

**Settlement Agreement Status Report**  
**January 15, 2010**  
NRDC v. Johnson,  
U.S. District Court, Central District of California  
No. CV06-4843 PSG (JTLx)

Pursuant to Paragraph 15 of the Settlement Agreement in the above-referenced matter, the United States Environmental Protection Agency (“EPA” or “the Agency”) provides this status report. It includes a description of the actions taken by EPA with respect to its responsibilities under the Settlement Agreement during the preceding six months (July 1, 2009 - December 31, 2009) and a description of the actions EPA intends to take with respect to its responsibilities under the Settlement Agreement during the following six months (January 1, 2010 – June 30, 2010).

**Settlement Agreement (SA) ¶ 4(a) Conduct epidemiological studies at POTW-impacted marine beaches in Fairhope, Alabama and Goddard, Rhode Island (P1, P2).**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA continued to conduct quality assurance/quality control (QA/QC) of the epidemiological data (i.e., water quality data and interview responses) and continued to prepare a manuscript appropriate for a peer reviewed publication.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans to continue QA/QC and analysis of the epidemiological data (i.e., water quality data and interview responses). EPA also plans to submit a manuscript appropriate for a peer reviewed publication.

**SA ¶ 4(b) Provide technical assistance in support of an epidemiological study at a beach in Avalon, CA considered to be impacted by untreated human fecal contamination (P3).**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA participated in teleconference calls with SCCWRP and UC Berkeley investigators. EPA provided technical assistance regarding interpretation of qPCR results and discussion of epidemiological data analysis to support consistency between the EPA and SCCWRP epidemiological analyses.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans to continue providing technical assistance in support of the Avalon epidemiological study, if requested, regarding data analysis and interpretation.

**SA ¶ 4(c) Conduct QMRA (based on measurement of pathogenic organisms and indicators) to estimate illness at a freshwater beach impacted by agricultural animal sources of fecal contamination (location to be determined) (clarifying P4).**

#### **Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA put in place all necessary equipment and entered into contracts to conduct rain simulation experiments in controlled plots as part of the field studies. EPA conducted baseline runs for hydrology analysis of plots and baseline fecal indicator numbers. EPA conducted the first official rain simulation experiment during September and October and has finished analysis of pathogen and indicator data. EPA is re-evaluating the plans for the second rain simulations based on the results from the first simulations. EPA has identified two streams for the phase of the project which will monitor streams impacted by runoff from livestock operations. The Science Advisory Board (SAB) reviewed and commented on the Microbial Risk Assessment framework for water based media. Additionally, EPA further developed an approach for the animal-impacted QMRA to include cattle, swine and poultry specific inputs and assumptions. EPA conducted a survey of the literature to help identify animal specific data inputs.

#### **Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans to conduct two additional rain simulation experiments and analyze pathogen and indicator data from them. EPA also plans to collect stream water samples at the streams identified as impacted by agricultural operations. EPA plans to collect the stream water samples during at least three natural rain events through the use of automatic samplers. EPA plans to finish data analyses of these samples taken at streams impacted by runoff. EPA plans to incorporate, as appropriate, comments from the SAB in revising the Microbial Risk Assessment framework. EPA expects to continue to refine the problem formulation and animal-specific inputs and assumptions in the analytical-based QMRA models based on available data.

**SA ¶ 4(d) Study various parameters that affect performance of qPCR signal for enterococci and compare with other methods and pathogens in treated wastewater mixed with ambient waters (enterococci, E. coli, Cryptosporidium, and enterovirus) (P8).**

#### **Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA finished Phase 2 sampling, and finished laboratory and data analyses of Phase 1 samples. EPA initiated Phase 2 laboratory and data analyses. EPA reviewed and approved the QA plan and conducted a qPCR lab audit.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans to start and finish the Phase 3 final sample collection, and to finish the laboratory and data analyses for Phases 2 and 3. EPA also plans to initiate the analysis of the combined data set from all three sampling periods. EPA plans to begin drafting a final report for submission to a peer reviewed journal during this period.

**SA ¶ 4(e) Design and evaluate a monitoring approach that will characterize the quality of beach waters that takes into account the spatial and temporal variability associated with water sampling (P12).**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA completed a literature review to describe the spatial and temporal factors that are important to characterizing recreational waters and the factors that influence fecal indicator presence and location in water bodies to determine when and where to monitor. Statistical tools to estimate the appropriate numbers and types of samples to collect to inform recreational water monitoring protocols were evaluated. EPA is conducting an internal peer review of a draft study report.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans to revise the draft study report based on internal peer review comments. EPA intends to initiate an external peer review of the draft final study report.

**SA ¶ 4 (f) Evaluate multiple indicator/method combinations to develop quantifiable relationships (P15).**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA conducted a literature review to identify, collect and collate data from EPA and non-EPA epidemiology and other fecal indicator bacteria related studies for use in developing quantifiable relationships among multiple indicators/method combinations. EPA analyzed information collected to date and began having discussions with researchers about the availability of additional data.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans to continue to identify, collate and collect fecal indicator related data. EPA intends to determine the most appropriate groupings and statistical analyses to evaluate data for relationships with respect to health effects and indicator combinations and will begin conducting these analyses.

**SA ¶4(g) Study the effects of sampling holding time, sample storage, and preservation on sample integrity for future use (P16).**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA finished laboratory qPCR analyses of the 1 year holding time for 12-month frozen filter samples. EPA also finished analysis of the stability of the archived freshwater

filters from the NEEAR Great Lakes beach epidemiological studies. EPA completed an interim study report on the holding time for freshwater samples.

**Actions Planned by EPA from January 1, 2010 to June 30, 2010**

EPA plans to start and finish the assessment of the stability of the archived marine water filters from the beach epidemiological studies.

**SA ¶4(h) (1) Develop, refine, validate, and publish one or more new ambient test method(s) and (2) develop, refine, validate, and publish one or more new wastewater test method(s) provided the results of P8 and P18 indicate that a new wastewater test method is necessary (P17).**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA began conducting the single laboratory validation study with contract labs of the Enterococcus qPCR and Bacteroidales qPCR methods in ambient water. EPA has taken no action regarding the need for publication of one or more new wastewater test methods since projects P8 and P18 are still underway.

**Actions Planned by EPA from January 1, 2010 to June 30, 2010**

EPA plans to complete the single-lab validation study of Enterococcus qPCR and Bacteroidales qPCR methods for ambient water testing, and update the two methods based on the results of the single-lab validation. EPA plans to review the status and preliminary results of P8 and P18 and determine the need for one or more new wastewater methods.

**SA ¶4(i) Evaluate the suitability of individual combinations of indicators and methods for different CWA programs (P18)**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA continued to identify and prioritize key concerns related to the suitability of individual combinations of indicators and methods for different CWA programs. For example, EPA obtained additional information during the “Rapid Methods” discussion topic at the October stakeholder meeting.

**Actions Planned by EPA from January 1, 2010 to June 30, 2010**

EPA intends to continue to evaluate the suitability of individual combinations of indicators and methods for different CWA program based on input obtained to date. EPA plans to evaluate the results of P8, when results become available, to understand the various parameters that affect the performance of the qPCR signal in treated wastewater mixed with ambient waters to evaluate the appropriateness of a qPCR test method for use in discharge permits.

**SA ¶4(j) Re-analyze archived NEEAR samples using molecular methods for other indicators, including at least *E. coli*, provided the samples have not degraded during storage (depending on the outcome of P16 and the nature of indicator/method) (P22).**

#### **Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA finished laboratory analysis of the archived frozen Great Lake epidemiological study freshwater samples using the general fecal and human indicator panel (including *E. coli*). EPA began analysis of archived frozen marine filters using the same general fecal and human indicator panel (including *E. coli*) used for re-analysis of the NEEAR freshwater archived samples.

#### **Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans to finish laboratory analyses of the archived frozen samples from the previously conducted marine epidemiology studies.

**SA ¶4(k) Pilot test Virtual Beach model for beach notification and advisories/closures (P23).**

**SA ¶4(l) Refine and validate existing water quality models for freshwater beach notification and advisories/closures (P24).**

**SA ¶4(m) Refine and validate other existing water quality models for marine beach notification and advisories/closures (P25).**

#### **Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA improved Virtual Beach 1.0 to Virtual Beach 2.0 by updating programming language, integrating Virtual Beach Model Builder and Beach Adviser, and adding additional modeling and statistical capabilities. Virtual Beach 2.0 is a model building tool which is designed to provide the public with beach-specific predictive models. EPA in collaboration with the State of Wisconsin held a workshop as part of the Great Lakes Beach Association meeting in Milwaukee during September 2009 that presented the results of pilot testing the Virtual Beach tool for building models at Great Lakes beaches. EPA refined and validated Virtual Beach 2.0 by using a 2008 dataset from Milwaukee's South Shore Beach to assess the importance of having on-site data collection instruments for model accuracy. EPA refined and validated Virtual Beach 2.0 by finishing model validation studies using 2008 culturable indicator data and data obtained with automated equipment at marine beaches located at Luquillo, Puerto Rico and Miami, Florida. EPA also analyzed modeling data obtained at Boqueron Beach, Puerto Rico and at Surfside Beach, South Carolina. EPA began preparing a draft report on the results of the pilot testing of Virtual Beach 1.0 and the refinement and validation of Virtual Beach 2.0, including the Virtual Beach Model Building Tool and Beach Advisor for freshwater and marine beaches.

#### **Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA will continue to refine and validate Virtual Beach 2.0 for freshwater beaches and develop a report on predictive modeling of water quality at freshwater beaches. EPA plans to continue to refine and validate Virtual Beach 2.0 for marine beaches by finishing model validation studies using 2008 qPCR indicator data and data obtained with automated equipment at marine beaches. EPA will continue to work on the draft report.

**SA ¶4(n) Develop technical protocol for site-specific application of predictive models to be used in making beach advisory decisions (P26).**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA completed a limited survey of state predictive modeling activities, which included collection and evaluation of information on predictive models currently in use in the United States. EPA also prepared a draft outline for a technical protocol. EPA began to identify research from SA ¶¶ 4 (k), (l) and (m) (P23-P25) that may be appropriate to incorporate into the draft technical protocol outline and identified information gaps.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans to categorize essential elements of the predictive modeling process, using results from literature reviews, informal state surveys and research conducted under SA ¶¶ 4 (k), (l) and (m) (P23-P25). In addition, EPA intends to begin preparation of the draft technical protocol.

**SA ¶4(o) Compare EPA's 1986 Bacteria Criteria recommendations to NEEAR studies to better understand the relationship between fecal contamination and illness in these data sets, provided EPA can obtain the raw data used to develop the 1986 Criteria (P27).**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

No further action will be taken with respect to this provision (See EPA's July 15, 2009 status report.).

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

No further action will be taken with respect to this provision.

**SA ¶4(p) Evaluate applicability of NEEAR Great Lakes data to inland waters (P28).**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA finalized a literature review on the persistence, ecology, fate and behavior of indicators and pathogens in inland waters and began preparing the document for posting on the Agency's website. EPA continued work to evaluate monitoring schemes specific to flowing fresh waters and has initiated other related inland waters projects recommended by experts attending the Inland Waters Experts Workshop, such as initiating the development of a QMRA tool.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA intends to continue to evaluate monitoring schemes specific to flowing fresh waters and continue development of a QMRA tool. Finally, EPA plans to initiate development of a final summary report to support the evaluation of the applicability of NEEAR Great Lakes data to inland waters.

**SA ¶4(q) Conduct statistical analysis of children data from epidemiological studies (P29).**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA continued the statistical analysis of children's data from the marine epidemiological studies at beaches in Biloxi, MS, Fairhope, AL, and Goddard, RI and continued to prepare a manuscript appropriate for a peer reviewed publication.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans to continue statistical analysis of the children's data from the marine epidemiological studies and plans to submit a manuscript appropriate for a peer reviewed publication.

**SA ¶ 6 When it completes a study described in Paragraph 4 of this Agreement, EPA will provide written notice to the other Parties, including a summary of the study and findings, and a statement that the study has been completed. This Paragraph does not apply to the study described in Paragraph 4(b), which is not being conducted by EPA.**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

The studies described in Paragraph 4 of the Settlement Agreement are ongoing and substantial progress is being made. However, EPA has not yet completed these studies and therefore did not provide any written notice to the parties pursuant to paragraph 4 of the Settlement Agreement.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA does not anticipate taking any actions during this time period with respect to this provision.

**SA ¶ 7 If an epidemiological study proposed by the Southern California Coastal Water Research Project (SCCWRP) for Doheny Beach is initiated by SCCWRP no later than December 2009, EPA will provide technical assistance on study design and analysis.**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA participated in teleconference calls with SCCWRP and UC Berkeley investigators. EPA provided technical assistance regarding interpretation of qPCR results and discussion of epidemiological data analysis to support consistency between the EPA and SCCWRP epidemiological analyses.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans to continue providing technical assistance to SCCWRP and UC Berkeley investigators, if requested, regarding data analysis.

**SA ¶ 8 For any epidemiological studies to be completed by EPA under Paragraph 4 of this Agreement and Paragraph 5 of the Consent Decree, EPA will use a suite of indicators and methods that EPA determines to be the most promising for the development of new or revised recreational water quality criteria. In making this**

**determination, EPA will consider the indicators and methods that were used in previously conducted epidemiological studies and new indicators and methods that EPA determines to be promising for the development and implementation of new or revised recreational water quality criteria.**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

In conducting the field work for the epidemiological studies required under the Settlement Agreement and Consent Decree, EPA used a suite of indicators and methods, which EPA determined to be the most promising for the development of new or revised recreational water quality criteria. A table containing the indicators and methods tested is available on the Agency's web site at:

<http://www.epa.gov/waterscience/criteria/recreation/oct2009/topic2.pdf>

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA does not plan any actions for the time period with respect to this obligation.

**SA ¶ 9(a) Continue to conduct research currently underway to identify genetic sequences that could form the basis of chicken and seagull specific fecal source assays**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009.**

EPA selected a total of four PCR-based assays that promise to uniquely identify avian sources of fecal pollution. One assay will target seagull fecal pollution while the other three target chicken fecal sources. EPA continued to collect molecular data on seagull and chicken fecal samples to identify other potential gene targets for host-specific assay development.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA will perform the evaluation of the four assays identified as potential source tracking assays specific to seagull and chicken fecal contamination. EPA will collect molecular data to further validate the existing gull and chicken assays. EPA will search for and propose additional novel sequence targets that could be used to develop additional host-specific assays.

**SA ¶ 9 (b) If EPA determines that it can develop chicken and seagull specific fecal source assays, EPA will evaluate the assays for specificity and sensitivity using a reference collection of fecal samples, as well as environmental water samples with known sources of fecal contamination.**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA developed preliminary chicken and seagull specific fecal source assays based on molecular sequence data. Additionally, EPA performed preliminary evaluations of these assays and selected the assays that will be used in further evaluation. EPA obtained waterfowl fecal samples to determine distribution of the assays in fecal samples of targeted hosts, to determine host specificity and specificity of each of the assays, and to



study the microbial composition of waterfowl fecal samples using DNA sequencing techniques.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA will continue to evaluate the preliminary seagull and chicken assays for specificity and sensitivity using a collection of fecal samples from targeted and nontargeted hosts, as well as environmental water samples with known sources of fecal contamination. EPA will also perform sequence analyses of gull and chicken fecal microbial communities to confirm the presence of molecular markers and to develop additional assays as needed.

**SA ¶ 9(c) No later than July 15, 2011, EPA will notify the other Parties in writing whether EPA was able to develop the assays and evaluate the assays as described in subparagraph 9(a). If EPA is able to complete the evaluation by July 15, 2011, the notification will include a brief summary of such evaluation.**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA did not take any actions with respect to this obligation during this reporting period.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA has no actions planned during this time period with respect to this obligation.

**SA ¶ 10(a) Subject to any statutory or regulatory limitations restricting the distribution of confidential business information or private information (e.g., names, addresses), EPA will provide access to data from the studies identified in Paragraph 4 of the Settlement Agreement and paragraph 5 of the Consent Decree after EPA has conducted any quality assurance/quality control review and, as deemed necessary by EPA, internal and external peer review, including addressing the comments of such review. EPA may determine to provide access to the data by notifying the Parties in writing that the data are available for their review and its location, or by other method of transmission.**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA initiated preparations of a database and a codebook for interpreting the variable names and code data for the Fairhope, AL, Goddard, RI and Biloxi, MS<sup>1</sup> marine epidemiological studies.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans to continue preparations of a database and a codebook for interpreting the variable names and code data for the Fairhope, AL, Goddard, RI and Biloxi, MS marine epidemiological studies. EPA plans to initiate preparations of a database and a codebook

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<sup>1</sup> The obligation to provide data from the Biloxi study arises under Paragraph 10(b) of the Settlement Agreement. However, because EPA and the other parties have agreed that EPA will provide access to the Biloxi data at the same time EPA provides access to the data from the Fairhope, AL and Goddard, RI epidemiological studies, EPA is reporting on the Biloxi data under Paragraph 10(a) and will do so in future reports as well.

for interpreting the variable names and code data for the marine epidemiological studies at Surfside Beach, South Carolina and Boquerón Beach, Puerto Rico.

**SA ¶ 10(b) Subject to any statutory or regulatory limitations restricting the distribution of confidential business information or private information (e.g., names, addresses), EPA will provide access to data from the epidemiological studies previously conducted by EPA in support of the new or revised recreational water quality criteria no later than June 15, 2009. EPA may determine to provide access to the data by notifying the Parties in writing that the data are available for their review and its location, or by other method of transmission.**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA did not take any action with respect to this provision during the reporting period.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans no further action for the time period with respect to this provision.

**SA ¶ 11 EPA will convene a stakeholder workshop or other mechanism for stakeholder input during 2009, 2010, and 2011. These workshops will provide an opportunity for Plaintiff, Intervenor, and other interested stakeholders to provide input to EPA and/or bring issues to EPA associated with the development of the new or revised criteria to be issued by October 2012. EPA expects these issues to include issues related to implementation of the new or revised water quality criteria EPA will publish in 2012. The focus of the 2009 and 2010 workshops will be for EPA to update stakeholders on the progress EPA has made in completing studies and framing the issues associated with the development of the new or revised criteria and for Plaintiffs, Intervenor, and other interested stakeholders to comment on EPA's update. The focus of the 2011 workshop will be to provide an opportunity for Plaintiff, Intervenor, and other interested stakeholder to comment on EPA's evaluation, synthesis, summarization and statistical analysis of the studies and development of options for the overall structure and content of the recreational water quality criteria that EPA will publish in 2012.**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA conducted scoping calls with key stakeholder groups to facilitate agenda development. EPA convened a Stakeholder Meeting on EPA's Development of New or Revised Recreational Water Quality Criteria, October 6–7, in Chicago, IL. The meeting was attended by over 90 participants from state environmental, health and beach management programs; environmental and public interest groups; researchers; and representatives from the regulated community (POTWs). The meeting provided an open forum for stakeholders to provide input and to bring issues to EPA on the development of new or revised recreational water quality criteria. EPA posted the meeting summary and presentation materials on the Agency web site.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans to begin to identify potential locations and facilities with availability and capacity for a stakeholder meeting in the fall of 2010. EPA intends to begin the process to identify a facilitator and develop a registration system.

**SA ¶ 12 EPA will validate and publish a rapid test method for the new or revised criteria by October 15, 2012. Validation of a rapid test method will involve conducting an inter-laboratory study, the purpose of which is to characterize method performance (including recovery and precision) for a rapid method in reference matrices and ambient recreational waters (fresh and marine) in multiple laboratories and to develop quantitative quality control acceptance criteria. Publication does not include promulgation of an EPA-approved test method in the Code of Federal Regulations.**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA began conducting the single laboratory validation study for Enterococci qPCR and Bacteroidales qPCR in ambient waters. Single lab validation is a precursor for a multiple laboratory validation study and publication of the methods (see response for ¶4 (h) (P17)). EPA began design of the multiple laboratory validation study.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA plans to complete the single lab validation study, and update the Enterococci qPCR and Bacteroidales qPCR methods based on the results of the single-lab validation. EPA plans to initiate the conduct of the multiple laboratory validation study for at least one molecular method.

**SA ¶ 13 EPA will review epidemiological studies of swimming-related health risks due to fecal contamination that are completed by entities other than EPA, including, but not limited to, studies of runoff-impacted beaches and beaches impacted by avian sources, if the results are made known by EPA by December 2010. EPA will consider any relevant study findings in developing recreational water quality criteria. EPA will either incorporate the relevant study findings into the recreational water quality criteria or explain, in its notice of proposed new or revised water quality criteria and solicitation of public comment, the reasons why such study findings are not appropriate for incorporation into the recreation water quality criteria.**

**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA continued to identify and evaluate epidemiological studies completed by entities other than EPA for use in informing development of new criteria. EPA began to identify and evaluate approaches for comparing epidemiological studies that have used different study designs. EPA began review of preliminary results from an epidemiological study conducted in Europe (EpiBathe).

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

EPA intends to continue to identify and evaluate epidemiological studies completed by entities other than EPA for use in informing development of new criteria. EPA anticipates

completing a draft comparison and evaluation of epidemiology study designs used in recreational waters. EPA plans to review final study results from Epibathe, if they are available. In addition, EPA is aware of epidemiological studies currently being conducted and plans to continue to monitor progress so they may be evaluated if completed before December 2010.

**SA ¶ 14 No later than December 15, 2011, EPA will convene an Experts Scientific Workshop involving both EPA scientists and external scientists for the primary purpose of obtaining input on what future science and research might be conducted to further improve the understanding of potential human health risks from exposure to fecal contamination from avian wildlife and other wildlife in coastal recreational waters. If the experts at the Experts Workshop identify one or more studies that might be conducted to further improve the understanding of the potential health risks from exposure to fecal contamination from avian wildlife or other wildlife, EPA shall evaluate whether the studies should be performed as part of the Agency's review (between 2012 and 2017) of the criteria that EPA will publish in 2012, and EPA shall advise the parties to this Agreement of the results of EPA's evaluation no later than December 15, 2012.**

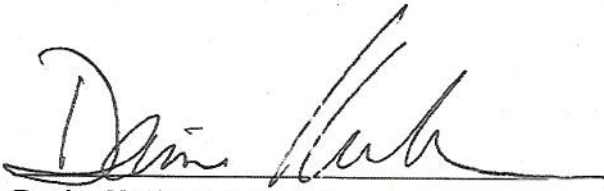
**Actions Taken By EPA from July 1, 2009 to December 31, 2009**

EPA did not take any actions with respect to this obligation during this reporting period.

**Actions Planned By EPA from January 1, 2010 to June 30, 2010**

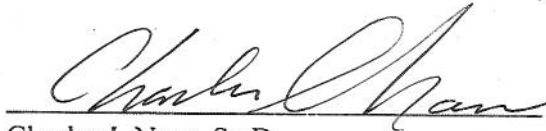
EPA does not plan any actions for the time period with respect to this obligation.

The undersigned, Denise Keehner and Charles I. Noss are, respectively, the Director, Standards and Health Protection Division, Office of Science and Technology and National Program Director for Water Quality, Office of Research and Development. The Office of Science and Technology in EPA's Office of Water and the Office of Research and Development have primary responsibility for discharging EPA's duties under the Settlement Agreement. This report reflects our best current information concerning the actions taken by EPA with respect to its responsibilities under the Settlement Agreement during the preceding six months (July 1, 2009 – December 31, 2009) and a description of the actions EPA intends to take with respect to its responsibilities under the Settlement Agreement during the following six months (January 1, 2010-June 30, 2010).



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1/2/10  
Date



Charles I. Noss, Sc.D.  
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1/12/10  
Date