

other recreational waters and potential sources of pollution. This includes alerting shoreline communities to water quality problems through Surfrider's Blue Water Task Force. I have also worked with Surfrider chapters and local health and environmental agencies to identify sources of beach pollution and to bring together stakeholders to implement solutions. I also analyze proposed changes to water quality standards, administrative actions and other relevant local, state and federal legislation for their impacts on recreational water quality, public health and healthy coastal ecosystems and provide advice to my organization and members accordingly. My academic background supports my area of work: I graduated with a B.S. in marine biology from Southampton College in New York and an M.S. in environmental policy from the College of Charleston in South Carolina. My current resume further details my relevant experience and credentials and is attached here as Exhibit 1.

3. I submit this testimony on behalf of and as part of my regular employment with the Surfrider Foundation to assist as an expert in relation to the Environmentally Beneficial Project ("EBP") proposed in paragraphs 13–21 of the revised proposed Consent Decree filed by the Department of Justice on November 20, 2019 in the above-captioned matter (the "Proposed CD"). I am qualified by knowledge, skill, experience, and training to testify on this subject in this matter.

4. In my opinion, though there is significant need for more water quality monitoring in the Southend of Lake Michigan, the EBP is poorly designed, being both duplicative of existing state and local monitoring programs, as well as insufficient in regards to the number of sites, parameters and sampling frequency during October through April. The EBP as proposed will not deliver the significant public benefit claimed in the Department of Justice filing. If the EBP is improved in the ways I identify below, such a project could be an important addition to

public knowledge about water quality in Lake Michigan and thereby deliver meaningful public benefit.

5. In forming this opinion, I have reviewed certain publicly available documents related to the United States Steel Corporation (“U. S. Steel”) Midwest Plant in Portage, Indiana including the proposed CD and its appendices, filed in the above-captioned matter by the Department of Justice on November 20, 2019, IDEM’s *Technical Guidance for the Office of Water Quality External Data Framework*, the Lake Michigan Beach Monitoring and Notification Program managed by IDEM and described on the Indiana Beach Guard website, beach-specific information posted on the Swim Guide (www.theswimguide.org), IDEM’s Blue-Green Algae/Cyanobacteria Sampling Program (<https://www.in.gov/idem/algae/index.htm>), and those sections of the Department of Justice “Response to Comments” document that relate to the EBP.

6. In its comments on the original proposed Consent Decree in this matter, published in April of 2018, the Surfrider Foundation recommended that it be revised to include a Supplemental Environmental Project that would monitor water quality in Lake Michigan in the vicinity of U. S. Steel’s Portage facility. Surfrider proposed such a project because its members and others in the public recreate in Lake Michigan near the U. S. Steel facility year-round and there is currently far too little water quality monitoring data to confidently understand the health and environmental impacts of permitted and illegal discharges in the area. Surfrider noted that U. S. Steel’s violations have sparked public anxiety and scared away visitors. In my opinion, a well-designed EBP is necessary to generate the information needed to inform safe year-round recreation in Lake Michigan and to restore public trust.

7. Though a project with the stated purpose of this EBP could fill important data gaps in public water quality monitoring in Lake Michigan, the current EBP proposal is deficient in important ways.

8. Instead of vaguely requiring that a “certified third party” implement the EBP, paragraph 16(a) of the proposed CD should require that an independent research institute be responsible for the program’s required sampling, analysis and reporting. By contracting a research institute to manage the sampling program, ethics issues that are inherent in contracting directly between industry and a consulting firm or other commercial entity that may be considered a “certified third party” are avoided. In such an arrangement, the consulting firm is only beholden to the entity funding the consulting work. If, instead, a research institution is contracted, it will have its own ethical standards of objectivity to the subject matter being researched and its credibility as an impartial scientific, research institute.

9. The ultimate sampling procedures will need to be more specific than what is provided for in the EBP. Therefore, the EBP needs to require that the entity implementing the EBP—which, again, should be an independent research institution—develop, and submit for public review and agency approval, a detailed sampling and analysis plan (“SAP”) and a quality assurance project plan (“QAPP”). Without the SAP and QAPP, the data generated by the EBP will not be reliable.

- a. A SAP and QAPP are necessary to maintain high data quality and ensure that the testing procedure is reproducible. The SAP and QAPP are site-specific plans: they include details such as the coordinates of the sampling location, the sampling procedures, field handling procedures, and what quality control samples would be used. Improperly collected or handled samples can be easily

compromised or contaminated, so the SAP and QAPP are necessary to keep sampling procedures consistent.

- b. In my expert opinion, it is encouraging but not sufficient that the Consent Decree requires compliance with the Tier 3 criteria in IDEM's *Technical Guidance for the Office of Water Quality External Data Framework*. The Technical Guidance is a necessary step for ensuring high data quality but needs to be supplemented with site-specific information and procedures.

10. While it is reasonable to select sampling locations that are in close proximity to U. S. Steel's facility, to provide a more meaningful sense of water quality in the Southend of Lake Michigan and potential risks that might threaten public health, additional sampling locations should be included based on their popularity among recreators. Specifically, based on public comments and the input of Surfrider members who reside in the area, it would add considerable public informational benefit if paragraph 14 of the proposed CD were revised to require sampling at the public beaches in Whiting and Miller Beach.

11. The once-monthly testing of water for *E. coli* bacteria and other physical parameters (i.e. pH, total suspended solids, temperature, and turbidity) during the months of October through April, reflected in paragraph 15 of the proposed CD, is too infrequent to protect recreational visitors to the Lakefront.

- a. The Portage Lakefront is still frequented by recreational visitors, including Surfrider members, during times when the EBP would require only monthly testing. Because winter weather can produce the best surf conditions, residents surf in Lake Michigan year-round. Other recreational use, such as Stand Up Paddleboarding and kayaking are likewise high during the spring and fall

seasons. Monthly sampling is particularly problematic for the months of April and October, months in which U. S .Steel violated its permit limits on chromium discharges in 2017 during days on which, I have been informed, surfers were in the water. Upon information and belief, including reports of Surfrider members and various media outlets, surfers and others recreate in the Southend of Lake Michigan year-round.

- b. For this reason, once-monthly testing is too infrequent to adequately detect water quality problems observed through monitoring for *E. coli* and other physical parameters. In my expert opinion, testing of *E. Coli* and other physical parameters year-round, once-weekly, at minimum, is required to assure public safety.

12. The EBP's *E. coli* testing is duplicative of existing monitoring efforts conducted by local municipalities, state agencies, and the Indiana Dunes National Park.

- a. Upon information and belief, six of the seven proposed monitoring sites are very close to existing sampling locations, where other entities monitor *E. coli* levels on either a weekly or daily basis from late May through early September.
- b. In my expert opinion, while redundant sampling can deliver some value as confirmation in certain circumstances, the EBP would deliver significantly more meaningful public value if it generated information that would not otherwise be collected and made public.
- c. For that reason, I recommend that the EBP be revised to require weekly samples of *E. coli* and other physical parameters during October 1 through

April 30, the period in which government entities do not sample. Even if the budget of the EBP is held constant, the EBP would deliver more useful information and more public value if instead of conducting redundant *E. coli* sampling during the summer months, the EBP was redesigned to implement the recommendations in this affidavit.

13. While I support monitoring cyanobacteria levels, cyanobacteria blooms are unlikely to occur November through April due to colder water temperatures, and I do not believe monitoring during that period is necessary. In other words, cyanobacteria simply doesn't grow or survive in cold water, so I do not understand there to be a scientific basis to include sampling for cyanobacteria during those months in the EBP, nor how that sampling could lead to the collection of any useful information. Even if the budget of the EBP is held constant, the EBP would deliver more useful information and more public value if instead of monitoring cyanobacteria during November through April, the EBP was redesigned to sample for more contaminants, at more sites, or on more frequent and well-developed schedules.

14. The EBP should be revised to include weekly sampling of cyanobacteria from May 1 through October 31. Cyanobacteria monitoring should align with IDEM's blue green algae sampling program and include cell counts and toxin levels of these four cyanotoxins (Anatoxin-A, Microcystin, Cylindrospermopsin and Saxitoxin).

15. Lake Michigan is threatened by pollutants not monitored under the EBP, including cyanide, naphthalene, mercury, nitrate, ammonia, chloride, copper, zinc, lead and orthophosphate and total phosphorus. To provide the public with a meaningful understanding of the water quality and public health threats to Lake Michigan, I recommend that the EBP,

specifically what is now paragraph 16(b) of the proposed CD, be revised to require additional monitoring on a monthly basis to address these other pollutants.

16. The requirements for how sampling data generated by the EBP will be made publicly available, found in paragraph 17 of the proposed CD, are inadequate.

- a. The requirement in paragraph 17(a) of an annual project report is helpful, if adapted to be written and directly published by the independent research institution without any opportunity for U. S. Steel to preview or edit.
- b. The requirement in paragraph 17(b) that *E. coli* results be fed into the Beach Guard notification system is also helpful. A similar approach should be used for Cyanobacteria data, which should be shared with IDEM and fed into IDEM's Blue-Green Algae website (<https://gis.in.gov/apps/ISDH/BGA/>), which displays Cyanobacteria monitoring results and bloom advisories.
- c. The requirement that U. S. Steel host the rest of the sampling data on its own website is inappropriate and could likely lead to this information being difficult to find and presented in a manner that is inaccessible to the public. Instead, the independent research institution should be authorized and funded to publish all data collected and reports generated on a webpage created for the specific purpose of sharing this information and explaining it to the public, and which would be linked to IDEM's Indiana Lake Michigan Programs website.

17. The Department of Justice's Response to Comments does not adequately address the concerns about the EBP previously raised by Surfrider. The Response to Comments neither explains why monthly testing adequately protects recreational interests from October to April nor

justifies the lack of a requirement that a site-specific SAP and QAPP be developed. Despite Surfrider's request for "meaningful public input" on designing a SEP, the proposed EBP was not designed in a process that involved significant public comment. In my opinion, given that Surfrider had an opportunity to raise many of these concerns previously and that the Governments have provided no substantive technical response to these issues only raises questions about why these technical shortcomings, gaps, and redundancies remain as flaws in the EBP as currently proposed.

18. To summarize, I recommend that:
 - a. The Consent Decree require that U. S. Steel retain an independent research institution to implement the EBP and that institution should then be required to develop a detailed, site-specific sampling and analysis plan (SAP) and a quality assurance project plan (QAPP) for review by the public prior to approval by IDEM;
 - b. Two additional locations, in Whiting and Miller Beach, be added to the list of sampling locations, as described in paragraph 10, above;
 - c. The frequency of water quality monitoring should be adjusted for different parameters as described in paragraphs 11 through 15 above;

- d. The EBP should include monitoring for the additional pollutants listed above, including cyanotoxins and those pollutants described in paragraph 15; and
- e. Data collected and synthesized under the EBP should be made public in more and more useful ways, as described in paragraph 16 above.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that these statements are true and correct to the best of my knowledge and belief.

FURTHER AFFIANT SAYETH NOT.



Mara Dias

December 12, 2019

Date

MARA DIAS

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Qualifications Summary

Over 20 years' experience in the monitoring of recreational waters and the management of coastal ecosystems at the federal, state, and local levels. Evaluation of development, energy, and conservation proposals for environmental, health, and quality-of-life impacts. Highly developed communication skills and experience supporting citizen scientists and conservation volunteers.

Professional Experience

Water Quality Manager, Surfrider Foundation, San Clemente, CA, August 2006 – present

- Oversee all clean water campaigns and programs for the Surfrider Foundation
- Manage and provide technical guidance for the volunteer-run Blue Water Task Force that includes over 50 water testing labs and citizen science programs nationwide
- Manage Surfrider's Ocean Friendly Gardens program that promotes natural solutions to stormwater runoff and non-point source pollution
- Lead water quality campaigns at the local, state and federal level
- Communicate the impact of Surfrider's clean water programs and participate in strategic planning

Environmental Planner, Town of East Hampton, East Hampton, NY, May 2005 – July 2006

- Evaluate subdivision and commercial development applications for environmental impacts
- Provide technical support to the Town's Nature Preserve Committee and recommend properties for public acquisition and Nature Preserve designation

Environmental Analyst, Suffolk County Department of Health Services Office of Ecology, Riverhead, NY, December 2002 – May 2005

- Coordinated activities for the North-Shore Embayments Watershed Plan aimed at reducing non-point source inputs of nitrogen into Long Island Sound
- Collected water samples from local bays and beaches and prepared them for bacteria analysis
- Inspected public beaches for compliance with County health and safety regulations

Marine Biologist, Peace Corps, Samoa, October 1999 - October 2001

- Provided expertise to a local environmental NGO on issues concerning national planning of Samoa's fresh water and marine resources
- Managed a lagoon monitoring program in the Uafato Conservation Area - trained local conservation officer on data collection methods, organism identification, and data entry
- Performed community extension and resource monitoring in village-based fishery reserves
- Assessed the biodiversity of the lagoon and reef ecosystems in MPAs of two rural districts
- Developed and conducted surveys of the use and management of marine resources in Samoa

John A. Knauss Marine Policy Fellow, National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean and Coastal Resource Management, Washington, DC, February 1998 – June 1999

- Served as a Program Specialist for the National Estuarine Research Reserve System (NERRS)
- Managed the revision and printing processes of site management plans, facilitated grants administration, and advised Reserve managers on daily resource management issues

Policy Intern, South Carolina Department of Natural Resources, Marine Resources Division, Charleston, SC, July 1997 – January 1998

- Coordinated a public involvement training program for fishery managers
- Evaluated the channel net fishery and Department regulations of this shrimp fishery

Harmful Algal Bloom Research Experience

- Bigelow Laboratory for Ocean Sciences, Bigelow, ME, Summer 1996
- NOAA's Southeast Fisheries Science Center, Charleston, SC, Summer 1995
- NOAA's Northwest Fisheries Science Center, Seattle, WA, Fall 1994

Education

- M.S., Environmental Studies, 1998, Medical University of South Carolina & University of Charleston
- B.S., Marine Science Biology, Magna Cum Laude, 1996, Southampton College