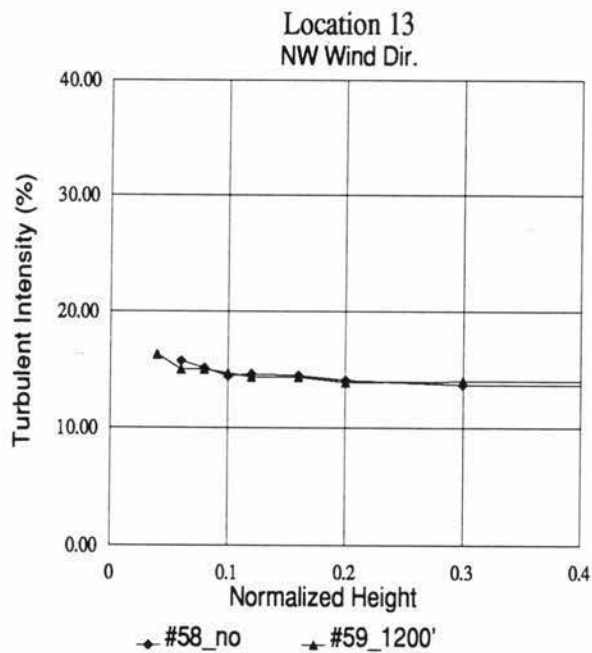


TABLE 49 *Turb. Int. Profile Comparisons; Loc. 13 & 14; Northwest Wind Dir.*

USWP Task 3 Test Results

USW3VEL2.WK Sheet L:

03/26/93

NW Wind Dir.

Turbulence Profile Comparisons
Location 15

Height Norm.	Turbulent Intensity (%) #62 no	Turbulent Intensity (%) #63 1200'
0.04		20
0.06	20	20
0.08	19	19
0.10	19	18
0.12	18	18
0.16	17	16
0.20	16	16
0.30	16	16
0.42	15	16
0.60	16	15
0.80	14	14
1.00	15	15
1.50	14	14
2.00	12	11
Ur@upwind =	1078	1078
Ur@top =	1101	1101
Href (cm) =	15.2	15.2

Turbulence Profile Comparisons
Location 16

Height Norm.	Turbulent Intensity (%) #64 no	Turbulent Intensity (%) #65 1200'
0.04		16
0.06	16	16
0.08	14	13
0.10	13	13
0.12	12	12
0.16	12	12
0.20	11	12
0.30	11	11
0.42	11	11
0.60	11	11
0.80	11	11
1.00	11	11
1.50	10	10
2.00	8	8
Ur@upwind =	1061	1079
Ur@top =	1091	1114
Href (cm) =	15.2	15.2

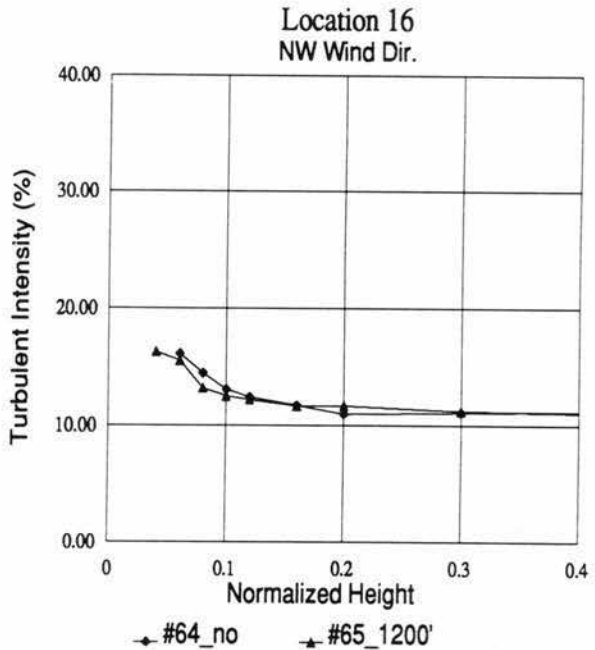
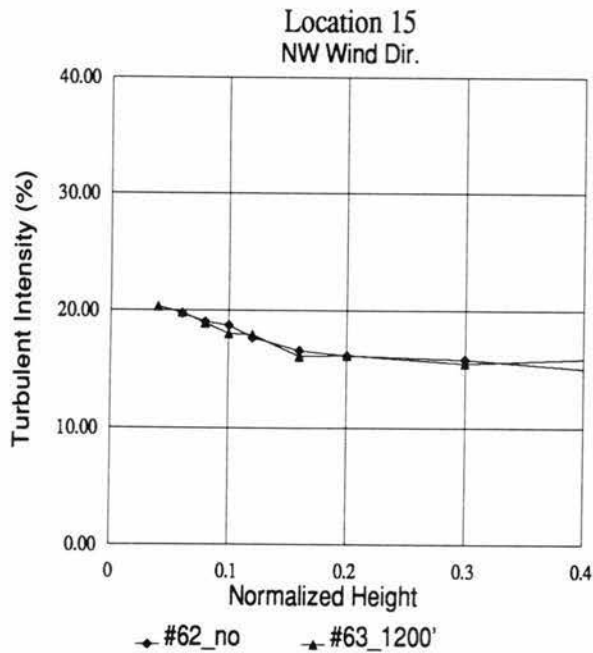


TABLE 50 Turb. Int. Profile Comparisons; Loc. 15 & 16; Northwest Wind Dir.

USWP Task 3 Test Results

USW3VEL3.WK3 Sheet A: 03/31/93

Normalized Velocity Test Results

Run No.	Wind Direction	Model Setup	Profile Locatio	Forest Clearing Spec.	Measurement Height Above the Ground Level														Approach Velocity (cm/s)	Reference Velocity (cm/s)
					40 (ft)	60 (ft)	80 (ft)	100 (ft)	120 (ft)	160 (ft)	200 (ft)	300 (ft)	423 (ft)	600 (ft)	800 (ft)	1000 (ft)	1500 (ft)	2000 (ft)		
1	SW	A	1	no		0.48	0.68	0.76	0.78	0.79	0.78	0.78	0.80	0.81	0.86	0.91	0.98	1.01	1084	1094
2	SW	A	1	hilltop	0.29	0.50	0.67	0.76	0.77	0.78	0.77	0.77	0.79	0.81	0.87	0.90	0.97	1.01	1090	1100
3	SW	A	1	-100'	0.54	0.70	0.74	0.77	0.76	0.77	0.76	0.75	0.79	0.80	0.85	0.90	0.97	1.01	1092	1104
4	SW	A	2	no		0.70	0.78	0.83	0.86	0.89	0.90	0.92	0.93	0.94	0.95	0.99	1.03	1.04	1098	1157
5	SW	A	2	hilltop	0.57	0.73	0.81	0.84	0.87	0.92	0.93	0.94	0.96	0.98	1.00	1.01	1.07	1.08	1073	1140
6	SW	A	2	-100'	0.74	0.80	0.84	0.87	0.89	0.93	0.93	0.95	0.97	0.98	0.99	1.02	1.07	1.09	1073	1141
7	SW	A	3	no		0.59	0.75	0.81	0.84	0.88	0.87	0.89	0.90	0.92	0.94	0.96	1.00	1.02	1087	1137
8	SW	A	3	hilltop	0.61	0.72	0.77	0.84	0.85	0.86	0.90	0.89	0.89	0.91	0.95	0.96	1.00	1.03	1093	1143
9	SW	A	3	-100'	0.70	0.79	0.82	0.86	0.86	0.88	0.90	0.92	0.91	0.92	0.95	0.96	1.00	1.05	1088	1139
10	SW	A	4	no		0.50	0.63	0.72	0.76	0.82	0.83	0.87	0.89	0.92	0.93	0.97	1.00	1.03	1078	1129
11	SW	A	4	hilltop		0.55	0.62	0.68	0.72	0.77	0.79	0.82	0.85	0.88	0.90	0.92	0.97	1.01	1080	1128
12	SW	A	4	-100'	0.48	0.60	0.68	0.72	0.77	0.80	0.82	0.85	0.88	0.89	0.92	0.93	0.99	1.02	1097	1145
13	SW	A	5	no		0.31	0.59	0.79	0.83	0.87	0.87	0.87	0.87	0.88	0.89	0.89	0.95	1.00	1060	1096
14	SW	A	5	hilltop	0.30	0.56	0.77	0.84	0.85	0.87	0.87	0.88	0.88	0.88	0.89	0.90	0.97	1.01	1061	1099
15	SW	A	5	-100'	0.61	0.77	0.84	0.85	0.85	0.87	0.86	0.86	0.87	0.88	0.89	0.90	0.96	1.00	1057	1092
16	SW	A	6	no		0.47	0.51	0.54	0.55	0.57	0.57	0.61	0.66	0.75	0.83	0.86	0.91	0.96	1056	1098
17	SW	A	6	hilltop	0.42	0.47	0.49	0.52	0.53	0.54	0.56	0.61	0.66	0.75	0.83	0.88	0.94	0.96	1061	1107
18	SW	A	6	-100'	0.44	0.49	0.52	0.52	0.54	0.56	0.56	0.60	0.67	0.76	0.84	0.88	0.92	0.98	1061	1108
19	SW	A	7	no		0.53	0.79	0.85	0.88	0.88	0.88	0.89	0.93	0.94	0.95	0.98	1.03	1.06	1064	1139
20	SW	A	7	hilltop	0.55	0.75	0.84	0.86	0.86	0.87	0.87	0.90	0.91	0.92	0.96	0.98	1.02	1.05	1070	1144
21	SW	A	7	-100'	0.73	0.81	0.83	0.85	0.84	0.85	0.85	0.88	0.90	0.93	0.95	0.96	1.02	1.04	1084	1154
22	SW	B	8	no		0.50	0.68	0.78	0.80	0.84	0.84	0.84	0.83	0.82	0.86	0.87	0.94	1.01	1064	1122
23	SW	B	8	hilltop	0.51	0.67	0.76	0.78	0.80	0.81	0.83	0.81	0.82	0.82	0.83	0.86	0.94	1.00	1064	1123
24	SW	B	8	-100'	0.60	0.75	0.79	0.81	0.83	0.83	0.83	0.82	0.82	0.81	0.82	0.84	0.93	0.99	1068	1125

TABLE 51 Normalized Velocity Profile Comparisons: Southwest Wind Dir.

USWP Task 3 Test Results

USW3VEL3.WK3 Sheet A: 03/31/93

Normalized Velocity Test Results

Run No.	Wind Direction	Model Setup	Profile Location	Forest Clearing Spec.	Measurement Height Above the Ground Level														Approach Velocity (cm/s)	Reference Velocity (cm/s)
					40 (ft)	60 (ft)	80 (ft)	100 (ft)	120 (ft)	160 (ft)	200 (ft)	300 (ft)	423 (ft)	600 (ft)	800 (ft)	1000 (ft)	1500 (ft)	2000 (ft)		
46	NW	D	1	no		0.54	0.80	0.87	0.88	0.91	0.93	0.92	0.92	0.95	0.98	0.97	1.03	1.06	1071	1125
47	NW	D	1	hilltop	0.65	0.81	0.86	0.89	0.89	0.91	0.92	0.91	0.93	0.95	0.97	0.97	1.02	1.06	1072	1128
48	NW	D	1	-100'	0.74	0.85	0.89	0.90	0.91	0.90	0.93	0.92	0.92	0.93	0.96	0.97	1.01	1.05	1071	1127
25	NW	C	2	no		0.80	0.82	0.83	0.85	0.85	0.85	0.87	0.91	0.94	0.96	0.97	1.01	1.05	1081	1142
26	NW	C	2	hilltop	0.78	0.80	0.82	0.83	0.82	0.84	0.86	0.87	0.92	0.93	0.95	0.97	1.01	1.06	1075	1139
27	NW	C	2	-100'	0.78	0.81	0.84	0.83	0.83	0.84	0.85	0.87	0.91	0.94	0.96	0.97	1.02	1.07	1078	1141
28	NW	C	3	no		0.46	0.63	0.72	0.78	0.85	0.88	0.91	0.93	0.95	0.95	0.96	1.00	1.03	1112	1152
29	NW	C	3	hilltop	0.55	0.66	0.75	0.80	0.81	0.89	0.90	0.93	0.94	0.97	0.99	0.99	1.03	1.08	1101	1146
30	NW	C	3	-100'	0.61	0.70	0.77	0.81	0.84	0.88	0.89	0.93	0.95	0.96	0.97	0.99	1.02	1.06	1103	1147
31	NW	C	4	no		0.43	0.49	0.56	0.61	0.66	0.70	0.76	0.80	0.83	0.85	0.89	0.95	0.99	1127	1149
32	NW	C	4	hilltop	0.40	0.47	0.53	0.58	0.63	0.64	0.67	0.74	0.79	0.82	0.85	0.88	0.94	1.00	1126	1150
33	NW	C	4	-100'	0.42	0.51	0.55	0.58	0.61	0.65	0.70	0.74	0.79	0.82	0.85	0.88	0.94	1.00	1125	1151
34	NW	C	5	no		0.43	0.62	0.74	0.84	0.92	0.95	0.95	0.96	0.96	0.99	1.01	1.05	1.07	1109	1147
35	NW	C	5	hilltop	0.52	0.66	0.78	0.86	0.92	0.94	0.96	0.94	0.96	0.98	0.98	1.01	1.04	1.07	1111	1149
36	NW	C	5	-100'	0.60	0.75	0.86	0.91	0.93	0.94	0.93	0.97	0.96	0.99	0.98	1.02	1.04	1.05	1121	1155
37	NW	C	6	no		0.50	0.52	0.54	0.56	0.62	0.66	0.78	0.84	0.86	0.88	0.89	0.96	1.01	1098	1141
38	NW	C	6	hilltop	0.47	0.50	0.52	0.53	0.56	0.60	0.66	0.76	0.82	0.86	0.87	0.89	0.95	1.00	1099	1141
39	NW	C	6	-100'	0.49	0.50	0.52	0.53	0.55	0.60	0.64	0.76	0.83	0.86	0.89	0.91	0.97	1.01	1103	1144
40	NW	C	7	no		0.63	0.66	0.67	0.69	0.71	0.72	0.76	0.82	0.86	0.90	0.92	1.00	1.05	1073	1106
41	NW	C	7	hilltop	0.57	0.63	0.66	0.67	0.67	0.70	0.71	0.76	0.80	0.86	0.90	0.93	0.98	1.05	1072	1105
42	NW	C	7	-100'	0.60	0.64	0.65	0.66	0.68	0.69	0.70	0.76	0.81	0.86	0.89	0.92	0.99	1.04	1068	1102
43	NW	C	8	no		0.59	0.64	0.68	0.70	0.73	0.74	0.74	0.74	0.74	0.77	0.79	0.87	0.94	1083	1077
44	NW	C	8	hilltop	0.44	0.55	0.63	0.67	0.70	0.73	0.75	0.75	0.75	0.76	0.78	0.81	0.88	0.97	1086	1082
45	NW	C	8	-100'	0.47	0.59	0.64	0.69	0.71	0.75	0.76	0.75	0.76	0.76	0.77	0.80	0.90	0.97	1092	1085
49	NW	D	9	no		0.53	0.66	0.71	0.72	0.74	0.75	0.78	0.79	0.80	0.83	0.85	0.87	0.93	1085	1095
50	NW	D	9	1200'	0.62	0.69	0.72	0.73	0.74	0.75	0.76	0.79	0.78	0.81	0.83	0.84	0.88	0.94	1095	1104
51	NW	D	10	no		0.65	0.71	0.74	0.75	0.77	0.79	0.80	0.82	0.84	0.87	0.91	0.98	1.03	1079	1109
52	NW	D	10	1200'	0.66	0.71	0.71	0.74	0.74	0.76	0.78	0.80	0.81	0.83	0.85	0.89	0.97	1.03	1095	1128
53	NW	D	11	no		0.52	0.57	0.62	0.65	0.69	0.72	0.78	0.80	0.82	0.85	0.87	0.92	1.00	1078	1109
54	NW	D	11	hilltop	0.47	0.53	0.58	0.62	0.66	0.70	0.74	0.77	0.81	0.83	0.85	0.86	0.93	0.99	1073	1103
55	NW	D	11	-100'	0.53	0.58	0.60	0.64	0.66	0.70	0.73	0.78	0.80	0.83	0.85	0.86	0.91	0.98	1073	1104
56	NW	D	12	no		0.36	0.43	0.46	0.49	0.52	0.55	0.59	0.61	0.64	0.66	0.71	0.76	0.83	1106	1125
57	NW	D	12	1200'	0.32	0.39	0.43	0.46	0.49	0.52	0.54	0.58	0.60	0.64	0.67	0.70	0.76	0.82	1099	1121
58	NW	D	13	no		0.70	0.74	0.77	0.76	0.78	0.77	0.78	0.77	0.78	0.79	0.80	0.84	0.87	1099	1101
59	NW	D	13	1200'	0.69	0.73	0.74	0.76	0.77	0.78	0.76	0.78	0.77	0.80	0.79	0.81	0.82	0.87	1094	1097
60	NW	D	14	no		0.35	0.42	0.45	0.48	0.51	0.53	0.57	0.61	0.66	0.72	0.76	0.82	0.86	1097	1102
61	NW	D	14	1200'	0.40	0.43	0.46	0.47	0.48	0.50	0.52	0.57	0.61	0.65	0.70	0.75	0.82	0.88	1103	1112
62	NW	D	15	no		0.50	0.55	0.59	0.61	0.64	0.66	0.68	0.71	0.72	0.76	0.78	0.85	0.93	1078	1101
63	NW	D	15	1200'	0.46	0.52	0.57	0.60	0.62	0.65	0.65	0.69	0.70	0.73	0.76	0.77	0.85	0.95	1078	1101
64	NW	D	16	no		0.69	0.76	0.82	0.83	0.85	0.86	0.86	0.87	0.90	0.90	0.92	0.96	1.01	1061	1091
65	NW	D	16	1200'	0.71	0.77	0.82	0.83	0.84	0.85	0.85	0.87	0.88	0.89	0.92	0.91	0.97	1.01	1079	1114

TABLE 52 Normalized Velocity Profile Comparisons: Northwest Wind Dir.

USWP Task 3 Test Results

USW3VEL3.WK3 Sheet C: 03/31/93

Percent Power Decrease Over Largest Clearcut Option Test Results (Positive values are a power decrease)

Run No.	Wind Direction	Model Setup	Profile Location	Forest Clearing Spec.	Measurement Height Above the Ground Level													
					40 (ft)	60 (ft)	80 (ft)	100 (ft)	120 (ft)	160 (ft)	200 (ft)	300 (ft)	423 (ft)	600 (ft)	800 (ft)	1000 (ft)	1500 (ft)	2000 (ft)
1	SW	A	1	no		68	21	0	-5	-8	-7	-14	-3	-5	-1	-3	-3	-0
2	SW	A	1	hilltop	84	64	25	2	-4	-5	-3	-9	0	-5	-5	2	-1	0
3	SW	A	1	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	SW	A	2	no		35	20	13	9	12	8	8	12	10	12	11	11	13
5	SW	A	2	hilltop	55	25	9	9	6	3	-1	2	3	-2	-2	4	0	3
6	SW	A	2	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	SW	A	3	no		58	24	16	6	0	10	9	3	2	4	0	3	7
8	SW	A	3	hilltop	34	26	17	8	5	7	-0	8	8	3	2	-1	-0	4
9	SW	A	3	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	SW	A	4	no		42	21	1	3	-10	-3	-7	-2	-9	-2	-13	-4	-2
11	SW	A	4	hilltop		24	22	16	17	11	13	10	9	4	6	2	4	4
12	SW	A	4	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	SW	A	5	no		93	66	21	7	-0	-5	-1	-2	-1	3	2	1	-3
14	SW	A	5	hilltop	88	62	24	5	-1	1	-4	-6	-5	-0	1	0	-3	-3
15	SW	A	5	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	SW	A	6	no		13	0	-13	-9	-8	-6	-4	3	3	3	7	3	5
17	SW	A	6	hilltop	15	10	14	5	7	9	4	-1	4	6	2	0	-4	5
18	SW	A	6	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	SW	A	7	no		71	15	-0	-16	-10	-12	-4	-9	-5	1	-6	-4	-4
20	SW	A	7	hilltop	57	20	-2	-5	-8	-4	-8	-6	-3	0	-5	-7	-1	-1
21	SW	A	7	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	SW	B	8	no		70	36	12	8	-3	-6	-7	-3	-4	-14	-10	-4	-5
23	SW	B	8	hilltop	39	29	10	12	10	7	-1	2	1	-5	-2	-8	-4	-2
24	SW	B	8	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 53 Percent Power Decrease Profile Comparisons; Southwest Wind Dir.

USWP Task 3 Test Results

USW3VEL3.WK3 Sheet C: 03/31/93

Percent Power Decrease Over Largest Clearcut Option Test Results (Positive values are a power decrease)

Run No.	Wind Direction	Model Setup	Profile Locatio	Forest Clearing Spec.	Measurement Height Above the Ground Level													
					40 (ft)	60 (ft)	80 (ft)	100 (ft)	120 (ft)	160 (ft)	200 (ft)	300 (ft)	423 (ft)	600 (ft)	800 (ft)	1000 (ft)	1500 (ft)	2000 (ft)
46	NW	D	1	no		75	28	8	12	-1	-1	0	-0	-5	-7	1	-5	-5
47	NW	D	1	hilltop	34	12	9	2	9	-3	2	2	-4	-7	-5	-0	-3	-5
48	NW	D	1	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	NW	C	2	no		5	6	-1	-6	-2	-0	0	1	-1	-0	-2	3	5
26	NW	C	2	hilltop	-1	4	7	-0	2	2	-0	-1	-1	3	1	-1	3	2
27	NW	C	2	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	NW	C	3	no		71	46	30	19	10	3	6	5	4	5	8	6	8
29	NW	C	3	hilltop	26	16	7	6	9	-3	-4	1	0	-3	-5	-1	-3	-4
30	NW	C	3	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	NW	C	4	no		40	27	13	1	-4	1	-7	-5	-2	-2	-6	-2	0
32	NW	C	4	hilltop	17	18	9	3	-10	5	12	-0	-2	0	0	-0	-1	-0
33	NW	C	4	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	NW	C	5	no		81	64	46	26	7	-4	8	-0	7	-4	1	-1	-3
35	NW	C	5	hilltop	38	32	27	15	3	1	-10	9	-1	2	-1	2	-1	-4
36	NW	C	5	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	NW	C	6	no		2	-1	-4	-7	-13	-10	-6	-5	2	3	6	3	-0
38	NW	C	6	hilltop	11	1	-0	-3	-5	-2	-11	2	1	2	8	8	5	3
39	NW	C	6	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	NW	C	7	no		3	-7	-3	-5	-8	-6	0	-2	-0	-3	2	-3	-2
41	NW	C	7	hilltop	16	4	-4	-4	2	-4	-1	-1	5	-0	-4	-1	3	-3
42	NW	C	7	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	NW	C	8	no		-1	2	0	5	6	7	5	8	7	1	3	8	7
44	NW	C	8	hilltop	19	16	5	6	5	5	3	1	3	-0	-4	-2	5	0
45	NW	C	8	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	NW	D	9	no		54	21	10	8	3	4	1	-4	5	-2	-4	3	2
50	NW	D	9	1200'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	NW	D	10	no		23	-1	-1	-4	-1	-2	-0	-4	-3	-7	-7	-4	-0
52	NW	D	10	1200'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	NW	D	11	no		27	14	9	8	3	2	-1	-2	3	-1	-3	-2	-5
54	NW	D	11	hilltop	30	21	10	9	4	-0	-5	3	-4	2	0	-1	-5	-1
55	NW	D	11	-100'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	NW	D	12	no		18	2	2	0	-1	-8	-3	-4	1	5	-5	-0	-5
57	NW	D	12	1200'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	NW	D	13	no		12	0	-1	2	0	-5	2	-2	8	2	2	-5	-1
59	NW	D	13	1200'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	NW	D	14	no		44	21	13	2	-9	-3	-3	-0	-3	-11	-6	-1	4
61	NW	D	14	1200'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	NW	D	15	no		13	10	4	3	3	-5	4	-5	2	1	-2	0	6
63	NW	D	15	1200'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	NW	D	16	no		28	20	5	5	1	-2	2	2	-2	8	-1	3	-1
65	NW	D	16	1200'	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 54 Percent Power Decrease Profile Comparisons; Northwest Wind Dir.

USWP Task 3 Test Results

USW3VEL3.WK3 Sheet B: 03/31/93

Percent Power Increase Over No Clearcut Option Test Results

Run No.	Wind Direction	Model Setup	Profile Locatio	Forest Clearing Spec.	Measurement Height Above the Ground Level														
					40 (ft)	60 (ft)	80 (ft)	100 (ft)	120 (ft)	160 (ft)	200 (ft)	300 (ft)	423 (ft)	600 (ft)	800 (ft)	1000 (ft)	1500 (ft)	2000 (ft)	
1	SW	A	1	no		0	0	0	0	0	0	0	0	0	0	0	0		
2	SW	A	1	hilltop		12	-5	-2	-1	-3	-4	-5	-3	1	4	-5	-2	-0	
3	SW	A	1	-100'		210	27	0	-5	-8	-6	-13	-3	-5	-1	-3	-3	-0	
4	SW	A	2	no		0	0	0	0	0	0	0	0	0	0	0	0	0	
5	SW	A	2	hilltop		16	13	5	4	11	10	6	10	14	15	8	12	12	
6	SW	A	2	-100'		54	25	16	10	14	8	8	14	11	13	12	13	15	
7	SW	A	3	no		0	0	0	0	0	0	0	0	0	0	0	0	0	
8	SW	A	3	hilltop		77	9	9	1	-6	11	1	-4	-1	2	1	3	3	
9	SW	A	3	-100'		139	32	18	7	0	11	9	4	2	4	0	3	7	
10	SW	A	4	no		0	0	0	0	0	0	0	0	0	0	0	0	0	
11	SW	A	4	hilltop		31	-2	-15	-15	-18	-16	-16	-11	-11	-8	-14	-8	-6	
12	SW	A	4	-100'		72	26	1	3	-9	-3	-7	-2	-8	-2	-12	-4	-2	
13	SW	A	5	no		0	0	0	0	0	0	0	0	0	0	0	0	0	
14	SW	A	5	hilltop		463	121	21	9	-1	-1	5	3	-1	2	2	5	1	
15	SW	A	5	-100'		1395	191	27	8	-0	-5	-1	-2	-1	3	2	1	-3	
16	SW	A	6	no		0	0	0	0	0	0	0	0	0	0	0	0	0	
17	SW	A	6	hilltop		4	-14	-15	-14	-16	-10	-3	-1	-3	2	7	7	-0	
18	SW	A	6	-100'		14	0	-11	-8	-8	-5	-3	3	3	4	7	3	5	
19	SW	A	7	no		0	0	0	0	0	0	0	0	0	0	0	0	0	
20	SW	A	7	hilltop		177	19	4	-7	-5	-3	2	-6	-5	5	1	-2	-3	
21	SW	A	7	-100'		247	17	-0	-14	-9	-10	-4	-8	-4	1	-6	-3	-4	
22	SW	B	8	no		0	0	0	0	0	0	0	0	0	0	0	0	0	
23	SW	B	8	hilltop		135	40	-0	-2	-10	-5	-9	-3	1	-11	-2	0	-2	
24	SW	B	8	-100'		230	56	13	9	-3	-6	-7	-3	-3	-12	-9	-4	-4	

TABLE 55 Percent Power Increase Profile Comparisons; Southwest Wind Dir.

USWP Task 3 Test Results

USW3VEL3.WK3 Sheet B:

03/31/93

Percent Power Increase Over No Clearcut Option Test Results

Run No.	Wind Direction	Model Setup	Profile Location	Forest Clearing Spec.	Measurement Height Above the Ground Level													
					40 (ft)	60 (ft)	80 (ft)	100 (ft)	120 (ft)	160 (ft)	200 (ft)	300 (ft)	423 (ft)	600 (ft)	800 (ft)	1000 (ft)	1500 (ft)	2000 (ft)
46	NW	D	1	no		0	0	0	0	0	0	0	0	0	0	0	0	0
47	NW	D	1	hilltop		248	26	7	4	2	-3	-2	4	1	-2	2	-2	0
48	NW	D	1	-100'		295	38	9	14	-1	-1	0	-0	-5	-6	1	-4	-5
25	NW	C	2	no		0	0	0	0	0	0	0	0	0	0	0	0	0
26	NW	C	2	hilltop		1	-1	-1	-8	-3	0	1	2	-4	-1	-1	0	3
27	NW	C	2	-100'		5	7	-1	-6	-2	-0	0	1	-1	-0	-2	3	5
28	NW	C	3	no		0	0	0	0	0	0	0	0	0	0	0	0	0
29	NW	C	3	hilltop		193	71	34	12	15	7	5	5	7	11	9	9	13
30	NW	C	3	-100'		251	83	43	23	11	4	6	5	4	6	8	7	9
31	NW	C	4	no		0	0	0	0	0	0	0	0	0	0	0	0	0
32	NW	C	4	hilltop		38	25	11	12	-9	-11	-6	-3	-2	-2	-6	-1	1
33	NW	C	4	-100'		68	37	15	1	-4	1	-7	-5	-2	-2	-6	-2	0
34	NW	C	5	no		0	0	0	0	0	0	0	0	0	0	0	0	0
35	NW	C	5	hilltop		260	101	56	31	7	5	-2	1	5	-2	-1	-1	1
36	NW	C	5	-100'		428	177	83	35	7	-4	8	-0	7	-4	1	-1	-3
37	NW	C	6	no		0	0	0	0	0	0	0	0	0	0	0	0	0
38	NW	C	6	hilltop		1	-1	-1	-1	-10	0	-8	-5	-0	-5	-2	-3	-3
39	NW	C	6	-100'		2	-1	-4	-6	-12	-9	-6	-4	2	3	7	3	-0
40	NW	C	7	no		0	0	0	0	0	0	0	0	0	0	0	0	0
41	NW	C	7	hilltop		-0	-3	1	-7	-4	-4	1	-6	-0	0	4	-6	1
42	NW	C	7	-100'		3	-6	-3	-5	-8	-5	0	-2	-0	-3	3	-3	-2
43	NW	C	8	no		0	0	0	0	0	0	0	0	0	0	0	0	0
44	NW	C	8	hilltop		-17	-3	-6	-0	1	4	4	5	8	5	6	4	7
45	NW	C	8	-100'		-1	2	0	5	7	7	5	8	8	1	4	9	7
49	NW	D	9	no		0	0	0	0	0	0	0	0	0	0	0	0	0
50	NW	D	9	1200'		119	27	11	8	3	4	1	-4	5	-2	-4	3	2
51	NW	D	10	no		0	0	0	0	0	0	0	0	0	0	0	0	0
52	NW	D	10	1200'		29	-1	-1	-4	-1	-2	-0	-4	-3	-6	-6	-4	-0
53	NW	D	11	no		0	0	0	0	0	0	0	0	0	0	0	0	0
54	NW	D	11	hilltop		9	4	0	4	3	7	-4	1	1	-1	-2	3	-3
55	NW	D	11	-100'		37	16	10	8	3	3	-1	-2	3	-1	-3	-2	-4
56	NW	D	12	no		0	0	0	0	0	0	0	0	0	0	0	0	0
57	NW	D	12	1200'		21	2	2	0	-1	-7	-3	-4	1	5	-5	-0	-5
58	NW	D	13	no		0	0	0	0	0	0	0	0	0	0	0	0	0
59	NW	D	13	1200'		13	0	-1	2	0	-4	2	-2	8	2	2	-4	-1
60	NW	D	14	no		0	0	0	0	0	0	0	0	0	0	0	0	0
61	NW	D	14	1200'		79	26	14	2	-8	-3	-3	-0	-3	-10	-5	-1	4
62	NW	D	15	no		0	0	0	0	0	0	0	0	0	0	0	0	0
63	NW	D	15	1200'		15	12	5	3	3	-4	4	-5	2	1	-2	0	7
64	NW	D	16	no		0	0	0	0	0	0	0	0	0	0	0	0	0
65	NW	D	16	1200'		38	25	5	5	1	-2	2	2	-2	8	-1	3	-1

TABLE 56 Percent Power Increase Profile Comparisons; Northwest Wind Dir.

FIGURES

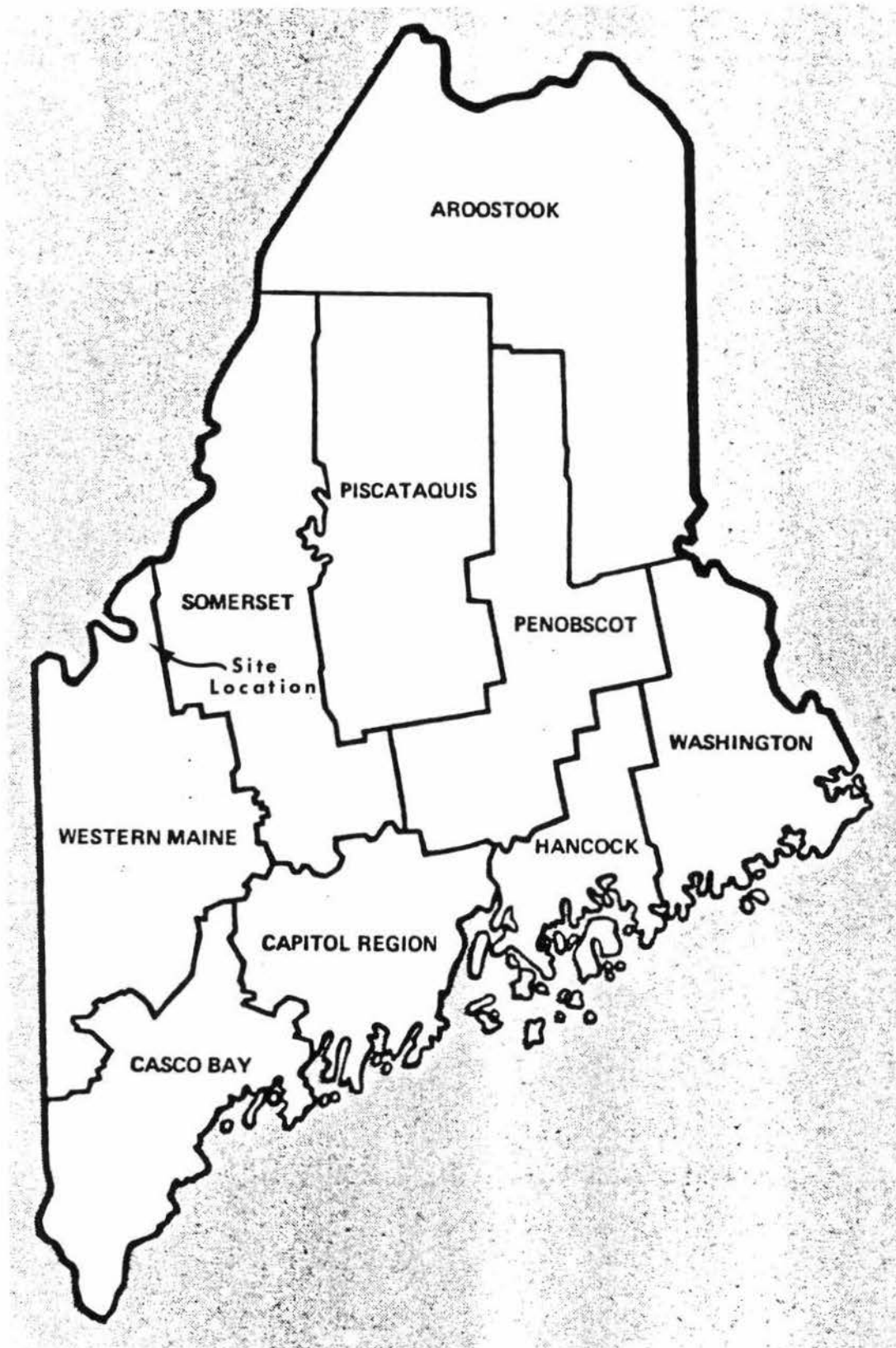


FIGURE 1 Wind Power Site Area Shown On Maine State Map

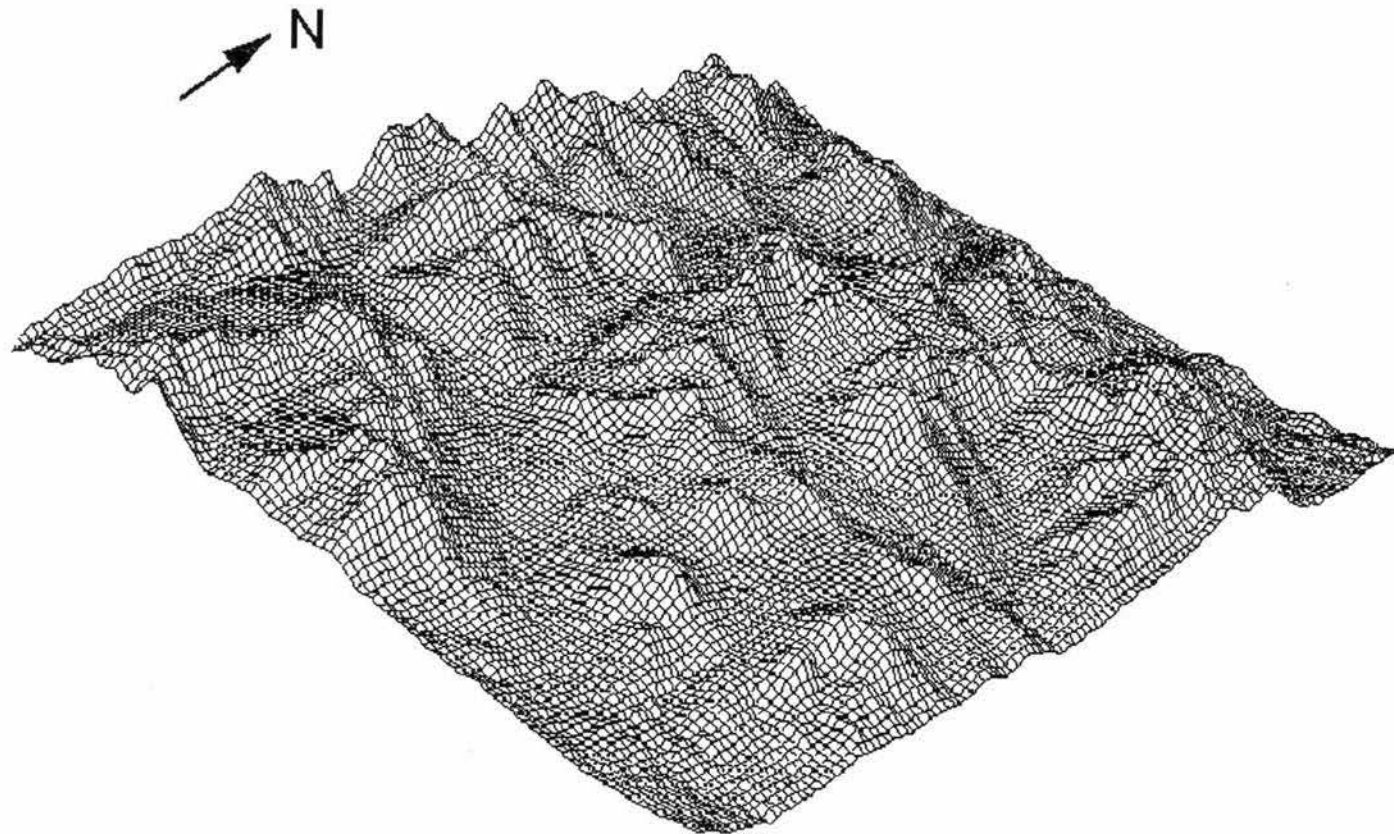


FIGURE 2 *Three Dim. Wire Frame Representation Of Site Area Topography*

PROVIDED IN A SEPARATE LARGE MAP

Board No. 34 (N View)

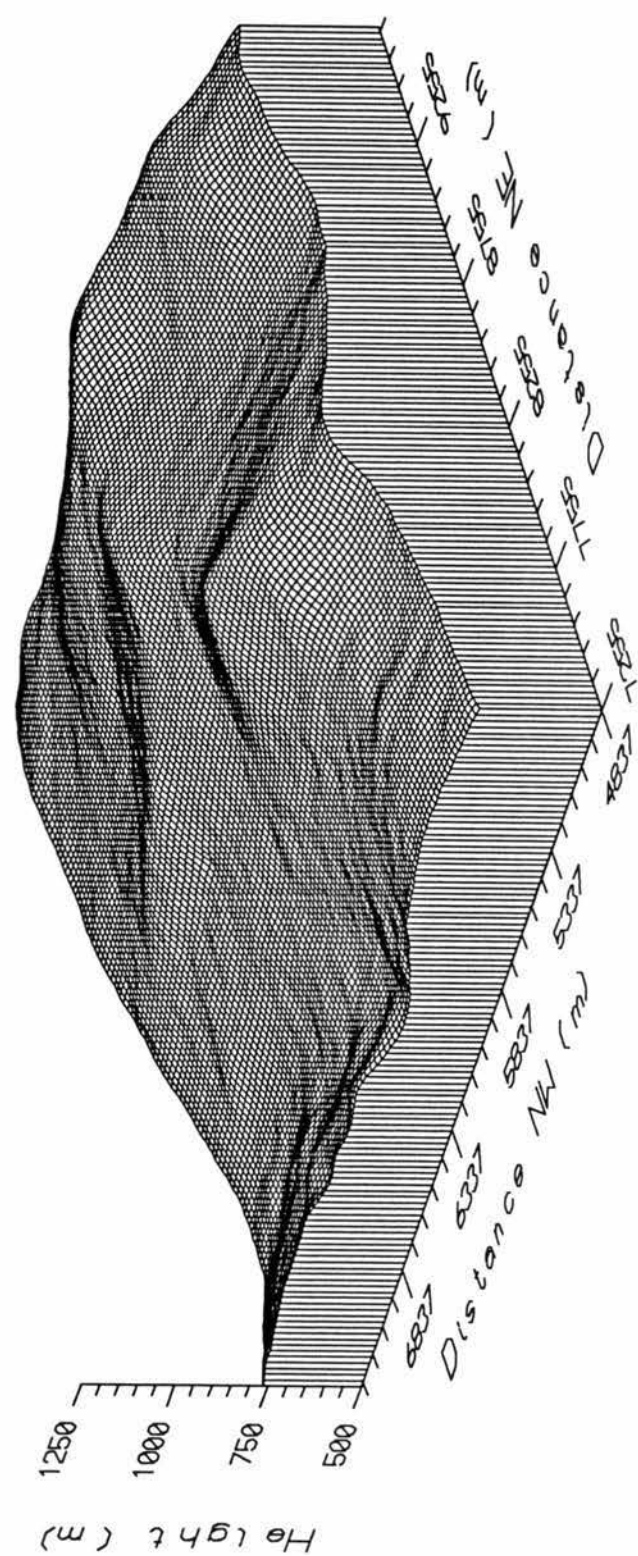


FIGURE 4 Three Dimensional Wire Frame Representation Of Board B34

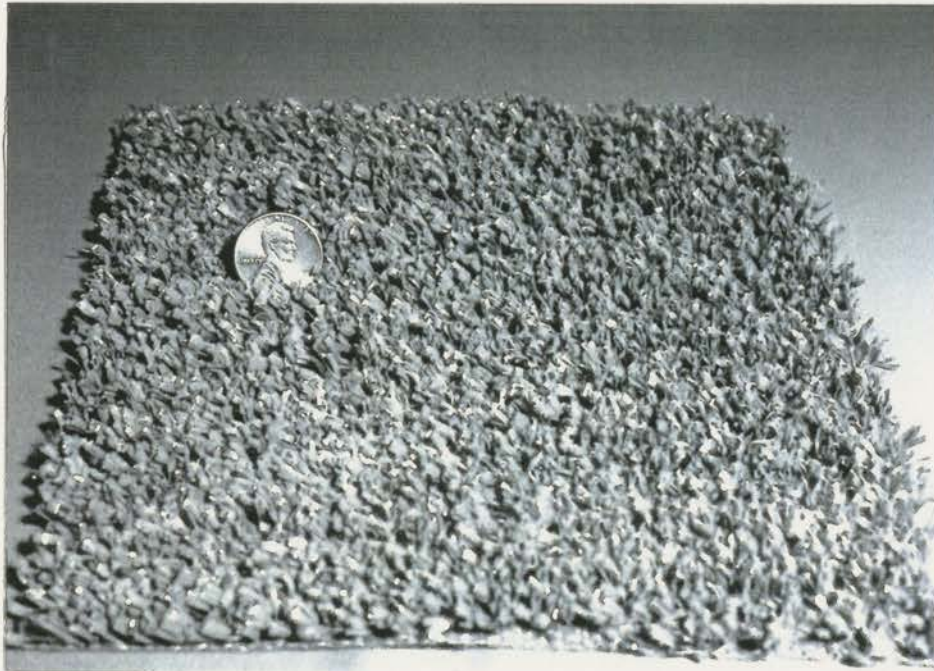


FIGURE 5 *Photograph Of The Simulated 30' Tree Cover*

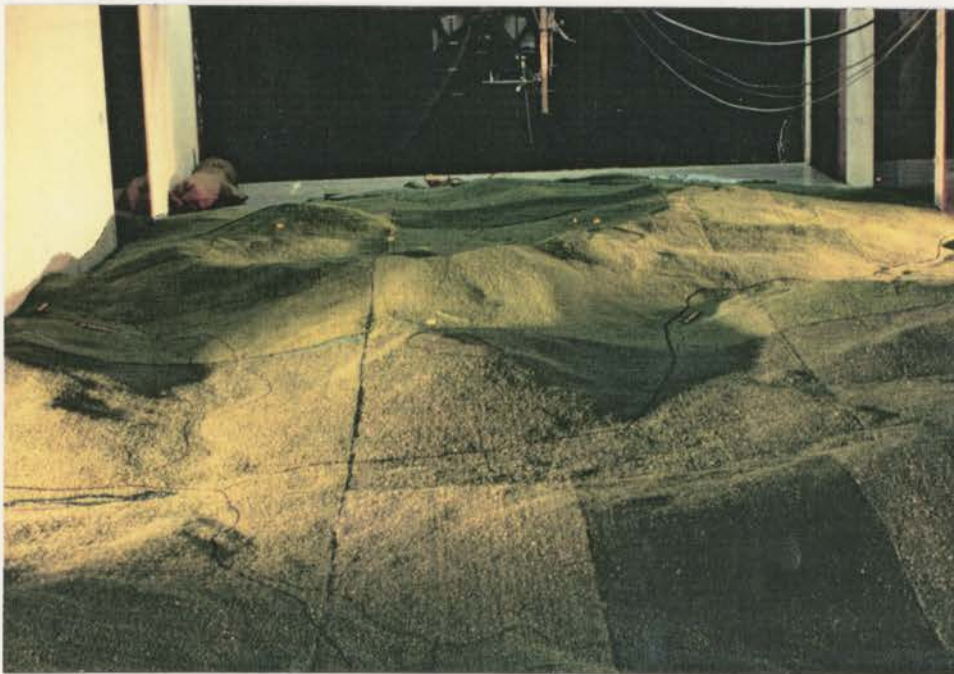


FIGURE 6 *Topographic Model In Wind Tunnel; Configuration C*

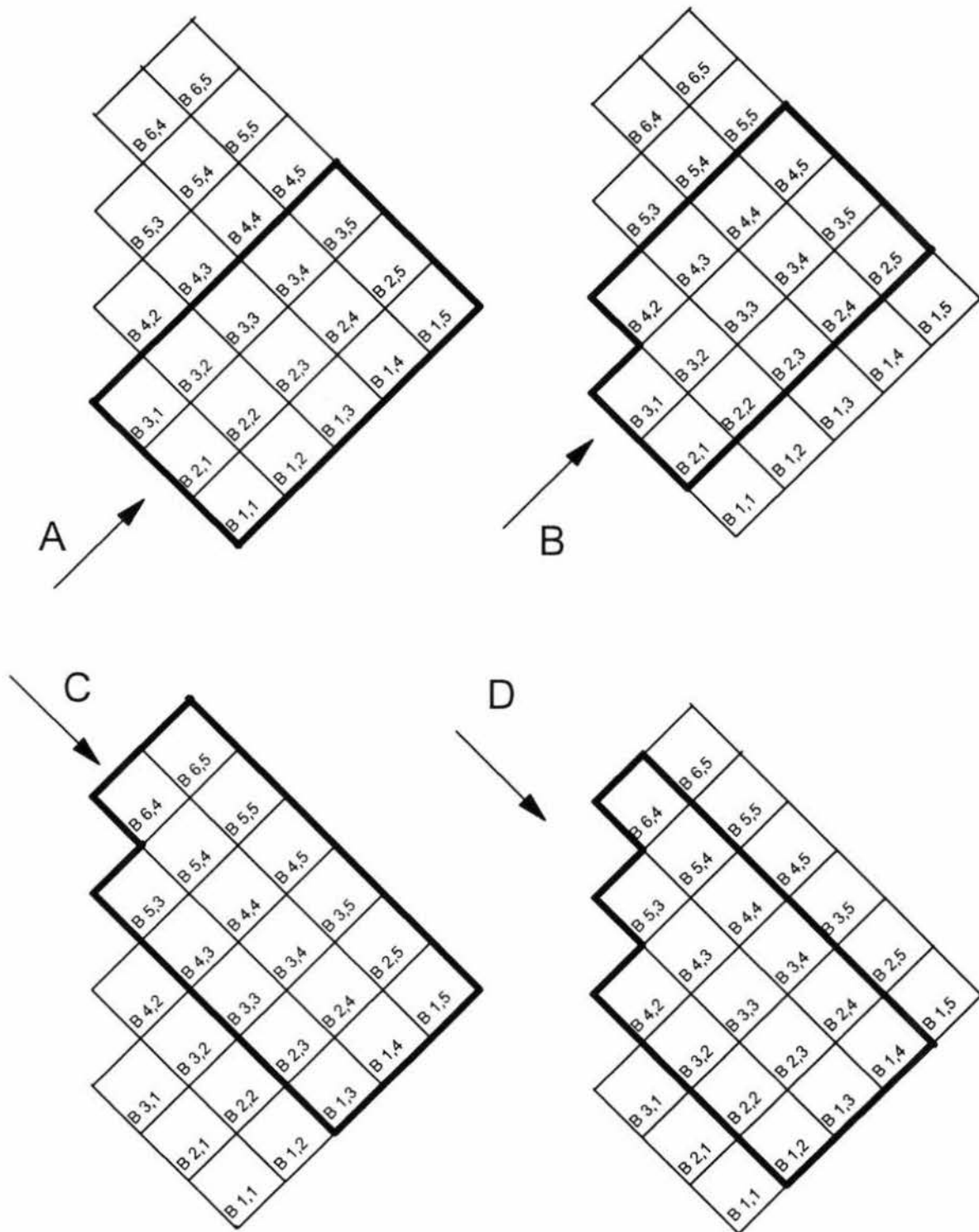
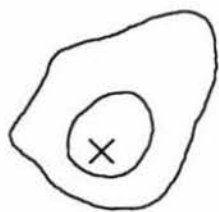
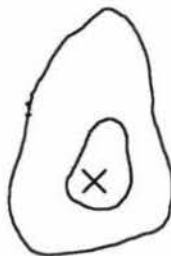


FIGURE 7 *Topographic Board Layout Schematic For Each Configuration*



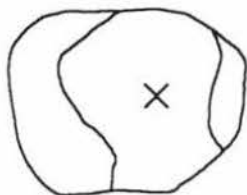
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PROFILE POINT # 2



PROFILE POINT # 3



PROFILE POINT # 4



PROFILE POINT # 5



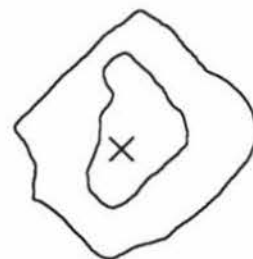
PROFILE POINT # 6



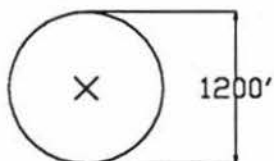
PROFILE POINT # 7



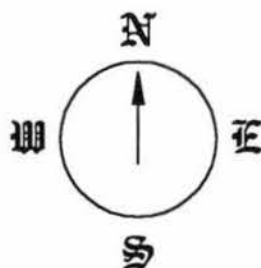
PROFILE POINT # 8



PROFILE POINT # 11



PROFILE POINTS #
9,10,12,13,14,15,16



0 1000 2000
SCALE IN FEET

FIGURE 8 Tree Removal Areas At Each Of The Measurement Locations



FIGURE 9 *Photographs Of Model Forest Clearings*

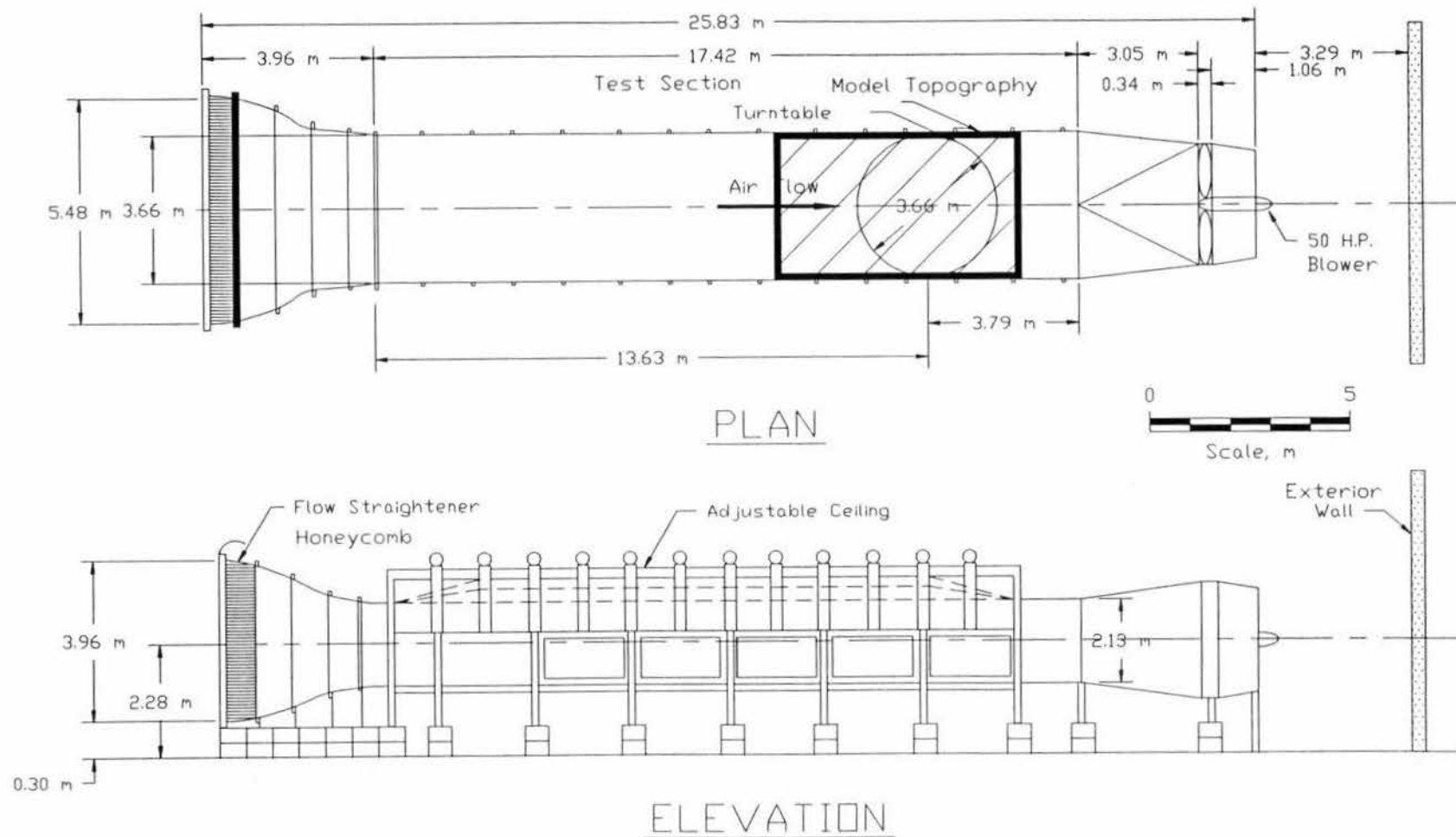


FIGURE 10 *Environmental Wind Tunnel Facility*

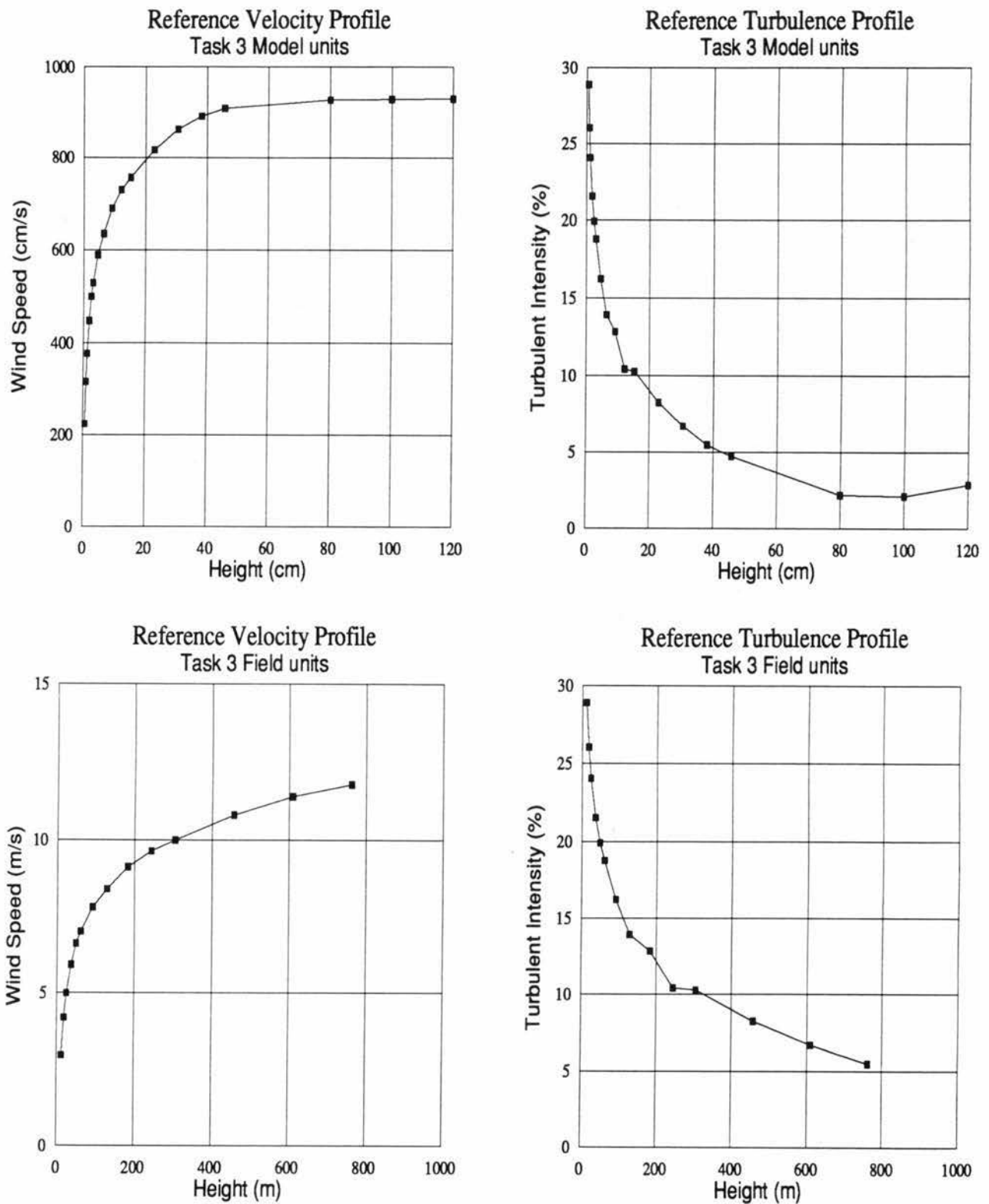


FIGURE 11 *Reference Velocity And Turbulence Profiles For Model And Field*

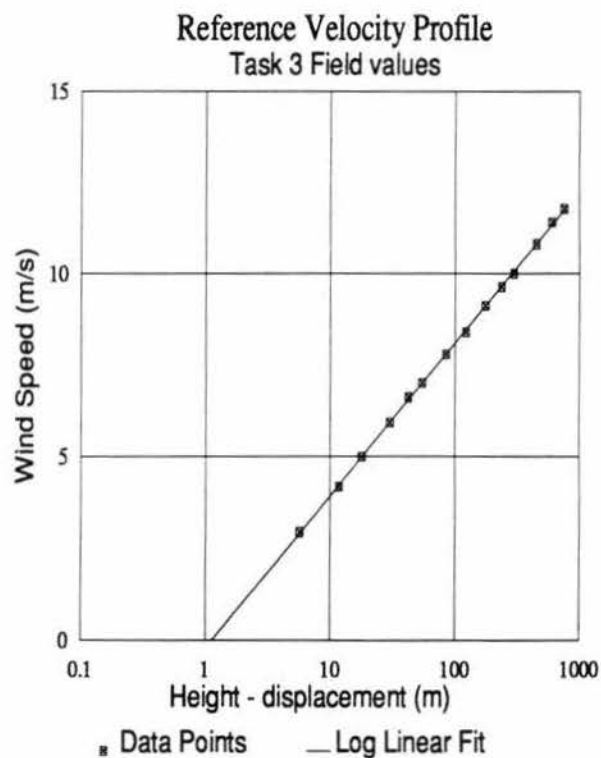
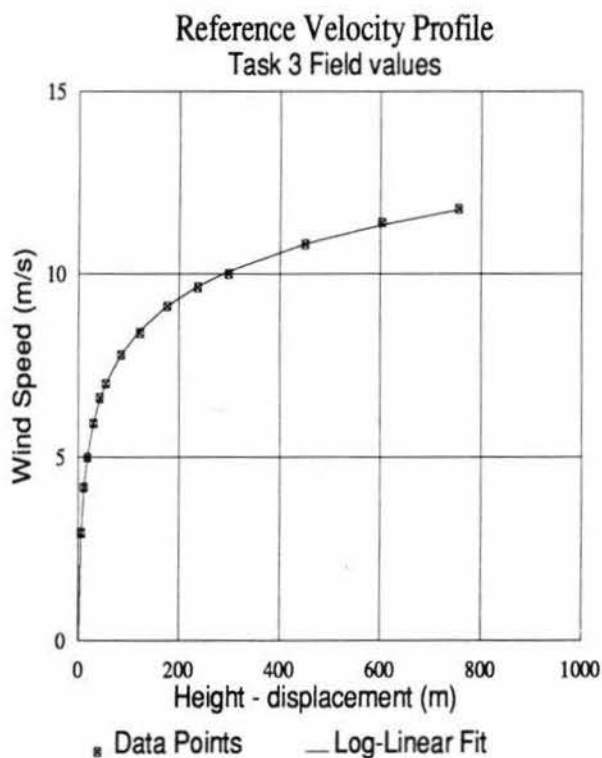
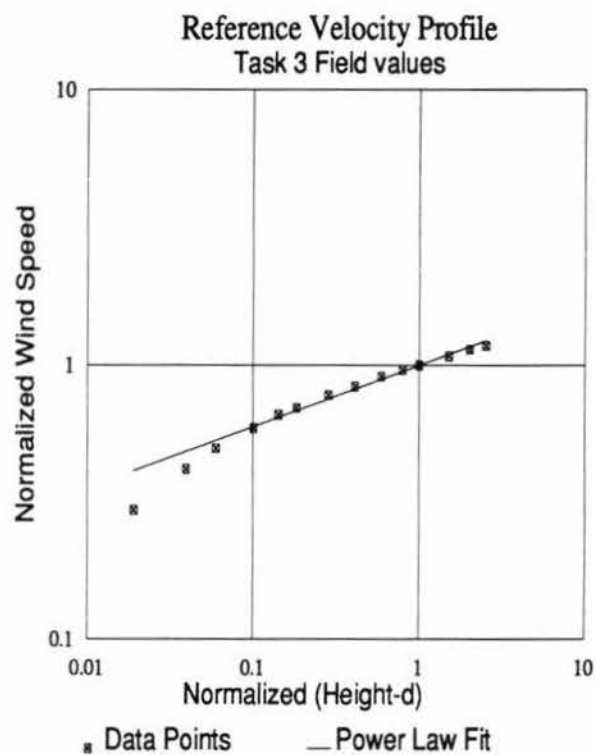
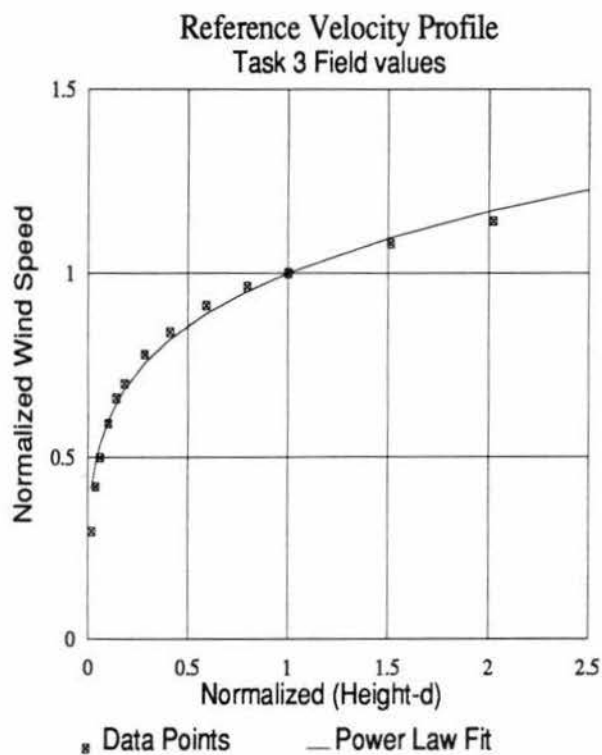


FIGURE 12 Regression Results For Reference Velocity Profiles

USWP Task 3 Test Results

USW3VEL4.WK3

Sheet A:

04/01/93

Percent Power Decrease Over Largest Clearcut Option

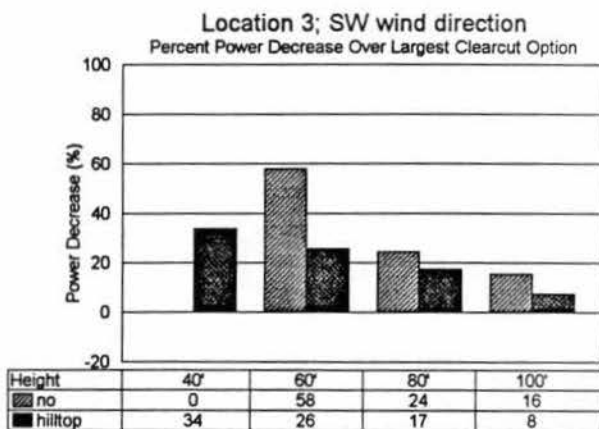
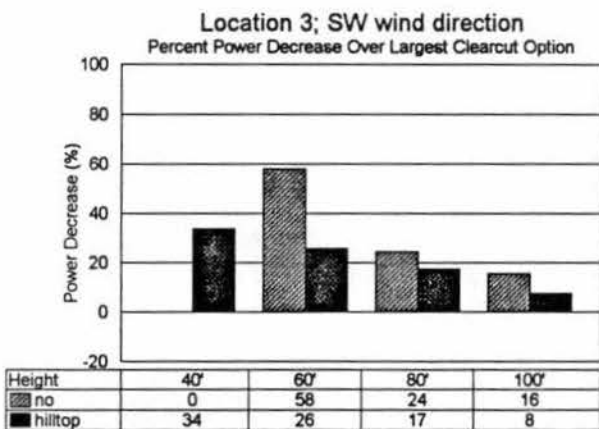
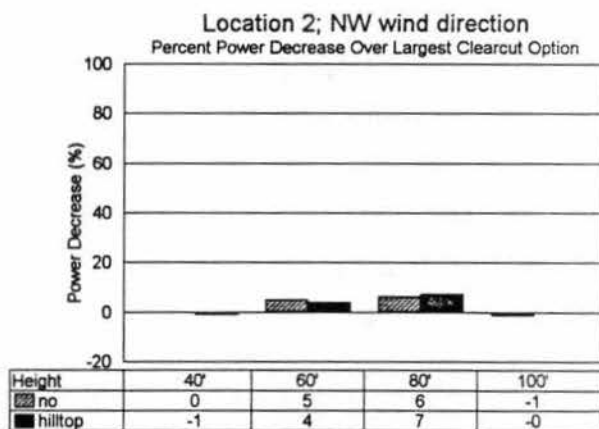
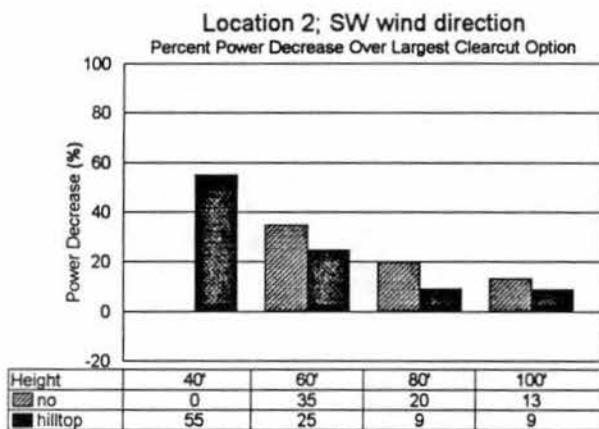
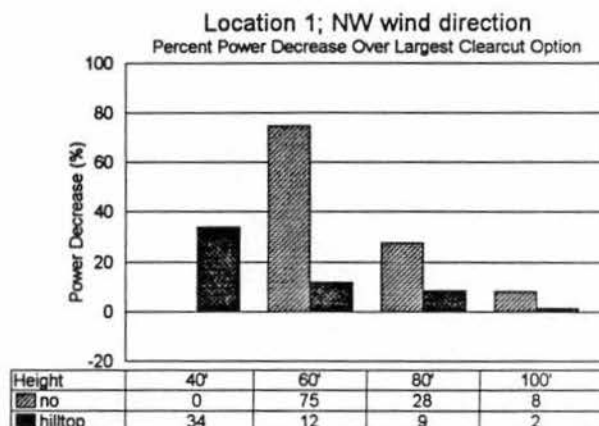
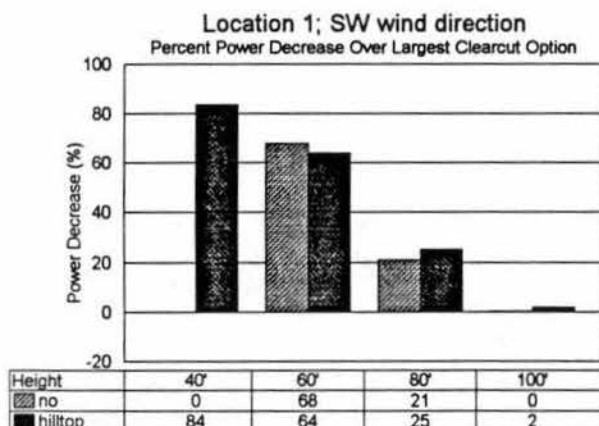


FIGURE 13 Percent Power Decrease Comparisons: Locations 1,2,3

USWP Task 3 Test Results

USW3VEL4.WK3

Sheet B:

04/01/93

Percent Power Decrease Over Largest Clearcut Option

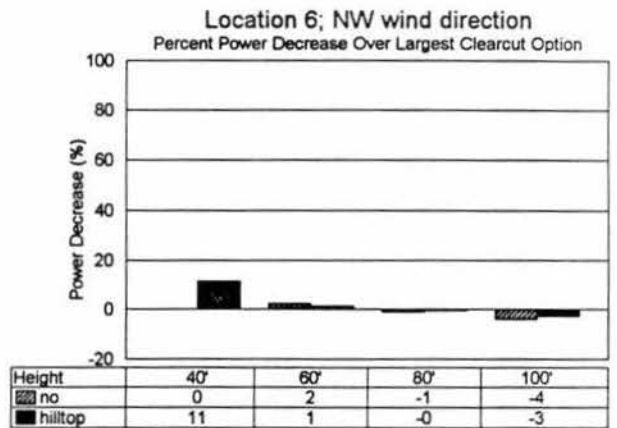
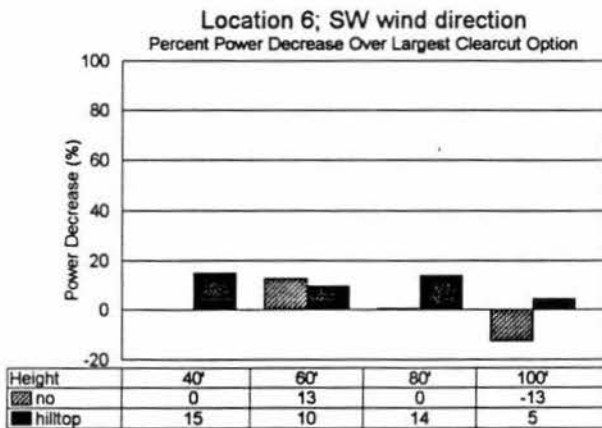
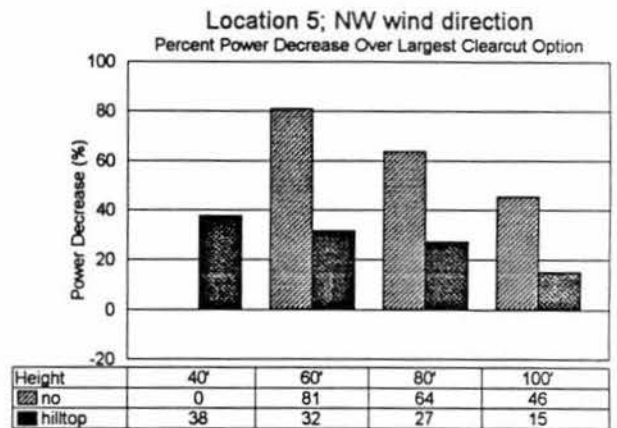
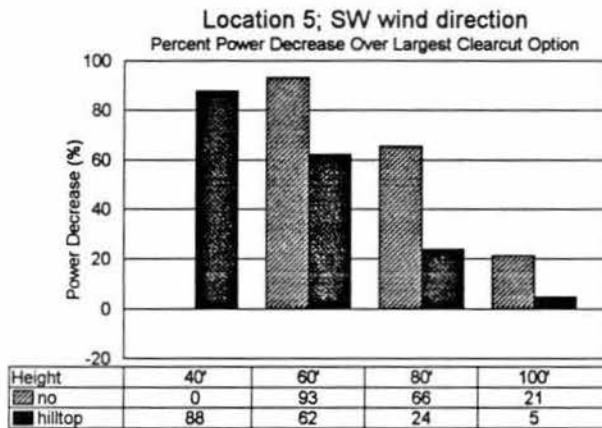
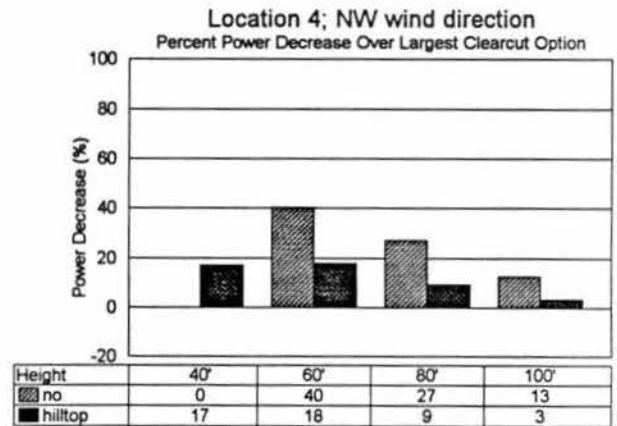
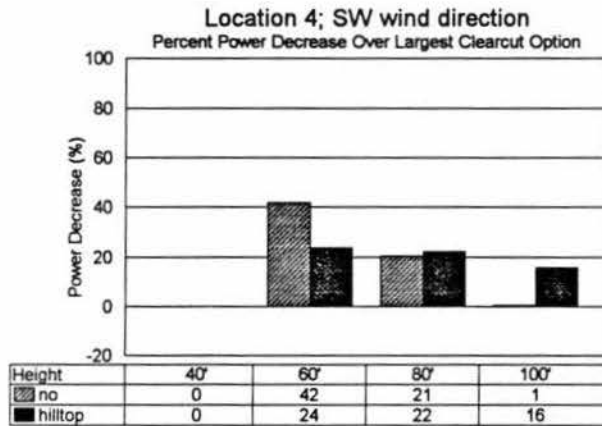


FIGURE 14 Percent Power Decrease Comparisons: Locations 4,5,6

USWP Task 3 Test Results

USW3VEL4.WK3

Sheet C:

04/01/93

Percent Power Decrease Over Largest Clearcut Option

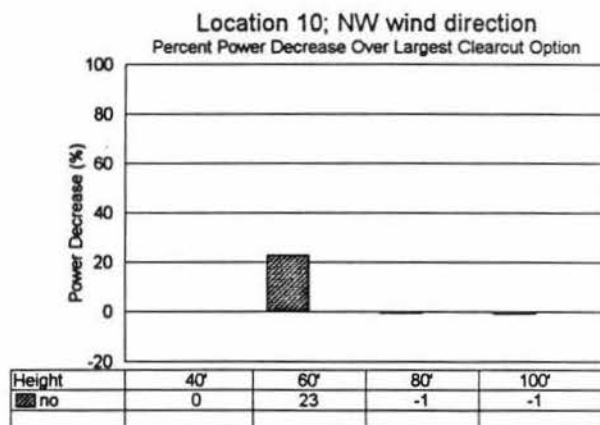
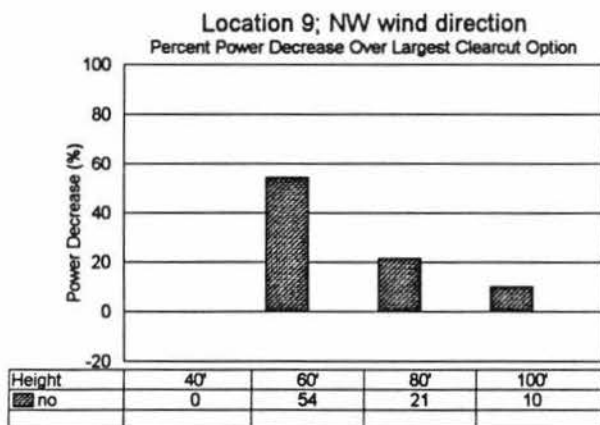
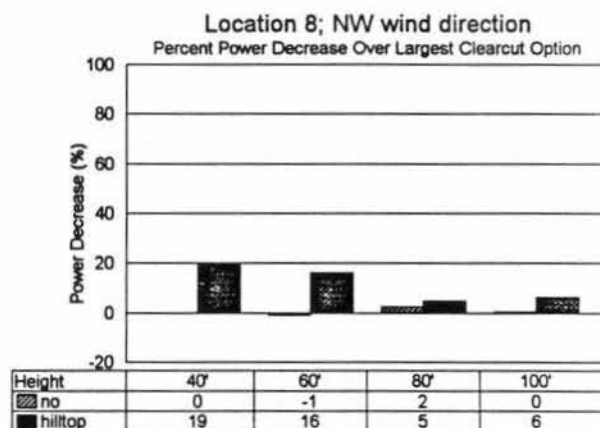
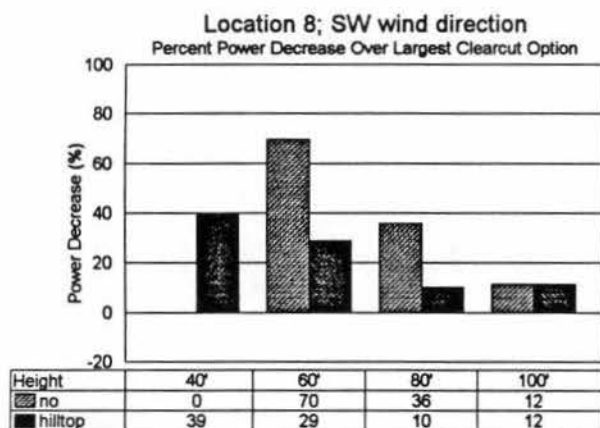
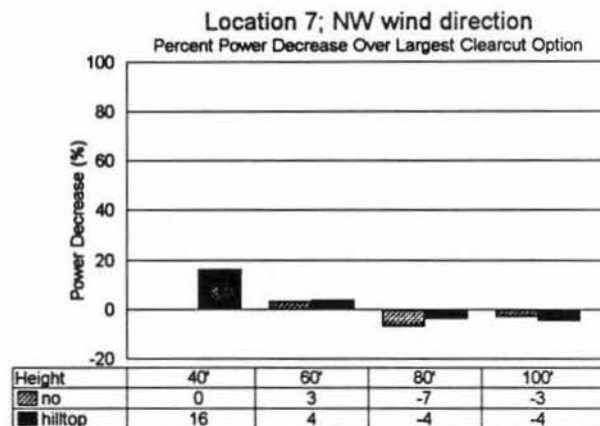
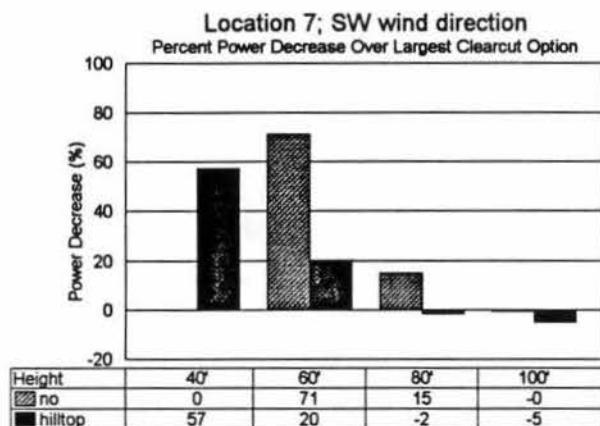


FIGURE 15 Percent Power Decrease Comparisons: Locations 7,8,9,10

USWP Task 3 Test Results

USW3VEL4.WK3

Sheet D:

04/01/93

Percent Power Decrease Over Largest Clearcut Option

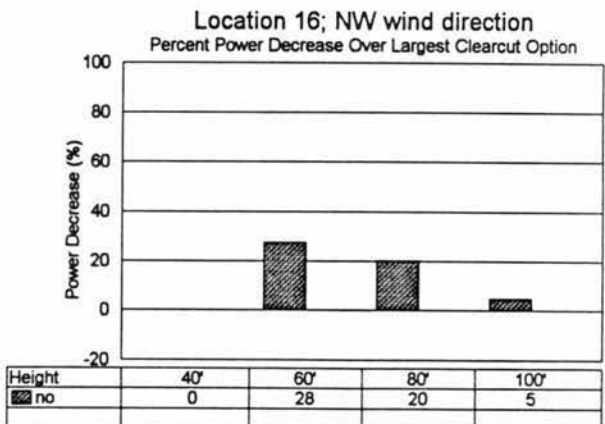
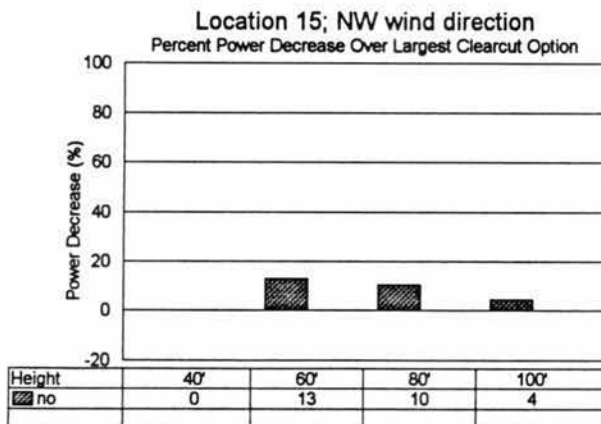
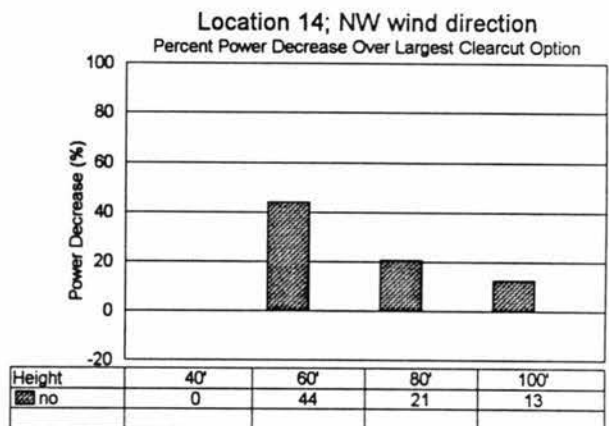
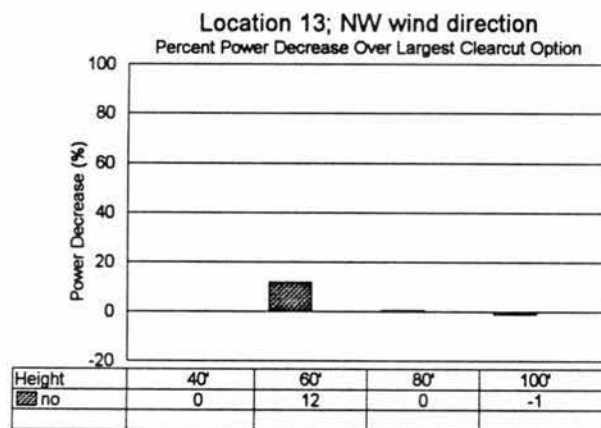
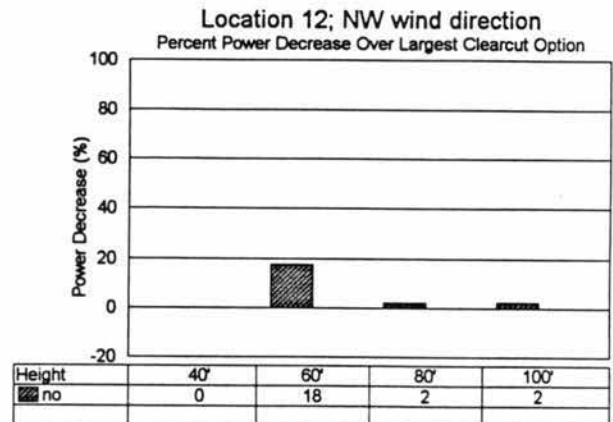
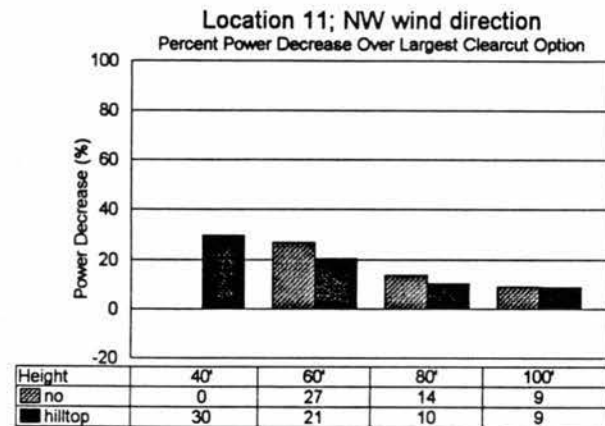


FIGURE 16 Percent Power Decrease Comparisons: Locations 11-16