

# Sewage PumpOut Systems



CALIFORNIA  
**COASTAL**  
COMMISSION

12/12/2012



Presented By Andrew Bleier  
Senior Vice President, Keco Inc.



# Background

Keco Inc. First Commercially produced PumpOut System

Iconic “Orange Mushroom” Pump-A-Head

Traditionally Located On Fuel Docks & Bulkhead Walls





## History

Many units were installed intentionally inaccessible to boaters.

Often installed to fulfill a permit requirement.

Many units were “installed” and never powered on

Access is key...

...Make it easy to use  
and people will use it



# Portable PumpOut Units

Bring the PumpOut to the boat...Not the boat to the PumpOut

- Pros: Convenience & Cost Effective
  - Applicable To All Marina Facilities
- Cons: Inefficient (pump twice)
  - More Prone To Accidents Than Fixed Mounted Units



# Portable PumpOut



## High End Portable PumpOut Cart

### Facility

- Minimal Training Required
- Accessible To All Boaters

### Equipment

- Self Propelled
- Overfill Protection
- Pump Leak Detection
- Overload Protection
- Overpressure Protection

# Portable PumpOut



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## Mid-Range Portable

All major safety features  
Suitable for most users, staff

## Basic Portable

Low Cost, Simple to Operate  
Ideal As Backup or Emergency

# Portable PumpOut



High Capacity Trailer Systems



Golf Cart Mounted PumpOut



# Portable PumpOut

Boat Mounted PumpOut



Ideal For Mooring Fields,  
Typically Offload At PumpOut System

Customarily Offered As A Paid Service Due to High  
Operating Costs.

# Centralized PumpOut Systems

## Simplify Service at The Slip

- Pros: Convenience & Safety
  - Modern Systems Are Inherently Leak-Resistant
  - Super High Volume , Fast
- Cons: Expensive, Technical Barriers
  - Difficult to retrofit Existing Marinas





## Force Main Systems

First Installed In Early 1980's

Significant Leak Potential

Can Often Be Converted To  
Modern Vacuum Type

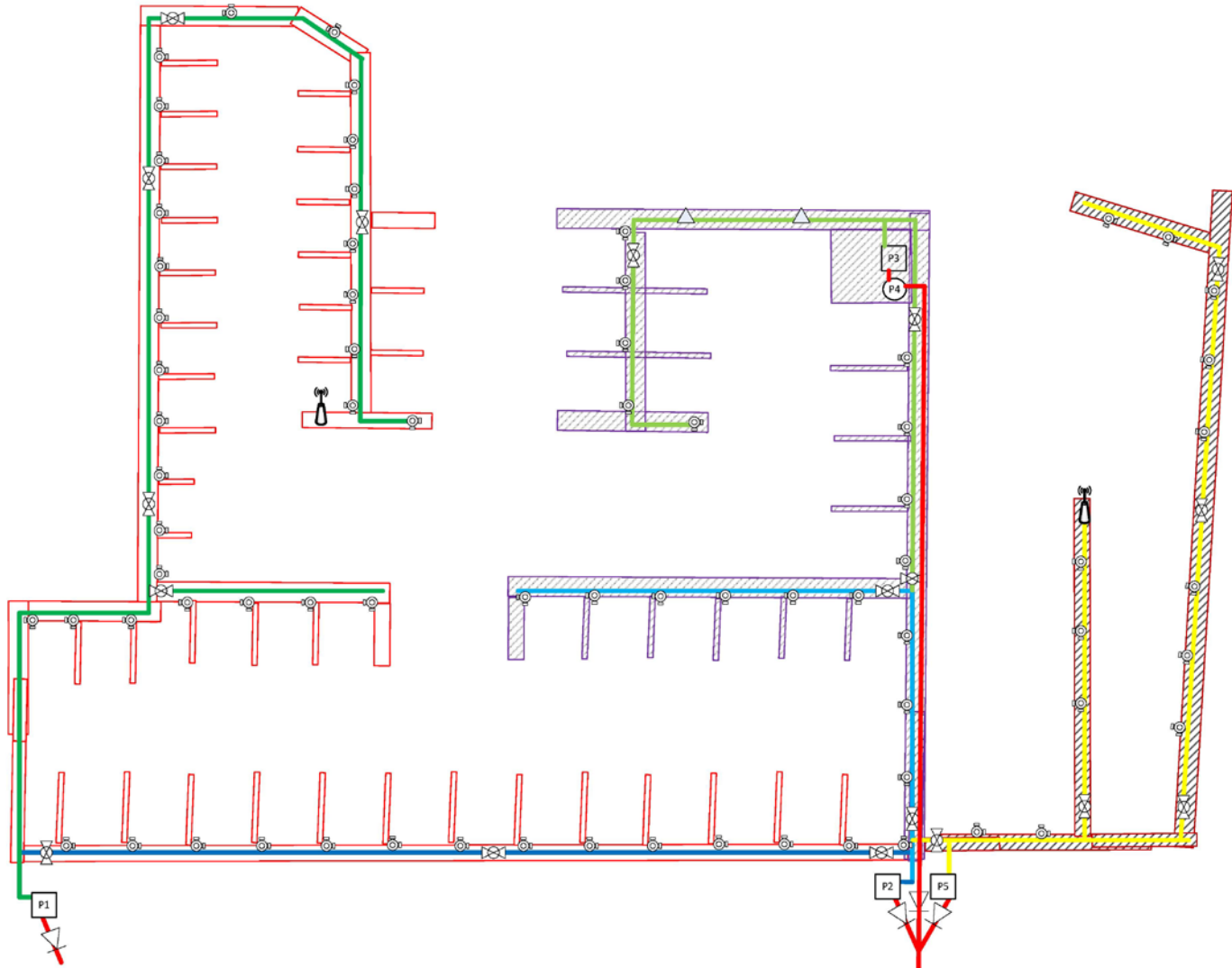
# Centralized PumpOut Systems

## Major System Components:

Pump:	Peristaltic or Vacuum Type
Piping:	HDPE or PVC
Hydrant:	Safety Type Recommended
Cart:	Suction Hose Storage



# Centralized PumpOut Systems



**Legend**

- Phase 1 – VS1 —
- Phase 1 – VS2 —
- Phase 2 – VS2 —
- Phase 2 - VS3 —
- Phase 3 – VS4 —
- Force Main —

- Keco Model 900R 5 HP PumpOut
- Keco Duplex Grinder Pump Package (2 HP)
- HDPE Isolation Valve Redundancy / Isolation ⊗
- Keco Safety Hydrant ⊙
- Keco Remote Pumping Center (RPC) △
- Swing Check Valve ▷
- Wireless Signal Repeater 📶

EQUIPMENT PLACEMENT IS APPROXIMATE – DRAWING IS FOR CONCEPTUAL PURPOSES ONLY AND MAY NOT CONTAIN ALL RELEVANT DETAILS INCLUDING ISOLATION VALVES, CHECK VALVES AND / OR ELECTRICAL DISCONNECT DEVICES. NOT FOR BUILD



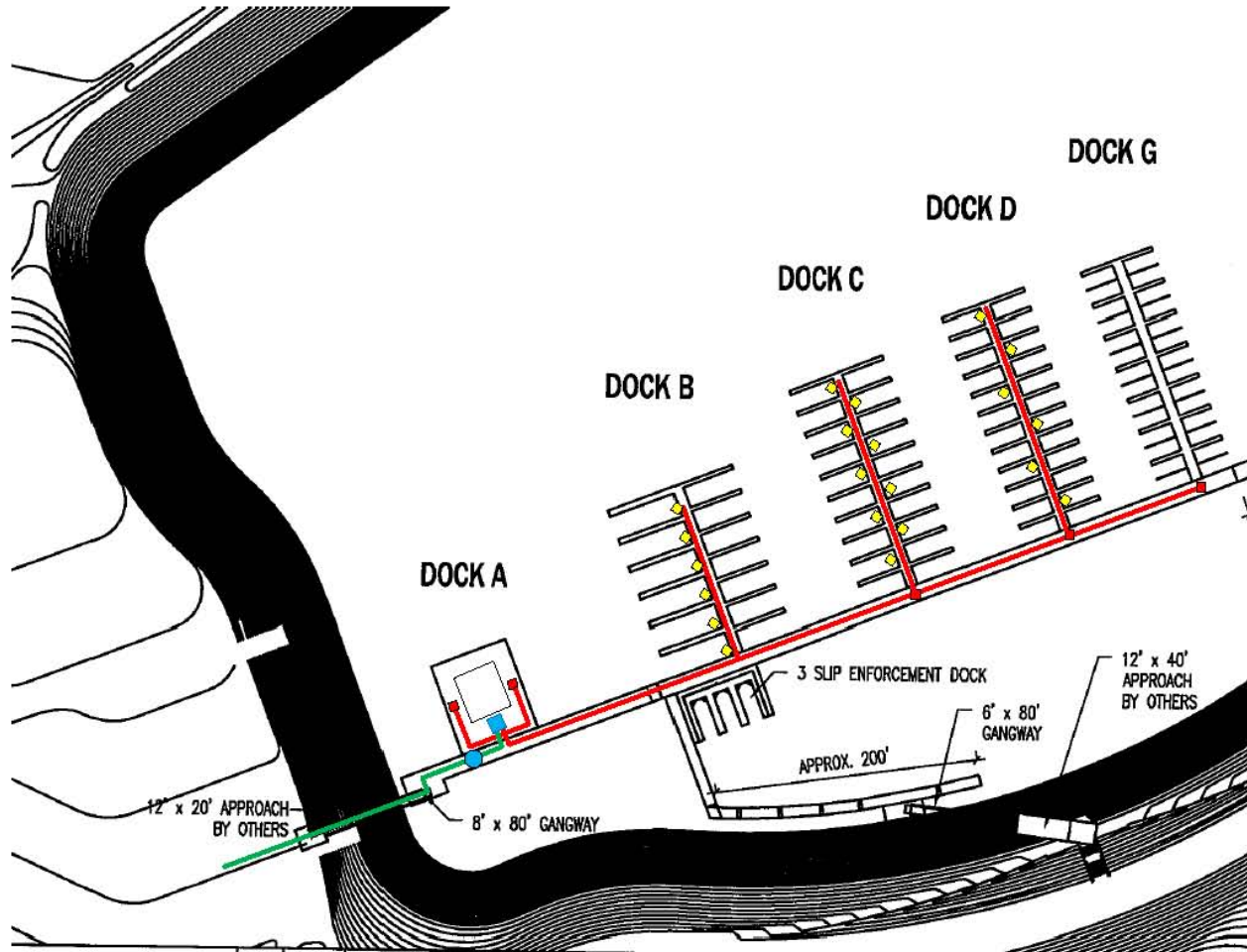
KECO Inc  
3235 Hancock St.  
San Diego, CA. 92110  
www.pumpahead.com






Drawn By: Andrew Bleier  
Site POC: Allen Gillette  
Scale: NTS

Page #1 of 1  
Date: 09/25/12  
Revision: 1.0

City Of Riviera Beach, FL.  
Sewage PumpOut System

# Centralized PumpOut Systems



 Grinder Pump Package	 5 HP KECO Peristaltic PumpOut Unit	 Remote Pumping Center (RPC)
<b>5 HP KECO Model 900R - W/ Remote Pumping Center (s) (fuel Dock + Main Walkway) and In Slip Hydrants (Dock B-D)</b>		
Peristaltic Pump to be located at ship store/fuel dock (inside or outside) and discharge into proposed grinder lift station. Grinder lift station has been sized to accommodate vertical head and horizontal distances as well as inrush from restrooms and peristaltic pump unit. KECO Peristaltic Pump to be activated wirelessly from 5 ea. RPC & 4 ea. Hose Cart(s).		
If peristaltic pump is located within 20' of fuel dispenser it must be equipped with explosion proof leak detector.		
Pump Cover (if Applicable) and Remote Pumping Centers (RPC) are available in fiberglass, aluminum or stainless steel construction.		
 Proposed 2" HDPE Suction Piping	 Proposed 2-3" HDPE Discharge Piping	 Dock sections identified with this marking are proposed and may not be included in phase 1 construction.
 Slipside Safety Hydrant - In Slip Connection To Vacuum PumpOut System. Requires Portable Hose Cart W/ Mating Safety Valve To Open	 Portable Aluminum Hose Cart W/ Accessory Basket. Includes Up To 70' Of KECO Suction Hose. Pump Activation By Integrated Wireless Transmitter Or Wired Remote Control	

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Clarksville Marina

Clarksville, TN.



Vacuum Type System, Sample Landside Installation

# Centralized PumpOut Systems



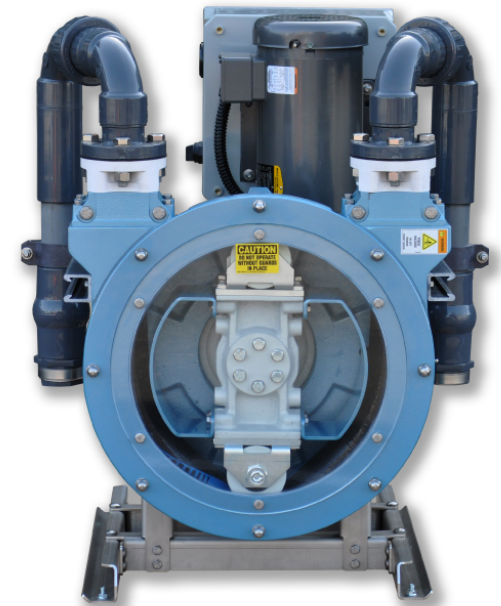




Peristaltic Type System, Sample Dockside Installation

# Industry Trend

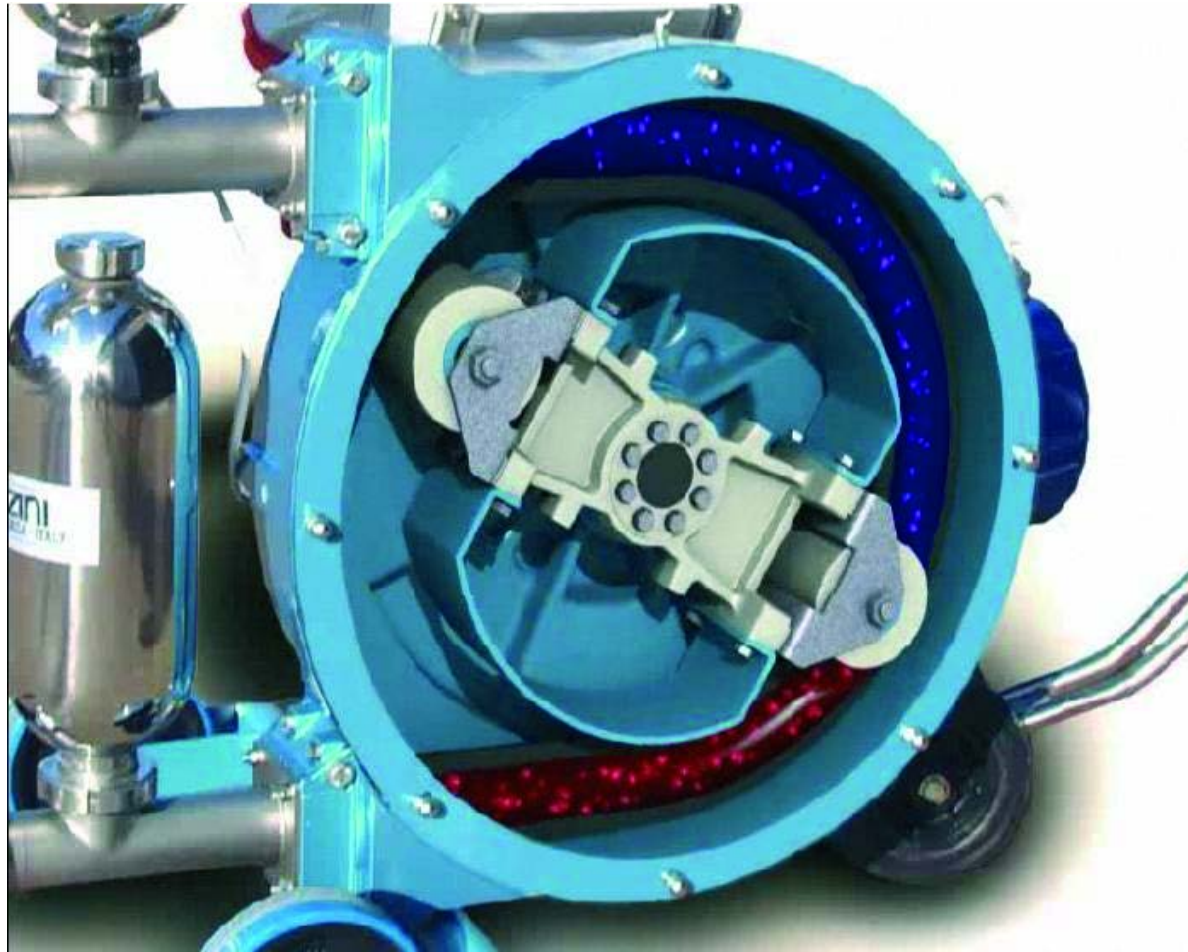
- Use Of Peristaltic Type Pump
- Locating Pump On/At Dock Level
- Duplex / Redundant Pumps
- ½ Mile Suction Piping
- Volumes To 100 GPM



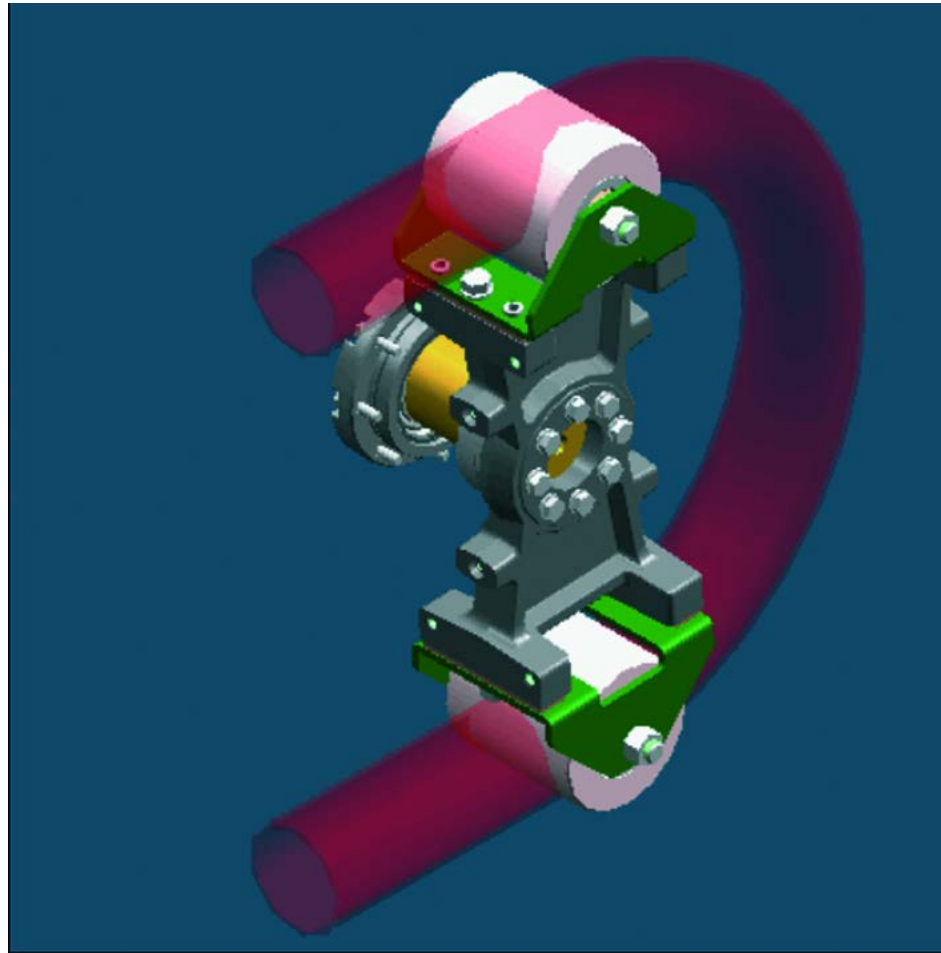


Peristaltic Type System, Sample Dockside Installation

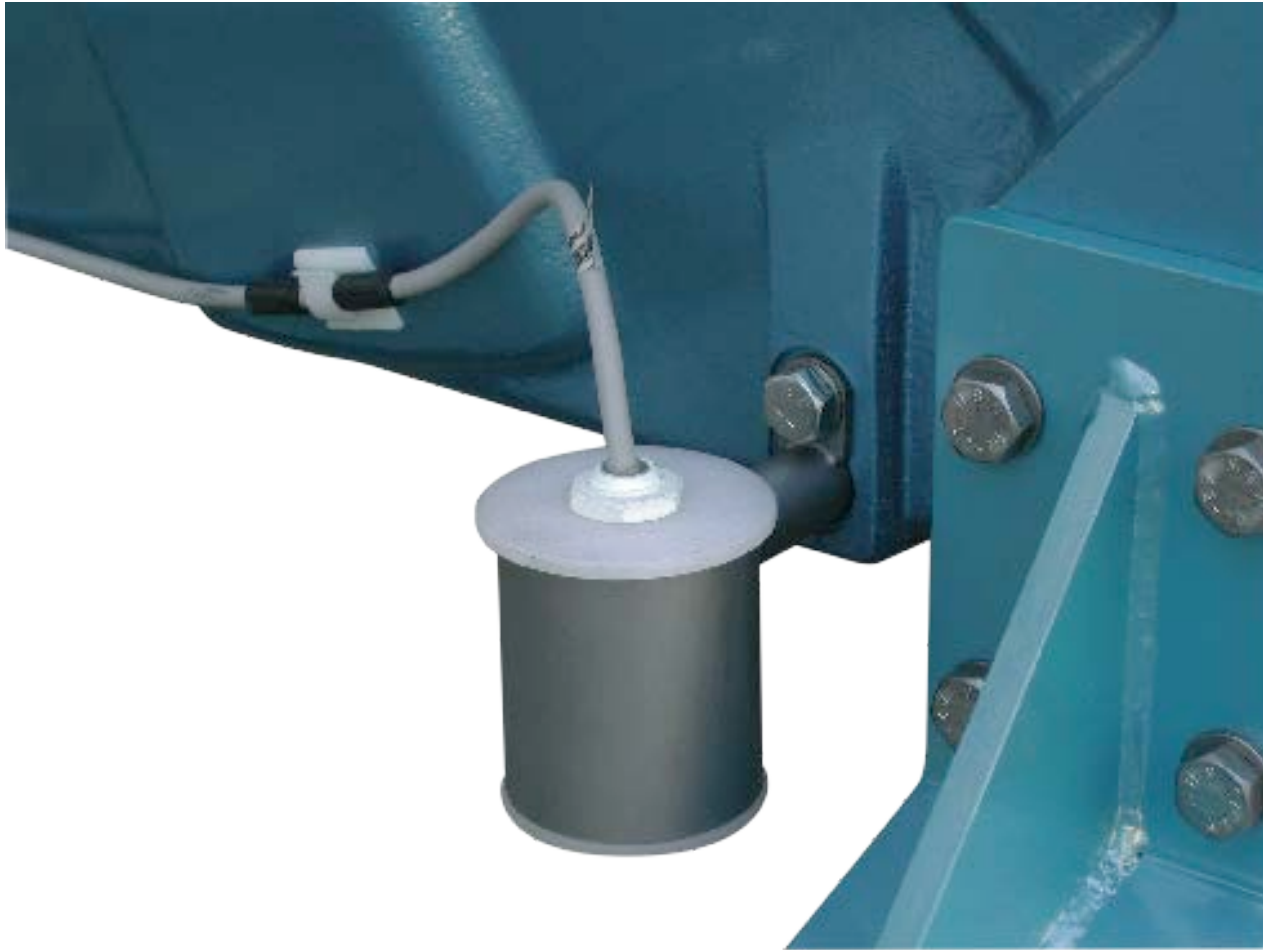
# Peristaltic Pump



# Single Wear Item



# Leak Detector



# Piping

- HDPE : High-Density Polyethylene
  - Rated For Vacuum and Pressure
  - Fused Together
  - Resistant To UV
  - Flexible



# Pipe Testing





# Hydrants



Provide Convenient Access to  
Vacuum PumpOut System

# Safety Hydrant



Requires Mating  
Valve to Open.

Forces User To  
Close Valve After  
Each Use

Drip & Tamper  
Resistant

# Hose Carts

Transportation  
of Suction Hose  
To Hydrant

Typically Include  
Wireless Pump  
Controller



# Monitoring

Logs Equipment Run Time + Cycles

Universal – Any Pump New or Existing

Automated Reports and Service Logs

Instant Notifications Via Text, Email, Phone

- Power Loss

- Leak Detector

- High Motor Current

- Abnormal Activity

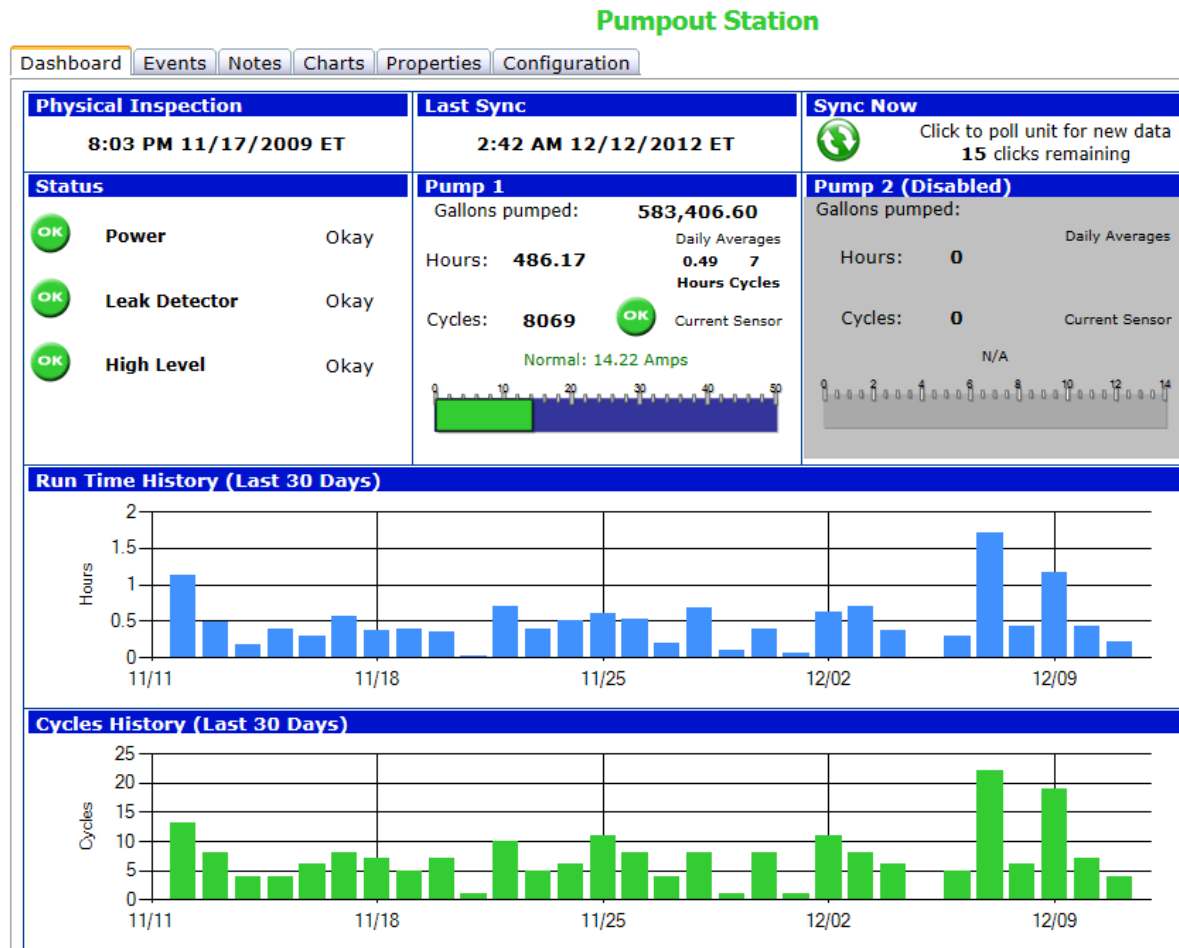
Required By California Department of Boating & Waterways on All CVA Funded PumpOut Systems



# Monitoring

Data Is  
Wirelessly  
Transmitted To A  
Secure Web-  
Based Software  
Application.

Access &  
Reports Are  
Accessed By  
Authorized  
Personnel





# MarineSync CVA Report

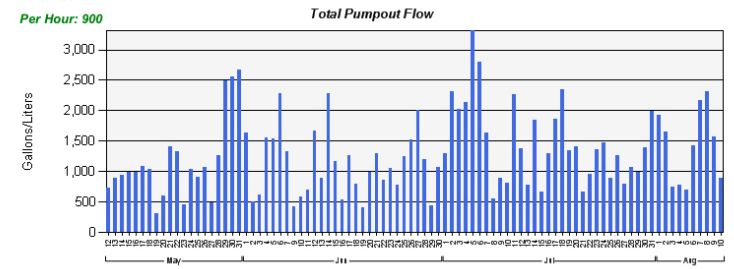
System: California

Pumpout: Police Dock - Shelter Island (S/N 10002)

Report Period: 5/11/2010 1:11:18 PM - 8/10/2010 1:11:18 PM

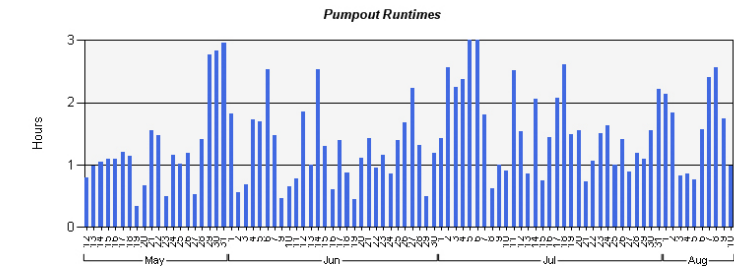
## TOTAL PUMPOUT FLOW

Units: Gallons  
Per Hour: 900



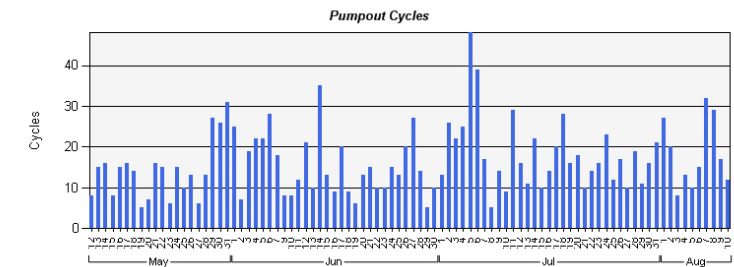
Total	115,603
Avg. Per Day	1,257
Max Day	3,308

## PUMPOUT RUNTIMES (h:m:s)



Total	128:26:52
Avg. Per Day	1:25:38
High Day	3:40:31
Low Day	0:20:23

## PUMPOUT CYCLES



Total	1,480
Avg. Per Day	16
High Day	48
Low Day	5

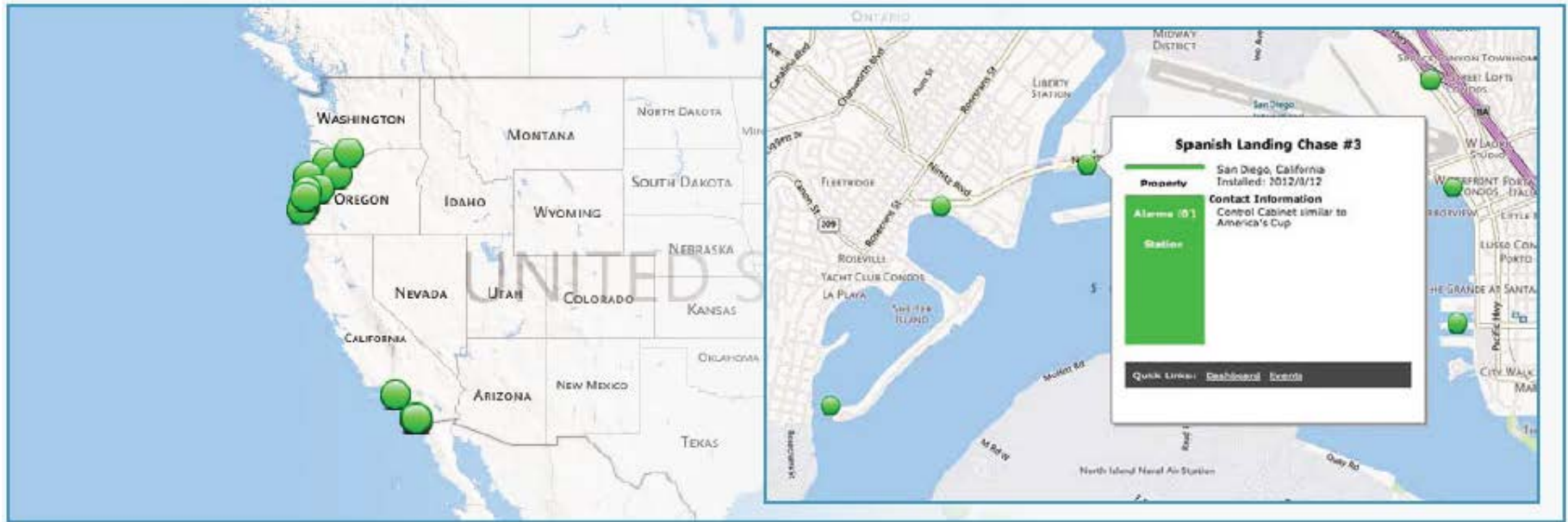
# Monitoring

Automated Reporting & Notifications

Service Personnel and/or Agency



# Monitoring



Location is identified on the map with a real-time status dot. A green dot signifies the device is operating normally and a red dot represents an alarm

# Recommendations:

- **Accessibility:**
  - Logical Placement
  - Encourage Centralized Systems
  - Recommend Backup Solutions
- **Reliability:**
  - Inspected On a Regular Basis
  - Simple To Test
    - Gallon Bucket
    - Vacuum Gauge
  - Use Monitoring Systems for accountability
- **Education:**
  - New Construction & Maintenance Money Available
  - Web portal Map for Boaters





# Bonus | Do's & Don'ts



# Restroom Facility



# Restroom Facility



# Floating PumpOut



# Solar PumpOut Station





Do: Dedicated PumpOut Dock



Don't: Allow Sewage Hoses To Look Like This



Do: Offer Multiple PumpOut Points





Don't : DIY – Oil Water Separator



Don't Use Duct Tape To Repair PumpOut



Don't: Install PumpOut Station On Land