

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

WTG Installation									
Process Step	Process Activity	Equipment Type	Equipment Size (hp)	Emission Factor (g/hp-hr)		Emission Rate (lb/hr)		Emission Rate (g/sec)	
				NO <sub>x</sub> <sup>1</sup>	SO <sub>2</sub> <sup>2</sup>	NO <sub>x</sub>	SO <sub>2</sub>	NO <sub>x</sub>	SO <sub>2</sub>
1	Stabilize the WTG Vessel	Jacking system	476	2.98	0.0055	3.13	0.0058	0.39	0.0007
2	Put piles in place	Crane	800	4.77	0.0055	8.42	0.0097	1.06	0.0012
3	Pile driving	Hydraulic Ram	1,600	4.77	0.0055	16.83	0.0194	2.12	0.0024
4	Set transition pieces	Crane	800	4.77	0.0055	8.42	0.0097	1.06	0.0012
5	Tower installation	Crane	800	4.77	0.0055	8.42	0.0097	1.06	0.0012
6	Nacelle installation	Crane	800	4.77	0.0055	8.42	0.0097	1.06	0.0012
7	Rotor installation	Crane	800	4.77	0.0055	8.42	0.0097	1.06	0.0012
8	Install rock armor	Crane	400	2.98	0.0055	2.63	0.0049	0.33	0.0006
9	Install filler material	Crane	400	2.98	0.0055	2.63	0.0049	0.33	0.0006

ESP Installation									
Process Step	Process Activity	Equipment Type	Equipment Size (hp)	Emission Factor (g/hp-hr)		Emission Rate (lb/hr)		Emission Rate (g/sec)	
				NO <sub>x</sub> <sup>1</sup>	SO <sub>2</sub> <sup>2</sup>	NO <sub>x</sub>	SO <sub>2</sub>	NO <sub>x</sub>	SO <sub>2</sub>
1	Pile setting	Crane	3,000	4.77	0.0055	31.56	0.0364	3.98	0.0046
2	Pile driving	Hydraulic Ram	3,200	4.77	0.0055	33.67	0.0388	4.24	0.0049
3	Setting template	Crane	3,000	4.77	0.0055	31.56	0.0364	3.98	0.0046

<sup>1</sup> The NO<sub>x</sub> emission factors are the applicable Tier 2 or Tier 3 (if available) EPA Nonroad Diesel Engine Emission Standards (40 CFR 89.112).

<sup>2</sup> The SO<sub>2</sub> emission factor is from the EPA's AP-42 "Compilation of Emission Factors" document for stationary diesel engines firing ULSD (15 ppm sulfur).

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

Pollutant	Averaging Period	2007	2008	2009	Background
NO <sub>2</sub>	1-hr	<b>0.048 ppm</b> Consentino School, Haverhill, Massachusetts	<b>0.049 ppm</b> Consentino School, Haverhill, Massachusetts	<b>0.044 ppm</b> Consentino School, Haverhill, Massachusetts	<b>0.047 ppm</b> 88 µg/m <sup>3</sup> <i>(average)</i>
SO <sub>2</sub>	1-hr	<b>0.031 ppm</b> Long Island, Boston Harbor	<b>0.020 ppm</b> Long Island, Boston Harbor	<b>0.019 ppm</b> Long Island, Boston Harbor	<b>0.023 ppm</b> 61 µg/m <sup>3</sup> <i>(average)</i>

- Notes:**
1. The 1-hour NO<sub>2</sub> background concentration is the 3-year average of the daily maximum 1-hour values.
  2. The 1-hour SO<sub>2</sub> background concentration is the 3-year average of the 99<sup>th</sup> percentile of the daily maximum 1-hour values.

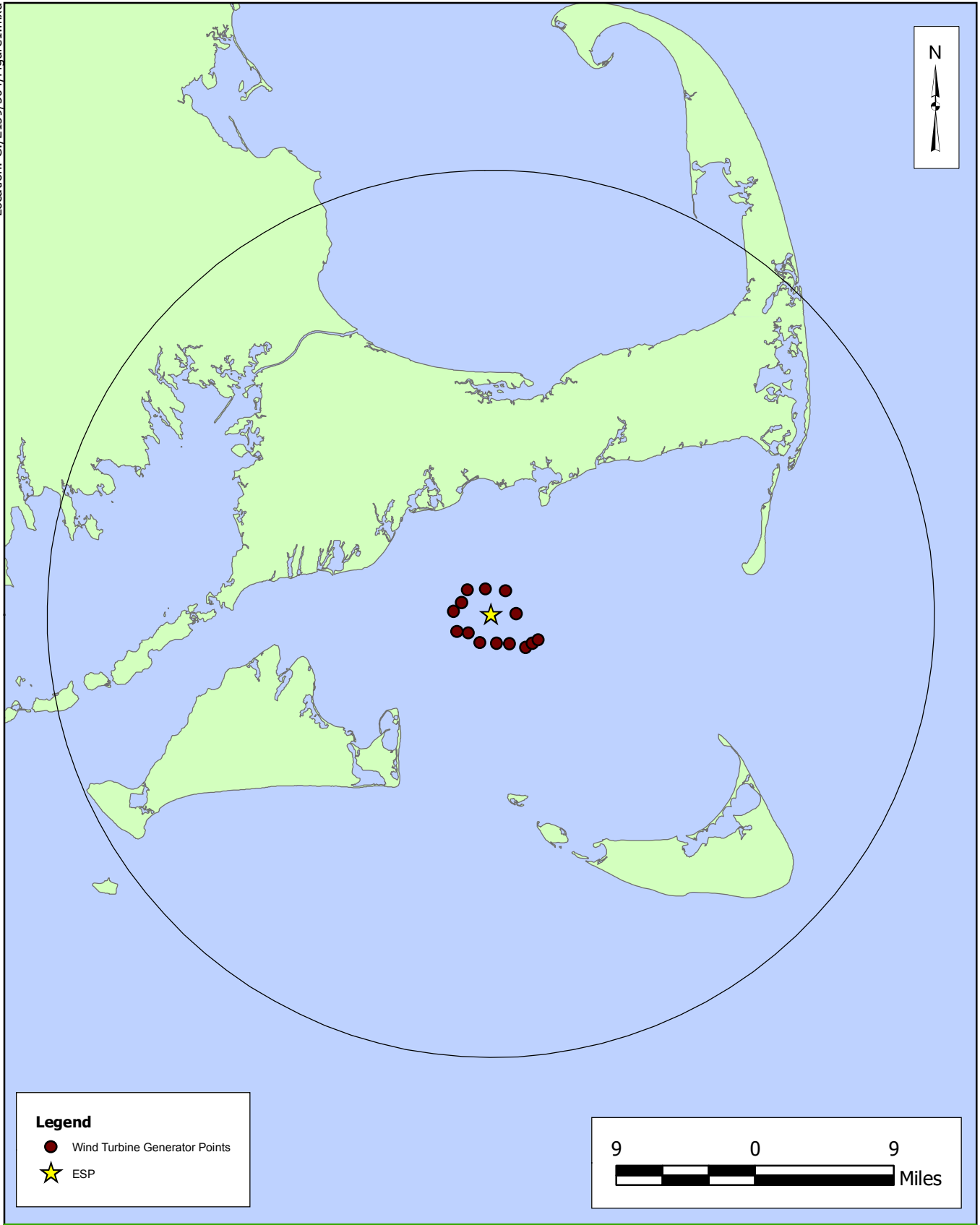
**Table 3**  
**Summary of Air Quality Impacts**  
**Cape Wind Energy Project**  
**OCD Air Dispersion Modeling**

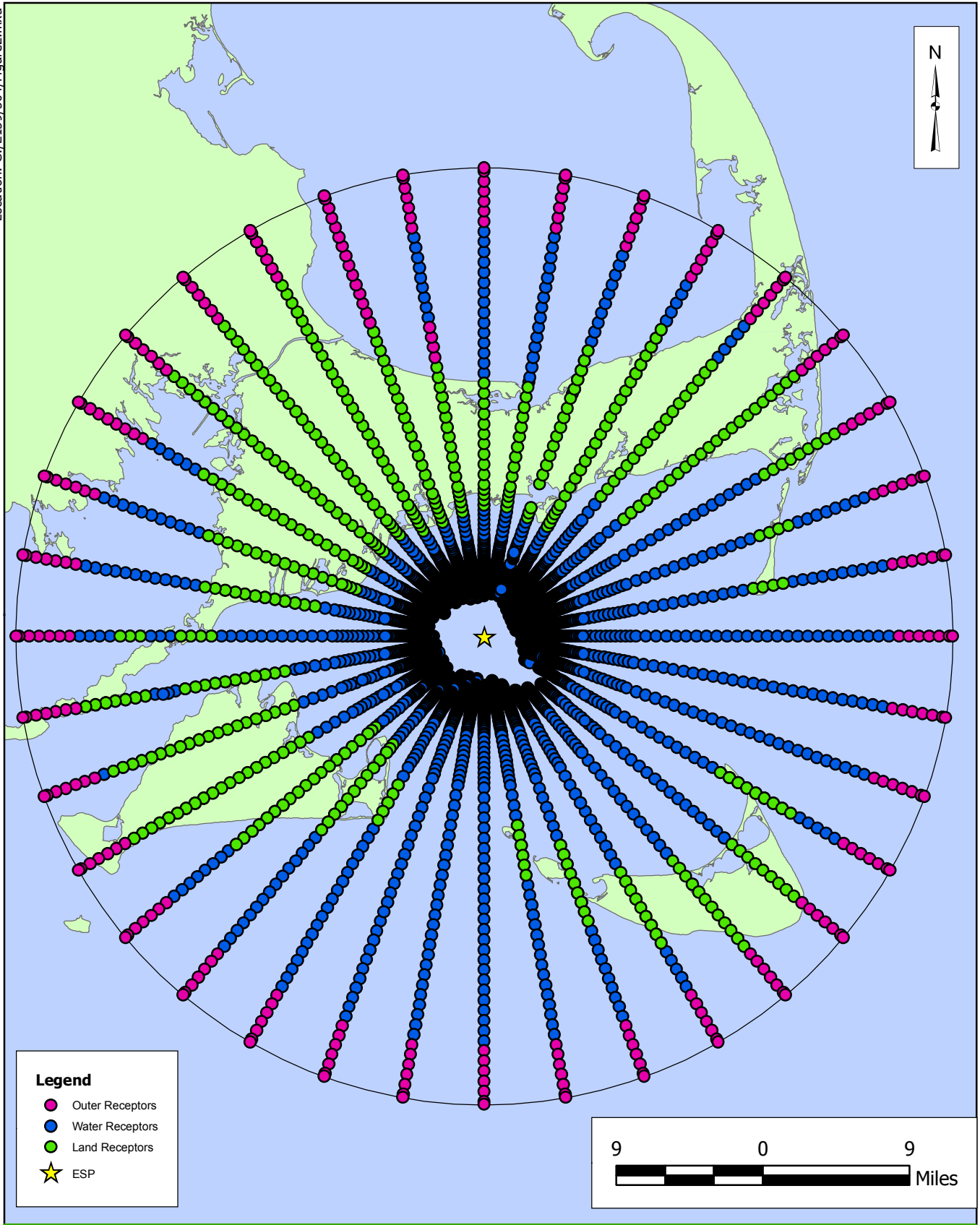
Pollutant	Averaging Period	Modeled Project Impact Value <sup>1</sup> ( $\mu\text{g}/\text{m}^3$ )	Background Ambient Concentration <sup>2</sup> ( $\mu\text{g}/\text{m}^3$ )	Total Impact Concentration <sup>3</sup> ( $\mu\text{g}/\text{m}^3$ )	National Ambient Air Quality Standard ( $\mu\text{g}/\text{m}^3$ )
NO <sub>2</sub>	1-hour	83	88	171	188
SO <sub>2</sub>	1-hour	0.9	61	62	196

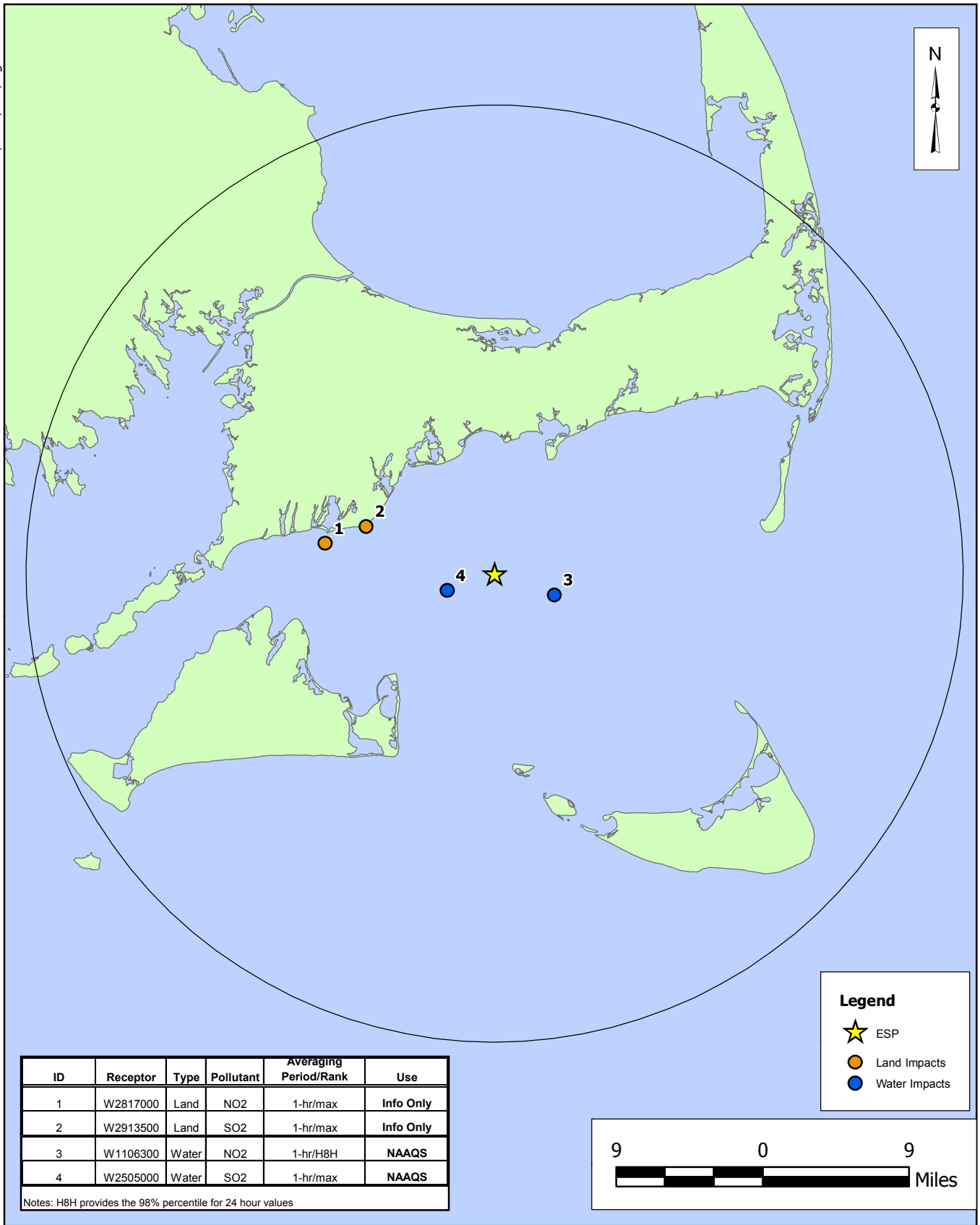
<sup>1</sup> As determined using the OCD Model for the Project OCS sources, in accordance with the applicable EPA modeling guidance.

<sup>2</sup> Estimated using the most representative data available from Massachusetts monitoring stations. The values presented are considered to be conservative estimates of the actual background concentrations within the Project impact area, which are expected to be significantly lower.

<sup>3</sup> The sum of the Modeled Project Impact Value and the Background Ambient Concentration, used to determine NAAQS compliance.







ID	Receptor	Type	Pollutant	Averaging Period/Rank	Use
1	W2817000	Land	NO2	1-hr/max	Info Only
2	W2913500	Land	SO2	1-hr/max	Info Only
3	W1106300	Water	NO2	1-hr/H8H	NAAQS
4	W2505000	Water	SO2	1-hr/max	NAAQS

Notes: H8H provides the 98% percentile for 24 hour values

**Legend**

- ESP
- Land Impacts
- Water Impacts

