

12 Volt Stainless Steel Proactive Environmental Products®

Pump Groundwater Sampling Review 5-2011

**Reviewed by**

CITY OF

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Environmental Technician / Water Quality Lab

**Technology Description:** The Proactive Environmental Products® Stainless Steel 12 volt Pump (here-in referred to as Proactive® 12 volt SS pumps) uses a 12 volt DC battery as a power source and is constructed of three high polished stainless steel parts: quick-field-replaceable motor module, motor housing top connector, and outside pump housing. A 12 volt motor module is positioned within the center of a stainless steel outside pump housing to create a continual centrifugal movement of water. The Proactive® 12 volt SS pumps are used in conjunction with a 12 volt LCD display flow controller. The controller, when hooked up to a 12 volt source, operates the Proactive® 12 volt SS pump.

**Simplistic Operation** At the time we were introduced to Proactive® 12 volt SS pumps we were using mostly bladder pumps. We purchased a SS Hurricane Pump® and quickly learned that this was a very simplistic approach to purging and low flow sampling for wells we cannot dedicate pumps. Soon after using the 12 volt SS Hurricane pump® we reviewed streamlining and considered the bladder pumps that require air compressors, gas canisters and more manual set-up and maintenance. We have since replaced the use of bladder pumps by dedicating 12 volt SS Sample Champs® in wells for a portion of the site. In the instances where we cannot dedicate pumps, we use the portable 12 volt SS Hurricane®. The set-up and decontamination process is simple and user-friendly. We connect the tubing to the pump and lower the pump into the screened well casing. Using the locking handle on the stainless steel reel, we lock the pump in place. We then connect the Proactive® 12 volt SS pump terminal on the end of the controller wire to the terminal mounted on the stainless steel reel. It may vary if we use a portable 12 volt deep cycle marine battery or our truck battery depending upon remote wells. The alligator clips on the controller wires hook up to the battery and we manually increase the flow by using the controller's 'flow dial' turning it clock-wise. This clock-wise motion on the 'flow dial' communicates to the motor module impeller to spin faster, hence lifting more water at a higher purge. To decrease the flow to achieve a low flow sample, we manually turn the "flow dial" counter-clock-wise. After familiarizing ourselves with the LCD voltage display on the controller, we were able to create flow rate curve/chart for our wells. Incorporating the low flow valve further increased the control on our low flow samples for VOCs. Decontamination between

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wells is easy being that the water flows around the motor and not through the motor so only stainless steel is introduced to the samples.

**Manufacturer:** Proactive Environmental Products® / Bradenton, FL

**Supplier:** Groundwater Essentials / Sarasota, FL

**Product Name:** Proactive Environmental Products® 12 Volt SS Hurricane Pump® and SS Sample Champ Pump® / groundwater pumps

**PROJECT NAME:** On Site    **SITE LOCATION:** FL    **APPLICATION:** Low Flow Sampling/VOC

**PREVIOUS PUMPS USED:** Bladder Pumps

**BRIEF SUMMARY OF SAMPLING PROCEDURES:** This test was designed to review the reliability of Proactive® 12 volt SS pumps for VOC sample integrity and temperature in comparison to the bladder pumps. In the section below, data collection methods such as low flow sampling or other means of groundwater sampling or purging retrieval, include temperature readings for the sample before and during use of the Proactive® 12 volt SS pumps.

As the results in the chart below reflect, there is minimal to no temperature change from before using the Proactive® 12 volt SS pumps and during, nor did we find a change in sample integrity using the Proactive® 12 volt SS pumps in comparison to the bladder pumps. Additionally, the pump proved to allow for more low flow control.

**TOTAL DEPTH OF WELLS (sampled in feet) total of 9 wells at this site**

Well Id	Pump Level (Ft.)	Temp @ initial purge ( °C )	Temp during sampling ( °C )	Pump run time (min)	Purge rate (gpm)
MW50	95	20.7	20.8	60	0.2
MW47	62	20.1	20.2	25	0.6
MW48	80	21	21.1	15	0.75
MW45	80	21.6	21.7	35	0.5
MW56	100	21.3	21.3	20	0.65
MW55	100	21.3	21.3	25	0.5
MW51	80	20.4	20.4	25	1.2
MW49	80	20.5	20.5	10	1
MW36	80	21.8	22.3	90	0.125