REPORT NO. 5.3.1-3

General Conformity Determination
Air Dispersion Modelling Results

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October 15, 2008

Rodney E. Cluck, Ph.D.
Project Manager
U.S. Department of Interior
Minerals Management Service
381 Elden Street
Mail Stop 4042
Herndon, Virginia 20170

Re: Cape Wind Associates, LLC
General Conformity Determination
Air Dispersion Modeling Results

Dear Dr. Cluck:

The following letter report summarizes the results of the air dispersion modeling analysis conducted by ESS Group, Inc. (ESS) on behalf of Cape Wind Associates, LLC (Cape Wind). This air dispersion modeling analysis was conducted for the construction phase emissions from the Cape Wind Energy Project to be located at Horseshoe Shoal, Nantucket Sound, Massachusetts.

MODELING METHODOLOGY

To satisfy the requirements for the Project's General Conformity Determination, and for the Environmental Impact Statement (EIS) being prepared for the Project to comply with the National Environmental Policy Act (NEPA), air dispersion modeling of the construction phase emissions was performed using the Mineral Management Service's (MMS) Offshore and Coastal Dispersion (OCD) Model. Version 5 of the OCD Model was used for this analysis.

Emission Sources

The emission sources during the construction phase were grouped into three categories: sources that will be stationary (modules), sources that will move at approximately 300 feet per hour (115 kV cable installation), and sources that will move at 8 knots (vessels in transit). All were modeled as point sources, as described below:

1. The Wind Farm project area, including the 130 wind turbine generators (WTGs) and the electrical service platform (ESP), was divided into 15 modeled activity areas, called "modules" for this analysis (14 inner-array cable segments plus the ESP). It was assumed that all possible construction activities (except transit activity) in each module will all occur in that module at the same time. For each WTG module, this included:

    - Pile driving of monopiles
    - Installation of transition pieces, monopoles, nacelles, and WTGs
    - Installation of inner-array cable

- Rock armoring[1]

For the ESP, the construction activities included:

- Placement of the ESP base template
- Pile driving
- Installation of the ESP and auxiliaries
- Rock armoring

Each WTG module was modeled as a single point source located at the centroid of the WTGs connected to a single inner-array cable. In practice, the centroid was calculated by averaging the X-coordinates of the WTGs and averaging the Y-coordinates of the WTGs. The ESP module was located at the ESP, which was also chosen as the origin of the modeling grid, as well as the end source point of the cable and transit routes, as described below.

2. The 115 kV cable connecting the ESP to land will be installed along a single route. Cable installation will occur at a minimum steady-state speed of approximately 300 feet per hour. This source was modeled as a series of point sources located at intervals of approximately 300 feet (91.7 meters or 300.85 feet) along the centerline of the route that will contain 4 cables, installed 2 at a time during each of 2 passes. The interval was chosen to represent one hour of emissions.

   - For the 1-hour averaging period, the peak hourly emissions that could occur were modeled as being emitted from every source point along the cable route.
   - For the 24-hour averaging period, the total emissions that could occur during the planned 10 hours of operation per day were divided evenly among the 10 source points comprising the daily travel, divided by 24 hours.
   - For the annual averaging period, the total emissions that could occur during the entire cable installation project were divided evenly among the 209 source points comprising the cable route, divided by 8,760 hours.

The first cable source point, closest to land, is a special case, since sheet piles will be installed at that location and sediments enclosed by the sheet piles will be excavated to construct a cofferdam for the cable landfall. Of the various mutually exclusive activities that will occur at that location, only the activity producing the maximum short-term emissions was modeled for the short term. For the annual impact, total emissions from the cofferdam activities were added to the emissions allocated among the other cable points.

3. The single most likely vessel route, from the ESP (the Wind Park center point) to Quonset Point, Rhode Island, was modeled out to a radius of 25 nautical miles (nm)(46.3 km) from the ESP. While various vessels can and will take different routes, it was most

[1] While it is possible that few monopiles may have rock armoring installed, rather than scour protection mats, rock armoring results in more air emissions, therefore, in order to be conservative, all monopiles were assumed to have the rock armoring.

conservative and practical for short-term modeling to assume that all transiting vessels travel this route every day, making the number of trips they would make in a day (generally, one round-trip). This source was modeled as a series of point sources located at intervals of approximately ½ kilometer (487 meters or 1,598 feet) along the centerline of the route. For the 1-hour, 24-hour, and annual averaging periods, the total emissions that would occur along the route (to 25 nm from the ESP) were calculated, then divided evenly among the 110 source points comprising the transit route.

The locations of the source points used for the modeling analysis are shown on the attached Figure 1. The emission rates used for each of the source points, in both pounds per hour (lb/hr) and grams per second (g/sec), are summarized on the attached Table 1.

Model Set-Up

1. The ESP was chosen to be the grid origin, grid location (0, 0).
2. The OCD model requires as an input the distance from the grid origin to wind landfalls for each of 36 compass directions, looking ±5 degrees each side. To be conservative, this was done by maximizing the amount of land encountered (i.e., at water-to-land transition, the nearest land in the sector was used; at land-to-water transition, the farthest land in the sector was used).
3. For emissions occurring within the wind park area, a 100 meter boundary was established around the entire perimeter of the area. No receptors were placed within the wind park area or within the outer boundary, as it has been assumed that public traffic in those areas will likely be limited during the construction period.
4. Multiple runs were made to model different areas, due to the model's limitation on the number of receptors, and to simplify the task of distinguishing land receptors from water receptors, since land receptors are potentially populated receptors. Adjacent to the Wind Park boundary, the initial spacing was 100 meters, since maximum impacts are expected to be there.
5. A polar grid was established centered on the ESP. No receptors were placed within 100 meters of any turbine, resulting in boundary receptors varying from 3.1 to 7.3 kilometers from the ESP. Receptor spacing of 100-meters was used in all directions out to 9 kilometers, assuring at least one kilometer of dense grid spacing in all directions surrounding the Wind Park. Beyond 9 kilometers, 200-meter spacing was applied out to 10 kilometers, 500-meter spacing out to 15 kilometers and 1-kilometer spacing beyond 15 kilometers, out to 25 nautical miles (46.3 km). Receptors within the Wind Park, or within 100 meters of any modeled source were excluded.
6. Modeling receptors were placed so that the closest ones were located 100 meters from all cable and transit points. The 100 meter buffer zones around each source were established on the assumption that no public receptors are expected to be within that distance to any emissions source during the construction period.
7. AERMAP was applied to generate elevations and hill heights at receptors placed over land. Values less than 1 meter were reset to 1 meter at these locations.

The receptor points used for the modeling analysis are shown on the attached Figure 2.

Emissions Assumptions

1. All module activity was concentrated in a single module to calculate emissions, a situation that is possible. Initial modeling was conducted in which all 15 modules were modeled as being operated at the same time, a physical impossibility. The location of the highest impact receptor was determined, then modeling was conducted operating only the closest module to that receptor. The impact in the second case was only slightly less than the impact from the first case, indicating there is little interactivity among the modules. Therefore, all subsequent modeling was conducted with all 15 modules operating, making the results only slightly more conservative.
2. Operations were assumed to occur 24 hours/day, however, most items of equipment or activities had individual practical limits on daily operations, so as to make the model more realistic. As a practical matter, not all equipment and activities will operate simultaneously at their limits on most days, still making the model conservative.
3. Construction of the Wind Park is expected to take 2 years, however, for modeling purposes, total construction was assumed to be completed in 1 year, approximately doubling calculated annual impacts.

The stack parameters used were chosen to be conservative, and to be consistent with similar OCD modeling analyses conducted for other off-shore projects. One set of parameters was used for each point source and all emissions from the point source were assumed to be emitted from that representative stack, with the following parameters:

- Release height = 10 meters,
- Exhaust diameter = 1 meter,
- Exit velocity = 5 m/sec,
- Exhaust temperature = 300K,
- Structure height and elevation of platform = 9.75 m, and
- Structure width = 91.25 meters.

Meteorological Data

1. Over-water meteorological data was provided by Cape Wind from their on-site meteorological tower for the period from March 2004 through February 2005.
2. Concurrent over-land surface meteorological data was from the Nantucket Airport.
3. Concurrent over-land mixing height data was from the upper air station located in nearby Chatham, Massachusetts.
4. Concurrent sea surface temperature data was from Buoy № 44018, SE Cape Cod 30 NM East of Nantucket.
5. A default over-water mixing height value of 500 meters was used for this analysis, consistent with the methodology for analyses conducted for other off-shore projects.
6. AERSURFACE was applied to generate the surface roughness at Nantucket Airport.

MODELING RESULTS

The maximum modeled impact value was determined for each pollutant and for each averaging period. The determination of the maximum modeled impact value was made in a manner consistent with the monitoring values specified for the determination of compliance with the National Ambient Air Quality Standards (NAAQS). The locations of the maximum impact values for each pollutant and averaging period, both overland and over-water, are shown on the attached Figure 3. Electronic versions of the input and output files from the modeling analysis have been provided along with this letter report. Included in the attached input files are the overland and over-water meteorological data sets used for the modeling analysis.

The background ambient concentrations used in this analysis have been determined using monitoring data collected from 2005 through 2007 from representative monitoring stations located in Massachusetts and Rhode Island. The background concentrations have been determined for each pollutant and averaging period in accordance with the specifications of the NAAQS. The monitor values and background concentrations used for this analysis are summarized on the attached Table 2. The demonstration of compliance is accomplished when the sum of the maximum impact value for each pollutant and averaging period and the corresponding background value is below the NAAQS.

The attached Table 3 summarizes the results of the OCD air dispersion modeling conducted for the Project. As shown on Table 3, the results of the air dispersion modeling analysis conducted for the Cape Wind Energy Project demonstrate that the Project's emissions during construction will not cause or contribute to an exceedance of NAAQS. For the purposes of the General Conformity Determination, this demonstration of compliance with NAAQS also serves as a demonstration of compliance with both the Massachusetts and Rhode Island State Implementation Plans (SIP) for ozone. The modeling results also satisfy the air quality analysis requirements of NEPA for inclusion in the EIS for the Project.

Although the modeling analysis conducted was for emissions within 25 miles of the Project, the results of the analysis also demonstrate that the impacts from vessels all along the transit route from Quonset Point, within Rhode Island waters outside of 25 miles, will also comply with the NAAQS. This conclusion supports the Rhode Island general conformity determination for the Project. In addition, Cape Wind will fully offset its construction period nitrogen oxides (NO_x) emissions, both to satisfy the Massachusetts Nonattainment Review (310 CMR 7.00, Appendix A) requirements for its OCS Air Permit, and to satisfy the requirements for the General Conformity Determination.

Please call me at (781) 489-1149 if you have any questions or if you require any additional information.

Sincerely,

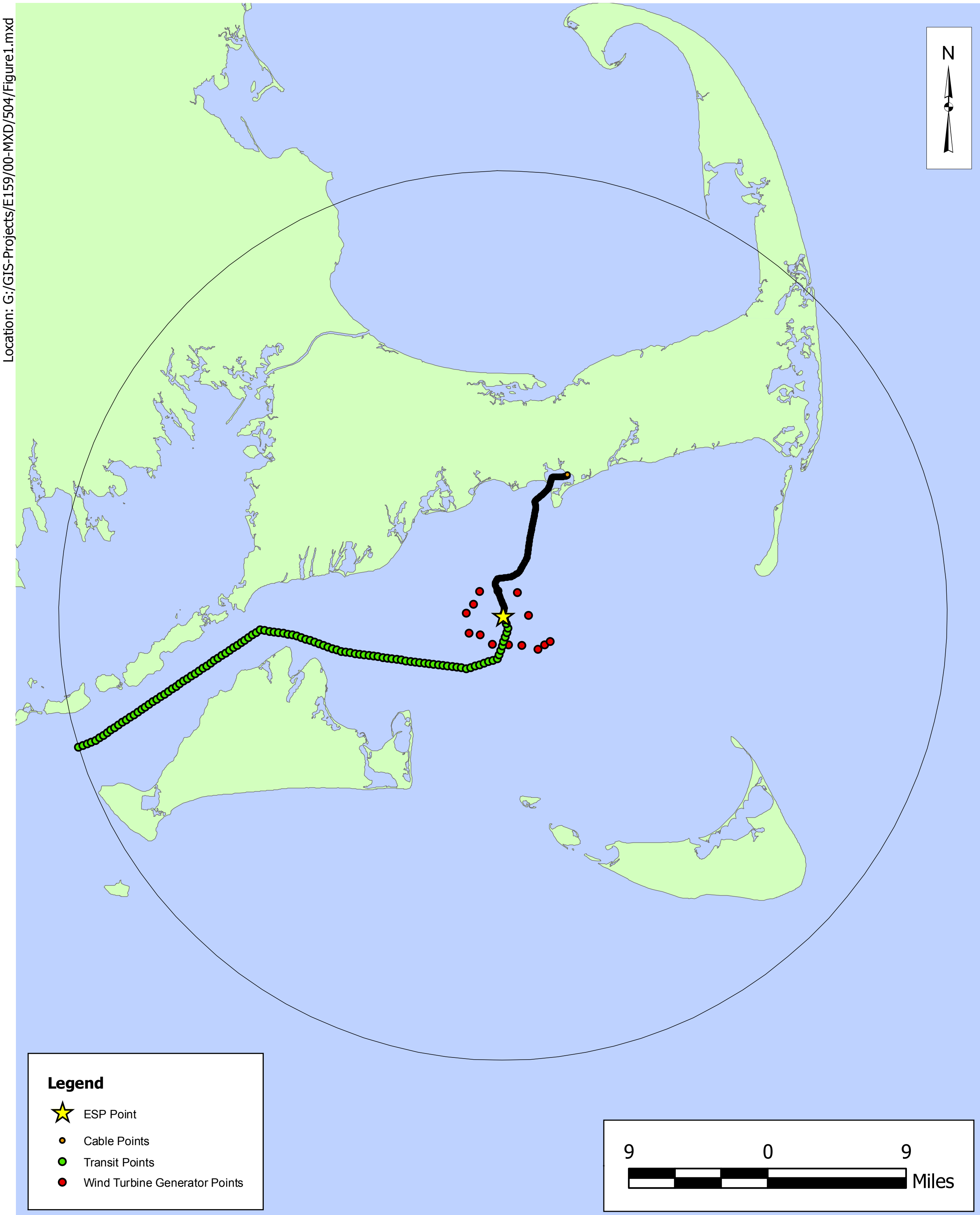
ESS GROUP, INC.

Michael E. Feinblatt
Project Manager

Attachments: Table 1 - Source Emissions Summary
Table 2 – Monitor Values & Background Concentrations
Table 3 – Summary of Air Quality Impacts
Figure 1 – Modeling Sources
Figure 2 – Modeling Receptors
Figure 3 – Maximum Impact Locations
ocdinput.zip (modeling input files)
ocdout.zip (modeling output files)

C: Christopher Rein, ESS
Terry Orr, ESS
Craig Olmsted, Cape Wind Associates
Rachel Pachter, Cape Wind Associates
Dirk Herkhof, MMS

Location: G:/GIS-Projects/E159/00-MXD/504/Figure1.mxd



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CAPE WIND ASSOCIATES, LLC.
CAPE WIND PROJECT
Nantucket Sound, Massachusetts

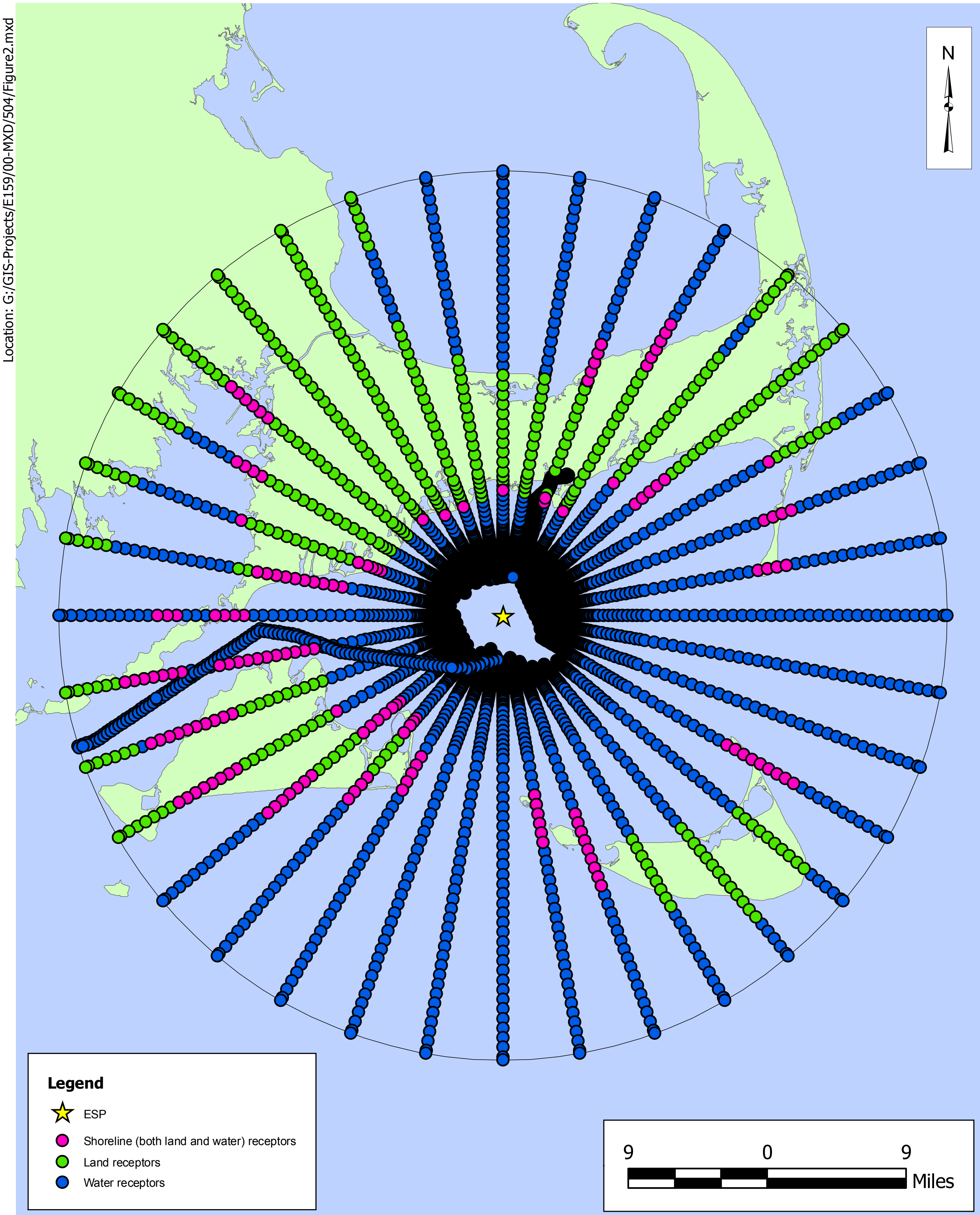
Scale: 1" = 9 Miles

Source: ESS, 2008

Modeled Point Source Locations (25 nm radius)

Figure 1

Location: G:/GIS-Projects/E159/00-MXD/504/Figure2.mxd



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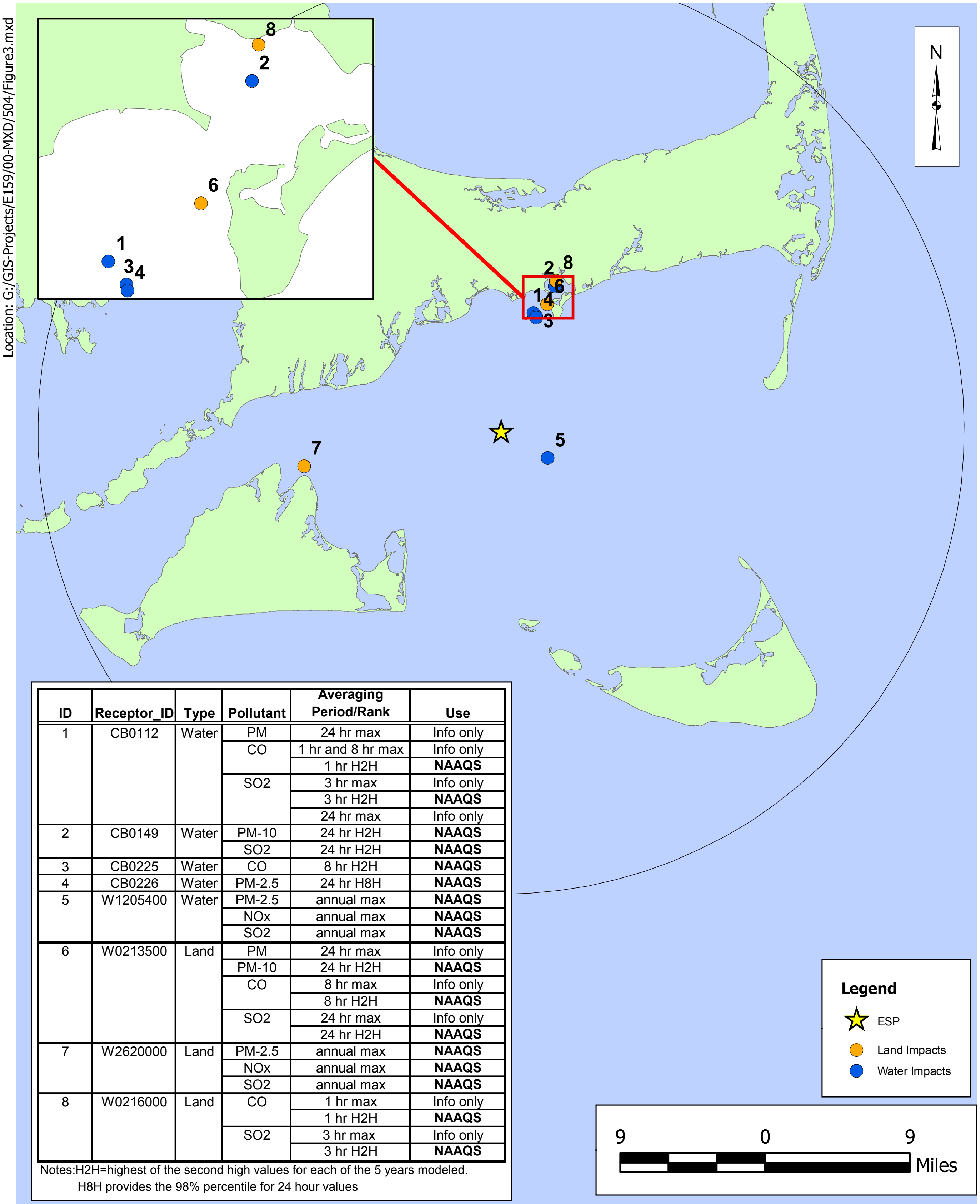
Source: ESS, 2008

Model Receptor Locations (25 nm radius)

Figure 2

Location: G:/GIS-Projects/E159/00-MXD/504/Figure3.mxd



ID	Receptor_ID	Type	Pollutant	Averaging Period/Rank	Use
1	CB0112	Water	PM	24 hr max	Info only
			CO	1 hr and 8 hr max	Info only
				1 hr H2H	**NAAQS**
			SO2	3 hr max	Info only
				3 hr H2H	**NAAQS**
				24 hr max	Info only
2	CB0149	Water	PM-10	24 hr H2H	**NAAQS**
			SO2	24 hr H2H	**NAAQS**
3	CB0225	Water	CO	8 hr H2H	**NAAQS**
4	CB0226	Water	PM-2.5	24 hr H8H	**NAAQS**
5	W1205400	Water	PM-2.5	annual max	**NAAQS**
			NOx	annual max	**NAAQS**
			SO2	annual max	**NAAQS**
6	W0213500	Land	PM	24 hr max	Info only
			PM-10	24 hr H2H	**NAAQS**
			CO	8 hr max	Info only
				8 hr H2H	**NAAQS**
			SO2	24 hr max	Info only
				24 hr H2H	**NAAQS**
7	W2620000	Land	PM-2.5	annual max	**NAAQS**
			NOx	annual max	**NAAQS**
			SO2	annual max	**NAAQS**
8	W0216000	Land	CO	1 hr max	Info only
				1 hr H2H	**NAAQS**
			SO2	3 hr max	Info only
				3 hr H2H	**NAAQS**

Notes:H2H=highest of the second high values for each of the 5 years modeled.
H8H provides the 98% percentile for 24 hour values

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CAPE WIND PROJECT
Nantucket Sound, Massachusetts

Scale: 1" = 9 Miles

Source: ESS, 2008

Maximum Impact Locations

Figure 3

Table 1
Source Emissions Summary
Cape Wind Energy Project
OCD Air Dispersion Modeling

Source Point		Short-Term Emission Rate Modeled (lbs/hr)					24-Hour Average Emission Rate Modeled (lbs/hr)					Annual Average Emission Rate Modeled (lbs/hr)				
		NOx	SO_2	CO	PM_{10}	$PM_{2.5}$	NOx	SO_2	CO	PM_{10}	$PM_{2.5}$	NOx	SO_2	CO	PM_{10}	$PM_{2.5}$
WTG	1	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
WTG	2	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
WTG	3	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
WTG	4	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
WTG	5	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
WTG	6	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
WTG	7	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
WTG	8	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
WTG	9	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
WTG	10	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
WTG	11	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
WTG	12	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
WTG	13	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
WTG	14	314.23	8.40	112.22	17.16	15.79	57.95	1.55	20.92	3.41	3.14	1.4216	0.0380	0.5091	0.0792	0.0729
ESP		184.52	4.93	64.55	8.61	7.92	124.78	3.34	43.65	5.82	5.35	0.5837	0.0156	0.2042	0.0272	0.0251
First Cable (ID=208)		100.58	2.69	35.73	5.29	4.87	3.81	0.102	1.36	0.44	0.40	0.0628	0.0017	0.0272	0.0087	0.0080
Other Cable Pts		100.58	2.69	35.73	5.29	4.87	3.81	0.102	1.36	0.20	0.19	0.0210	0.0006	0.0075	0.0011	0.0010
Each Transit		4.64	0.12	1.62	0.22	0.20	1.37	0.037	0.48	0.064	0.059	0.3548	0.0095	0.1241	0.0165	0.0152
Why greyed out above and below:		Annual NAAQS only					Annual NAAQS only		1-hr & 8-hr NAAQS only					1-hr & 8-hr NAAQS only		

Source Point		Short-Term Emission Rate Modeled (grams/second)					24-Hour Average Emission Rate Modeled (grams/second)					Annual Average Emission Rate Modeled (grams/second)				
		NOx	SO_2	CO	PM_{10}	$PM_{2.5}$	NOx	SO_2	CO	PM_{10}	$PM_{2.5}$	NOx	SO_2	CO	PM_{10}	$PM_{2.5}$
WTG	1	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
WTG	2	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
WTG	3	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
WTG	4	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
WTG	5	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
WTG	6	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
WTG	7	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
WTG	8	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
WTG	9	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
WTG	10	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
WTG	11	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
WTG	12	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
WTG	13	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
WTG	14	39.5924	1.0589	14.1393	2.1623	1.9893	7.3013	0.1953	2.6357	0.4296	0.3952	0.1791	0.00479	0.0641	0.00998	0.00918
ESP		23.2493	0.6218	8.1333	1.0844	0.9977	15.7219	0.4205	5.5000	0.7333	0.6747	0.0736	0.00197	0.0257	0.00343	0.00316
First Cable		12.6728	0.3389	4.5022	0.6664	0.6131	0.4804	0.0128	0.1709	0.0554	0.0510	0.0079	0.00021	0.0034	0.00109	0.00101
Other Cable Pts		12.6728	0.3389	4.5022	0.6664	0.6131	0.4804	0.0128	0.1709	0.0255	0.0235	0.0026	0.00007	0.0009	0.00014	0.00013
Each Transit		0.5847	0.0156	0.2045	0.0273	0.0251	0.1722	0.0046	0.0602	0.0080	0.0074	0.0447	0.00120	0.0156	0.00209	0.00192

Table 2
Monitor Values & Background Concentrations
Cape Wind Energy Project
OCD Air Dispersion Modeling

Pollutant	Averaging Period	2005	2006	2007	Background
CO	1-hr	**2.8 ppm** Francis School, 64 Bourne Ave., East Providence, RI	2.5 ppm Francis School, 64 Bourne Ave., East Providence, RI	1.8 ppm Francis School, 64 Bourne Ave., East Providence, RI	**2.8 ppm** 3,261 μg/m^3
	8-hr	**1.6 ppm** Francis School, 64 Bourne Ave., East Providence, RI	**1.6 ppm** Francis School, 64 Bourne Ave., East Providence, RI	1.1 ppm Francis School, 64 Bourne Ave., East Providence, RI	**1.6 ppm** 1,863 μg/m^3
NO_2	Annual	0.003 ppm Fox Bottom Area, Truro, MA	0.003 ppm Fox Bottom Area, Truro, MA	**0.005 ppm** Francis School, 64 Bourne Ave., East Providence, RI (Truro, MA discontinued)	**0.005 ppm** 9.56 μg/m^3
$PM_{2.5}$	24-hr	**21.9 μg/m^3** 659 Globe Street, Fall River, MA	**24.5 μg/m^3** 659 Globe Street, Fall River, MA	**26.0 μg/m^3** 659 Globe Street, Fall River, MA	**24.13 μg/m^3** *(average)*
	Annual	**10.05 μg/m^3** 659 Globe Street, Fall River, MA	**8.11 μg/m^3** 659 Globe Street, Fall River, MA	**9.17 μg/m^3** 659 Globe Street, Fall River, MA	**9.11 μg/m^3** *(average)*
PM_{10}	24-hr	**54 μg/m^3** Vernon Street Trailer Pawtucket, RI	50 μg/m^3 111 Dorrance St Providence, RI	52 μg/m^3 Vernon Street Trailer Pawtucket, RI	**54 μg/m^3**
SO_2	3-hr	**0.060 ppm** 659 Globe Street, Fall River, MA	0.056 ppm 659 Globe Street, Fall River, MA	0.046 ppm 659 Globe Street, Fall River, MA	**0.060 ppm** 160 μg/m^3
	24-hr	0.020 ppm 659 Globe Street, Fall River, MA	0.020 ppm 659 Globe Street, Fall River, MA	**0.022 ppm** 659 Globe Street, Fall River, MA	**0.022 ppm** 59 μg/m^3
	Annual	**0.005 ppm** 659 Globe Street, Fall River, MA	**0.005 ppm** 659 Globe Street, Fall River, MA	0.003 ppm 659 Globe Street, Fall River, MA	**0.005 ppm** 13 μg/m^3

Notes:
1. The short-term CO, PM_{10}, and SO_2 background concentrations (1-hr, 3-hr, 8-hr, and 24-hour) are the highest of the second-high values.
2. The annual NO_2 and SO_2 background concentrations are the highest of the annual mean values.
3. The 24-hour $PM_{2.5}$ background concentration is the 3-year average of the 98th percentile values.
4. The annual $PM_{2.5}$ background concentration is the 3-year average of the annual mean values.

Table 3
Summary of Air Quality Impacts
Cape Wind Energy Project
OCD Air Dispersion Modeling

Pollutant	Averaging Period	Maximum Modeled Impact Value(1) (µg/m^3)	Background Ambient Concentration(2) (µg/m^3)	Total Impact Concentration(3) (µg/m^3)	National Ambient Air Quality Standard (µg/m^3)
NO_2	Annual	0.78	9.56	10	100
CO	8-hour	5,842	1,863	7,705	10,000
	1-hour	32,636	3,261	35,897	40,000
SO_2	Annual	0.02	13	13	80
	24-hour	7.12	59	66	365
	3-hour	976.2	160	1,136	1,300
PM_{10}	24-hour	14.2	54	68	150
$PM_{2.5}$	Annual	0.03	9.11	9.1	15.0
	24-hour	9.00	24.13	33	35

(1) The Maximum Modeled Impact Value was determined by the OCD Model for each pollutant averaging period. The maximum impact value determination was made in a manner consistent with the monitoring values specified for the determination of compliance with the NAAQS.
(2) The Background Ambient Concentrations are data from representative ambient monitoring stations located in Massachusetts and Rhode Island.
(3) The Total Impact Concentration is the sum of the Maximum Modeled Impact Value and the Background Ambient Concentration, and is used to determine NAAQS compliance.