

Overview:

A Thern davit (model 5110) will be anchored to the deck by means of (4) Hilti TZ304 wedge anchors (spec to be determined by structural engineer). This is a davit that can pivot 360 degrees side to side and boom in and out. Additionally, a cable spool/hand winch will be mounted in the same fashion near the davit.

An pyramid anchor of 150 pounds will be attached to the davit by a removable wire rope (ball end), from the 55' deck. The davit will hoist the anchor into the air and then the davit boom will be rotated over the handrail and the anchor lowered into place, approximately 2'-3' from the wall of the dam. Once the anchor is resting on the bottom, the wire rope ball end would be removed from the davit and attached to the hand winch/cable spool. Excess wire rope would be taken onto the spool as needed. This will now be called the "Transit Rope"

The Pump/Filter Canister assembly is now attached to the davit via an identical wire rope that is mounted to the pump, this line will now be called the “lifting rope”. Using the davit, the canister is hoisted from the deck into the air by the lifting rope and swung over the handrail. The canister would now be lowered slightly and attached to the “transit rope” by means of carabiner or similar mechanism that allows the canister to slide up and down the transit rope and is easily unclipped for potential pump replacement.

Now the Pump/Filter Canister can be lowered into position with the electrical supply and FlexPVC attached, it will have abrasion buffers for contact with the concrete wall.

At approximately 10 foot intervals along the assembly a bundling device will be installed. This would clamp tightly to the water supply flex PVC on one side and on the other would clamp to a short cut-off of flexPVC that will act as a conduit/passthrough for the lifting rope and electrical. This will keep everything together as one bundle, isolate the components from wear, allow the system to travel vertically on the transit rope, and be easily removable for pump replacement.

In the end we will have the pump canister in the water, supported by a ¼” SS wire rope with its movement restricted by the transit rope/anchor. The system could be deployed by a single person, but two would be best. The resting elevation of the pump will be adjustable by length of cable let out from the davit.

#### **PUMP FAILURE**

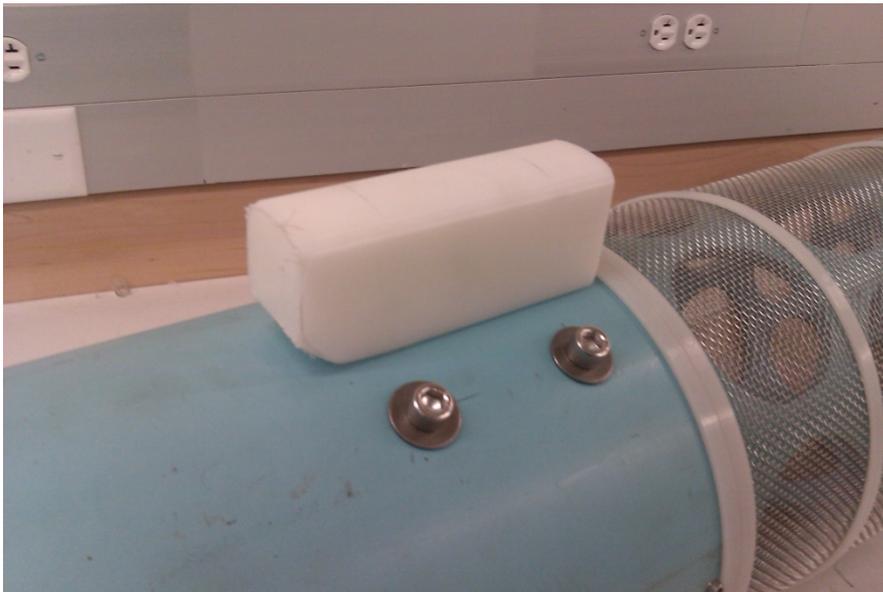
In the event of a pump failure, a float switch in the upwelling box will sense the drop in water level. This will close the switch and activate an alarm light. The alarm and float switch are a 120 volt system and will be plugged into one of the available outlets on the curbing.

Personnel would then use the davit to hoist the pump canister up the transit rope, disconnecting the bundlers as needed. Once above the handrail, the canister can be rotated onto the deck where a backup canister is installed. This canister will be provided in a ready to deploy arrangement with electrical and lifting cable installed, to be stored in the AFF building.

This process should take 1-2 hours to complete and a laminated copy of instructions for pump replacement will be affixed to the system for reference.



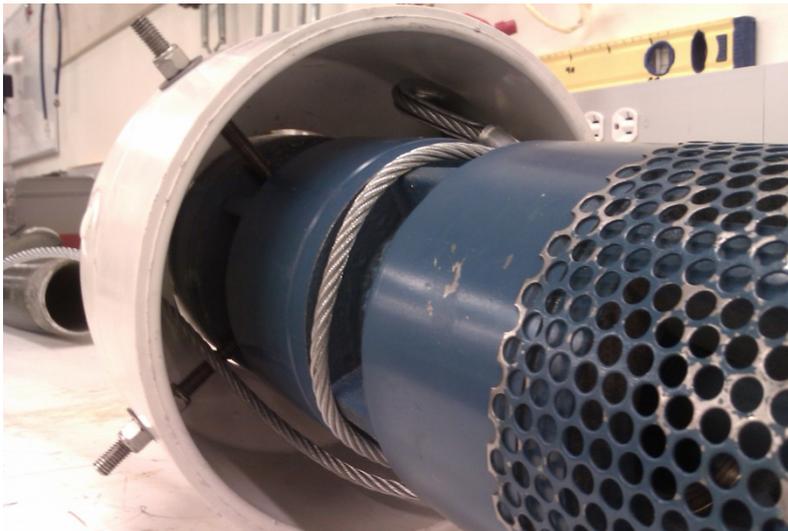
Looking into canister from top – HDPE blocks for centering of motor at lower end.



Example of HDPE centering block and attachment to canister. Bolts are 3/8" SS with large SS washers.



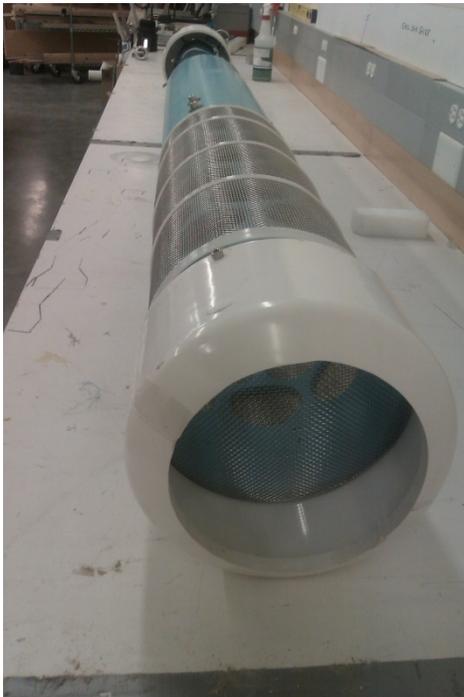
View of top canister cap with SS all thread centering/locking pins. Pump is blue, motor is silver. Note the electrical and hoisting cable that pass through the cap and the 3" FPT connection for the plumbing.



View from opposite direction showing the centering pins and hoisting cable. Hoisting cable is  $\frac{1}{4}$ " Stainless.



Assembly, ready to slide together.





Assembled Canister



Layout of plumbing, not the correct sizes though.



Assembly