

## **Meteorological Monitoring System Upgrade Beyond Y2K**

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Meteorological Monitoring Systems were not immune to the Y2K bug. Data acquisition hardware through data storage, as well as reporting capabilities were impacted.

This presentation at the 8<sup>th</sup> meeting of the Nuclear Utility Meteorological Data Users Group will be an online demonstration of one utility's solution to its Y2K issues.

Nine Mile Point, utilizing existing meteorological towers and instrumentation, replaced its data acquisition hardware, central computer, database and output software. The output software, built as a "web reporter", will demonstrate the use of 21<sup>st</sup> century technology in meteorological data reporting.

The various output reports can be run using either current or historical data. The reports can also be run for a single variable, multi-variable, or Joint Frequency Distribution format. Specialized reports include a Lake Breeze Index, Data Capture Summary, and a wetbulb temperature report.

## **Meteorological Monitoring System Upgrade Beyond Y2K**

**Nine Mile Point's** Y2K Meteorological Monitoring System (MMS) Upgrade was completed in **two phases**.

**Phase I** was a short term / quick turn around installation to meet a Y2K deadline. It included new data loggers and minimum software requirements.

**Phase II** added reporting software, the meteorologist's data verification and editing tools, and fixed any bugs from phase I.

**MMS towers and instrumentation** were not changed.

The system includes 3 towers:

- Primary/ Main tower (200' - 3 level)
- Backup tower (90' -single level)
- Inland tower (30' -single level)

Instrumentation in use is Teledyne/Met One.

**Prior to Phase I** Digital Equipment Corporation (DEC) computers were in use.

- PDP-11 tower computers
- VAX 4000 central computer with a VMS operating system

**Phase I changes included:**

- ZENO 32-bit data loggers at each tower.
- A Compaq Alpha central computer with an NT operating system and an Oracle database.

**Phase II additions:**

- A development system (a Compaq Alpha and a ZENO data logger)

At the towers, Coastal Environmental's ZENO 32-bit **data loggers** performed similar **data crunching tasks** as was done by the older DEC PDP-11's. The loggers generate 1, 15, & 60-minute averages and sigma theta values. The loggers also initiate daily automatic zero/span **calibration at midnight**, similar to the previous system. **Access to the data logger** is via a dedicated line for routine polling and a dial-up modem for remote access. Local connection via laptop is also possible during calibration. There is a feature which marks calibration data as "Suspect" for the Database Loader.

The new **central computer** polls the data loggers each minute using Coastal's Intercept software. A **Database Loader** loads the Oracle Database and creates a new set of current reports.

The various meteorological data reports are viewed with the new **webreporter** software.

The webreporter has **password security** included on the **Login page**.

Reports are grouped under three headings on the **Home page**.

- Current,
- Historical,
- Historical/Analytical.

The **report types** include:

- Single variable,
- Multi-variable,
- Joint Frequency Distribution,
- Lake Breeze Index,
- Data Capture Summary,
- Wet-bulb.

## **Talking Points for the Figures.**

1. **Security** (Login Page)
2. **Main Menu** (Home Page)
3. **Multi-Variable Reports** (Current Reports and Historical Reports)
  - ER (Emergency Reports 4 & 12 Hour)
  - Last Hour
  - Daily & Daily Summary
  - Single Hour
  - Selectable
  - Calibration
4. **Data Transfer / File Transfers** (Current Reports)
  - EDAMS (Emergency Dose Assessment Model System)
  - ERDS (Emergency Response Data System)
  - Plant Historian (PI or Plant Data Historian)
5. **Single Variable Report**
  - Individual
6. **Historical / Analytical Reports**
  - JFD (Joint Frequency Distribution) (Metric, English, & Data Sources)
  - LBI (Lake Breeze Index)
  - Data Capture Summary
  - Scan Database
  - Wet Bulb
7. **Midnight Calibration & Time Sync**
8. **Met Data Editor**
  - Edit Data
  - Linear Correction
  - Dew Point Edit
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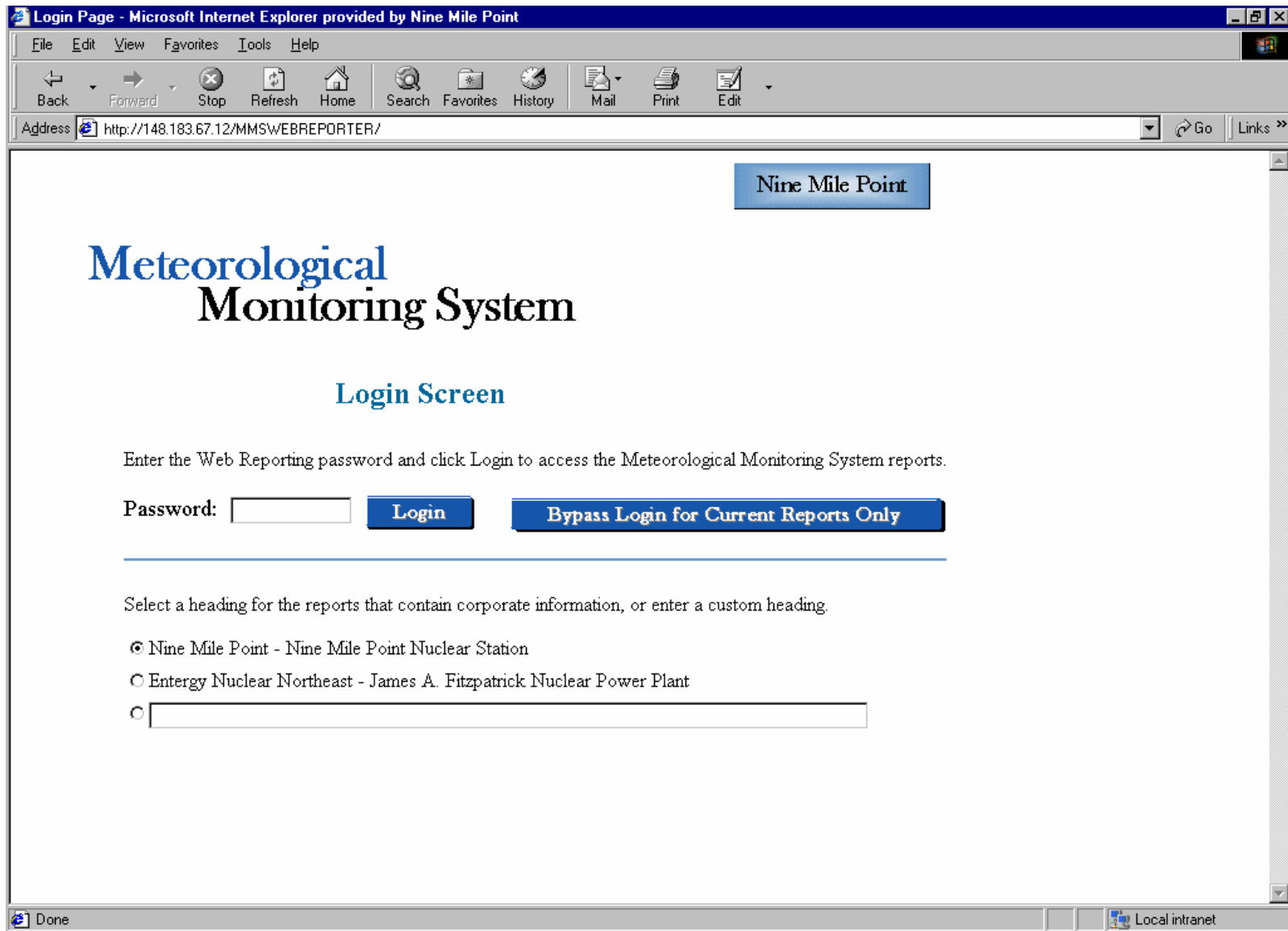


Figure 1. Login Page

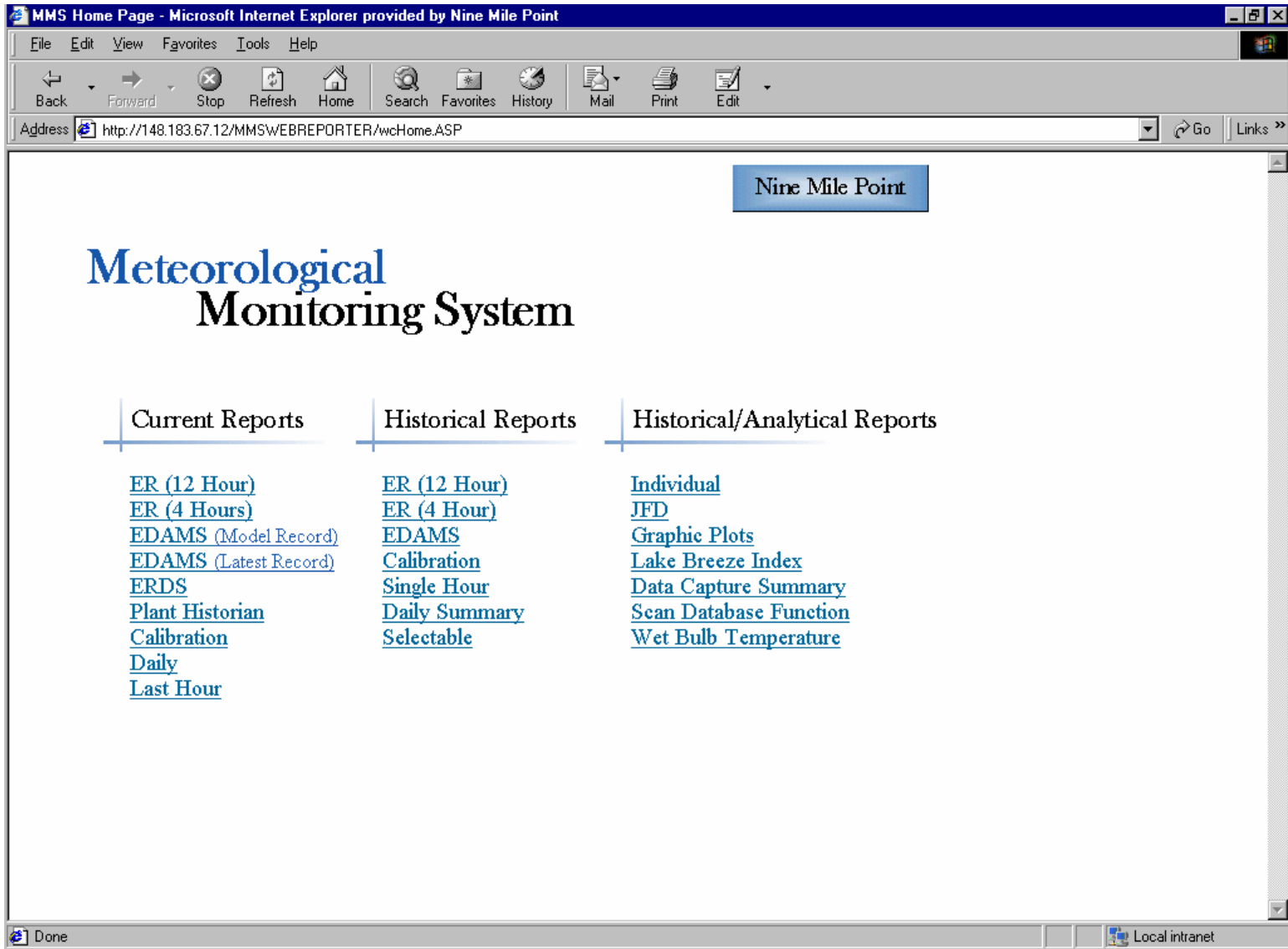
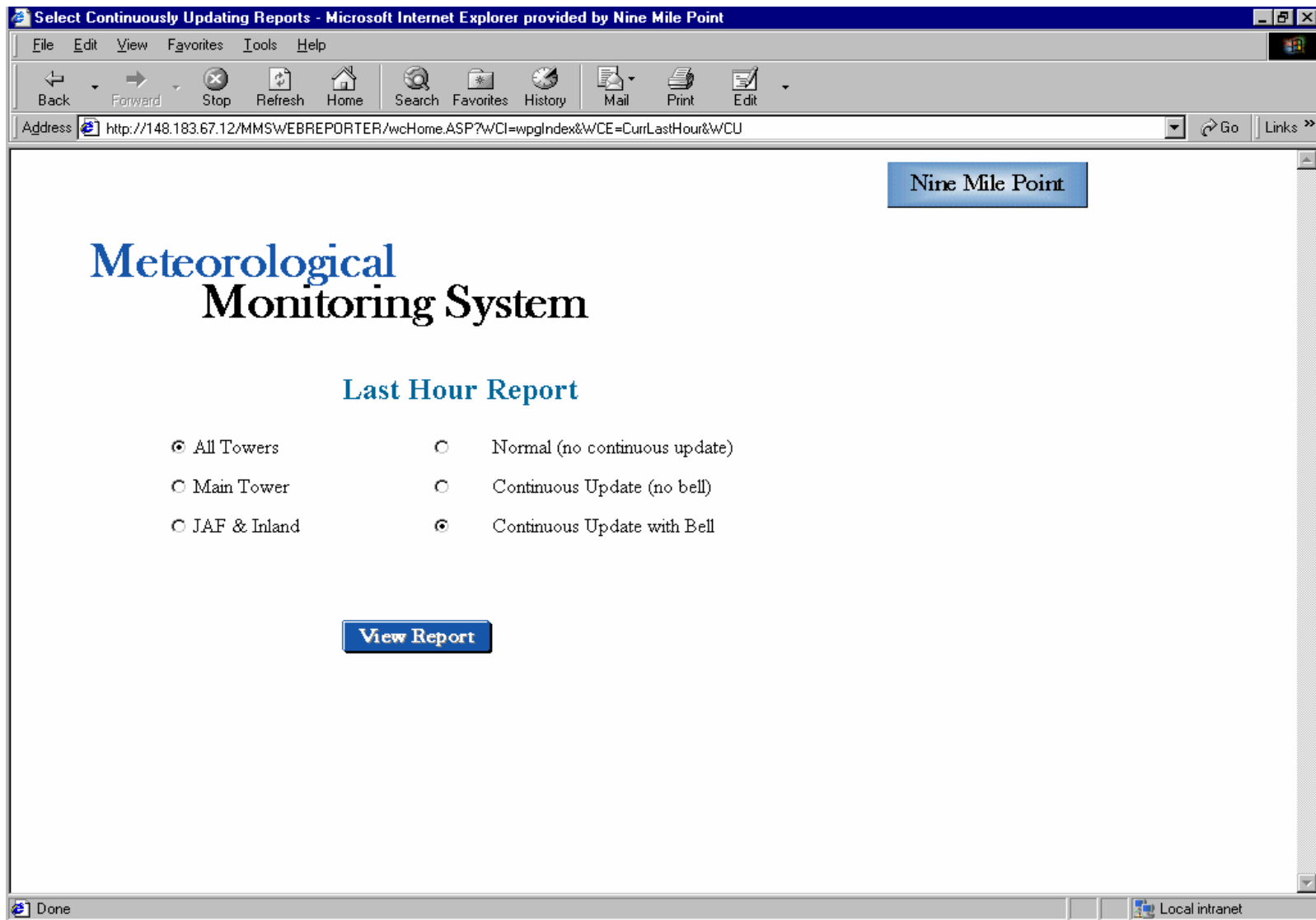


Figure 2. Home Page



**Figure 3. Selection Page - Last Hour Report**

# Last Hour Report

DATE TIME AVG (EST)	MAIN TOWER PARAMETERS						NINE MILE POINT						TEMP & DEW PT		DELTA TEMP & STAB				PRESSURE		PRECIP
	WIND SPEED			WIND DIRECTION			SIGMA THETA & STABILITY						TEMP & DEW PT		DELTA TEMP & STAB				PRESSURE		PRECIP
	WS30'	WS100'	WS200'	WD30'	WD100'	WD200'	SIG30'S	SIG100'S	SIG200'S	TMP30'	DPT30'	DT100'S	DT200'S	BARO	PRECIP						
FL MPH	FL MPH	FL MPH	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL IN	FL IN		
4/24/2002 13:00	60	8	8	9	288	285	281	13.5 C	15.0 C	16.5 C	42	31	4	-0.8 A	-0.6 D	29.92	0.00				
13:00	15	6	6	8	303	304	304	19.0 B	20	20.1 B	15.0 C	42	30	4	-1.1 A	-1.3 D	29.92	0.00			
13:15	15	5	6	6	3	2	353	14.7 C	20	12.5 C	14.2 C	43	30	4	-1.7 A	20	-2.3 A	29.92	0.00		
13:30	15	6	7	8	9	9	357	14.8 C	20	11.2 D	9.5 D	43	30	4	-1.0 A	20	-1.5 C	29.92	0.00		
13:45	15	6	7	9	5	13	358	14.3 C	20	11.5 D	6.2 E	43	28	4	-1.1 A	20	-1.4 C	29.92	0.00		
13:38	1	7	8	10	7	7	357	14.5 C		7.9 D	6.4 E	43	28	4	-1.2 A		-1.2 D	29.92	0.00		
13:39	1	6	7	10	6	13	356	12.5 C		7.6 D	1.3 G	43	27	4	-1.3 A		-1.2 D	29.92	0.00		
13:40	1	5	6	10	11	18	1	15.6 C		11.5 D	7.4 E	44	28	4	-1.6 A		-1.7 B	29.92	0.00		
13:41	1	6	7	10	7	11	358	18.2 B		12.3 D	1.6 G	44	28	4	-1.2 A		-1.6 C	29.92	0.00		
13:42	1	4	6	10	14	18	359	22.8 A		15.3 C	2.7 F	44	29	4	-1.0 A		-1.7 B	29.92	0.00		
13:43	1	5	7	9	358	12	360	11.9 D		15.2 C	5.3 E	44	29	4	-1.3 A		-2.0 A	29.92	0.00		
13:44	1	7	7	10	5	14	0	14.0 C		11.5 D	4.5 E	44	27	4	-1.2 A		-1.7 B	29.92	0.00		
13:45	1	6	7	9	360	16	358	12.7 C		10.2 D	3.6 F	44	27	4	-0.9 A		-1.3 D	29.92	0.00		
13:46	1	6	5	9	358	21	4	9.8 D		23.7 A	8.0 D	44	27	4	-0.4 D		-1.2 D	29.92	0.00		
13:47	1	6	7	9	352	15	1	7.4 E		9.7 D	6.0 E	44	26	4	-0.5 D		-1.2 D	29.92	0.00		
13:48	1	6	7	9	1	12	359	7.9 D		9.0 D	5.3 E	43	26	4	-0.4 D		-1.1 D	29.92	0.00		
13:49	1	5	7	9	11	7	352	15.1 C		7.2 E	2.0 G	44	26	4	-0.8 A		-1.2 D	29.92	0.00		
13:50	1	6	7	9	11	5	353	10.3 D		7.9 D	2.7 F	44	25	4	-1.1 A		-1.1 D	29.92	0.00		
13:51	1	6	8	9	7	4	352	9.2 D		5.3 E	3.1 F	43	26	4	-1.2 A		-1.2 D	29.92	0.00		
13:52	1	5	7	9	3	5	354	8.9 D		7.5 D	5.6 E	43	26	4	-1.1 A		-1.0 D	29.92	0.00		

DATE TIME AVG (EST)	JAF TOWER PARAMETERS			INLAND TOWER PARAMETERS			
	SPEED	DIR	SIGMA & S	SPEED	DIR	SIGMA & S	
	WS90'	WD90'	SIG90'S	WS30'	WD30'	SIG30'S	
FL MPH	FL DEG	FL DEG	FL MPH	FL DEG	FL DEG		
4/24/2002 13:00	60	7	303	16.2 C	6	211	53.6 A
13:00	15	5	322	12.7 C	7	240	31.4 A
13:15	15	6	353	9.0 D	8	197	23.4 A
13:30	15	6	357	8.4 D	8	183	24.8 A
13:45	15	6	359	10.6 D	5	115	80.5 A
13:38	01	5	1	6.2 E	7	74	6.9 E
13:39	01	5	354	8.4 D	6	77	9.9 D
13:40	01	6	1	9.9 D	7	60	7.9 D
13:41	01	5	2	11.1 D	5	73	7.4 E
13:42	01	6	5	7.0 E	3	83	14.3 C
13:43	01	6	10	7.6 D	3	37	17.3 C
13:44	01	5	10	8.7 D	2	64	24.9 A
13:45	01	6	1	7.4 E	2	175	47.0 A
13:46	01	6	10	7.5 D	4	194	32.8 A
13:47	01	7	2	8.7 D	7	188	14.8 C
13:48	01	6	4	7.7 D	7	163	10.1 D
13:49	01	6	7	7.1 E	9	178	12.9 C
13:50	01	6	9	7.7 D	8	184	7.4 E
13:51	01	6	13	7.6 D	5	189	18.2 B
13:52	01	6	10	8.4 D	6	200	15.3 C

Figure 4. Last Hour Report



# Current Daily Report

MAIN TOWER PARAMETERS						NINE MILE POINT						TEMP & DEW PT		DELTA TEMP & STAB		PRESSURE	PRECIP
DATE		WIND SPEED			WIND DIRECTION			SIGMA THETA & STABILITY									
TIME AVG	WS30'	WS100'	WS200'	WD30'	WD100'	WD200'	SIG30'S	SIG100'S	SIG200'S	TMP30'	DPT30'	DT100'S	DT200'S	BARO	PRECIP		
(EST)	FL MPH	FL MPH	FL MPH	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL DEG	FL IN HG	FL IN		
4/23/2002																	
14:00 60	15	16	17	263	260	262	5.2 E	4.2 E	3.6 F	39	31	4 -0.7 B	-1.3 D	29.83	0.00		
15:00 60	15	15	16	261	257	258	4.8 E	4.1 E	3.7 F	40	31	4 -0.7 B	-1.3 D	29.83	0.00		
16:00 60	15	16	18	257	252	254	5.7 E	3.6 F	3.5 F	41	29	4 -0.8 A	-1.3 D	29.85	0.00		
17:00 60	15	17	19	256	251	253	6.4 E	4.0 E	3.6 F	41	28	4 -0.8 A	-1.3 D	29.86	0.00		
18:00 60	10	16	18	248	244	246	11.3 D	4.3 E	3.5 F	43	27	4 -0.9 A	-1.4 C	29.86	0.00		
19:00 60	9	14	16	241	241	244	14.6 C	6.5 E	5.1 E	43	26	4 -0.5 D	-1.0 D	29.86	0.00		
20:00 60	6	9	12	228	234	243	15.5 C	11.3 D	8.5 D	43	26	4 0.0 E	-0.3 E	29.84	0.00		
21:00 60	6	8	11	223	231	242	13.9 C	10.2 D	7.8 D	43	25	4 0.2 E	0.0 E	29.83	0.00		
22:00 60	6	9	12	222	229	239	16.1 C	11.5 D	10.3 D	43	25	4 0.3 E	0.1 E	29.82	0.00		
23:00 60	8	13	16	234	237	242	16.5 C	10.2 D	8.1 D	42	31	4 -0.1 E	-0.6 D	29.83	0.00		
24:00 60	10	15	17	246	244	248	14.0 C	7.3 E	5.9 E	42	32	4 -0.3 D	-0.9 D	29.84	0.00		
4/24/2002																	
01:00 60	9	15	17	241	241	245	13.7 C	7.3 E	6.2 E	42	31	4 -0.3 D	-0.9 D	29.84	0.00		
02:00 60	10	15	17	241	241	245	15.0 C	8.4 D	6.6 E	42	32	4 -0.3 D	-0.8 D	29.85	0.00		
03:00 60	9	14	16	244	243	248	15.1 C	7.8 D	5.7 E	42	32	4 -0.3 D	-0.9 D	29.85	0.00		
04:00 60	8	11	13	231	235	244	29.8 A	18.7 B	8.0 D	40	32	4 -0.2 D	-0.4 E	29.86	0.00		
05:00 60	6	9	11	176	189	218	13.6 C	8.0 D	9.2 D	35	26	4 0.4 E	2.0 F	29.87	0.00		
06:00 60	7	10	12	191	200	228	11.6 D	8.1 D	4.6 E	35	27	4 0.3 E 19	2.4 F	29.88	0.00		
07:00 60	5	7	10	204	210	227	21.1 B	16.5 C	9.7 D	37	29	4 -0.2 E	-0.1 E	29.91	0.00		
08:00 60	8	11	12	243	241	244	15.0 C	8.1 D	7.4 E	40	32	4 -0.9 A	-1.5 C	29.93	0.00		
09:00 60	9	11	12	251	246	248	12.4 D	5.3 E	4.7 E	41	32	4 -1.1 A	-1.6 B	29.95	0.00		
10:00 60	9	9	10	262	257	258	8.4 D	6.3 E	5.3 E	41	32	4 -0.7 B	-1.3 D	29.95	0.00		
11:00 60	9	9	9	271	267	268	6.2 E	5.1 E	4.7 E	41	32	4 -0.6 C	-1.2 D	29.94	0.00		
12:00 60	10	10	10	277	272	269	6.1 E	4.6 E	5.1 E	41	32	4 -0.6 C	-0.8 D	29.93	0.00		
13:00 60	8	8	9	288	285	281	13.5 C	15.0 C	16.5 C	42	31	4 -0.8 A	-0.6 D	29.92	0.00		
14:00 60	6	7	8	5	8	356	14.1 C	12.3 D	10.1 D	43	29	4 -1.2 A	-1.5 C	29.92	0.00		
JAF TOWER PARAMETERS				INLAND TOWER PARAMETERS													
DATE		SPEED		DIR		SIGMA & S											
TIME AVG	WS90'	WD90'	SIG90'S	WS30'	WD30'	SIG30'S											
(EST)	FL MPH	FL DEG	FL DEG	FL MPH	FL DEG	FL DEG											
4/23/2002																	
14:00 60	14	268	12.1 D	9	304	38.4 A											
15:00 60	14	265	12.4 D	8	288	35.1 A											
16:00 60	14	262	14.8 C	9	277	30.1 A											
17:00 60	13	259	15.6 C	9	274	23.4 A											
18:00 60	13	247	13.7 C	8	270	24.0 A											
19:00 60	12	245	13.6 C	6	263	20.6 B											
20:00 60	10	238	14.8 C	3	234	20.4 B											
21:00 60	10	239	14.8 C	2	199	11.8 D											
22:00 60	10	237	15.5 C	2	164	36.5 A											
23:00 60	12	241	14.6 C	2	188	27.0 A											
24:00 60	13	244	14.1 C	3	224	19.3 B											
4/24/2002																	
01:00 60	13	240	13.9 C	2	146	52.7 A											
02:00 60	13	243	13.5 C	3	214	14.7 C											
03:00 60	11	247	15.2 C	3	190	39.0 A											
04:00 60	9	236	21.9 B	2	165	37.8 A											
05:00 60	11	210	10.5 D	3	207	22.4 B											
06:00 60	11	213	11.0 D	3	211	11.7 D											
07:00 60	8	215	13.1 C	6	230	10.7 D											
08:00 60	9	241	16.4 C	5	253	27.7 A											
09:00 60	8	257	18.7 B	5	241	32.0 A											
10:00 60	10	276	9.0 D	4	245	69.5 A											
11:00 60	10	281	7.0 E	4	167	80.1 A											
12:00 60	11	281	7.6 D	6	200	48.1 A											
13:00 60	7	303	16.2 C	6	211	53.6 A											
14:00 60	6	359	11.3 D	6	184	50.0 A											

**Figure 5. Current Daily Report**

# Current Calibration Report

Calibration Report - 4/24/02

MAIN TOWER PARAMETERS							NINE MILE POINT			TEMP & DEW PT		DELTA TEMP		PRESSURE	PRECIP	
DATE		WIND SPEED			WIND DIRECTION			SIGMA THETA								
TIME	Cal	WS30'	WS100'	WS200'	WD30'	WD100'	WD200'	SIG30'	SIG100'	SIG200'	TMP30'	DPT30'	DT100'	DT200'	BARO	PRECIP
(EST)		MPH	MPH	MPH	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG F	DEG F	IN HG	IN
4/24/2002																
00:01	Span	49.6	49.0	49.0	180.0	180.1	181.8	0.0	0.0	11.2	102.6	31.2	12.48	12.43	31.98	1.00
00:02	Span	50.0	50.0	49.9	180.0	180.1	180.2	0.0	0.0	0.0	102.7	30.4	12.50	12.83	31.98	1.00
00:03	Zero	0.6	1.6	2.1	0.0	0.1	0.2	0.0	0.0	20.2	32.2	30.8	0.00	0.22	27.98	0.00
00:04	Zero	0.6	0.6	0.6	0.0	0.1	0.2	0.0	0.0	0.0	32.3	31.1	0.00	-0.18	27.98	0.00

JAF TOWER PARAMETERS				
DATE		SPEED	DIR	Sigma Theta
TIME	Cal	WS90'	WD90'	SIG90'
(EST)		MPH	DEG	DEG
4/24/2002				
00:01	Span	49.3	180.4	8.7
00:02	Span	50.0	179.5	0.0
00:03	Zero	1.5	0.1	15.0
00:04	Zero	0.6	0.0	0.0

INLAND TOWER PARAMETERS				
DATE		SPEED	DIR	Sigma Theta
TIME	Cal	WS30'	WD30'	SIG30'
(EST)		MPH	DEG	DEG
4/24/2002				
00:01	Span	49.1	180.5	2.8
00:02	Span	49.9	180.1	0.0
00:03	Zero	1.4	360.0	15.0
00:04	Zero	0.6	360.0	0.0

Figure 6. Current Calibration Report

# Current EDAMS Report (Latest Record)

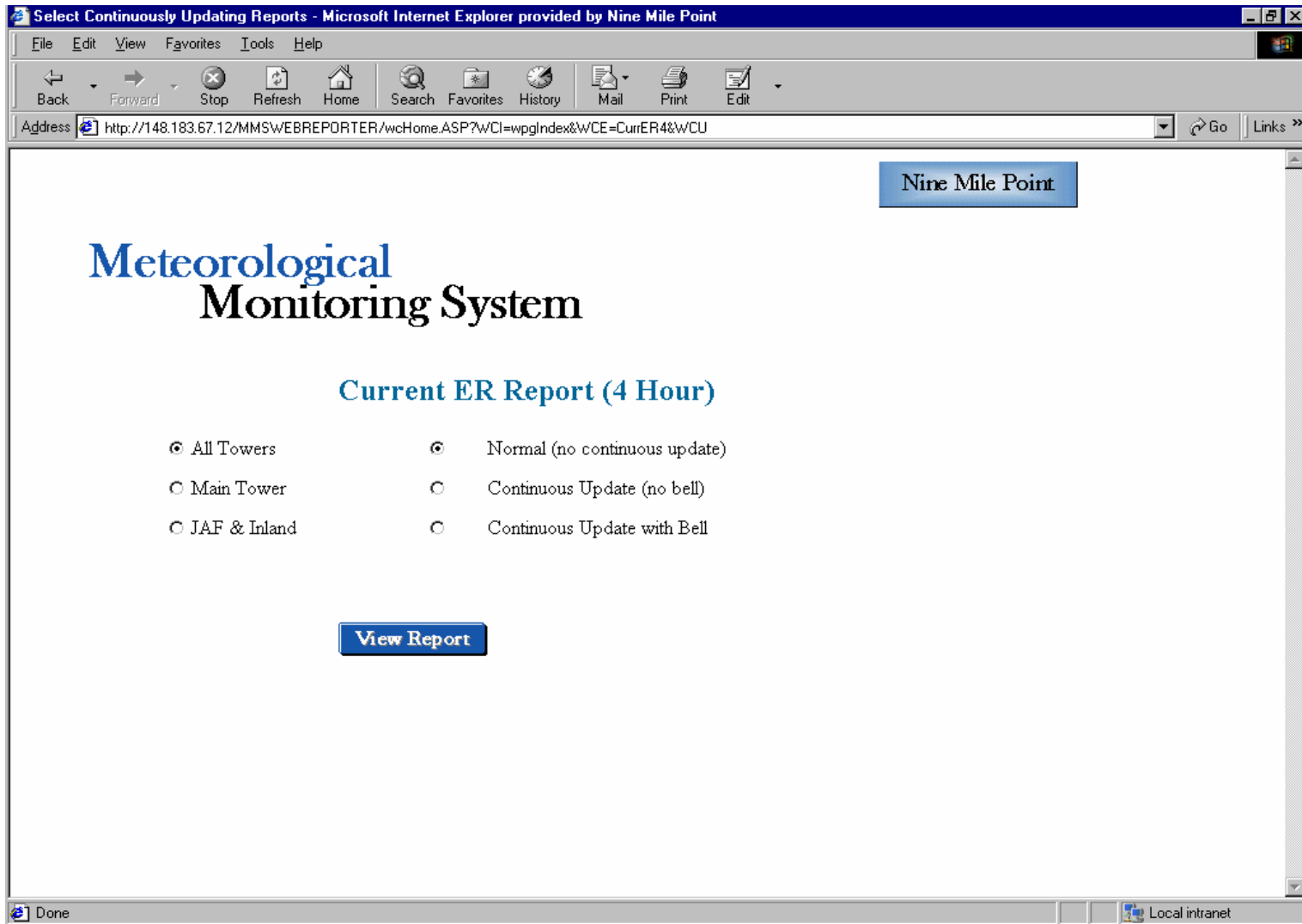
02 04 24 15 15 00 8.90 356.90 -1.08 6.30 9.30 -0.95 5.50 8.30 43.90 29.92 26.70 0.00 9.30 12.80 17.90  
D C B D A 999.90 999.90 999.90 I 6.50 221.30 33.30 A

**Figure 7. Current EDAMS Report (Latest Record)**

# Current EDAMS Report (Model Record)

02 04 24 16 15 00	10.40	10.40	-1.75	7.80	23.80	-1.06	6.20	26.80	44.60	29.91	27.70	0.00	7.20	14.30	14.60
E C C A A	6.50	13.80	9.60 D	6.40	338.90	38.80 A									
02 04 24 16 30 00	7.70	11.20	-2.04	5.70	20.50	-1.06	4.90	29.40	44.90	29.91	28.60	0.00	12.20	16.90	18.70
D C B A A	6.50	18.30	10.50 D	7.70	1.50	25.30 A									
02 04 24 16 45 00	7.60	18.60	-1.27	6.10	27.50	-0.73	5.50	30.10	44.60	29.90	26.70	0.00	12.50	14.70	13.60
C C C D B	5.40	38.00	14.80 C	6.70	18.40	20.80 B									
02 04 24 17 00 00	7.00	25.80	-1.47	5.40	23.40	-0.75	5.20	13.10	45.50	29.90	25.10	0.00	11.20	17.90	18.40
D B B C A	5.40	45.70	14.40 C	6.70	23.70	17.40 C									
02 04 24 17 15 00	7.30	31.30	-1.36	5.80	31.30	-0.90	4.70	30.10	45.90	29.89	24.20	0.00	12.90	18.20	23.20
C B A D A	5.80	45.90	10.10 D	6.20	2.80	21.60 B									
02 04 24 17 30 00	7.70	28.40	-1.44	4.90	36.90	-0.92	4.00	39.00	46.50	29.90	23.50	0.00	9.90	17.70	25.10
D B A C A	5.30	43.20	15.60 C	5.70	7.40	16.00 C									
02 04 24 17 45 00	7.50	27.90	-1.14	5.20	34.70	-0.81	4.20	42.40	46.60	29.89	23.10	0.00	12.50	19.00	19.80
C B B D A	4.80	46.60	13.10 C	6.30	7.90	17.30 C									
02 04 24 18 00 00	8.00	36.20	-1.21	4.90	43.20	-0.70	4.20	40.90	46.80	29.89	23.60	0.00	9.40	16.70	22.00
D C B D B	6.30	50.50	11.30 D	6.80	7.50	22.30 B									
.															
.															
.															
02 04 25 14 15 00	24.50	259.20	-1.23	22.30	257.30	-0.50	19.60	261.10	41.00	29.60	34.00	0.00	7.00	7.80	8.00
E D D D D	17.80	260.50	14.80 C	7.70	281.40	26.40 A									
02 04 25 14 30 00	21.80	253.70	-1.55	20.20	251.70	-0.58	17.10	256.60	41.60	29.60	32.80	0.00	3.80	4.30	6.20
E E E C D	15.00	259.00	14.90 C	7.30	287.00	27.60 A									
02 04 25 14 45 00	21.40	258.20	-1.52	19.80	255.60	-0.39	17.90	259.60	42.00	29.61	33.10	0.00	5.10	5.30	6.60
E E E C D	14.60	260.60	15.60 C	5.70	287.00	32.00 A									
02 04 25 15 00 00	22.70	259.20	-1.49	20.70	257.60	-0.37	19.30	261.60	42.00	29.61	32.20	0.00	3.40	3.60	4.60
F F E C D	16.20	263.40	14.60 C	12.30	266.70	20.30 B									
02 04 25 15 15 00	20.00	255.60	-1.46	18.10	252.80	-0.48	15.70	257.60	42.30	29.62	32.00	0.00	3.80	4.50	6.30
E E E C D	13.90	259.70	14.80 C	10.80	263.70	22.10 B									
02 04 25 15 30 00	18.90	251.30	-1.49	17.10	248.50	-0.62	13.40	253.60	42.60	29.63	31.50	0.00	4.40	4.50	7.50
E E D C C	13.10	255.50	16.80 C	11.20	279.20	23.30 A									
02 04 25 15 45 00	18.30	247.40	-1.49	17.30	246.70	-0.69	12.10	251.60	42.70	29.64	32.10	0.00	3.40	3.50	8.50
F F D C B	12.90	256.10	18.10 B	11.20	278.40	23.30 A									
02 04 25 16 00 00	15.10	247.70	-1.47	14.10	246.60	-0.61	10.60	251.40	42.90	29.65	32.40	0.00	3.60	3.80	8.60
F E D C C	11.10	252.20	17.90 B	8.30	271.00	29.70 A									
02 04 25 16 15 00	15.90	253.60	-1.33	14.70	251.30	-0.63	12.60	256.40	42.70	29.66	32.90	0.00	4.10	4.30	7.10
E E E D C	13.10	263.20	13.90 C	9.20	272.80	27.20 A									

Figure 8. Current EDAMS Report (Model Record) (24 Hours)



**Figure 9. Selection Page – Current Emergency Report (ER) (4 Hour)**

# Current ER Report (4 Hour)

MAIN TOWER PARAMETERS							NINE MILE POINT							TEMP & DEW PT		DELTA TEMP & STAB				PRESSURE		PRECIP	
DATE	WIND SPEED			WIND DIRECTION			SIGMA THETA & STABILITY				TEMP & DEW PT		DELTA TEMP & STAB				PRESSURE		PRECIP				
	TIME AVG (EST)	WS30' FL MPH	WS100' FL MPH	WS200' FL MPH	WD30' FL DEG	WD100' FL DEG	WD200' FL DEG	SIG30'S FL DEG	SIG100'S FL DEG	SIG200'S FL DEG	TMP30' FL DEG	DPT30' FL DEG	DT100'S FL DEG	DT200'S FL DEG	DT200'S F FL DEG	DT200'S F FL DEG	BARO FL IN HG	PRECIP FL IN					
4/24/2002																							
10:30 15	9	9	10	270	266	267	5.2 E	3.6 F	3.5 F	41	31	4 -0.7 C	-1.2 D			29.94	0.00						
10:45 15	9	9	9	273	270	270	5.4 E	3.8 E	3.8 E	41	31	4 -0.6 D	-1.1 D			29.94	0.00						
11:00 15	8	9	9	273	269	271	5.7 E	4.3 E	3.8 E	41	32	4 -0.7 B	-1.2 D			29.93	0.00						
11:15 15	9	9	9	272	268	269	5.7 E	4.1 E	3.6 F	41	32	4 -0.7 B	-1.2 D			29.93	0.00						
11:30 15	10	10	10	275	271	271	4.5 E	3.6 F	2.8 F	41	32	4 -0.6 C	-1.1 D			29.93	0.00						
11:45 15	11	10	11	278	276	272	4.4 E	2.7 F	3.2 F	41	32	4 -0.6 C	-1.1 D			29.93	0.00						
12:00 15	10	10	11	282	274	262	4.0 E	3.3 F	3.1 F	41	33	4 -0.6 C	0.0 E			29.93	0.00						
12:15 15	9	9	10	287	280	265	4.8 E	4.7 E	4.6 E	41	33	4 -0.7 C	0.3 E			29.93	0.00						
12:30 15	8	8	10	284	280	275	5.6 E	4.0 E	3.4 F	41	31	4 -0.7 B	-0.5 D			29.92	0.00						
12:45 15	8	8	9	280	279	281	4.9 E	4.6 E	4.6 E	42	30	4 -0.6 C	-0.8 D			29.92	0.00						
13:00 15	6	6	8	303	304	304	19.0 B 20	20.1 B	15.0 C	42	30	4 -1.1 A	-1.3 D			29.92	0.00						
13:15 15	5	6	6	3	2	353	14.7 C 20	12.5 C	14.2 C	43	30	4 -1.7 A 20	-2.3 A			29.92	0.00						
13:30 15	6	7	8	6	9	357	14.8 C 20	11.2 D	9.5 D	43	30	4 -1.0 A 20	-1.5 C			29.92	0.00						
13:45 15	6	7	9	5	13	358	14.3 C 20	11.5 D	6.2 E	43	28	4 -1.1 A 20	-1.4 C			29.92	0.00						
14:00 15	6	7	9	5	9	356	12.3 D 20	11.5 D	7.8 D	43	26	4 -0.9 A 20	-0.9 D			29.92	0.00						
14:15 15	6	6	9	8	9	357	17.9 B	12.8 C	9.3 D	44	27	4 -1.0 A 20	-1.1 D			29.92	0.00						
14:30 15	6	6	9	2	15	356	12.6 C	13.3 C	8.0 D	44	26	4 -0.9 A	-0.8 D			29.91	0.00						

JAF TOWER PARAMETERS				INLAND TOWER PARAMETERS			
DATE	SPEED		SIGMA & S	SPEED		SIGMA & S	
	TIME AVG (EST)	WS90' FL MPH	WD90' FL DEG	SIG90'S FL DEG	WS30' FL MPH	WD30' FL DEG	SIG30'S FL DEG
4/24/2002							
10:30 15	11	281	6.6 E	3	262	53.2 A	
10:45 15	10	282	5.6 E	4	111	74.1 A	
11:00 15	10	282	7.3 E	4	123	33.0 A	
11:15 15	11	284	5.2 E	6	191	31.7 A	
11:30 15	11	282	6.1 E	4	209	71.3 A	
11:45 15	11	281	7.1 E	8	188	14.5 C	
12:00 15	11	278	10.0 D	5	225	54.3 A	
12:15 15	10	287	5.3 E	6	211	49.0 A	
12:30 15	7	296	7.2 E	6	236	27.6 A	
12:45 15	6	308	9.8 D	5	143	33.8 A	
13:00 15	5	322	12.7 C	7	240	31.4 A	
13:15 15	6	353	9.0 D	8	197	23.4 A	
13:30 15	6	357	8.4 D	8	183	24.8 A	
13:45 15	6	359	10.6 D	5	115	80.5 A	
14:00 15	6	9	10.2 D	5	192	37.1 A	
14:15 15	5	4	13.0 C	7	221	33.3 A	
14:30 15	5	9	14.2 C	6	253	42.9 A	

**Figure 10. Current Emergency Report (ER) (4 Hour)**

# Current ER Report (12 Hour)

DATE	MAIN TOWER PARAMETERS						NINE MILE POINT			TEMP & DEW PT		DELTA TEMP & STAB		PRESSURE	PRECIP
	WIND SPEED			WIND DIRECTION			SIGMA THETA & STABILITY			TMP30'	DPT30'	DT100'S	DT200'S	BARO	PRECIP
TIME AVG (EST)	WS30' MPH	WS100' MPH	WS200' MPH	WD30' DEG	WD100' DEG	WD200' DEG	SIG30'S DEG	SIG100'S DEG	SIG200'S DEG	DEG	DEG	DEG F	DEG F	IN HG	IN
4/25/2002															
02:00 15	8.4	12.9	18.3	126.4	130.8	136.9	16.6 C	14.0 C	8.0 D	48.3	25.7	-0.02 E	-0.09 E	29.60	0.00
02:15 15	8.7	13.4	18.4	126.4	130.6	137.1	17.4 C	13.8 C	8.4 D	48.2	26.1	-0.06 E	-0.13 E	29.59	0.00
02:30 15	7.8	12.0	17.1	128.6	133.1	140.6	19.0 B	14.6 C	8.4 D	48.3	26.4	-0.07 E	-0.24 E	29.58	0.00
02:45 15	8.2	12.6	17.6	130.9	135.7	142.6	18.6 B	13.4 C	7.9 D	48.4	26.8	-0.09 E	-0.27 E	29.58	0.00
03:00 15	9.8	14.5	20.0	132.4	133.3	139.8	18.9 B	15.2 C	9.0 D	48.6	27.1	-0.08 E	-0.22 E	29.57	0.00
.															
.															
13:00 15	21.2	23.7	25.8	262.0	258.5	261.3	6.7 E	5.7 E	5.7 E	40.8	34.8	-0.58 D	-1.29 D	29.60	0.00
13:15 15	19.6	22.3	24.5	261.1	257.3	259.2	8.0 D	7.8 D	7.0 E	41.0	34.0	-0.50 D	-1.23 D	29.60	0.00
13:30 15	17.1	20.2	21.8	256.6	251.7	253.7	6.2 E	4.3 E	3.8 E	41.6	32.8	-0.58 D	-1.55 C	29.60	0.00
13:45 15	17.9	19.8	21.4	259.6	255.6	258.2	6.6 E	5.3 E	5.1 E	42.0	33.1	-0.39 D	-1.52 C	29.61	0.00
14:00 15	19.3	20.7	22.7	261.6	257.6	259.2	4.6 E	3.6 F	3.4 F	42.0	32.2	-0.37 D	-1.49 C	29.61	0.00
DATE	JAF TOWER PARAMETERS			INLAND TOWER PARAMETERS											
TIME AVG (EST)	SPEED MPH	DIR DEG	SIGMA & S DEG	SPEED MPH	DIR DEG	SIGMA & S DEG									
4/25/2002															
02:00 15	11.6	137.8	13.9 C	7.4	134.5	11.2 D									
02:15 15	12.0	138.0	14.3 C	7.6	134.0	10.0 D									
02:30 15	10.4	141.8	15.6 C	6.9	142.2	12.1 D									
02:45 15	11.0	145.5	14.7 C	5.7	137.9	11.6 D									
03:00 15	13.8	142.6	13.4 C	6.8	133.1	9.9 D									
.															
.															
13:00 15	15.3	259.1	16.5 C	5.9	260.3	19.8 B									
13:15 15	17.8	260.5	14.8 C	7.7	281.4	26.4 A									
13:30 15	15.0	259.0	14.9 C	7.3	287.0	27.6 A									
13:45 15	14.6	260.6	15.6 C	5.7	287.0	32.0 A									
14:00 15	16.2	263.4	14.6 C	12.3	266.7	20.3 B									

**Figure 11. Current Emergency Report (ER) (12 Hour)**

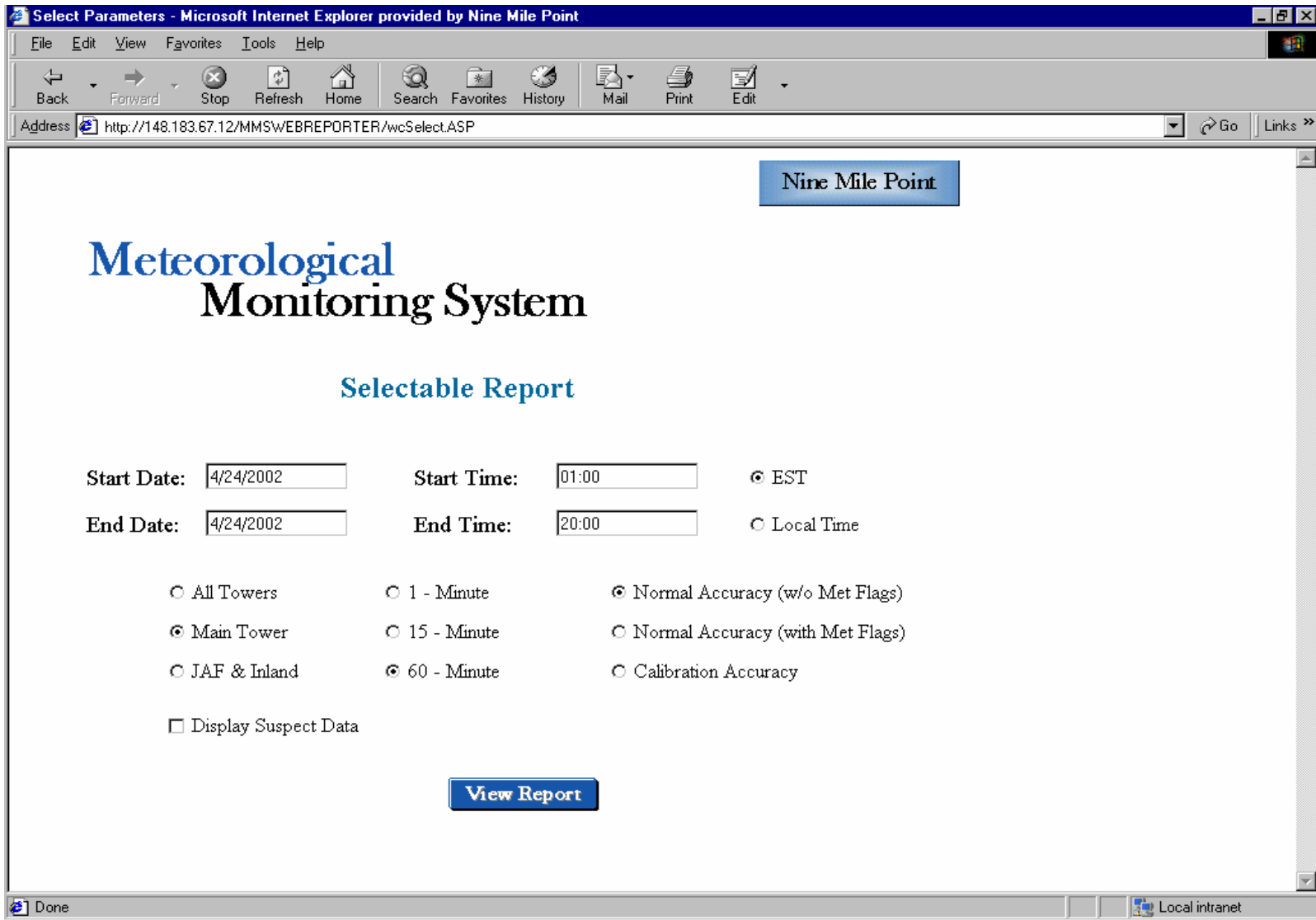


Figure 12. Selection Page – Selectable Report



# Selectable Report

DATE	MAIN TOWER PARAMETERS						NINE MILE POINT			TEMP & DEW PT		DELTA TEMP & STAB		PRESSURE	PRECIP
	WIND SPEED			WIND DIRECTION			SIGMA THETA & STABILITY			TMP30'	DPT30'	DT100'S	DT200'S	BARO	PRECIP
TIME AVG (EST)	WS30' MPH	WS100' MPH	WS200' MPH	WD30' DEG	WD100' DEG	WD200' DEG	SIG30'S DEG	SIG100'S DEG	SIG200'S DEG	TMP30' DEG	DPT30' DEG	DT100'S DEG F	DT200'S DEG F	BARO IN HG	PRECIP IN
04/24/2002															
01:00 60	9	15	17	241	241	245	13.7 C	7.3 E	6.2 E	42	31	-0.3 D	-0.9 D	29.84	0.00
02:00 60	10	15	17	241	241	245	15.0 C	8.4 D	6.6 E	42	32	-0.3 D	-0.8 D	29.85	0.00
03:00 60	9	14	16	244	243	248	15.1 C	7.8 D	5.7 E	42	32	-0.3 D	-0.9 D	29.85	0.00
04:00 60	8	11	13	231	235	244	29.8 A	18.7 B	8.0 D	40	32	-0.2 D	-0.4 E	29.86	0.00
05:00 60	6	9	11	176	189	218	13.6 C	8.0 D	9.2 D	35	26	0.4 E	2.0 F	29.87	0.00
06:00 60	7	10	12	191	200	228	11.6 D	8.1 D	4.6 E	35	27	0.3 E	2.4 F	29.88	0.00
07:00 60	5	7	10	204	210	227	21.1 B	16.5 C	9.7 D	37	29	-0.2 E	-0.1 E	29.91	0.00
08:00 60	8	11	12	243	241	244	15.0 C	8.1 D	7.4 E	40	32	-0.9 A	-1.5 C	29.93	0.00
09:00 60	9	11	12	251	246	248	12.4 D	5.3 E	4.7 E	41	32	-1.1 A	-1.6 B	29.95	0.00
10:00 60	9	9	10	262	257	258	8.4 D	6.3 E	5.3 E	41	32	-0.7 B	-1.3 D	29.95	0.00
11:00 60	9	9	9	271	267	268	6.2 E	5.1 E	4.7 E	41	32	-0.6 C	-1.2 D	29.94	0.00
12:00 60	10	10	10	277	272	269	6.1 E	4.6 E	5.1 E	41	32	-0.6 C	-0.8 D	29.93	0.00
13:00 60	8	8	9	288	285	281	13.5 C	15.0 C	16.5 C	42	31	-0.8 A	-0.6 D	29.92	0.00
14:00 60	6	7	8	5	8	356	14.1 C	12.3 D	10.1 D	43	29	-1.2 A	-1.5 C	29.92	0.00
15:00 60	6	7	10	9	13	359	17.1 C	14.5 C	9.4 D	45	26	-1.0 A	-1.2 D	29.91	0.00
16:00 60	6	6	8	25	24	17	17.8 B	16.2 C	12.6 C	45	27	-0.9 A	-1.6 B	29.90	0.00
17:00 60	4	5	8	38	37	31	23.0 A	18.4 B	11.8 D	46	24	-0.8 A	-1.3 D	29.89	0.00
18:00 60	4	5	8	62	54	43	16.8 C	13.3 C	10.6 D	47	24	-0.6 D	-0.5 D	29.87	0.00
19:00 60	4	5	7	85	75	66	17.1 C	13.1 C	13.7 C	48	25	-0.2 E	-0.2 E	29.82	0.00
20:00 60	4	8	10	108	109	99	17.5 B	10.7 D	18.2 B	46	25	1.3 F	3.9 G	29.77	0.00

Figure 13. Selectable Report

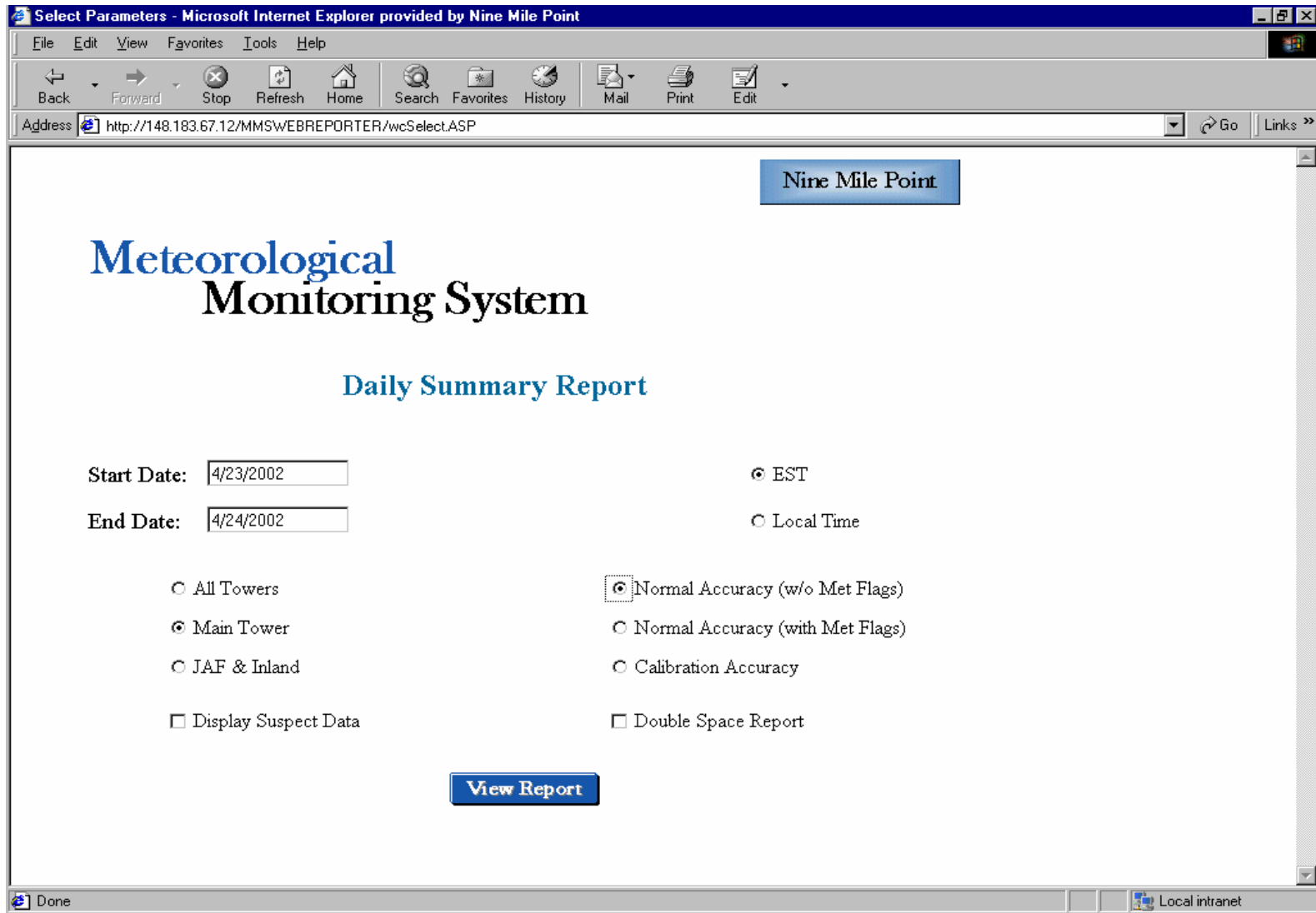


Figure 14. Selection Page – Daily Summary Report

# Daily Summary Report

DATE	MAIN TOWER PARAMETERS						NINE MILE POINT			TEMP & DEW PT	DELTA TEMP & STAB		PRESSURE	PRECIP		
	WIND SPEED			WIND DIRECTION			SIGMA THETA & STABILITY				DT100'S	DT200'S				
	WS30'	WS100'	WS200'	WD30'	WD100'	WD200'	SIG30'S	SIG100'S	SIG200'S							
TIME AVG (EST)	MPH	MPH	MPH	DEG	DEG	DEG	DEG	DEG	DEG	TMP30'	DPT30'	DEG F	DEG F	BARO IN HG	PRECIP IN	
04/22/2002																
01:00	60	5	6	9	73	67	65	22.4 B	19.7 B	17.5 B	38	17	-0.4 D	-0.9 D	29.59	0.00
02:00	60	3	4	6	81	75	76	23.3 A	23.9 A	22.9 A	38	16	-0.4 D	-0.9 D	29.59	0.00
03:00	60	5	7	9	113	110	112	22.3 B	16.8 C	12.9 C	38	16	-0.4 D	-0.9 D	29.56	0.00
04:00	60	5	8	10	110	112	117	21.0 B	16.4 C	11.4 D	37	18	-0.4 D	-0.8 D	29.53	0.00
05:00	60	8	11	14	114	114	117	19.0 B	14.2 C	10.2 D	35	26	-0.4 D	-1.0 D	29.48	0.00
06:00	60	7	10	13	103	101	105	18.5 B	13.1 C	8.8 D	36	25	-0.4 D	-0.9 D	29.46	0.00
07:00	60	7	10	14	96	96	102	16.8 C	13.1 C	8.8 D	35	26	-0.4 D	-1.0 D	29.44	0.01
08:00	60	6	9	13	91	92	97	18.7 B	14.0 C	10.4 D	34	31	-0.3 D	-0.8 D	29.44	0.04
09:00	60	6	9	13	86	84	86	17.8 B	15.0 C	13.2 C	33	31	-0.3 D	-0.7 D	29.42	0.07
10:00	60	6	9	12	90	88	88	19.1 B	15.8 C	13.9 C	34	32	-0.4 D	-0.8 D	29.41	0.05
11:00	60	7	10	13	96	94	96	17.8 B	13.8 C	9.8 D	34	32	-0.5 D	-0.7 D	29.40	0.02
12:00	60	5	6	8	88	84	84	27.2 A	21.5 B	21.8 B	34	32	-0.5 D	-0.7 D	29.40	0.01
13:00	60	6	10	14	31	25	24	29.5 A	24.4 A	20.1 B	34	33	-0.7 B	-1.2 D	29.41	0.04
14:00	60	11	20	23	9	9	9	18.5 B	9.2 D	4.3 E	34	33	-1.1 A	-1.7 B	29.43	0.01
15:00	60	13	21	25	9	8	8	18.0 B	9.6 D	4.0 E	34	32	-1.1 A	-1.7 B	29.45	0.00
16:00	60	11	19	22	9	8	8	17.9 B	9.1 D	5.3 E	34	30	-0.8 A	-1.4 D	29.48	0.00
17:00	60	14	21	21	345	346	346	8.5 D	5.1 E	4.3 E	35	31	-1.0 A	-1.6 C	29.52	0.00
18:00	60	13	19	19	347	346	347	8.8 D	5.1 E	4.5 E	34	30	-0.9 A	-1.3 D	29.55	0.00
19:00	60	13	19	20	346	346	346	8.5 D	5.1 E	4.4 E	35	30	-1.0 A	-1.1 D	29.57	0.00
20:00	60	14	20	20	348	348	348	10.3 D	7.2 E	6.7 E	35	29	-0.4 D	-1.2 D	29.60	0.00
21:00	60	11	16	17	337	336	336	12.1 D	10.6 D	10.3 D	36	30	-0.8 A	-1.6 C	29.64	0.00
22:00	60	12	15	15	310	309	310	10.0 D	9.2 D	8.8 D	37	29	-0.8 A	-1.5 C	29.65	0.00
23:00	60	15	16	16	297	294	295	9.3 D	8.6 D	8.3 D	37	30	-0.8 A	-1.5 C	29.66	0.00
24:00	60	17	18	19	284	281	283	6.3 E	5.5 E	5.2 E	37	31	-0.8 A	-1.5 C	29.67	0.00
04/23/2002																
01:00	60	18	19	20	277	274	276	5.8 E	5.1 E	4.8 E	38	32	-0.9 A	-1.5 C	29.66	0.00
02:00	60	19	20	21	272	269	271	5.4 E	4.7 E	4.2 E	38	33	-0.9 A	-1.5 C	29.66	0.00
03:00	60	19	21	22	286	284	285	6.4 E	5.7 E	5.0 E	39	30	-0.8 A	-1.4 C	29.66	0.00
04:00	60	17	18	19	288	286	287	5.2 E	4.5 E	4.1 E	39	30	-0.7 B	-1.4 C	29.67	0.00
05:00	60	15	16	17	302	301	303	8.0 D	7.1 E	6.9 E	39	30	-0.7 B	-1.4 D	29.68	0.00
06:00	60	11	14	15	315	314	316	6.8 E	5.0 E	4.5 E	38	30	-0.7 B	-1.3 D	29.69	0.00
07:00	60	10	15	15	329	329	329	6.4 E	5.0 E	3.7 F	38	28	-0.8 A	-1.4 C	29.72	0.00
08:00	60	9	14	15	323	323	323	7.2 E	5.5 E	4.8 E	38	28	-0.9 A	-1.5 C	29.74	0.00
09:00	60	11	15	15	313	312	312	7.3 E	5.9 E	5.1 E	38	28	-1.0 A	-1.6 B	29.77	0.00
10:00	60	13	13	14	297	295	296	7.1 E	6.5 E	6.3 E	38	29	-0.8 A	-1.4 C	29.79	0.00
11:00	60	13	14	14	290	288	289	6.2 E	5.4 E	4.8 E	39	29	-0.8 A	-1.4 D	29.81	0.00
12:00	60	14	14	15	278	275	277	4.7 E	3.7 F	3.6 F	39	28	-0.7 B	-1.3 D	29.81	0.00
13:00	60	15	16	17	264	260	261	7.2 E	6.5 E	5.8 E	39	30	-0.8 A	-1.4 D	29.83	0.00
14:00	60	15	16	17	263	260	262	5.2 E	4.2 E	3.6 F	39	31	-0.7 B	-1.3 D	29.83	0.00
15:00	60	15	15	16	261	257	258	4.8 E	4.1 E	3.7 F	40	31	-0.7 B	-1.3 D	29.83	0.00
16:00	60	15	16	18	257	252	254	5.7 E	3.6 F	3.5 F	41	29	-0.8 A	-1.3 D	29.85	0.00
17:00	60	15	17	19	256	251	253	6.4 E	4.0 E	3.6 F	41	28	-0.8 A	-1.3 D	29.86	0.00
18:00	60	10	16	18	248	244	246	11.3 D	4.3 E	3.5 F	43	27	-0.9 A	-1.4 C	29.86	0.00
19:00	60	9	14	16	241	241	244	14.6 C	6.5 E	5.1 E	43	26	-0.5 D	-1.0 D	29.86	0.00
20:00	60	6	9	12	228	234	243	15.5 C	11.3 D	8.5 D	43	26	0.0 E	-0.3 E	29.84	0.00
21:00	60	6	8	11	223	231	242	13.9 C	10.2 D	7.8 D	43	25	0.2 E	0.0 E	29.83	0.00
22:00	60	6	9	12	222	229	239	16.1 C	11.5 D	10.3 D	43	25	0.3 E	0.1 E	29.82	0.00
23:00	60	8	13	16	234	237	242	16.5 C	10.2 D	8.1 D	42	31	-0.1 E	-0.6 D	29.83	0.00
24:00	60	10	15	17	246	244	248	14.0 C	7.3 E	5.9 E	42	32	-0.3 D	-0.9 D	29.84	0.00

**Figure 15. Daily Summary Report**

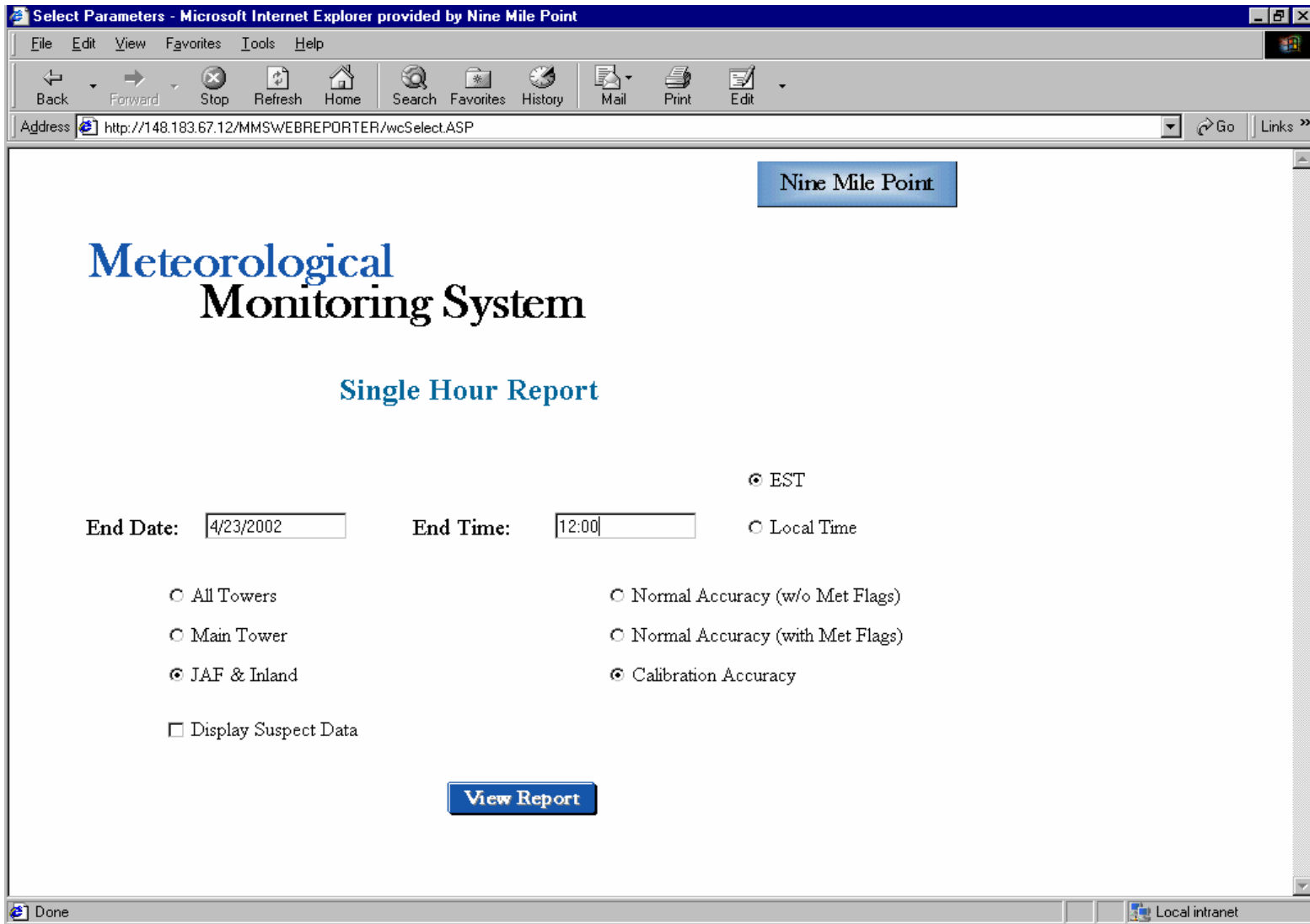


Figure 16. Selection Page - Single Hour Report

## Single Hour Report

JAF TOWER PARAMETERS				INLAND TOWER PARAMETERS			
DATE	SPEED	DIR	SIGMA & S	SPEED	DIR	SIGMA & S	
TIME AVG	WS90'	WD90'	SIG90'S	WS30'	WD30'	SIG30'S	
(EST)	MPH	DEG	DEG	MPH	DEG	DEG	
04/23/2002							
12:00	60	14.7	279.4	5.9	E	11.6	296.9 28.8 A
11:15	15	13.8	279.9	6.2	E	12.5	282.7 26.5 A
11:30	15	13.9	279.7	6.3	E	11.9	309.6 31.5 A
11:45	15	15.0	279.0	5.8	E	11.0	300.3 22.9 A
12:00	15	16.3	279.1	5.0	E	11.2	295.3 27.0 A
11:01	1	12.9	280.5	7.4	E	15.1	278.0 15.2 C
11:02	1	13.0	276.5	8.7	D	13.5	284.9 19.2 B
11:03	1	14.4	283.3	3.4	F	13.0	275.6 18.3 B
11:04	1	15.0	283.9	2.5	F	12.1	280.1 18.1 B
11:05	1	14.9	281.0	2.5	F	11.6	261.4 16.6 C
11:06	1	14.4	279.9	4.6	E	13.1	252.3 12.5 C
11:07	1	14.6	277.5	4.6	E	8.4	273.0 22.9 A
11:08	1	13.6	279.7	5.0	E	16.1	266.2 14.9 C
11:09	1	12.7	279.0	10.0	D	10.2	283.5 28.9 A
11:10	1	14.4	282.4	3.7	F	12.8	300.3 22.1 B
11:11	1	14.1	277.2	6.1	E	15.9	294.4 18.8 B
11:12	1	14.0	279.6	2.8	F	8.1	274.1 28.9 A
11:13	1	13.2	278.5	8.0	D	12.4	293.0 18.8 B
11:14	1	12.9	281.2	5.1	E	11.7	309.6 19.4 B
11:15	1	13.3	278.3	6.9	E	12.9	317.3 22.2 B
11:16	1	12.6	278.0	7.9	D	15.2	315.6 17.4 C
11:17	1	13.9	279.5	3.4	F	14.5	330.8 9.8 D
11:18	1	13.5	280.5	5.1	E	13.2	330.5 10.4 D
11:19	1	13.6	283.7	5.0	E	10.1	335.3 13.8 C
11:20	1	13.0	276.3	6.6	E	7.9	341.1 10.9 D
11:21	1	13.5	280.6	4.8	E	11.1	341.3 15.8 C
11:22	1	13.0	280.3	7.2	E	9.8	308.6 25.4 A
11:23	1	14.7	276.2	5.5	E	11.9	262.7 17.5 B
11:24	1	13.0	281.2	8.0	D	10.6	278.0 20.7 B
11:25	1	14.4	278.9	4.7	E	9.4	271.7 17.1 C
11:26	1	13.5	278.4	6.9	E	15.3	269.4 10.1 D
11:27	1	15.8	282.6	3.1	F	14.3	285.4 21.6 B
11:28	1	15.0	276.8	6.2	E	12.5	316.7 15.5 C
11:29	1	14.0	277.9	5.5	E	12.6	325.8 16.1 C
11:30	1	14.6	284.1	5.0	E	10.4	320.4 11.1 D
11:31	1	15.1	277.0	3.8	E	11.0	313.7 9.5 D
11:32	1	13.8	278.7	6.6	E	12.0	309.0 19.3 B
11:33	1	14.6	276.5	7.2	E	11.2	313.8 24.1 A
11:34	1	15.0	275.2	5.4	E	11.9	306.2 23.5 A
11:35	1	14.5	275.8	5.6	E	9.0	300.9 17.3 C
11:36	1	14.6	275.6	5.3	E	8.6	288.2 17.7 B
11:37	1	15.0	279.1	4.1	E	11.0	287.0 17.7 B
11:38	1	15.0	283.5	2.9	F	7.9	289.9 38.8 A
11:39	1	15.9	284.8	3.3	F	9.6	296.7 21.8 B
11:40	1	12.9	280.3	6.9	E	13.7	281.6 12.3 D
11:41	1	15.0	281.7	4.2	E	12.2	297.3 15.9 C
11:42	1	14.8	282.0	5.1	E	15.4	287.8 19.4 B
11:43	1	16.3	279.1	5.1	E	9.5	301.2 19.6 B
11:44	1	16.5	278.3	3.2	F	11.1	312.7 15.8 C
11:45	1	16.3	278.0	4.7	E	11.2	316.8 13.3 C
11:46	1	16.9	282.0	2.6	F	11.4	314.6 20.4 B
11:47	1	16.9	282.6	3.3	F	10.2	322.4 14.7 C
11:48	1	16.4	281.7	5.2	E	10.5	286.4 17.2 C
11:49	1	15.0	276.3	7.4	E	12.0	312.3 11.5 D
11:50	1	15.8	280.5	4.4	E	8.8	274.6 43.1 A
11:51	1	17.1	281.3	4.1	E	12.3	272.5 11.2 D
11:52	1	15.8	278.2	4.2	E	13.4	295.3 27.5 A
11:53	1	16.6	278.6	3.2	F	10.7	301.4 14.5 C
11:54	1	16.3	281.0	5.0	E	10.4	284.2 17.7 B
11:55	1	16.0	279.4	5.4	E	11.1	298.7 30.8 A
11:56	1	16.9	278.2	3.2	F	10.3	280.5 24.8 A
11:57	1	16.4	277.4	4.3	E	10.6	273.7 26.0 A
11:58	1	16.7	277.6	2.5	F	12.7	299.4 17.2 C
11:59	1	15.5	274.8	5.4	E	12.8	308.2 19.7 B
12:00	1	15.7	277.2	4.8	E	11.0	299.7 21.2 B

**Figure 17. Single Hour Report**

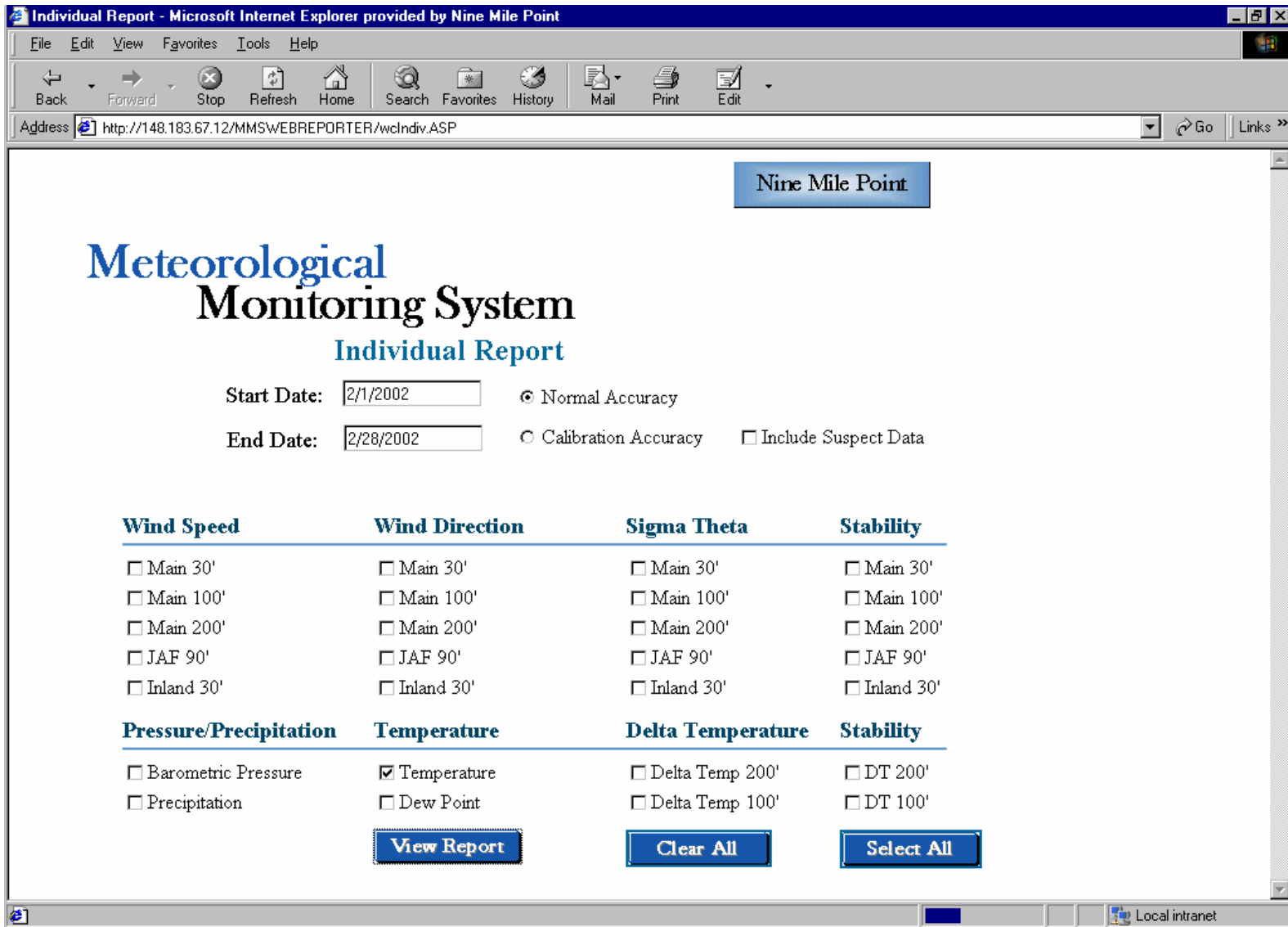


Figure 18. Selection Page - Individual Report

# Individual Report

Nine Mile Point, N.Y.

One Hour Average Values  
 Main Tower 30' Temperature  
 Period of record: 2/1/2002 To 2/28/2002

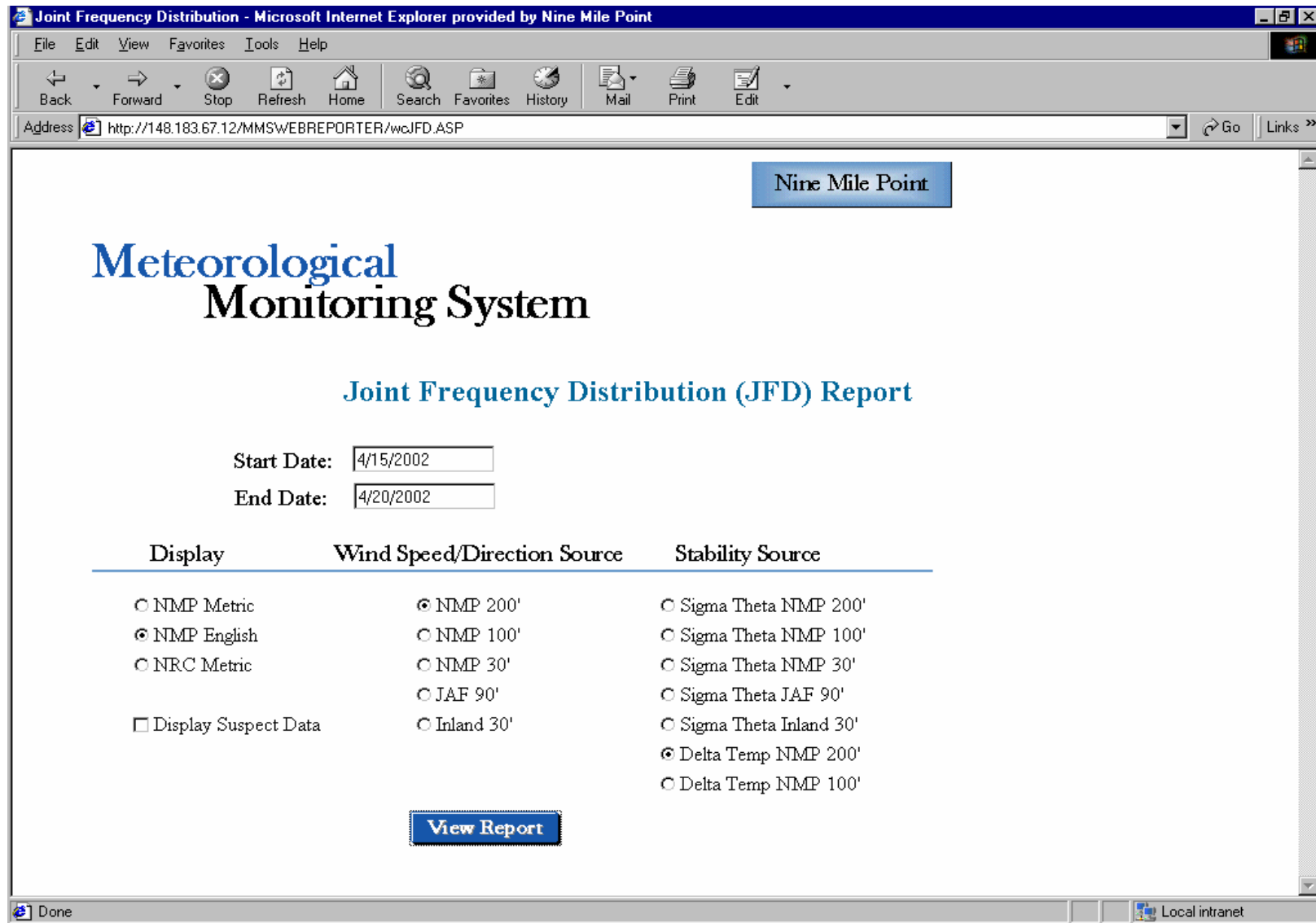
(Degrees F)

Date:	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Avg	
2- 1	32	33	33	33	34	34	34	35	36	38	40	43	47	42	41	40	39	37	34	32	29	28	25	25	35	
2- 2	25	25	24	23	23	22	22	21	20	19	19	19	20	20	21	23	23	24	21	20	21	22	22	22	22	22
2- 3	22	23	24	25	25	25	24	24	27	30	32	34	35	36	36	36	36	35	34	34	34	34	34	33	31	
2- 4	34	35	31	30	30	30	30	29	30	31	30	26	25	22	20	19	19	19	19	19	18	17	16	15	25	
2- 5	15	14	14	14	13	13	14	17	18	16	20	23	25	28	30	32	32	32	31	31	30	31	31	31	23	
2- 6	30	29	29	29	28	28	23	25	26	28	30	31	32	32	32	33	33	33	34	35	33	29	29	27	30	
2- 7	27	27	26	27	27	27	27	28	30	33	36	40	44	43	39	39	38	38	38	38	37	37	37	38	34	
2- 8	38	37	36	36	36	35	35	35	35	35	35	35	35	34	34	35	35	35	35	32	28	27	27	26	34	
2- 9	25	24	23	22	22	23	22	22	23	24	27	28	30	32	33	34	34	34	33	32	31	31	31	31	28	
2-10	31	33	33	33	33	34	34	35	37	42	45	46	47	47	47	47	46	44	44	44	44	44	44	33	40	
2-11	30	28	26	25	23	21	19	17	15	12	11	11	11	12	13	14	15	16	14	12	12	13	13	13	16	
2-12	14	15	17	18	21	23	26	31	33	34	36	37	38	39	39	39	38	38	38	37	35	35	35	34	31	
2-13	32	31	29	27	25	23	20	17	16	15	15	16	17	17	19	20	21	22	22	23	23	21	21	20	21	
2-14	19	20	21	21	21	21	21	22	23	25	28	31	34	37	39	41	42	41	39	38	38	38	37	36	30	
2-15	35	35	35	35	35	36	36	37	38	40	41	42	43	44	46	48	48	47	47	47	44	44	43	45	41	
2-16	42	40	41	40	40	39	38	37	35	36	35	37	37	37	38	38	38	37	36	35	34	34	35	35	37	
2-17	35	35	36	36	36	35	33	32	31	30	31	30	29	28	28	28	28	29	29	29	28	28	26	25	31	
2-18	24	23	22	21	20	20	19	20	21	21	23	24	25	27	27	28	28	28	27	26	25	25	25	26	24	
2-19	26	26	26	25	25	25	25	25	29	33	37	41	42	43	44	44	44	43	43	43	43	44	45	42	36	
2-20	42	43	41	40	41	43	44	44	45	46	48	45	47	53	54	54	51	47	45	46	48	48	47	48	46	
2-21	49	50	51	50	50	47	44	44	44	43	42	42	42	41	39	39	38	38	38	38	38	37	36	36	42	
2-22	36	35	35	35	36	33	32	32	32	32	32	32	32	31	31	30	31	32	32	32	33	33	32	31	32	
2-23	27	26	25	24	24	23	22	21	21	23	24	25	26	26	27	27	27	28	26	25	24	23	23	23	25	
2-24	24	23	24	24	23	24	24	24	26	30	34	36	39	43	46	48	48	46	44	43	42	42	42	42	35	
2-25	42	42	41	41	41	42	42	42	45	48	50	53	55	56	57	59	59	57	55	55	54	52	53	52	50	
2-26	51	51	50	49	47	46	45	45	47	50	53	55	55	55	51	52	54	41	37	38	38	37	37	36	47	
2-27	35	34	33	33	33	32	32	31	31	31	31	31	31	31	31	30	28	29	28	27	25	24	23	22	30	
2-28	21	21	22	22	22	23	24	24	24	25	26	27	28	29	29	30	31	31	32	31	31	31	29	29	27	
Avg	31	31	30	30	30	29	29	29	30	31	33	34	34	35	35	36	36	35	34	34	33	32	32	31		

Total Number of Hours..... 672  
 Number of Valid Hours..... 672  
 Data Capture.....100.0 %

Average of Valid Hours..... 32  
 Minimum Hourly Value..... 11  
 Maximum Hourly Value..... 59

Figure 19. Individual Report



**Figure 20. Selection Page – Joint Frequency Distribution (JFD) Report**



Nine Mile Point - Nine Mile Point Nuclear Station

% Frequency (No. of occurrences) of Wind Speed and Wind Direction by Atmospheric Stability Class

Wind Data from: Main 200' Site

Atmospheric Stability from: Main 200 Ft Delta Temperature

From: 1/1/2002 To 3/31/2002

Stability Class - All ( A-G )

Dir	Speed (MPH)						Total
	00-03	04-07	08-12	13-18	19-23	>=24	
N	0.3 ( 6)	0.5 ( 10)	1.1 ( 24)	0.8 ( 17)	0.5 ( 10)	1.3 ( 27)	4.4 ( 94)
NNE	0.1 ( 3)	0.7 ( 16)	1.4 ( 31)	1.9 ( 41)	1.0 ( 22)	0.7 ( 16)	6.0 ( 129)
NE	0.2 ( 5)	1.1 ( 24)	1.1 ( 24)	0.4 ( 8)	0.0 ( 0)	0.0 ( 0)	2.8 ( 61)
ENE	0.1 ( 2)	0.9 ( 20)	0.7 ( 16)	0.0 ( 1)	0.0 ( 0)	0.0 ( 0)	1.8 ( 39)
E	0.0 ( 1)	0.8 ( 17)	0.6 ( 14)	0.1 ( 2)	0.0 ( 0)	0.0 ( 0)	1.6 ( 34)
ESE	0.0 ( 1)	0.7 ( 15)	1.1 ( 24)	1.0 ( 21)	0.3 ( 7)	0.0 ( 1)	3.2 ( 69)
SE	0.0 ( 0)	0.4 ( 8)	0.9 ( 19)	2.7 ( 59)	1.3 ( 29)	0.4 ( 8)	5.7 ( 123)
SSE	0.1 ( 2)	0.5 ( 11)	2.0 ( 43)	4.4 ( 95)	2.3 ( 49)	0.6 ( 12)	9.8 ( 212)
S	0.0 ( 1)	0.3 ( 7)	1.9 ( 40)	5.9 ( 127)	1.3 ( 29)	0.4 ( 9)	9.9 ( 213)
SSW	0.1 ( 2)	0.5 ( 11)	2.2 ( 47)	4.5 ( 97)	0.2 ( 4)	0.1 ( 2)	7.5 ( 163)
SW	0.0 ( 0)	0.2 ( 5)	0.8 ( 17)	4.0 ( 86)	0.9 ( 19)	0.3 ( 7)	6.2 ( 134)
WSW	0.0 ( 0)	0.4 ( 8)	1.0 ( 21)	2.2 ( 48)	2.3 ( 50)	4.5 ( 98)	10.4 ( 225)
W	0.0 ( 0)	0.4 ( 8)	0.6 ( 13)	1.2 ( 25)	1.3 ( 28)	5.6 ( 122)	9.1 ( 196)
WNW	0.1 ( 2)	0.2 ( 4)	0.6 ( 12)	1.3 ( 27)	1.6 ( 35)	4.0 ( 87)	7.7 ( 167)
NW	0.0 ( 0)	0.2 ( 4)	0.8 ( 18)	1.4 ( 30)	0.7 ( 16)	2.3 ( 49)	5.4 ( 117)
NNW	0.1 ( 2)	0.4 ( 8)	0.7 ( 15)	1.2 ( 25)	0.5 ( 10)	0.2 ( 4)	3.0 ( 64)
<b>Total</b>	<b>1.3 ( 27)</b>	<b>8.1 ( 176)</b>	<b>17.5 ( 378)</b>	<b>32.8 ( 709)</b>	<b>14.3 ( 308)</b>	<b>20.5 ( 442)</b>	<b>94.4 ( 2040)</b>

Summary for Stability Class - All ( A-G )

Number of Calm Hours ( <1.0 MPH ) ..... 0  
 Number of Invalid Hours ..... 120  
 Total Hours in Period ..... 2160

**Figure 21. Joint Frequency Distribution (JFD) Report - Sample Page**

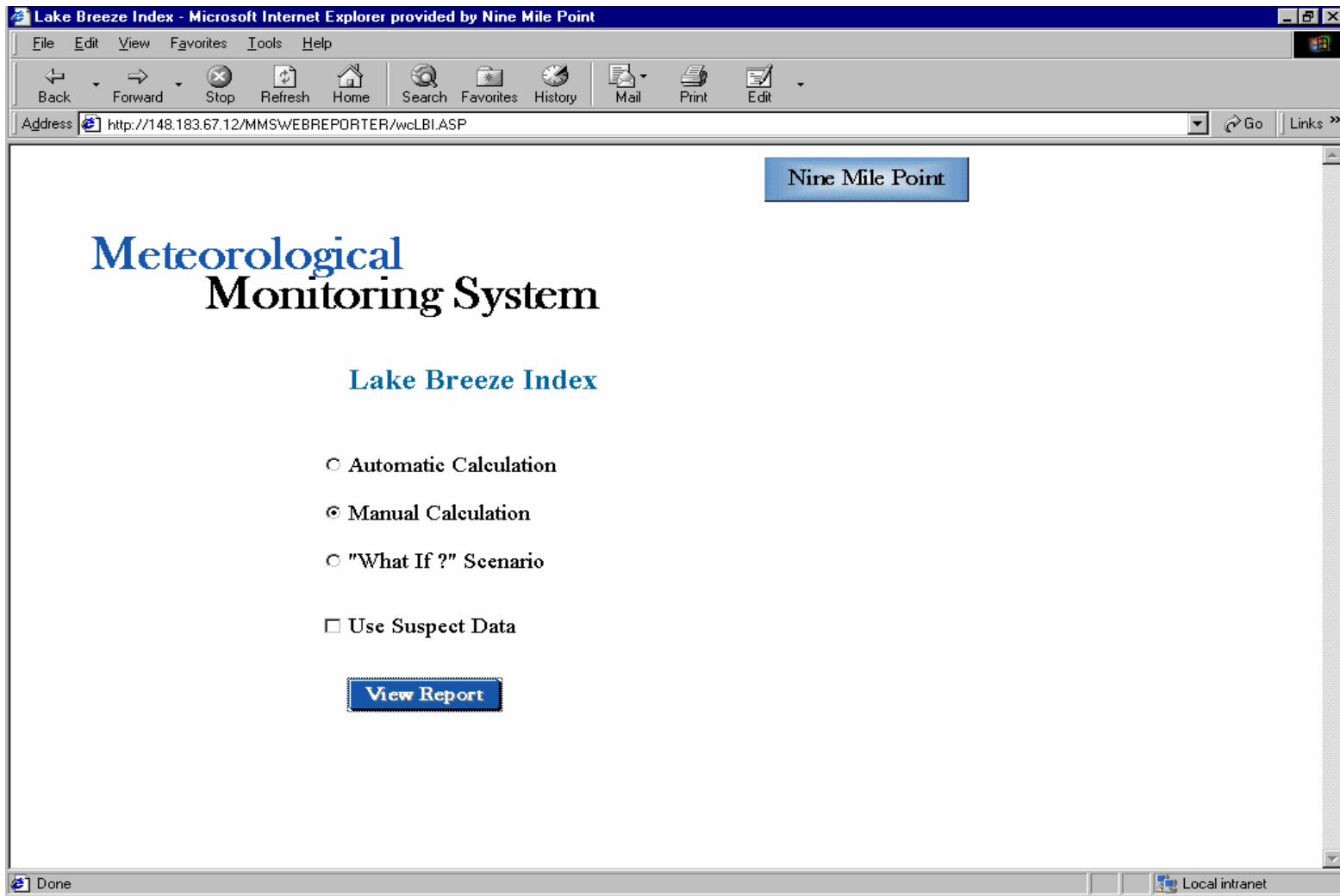


Figure 22. Selection Page – Lake Breeze Index

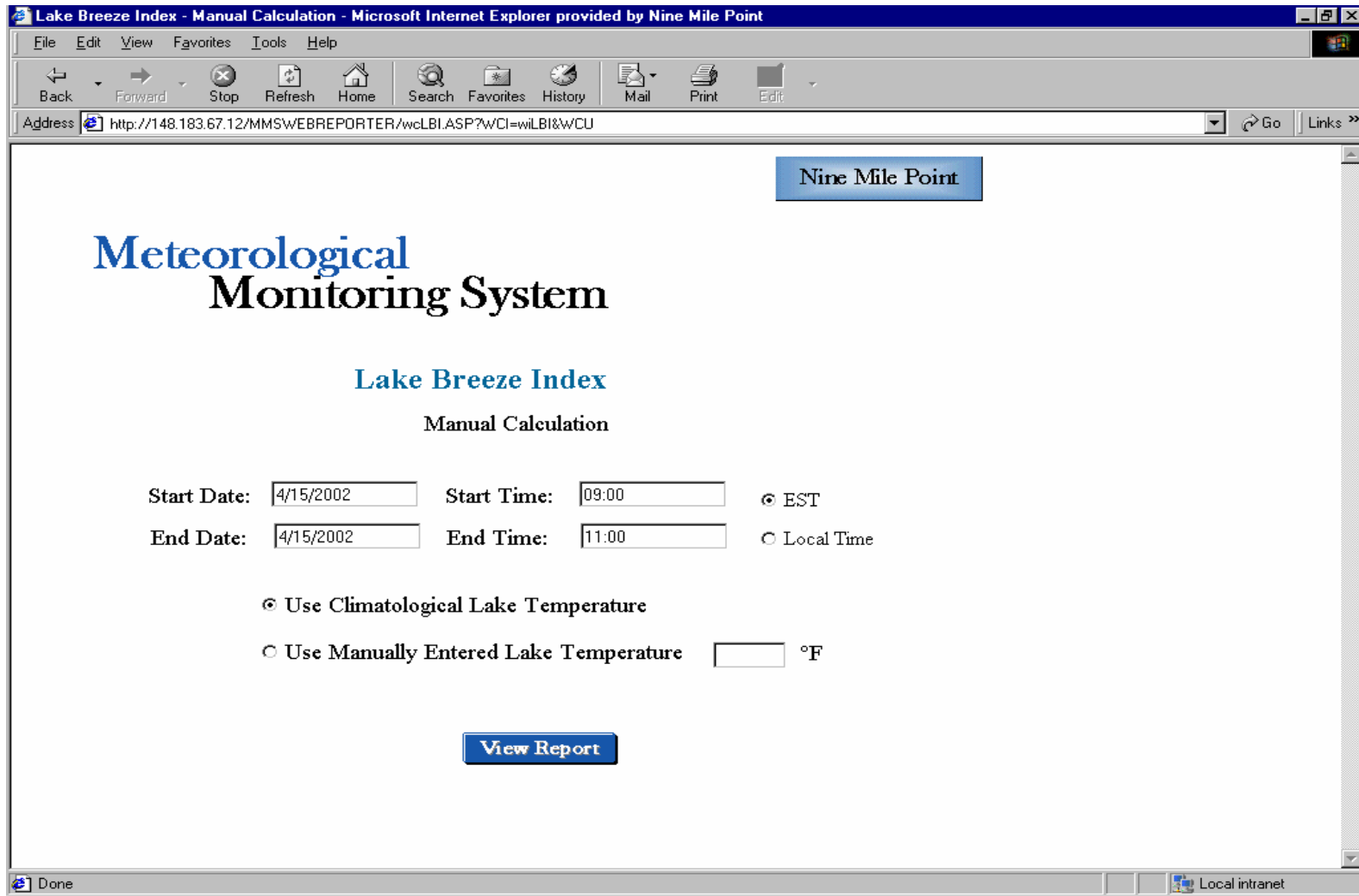


Figure 23. Selection Page – Lake Breeze Index (Manual Calculation)

# Lake Breeze Index Report

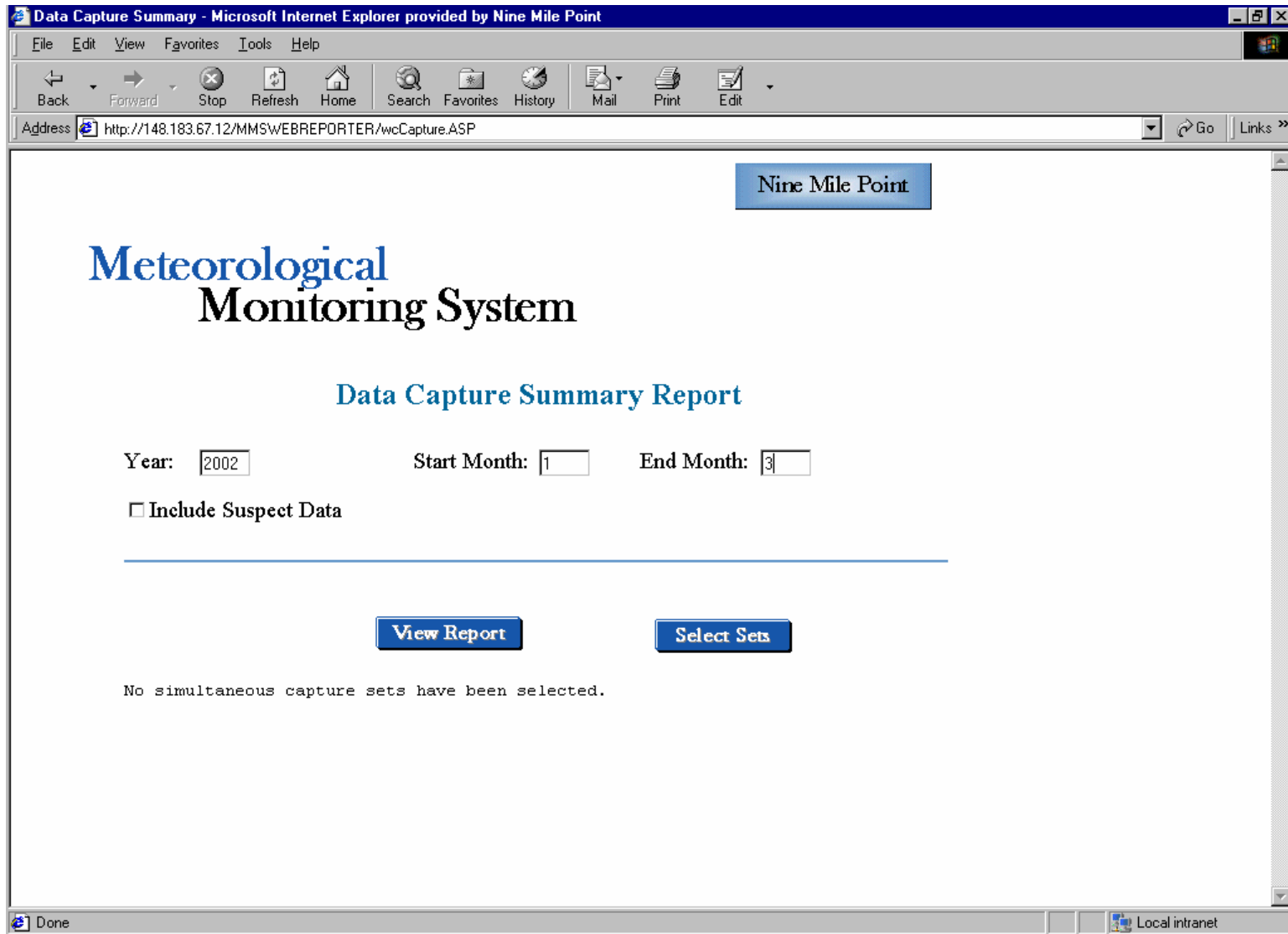
Date: 04/15/2002

Time: (EST)

	09:00	09:15	09:30	09:45	10:00	10:15	10:30	10:45	11:00
LBI is	4.2	9.4	13.6	10.7	9.7	11.9	23.1	22.4	27.4
200 ft Criteria: LBI > 1.0									
200' Wind Speed (mph).....	6	4	3	3	3	2	2	2	2
200' Wind Direction (deg)....	199	209	235	248	211	186	228	198	262
30' Air Temp F (current)....	58	58	56	54	56	59	57	59	59
30' Air Temp F (past hour)..	52	55	56	57	58	58	56	54	56
Lake Temp F (computed).....	35								

\*\*\* Lake Breeze Onset "IS EXPECTED" During The Next Two To Three Hours \*\*\*

Figure 24. Lake Breeze Index Report



**Figure 25. Selection Page – Data Capture Summary**

# Data Capture Summary

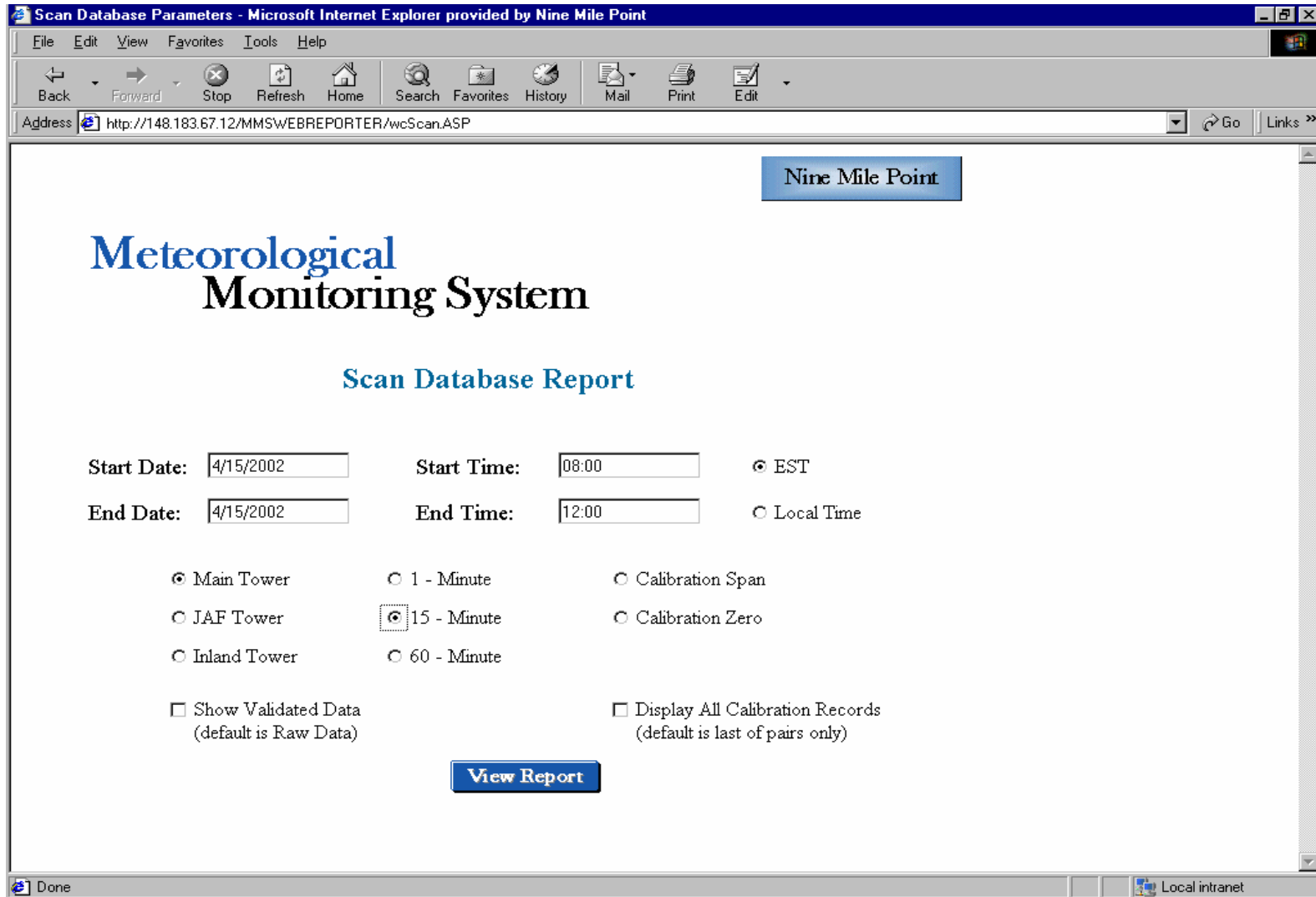
% Data Capture - Meteorological Parameters - Nine Mile Point - 2002

TRM Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Period
Main 200 Wind Speed	86.4%	100.0%	97.4%										94.4%
Main 200 Wind Direction	100.0%	100.0%	100.0%										100.0%
Main 30 Wind Speed	100.0%	99.4%	99.9%										99.8%
Main 30 Wind Direction	100.0%	100.0%	100.0%										100.0%
Main 200 Delta Temp	100.0%	100.0%	100.0%										100.0%

% Data Capture - Meteorological Parameters - Nine Mile Point - 2002

Other Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Period
Inland 30 Wind Speed	100.0%	99.9%	100.0%										100.0%
Inland 30 Wind Direction	100.0%	99.9%	100.0%										100.0%
Inland 30 Sigma Theta	100.0%	99.9%	100.0%										100.0%
Inland 30 Sigma Stability	100.0%	99.9%	100.0%										100.0%
Backup 90 Wind Speed	98.3%	100.0%	100.0%										99.4%
Backup 90 Wind Direction	100.0%	100.0%	100.0%										100.0%
Backup 90 Sigma Theta	100.0%	100.0%	100.0%										100.0%
Backup 90 Sigma Stability	100.0%	100.0%	100.0%										100.0%
Main 30 Sigma Theta	100.0%	100.0%	100.0%										100.0%
Main 30 Sigma Stability	100.0%	100.0%	100.0%										100.0%
Main 100 Wind Speed	100.0%	100.0%	70.8%										90.0%
Main 100 Wind Direction	100.0%	100.0%	100.0%										100.0%
Main 100 Sigma Theta	100.0%	100.0%	100.0%										100.0%
Main 100 Sigma Stability	100.0%	100.0%	100.0%										100.0%
Main 200 Sigma Theta	100.0%	100.0%	100.0%										100.0%
Main 200 Sigma Stability	100.0%	100.0%	100.0%										100.0%
Main 30 Temperature	100.0%	100.0%	100.0%										100.0%
Main 100 Delta Temp	100.0%	100.0%	100.0%										100.0%
Main 100 DT Stability	100.0%	100.0%	100.0%										100.0%
Main 200 DT Stability	100.0%	100.0%	100.0%										100.0%
Main Barometric Pressure	100.0%	100.0%	100.0%										100.0%
Main Dew Point	100.0%	100.0%	100.0%										100.0%
Main Precipitation	100.0%	100.0%	100.0%										100.0%

Figure 26. Data Capture Summary Report



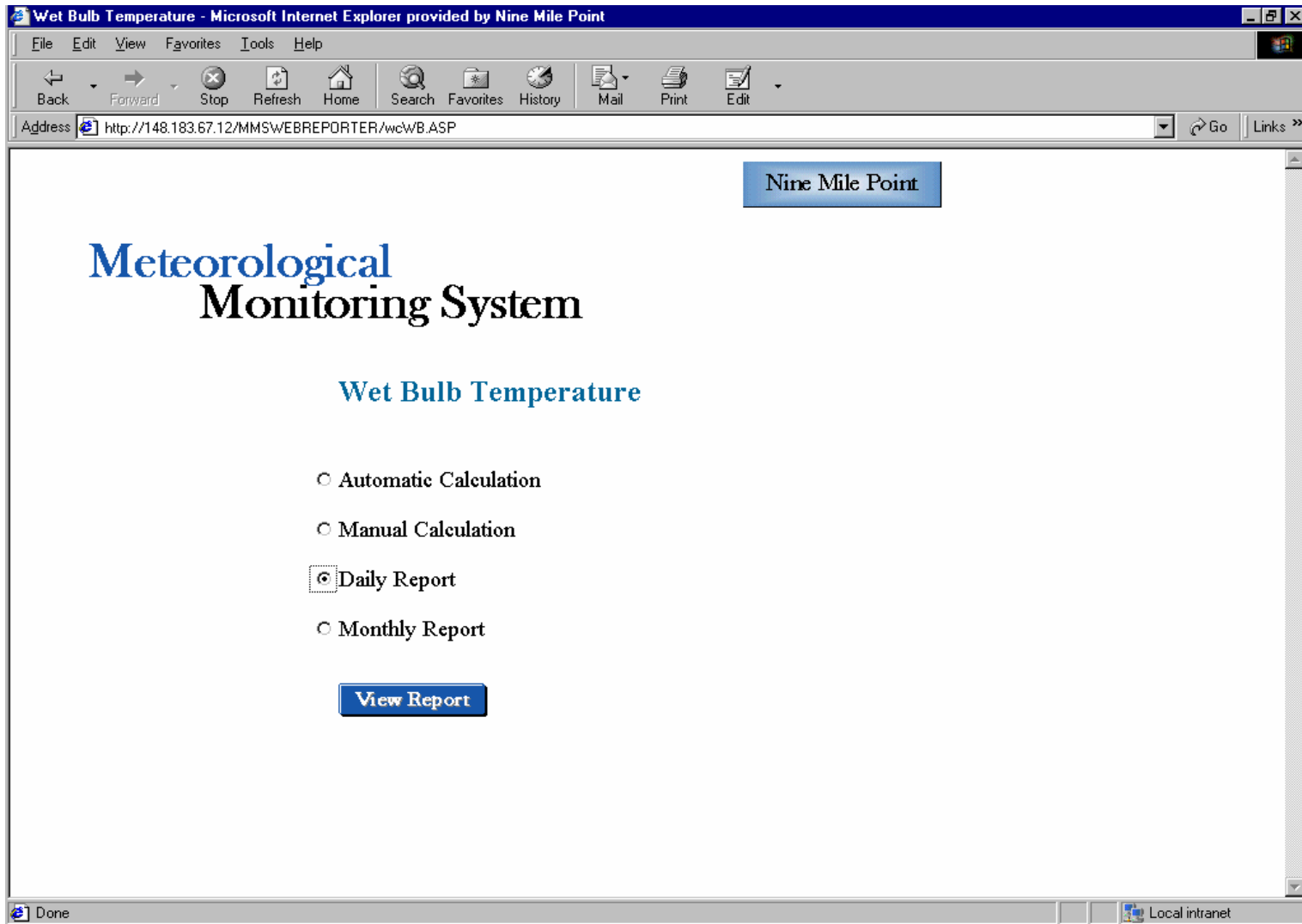
**Figure 27. Selection Page – Scan Database Report**

# Scan Database Report

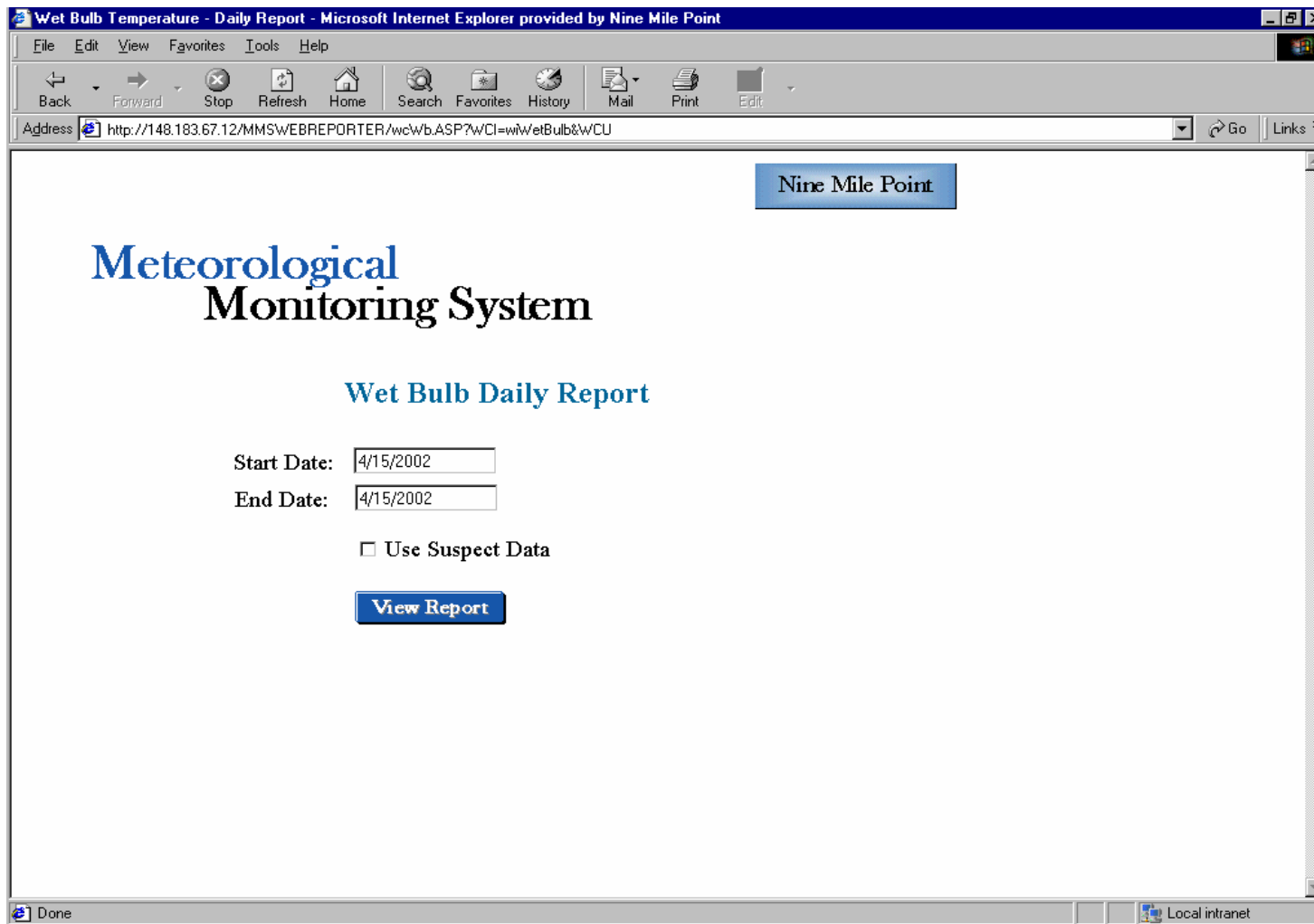
200	04/15/2002	08:00	3.4	4.7	6.4	231.7	209.5	220.0	16.4	C	16.4	C	12.8	C	52.3	51.8	1.57	F	1.69	F	29.62	0.00	0	600	13.4
200	04/15/2002	08:15	3.2	4.2	5.8	217.1	203.8	212.2	20.5	B	21.1	B	17.4	C	54.6	53.7	0.23	E	0.22	E	29.62	0.00	0	600	13.4
200	04/15/2002	08:30	4.7	5.4	6.6	223.3	207.9	209.7	23.4	A	17.3	C	13.0	C	55.7	54.4	-0.29	D	-0.45	E	29.63	0.00	0	600	13.3
200	04/15/2002	08:45	4.8	5.4	6.8	188.5	190.0	195.6	17.1	C	18.4	B	13.7	C	56.8	54.8	-0.73	B	-0.92	D	29.63	0.00	0	600	13.4
200	04/15/2002	09:00	4.8	5.2	5.6	202.1	199.1	198.6	20.0	B	17.9	B	17.9	B	58.1	55.2	-1.07	A	-1.13	D	29.63	0.00	0	600	13.4
200	04/15/2002	09:15	3.7	3.6	3.5	268.7	229.5	208.6	32.1	A	26.0	A	23.8	A	58.1	54.6	-0.52	D	0.10	E	29.64	0.00	0	600	13.4
200	04/15/2002	09:30	4.3	3.5	3.3	288.4	268.5	234.8	15.3	C	13.1	C	18.6	B	55.8	52.9	1.21	F	2.77	F	29.65	0.00	0	600	13.4
200	04/15/2002	09:45	2.4	3.8	3.4	317.6	282.9	247.7	38.4	A	12.7	C	21.0	B	53.5	51.7	2.17	G	4.36	G	29.66	0.00	0	600	13.4
200	04/15/2002	10:00	2.0	1.8	2.7	52.7	51.4	210.6	30.4	A	57.9	A	21.9	B	55.5	53.3	0.22	E	2.97	F	29.65	0.00	0	600	13.4
200	04/15/2002	10:15	2.1	1.8	2.4	42.6	74.2	185.5	41.1	A	52.2	A	19.4	B	58.5	54.7	-0.61	C	1.57	F	29.65	0.00	0	600	13.4
200	04/15/2002	10:30	2.8	1.8	1.5	39.8	349.5	227.9	17.7	B	27.5	A	29.7	A	57.4	53.6	0.99	F	3.61	F	29.66	0.00	0	600	13.4
200	04/15/2002	10:45	3.0	2.2	1.5	36.7	20.4	197.5	16.6	C	28.2	A	82.9	A	58.7	54.7	0.62	F	3.22	F	29.66	0.00	0	600	13.4
200	04/15/2002	11:00	2.4	1.9	2.2	40.6	342.8	261.6	20.0	B	32.6	A	54.4	A	59.3	55.3	0.74	F	3.29	F	29.66	0.00	0	600	13.4
200	04/15/2002	11:15	4.0	2.9	1.9	32.8	16.1	243.0	15.8	C	23.5	A	46.1	A	58.6	54.5	1.42	F	4.08	G	29.66	0.00	0	600	13.4
200	04/15/2002	11:30	2.8	2.9	1.5	59.6	53.6	39.8	17.0	C	20.0	B	89.2	A	57.9	54.7	2.10	G	4.84	G	29.66	0.00	0	600	13.4
200	04/15/2002	11:45	2.0	2.4	2.5	53.8	73.7	128.8	16.5	C	13.5	C	21.5	B	60.1	55.7	0.92	F	3.14	F	29.66	0.00	0	600	13.4
200	04/15/2002	12:00	2.9	2.8	2.6	21.8	36.4	89.4	53.1	A	64.0	A	62.2	A	62.9	56.5	1.30	F	3.15	F	29.66	0.00	0	600	13.4

Figure 28. Scan Database Report





**Figure 29. Selection Page – Wet Bulb Temperature**



**Figure 30. Selection Page – Wet Bulb Daily Report**

# Wet Bulb Temperature

Nine Mile Point

Main Tower Data - Hourly Average Values

Period of Record: 4-15-2002 to 4-15-2002

Day	Hour	Temp(F)	Dew Pt(F)	Pressure(in Hg)	RH(%)	Wet-Bulb(F)
15	1	51.6	50.3	29.53	95.30	50.9
15	2	50.4	50.0	29.53	98.52	50.4
15	3	52.2	51.7	29.53	98.17	52.2
15	4	54.3	53.8	29.54	98.19	54.3
15	5	50.8	50.0	29.57	97.07	50.8
15	6	49.3	48.8	29.57	98.15	49.3
15	7	51.2	50.7	29.60	98.16	51.2
15	8	52.5	52.0	29.62	98.17	52.5
15	9	56.3	54.5	29.63	93.67	55.3
15	10	55.7	53.1	29.65	90.94	54.3
15	11	58.5	54.6	29.66	86.84	56.4
15	12	59.9	55.3	29.66	84.74	57.3
15	13	63.4	56.0	29.67	76.80	59.1
15	14	66.0	55.6	29.67	69.12	60.0
15	15	67.0	55.5	29.67	66.53	60.3
15	16	67.4	55.1	29.66	64.67	60.2
15	17	69.1	54.7	29.66	60.12	60.2
15	18	69.1	53.9	29.65	58.38	59.8
15	19	57.9	50.8	29.66	77.16	54.1
15	20	57.0	52.2	29.66	83.94	54.4
15	21	59.0	53.7	29.66	82.54	56.1
15	22	60.6	54.5	29.65	80.28	57.1
15	23	57.7	53.9	29.67	87.12	55.6
15	24	54.8	52.5	29.69	91.92	53.5

**Figure 31. Wet Bulb Daily Report**

MMS User Interface - [Edit]

### Meteorological Monitoring System

View or Edit Data

Data Interval:  1 Minute  15 Minute  60 Minute

Start of Range:

End of Range:

Date (mm/dd/yyyy)      Time (hh:mm) EST

Figure 32. Edit Menu

MMS User Interface - [View and Edit Data]

Sample Date: 04/26/2002    Time: 01:00    EST    Data Interval: 60 minutes

**Nine Mile Point Tower**

	Edit Value	Validity Flag	MET Flag	Raw Value	Edit Value	Validity Flag	MET Flag	Raw Value	Edit Value	Validity Flag	MET Flag	Raw Value
General	34.2	V	0	34.2	29.68	V	0	29.68	0.02	V	0	0.02
	Dew Point				Barometric Pressure				Precipitation			
Temperature	36.8	V	0	36.8	-0.77	V	4	-0.77	-1.43	V	18	-1.43
	30' Temperature				100' Delta Temperature - stability = A				200' Delta Temperature - stability = C			
Wind Speed	16.2	V	0	16.2	17.3	V	0	17.3	18.0	V	0	18.0
Wind Direction	293.5	V	0	293.5	290.8	V	0	290.8	291.7	V	0	291.7
Sigma Theta	16.5	V	18	16.5	16.2	V	18	16.2	15.0	V	18	15.0
	30' stability = C				100' stability = C				200' stability = C			

**Inland Tower 30'**

	Edit Value	Validity Flag	MET Flag	Raw Value
Wind Speed	4.2	V	0	4.2
Wind Direction	265.3	V	0	265.3
Sigma Theta	27.4	V	0	27.4
	stability = A			

**JAF Tower 90'**

	Edit Value	Validity Flag	MET Flag	Raw Value
Wind Speed	17.1	V	0	17.1
Wind Direction	288.0	V	0	288.0
Sigma Theta	13.9	V	0	13.9
	stability = C			

**ZENO Parameters**

	Battery Voltage	Built in Test	IISC
NMP	13.50	0	0
JAF	13.30	0	0
INL	13.10	0	0

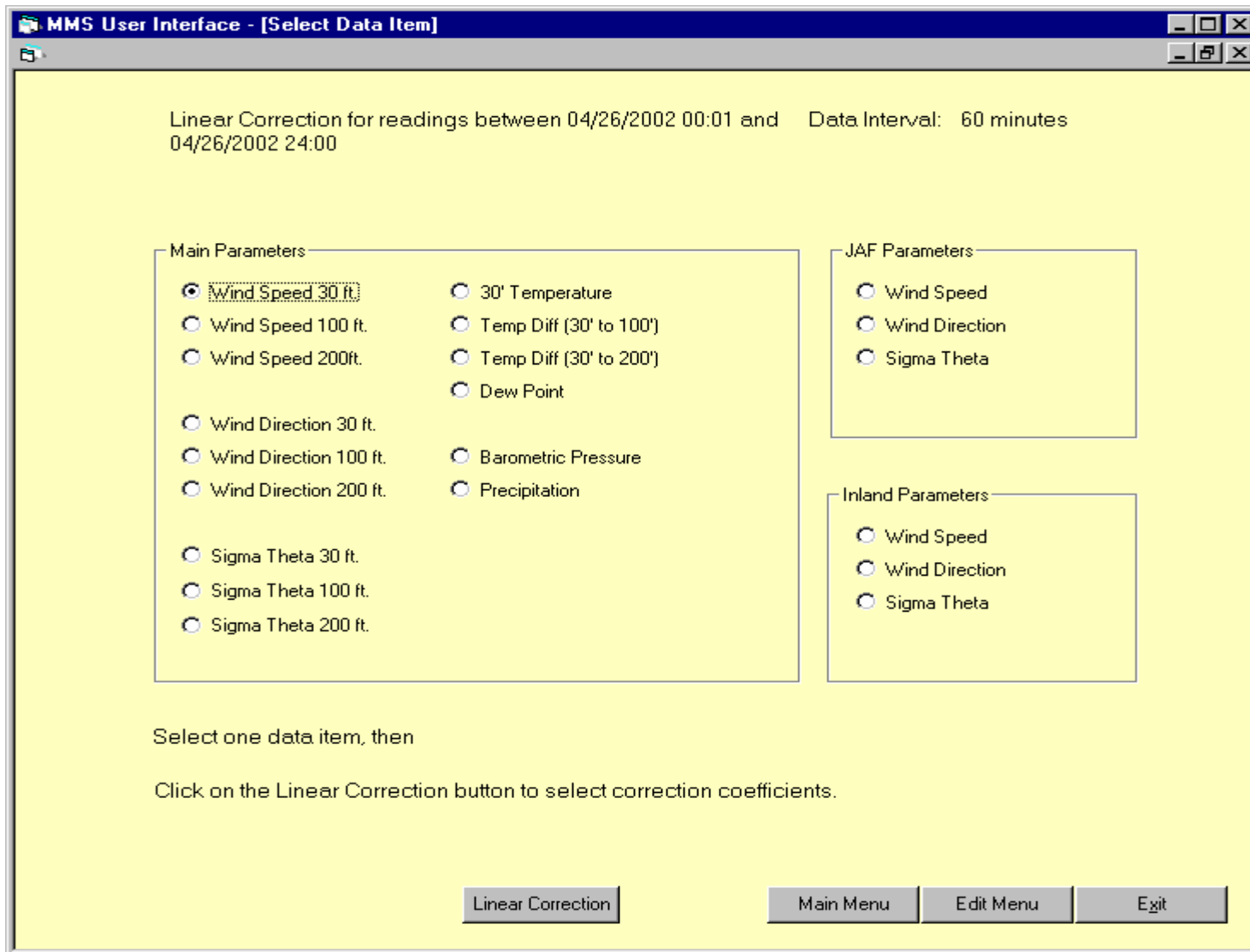
Print



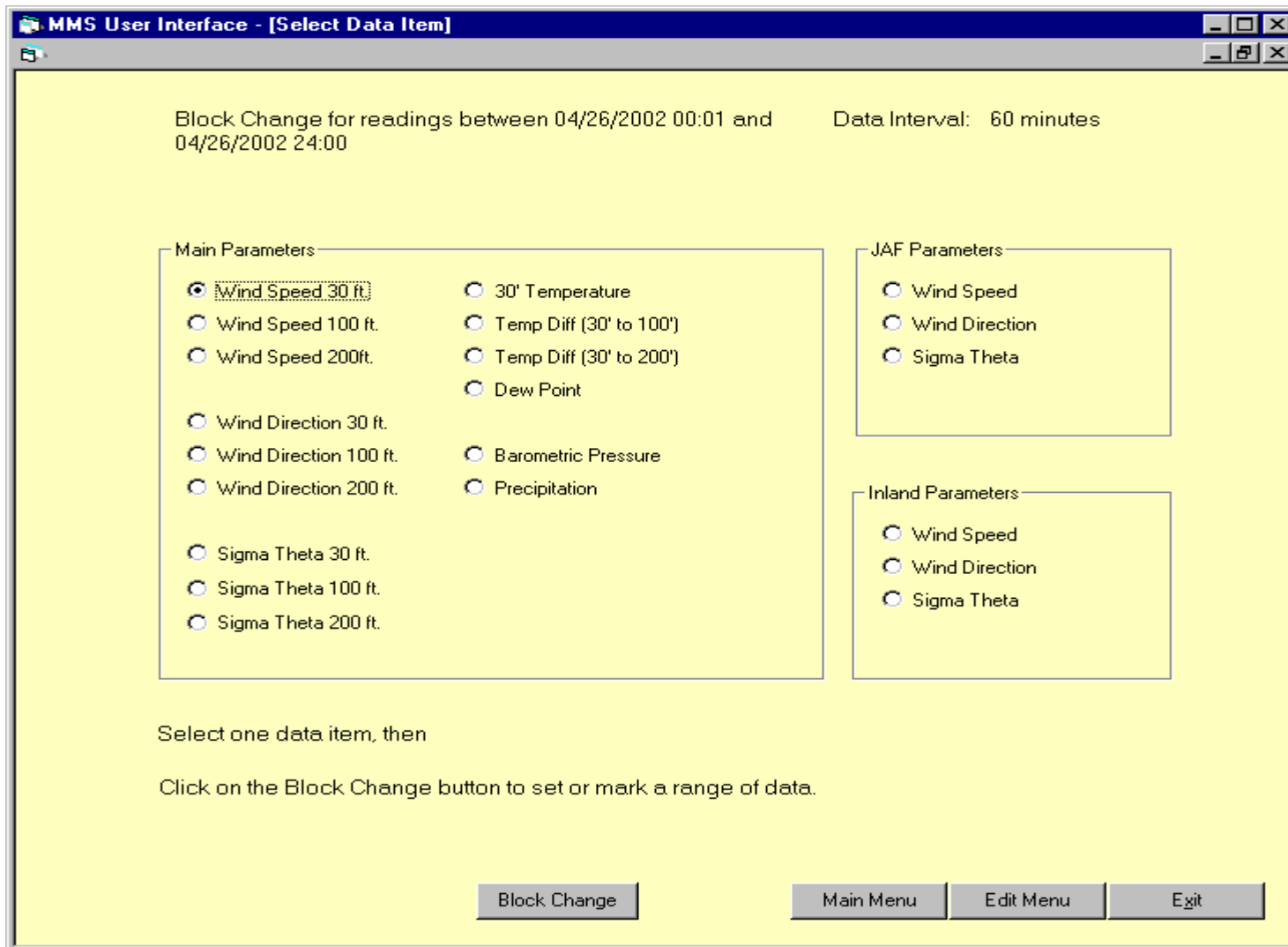



Main Menu
Edit Menu
Exit

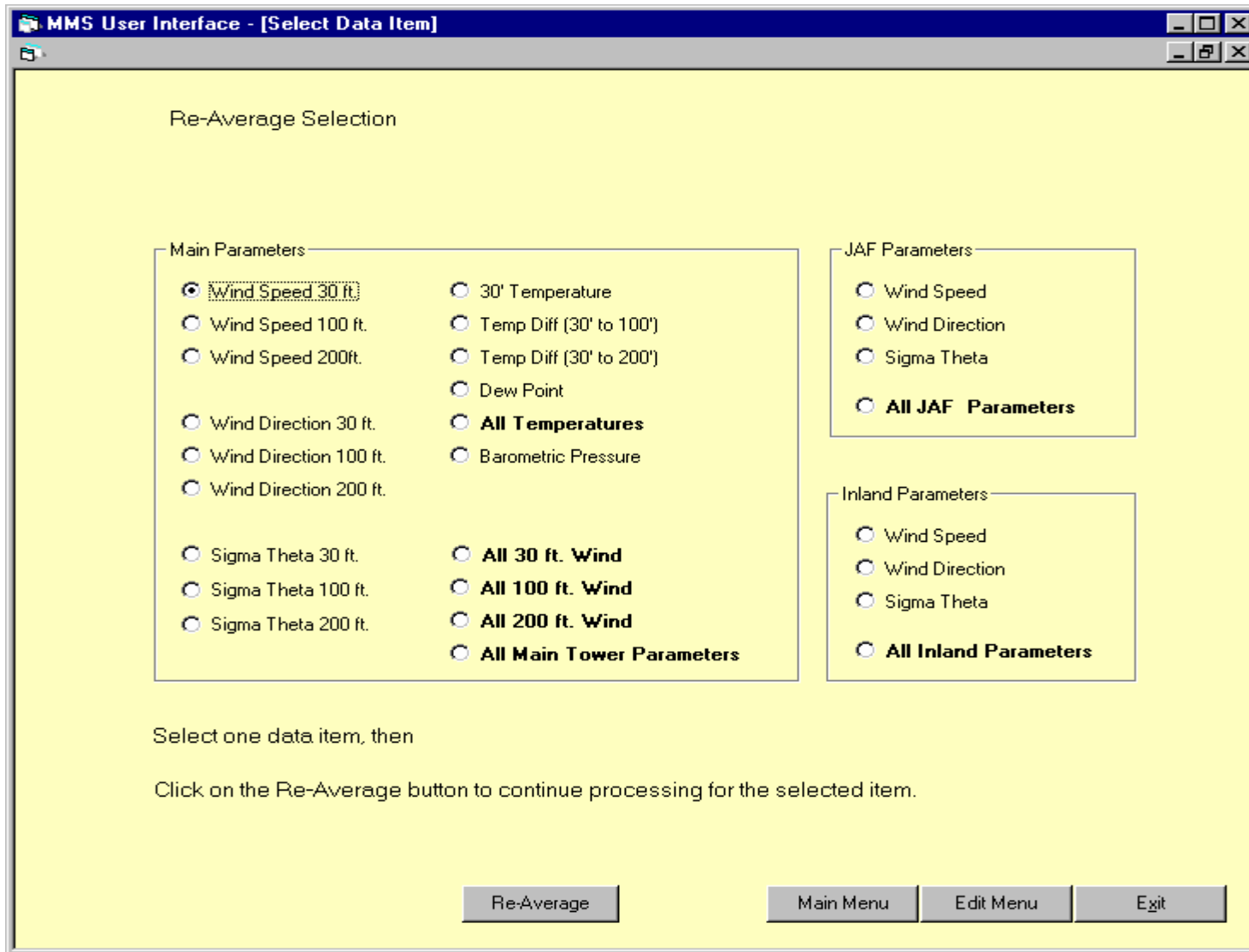
Figure 33. View and Edit Data



**Figure 34. Linear Corection – Select Parameter**



**Figure 35. Block Change - Select Parameter**



**Figure 36. Re-Average - Select Parameter**