



GEORGIA AQUARIUM



Georgia Aquarium Overview

- *Benefactor*
- *Building Design*
- *Location*
- *Construction*
- *Quarantine*
- *Finally the nuts and bolts of the LSS*



Bernie Marcus

Co-Founder Home Depot



GEORGIA AQUARIUM

Bernie's World Tour

- *Fall 2001 – Spring 2002*
- *13 Countries!*
- *56 Aquariums!*
- *95,000 Nautical Miles!*
- *Bahamas, Canada, China, Denmark, France, Italy, Japan, Netherlands, Singapore, Spain, South Africa, South Korea, and the United States.*



Unique Design Aspects

- *Dedicated Animal Health Center*
- *Dedicated Administrative Offices*
- *Dedicated Education Loop & Offices*
- *Parking Facility Linked to Convention Ballroom*
- *Dedicated Food Service & Merchandise Operations*
- *Centrally Located & Easily Accessible Life Support Systems*
- *Major Hallways Restrict Staff Pathways from Guest Pathways*



Expand & Change

- *Multi-Use Theatre On Site*
- *1.5 Acre Designated Expansion Site*
- *6,000 Square Foot Changeable Exhibit Space*
- *Expansion Area Space Included in all Exhibit Spaces*
- *Life Support Systems “Stubbed In” for Exhibit Expansion*
- *Open Spaces Available for Guest Entertainment Experiences*



Location

- *Land Donated by Coca-Cola*
- *Property Totals 9 Acres*
- *Will be Directly Adjacent to New World of Coke*





Georgia Dome

Atlanta University Center

Philips Arena

CNN Center

OMNI Hotel

Georgia World Congress Center

Embassy Suites Hotel

CPW Condos

Marietta Place

Centennial Olympic Park

Georgia Aquarium

Museum Tower Condos

World of Coca-Cola

Children's Museum

Centennial House Condos

Crawford Long Hospital

I-75/I-85



Georgia Aquarium Site -Master Plan

Construction Begins



GEORGIA AQUARIUM

May 29, 2003





















Construction Details

- *Started Construction May 29, 2003*
- *Completed construction drawings August 26, 2004*
- *Almost 100,000 yard of concrete*
- *More then 200 sub-contractors and over 3,500 employees*
- *Received CO on November 17, 2005*



Off Site Quarantine

- *30,000 sq.ft.*
- *25 Life Support Systems*
- *Central backwash recovery system*
- *Central saltwater mixing/distribution system*
- *Central ozonation/distribution*
- *Built by GAI team over six months*









Exhibit & LSS Design

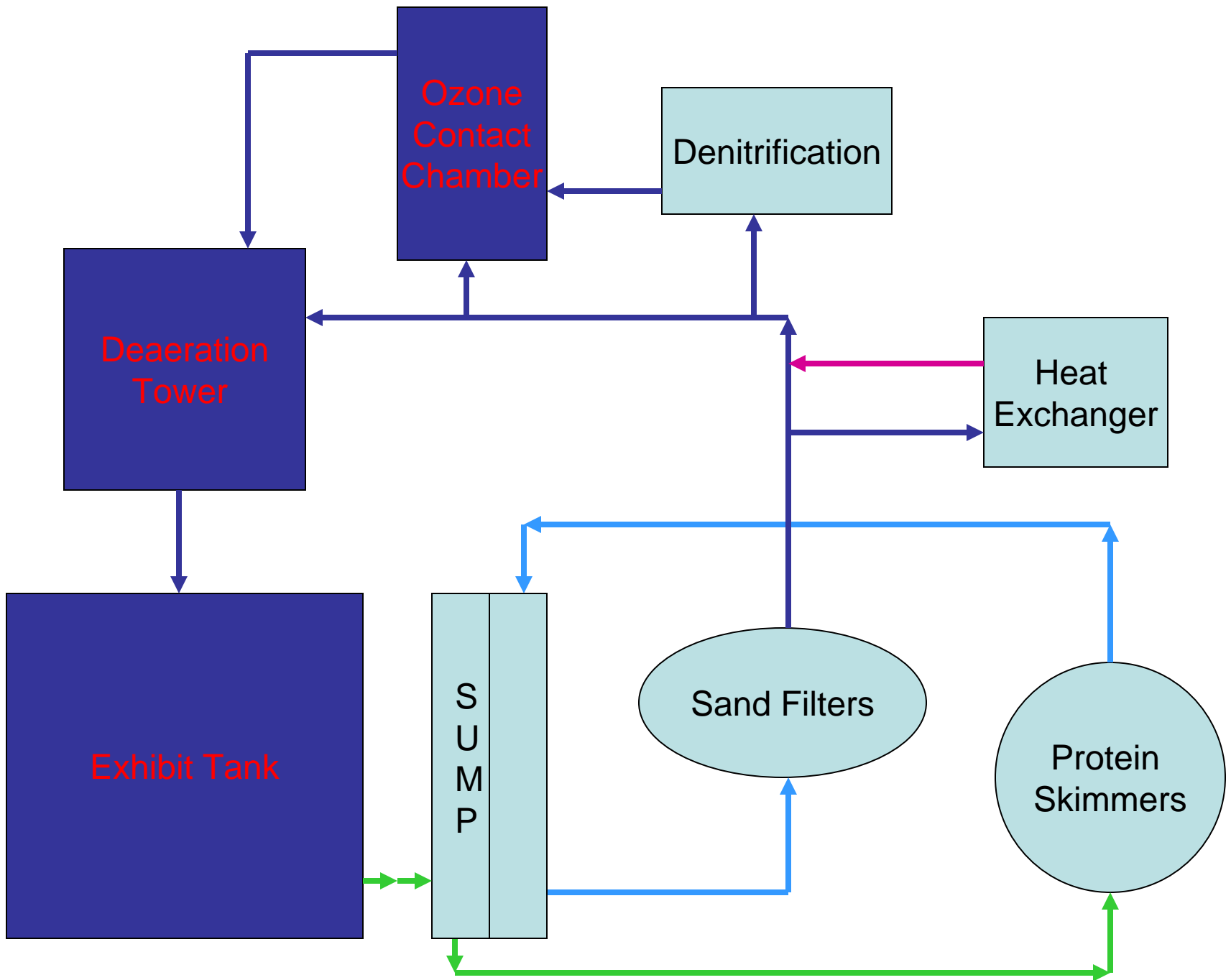
- *Define the animals for the exhibit*
- *Design the tank/pool around the animal*
- *Design the supplies and returns for the animal swimming habits*
- *Design the LSS to meet the projected food load*



Ocean Voyager Design

- *4,000,000 gallons*
- *Housing 100,000 fish*
- *Over 15 different species of fish*
- *Estimated food load #1200/day*





Materials of Choice

- *All underground piping to be HDPE*
- *No flanges or valves underground*
- *PVC SCH 80 piping inside the building up to 24" and HDPE above 24"*
- *All hardware would be 316L or FRP*





DEC 22 2003



MAR 13 2004



MAX LOAD
25000

BAR WT.
3000 LBS

IR Ingersoll Rand
06-18-099

MAR 13 2004







FEB 16 2004



2004.05.13

Contractor



AUG 9 2004

**What the
heck is
this
thing!**



2004.05.13









HVAC Equipment

- *Trane Chillers supplying chilled water for LSS & HVAC*
- *3,600 tons of cooling capacity and 18,000 MBH heating capacity*
- *37 pumps moving 16,600 gpm*
- *5 miles of piping*
- *The cooling capacity is equivalent to cooling 1200 average size homes*





Electrical System

- *3 independent 4,160 volt feeders from Georgia Power*
- *3 Caterpillar 16 cylinder Generators supplying 6 megawatts at 4,160 volts for LSS*
- *92 mile of conduit*
- *342 miles of wire*





LSS Equipment

- *218 pumps using 4,160 hp to move 261,000gpm*
- *70 Protein Skimmers*
- *29 Ozone contact towers*
- *450 lbs of ozone/day @ 6%*
- *141 sand filters*
- *24 UV sterilizers using 26,000 watts @ 200,000 micro-watt/seconds*
- *4,035 valves ranging from 36" to 2"*



LSS Infrastructure

- *Two 75,000 gallon mixing basins*
- *Two 250,000 gallon salt water storage basins*
- *Three independent backwash recovery systems*
- *Compressed air throughout the building for LSS*
- *Circulating saltwater, RO and fresh water loops throughout the building*



LSS Statistics

- *30,000 cubic feet of Brentwood bio media*
- *Over 10 miles of pipe ranging from 54" to 2"*
- *Over 300 automated valves*
- *3200 control points*
- *25 miles of control wiring*



Testing & Commissioning

- *Brasfield & Gorrie was responsible for filling each tank/pool to verify they would hold water.*
- *McKenney's was responsible for commissioning all life support equipment.*
- *This allowed GAI to work hand in hand with the contractors on starting the equipment.*
- *Once the commissioning was complete the systems were drained and cleaned before turnover to GAI.*



Finishing the Big Exhibit

- *The first exhibit to be turned over to Georgia Aquarium staff was the 6.2 Million Gallon tank.*
- *This exhibit was given to us in late Feb of 2005 almost 9 months before opening day.*











Final Fill

- *36 hours to fill*
- *6.2 million gallons total volume*
- *Added 741 super sacks of synthetic sea salt which is equivalent to 1,815,450 lbs.*







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INSTANT OCEAN
Manufactured by
Aquarium Systems
A. Marineland Company

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Manufactured by
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A. Marineland Company

The Finished Product:

*An Open Ocean Habitat
Called Ocean Voyager*



GEORGIA AQUARIUM







