Exhibit E

NHDES-R-WD-05-29

STATE OF NEW HAMPSHIRE

2006 Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology

November, 2005

3.2 ASSESSMENT CRITERIA BY DESIGNATED USE

3.2.1 Overview

The following tables provide specific assessment criteria for each of the seven designated uses. Each table includes a definition of the use, the applicable surface waters, the core indicators for the use, and detailed assessment criteria for various parameters of water quality pertinent to the use, including criteria for the core indicators. These assessment criteria are supplemental to the general assessment criteria provided in Section 3.1.

3.2.2 Use: Primary Contact Recreation

Definition: Waters that are suitable for recreational uses that require or are likely to result in full body contact and/or incidental ingestion of water.

Applicability: All surface waters

Core Indicator(s): Bacteria (Pathogens)

Assessment Criteria: **The following criteria are in addition to the general assessment and listing criteria provided in Section 3.1.**

Indicator 1: **Bacteria (pathogens)**

FS: See criteria presented in table 3-17.

NS: See criteria presented in table 3-17.

Table 3-17: Use Support Matrix for Bacteria (Primary Contact Recreation)

May 24 – September 15 (Critical Period)				September 16 - May 23				Use Support
Geometric Mean (GM)		Single Samples (SS)		Geometric Mean (GM)		Single Samples (SS)		
# of GM Calculations	Results	# SS	Results	# of GM Calculations	Results	# SS	Results	
≥ 1	< GMC	≥ 0	< SSMC	≥ 0	< GMC	≥ 0	< SSMC	FS
≥ 0	< GMC	≥ 2	< 75% of GMC					
0		≤ 1	< SSMC	≥ 0	< GMC	≥ 0	< SSMC	INSUFFICIENT INFORMATION or NOT ASSESSED
0		≥ 2 and ≥ 1	< SSMC ≥ 75% GMC but < SSMC					
0 exceedances of the GMC and only 1 exceedance of the SSMC								
≥ 1 exceedance of the GMC and/or ≥ 2 exceedances of the SSMC								NS

Notes:

1. Water Quality Criteria (WQC)

Waterbody Type	Designated Beach	Bacteria	Geometric Mean Criteria (GMC)	75% of GMC	Single Sample Maximum Criteria (SSMC)
Class A Fresh water	No	Escherichia coli (cts/100mL)	47	35	153
Class B Fresh water	No	Escherichia coli (cts/100mL)	126	95	406
Class B Tidal water	No	Enterococcus (cts/100mL)	35	26	104
Class A Fresh water	Yes	Escherichia coli (cts/100mL)	47	35	88
Class B Fresh water	Yes	Escherichia coli (cts/100mL)	47	35	88
Class B Tidal water	Yes	Enterococcus (cts/100mL)	35	26	104

2. Assessments shall be based on the most recent full calendar year of data (or years if there was insufficient data in the most recent year to make an assessment). If, however, older data indicated NS, the more recent data used to make a FS decision must meet the requirements in Table 3-17 and must include at least 2 samples collected in the same general area and under similar conditions (i.e., wet weather, dry weather, season, etc) as when the older exceedances occurred.

3. As indicated in Table 3-17, to be FS, there must be sufficient data to make an assessment during the peak contact recreation season (May 24 to September 15).

4. Calculation of the geometric mean (GM) shall be based on
   a. a rolling average and
   b. at least 3 independent samples collected within 60 consecutive days in the same AU, but on different days, or
   c. at least 3 independent samples collected within 60 consecutive days within the Assessment Unit provided that at least 2 of the samples are separated by a period of at least 1 day.

5. A designated beach is an area on a waterbody that is operated for bathing, swimming, or other primary water contact by any municipality, governmental subdivision, public or private corporation, partnership, association, or educational institution, open to the public, members, guests, or students whether on a fee or free basis.

6. Assessments of the geometric mean criteria at designated beaches shall be based upon the highest valid reading at the beach for a given date. Single sample maximum criteria comparisons will be based upon all valid samples at the designated beach.

7. Magnitude of Exceedance criteria of the geometric means and Single Sample Maximum Criteria for use in determining the DES Categories (Section 3.1.5) are defined as two times the given criteria.

8. See section 3.1.24 for determining waters that should be placed in Category 5.

Indicator 2: Discharges of Untreated Sewage

FS: There are no known discharges of untreated sewage.

NS: There are known or highly suspected discharges of untreated sewage.

Notes:

1. The primary pollutant of concern in untreated sewage is bacteria (pathogens).

2. Examples of sources of untreated sewage discharges include connections of sanitary sewer pipes to storm drains (i.e., illicit connections), combined sewer overflows (CSOs), sanitary sewer overflows (SSOs) and failing septic systems that discharge to surface waters.

3. Evidence of suspected discharges of untreated sewage include physical evidence (feces, toilet paper, etc.), odors of sewage, chemical evidence (i.e., chlorine or elevated levels of ammonia in a pipe) and / or elevated bacteria concentrations in the pipe.

4. See section 3.1.24 for determining waters that should be placed in Category 5.

Indicator 3: Chlorophyll a (chlor a)

FS: See criteria presented in table 3-18.

NS: See criteria presented in table 3-18.

Table 3-18: Use Support Matrix for Chlorophyll a

May 24 – September 15 (Critical Period) Sample Size	September 16 - May 23 Sample Size	Total Sample Size	Total # WQC Exceedances	Total # of MAGEXC Exceedances	Use Support
≥ 10	≥ 0	≥ 10	< # exceedances shown on the table 3-13 for the total sample size	≤1	FS
		< 10	< 2	≤ 1	INSUFFICIENT INFORMATION

May 24 – September 15 (Critical Period) Sample Size	September 16 - May 23 Sample Size	Total Sample Size	Total # WQC Exceedances	Total # of MAGEXC Exceedances	Use Support
< 10	≥ 1	≥ 10	< # exceedances shown on table 3-13 for the total sample size	≤ 1	or NOT ASSESSED
		≤ 10	≥ 2	≥ 0	NS
		> 10	≥ # exceedances shown on table 3-13 for the total sample size	≥ 0	
		≥ 2	≥ 2	≥ 2	

Notes:

1. Assessments using chlorophyll a concentrations shall be based on the most recent full calendar year of data (or years if there was insufficient data in the most recent year to make an assessment). If, however, older data indicated NS, the more recent data used to make a FS decision must meet the requirements in Table 3-18 and must include at least 2 samples collected in the same general area and under similar conditions (i.e., wet weather, dry weather, season, etc) as when the older exceedances occurred.

2. Exceedances of the water quality criteria (WQC) are defined as:

   Freshwater: Chlor a ≥ 15 ppb (NHDES, 2003c)
   Tidal Waters: Chlor a ≥ 20 ppb (NHDES, 2003d)

3. Exceedances of the Magnitude of Exceedance Criteria (MAGEXC) for chlor a are defined as:

   Freshwater: Chlor a ≥ 30 ppb
   Tidal Waters: Chlor a ≥ 40 ppb

4. As indicated in Table 3-18, to be FS, there must be sufficient data to make an assessment during the peak contact recreation season (May 24 to September 15).

5. See section 3.1.24 for determining waters that should be placed in Category 5.

Indicator 4: Color, foam, debris, scum, slicks, odors, surface floating solids

FS: The surface water does not contain color, foam, debris, scum, slicks, odors, and/or surface floating solids in amounts and for durations that

Description of River Water Quality Parameters

Below are brief descriptions of common water quality parameters monitored in rivers by DES and a description of what certain levels may mean in terms of river quality. Please note the categories are provided only as general guidance. Also, the text is based on DES protocols and may not be completely applicable to data submitted by other agencies.

PARAMETER: CHLOROPHYLL *a* (abbreviated as Chlor *a*)

Unit of Measurement: micrograms/liter (abbreviated as µg/l)
Description: An estimate of the biomass of planktonic algae in the river. The technical term "biomass" is used to represent "amount by weight". Chlorophyll *a* can be strongly influenced by phosphorus, which is derived by natural and human activities.
Visual observation: Green, suspended particles
Class A NH surface water quality standard: No numeric standard
Class B NH surface water quality standard: No numeric standard

Categories	
< 3	Excellent
3 - 7	Good
7 - 15	Less than desirable
> 15	Nuisance

PARAMETER: COLOR (no abbreviation)

Unit of Measurement: units (no abbreviation)
Description: A visual measure of the color of the water. Color is generally caused by decaying organic matter and by naturally occurring metals, such as iron and manganese, in the soils. A highly colored river generally may have extensive wetlands along the shore or within the watershed.
Visual observation: See Categories below
Class A NH surface water quality standard: No numeric standard; As naturally occurs
Class B NH surface water quality standard: No numeric standard; No color in such concentrations that would impair any existing or designated use, unless naturally occurring.

Categories	
0 – 25	clear
25 – 40	light tea-color
40 – 80	tea color
> 80	dark tea color