

Attachment 2

Research Vessels Physical Characteristics

August 11, 2009

a. The R/V Lake Guardian

Length	- 180'	Cruising Speed	- in excess of 11 knots
Beam	- 40'	Fuel Consumption	- 60 GPH
Draft	- 11'	Range	- in excess of 6000 miles
Berthing Capacity	- 41	Endurance	- 3-4 days

The R/V Lake Guardian is a twin screw, oceanographic research vessel of steel construction, which meets or exceeds all United States Coast Guard safety requirements for an oceanographic research vessel under 300 Gross tons with net displacement light tonnage of 850 tons. The vessel is certified for Ocean Service by the U.S. Coast Guard and classed Maltese Cross A-1, Ice Class C0 by the American Bureau of Shipping. The research vessel is converted from an offshore supply vessel with North Sea type exhaust stacks.

There are 16 cabins which can accommodate 41 persons, exercise room with fitness equipment, lounge with TV, and VCR; and a laundry with washer and dryer.

There are two internal laboratories with fume hoods, deionized water, hot and cold water, vacuum, un-interruptible power supplies(UPS), air filtration systems, eye washes, refrigerators, and freezers. There is also a general purpose lab ("wet lab") equipped with hot and cold water, eye washes, fume hoods, and chemical storage cabinets. The wet lab also houses a console area used to operate the Triaxus tow vehicle, and state of the art computer equipment used to collect data from the Triaxus vehicle. There is a laboratory office with two desks and files. Up to two modular (portable) lab containers can be connected to the ship with various services including fume hoods, and air filtration systems. In addition to individual laboratory refrigerators and freezers there is a 410 cubic feet. walk-in refrigerator and a 308 cubic feet walk-in freezer.

Ship scientific support equipment includes winches, cranes, and "A" frames such as: Rosette –Sea-Mac winch (208 VAC 3-phase electric/hydraulic, 500 lbs line pull), SBE 911 plus CTD limnology sensor package; large water volume organic sample pump - Sea-Mac winch (208 VAC 3-phase electric/hydraulic 500 lbs line pull); box coring - Sea-Mac 3540 EH (480 VAC - 3phase electric/hydraulic 6,000 lbs line pull; zooplankton - Hyde winch (440 VAC, 400 lbs line pull), a general purpose winch - InterOcean (208 VAC 3 phase 500 lbs line pull; HIAB 450 Sea Crane (5,000lbs), HIAB 80 Sea Crane (2500lbs), mechanical arm davot, DAYTON Mono-Rail (1000lbs), 2 hydraulic starboard

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"A" frames with 4,000 lb maximum capacity and a stern "A" frame with 25,000 lb maximum capacity; distilled water system, Superstill S25 (25 gal/hour and 200 gallon storage capacity); vacuum system, GEBR Becker (331" H₂O); and Triaxus tow winch. (208VAC, 3 phase, 60Hz, or 208 VAC, 3 phase, 50Hz), and Triaxus tow vehicle with onboard sensors.

There are one Ambar 550 Rescue Boat with two Mercury 50 hp outboard motors, one Avon Work Boat with one 50 hp Evinrude outboard motor, and four life rafts each with 15 to 20 person capacity.

The deck working area contains threaded stainless steel deck inserts to tie down equipment which are spaced on a two-foot grid pattern capable of receiving hex bolts, eye bolts, and other threaded 1" fittings. Electric power is available at several deck locations for 110/208 VAC. Hydraulic power take-offs at 2,500 psi, 260 gal/min are available at two deck locations.

b. The R/V Mudpuppy

Length	- 34'	Cruising Speed	- 30 knots
Beam	- 8'	Fuel Consumption	-15 GPH
Draft	- 1.5'	Range	- 80 miles
Berthing Capacity	- 0	Endurance	- day use only

The Mudpuppy is powered by twin 150hp Mercury outboard motors. A 14 K W Kohler Generator, Skipper ICOM VHF Radio, Raytheon Dual Frequency - Color Video Fathometer, one Dayton winch, one My-te winch for A frame lifting, one Dayton winch on davit and a Rossfelder Vibrocorer with accessories are ship's equipment. There is also a Zodiac inflatable boat. The Mud Puppy is trailered from work site to home port. A large (currently Ford F-800) truck capable of pulling a combined 20,000 lbs load for Mudpuppy and trailer is available.

c. The research vessels shall be equipped with other navigational, communication and oceanographic equipment over the period of the contract as deemed necessary by the Government. The contractor shall safely operate and maintain such equipment.

d. Other research vessels owned by EPA may be assigned to the contract from time to time. This assignment would occur via transfer of Government property to the contract using a justification of need for the ship transfer.