

ATTACHMENT 2. JOINT FREQUENCY TABLES OF WIND SPEED AND WIND DIRECTION 60m  
VS DELTA TEMPERATURE 60-10m  
JANUARY 1, 1991 THROUGH DECEMBER 31, 1991

1 of 8

LD  
SITE: PLANT HATCH

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 91010101-91123124  
STABILITY CLASS: A DT/DZ  
ELEVATION: SPEED:SPD60M DIRECTION:DIR60M LAPSE:DT60-

| WIND<br>DIRECTION | WIND SPEED(MPH) |     |      |       |       |     | TOTAL |
|-------------------|-----------------|-----|------|-------|-------|-----|-------|
|                   | 1-3             | 4-7 | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 0               | 25  | 12   | 1     | 0     | 0   | 38    |
| NNE               | 0               | 14  | 11   | 3     | 0     | 0   | 28    |
| NE                | 2               | 36  | 77   | 42    | 1     | 0   | 158   |
| ENE               | 1               | 28  | 58   | 18    | 0     | 0   | 105   |
| E                 | 2               | 25  | 18   | 10    | 0     | 0   | 55    |
| ESE               | 4               | 10  | 19   | 7     | 0     | 0   | 40    |
| SE                | 2               | 10  | 16   | 5     | 0     | 0   | 33    |
| SSE               | 1               | 8   | 11   | 4     | 1     | 0   | 25    |
| S                 | 5               | 14  | 26   | 6     | 0     | 0   | 51    |
| SSW               | 2               | 10  | 27   | 9     | 1     | 0   | 49    |
| SW                | 2               | 22  | 44   | 11    | 0     | 0   | 79    |
| WSW               | 5               | 32  | 31   | 9     | 1     | 0   | 78    |
| W                 | 5               | 35  | 71   | 11    | 2     | 2   | 126   |
| WNW               | 8               | 36  | 59   | 17    | 2     | 0   | 122   |
| NW                | 2               | 26  | 31   | 10    | 0     | 0   | 69    |
| NNW               | 3               | 26  | 11   | 0     | 0     | 0   | 40    |
| TOTAL             | 44              | 357 | 522  | 163   | 8     | 2   | 1096  |

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 123  
HOURS OF MISSING DATA: 946

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PDR ADDCK 05000321  
PDR

SITE: PLANT HATCH

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 91010101-91123124

STABILITY CLASS: B DT/DZ

ELEVATION: SPEED:SPD60M DIRECTION:DIR60M LAPSE:DT60-

| WIND<br>DIRECTION | WIND SPEED (MPH) |     |      |       |       |     | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
|                   | 1-3              | 4-7 | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 2                | 4   | 3    | 0     | 0     | 0   | 9     |
| NNE               | 2                | 11  | 0    | 0     | 0     | 0   | 13    |
| NE                | 0                | 15  | 18   | 5     | 0     | 0   | 38    |
| ENE               | 1                | 16  | 21   | 2     | 0     | 0   | 40    |
| E                 | 0                | 7   | 13   | 3     | 0     | 0   | 23    |
| ESE               | 1                | 4   | 2    | 1     | 0     | 0   | 8     |
| SE                | 3                | 9   | 4    | 0     | 0     | 0   | 16    |
| SSE               | 1                | 6   | 4    | 2     | 0     | 0   | 13    |
| S                 | 2                | 8   | 10   | 2     | 0     | 0   | 22    |
| SSW               | 2                | 8   | 11   | 4     | 0     | 0   | 25    |
| SW                | 1                | 13  | 7    | 0     | 0     | 0   | 21    |
| WSW               | 1                | 19  | 14   | 4     | 0     | 0   | 38    |
| W                 | 5                | 22  | 22   | 0     | 0     | 1   | 50    |
| WNW               | 1                | 17  | 16   | 6     | 1     | 1   | 42    |
| NW                | 4                | 15  | 14   | 3     | 0     | 0   | 36    |
| NNW               | 3                | 10  | 2    | 0     | 0     | 0   | 15    |
| TOTAL             | 29               | 184 | 161  | 32    | 1     | 2   | 409   |

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 79

HOURS OF MISSING DATA: 946

SITE: PLANT HATCH

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 91010101-91123124  
 STABILITY CLASS: C DT/DZ  
 ELEVATION: SPEED:SPD60M DIRECTION:DIR60M LAPSE:DT60-

| WIND<br>DIRECTION | WIND SPEED (MPH) |     |      |       |       |     | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
|                   | 1-3              | 4-7 | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 2                | 15  | 3    | 2     | 0     | 0   | 22    |
| NNE               | 4                | 4   | 4    | 0     | 0     | 0   | 12    |
| NE                | 1                | 9   | 24   | 9     | 0     | 0   | 43    |
| ENE               | 1                | 17  | 21   | 1     | 0     | 0   | 40    |
| E                 | 2                | 7   | 8    | 0     | 0     | 0   | 17    |
| ESE               | 4                | 7   | 7    | 0     | 0     | 0   | 18    |
| SE                | 2                | 6   | 6    | 0     | 0     | 0   | 14    |
| SSE               | 3                | 3   | 3    | 2     | 0     | 0   | 11    |
| S                 | 3                | 12  | 6    | 1     | 0     | 0   | 22    |
| SSW               | 4                | 11  | 7    | 3     | 2     | 0   | 27    |
| SW                | 5                | 8   | 9    | 2     | 0     | 0   | 24    |
| WSW               | 3                | 11  | 7    | 2     | 0     | 0   | 23    |
| W                 | 2                | 10  | 8    | 1     | 1     | 0   | 22    |
| WNW               | 3                | 10  | 14   | 6     | 0     | 1   | 34    |
| NW                | 4                | 10  | 4    | 0     | 0     | 0   | 18    |
| NNW               | 2                | 11  | 2    | 0     | 0     | 0   | 15    |
| TOTAL             | 45               | 151 | 133  | 29    | 3     | 1   | 362   |

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 92  
 HOURS OF MISSING DATA: 946

SITE: PLANT HATCH

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 91010101-91123124  
 STABILITY CLASS: D DT/DZ  
 ELEVATION: SPEED:SPD60M DIRECTION:DIR60M LAPSE:DT60-

| WIND<br>DIRECTION | WIND SPEED (MPH) |     |      |       |       |     | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
|                   | 1-3              | 4-7 | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 11               | 37  | 21   | 18    | 0     | 0   | 87    |
| NNE               | 13               | 32  | 20   | 6     | 0     | 0   | 71    |
| NE                | 14               | 69  | 202  | 84    | 6     | 0   | 375   |
| ENE               | 15               | 69  | 119  | 14    | 1     | 0   | 218   |
| E                 | 6                | 57  | 75   | 25    | 2     | 0   | 165   |
| ESE               | 10               | 28  | 33   | 6     | 0     | 0   | 77    |
| SE                | 10               | 33  | 26   | 6     | 1     | 0   | 76    |
| SSE               | 9                | 36  | 27   | 8     | 1     | 0   | 81    |
| S                 | 8                | 33  | 42   | 19    | 2     | 0   | 104   |
| SSW               | 11               | 40  | 54   | 14    | 5     | 0   | 124   |
| SW                | 10               | 32  | 37   | 11    | 0     | 0   | 90    |
| WSW               | 8                | 43  | 29   | 4     | 3     | 1   | 88    |
| W                 | 8                | 29  | 50   | 15    | 4     | 3   | 109   |
| WNW               | 12               | 31  | 42   | 21    | 5     | 1   | 112   |
| NW                | 13               | 31  | 42   | 13    | 0     | 0   | 99    |
| NNW               | 5                | 38  | 33   | 2     | 0     | 0   | 78    |
| TOTAL             | 163              | 638 | 852  | 266   | 30    | 5   | 1954  |

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 245  
 HOURS OF MISSING DATA: 946



SITE: PLANT HATCH

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 91010101-91123124

STABILITY CLASS: E DT/DZ

ELEVATION: SPEED:SPD60M DIRECTION:DIR60M LAPSE:DT60-

| WIND<br>DIRECTION | WIND SPEED (MPH) |     |      |       |       |     | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
|                   | 1-3              | 4-7 | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 1                | 24  | 33   | 13    | 0     | 0   | 71    |
| NNE               | 2                | 17  | 23   | 10    | 0     | 0   | 52    |
| NE                | 10               | 34  | 139  | 91    | 1     | 0   | 275   |
| ENE               | 4                | 56  | 110  | 9     | 0     | 0   | 179   |
| E                 | 6                | 54  | 85   | 5     | 0     | 0   | 150   |
| ESE               | 8                | 45  | 74   | 4     | 1     | 0   | 132   |
| SE                | 10               | 100 | 88   | 4     | 1     | 0   | 203   |
| SSE               | 10               | 53  | 96   | 8     | 3     | 0   | 170   |
| S                 | 6                | 70  | 109  | 15    | 0     | 0   | 200   |
| SSW               | 11               | 41  | 109  | 9     | 3     | 0   | 173   |
| SW                | 12               | 51  | 101  | 11    | 1     | 0   | 176   |
| WSW               | 10               | 38  | 93   | 20    | 1     | 0   | 162   |
| W                 | 10               | 33  | 96   | 21    | 2     | 1   | 163   |
| WNW               | 7                | 25  | 84   | 42    | 5     | 0   | 163   |
| NW                | 5                | 15  | 67   | 8     | 0     | 0   | 95    |
| NNW               | 3                | 16  | 23   | 8     | 1     | 0   | 51    |
| TOTAL             | 115              | 672 | 1330 | 278   | 19    | 1   | 2415  |

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 68

HOURS OF MISSING DATA: 946

SITE: PLANT HATCH

## HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 91010101-91123124

STABILITY CLASS: F DT/DZ

ELEVATION: SPEED:SPD60M DIRECTION:DIR60M LAPSE:DT60-

| WIND<br>DIRECTION | WIND SPEED (MPH) |     |      |       |       |     | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
|                   | 1-3              | 4-7 | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 0                | 4   | 15   | 1     | 0     | 0   | 20    |
| NNE               | 1                | 13  | 6    | 4     | 1     | 0   | 25    |
| NE                | 3                | 7   | 40   | 34    | 0     | 0   | 84    |
| ENE               | 3                | 7   | 46   | 3     | 0     | 0   | 59    |
| E                 | 1                | 7   | 27   | 0     | 0     | 0   | 35    |
| ESE               | 2                | 16  | 34   | 0     | 0     | 0   | 52    |
| SE                | 11               | 28  | 19   | 1     | 0     | 0   | 59    |
| SSE               | 2                | 10  | 25   | 2     | 0     | 0   | 39    |
| S                 | 2                | 16  | 42   | 4     | 0     | 0   | 64    |
| SSW               | 7                | 16  | 26   | 2     | 0     | 0   | 51    |
| SW                | 4                | 20  | 46   | 2     | 0     | 0   | 72    |
| WSW               | 7                | 15  | 28   | 3     | 0     | 0   | 53    |
| W                 | 3                | 8   | 38   | 9     | 0     | 0   | 58    |
| WNW               | 4                | 12  | 22   | 6     | 0     | 0   | 44    |
| NW                | 6                | 4   | 27   | 2     | 0     | 0   | 39    |
| NNW               | 0                | 8   | 17   | 2     | 0     | 0   | 27    |
| TOTAL             | 56               | 191 | 458  | 75    | 1     | 0   | 781   |

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 23

HOURS OF MISSING DATA: 946

SITE: PLANT HATCH

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 91010101-91123124  
 STABILITY CLASS: G DT/DZ  
 ELEVATION: SPEED:SPD60M DIRECTION:DIR60M LAPSE:DT60-

| WIND<br>DIRECTION | WIND SPEED(MPH) |     |      |       |       |     | TOTAL |
|-------------------|-----------------|-----|------|-------|-------|-----|-------|
|                   | 1-3             | 4-7 | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 8               | 14  | 10   | 0     | 0     | 0   | 32    |
| NNE               | 4               | 24  | 10   | 0     | 0     | 0   | 38    |
| NE                | 2               | 22  | 27   | 7     | 0     | 0   | 58    |
| ENE               | 5               | 14  | 32   | 1     | 0     | 0   | 52    |
| E                 | 1               | 13  | 13   | 3     | 0     | 0   | 30    |
| ESE               | 1               | 18  | 10   | 1     | 0     | 0   | 30    |
| SE                | 13              | 21  | 6    | 0     | 0     | 0   | 40    |
| SSE               | 8               | 11  | 16   | 4     | 0     | 0   | 39    |
| S                 | 8               | 16  | 20   | 4     | 0     | 0   | 48    |
| SSW               | 8               | 17  | 30   | 5     | 0     | 0   | 60    |
| SW                | 11              | 20  | 32   | 8     | 0     | 0   | 71    |
| WSW               | 6               | 21  | 36   | 7     | 0     | 0   | 70    |
| W                 | 6               | 13  | 30   | 11    | 0     | 0   | 60    |
| WNW               | 6               | 26  | 34   | 5     | 0     | 0   | 71    |
| NW                | 10              | 26  | 29   | 4     | 0     | 0   | 69    |
| NNW               | 4               | 12  | 13   | 0     | 0     | 0   | 29    |
| TOTAL             | 101             | 288 | 348  | 60    | 0     | 0   | 797   |

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 43  
 HOURS OF MISSING DATA: 946

SITE: PLANT HATCH

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 91010101-91123124

STABILITY CLASS: ALL DT/DZ

ELEVATION: SPEED:SPD60M DIRECTION:DIR60M LAPSE:DT60-

| WIND<br>DIRECTION | WIND SPEED(MPH) |      |      |       |       |     | TOTAL |
|-------------------|-----------------|------|------|-------|-------|-----|-------|
|                   | 1-3             | 4-7  | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 24              | 123  | 97   | 35    | 0     | 0   | 279   |
| NNE               | 26              | 115  | 74   | 23    | 1     | 0   | 239   |
| NE                | 32              | 192  | 527  | 272   | 8     | 0   | 1031  |
| ENE               | 30              | 207  | 407  | 48    | 1     | 0   | 693   |
| E                 | 18              | 170  | 239  | 46    | 2     | 0   | 475   |
| ESE               | 30              | 128  | 179  | 19    | 1     | 0   | 357   |
| SE                | 51              | 207  | 165  | 16    | 2     | 0   | 441   |
| SSE               | 34              | 127  | 182  | 30    | 5     | 0   | 378   |
| S                 | 34              | 169  | 255  | 51    | 2     | 0   | 511   |
| SSW               | 45              | 143  | 264  | 46    | 11    | 0   | 509   |
| SW                | 45              | 166  | 276  | 45    | 1     | 0   | 533   |
| WSW               | 40              | 179  | 238  | 49    | 5     | 1   | 512   |
| W                 | 39              | 150  | 315  | 68    | 9     | 7   | 588   |
| WNW               | 41              | 157  | 271  | 103   | 13    | 3   | 588   |
| NW                | 44              | 127  | 214  | 40    | 0     | 0   | 425   |
| NNW               | 20              | 121  | 101  | 12    | 1     | 0   | 255   |
| TOTAL             | 553             | 2481 | 3804 | 903   | 62    | 11  | 7814  |

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 673

HOURS OF MISSING DATA: 946

ATTACHMENT 3. JOINT FREQUENCY TABLES OF WIND SPEED AND WIND DIRECTION 100m  
VS DELTA TEMPERATURE 100-10m  
JANUARY 1, 1991 THROUGH DECEMBER 31, 1991

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 910101-91123124  
STABILITY CLASS: A DT/CZ  
ELEVATION: SPEED:SP100M DIRECTION:DI100M LAPSE:DT100-

WIND SPEED (MPH)

| WIND<br>DIRECTION | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | TOTAL |
|-------------------|-----|-----|------|-------|-------|-----|-------|
| N                 | 0   | 4   | 13   | 1     | 0     | 0   | 18    |
| NNE               | 0   | 2   | 4    | 2     | 1     | 0   | 9     |
| NE                | 0   | 3   | 28   | 25    | 3     | 0   | 59    |
| ENE               | 0   | 2   | 13   | 6     | 2     | 0   | 23    |
| E                 | 0   | 3   | 3    | 2     | 0     | 0   | 8     |
| ESE               | 0   | 1   | 1    | 4     | 0     | 0   | 6     |
| SE                | 0   | 2   | 10   | 2     | 0     | 0   | 14    |
| SSE               | 0   | 0   | 5    | 2     | 1     | 0   | 8     |
| S                 | 0   | 0   | 7    | 2     | 1     | 0   | 10    |
| SSW               | 0   | 0   | 4    | 9     | 2     | 2   | 17    |
| SW                | 0   | 1   | 12   | 6     | 2     | 0   | 21    |
| WSW               | 0   | 1   | 12   | 6     | 6     | 1   | 26    |
| W                 | 0   | 4   | 12   | 3     | 0     | 2   | 21    |
| WNW               | 0   | 4   | 9    | 8     | 2     | 0   | 23    |
| NW                | 0   | 0   | 1    | 6     | 2     | 0   | 9     |
| NNW               | 0   | 0   | 0    | 1     | 0     | 0   | 1     |
| TOTAL             | 0   | 27  | 134  | 85    | 22    | 5   | 273   |

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 3  
HOURS OF MISSING DATA: 48



HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 91010101-91123124  
 STABILITY CLASS: B DT/DZ  
 ELEVATION: SPEED:SP100M DIRECTION:DI100M LAPSE:DT100-

| WIND<br>DIRECTION | WIND SPEED (MPH) |     |      |       |       |     | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
|                   | 1-3              | 4-7 | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 1                | 3   | 7    | 1     | 0     | 0   | 12    |
| NNE               | 0                | 1   | 3    | 2     | 0     | 0   | 6     |
| NE                | 0                | 9   | 28   | 15    | 2     | 0   | 54    |
| ENE               | 1                | 7   | 16   | 9     | 0     | 0   | 33    |
| E                 | 0                | 5   | 6    | 13    | 0     | 0   | 24    |
| ESE               | 0                | 2   | 6    | 3     | 0     | 0   | 11    |
| SE                | 0                | 3   | 3    | 2     | 0     | 0   | 8     |
| SSE               | 0                | 1   | 5    | 3     | 1     | 0   | 10    |
| S                 | 0                | 1   | 7    | 3     | 0     | 0   | 11    |
| SSW               | 0                | 2   | 5    | 8     | 2     | 1   | 18    |
| SW                | 0                | 8   | 11   | 4     | 1     | 0   | 24    |
| WSW               | 1                | 2   | 11   | 7     | 0     | 0   | 21    |
| W                 | 1                | 8   | 14   | 3     | 1     | 2   | 29    |
| WNW               | 0                | 1   | 18   | 12    | 0     | 1   | 32    |
| NW                | 1                | 5   | 10   | 6     | 1     | 0   | 23    |
| NNW               | 0                | 7   | 5    | 3     | 0     | 0   | 15    |
| TOTAL             | 5                | 65  | 155  | 94    | 8     | 4   | 331   |

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 19  
 HOURS OF MISSING DATA: 489

## HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 91010101-9112312.

STABILITY CLASS: C DT/DZ

ELEVATION: SPEED:SP100M DIRECTION:DI100M LAPSE:DT100-

| WIND<br>DIRECTION | WIND SPEED (MPH) |     |      |       |       |     | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
|                   | 1-3              | 4-7 | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 0                | 5   | 8    | 0     | 0     | 0   | 13    |
| NNE               | 0                | 6   | 5    | 2     | 0     | 0   | 13    |
| NE                | 1                | 15  | 23   | 19    | 0     | 0   | 58    |
| ENE               | 0                | 15  | 24   | 9     | 0     | 0   | 48    |
| E                 | 1                | 7   | 7    | 6     | 1     | 0   | 22    |
| ESE               | 0                | 8   | 6    | 3     | 0     | 0   | 17    |
| SE                | 0                | 7   | 4    | 2     | 0     | 0   | 13    |
| SSE               | 0                | 5   | 4    | 3     | 0     | 0   | 12    |
| S                 | 0                | 9   | 12   | 5     | 1     | 0   | 27    |
| SSW               | 0                | 4   | 10   | 6     | 1     | 0   | 21    |
| SW                | 3                | 9   | 14   | 8     | 1     | 0   | 35    |
| WSW               | 1                | 14  | 12   | 6     | 2     | 0   | 35    |
| W                 | 1                | 10  | 27   | 9     | 0     | 1   | 48    |
| WNW               | 1                | 17  | 25   | 7     | 1     | 2   | 53    |
| NW                | 1                | 5   | 23   | 5     | 0     | 0   | 34    |
| NNW               | 0                | 10  | 5    | 2     | 0     | 0   | 17    |
| TOTAL             | 9                | 146 | 209  | 92    | 7     | 3   | 466   |

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 32

HOURS OF MISSING DATA: 489

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 91010101-91123124  
 STABILITY CLASS: D DT/DZ  
 ELEVATION: SPEED:SP100M DIRECTION:DI100M LAPSE:DT100-

| WIND<br>DIRECTION | WIND SPEED (MPH) |     |      |       |       |     | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
|                   | 1-3              | 4-7 | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 14               | 52  | 33   | 25    | 2     | 0   | 126   |
| NNE               | 11               | 46  | 37   | 28    | 2     | 0   | 124   |
| NE                | 8                | 64  | 179  | 170   | 9     | 0   | 430   |
| ENE               | 8                | 70  | 131  | 64    | 4     | 0   | 277   |
| E                 | 7                | 39  | 63   | 63    | 4     | 1   | 177   |
| ESE               | 9                | 23  | 42   | 23    | 3     | 0   | 100   |
| SE                | 10               | 33  | 31   | 7     | 0     | 1   | 82    |
| SSE               | 11               | 37  | 41   | 16    | 3     | 1   | 109   |
| S                 | 11               | 28  | 50   | 33    | 11    | 3   | 136   |
| SSW               | 12               | 43  | 59   | 50    | 11    | 13  | 188   |
| SW                | 7                | 47  | 58   | 37    | 8     | 0   | 157   |
| WSW               | 11               | 61  | 65   | 18    | 3     | 5   | 163   |
| W                 | 13               | 62  | 97   | 43    | 25    | 5   | 245   |
| WNW               | 12               | 55  | 80   | 52    | 26    | 6   | 231   |
| NW                | 13               | 58  | 48   | 33    | 3     | 0   | 155   |
| NNW               | 11               | 47  | 32   | 17    | 0     | 0   | 107   |
| TOTAL             | 168              | 765 | 1046 | 679   | 114   | 35  | 2807  |

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 328  
 HOURS OF MISSING DATA: 489

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 91010101-91123124  
 STABILITY CLASS: E DT/DZ  
 ELEVATION: SPEED:SP100M DIRECTION:DI100M LAPSE:DT100-

| WIND<br>DIRECTION | WIND SPEED(MPH) |     |      |       |       |     | TOTAL |
|-------------------|-----------------|-----|------|-------|-------|-----|-------|
|                   | 1-3             | 4-7 | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 2               | 7   | 29   | 22    | 2     | 0   | 62    |
| NNE               | 4               | 19  | 29   | 23    | 6     | 0   | 81    |
| NE                | 8               | 20  | 70   | 193   | 29    | 0   | 320   |
| ENE               | 3               | 27  | 94   | 112   | 4     | 0   | 240   |
| E                 | 5               | 25  | 89   | 66    | 4     | 0   | 189   |
| ESE               | 5               | 32  | 64   | 55    | 3     | 0   | 159   |
| SE                | 12              | 73  | 111  | 23    | 1     | 0   | 220   |
| SSE               | 6               | 19  | 86   | 71    | 6     | 1   | 189   |
| S                 | 3               | 29  | 106  | 102   | 5     | 2   | 247   |
| SSW               | 2               | 22  | 97   | 93    | 12    | 2   | 228   |
| SW                | 3               | 24  | 88   | 76    | 7     | 1   | 199   |
| WSW               | 7               | 34  | 82   | 73    | 7     | 1   | 204   |
| W                 | 1               | 16  | 61   | 81    | 9     | 2   | 170   |
| WNW               | 3               | 18  | 37   | 72    | 5     | 1   | 136   |
| NW                | 2               | 10  | 33   | 60    | 6     | 1   | 112   |
| NNW               | 3               | 11  | 18   | 18    | 0     | 0   | 50    |
| TOTAL             | 69              | 386 | 1094 | 1140  | 106   | 11  | 2806  |

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 55  
 HOURS OF MISSING DATA: 489

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 91010101-91123124  
 STABILITY CLASS: F DT/DZ  
 ELEVATION: SPEED:SP100M DIRECTION:DI100M LAPSE:DT100-

| WIND<br>DIRECTION | WIND SPEED (MPH) |     |      |       |       |     | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
|                   | 1-3              | 4-7 | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 2                | 8   | 10   | 9     | 1     | 0   | 30    |
| NNE               | 1                | 7   | 12   | 4     | 0     | 0   | 24    |
| NE                | 0                | 2   | 21   | 39    | 16    | 1   | 85    |
| ENE               | 0                | 4   | 6    | 39    | 8     | 0   | 57    |
| E                 | 2                | 14  | 18   | 21    | 0     | 0   | 55    |
| ESE               | 1                | 8   | 15   | 18    | 0     | 0   | 42    |
| SE                | 5                | 22  | 30   | 11    | 0     | 0   | 68    |
| SSE               | 5                | 8   | 17   | 12    | 2     | 0   | 44    |
| S                 | 2                | 11  | 19   | 32    | 8     | 0   | 72    |
| SSW               | 4                | 8   | 32   | 25    | 2     | 0   | 71    |
| SW                | 3                | 13  | 26   | 38    | 3     | 0   | 83    |
| WSW               | 3                | 15  | 32   | 35    | 2     | 0   | 87    |
| W                 | 0                | 6   | 26   | 35    | 8     | 0   | 75    |
| WNW               | 2                | 11  | 12   | 29    | 9     | 0   | 63    |
| NW                | 0                | 4   | 15   | 23    | 3     | 0   | 45    |
| NNW               | 0                | 3   | 7    | 14    | 0     | 0   | 24    |
| TOTAL             | 30               | 150 | 298  | 384   | 62    | 1   | 925   |

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 11  
 HOURS OF MISSING DATA: 489



HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 91010101-91123124  
 STABILITY CLASS: G DT/DZ  
 ELEVATION: SPEED:SP100M DIRECTION:DI100M LAPSE:DT100-

| WIND<br>DIRECTION | WIND SPEED (MPH) |     |      |       |       |     | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
|                   | 1-3              | 4-7 | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 3                | 8   | 6    | 5     | 0     | 0   | 22    |
| NNE               | 4                | 10  | 13   | 3     | 0     | 0   | 30    |
| NE                | 2                | 6   | 19   | 13    | 0     | 0   | 40    |
| ENE               | 3                | 7   | 14   | 7     | 3     | 0   | 34    |
| E                 | 1                | 6   | 10   | 14    | 3     | 0   | 34    |
| ESE               | 5                | 15  | 13   | 6     | 0     | 0   | 39    |
| SE                | 5                | 13  | 11   | 1     | 1     | 0   | 31    |
| SSE               | 6                | 15  | 14   | 12    | 2     | 0   | 49    |
| S                 | 2                | 9   | 10   | 14    | 6     | 0   | 41    |
| SSW               | 2                | 13  | 17   | 14    | 3     | 0   | 49    |
| SW                | 2                | 12  | 17   | 16    | 4     | 0   | 51    |
| WSW               | 3                | 12  | 7    | 21    | 8     | 0   | 51    |
| W                 | 6                | 10  | 18   | 17    | 7     | 0   | 58    |
| WNW               | 5                | 4   | 12   | 15    | 6     | 0   | 42    |
| NW                | 4                | 7   | 22   | 9     | 0     | 0   | 42    |
| NNW               | 5                | 7   | 19   | 18    | 1     | 0   | 50    |
| TOTAL             | 58               | 154 | 222  | 185   | 44    | 0   | 663   |

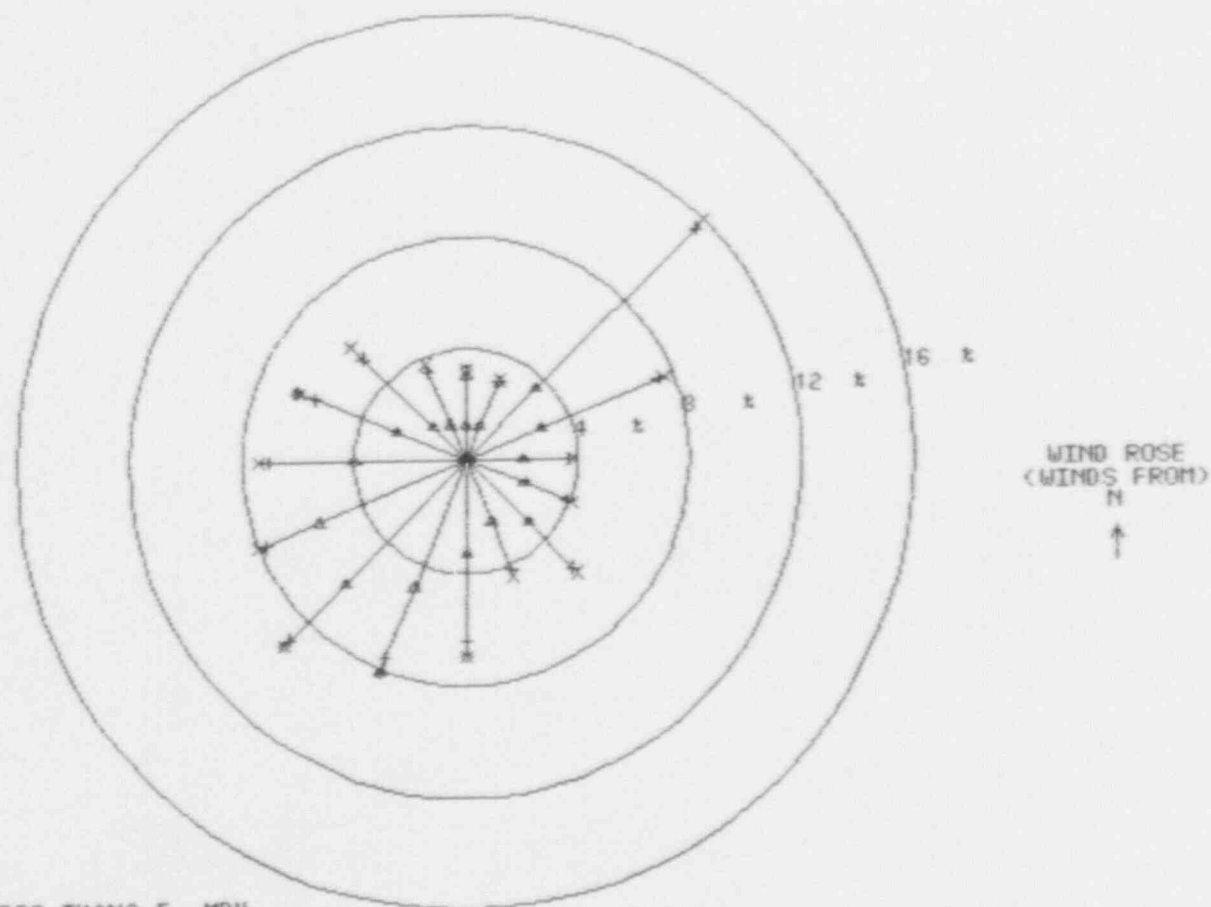
PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 16  
 HOURS OF MISSING DATA: 489

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 91010101-91123124  
 STABILITY CLASS: ALL DT/DZ  
 ELEVATION: SPEED:SP100M DIRECTION:DI100M LAPSE:DT100M-

| WIND<br>DIRECTION | WIND SPEED (MPH) |      |      |       |       |     | TOTAL |
|-------------------|------------------|------|------|-------|-------|-----|-------|
|                   | 1-3              | 4-7  | 8-12 | 13-18 | 19-24 | >24 |       |
| N                 | 22               | 87   | 106  | 63    | 5     | 0   | 283   |
| NNE               | 20               | 91   | 103  | 64    | 9     | 0   | 287   |
| NE                | 19               | 125  | 368  | 474   | 59    | 1   | 1046  |
| ENE               | 15               | 132  | 298  | 246   | 21    | 0   | 712   |
| E                 | 16               | 99   | 196  | 185   | 12    | 1   | 509   |
| ESE               | 20               | 89   | 147  | 112   | 6     | 0   | 374   |
| SE                | 32               | 153  | 200  | 48    | 2     | 1   | 436   |
| SSE               | 28               | 85   | 172  | 119   | 15    | 2   | 421   |
| S                 | 18               | 87   | 211  | 191   | 32    | 5   | 544   |
| SSW               | 20               | 92   | 224  | 205   | 33    | 18  | 592   |
| SW                | 18               | 114  | 226  | 185   | 26    | 1   | 570   |
| WSW               | 26               | 139  | 221  | 166   | 28    | 7   | 587   |
| W                 | 22               | 116  | 255  | 191   | 50    | 12  | 646   |
| WNW               | 23               | 110  | 193  | 195   | 49    | 10  | 580   |
| NW                | 21               | 89   | 152  | 142   | 15    | 1   | 420   |
| NNW               | 19               | 85   | 86   | 73    | 1     | 0   | 264   |
| TOTAL             | 339              | 1693 | 3158 | 2659  | 363   | 59  | 8271  |

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 464  
 HOURS OF MISSING DATA: 489

ATTACHMENT 4a. PLANT HATCH 10m METEOROLOGICAL TOWER WIND ROSE  
JANUARY 1, 1991 THROUGH DECEMBER 31, 1991



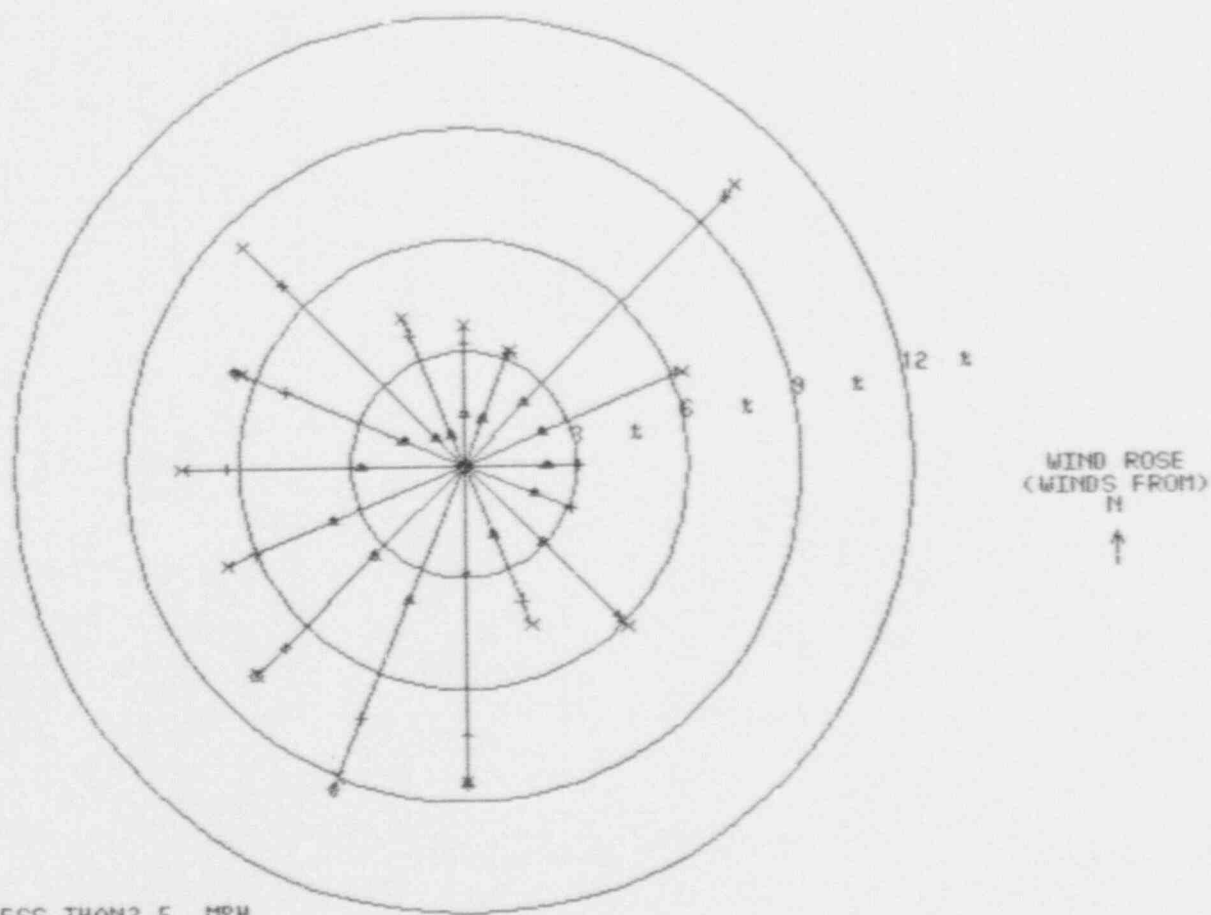
- WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- x WIND SPEED LESS THAN 12.5 MPH
- \* WIND SPEED GREATER THAN 12.5 MPH

C.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:14

ATTACHMENT 4b. PLANT HATCH 10m METEOROLOGICAL TOWER WIND ROSE  
JANUARY 1, 1991 THROUGH MARCH 31, 1991



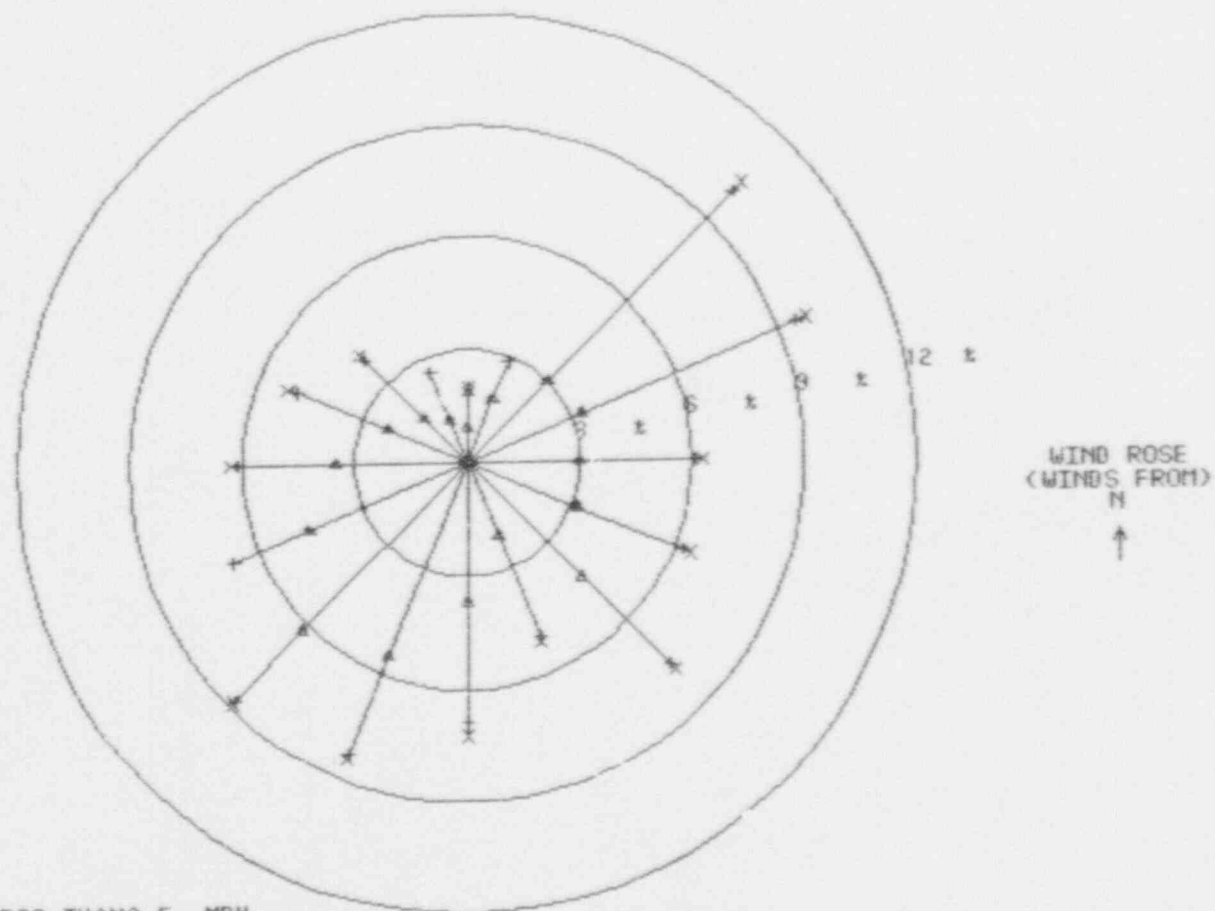
- WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- x WIND SPEED LESS THAN 12.5 MPH
- \* WIND SPEED GREATER THAN 12.5 MPH

0.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:23

ATTACHMENT 4c. PLANT HATCH 10m METEOROLOGICAL TOWER WIND ROSE  
APRIL 1, 1991 THROUGH JUNE 30, 1991



- ▲ WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- × WIND SPEED LESS THAN 12.5 MPH
- ◆ WIND SPEED GREATER THAN 12.5 MPH

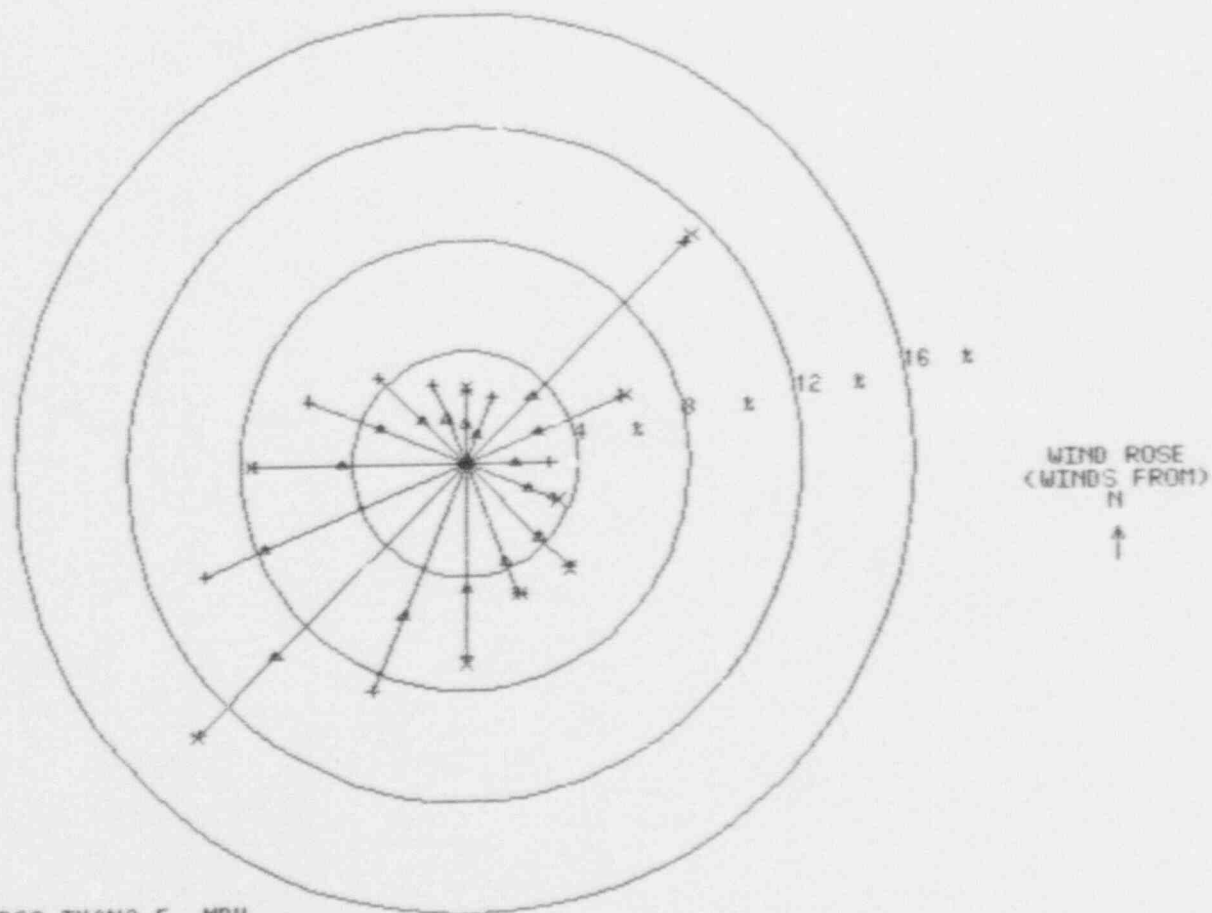
0.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:30



ATTACHMENT 4d. PLANT HATCH 10m METEOROLOGICAL TOWER WIND ROSE  
JULY 1, 1991 THROUGH SEPTEMBER 30, 1991



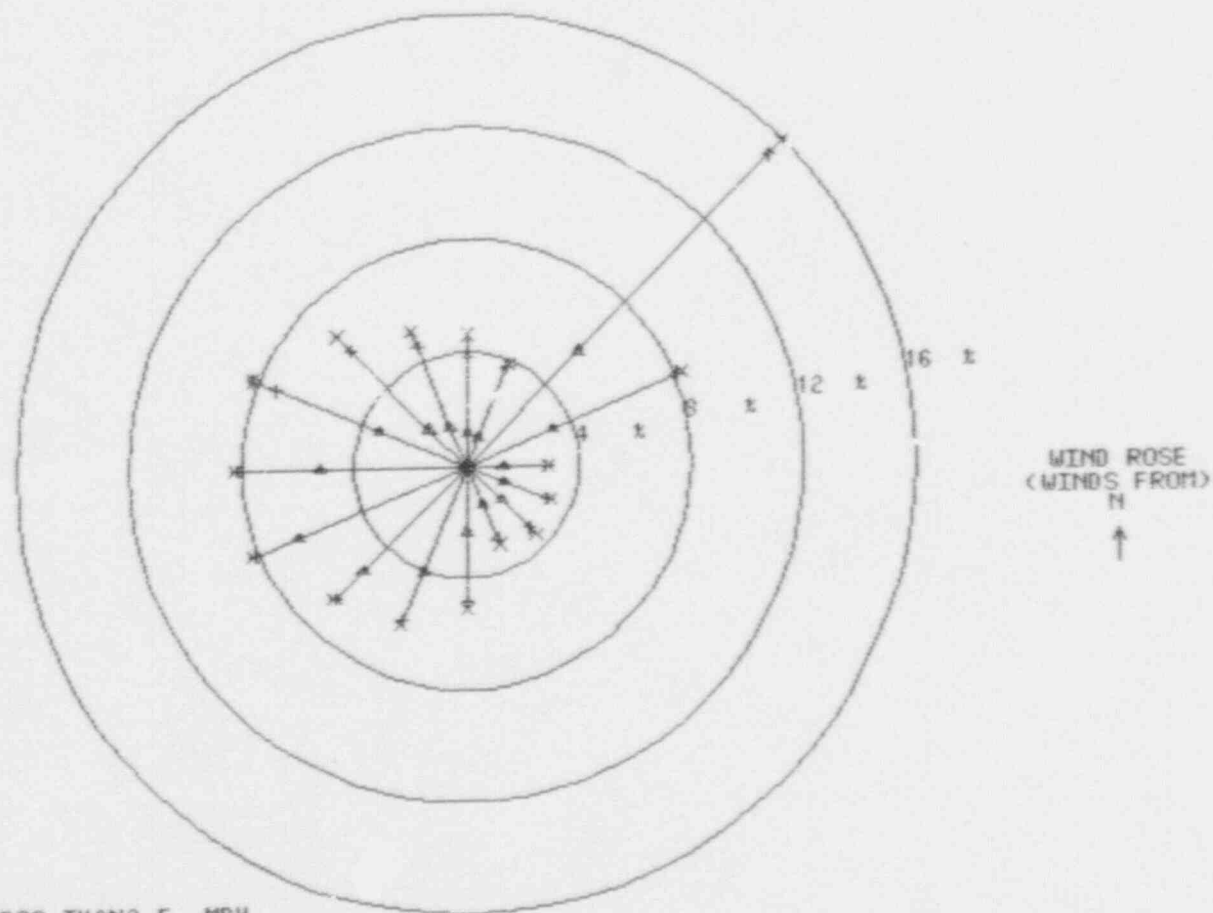
▲ WIND SPEED LESS THAN 3.5 MPH  
+ WIND SPEED LESS THAN 7.5 MPH  
x WIND SPEED LESS THAN 12.5 MPH  
• WIND SPEED GREATER THAN 12.5 MPH

0.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:35

ATTACHMENT 4e. PLANT HATCH 10m METEOROLOGICAL TOWER WIND ROSE  
OCTOBER 1, 1991 THROUGH DECEMBER 31, 1991



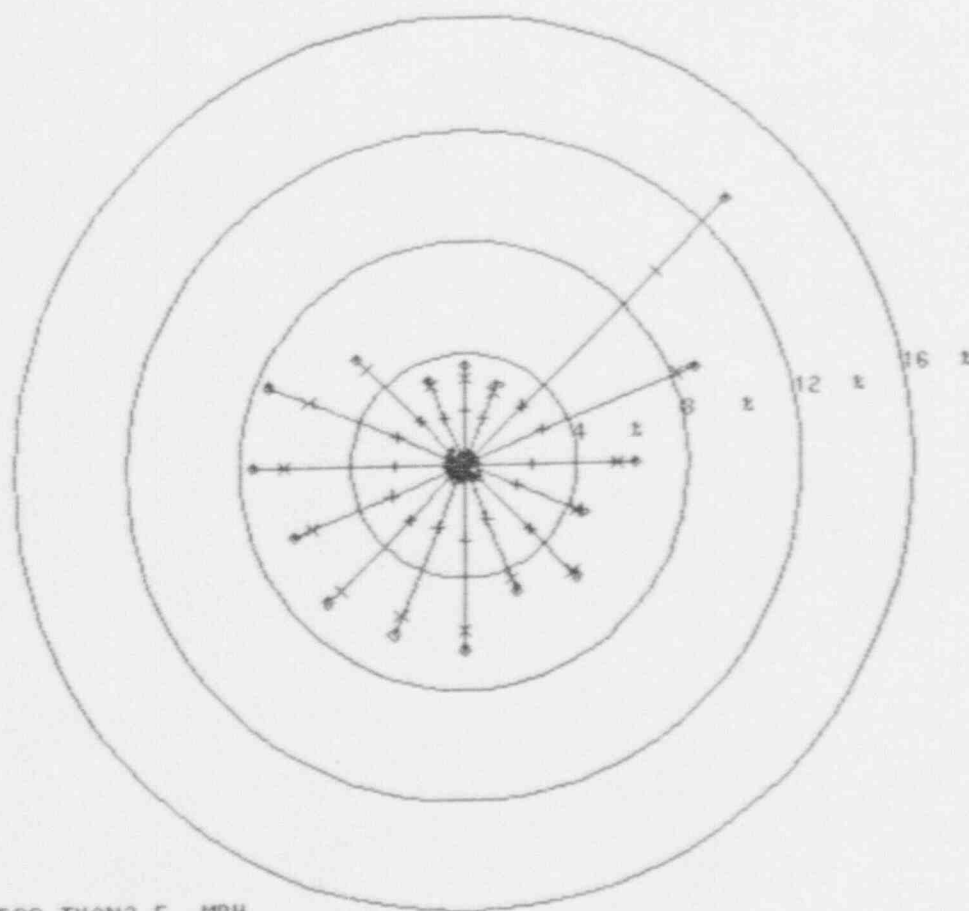
- ▲ WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- × WIND SPEED LESS THAN 12.5 MPH
- WIND SPEED GREATER THAN 12.5 MPH

0.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:38

ATTACHMENT 5a. PLANT HATCH 60m METEOROLOGICAL TOWER WIND ROSE  
JANUARY 1, 1991 THROUGH DECEMBER 31, 1991



WIND ROSE  
(WINDS FROM)

N



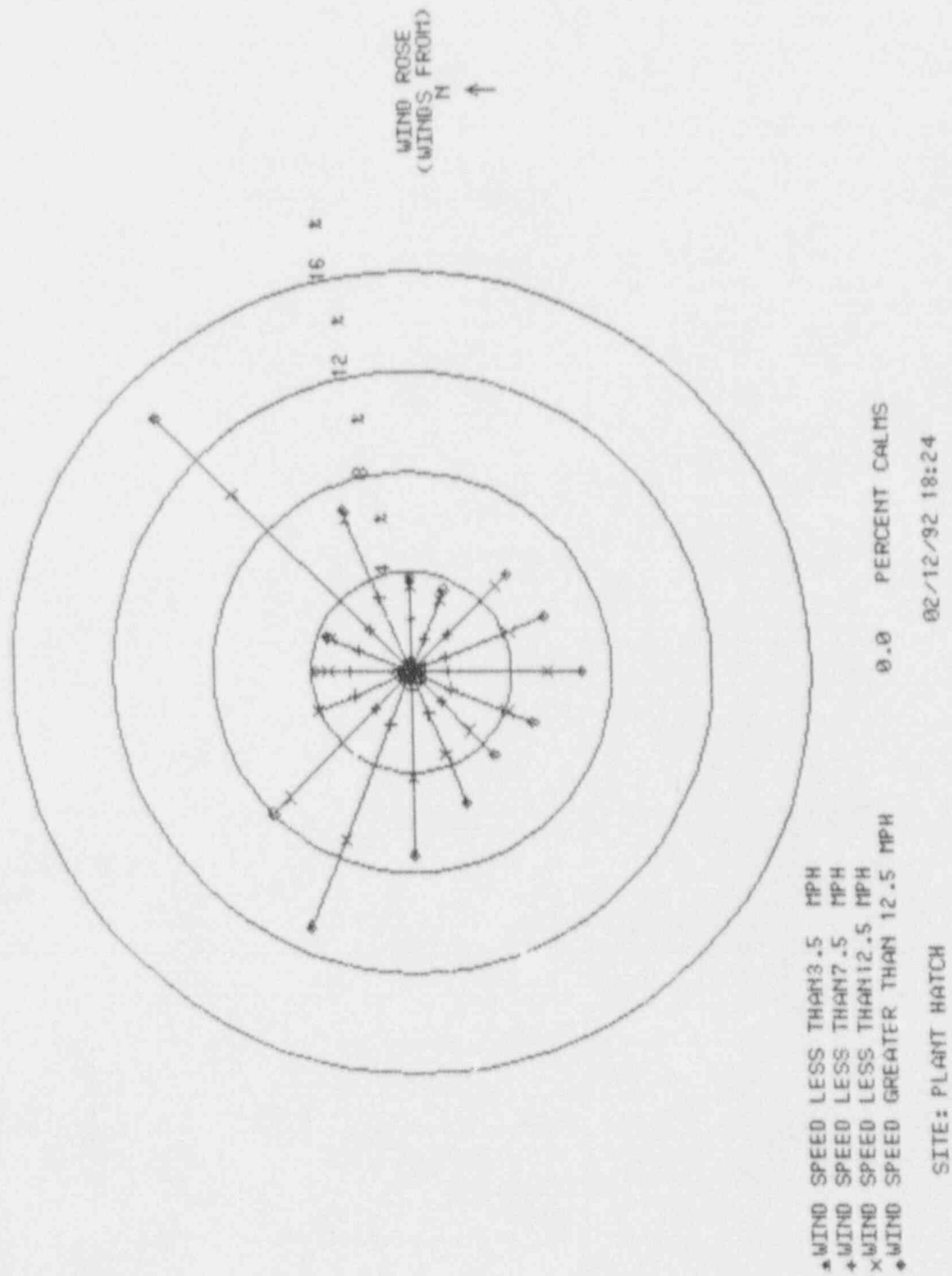
- WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- x WIND SPEED LESS THAN 12.5 MPH
- WIND SPEED GREATER THAN 12.5 MPH

0.0 PERCENT CALMS

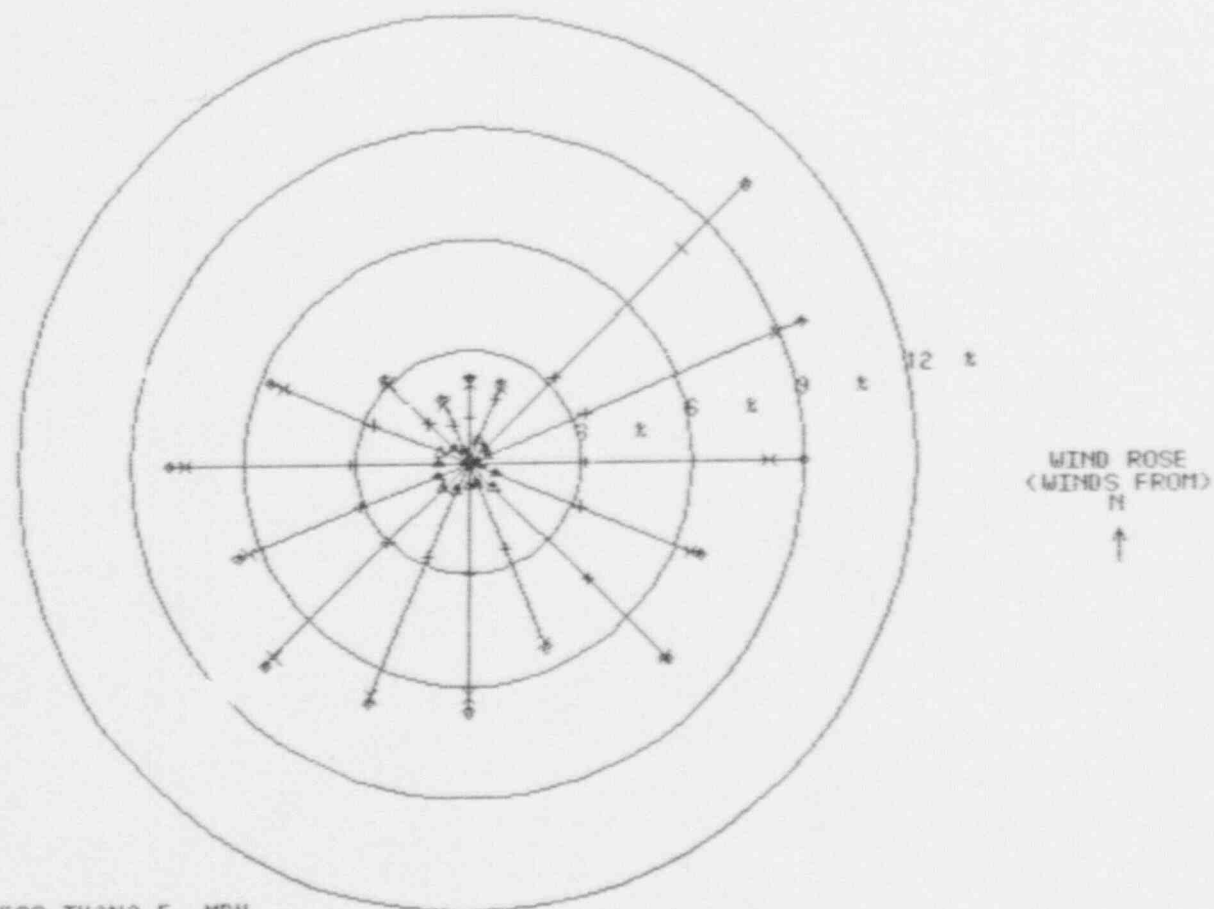
SITE: PLANT HATCH

02/12/92 18:16

ATTACHMENT 5b. PLANT HATCH 60m METEOROLOGICAL TOWER WIND ROSE  
JANUARY 1, 1991 THROUGH MARCH 31, 1991



ATTACHMENT 5c. PLANT HATCH 60m METEOROLOGICAL TOWER WIND ROSE  
APRIL 1, 1991 THROUGH JUNE 30, 1991



- ▲ WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- x WIND SPEED LESS THAN 12.5 MPH
- \* WIND SPEED GREATER THAN 12.5 MPH

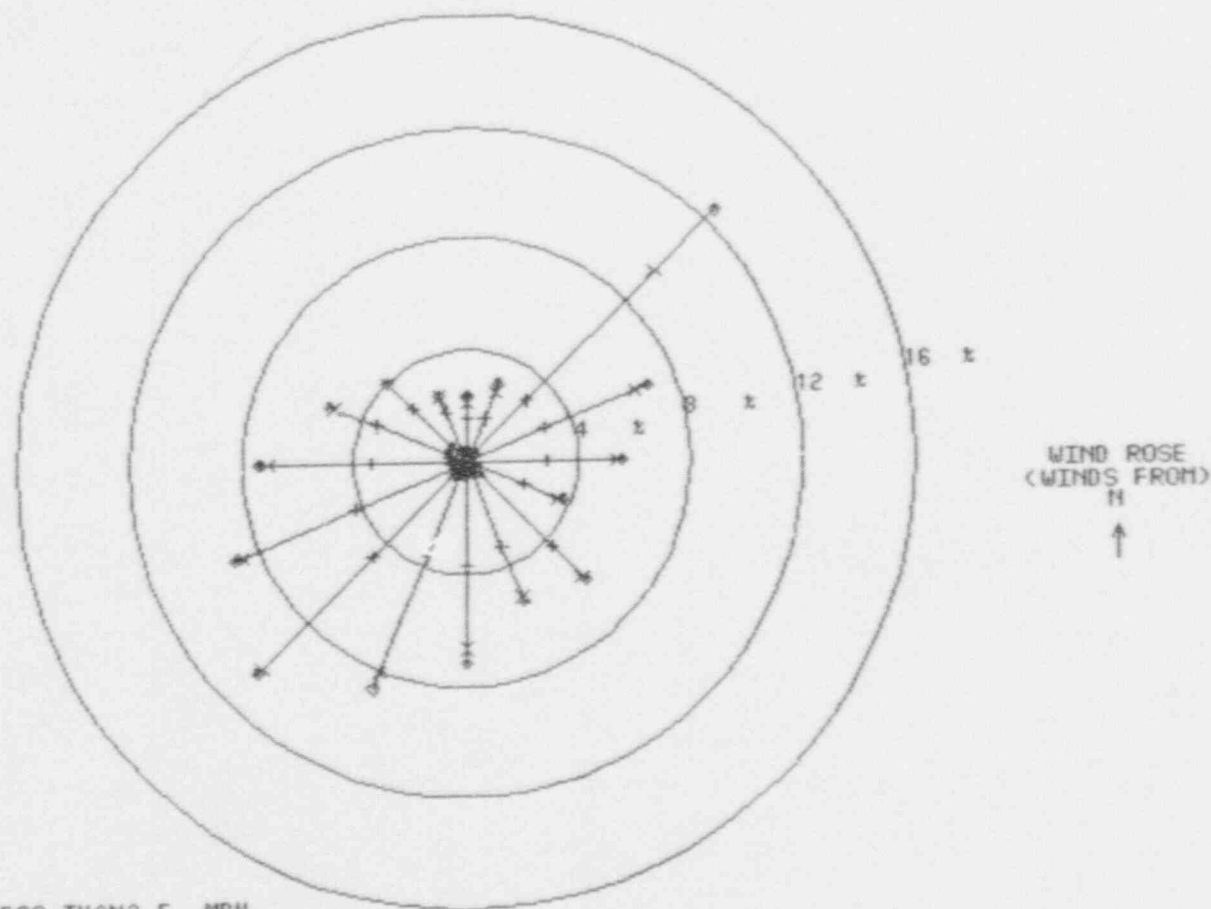
0.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:31



ATTACHMENT 5d. PLANT HATCH 60m METEOROLOGICAL TOWER WIND ROSE  
JULY 1, 1991 THROUGH SEPTEMBER 30, 1991



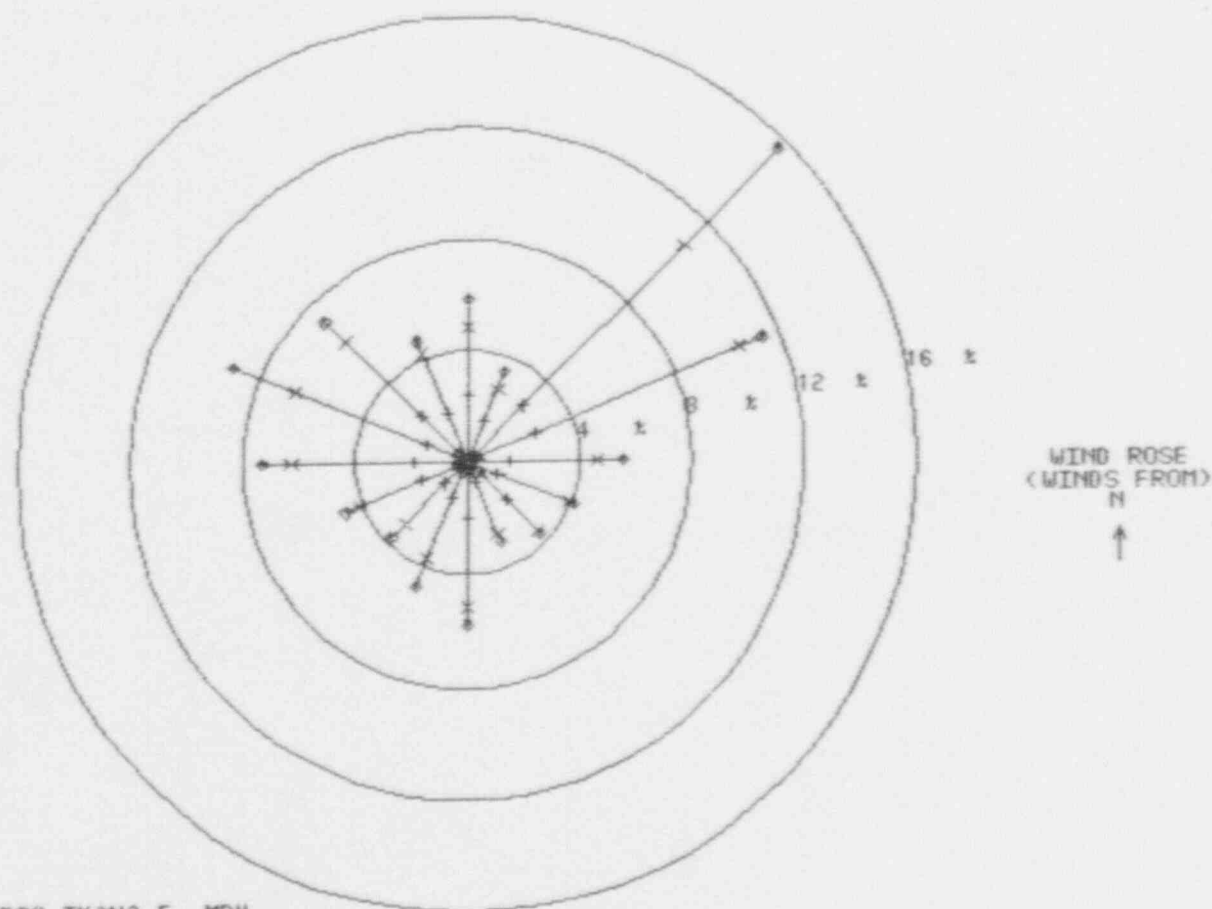
- WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- x WIND SPEED LESS THAN 12.5 MPH
- ♦ WIND SPEED GREATER THAN 12.5 MPH

0.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:36

ATTACHMENT 5e. PLANT HATCH 60m METEOROLOGICAL TOWER WIND ROSE  
OCTOBER 1, 1991 THROUGH DECEMBER 31, 1991



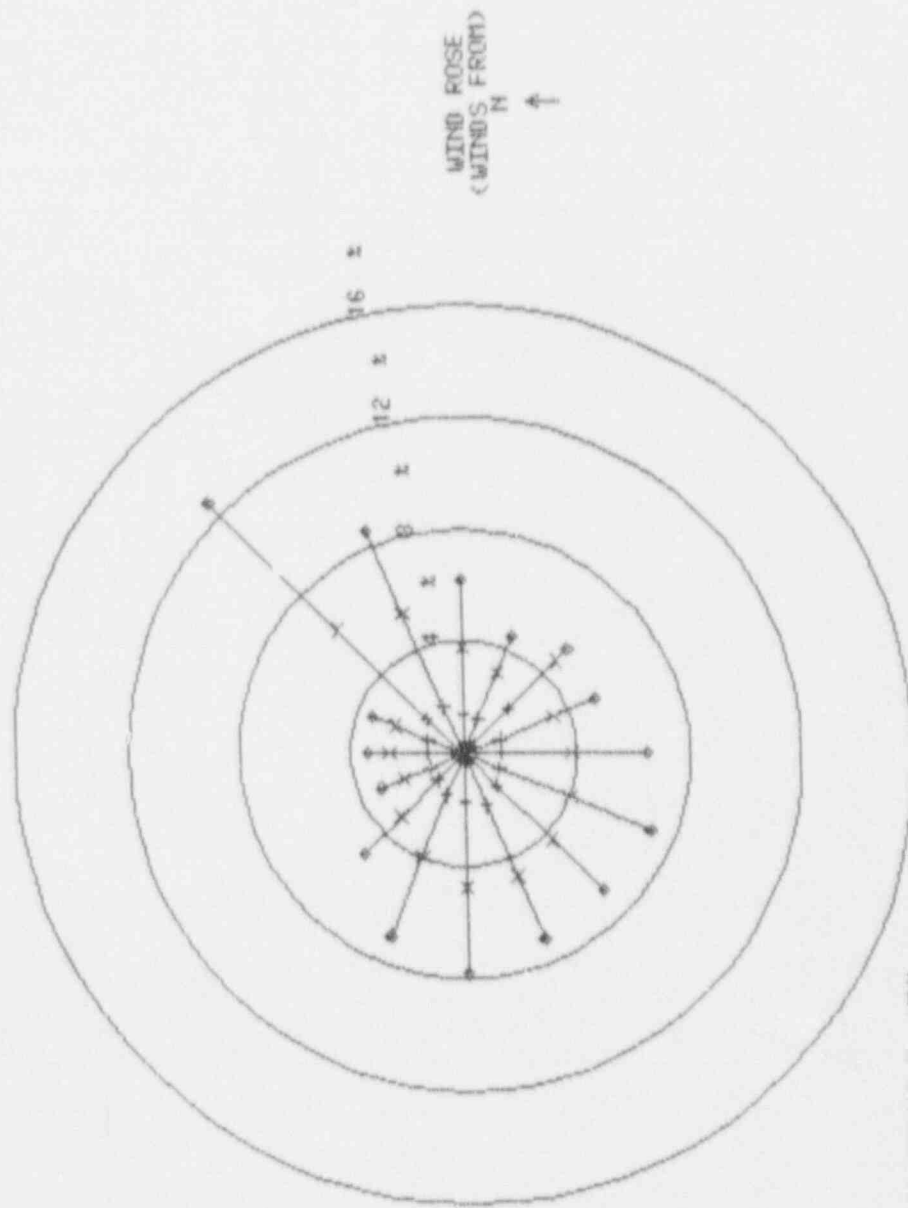
- ▲ WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- x WIND SPEED LESS THAN 12.5 MPH
- WIND SPEED GREATER THAN 12.5 MPH

0.8 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:39

ATTACHMENT 6a. PLANT HATCH 100m METEOROLOGICAL TOWER WIND ROSE  
JANUARY 1, 1991 THROUGH DECEMBER 31, 1991



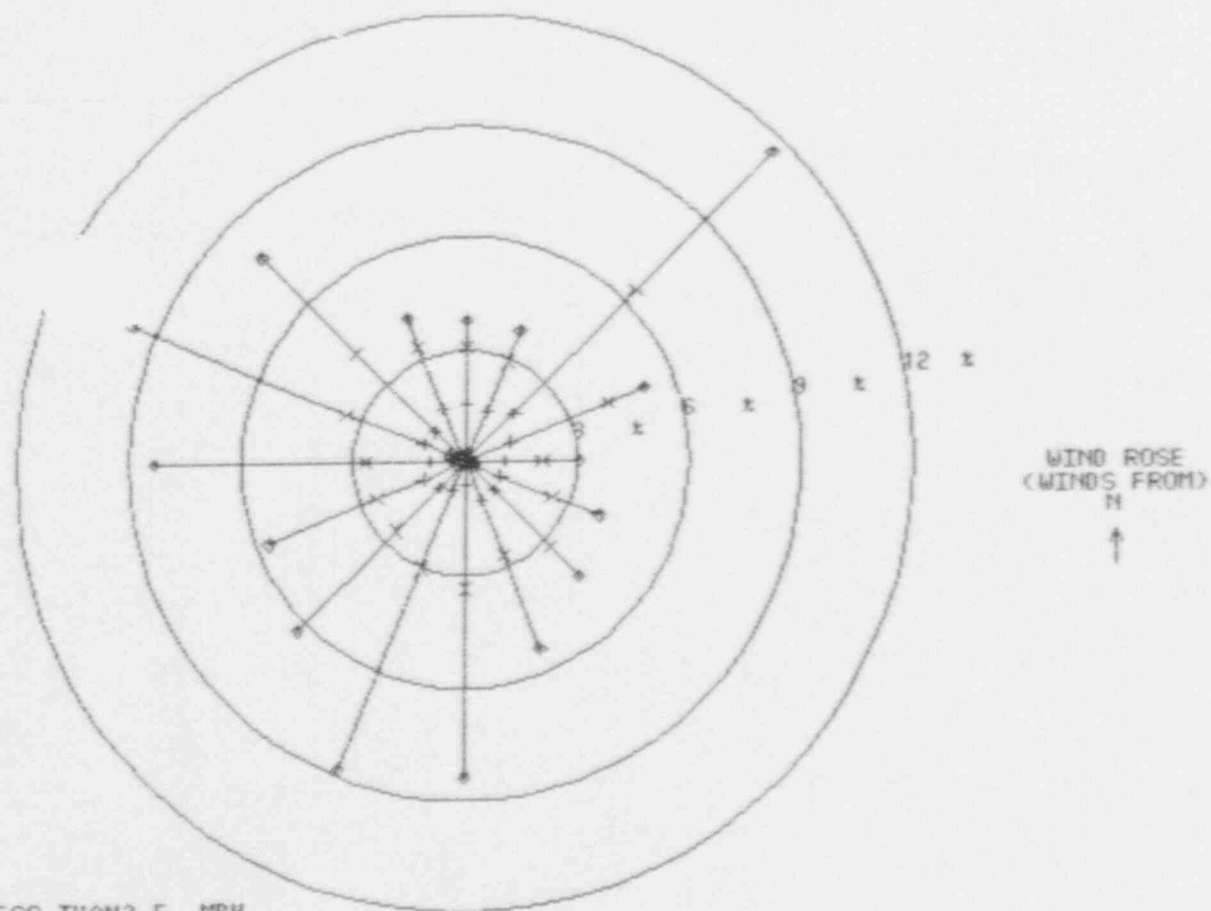
▲ WIND SPEED LESS THAN 3.5 MPH  
+ WIND SPEED LESS THAN 7.5 MPH  
x WIND SPEED LESS THAN 12.5 MPH  
◆ WIND SPEED GREATER THAN 12.5 MPH

0.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:18

ATTACHMENT 6b. PLANT HATCH 100m METEOROLOGICAL TOWER WIND ROSE  
JANUARY 1, 1991 THROUGH MARCH 31, 1991



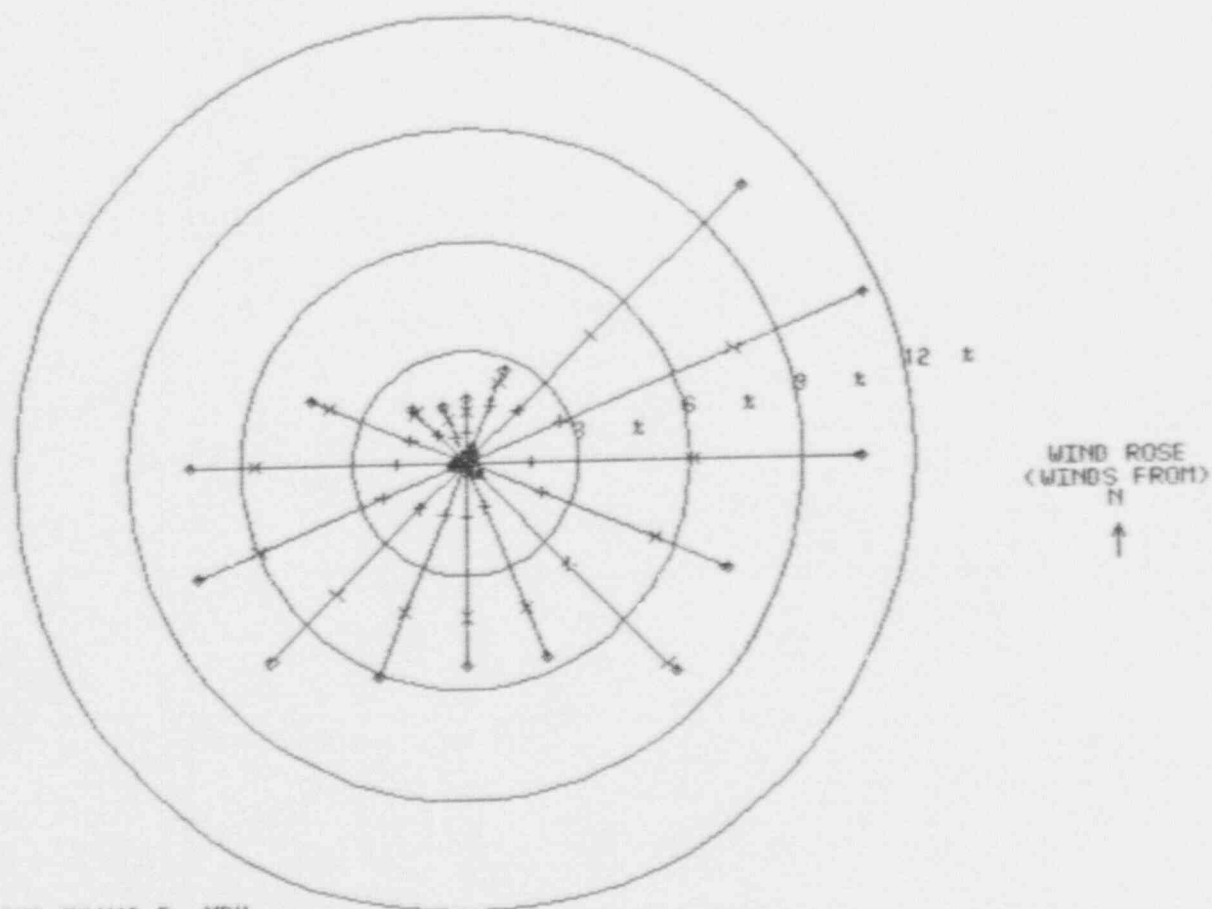
- ▲ WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- x WIND SPEED LESS THAN 12.5 MPH
- WIND SPEED GREATER THAN 12.5 MPH

0.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:26

ATTACHMENT 6c. PLANT HATCH 100m METEOROLOGICAL TOWER WIND ROSE  
APRIL 1, 1991 THROUGH JUNE 30, 1991



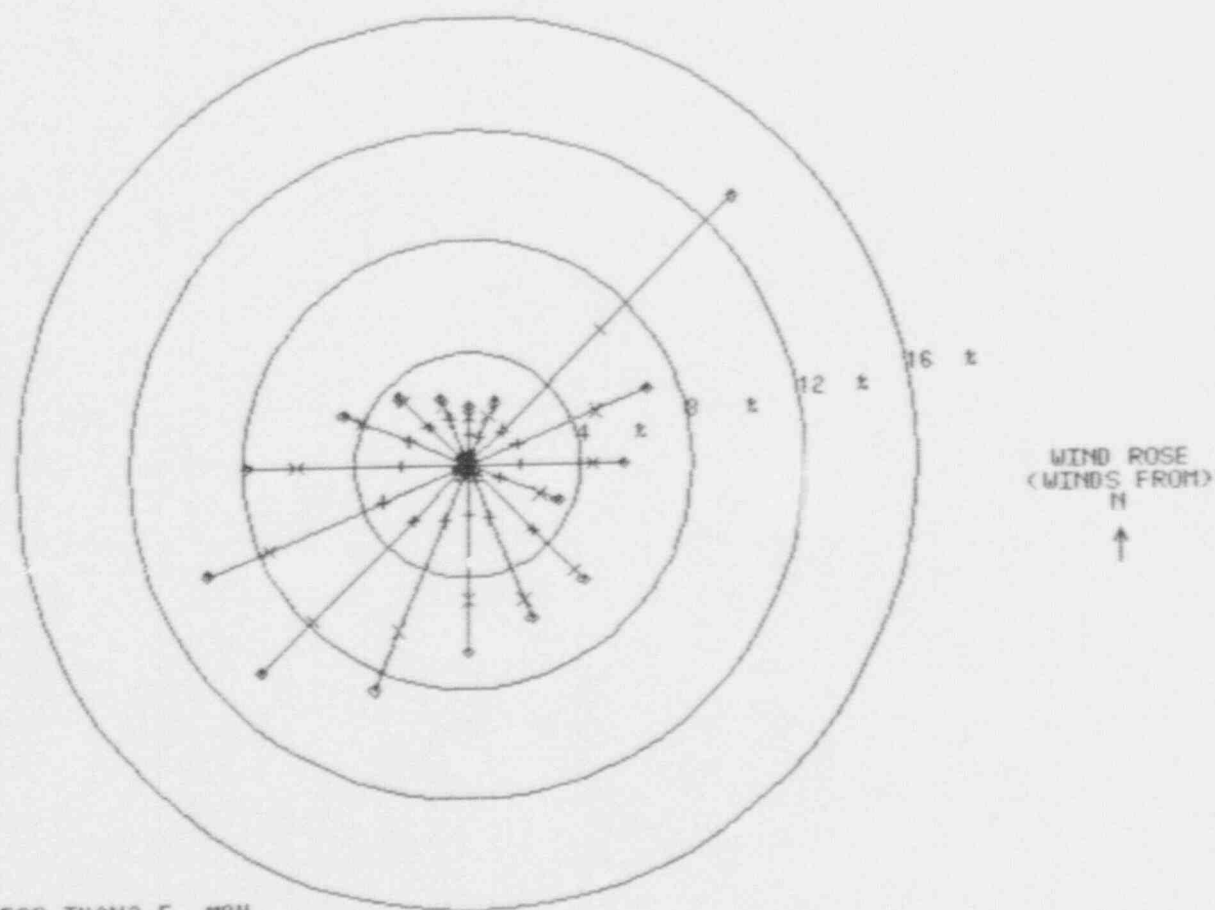
- ▲ WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- x WIND SPEED LESS THAN 12.5 MPH
- WIND SPEED GREATER THAN 12.5 MPH

0.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:32

ATTACHMENT 6d. PLANT HATCH 100m METEOROLOGICAL TOWER WIND ROSE  
JULY 1, 1991 THROUGH SEPTEMBER 30, 1991



- ▲ WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- × WIND SPEED LESS THAN 12.5 MPH
- ◆ WIND SPEED GREATER THAN 12.5 MPH

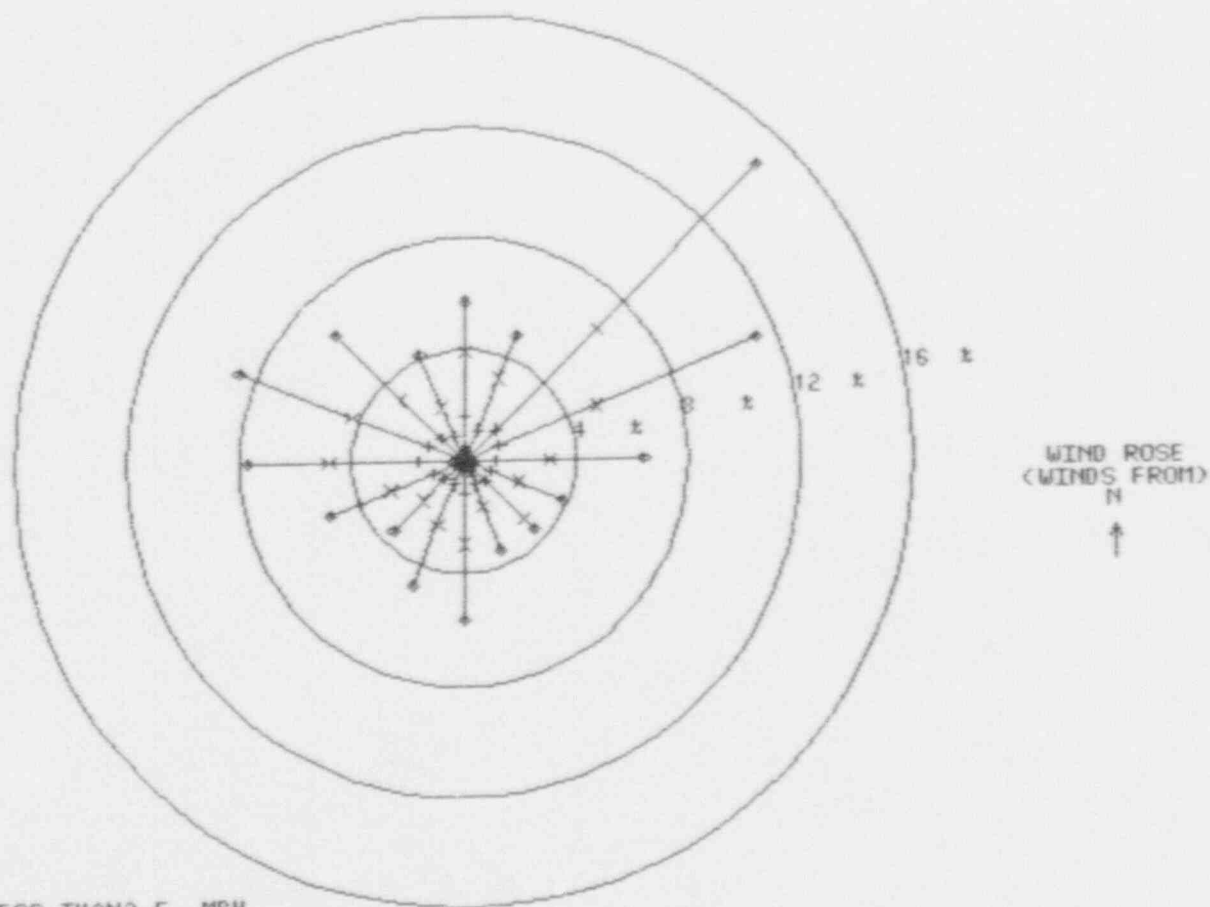
0.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:36



ATTACHMENT 6e. PLANT HATCH 100m METEOROLOGICAL TOWER WIND ROSE  
OCTOBER 1, 1991 THROUGH DECEMBER 31, 1991



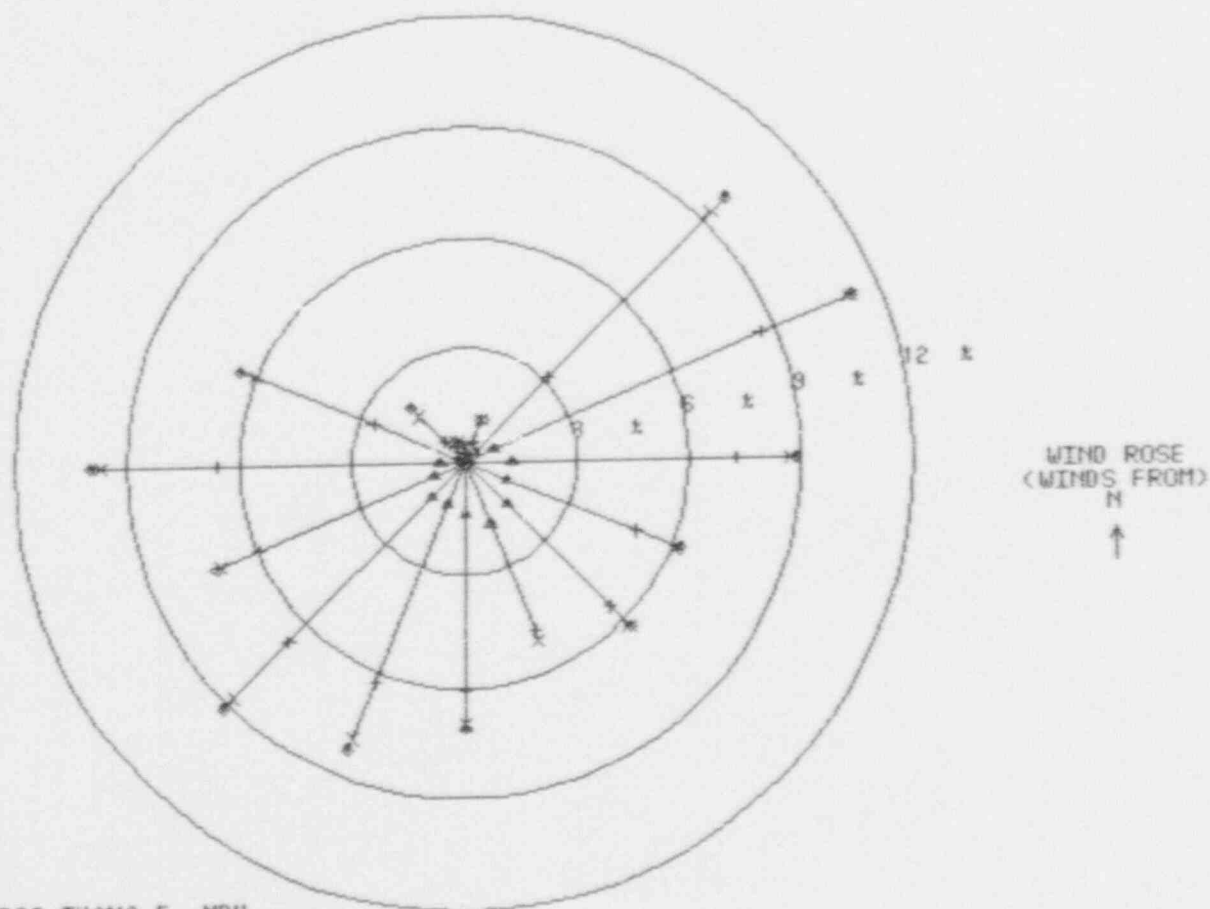
- ▲ WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- x WIND SPEED LESS THAN 12.5 MPH
- \* WIND SPEED GREATER THAN 12.5 MPH

0.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:40

ATTACHMENT 7a. PLANT HATCH 23m BACKUP METEOROLOGICAL TOWER WIND ROSE  
JANUARY 1, 1991 THROUGH DECEMBER 31, 1991



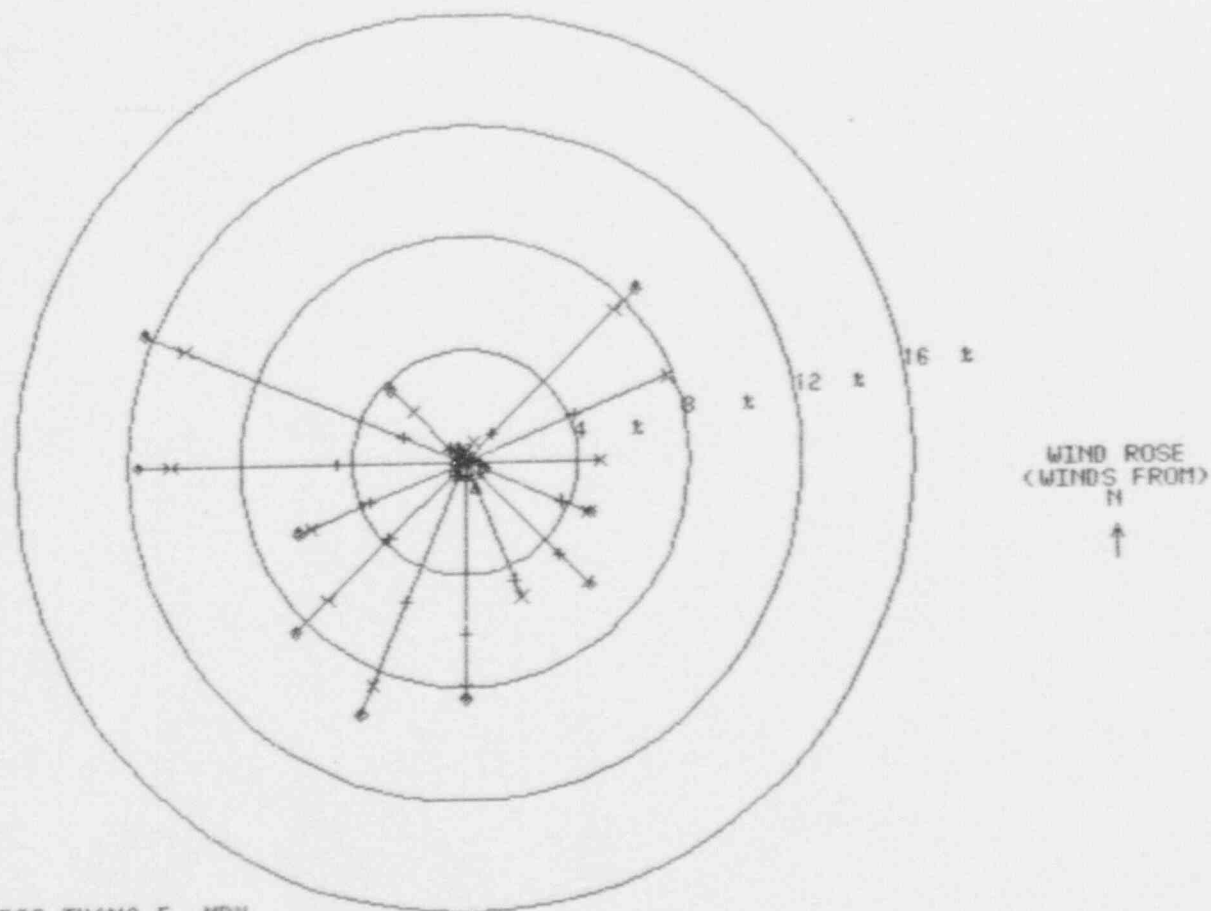
- ▲ WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- x WIND SPEED LESS THAN 12.5 MPH
- WIND SPEED GREATER THAN 12.5 MPH

0.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:20

ATTACHMENT 7b. PLANT HATCH 23m BACKUP METEOROLOGICAL TOWER WIND ROSE  
JANUARY 1, 1991 THROUGH MARCH 31, 1991



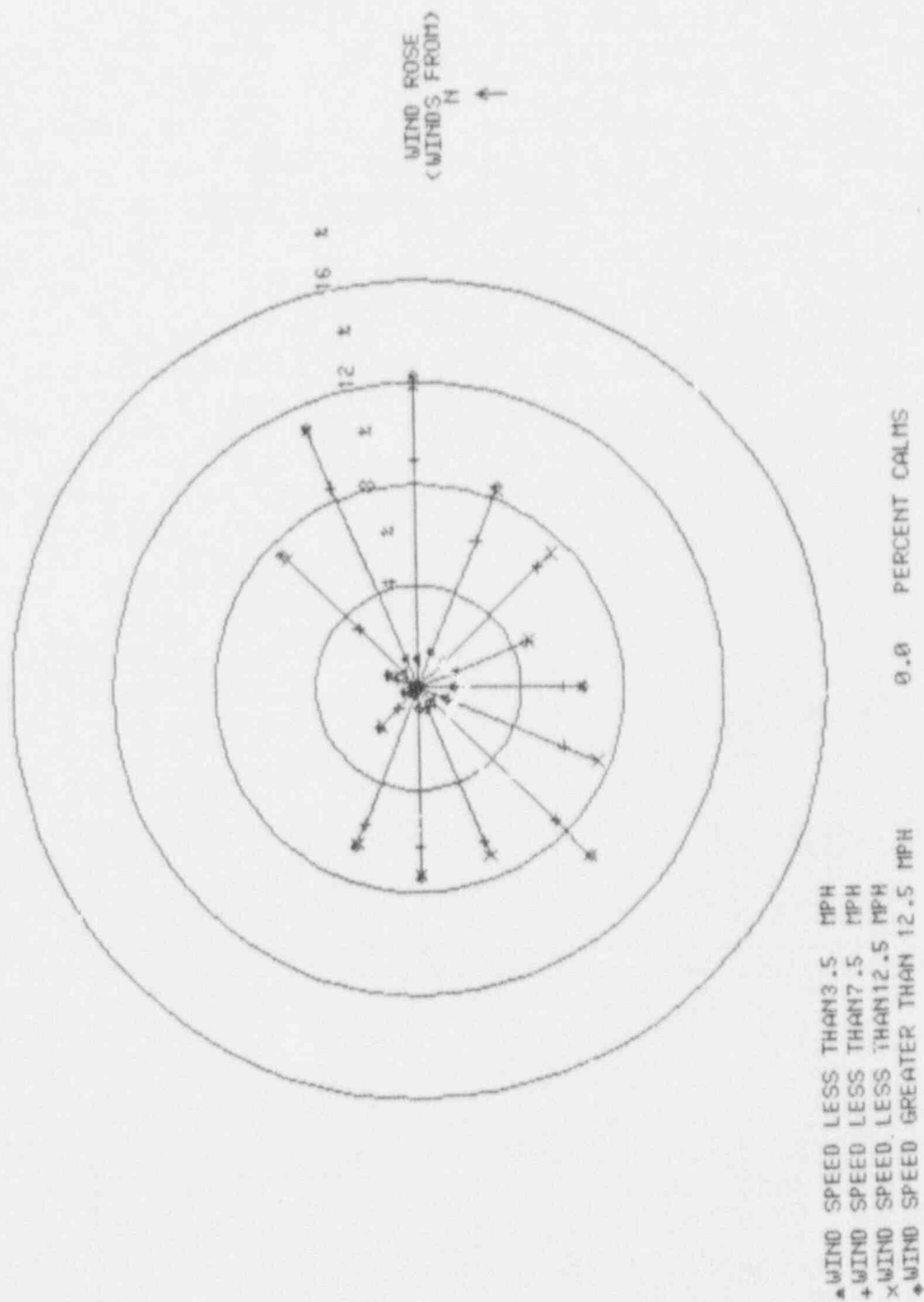
- ▲ WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- x WIND SPEED LESS THAN 12.5 MPH
- ◆ WIND SPEED GREATER THAN 12.5 MPH

0.0 PERCENT CALMS

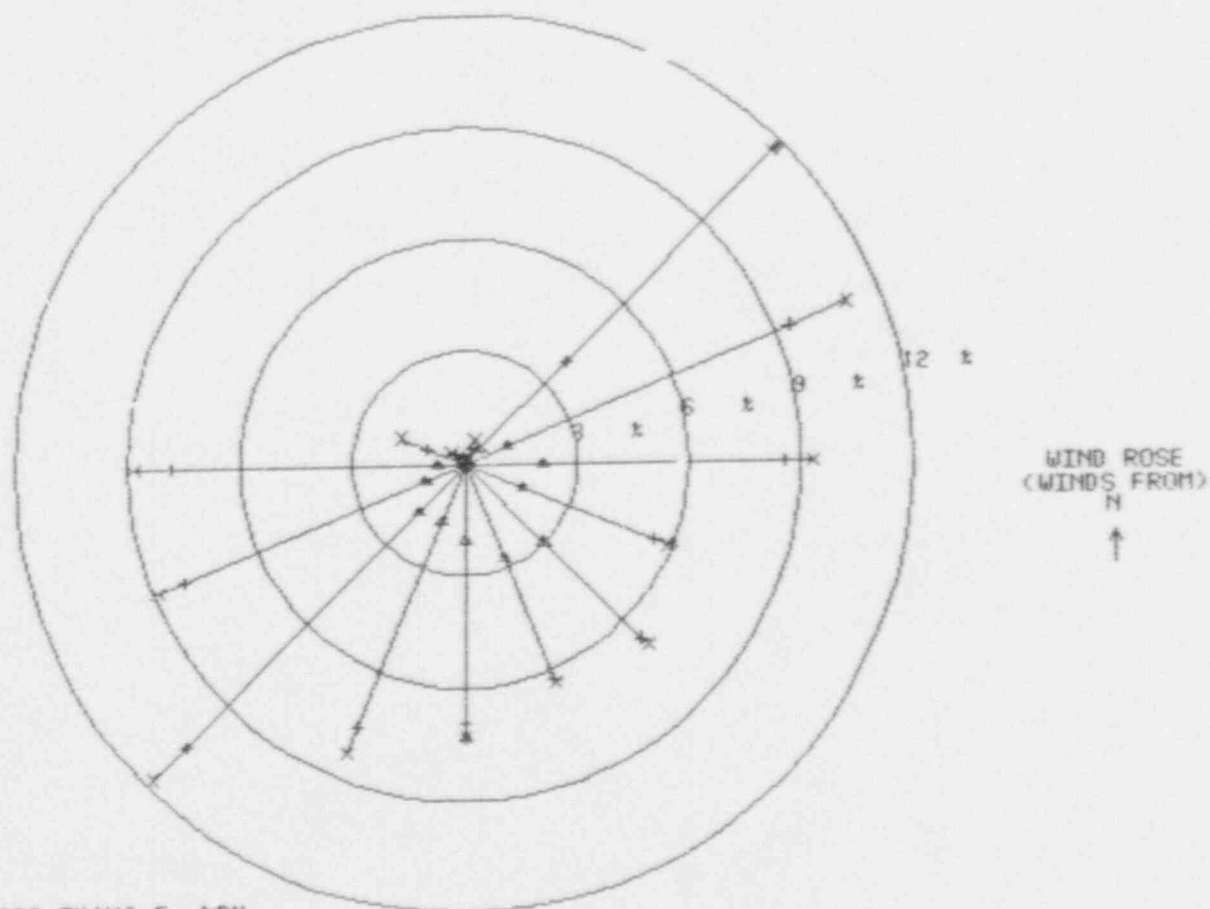
SITE: PLANT HATCH

02/12/92 18:28

ATTACHMENT 7c. PLANT HATCH 23m BACKUP METEOROLOGICAL TOWER WIND ROSE  
APRIL 1, 1991 THROUGH JUNE 30, 1991



Attachment 7d. PLANT HATCH 23m BACKUP METEOROLOGICAL TOWER WIND ROSE  
JULY 1, 1991 THROUGH SEPTEMBER 30, 1991



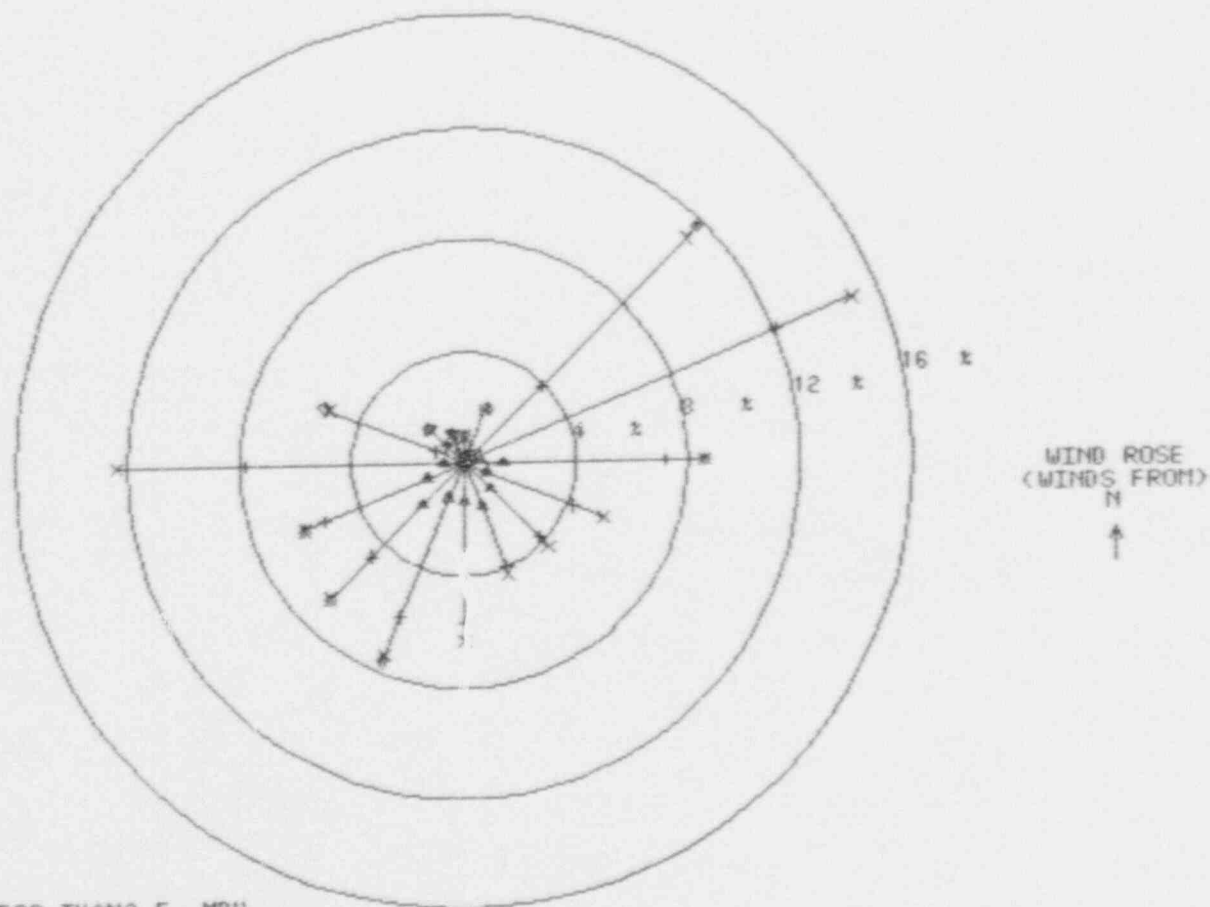
- WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- x WIND SPEED LESS THAN 12.5 MPH
- ♦ WIND SPEED GREATER THAN 12.5 MPH

0.0 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:38

ATTACHMENT 7c. PLANT HATCH 23m BACKUP METEOROLOGICAL TOWER WIND ROSE  
OCTOBER 1, 1991 THROUGH DECEMBER 31, 1991



- ▲ WIND SPEED LESS THAN 3.5 MPH
- + WIND SPEED LESS THAN 7.5 MPH
- x WIND SPEED LESS THAN 12.5 MPH
- \* WIND SPEED GREATER THAN 12.5 MPH

0.8 PERCENT CALMS

SITE: PLANT HATCH

02/12/92 18:40



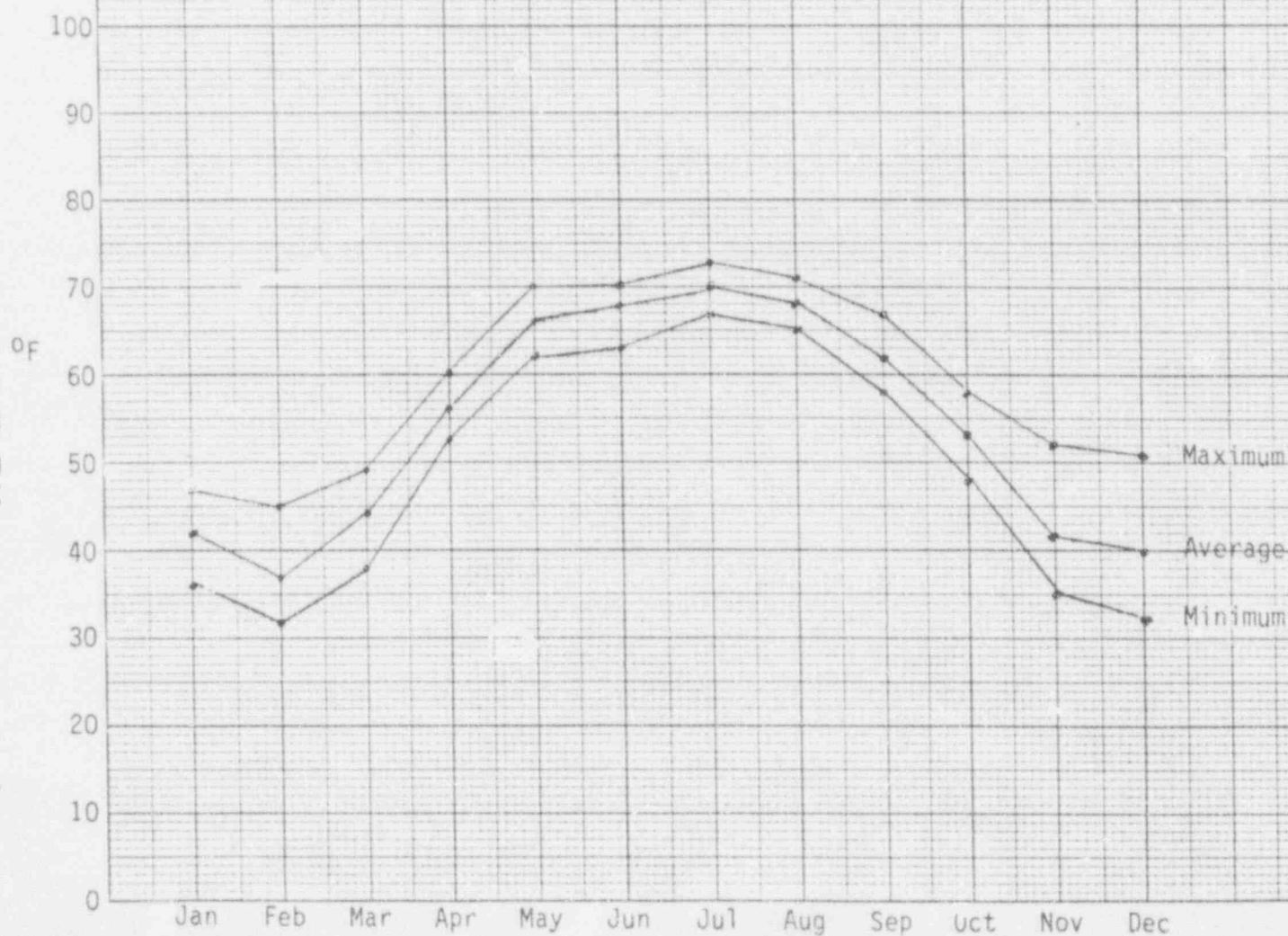
ATTACHMENT 8. PLANT HATCH METEOROLOGICAL TOWER 1991 DATA RECOVERY  
(PRIMARY AND BACKUP TOWERS)

| Parameter  | Recovery<br>(Percent) |
|--|-----------------------|
| Wind Speed 10m   | 99.7                  |
| Wind Speed 60m   | 89.8                  |
| Wind Speed 100m  | 99.6                  |
| Wind Speed 23m (Backup)                                  | 90.0                  |
| Wind Direction 10m                                       | 99.4                  |
| Wind Direction 60m                                       | 95.9                  |
| Wind Direction 100m                                      | 94.4                  |
| Wind Direction 23m (Backup)                              | 90.0                  |
| Delta Temperature 60-10m                                 | 99.4                  |
| Delta Temperature 100-10m                                | 99.3                  |
| Delta Temperature 45-10m (Backup)                        | 89.9                  |
| Temperature 10m  | 99.3                  |
| Dew Point Temperature 10m                                | 99.5                  |
| Temperature 23m  | 89.9                  |
| Rainfall   | 99.4                  |
| Composite  |                       |
| Wind Speed and Direction 10m, Delta Temperature 60-10m   | 99.2                  |
| Wind Speed and Direction 60m, Delta Temperature 60-10m   | 89.2                  |
| Wind Speed and Direction 100m, Delta Temperature 100-10m | 94.4                  |
| Wind Speed and Direction 23m, Delta Temperature 45-10m   | 89.6                  |

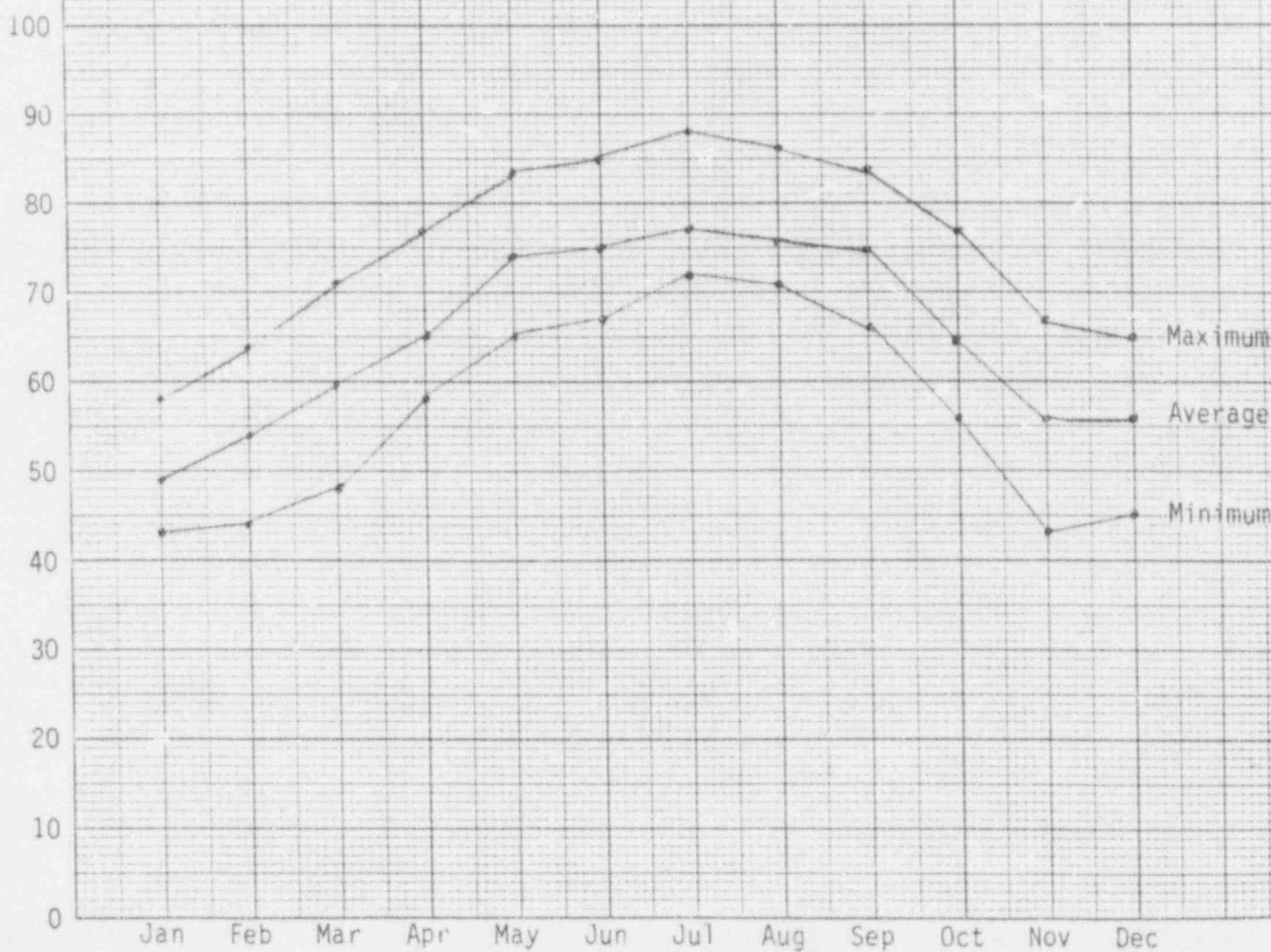
ATTACHMENT 9. PLANT HATCH MONTHLY  
AVERAGE AND AVERAGE OF THE DAILY  
EXTREMES OF DEW POINT TEMPERATURE 10m  
JANUARY 1, 1991 THROUGH DECEMBER 31, 1991

46 1240

20 X 20 TO THE INCH • 7 X 10 INCHES  
KEUFFEL & ESSER CO. MADE IN U.S.A.



ATTACHMENT 9. PLANT HATCH MONTHLY  
 AVERAGE AND AVERAGE OF DAILY  
 EXTREMES OF AMBIENT TEMPERATURE 10m  
 JANUARY 1, 1991 THROUGH DECEMBER 31, 1991



46 1240

20 X 20 TO THE INCH • 7 X 10 INCHES  
 K&E NEUPPEL & ESSER CO. OF

ATTACHMENT 10. DAILY, MONTHLY AND ANNUAL PRECIPITATION  
JANUARY 1, 1991 THROUGH DECEMBER 31, 1991

| Month      | (Inches)    | Month      | Inches)     |
|------------|-------------|------------|-------------|
| <u>Jan</u> |             | <u>Apr</u> |             |
| 1          | 0.01        | 5          | 0.94        |
| 11         | 1.91        | 6          | 0.02        |
| 15         | 0.45        | 9          | 0.44        |
| 19         | 2.66        | 10         | 0.03        |
| 20         | 0.10        | 14         | 0.03        |
| 24         | 2.80        | 15         | 0.06        |
| 25         | 0.04        | 17         | 1.23        |
| 27         | 0.05        | 18         | 0.14        |
| 28         | 0.88        | 19         | 0.90        |
| 29         | 1.36        | 20         | 0.22        |
| 30         | 0.29        | 22         | 0.01        |
| 31         | <u>0.09</u> | 23         | 0.22        |
|            | 10.64       | 26         | 0.02        |
|            |             | 27         | 0.08        |
| <u>Feb</u> |             | 28         | 0.17        |
| 7          | 0.06        | 29         | 0.04        |
| 22         | 0.07        | 30         | <u>0.47</u> |
| 23         | <u>0.08</u> |            | 5.02        |
|            | 0.21        | <u>May</u> |             |
| <u>Mar</u> |             | 1          | 0.50        |
| 2          | 3.80        | 4          | 0.79        |
| 3          | 3.37        | 5          | 0.36        |
| 13         | 0.03        | 11         | 0.29        |
| 17         | 0.32        | 12         | 0.06        |
| 18         | 0.07        | 13         | 0.13        |
| 29         | <u>1.63</u> | 14         | 0.10        |
|            | 9.22        | 15         | 0.42        |
|            |             | 16         | 0.63        |
|            |             | 17         | 1.01        |
|            |             | 19         | 0.34        |
|            |             | 21         | 0.44        |
|            |             | 22         | 0.21        |
|            |             | 26         | 1.09        |
|            |             | 27         | 0.58        |
|            |             | 30         | 0.07        |
|            |             | 31         | <u>0.69</u> |
|            |             |            | 7.71        |



## ATTACHMENT 10 (continued)

| Month      | (Inches)    | Month      | (Inches)    |
|------------|-------------|------------|-------------|
| <u>Jun</u> |             | <u>Aug</u> |             |
| 1          | 0.74        | 1          | 1.90        |
| 2          | 0.16        | 2          | 0.09        |
| 4          | 0.17        | 8          | 0.02        |
| 5          | 0.02        | 10         | 1.23        |
| 14         | 0.28        | 11         | 0.40        |
| 17         | 0.04        | 12         | 0.30        |
| 18         | 0.10        | 13         | 0.01        |
| 23         | 0.41        | 14         | 0.26        |
| 24         | 0.63        | 23         | 0.40        |
| 25         | 0.09        | 24         | 0.02        |
| 27         | 0.55        | 25         | 1.61        |
| 28         | <u>0.05</u> | 26         | 0.10        |
|            | 3.24        | 27         | 0.25        |
|            |             | 29         | 1.03        |
|            |             | 30         | <u>0.38</u> |
|            |             |            | 8.00        |
| <u>Jul</u> |             | <u>Sep</u> |             |
| 2          | 1.69        | 10         | 0.02        |
| 4          | 0.12        | 11         | 0.03        |
| 5          | 0.11        | 17         | 0.02        |
| 6          | 0.39        | 25         | <u>1.02</u> |
| 11         | 0.15        |            | 1.09        |
| 14         | 0.03        |            |             |
| 15         | 0.31        | <u>Oct</u> |             |
| 16         | 0.83        | 1          | 0.04        |
| 17         | 0.75        | 2          | 0.40        |
| 28         | 0.25        | 5          | 0.14        |
| 29         | 2.67        | 6          | 0.01        |
| 30         | 1.52        | 15         | 0.17        |
| 31         | <u>0.48</u> | 26         | <u>0.01</u> |
|            | 9.30        |            | 0.77        |
|            |             | <u>Nov</u> |             |
|            |             | 3          | 0.03        |
|            |             | 9          | 0.02        |
|            |             | 20         | 0.05        |
|            |             | 22         | 0.04        |
|            |             | 23         | <u>0.02</u> |
|            |             |            | 0.16        |

ATTACHMENT 10 (continued)

| Month          | (Inches)    | Month | (Inches) |
|----------------|-------------|-------|----------|
| <u>Dec</u>     |             |       |          |
| 9              | 0.28        |       |          |
| 10             | 0.16        |       |          |
| 14             | 0.08        |       |          |
| 15             | 0.16        |       |          |
| 23             | 0.03        |       |          |
| 24             | 0.01        |       |          |
| 27             | 0.06        |       |          |
| 28             | <u>1.48</u> |       |          |
|                | 2.26        |       |          |
| Annual = 57.62 |             |       |          |



# ATTACHMENT 11. PLANT HATCH 1991 METEOROLOGICAL SUMMARY

The overall meteorological data collection at Plant Hatch was very good during 1991. Most of the data was collected using the site DRDT computer. The computer functioned well throughout the year with the exception of a few problems in December. Data collection was available from the computer about 97% of the time during 1991. During the periods when the computer was down, data were digitized from strip charts.

There were a few problems with instrumentation that lasted for extended periods of time. The wind speed and direction at 60m were out-of-service for much of March. Also, the wind direction at 100m was not functioning properly during part of April and May. The most serious problem was with the two delta temperatures on the primary tower (60-10m and 100-10m) that intermittently gave incorrect low readings. During these time periods, data were substituted from the backup tower and adjusted to the delta temperature height. The problem was fixed in early November.

The table below summarizes the data collection over the past five years. Since the computer was installed at the end of 1989, the data collection has improved. The 1991 data recovery for pertinent parameters was the highest ever achieved at better than 99%.

|                           | 1987 | 1988 | 1989 | 1990 | 1991 | 5-Yr |
|---------------------------|------|------|------|------|------|------|
| Wind Speed 10m            | 96.3 | 98.5 | 96.7 | 98.6 | 99.3 | 97.9 |
| Wind Speed 60m            | 93.7 | 93.4 | 83.9 | 98.6 | 89.8 | 91.9 |
| Wind Speed 100m           | 94.3 | 98.0 | 92.8 | 95.2 | 99.6 | 96.0 |
| Wind Direction 10m        | 96.5 | 99.3 | 98.4 | 98.7 | 99.4 | 98.5 |
| Wind Direction 60m        | 94.4 | 93.9 | 83.8 | 97.0 | 95.0 | 93.0 |
| Wind Direction 100m       | 97.4 | 98.2 | 97.6 | 78.4 | 94.4 | 93.2 |
| Delta Temperature 60-10m  | 97.3 | 98.9 | 93.2 | 98.2 | 99.4 | 97.4 |
| Delta Temperature 100-10m | 97.4 | 96.3 | 92.2 | 98.3 | 99.3 | 96.7 |
| Temperature 10m           | 95.0 | 99.4 | 98.2 | 96.4 | 99.3 | 97.7 |
| Dew Point 10m             | 95.0 | 99.4 | 91.2 | 98.6 | 99.5 | 96.7 |
| Precipitation             | 95.0 | 94.2 | 91.6 | 98.7 | 99.4 | 95.8 |
| <u>Composite</u>          |      |      |      |      |      |      |
| WS, WD 10m, DT 60-10      | 93.2 | 97.2 | 90.0 | 98.2 | 99.2 | 95.6 |
| WS, WD 60m, DT 60-10      | 90.1 | 91.3 | 77.8 | 96.6 | 89.2 | 89.0 |
| WS, WD 100m, DT 100-10    | 91.8 | 93.6 | 85.6 | 73.1 | 94.4 | 87.7 |

The ambient and dew point temperature plots in Attachment 9 show that temperatures were generally cooler than in recent years, particularly, during the summer months. The cooler temperatures were probably caused by the increase in precipitation over the year, causing more cloudy days than normal. The affect on the dew point temperature is not as great since dew point readings are higher during periods of rain or snow.

The wind roses in Attachments 4 through 7 show very good agreement between levels on the tower and also with the backup tower. In all cases, the peak wind direction was from the northeast. Secondary peaks of much less magnitude were generally from the west or southwest. The northeast peaks occurs in all seasons and at every level on the towers. The secondary peaks tend to vary somewhat with more south to southwest winds occurring in the summer season. These wind conditions are consistent with data from previous years.

The joint frequency tables of wind speed and direction versus delta temperature are shown in Attachments 1, 2 and 3. The table below summarizes the last five years of operation of the 100m tower. The table uses the wind speed and direction from the 10m level versus the delta temperature between 60 and 10 meters. The 1991 data shows less stable hours than in any of the last five years and a continuation of the trend towards unstable conditions in comparison to the early years of operation of the 100m tower. The biggest change was in the neutral "D" stability, where the higher percentage can be attributed to the increase in rain, resulting in more neutral conditions.

#### Plant Hatch Stability Classification

| Stability Group | Percent Stability |      |      |      |      | 5-Year Average |
|-----------------|-------------------|------|------|------|------|----------------|
|                 | 1991              | 1990 | 1989 | 1988 | 1987 |                |
| A               | 14.3              | 16.3 | 11.8 | 12.2 | 15.7 | 14.0           |
| B               | 5.1               | 4.7  | 4.0  | 4.0  | 5.0  | 4.6            |
| C               | 4.6               | 3.9  | 3.3  | 3.1  | 4.0  | 3.8            |
| D               | 24.7              | 19.1 | 22.0 | 18.4 | 16.8 | 20.2           |
| E               | 31.0              | 29.3 | 33.1 | 31.8 | 31.6 | 31.4           |
| F               | 9.8               | 12.8 | 12.8 | 15.3 | 12.3 | 12.6           |
| G               | 10.5              | 13.9 | 13.0 | 15.2 | 14.6 | 13.4           |
| Total Hours     | 8692              | 8604 | 7886 | 8541 | 8162 |                |

The precipitation totals (daily, monthly and annual) are shown in Attachment 10. The total for the year was 57.62 inches which was above average for the plant area. The amount of rain per month varied widely with most of the rain falling in the first eight months of the year. The 57 inches of rain represents the most rainfall since the 100m tower went into operation eight years ago.