FLOTATION TECHNOLOGIES
"A Company with Depth"

October 31, 2003

Mr. Andy Hamilton
Monterrey Bay Aquarium Research Institute
7700 Sandholdt Road
Moss Landing, CA 95039-0628

Dear Andy:

Further to our correspondence, Flotation Technologies is pleased to quote on MBARI's buoyancy requirements. In the attached Sales Proposal (5553-0), we have proposed our Flexlok™ buoyant bend-restriction system for use in conjunction with the M.O.O.S. mooring.

This proposal is structured in two parts. Dynamic Analysis would be performed by our alliance partner, Dunlaw Engineering Ltd. in the U.K. This analysis will consist of:

Construction of an Orcaflex Dynamic Model based on MBARI input.
2D Assembly and detailed drawing pack using Cadkey.
3D Model of system using Solidworks
Calculations using Mathcad 2000 to support dynamic analysis.

The Orcaflex model will require total Flexlok buoyancy required, requested cable coverage, and lock-up radis desired. Inputs will also need to include wave height and direction, current profile and direction, seabed profile and stiffness, cable mechanicals and fatigue analysis of cable. This program is a tremendous tool if fed sufficient inputs.

The results of this analysis will then determine the final module dimensions, number of modules and whether fore and aft bend stiffeners will be required. If bend stiffeners are not required, we could design simple transition pieces extending from the Flexlok radius to the cable radius that will prevent the cable from hanging up on itself. Unfortunately, it's difficult to include a budgetary price for stiffeners until the analysis is complete.

Which brings me to an important point. It's difficult to provide an accurate quotation on this product before running the analysis. The number of modules drives much of the cost. We've gone with a worst case scenario—many small modules covering a relatively long length of cable (15m). The price could be significantly reduced if we find that we can go with fewer, larger modules, and/or cover a shorter length of cable.

I think that this product, while more expensive then our cable floats, will provide the ultimate in reliability for this mooring. When the final selection of cable is complete and a level of comfort attained, maybe we can revisit cable floats as a lower cost option. Until that time, we look forward to working with you to engineer the exact system for your requirements.

Best regards,

Tim H. Cook
President

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