SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF NEW YORK

Golden Gate Yacht Club, Plaintiff, v. Societe Nautique de Geneve, Defendant, Club Nautico Espanol de Vela, Intervenor-defendant.	Index No. 602446/07 **AFFIDAVIT OF JOHN K. MARSHALL**

JOHN MARSHALL, being duly sworn, deposes and says as follows:

1. I am over 18 years of age and am a citizen of the United States. I submit this affidavit in connection with the above-captioned litigation to support Golden Gate Yacht Club's ("GGYC") motion regarding the Deed of Gift's constructed-in-country requirement and in opposition to Societe Nautique de Geneve's ("SNG")'s cross-motion to disqualify GGYC's vessel.

Personal Background

2. I have extensive experience in the America's Cup, as a crew member, sailmaker, and manager. I also have extensive experience working for North Sails Group, LLC ("North Sails"). I am not, and have never been, affiliated with GGYC, BMW ORACLE Racing ("BOR"), SNG, or Team Alinghi ("Alinghi").

3. I began working for North Sails in 1969. At various points in my career at North Sails, I was the Director of International Research and Development and the Director of Marketing. I was the President and Chief Executive Officer of North Sails for 5 years, from

1980 to 1984. I served as a member of the Board of Directors during the period when the 3DL process was being developed by North Sails.

4. I was on the U.S. Olympic Sailing Team twice, winning a Bronze medal in the 1972 games. I have extensive international competitive small boat and ocean racing experience, including on a World Ocean Racing Championship boat and winning two North American championships in one-design boats.

5. I have participated in nine America's Cup campaigns, beginning in 1974 and continuing through 2000. I have participated as a sailmaker, crew member, technology manager, design project manager, and team manager. In 1987, I was the design project manager for San Diego Yacht Club, which successfully challenged for the Cup with *Stars and Stripes* in Fremantle, Australia. In the 1988 America's Cup, I was the design project manager for San Diego Yacht Club, which successfully defended the Cup with a catamaran, also called *Stars and Stripes*, which raced with a wing sail.

6. In 1990, I started an organization known as the Partnership for America's Cup Technology, which developed technology that was appropriate to yacht design that would be shared among the US teams competing to be named defender of the America's Cup. I subsequently took on the responsibility of organizing and managing an entire America's Cup team, first for a match in 1995 in San Diego and the second time in New Zealand in 2000.

The Importance of Hydrodynamics and Aerodynamics In The America's Cup

7. There are two components to a vessel's performance in a sailing race: hydrodynamic performance and aerodynamic performance. Hydrodynamic performance has to do with the amount of drag associated with the movement of vessel's hull through the water. Aerodynamic performance has to do with the amount of propulsion associated with the

movement of the wind against the vessel's sails. The vessels that win the America's Cup have the most efficient hydrodynamic performance (the least drag) and the most efficient aerodynamic performance (the greatest ability to harness the energy of the wind).

8. The importance of aerodynamic performance has long been recognized in the America's Cup. Indeed, the British sailors who lost to the *America* were equally disappointed in the aerodynamic performance of their yacht as they were in the hydrodynamic performance. (See The Lawson History of the America's Cup by WM Thompson and TW Lawson, 1902, pages 34 – 35.) They were fully aware of the fact that success of the race course requires not only the right hull but also the right sails. "Half the success of the *America* resulted from the exquisite proportion, cut, and material of her sails." "....cut to set flat they presented vast superiority over the loose-woven flax, canvas, English sails, with their great flow (depth of surface curvature)." (Lawson, page 35.)

9. The opinion that the America's Cup either is, has been, or was intended to be a competition of different hull models is inaccurate. Designing the most efficient sails, that is, the engine of the vessel, has always been at the heart of the America's Cup and continues to be part of it today.

Manufacturing 3DL Sails

10. In my opinion as a sail designer and competitive sailor, a sail is defined by its function. The function of a sail is to capture the energy of the wind and thereby provide the propulsion for a yacht.

11. In order to capture the energy of the wind, you need a three-dimensionally curved, aerodynamic surface. In a competition on the level of an America's Cup, that surface must be as

aerodynamically perfect as possible. The fundamental aspect of manufacturing a sail is the process of creating that three-dimensionally curved, aerodynamic surface.

12. Conventional sails were made by assembling flat sheets of sailcloth and various techniques were used to simulate or approximate a continuously smooth surface.

13. In North Sails' 3DL process the aerodynamically-necessary surface curvature is molded into the surface of the sail during the manufacturing process, rather than the sail being assembled out of separate flat pieces of sail cloth. The plant at Minden has a number of molds that can be manipulated in order to meet exact surface curvature according to the instructions of the sail designer.

14. The product that comes off the mold in Minden, Nevada is a fully three-dimensionally curved surface exactly specified by the sail designer. If the dimensions are small enough, the entire sail will come off the mold. If the dimensions are larger than the mold, it would be impossible to mold the sail in a single pass. Then multiple molds (or multiple uses of the same mold appropriately re-shaped) will be used to create the individual sections which are removed from the mold and then glued or otherwise joined together. Whether those components are joined in Minden or elsewhere, the process of joining those pieces is a process of finishing, not manufacturing, the sail.

15. By using proprietary molding technology in a U.S. facility to construct these large aerodynamic surfaces, SNG is building sails in Minden just as Boeing would be building a wing in Seattle even if it were shipped in sections to another country for final assembly and installation on the fuselage of the aircraft.

16. The essential element that determines where a sail is manufactured is where the sail originally obtains the three-dimensional curvature needed to capture the wind's energy. In

the case of 3DL sails, that process takes place in Minden, Nevada. What happens to the sail after that point is called finishing or re-cutting if the original molded shape is subsequently modified.

17. Before a sail undergoes the finishing process, it is sometimes referred to as a "blank." A 3DL "blank," however, is a fully formed three-dimensional surface. 3DL "blanks" or membranes are not just panels of high tech sailcloth. They are molded, aerodynamically-shaped surfaces that are like sections of an aircraft wing that might be shipped in segments for convenience. What is unique and important about 3DL sails is that they are built over three-dimensionally curved molds just like composite aircraft wings or wind turbine blades.

18. 3DL sail blanks are not raw materials. The raw materials used to create 3DL sails include rolls of Mylar (polyester film), spools of supporting fiber such as Kevlar or carbon fiber, and adhesive agents such as glue. The purpose of the Mylar film is to render the sail impervious to the wind so that the wind does not blow through it. The Mylar also carries the supporting fibers. The supporting fibers prevent the surface from stretching or deforming under the stress provided by the wind. The adhesives lock the fibers in a pattern according to the sail designer's instructions. Once these materials have been properly assembled and laid on the mold, they are heated and bonded on the mold. The three-dimensionally curved surface that comes off the 3DL mold is not a raw material. It is either an entire sail or, in the case of very large sails, a piece of a sail that is joined together with several other pieces to form a complete sail.

19. The yarn (or fiber) layout of a 3DL sail is customized by the designers to match the structural requirements of the sail. It is also an important factor to control deformation of the flying shape of the sail when under load.

<u>BOR's Wing Sail</u>

20. In my opinion, a wing sail such as that used by the BOR 90 is every bit as much a sail as more conventional sails.

21. Nineteenth-century dictionary definitions are not particularly useful in determining whether something is a sail as that term is used in the Deed of Gift. In the nineteenth century, sails were generally made of woven fabrics – typically cotton. George Schuyler would not recognize any of the sails used in modern sailing. Indeed, there is very little technology on either GGYC or SNG's vessel that George Schuyler could have contemplated in 1882 or 1887.

22. However, the idea that because George Schuyler could not have contemplated a particular technology in 1882, he intended to ban its use is completely antithetical to the spirit of George Schuyler, the New York Yacht Club, and the America's Cup. The idea behind a design competition is to further develop sailing technology through innovation. Indeed, the purpose of the New York Yacht Club, which held the Cup from 1852 through 1983, as stated in its papers of incorporation, is "encouraging yacht building and naval architecture, and the cultivation of naval science." Advancing naval architecture and science, that is aero and hydrodynamics, is a fundamental characteristic of the America's Cup.

23. A sail is the thing or the system that captures the energy of the wind to propel a vessel. It does not matter if it is made of woven fabric or carbon fiber, whether it is molded or stitched together, whether it is made of Mylar, Kevlar, flax, or Egyptian cotton, whether it is soft or rigid. Lawson (page 35) quotes an English sailor's observation on seeing the *America's* sails. "A craft *should* sail with stuff like that over her; it is more like veneer board than canvas."

Sloop-Rigged Vessels

24. Racing sailboats generally have either one or two masts. Sailboats with one mast are categorized as cutters, sloops, or cat boats.

25. A cutter is a type of rig in which the mast is far aft, with plenty of room in front of the mast to set additional sails. A sloop is a rig with less room in front of the mast but still enough room to set an additional sail. A cat boat is a rig with the mast very far forward and not enough room in front of the mast to set another sail.

26. A sloop must be able to use a sail in front of the mast, at least some of the time. A sloop does not transform into a different kind of rigged vessel if it pulls down one of its sails. It remains a sloop, whether it is sailing with all of its sails set or not.

27. There is no rule in sailing that says you need to keep all the vessel's sails up all the time. An essential part of sail racing is knowing when to put up the sails that will make the boat go faster and knowing when to pull down the ones that are slowing it down. In fact, some races are won by sloops because the sloop lowered one of its sails.

John K. Marshall Jan 27 2010

Subscribed and sworn to me before this
27th day of January 2010

MURIEL G. SMITH
NOTARY PUBLIC
State of Maine
My Commission Expires
April 30, 2013

Notary Public