EXHIBIT S62 TO DECLARATION OF STEPHEN G. SCHWARZ IN SUPPORT OF PLAINTIFFS' MOTION FOR CLASS CERTIFICATION

Occurrence of Perfluorooctane Sulfonate (PFOS) in Wildlife
Part I. Eagles and Albatrosses

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Reason for Study:

Recent analyses of human blood samples from the U.S. population detected the presence of PFOS. Computer modeling of PFOS behavior using as benchmarks chemicals known to be both hydrophobic and persistent, predicted that PFOS would be present in the highest amounts at the top of the food chain, as DDT and PCBs are (computer fugacity model EUSES). Based on these findings, it was hypothesized that PFOS might be detected in top trophic level predators.

To test this hypothesis, representative wildlife predators were sought. Two wild bird species, eagles and albatrosses, were chosen because their diet consists almost solely of one food source, fish and they principally inhabit remote areas. Furthermore, existing blood samples were readily available from a reputable source.

If PFOS was not detected in these top wildlife predators, then speculation about widespread PFOS distribution or bioaccumulation could be diminished. If PFOS was detected, then the source the exposure would need to be determined. Since direct exposure to products containing PFOS or its precursors would be unlikely given these predators' feeding habits and their environment, the detection of PFOS would raise questions about how organisms at lower trophic levels are exposed to PFOS. It would suggest the possibility of broad, ecosystem-wide exposure. Either outcome would provide valuable information for the design of further monitoring and testing studies.

Results:

Dr. John Geisy of Michigan State University provided the blood plasma samples which were collected from birds nesting in the wild. (See Appendix 1.) The Laysan albatross samples came from five nestlings on Midway Island; the bald eagle samples came from five nestlings in Minnesota and Michigan. Chris Hansen's FACT team analyzed the samples for PFOS using standard GLP methods (Appendix 2).

Three of the albatross samples had no detectable PFOS and two had PFOS at levels too low to quantify. PFOS was detected in all the eagle blood samples at the following levels in parts per billion: 30, 31, 32, 34, and 77.

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Discussion:

The detection of PFOS in the blood of wildlife species that were unlikely to have had direct contact with the chemical or its raises questions about how PFOS came to be in the blood of these organisms. Two possible routes of exposure are the organisms' food or the environment they inhabit.

The levels found in the bird blood are very similar to those found in pooled human sera. This raises questions of coincidence, a common underlying mechanism of accumulation in blood, a common, widespread level present in the environment, and other possibilities. The presence of PFOS in the bald eagle nestlings and not the albatross nestlings suggests that PFOS is present in North American environment but perhaps not in the pelagic portion of the Pacific Ocean.

The results for bald eagles are consistent with the movement of classic persistent organic chemicals through food chains. However, because of the surfactant properties of PFOS and its precursors, and the nature of the eagle parents' fishing with frequent exposure to water surfaces, another possible route of more concentrated exposure is via surface film. Monitoring of surface film concentrations of PFOS and analysis of fish samples would help to distinguish between these two possible sources of exposure.

Only five eagle nestlings were tested. These data should be confirmed with further testing of more eaglets. Additionally, samples of the blood of adult eagles would be useful for determining if levels of PFOS change with age. Other fish eating bird species should be tested to see if they contain PFOS, and if so, at what levels. Species of interest would be cormorants, pelicans, shearwaters, and herons.

If wild bird predators contain PFOS, then fish eating mammals such as otters, mink, porpoise and seals could potentially as well. Pioneer sampling of a few individuals of representative species would be useful for determining the extent of PFOS distribution in the ecosystem.