Statement of Work:

Definition of the problem:

· The focus of this project is to improve SEAJET's Quiet Mode endurance - exclusive of Propulsion power. The load, excepting propulsion, consists mostly of instrumentation for the scientific experiments that are being conducted on the vehicle and for the data acquisition to support the mission. This represents a power draw that often is a critical path for mission accomplishment under current circumstances.

· The most limiting UPS, UPS #3, discharges at a rate double that at which it charges. When discharging, the UPS provides approximately 7kW of output power for 40 minutes in quite mode operation. It takes more than twice as long to charge the same batteries. This is a serious limitation for the vehicle's mission.

· We propose to address this problem by applying new technology that has appeared in the technical literature, an important share of which has been developed at the University of Idaho. These methods reduce energy waste and direct energy more effectively to point of use. Effective algorithms for automated control of electric power will be created or adapted and then applied to the problem.

Deliverables: This project will develop

· a method of monitoring the state of the different batteries in the array and

· switching them to provide a more efficient discharge rate; with

· a goal of supplying power for an equal amount of time as that required to recharge.