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16 Attorneys for Plaintiffs  
17 **DRAKES BAY OYSTER COMPANY and KEVIN LUNNY**

18 UNITED STATES DISTRICT COURT  
19 NORTHERN DISTRICT OF CALIFORNIA

20 **DRAKES BAY OYSTER COMPANY,**  
21 17171 Sir Francis Drake Blvd  
22 Inverness, CA 94937, and

23 **KEVIN LUNNY,**  
24 17171 Sir Francis Drake Blvd  
25 Inverness, CA 94937

26 Plaintiffs,

27 v.

28 **KENNETH L. SALAZAR,**  
in his official capacity as Secretary, U.S.  
Department of the Interior,  
1849 C Street, NW, Washington, D.C., 20240;  
**U.S. DEPARTMENT OF THE INTERIOR**  
1849 C Street, NW, Washington, D.C., 20240;  
**U.S. NATIONAL PARK SERVICE**  
1849 C Street, NW, Washington, D.C. 20240;  
and **JONATHAN JARVIS,**  
in his official capacity as Director, U.S.  
National Park Service,  
1849 C Street, NW, Washington, D.C. 20240.

Defendants.

Case No. 12-cv-06134-YGR

**REBUTTAL DECLARATION OF  
DR. LINDA MARTELLO, PH.D. IN  
SUPPORT OF MOTION FOR  
PRELIMINARY INJUNCTION**

Date: January 25, 2013

Time: 2:00 p.m.

Court: Oakland Courthouse 5 – 2nd Floor

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1 I, Linda Martello, declare as follows:

2 1. I am a Senior Scientist at ENVIRON International Corporation, specializing in  
3 ecological risk assessment and marine mammal sciences (my CV is attached as Exhibit 1 to this  
4 document; a list of references cited in this Declaration is attached as Exhibit 2). The following  
5 facts are based on my own personal knowledge and, if called as a witness, I could and would testify  
6 competently thereto.

7 2. I earned my doctorate at University of California, Santa Cruz in 1999 in the field  
8 of environmental toxicology. My focus areas included marine mammal physiology and toxicology  
9 and biochemical toxicology.

10 3. I have reviewed the rebuttal declaration by Dr. Kurt Fristrup. I am providing the  
11 following response to that declaration based on my personal knowledge and professional expertise.

12 4. There are two noise thresholds that were discussed in Dr. Abbott's original  
13 declaration—fish and harbor seal physical injury threshold, and marine mammal behavioral  
14 disturbance threshold—for two oyster rack removal scenarios, a longer term removal scenario using  
15 DBOC equipment, and a shorter-term removal scenario using heavy equipment. Declaration of  
16 Robert Abbott (Abbott Dec.) D. 48 ¶¶ 6, 10. The shorter-term removal scenario would potentially  
17 generate underwater noise of at least 184 dB  $\mu$ Pa at 1m, and up to 192 dB. *Id.* at ¶ 10. The point  
18 that noise would be generated above an injury threshold was to illustrate the fact that noise  
19 associated with oyster rack removal operations will be significantly higher than typical noise  
20 generated by DBOC operations, and are above the maximum thresholds established by NMFS for  
21 protection of fish and wildlife.

22 5. Dr. Fristrup asserts that the “extended removal scenario will generate noise levels  
23 similar to normal DBOC operations, but the noise will be present more often.” Declaration of Dr.  
24 Kurt Fristrup (Fristrup Dec.) D. 64-3 ¶ 4. This assertion is flawed as normal DBOC operations do  
25 not involve the use of chainsaws (or hydraulic cutters) and an electric hoist, and Dr. Fristrup does  
26 not provide information to back up his claim that the noise levels during removal operations will be  
27 similar to normal operations.

28

1           6.       Dr. Frstrup does not acknowledge that prolonged exposure to increased ambient  
2 noise may lead to physiological and behavioral stress in fish and wildlife. Frstrup Dec. D. 64-3 ¶  
3 4.

4           7.       Sound levels generated during removal operations would be in excess of  
5 underwater noise generated from normal DBOC operations, and would occur for extended periods  
6 of time (at least 4 hours in a work day). Dr. Frstrup underestimates how harbor seals would react  
7 to these noise levels. He cites Southall et al. (2007), who reported that harbor seals behavioral  
8 responses below 140 dB include: (1) moderate changes in locomotion speed, direction and/or dive  
9 profile, (2) no avoidance behavior, and (3) brief, minor shift in group distribution, and moderate  
10 cessation or modification of vocal behavior. Frstrup Dec. D. 64-3 ¶ 4. However, the potential  
11 noise generated from removal would consistently exceed this level, and would extend beyond a  
12 behavioral threshold from the source for a minimum of 292 m (Abbott Dec. D. 48 ¶ 6) and would  
13 be expected to extend much further than 292 m for the higher levels of underwater noise estimated  
14 (Abbott Dec. D. 48 ¶ 10). It should be noted that this is only the estimate for underwater noise, and  
15 does not include the potential disturbance from airborne noise.

16           8.       Dr. Frstrup acknowledges that exposure to continuous disturbance can result in  
17 abandonment by marine mammals and fish, but suggests that this would be “improbable” and  
18 indicates that even if abandonment occurred, marine mammals and fish would recolonize suitable  
19 habitat when prior anthropogenic activity has ended. Frstrup Dec. D. 64-3 ¶ 4. The fact remains  
20 that total abandonment of Drakes Estero by marine mammals and fish for any length of time  
21 would represent immediate, irreparable harm with unknown consequences. It is exactly this  
22 immediate harm that should be avoided, unless absolutely necessary.

23           9.       Mr. Lunny estimates that removal activities using DBOC’s resources would occur  
24 over a minimum of approximately 665 calendar days, which does not account for needing to stop  
25 or reduce work during sensitive life stages (e.g., harbor seal pupping, anadromous fish migration,  
26 bird migration/breeding). Declaration of Kevin Lunny D. 38 ¶ 61. Assuming that NPS were to  
27 permit DBOC to employ additional crews, Mr. Lunny has estimated that this work period could be  
28 shortened to occur over a minimum of approximately 167 calendar days, also not accounting for

1 needing to stop or reduce work during sensitive life stages, or time associated with employing best  
2 management practices. Rebuttal Declaration of Kevin Lunny ¶¶ 42-43.

3 10. The Final Environmental Impact Statement did not contemplate disturbance for the  
4 length of time estimated by Mr. Lunny. Declaration of Barbara Goodyear Ex. 3 at 111 (estimating  
5 oyster rack removal to require “2 to 3 months”). Even if harbor seals recolonize following a short  
6 cessation of activity, they are likely to abandon again once work has resumed. It is unknown what  
7 impacts would be associated with constant disturbance and recolonization of habitat, and whether  
8 there would be a point at which harbor seals would totally abandon the habitat.

9 11. Large-scale projects can distress seals into abandoning a haul out site completely.  
10 Long-term, high levels of disturbance have led to permanent abandonment of haul-out sites at  
11 numerous sites including sites near the San Francisco Bay Bridge, as well as other San Francisco  
12 Bay sites (Fox 2008). In situations where disturbance may be frequent, but less threatening, seals  
13 have become habituated to humans and tolerate their presence to some degree. Hauled out seals at  
14 the Elkhorn Slough, near Moss Landing, California, swim close to kayakers and remain in place  
15 as pontoon tour boats pass their haul-outs (Fox 2008). The harbor seals in Drakes Estero are  
16 habituated to the daily activities of DBOC after many generations of exposure to the operation as  
17 evidenced by the robust population of harbor seals within the Estero (MMC 2011). However, the  
18 dramatic increase in activity required for removal of the DBOC structures would constitute a long  
19 term, high level disturbance. This kind of heightened disturbance can lead to increased  
20 physiological stress, altered haul-out behavior, and potentially, the complete abandonment of a  
21 haul-out site.

1 I declare under penalty of perjury under the laws of the United States and the State of  
2 California that the foregoing is true and correct.

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4 Executed this 16th day of January, 2013 in Emeryville, California.

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Linda Martello

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# EXHIBIT 1

Linda B. Martello, PhD

#### EDUCATION

- |      |   |
|------|---|
| 1999 | PhD, Environmental Toxicology, University of California, Santa Cruz |
| 1993 | BS, Biology, University of California, Santa Cruz                   |

#### EXPERIENCE

Dr. Martello is a manager in the Ecological Sciences Practice at ENVIRON. As an environmental toxicologist, Dr. Martello is responsible for project management and technical research involving the assessment of ecological impacts associated with chemical contamination of aquatic and terrestrial environments, and the toxicity of chemicals to marine mammals, fish and other aquatic organisms. Dr. Martello's expertise includes chemical acute and chronic toxicity thresholds to marine and freshwater organisms, establishing species-specific ecotoxicity benchmarks for chemicals and chemical mixtures, ecological risk assessment of persistent, bioaccumulative organic pollutants (e.g., dioxins and PCBs) and metals (e.g., chromium and mercury), chemical fingerprinting, chemical environmental fate, speciation of metals in aquatic systems, and food web modeling. Representative projects include the following:

- Technical lead regarding exposure of dolphins to PCBs and multiple stressors off the Georgia coast. Key tasks include developing sophisticated pharmacokinetic models to understand dolphin uptake and elimination of PCBs, dolphin physiology/immunology, dolphin foraging behavior and stress response, and PCB toxicology in marine mammals. This project included an in depth analysis of PCB toxicity and tissue residues among fish that are consumed by dolphins.
- Confidential Site, US. Marine mammal team leader in the development of a web-based information management system that compiles, evaluates, and facilitates access to publicly available data, reports, articles, and geospatial information related to baseline information on marine mammals. This project required the interpretation of large amounts of data to ascertain patterns in distribution, abundance, behavior and life history information of key marine mammals within a large waterbody.
- Elephant Seal PCB Transfer Study, Ano Nuevo, California. Biochemical toxicological study of the transfer of PCBs from mother to pup in northern elephant seals and the impact of PCB-laden milk on the immune systems of nursing pups.
- Primary ecological risk assessor quantifying aquatic impacts of mercury and selenium from the Salt River Project's (SRP) Navajo Generating Station (NGS) located in Page, Arizona. The atmospheric mercury and selenium emissions of the Navajo generating station and their fate and transport in the local environment, particularly in regard to their impact on nearby aquatic life, were evaluated. Mercury, methylmercury and selenium concentrations in soil, surface water, and sediment were compared to a variety of conservative ecological benchmarks that represent conservative thresholds for adverse ecological effects. Concentrations of these constituents in the diets of piscivorous wildlife and fish tissue were modeled in order to assess potential risks to the ecological community in the vicinity of the generating station.
- Project leader in the execution of an ecological and human health risk assessment for the lower Hackensack River, N.J. The risk assessment included consideration of sediment dwelling invertebrates, forage and predatory fish, omnivorous and carnivorous birds, and recreational and subsistence anglers, in a manner consistent with technical approaches widely recognized by USEPA, United States Navy (US Navy), United States Army Corps of Engineers (USACE), and state environmental agencies. Chemicals evaluated in the risk assessment focused on metals, but also included pesticides, polycyclic aromatic



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hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and polychlorinated dibenzo-p-dioxins and furans (PCDD/F).

- Key technical advisor regarding the behavior of metals in sediments at a contaminated site in the Newark Bay/Hackensack River estuary (New Jersey, USA). Responsibilities include preparing technical briefing documents outlining the behavior of metals in anoxic sediments and the implications regarding risk to human and ecological receptors, comparative ecological risk assessment for fish and avian receptors, and evaluation of potential sources of sediment contamination.
- Participated with a multi-firm team on an ecological risk assessment for a large marine terminal in the Patapsco River, Baltimore, Maryland. The ERA was designed to evaluate the potential ecological risks associated with exposure to chromium in the sediments and surface water in the Patapsco River. This ERA focuses on hexavalent chromium [Cr(VI)], trivalent chromium [Cr(III)], and chrome ore processing residue (COPR) constituents (aluminum, calcium, iron, magnesium, manganese, and vanadium).
- Primary ecological risk assessor at a Hudson River Superfund Site contaminated with metals and organics. A complete baseline ecological risk assessment was conducted for the site to determine potential impacts to aquatic and terrestrial receptors. The BERA required the development of a sophisticated tissue uptake and food web model using equilibrium partitioning to estimate risks to wildlife.
- Compiled and published two detailed reviews of the state-of-the-science concerning the ecotoxicological behavior of dioxins, PCBs, and PBDEs on aquatic organisms, with a particular focus on advancements during the past ten years in our understanding of exposure and effects in marine and freshwater fish, as well as residue levels in different species and food chain niches.
- Primary ecological risk assessor for a 5 year ecological review conducted at Lawrence Livermore National Laboratories (LLNL), Livermore, CA. The screening-level ecological risk evaluation, including food web modeling, was conducted to assess potential ecological effects of chemicals detected in surface soil, subsurface soil, and surface water within LLNL Site 300.
- Key ENVIRON team member for a Sediment Quality Triad (SQT) study consisting of chemical characterization in sediment, sediment toxicity and bioaccumulation testing, and benthic community assessments for the Lower Hackensack River, New Jersey. Chemistry data in sediment and porewater were evaluated based on the equilibrium partitioning approach and other published information to investigate the potential for chemical effects on benthic organisms and communities. Relationships were supported by laboratory toxicity and bioaccumulation experiments to characterize chemical effects and bioavailability. Benthic community results were evaluated using a regional, multimetric benthic index of biotic integrity and four heterogeneity indices.
- Conducted a Sediment Quality Triad (SQT) study for the San Diego Bay Shipyard Site. The project consisted of implementing novel approaches to quantifying the relationship between sediment-associated chemicals and biological community quality through sediment chemical characterization, toxicity and benthic community assessments.
- Development and implementation of a unique approach for performing a California DTSC Part B ecological scoping assessment at a 75-square mile petroleum reserve located in southern California USA. The ecological assessment is based on landscape ecology and the use of population indices to discern potential effects of active and historical petroleum exploration and production activities on endangered species and other sensitive receptors.
- Preparation of a California DTSC Part B ecological scoping assessment at an approximately 1,000 acre former industrial site contaminated primarily with VOCs and perchlorate in soil and groundwater. The goals of the assessment involve identifying

## Linda B. Martello, PhD

species of potential concern, developing a conceptual site model, pathway and exposure assessments, and characterizing risk to the appropriate receptors.

- Compiled and evaluated data for the Lake Onondaga (New York USA) feasibility study pertaining to the impact of remediation on bioaccumulation and current and projected future mercury levels in fish tissue.
- Performed a human health risk assessment to evaluate human exposure to lead associated with installation of engine bearings and to determine whether levels requiring warning under the provisions of California's Safe Drinking Water and Toxic Enforcement Act (Proposition 65). The project included developing the exposure protocol for evaluating incidental ingestion and dermal exposure, conducting a trial exposure study, performing the quantitative exposure and risk assessment, and preparation of the complete project.
- Preparation of a screening-level ecological risk assessment at a municipal landfill located in Ohio USA. Assessment tasks included identifying areas of ecological relevance, identifying threatened and endangered species, identifying chemicals of potential concern by comparison with ecological screening benchmarks, and characterizing ecological risk at the site. Results were used to evaluate the need for interim corrective measures.
- Participated in a baseline environmental and ecological assessment of the impact of dioxins and other chemicals on sediments and biota in Humboldt (Arcata) Bay (California USA). The assessment included preparation and implementation of a sediment and biota sampling and chemical testing work plan to understand current conditions, and evaluation of the potential impacts to the shellfish fishery in the bay. Results were used by the California Department of Health Services to determine that shellfish from the bay were safe for human consumption.

Prior to joining ENVIRON, Dr. Martello held the following positions:

### Project Scientist/Toxicologist – EA Engineering, Science & Technology

- Project consultant on CEQA/NEPA issues for the City of San Francisco on the redevelopment and upgrade of the primary wastewater treatment plant in the city. Reviewed issues of water quality, hazardous materials and biology and prepared CEQA documentation.
- Developed a work plan for the rehabilitation of a stream receiving significant amounts of sedimentary materials. Examined alternative mechanisms for controlling sedimentation rates and restoring stream habitats, proposed mitigation alternatives and options.
- Assisted the CALFED Bay Delta Program (California USA) with their ecosystem restoration proposals and projects. This included organizing and participating in the peer review process of project deliverables, making recommendations to CALFED regarding monitoring needs for specific projects, reviewing draft and final monitoring plans and quality assurance project plans as well as reviewing proposals submitted during the proposal solicitation process.
- Assisted in the completion of elements for the sanitary plan for the Contra Costa Water District (California USA) regarding a new reservoir in the Sacramento-San Joaquin Delta water system. Reviewed data on contamination levels and potential sources at the reservoir.
- Prepared and implemented a limited physical and chemical testing program intended to support a Tier I waiver request to the San Francisco District Army Corps of Engineers on behalf of the TOSCO refinery (Benicia, California USA). The purpose was to provide corroborative evidence that the sediments at oil terminal piers were comprised of uncontaminated sands suitable for dredging and open water disposal. Results were used by the Army Corps to approve the Tier 1 exemption waiver.

Linda B. Martello, PhD

Sea Grant Fellow/Research Analyst - California State Coastal Commission

- Evaluated historical water, sediment and tissue data for pollutant concentrations in watersheds that feed the Monterey Bay National Marine Sanctuary (MBNMS). Analyze data for trends in levels of nutrients, bacteria, heavy metals, pesticides and other organic chemical contaminants that could significantly affect the environmental quality of the MBNMS and its resources. Created a database illustrating this information that was used as a reference by regional and state regulatory agencies and presented information regarding the Sanctuary's water quality to agencies statewide.

#### PROFESSIONAL AFFILIATIONS & ACTIVITIES

Society of Environmental Toxicology and Chemistry (SETAC), 1992 – present

#### PROFESSIONAL APPOINTMENTS

Battelle Third International Conference on Remediation of Contaminated Sediments Session Chair for the Session on "Bioavailability Assessments"

#### PUBLICATIONS & PRESENTATIONS

Martello, L. B., Richard J. Wenning, Mary Sorensen. Important Considerations when Evaluating the Ecotoxicity of Speciated Metals in Sediments. (September 2004; Submitted to Battelle June 2005 Conference, Baltimore, Maryland).

Martello, L.B., Wenning R.J., Von Burg, A., Pekala, J., Leitman, P., Sorensen, M. Trace Metal Contamination in Hackensack River, Passaic River, and upper Newark Bay Sediments (August 2004; Submitted to SETAC November 2004 Conference, Portland, Oregon).

Martello, L.B., Wenning R.J., Von Burg, A., Pekala, J., Leitman, P., Sorensen, M. Pesticide Contamination in Hackensack River, Passaic River, and upper Newark Bay Sediments (August 2004; Submitted to SETAC November 2004 Conference, Portland, Oregon).

Martello, L.B., R.S. Tjeerdema, W.S. Smith, .J. Kauten, D.G. Crosby. Influence of salinity on the actions of pentachlorophenol in *Haliotis* as measured by <sup>31</sup>P NMR spectroscopy. *Aquat. Toxicol.* 41,229-250.

Martello, L.B., C.S. Friedman, R.S. Tjeerdema. 1999. The combined effects of pentachlorophenol and salinity stress on phagocytic and chemotactic ability in two species of abalone. *Aquat. Toxicol.* 49,213-225.

Martello, L.B. 1999. Ph.D. Dissertation, University of California, Santa Cruz, Department of Biology. The Combined Effects of Chemical and Natural Stressors on Phosphagen Concentrations and Nonspecific Immunity in Two Species of Abalone.

Martello, L.B., R.S. Tjeerdema, 1999. The combined effects of chemical and natural stressors on Chemiluminescence activity in two species of abalone. *Aquatic Toxicol.* (in press)

Moore, D.W., Diener, D., Anghera, M., Sorensen, M., Martello, L., Wenning, R.J. Weighing the Evidence: Delineation of Potential Sources of Toxicity Using Multiple Lines of Evidence (August 2004; Submitted to SETAC November 2004 Conference, Portland, Oregon).

Sorensen, M., Wenning R.J., Martello, L.B., Von Burg, A., Pekala, J., Leitman, P. Polycyclic aromatic Hydrocarbons Contamination in Hackensack River, Passaic River, and upper Newark Bay Sediments (August 2004; Submitted to SETAC November 2004 Conference, Portland, Oregon).

Tjeerdema, R.S., W.S. Smith, L.B. Martello, R.J. Kauten and D.G. Crosby, 1996. Interactions of chemical and natural stresses in the abalone (*Haliotis rufescens*) as measured by surface-probe localized <sup>31</sup>P NMR. *Mar. Environ. Res.* 42, 369-374.

Linda B. Martello, PhD

Wenning RJ, LB Martello, A Prusak. 2010. Dioxins, PCBs, and PBDEs in aquatic organisms. In: J Meador (ed). Contaminants in Wildlife. Second edition. Taylor & Francis, Philadelphia PA. (in press).

Wenning RJ, LB Martello. 2008. Dioxin ecotoxicology. In: SE Jørgensen, BD Fath (ed). Ecotoxicology. Vol. [2] of Encyclopedia of Ecology. Elsevier, Oxford UK. p. 921-930.

Wenning R.J., Martello, L.B., Von Burg, A., Pekala, J., Leitman, P., Sorensen, M. Polychlorinated dibenzo-p-dioxin, furan and biphenyl Contamination in Hackensack River, Passaic River, and upper Newark Bay Sediments (August 2004; Submitted to SETAC November 2004 Conference, Portland, Oregon).

5

# EXHIBIT 2

1 References

- 2 Fox, Kathlyn Snyder, "Harbor seal behavioral reponse to boaters at Bair Island refuge" (2008).  
3 *Master's Theses*. Paper 3591.
- 4 Hoover-Miller, A. A. 1994. Harbor seals (*Phoca vitulina*): Biology and Management in Alaska.  
5 Marine Mammal Commission. Washington, D.C. 45 pp.
- 6 Marine Mammal Commission (MMC). Mariculture and Harbor Seals in Drakes Estero,  
7 California. A Report by the Marine Mammal Commission. 22 November 2011.
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