

HYDRO-ACTION[®] **INDUSTRIES**

**Class I NSF/ANSI Standard 40
Wastewater Treatment Plant**

AP Series Owner's Instruction Manual

On-Site Wastewater Products

Dealer Inquiries, Product & Technical Questions:

2055 Pidco Drive / P.O. Box 640

Plymouth, IN. 46563

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Fax: 574.936.5811

www.hydro-action.com

AP Series Wastewater Treatment Plants

The AP Series Aerobic Treatment Units (ATUs) are now available through **Hydro-Action® Industries**. Please read this introduction before reviewing this manual.

Earth's environment has purified water through natural processes since the beginning of time. Only recently, beginning in the Twentieth Century, has man developed a system to accelerate the processes that Mother Nature uses. **Hydro-Action® Industries'** AP Series ATUs is just such systems.

In 1916, the City of Houston, Texas, was the first to use the activated sludge wastewater treatment process as an accepted, full-scale system process to purify domestic wastewater. Since that time, the United States and many other nations have utilized this process and variations to properly treat sewage. Federal Law 92-500 supports our nation's commitment to provide secondary treatment for all domestic wastewater.

This commitment is presently being extended to on-site sewage treatment facilities. **Hydro-Action® Industries** has been a visible part of this effort since 1989. We have manufactured numerous products to provide individuals with a means of proper, effective, efficient, and affordable on-site wastewater treatment. Our professional commitment to market needs and customer service have enabled us to reach our goal of providing effective products that assure a safe, reusable effluent. We are helping Mother Nature protect our environment and our most valuable natural resource: water.

Our continuing mission is to develop and manufacture individual on-site wastewater treatment facilities that meet society's needs in the field. This manual is a part of that dedication to customer service.

Hydro-Action® Industries' AP Series Aerobic Treatment Units are among the most advanced on-site products available today. They are state-

of-the-art extended aeration, activated sludge wastewater treatment facilities. The improvements in these units make them not only extremely efficient operational units but also the most easily maintainable system in the industry.

By following the instructions in this manual, you will be providing yourself with the best on-site wastewater treatment and service. We invite you to share in our pride of the AP Series Treatment Units.

This manual includes information on the AP-500, AP-600, AP-750, AP-1000G & AP-1500G wastewater treatment plants. These units may be installed with either a platform mounted OPS® (operations/control center) or a Remotely Located OPS®. Installation needs vary, so your on-site wastewater system may contain some of the following auxiliary components along with the treatment plant:

- Pretreatment tank
- Pump/holding tank
- Alarm systems
- Equipment for chosen effluent disposal method (drip irrigation, spray irrigation, gravel-filled drain field, pressure dosing, etc.)
- Chlorinator

The certified **Hydro-Action® Industries** dealer who installs your **Hydro-Action® Industries** AP Series wastewater treatment plant is responsible for completing and submitting to us the Installation Warranty Sheet found in this manual to properly activate your **Hydro-Action® Industries** Product Warranty.

We are eager to assist you with any questions or problems. Please contact **Hydro-Action® Industries** at 800.462.6072 to request assistance from our Customer Service or Engineering Departments.

Process Description

The **Hydro-Action® Industries** AP Series individual wastewater treatment plant is a self-contained, extended aeration, aerobic treatment facility utilizing the activated sludge process. The plant consists of a cylindrically shaped aeration tank with an offset service access, a unique cone shaped clarification compartment, and an outlet tee-assembly. Two fine-bubble air diffuser assemblies with ceramic stone diffusers and **Hydro-Action® Industries'** efficient air pump are combined to provide effective, efficient, and economical aeration.

Domestic wastewater enters the aeration compartment and is mixed thoroughly with the already present mixed liquor suspended solids (MLSS) activated sludge. The injection of air through the porous ceramic air diffusers placed near the bottom of the aeration chamber is responsible for this complete mixing. The fine-bubble air diffusers and the vortex area between diffuser assemblies produce a generous quantity of dissolved oxygen and ample mixing that maintain a desirable aerobic environment even under extreme conditions.

Hydraulic displacement causes the mixed liquor to enter the clarification compartment and move upward toward the outlet tee-assembly. Due to the calm conditions in the clarifier, suspended solids settle to the bottom where they are remixed with the MLSS for additional biological treatment. The remaining clarified effluent leaves the plant via the outlet tee-assembly and discharge line.

The AP Series ATUs are operated by the OPS®. The OPS® integrates the electrical controls, visible and audible alarms and air pump in a protective polyethylene enclosure. The OPS® can be either platform mounted on the plant or remotely located. These features plus offset access and flexible air hose anchored diffuser assemblies make the plant extremely reliable and easy to service. An additional optional alarm may be used to remotely locate visible and audible alarms to the location of your choice.

The technology used in the **Hydro-Action® Industries** plant allows it to produce excellent effluent quality, which thereby meets all ANSI/NSF International Standard 40 Class I and the Environmental Protection Agency's requirements of a secondary treatment process. NSF requires that a Class I plant shall be shown to meet EPA secondary treatment guidelines for CBOD₅, TSS, and pH. The **Hydro-Action® Industries** AP Series ATUs satisfy all these requirements.

Operating Instructions

Your **Hydro-Action® Industries** ATU has been designed and built to provide efficient, dependable and reliable service. However, as with any individual wastewater treatment plant, routine periodic service is required. When proper preventive maintenance is performed, the ATU will operate at designed performance levels giving years of satisfactory treatment of domestic wastewater.

The local dealer from whom you purchased your **Hydro-Action® Industries** plant will perform all routine inspections for the first two (2) years from the original date of installation. At the time of inspection the plant will be checked for proper operation. If a problem exists, service will be performed at no charge to the owner if the required maintenance is warranty related. At the end of the two (2) year initial service period, your local dealer will make available a continuing service policy. This extended service is available for a nominal fee.

The **Hydro-Action® Industries** ATU's electrical controls are located within the OPS® of the plant. The OPS® may be either remotely located or platform mounted. The OPS® enclosure is equipped with an alarm beacon and an audible alarm. Also on the enclosure will be the name, address and telephone number of your local servicing dealer. It is this local installer you should contact regarding any problems with your **Hydro-Action® Industries** ATU. An optional remote alarm with audible and visible alarms may also be present. See "Plant Troubleshooting

Guide” section in this manual for instructions on what to do if the alarm beacon or audible alarm sounds. After a power failure, if an alarm remains on for more than 30 minutes you should call the local dealer immediately.

The **Hydro-Action® Industries** plant will handle all domestic wastewater from your home. By the term wastewater we are referring to rapidly biodegradable material. To keep maintenance at a minimum level and to prevent the plant from malfunctioning, the following guidelines must be followed:

Since aerobic bacteria are responsible for treating the wastewater, inorganic or non-rapidly biodegradable materials should not be put into the plant. Examples of improper items are: plastic products, rubber products, sanitary napkins or tampons, washcloths, cigarette butts, melon seeds, coffee grounds, egg shells, matches and some food items such as corn husks, grape vines, etc.

- Do not dispose of cooking grease or large amounts of oil into plant; instead pour it into a container and dispose of it properly.
- To minimize pump-out frequency, limit use of garbage disposals.
- Lint from lint catchers, hair, etc., should be disposed of in the trash and not washed down the drain.
- Water softener backwash must not be routed through the system. Another source of disposal should be used.
- Diapers can be rinsed out in the toilet; however, do not flush cloth or disposable diapers down the toilet.
- Large amounts of harsh chemicals, high-suds detergents, disinfectants or any substances (including medications, particularly antibiotics) that kill bacteria, must not be discharged into the plant.

- The plant will not perform to its fullest capabilities if volumetric overload is allowed to occur. This occurs whenever excessive water, above the designed flow rate, is allowed into the plant. Excessive water use or leaking plumbing fixtures may cause this condition.

Other than for the mechanical and structural working of the plant itself, **Hydro-Action® Industries** is not responsible for the in-field operation of a plant. The proper operation of this or any other individual wastewater plant depends upon proper organic and hydraulic loading of the plant. We cannot control the loading and thereby control the amount of harmful substances that may be discharged into the plant. Only the users of a plant can control what enters the unit. Therefore, we provide this comprehensive user manual to outline just what substances to keep out of the plant.

Maintenance Schedule

Normal maintenance of your **Hydro-Action® Industries** plant will include:

- a. Maintain aeration system and air diffusers — Check every six (6) months
- b. Maintain air pump — Check every six (6) months
- c. Remove scum from clarifier — Check every six (6) months
- d. Inspect and test plant alarms — Check every six (6) months
- e. Pump excess sludge from plant — Two (2) to six (6) years

Note 1: Replacement parts can be obtained from your installing or servicing dealer. Refer to the **Hydro-Action® Industries** Plant Parts List.

Note 2: Pumping the plant is usually necessary every two (2) to six (6) years; however, there is

no set time because loadings vary from household to household. Access to the plant is accomplished through the 24-inch access opening, which is at surface grade. When a **Hydro-Action® Industries** plant is being pumped, a qualified service technician should oversee the job. Care should be taken not to damage internal components and the plant should be washed and cleaned while it is being pumped. All waste from the plant must be disposed of in compliance with all federal, state and local laws.

Compliance With Law

All permits and approvals from the local regulatory body should first be obtained before the **Hydro-Action® Industries** plant is installed. All state and federal laws should be obeyed in areas that do not have local control over environmental activities.

It is important to remember that each state has independent regulations and guidelines for the installation of this treatment plant and any auxiliary equipment that may accompany the plant. You are responsible for installing this plant and associated ancillary items in accordance with all regulations and guidelines as they are issued in your respective state. If such items as pretreatment tanks, storage or equalization tanks, chlorination facilities, pump tanks, etc. are required by law, then it is the intent of this company to comply to the letter of the law.

Hydro-Action® Industries, through its years of experience, recognizes the advantages of every component of the wastewater treatment system. Because of this experience we can recommend to you those parts of a system that are beneficial to the overall system and those that are also compliant with the laws in your state. Please call our Customer Service Department for assistance or inquiries at 800.462.6072.

Plant Start-Up

Upon ATU start-up, no additional procedures are required. The system has been filled with water, and the air pump, electrical controls, and alarms are functional per installation checkout. Turning on the electrical power is all that is required for you to start using your facilities.

Even after a short or extended vacation, your system will begin to operate as designed once use is initiated and maintained. In just a few days the system should return to normal operation and you should see a clear, clean discharge having very little or no odor. If not, call your service provider for assistance and a plant inspection.

Plant Troubleshooting Guide

The **Hydro-Action® Industries** plant has proven to be very effective and reliable in the treatment of domestic wastewater. The problems outlined here occur only in a very small percent of total installations. They can all be corrected and most can be prevented.

When calling for service, describe the problem in detail and determine the plant age and service history from your records. You will need to provide the service technician with the model numbers of the treatment plant and the OPS®. These are found on data plates on the treatment plant and either the Platform Mounted OPS® or Remotely Located OPS®. Example: plant model AP-500, OPS® model 50-20.

If routine servicing does not solve the problem, additional steps/maintenance, repair and/or replacement of defective parts may be required. Your service representative should perform these system inspections to assure adequate and proper operation of the wastewater treatment plant.

1. Proper Installation Check

Inspect plant to verify that **Hydro-Action® Industries** plant is installed properly and is not damaged. Plant should be level and internal components should be in proper place and working order. Check to see that effluent disposal method is allowing for proper level to be maintained in plant. High level in plant can adversely affect performance.

2. Proper Treatment Check

After determining that the **Hydro-Action® Industries** plant is installed properly and is not damaged, inspect the plant's operation and maintenance status to determine if the plant is performing correctly. To do this a technician runs a sludge volume test to check the operation characteristics. Clarity and color of effluent, along with odor, will be inspected. Air delivery and pressure will be measured. Adjustment and repairs to the system will be made as required by following factory recommended guidelines. Corrections to the plant by a qualified service technician can keep the plant operating properly.

Alarm System Check

The alarms supplied with this plant provide the owner with a secure, reliable, dependable, and economical means of notification for most malfunctions of the plant that would lead to producing an unsatisfactory effluent. These alarms include notification of air pump failure, aeration piping malfunctions, and high water level. These alarms need to be inspected and tested during each plant operation and maintenance site visit.

The AP Series plant is equipped with a high-level sensor float. If the system is equipped with a pump/holding tank to remove effluent, this tank will also

contain a high-level sensor float. The outside face of the OPS® enclosure is equipped with visible and audible alarms to alert you of high-level conditions and air pump malfunctions. An optional remote alarm, with visible and audible alarms, may also be present. If the alarms are activated on OPS® models 50-11, 50-20, 50-30, & 50-32, a service technician should be called to determine the cause and make corrections. To silence audible alarm while waiting for service technician to arrive, locate the switch on outside face of the OPS® enclosure labeled "normal/silence" and push it to the "silence" (right) position. Alarm beacon will remain illuminated until alarm condition is solved.

OPS® models 50-30, and 50-32 are typically used with night spray application. Night spray systems are designed to store daily water usage during the day in a pump/holding tank and apply the effluent to the lawn at night. If you exceed the system's designed daily flow rate (due to having houseguests, doing multiple loads of laundry, etc.) the storage capacity of the pump/holding tank can be exceeded, activating audible and visible alarms. If the alarms are activated, silence audible alarm by locating the switch on outside face of the OPS® enclosure labeled "normal/silence" and pushing it to the "silence" (right) position. Alarm beacon will remain illuminated until alarm condition is solved.

If alarm conditions persist even after high-level condition has been corrected, a service technician should be called. The problem could be due to a malfunctioning water pump or high-level float, or a plugged discharge. A malfunctioning high-level sensor float could give a false high-level alarm. This problem left uncorrected will lead to system failure and

improper wastewater treatment and therefore requires immediate attention. OPS® model 50-30 is equipped with an automatic high-level override.

3. Check to Determine When Plant and Other Tanks Need Pumping

High solids level in the plant and/or other auxiliary tanks can cause improper functioning of the system. **Hydro-Action® Industries** plant inspection and service should be performed a minimum of every six (6) months. This inspection and service includes performing a sludge volume test, which is an indicator of plant performance.

When sludge volume reaches 60% to 80% it is time to pump the plant and pretreatment tank (if included). This is usually necessary every two (2) to six (6) years.

Safety

Safety is an important issue in our business since we deal with one of the more potentially health hazardous materials known: raw sewage. Domestic wastewater carries in it members of a specialized group of life known as microorganisms. Such microorganisms are bacteria, viruses, algae, actinomycetes, protozoa, fungi, rotifers, crustaceans, and other members of both the plant and animal worlds. The function of a wastewater treatment plant is to treat the water to a degree that the effluent is relatively free of pathogenic bacteria and nuisance microorganisms. Until the wastewater entering the plant has had sufficient time for treatment and disinfection, it may contain any number of the harmful organisms that cause disease.

As raw wastewater may and usually does contain some level of unsafe microorganisms, proper respect and care must be given to safety. Whenever you come into contact with raw

sewage, do not fear the contact, but do take proper precautions to avoid potential danger.

Follow these simple safety precautions whenever exposed to wastewater:

- Wear disposable rubber gloves when handling wastewater contaminated items or chlorine tablets.
- Always wash with soap and water after handling any contaminated item. The use of good bactericide soap is strongly recommended.
- Always dispose of scum, rags, trash, debris, or soiled material in a proper waste container.
- If a wastewater spill or leak occurs in a yard, flush area with plenty of clean water and disinfect. If a spill or leak occurs in the house, clean with a dilute solution of bleach.
- Protect any injury, wound, open cut, etc. from exposure to wastewater. Prevention is always better and easier than curing a disease.
- If an illness or disease is suspected to have come from exposure to sewage, get proper medical attention immediately. When proper treatment is given the remedy and cure will be rapid and less of a problem. There are some serious diseases that could be transmitted by contact with raw sewage — take the proper precautions and be safe!

Limited Warranty

AK/HA Manufacturing, LLC, d/b/a **Hydro-Action® Industries** (“**Hydro-Action® Industries**”), warrants each **Hydro-Action® Industries** aerobic wastewater treatment plant (“plant”) to be free from defects in material and workmanship for a period of two (2) years from the date of installation by an authorized **Hydro-Action® Industries** dealer for the end user when properly registered with **Hydro-Action® Industries**. The sole remedy under the LIMITED WARRANTY is as follows: **Hydro-Action® Industries** may, at its sole option, replace or exchange any component part, F.O.B. factory, that in **Hydro-Action® Industries**’ reasonable judgment shows evidence of defects in material and/or workmanship, provided said component part has been paid for and is returned through an authorized **Hydro-Action Industries®** dealer, transportation prepaid, to **Hydro-Action® Industries** at 2055 Pidco Drive Plymouth, IN. 46563. The end user must at that time also specify the nature of the defect, in writing, to **Hydro-Action® Industries** at the same address. The LIMITED WARRANTY does not make any provision for an informal dispute settlement arrangement.

The LIMITED WARRANTY does not cover **Hydro-Action® Industries** aerobic wastewater treatment plants and related components that have been flooded, by external means, or that have been disassembled by unauthorized person, improperly installed, subjected to external damage or damage due to altered or improper wiring or overload protection.

Recommendations for special applications will be based on the best available expertise of **Hydro-Action® Industries** and published industry information. Such recommendations do not constitute a warranty of satisfactory performance under the end user’s specific conditions.

No warranty is made as to the field performance of any systems. The LIMITED WARRANTY applies only to the parts manufactured by **Hydro-Action® Industries** and does not include any portion of the plumbing, drainage, house wiring or installation of the plants. Accessories supplied by **Hydro-Action® Industries**, but manufactured by others, are warranted only to the extent of and by the terms and conditions of the original manufacturer’s warranty. In no event shall **Hydro-Action® Industries** be responsible for delay or damages of any kind or character resulting from, or caused directly or indirectly by, defective components or materials manufactured by others.

The LIMITED WARRANTY extends solely to the end user of this product. The end user is defined as the purchaser who first has the plant installed, or in the case of a plant designed for non-permanent installation, the purchaser who first uses the plant. It is the end user’s obligation to make known to any other consumer the terms and conditions of this LIMITED WARRANTY.

Hydro-Action® Industries reserves the right to revise, change, or modify the construction and design of the **Hydro-Action® Industries** aerobic wastewater treatment plant, or any component part or parts thereof, without incurring any obligations to make such changes or modifications in previously sold equipment. **Hydro-Action® Industries** also reserves the right, in making replacements of component parts under this LIMITED WARRANTY, to furnish a component part, which, in its judgment, is equivalent to the part replaced.

This warranty is a LIMITED WARRANTY. No claim of any nature shall be made against **Hydro-Action® Industries** unless and until the end user, or their legal representative, notifies **Hydro-Action® Industries**, in writing, of the defect complained of and delivers the product and/or defective part(s), freight prepaid, to **Hydro-Action® Industries** at 2055 Pidco Drive Plymouth, IN. 46563.

This LIMITED WARRANTY does not become effective until the installing authorized **Hydro-Action® Industries** dealer completes and submits the warranty sheet found in the manual, with the term of the LIMITED WARRANTY then deemed to have begun immediately upon installation of the plant by the installing dealer.

HYDRO-ACTION[®] **INDUSTRIES** **Warranty Registration**

Hydro-Action[®] Industries
2055 Pidco / P.O. Box 640
Plymouth, IN. 46563
800.462.6072

***This form must be filed with Hydro-Action[®] Industries by the dealer
within 30 calendar days after installation or all warranties are void.***

Owner/User _____
Address _____
City/County/State/Zip _____
Phone _____
Best time to be reached _____

Dealer/Installer _____
Address _____
City/State/Zip _____
Phone _____
Distributor (if applicable) _____

Service will be performed by: _____
Name _____
City/State/Zip _____
Phone _____

Type of Installation: Residential _____ Commercial _____
Number of residents or occupants _____ Garbage disposal? Yes _____ No _____
Date Installed _____
Plant Model # _____ OPS[®] Model # _____
Plant Serial # _____ Air Pump Serial # _____
Effluent disposal method & equipment used _____

Controlling Regulatory Agency: _____
Agency _____
Sanitarian _____
Address _____
City/State/Zip _____
Phone _____



Homeowner Care of a Residential Aerobic Wastewater Treatment System

All Aerobic Wastewater Treatment Systems are suspended growth floating bio-mass systems designed to treat common household sewage only.

In plain language, this means that the systems contain and depend on an aerobic (oxygen-requiring) bacterial colony which, when well cared for, digests and treats household sewage just as aerobic bacteria clean groundwater in nature. This is why aerobic systems have an air pump and air distribution piping – for supplying the aerobic bacteria with oxygen. Bacteria, however, can't eat just anything and everything. For a listing of things to avoid feeding to an aerobic bacterial system, see below.

Normal maintenance is required on all aerobic treatment units, as they are activated sludge sewage treatment systems just like large municipal water treatment plants. Our factory-trained Hydro-Action Industries installers or service technicians regularly service our installations, checking to be sure that these systems are in proper working order.

Aerobic systems are not designed for disposal of solid waste or chemicals. If homeowners stay within the guidelines listed below, their systems should function properly as sewage treatment systems and should not require unscheduled maintenance or frequent expensive pump-outs.

What **NOT** to put in an aerobic treatment system:

- Non-biodegradable items such as cigarette butts, match sticks, disposable diapers, feminine hygiene products, condoms, hair, coffee grounds, rags, paper towels, bandages, etc. These are solid-waste items and should be disposed of in regular trash service.
- Greases, fats or oils. This includes cooking oils and meat or meat grease.
- Pesticides, herbicides, photographic chemicals or other toxins.
- Paints, thinners or household chemicals, including many cleaning compounds, and mop-bucket water.
- Water softener unit backwash.
- Citrus products, oranges, lemons, grapefruit, etc.
- Home-brewery or winemaking wastes.
- Strong medicines, particularly antibiotics.
- Antibacterial soaps and antibacterial laundry detergents should be avoided. These are the current marketing rage, but overuse will only breed resistant strains of bacteria in the home, and kill the aerobic action in the treatment system.
- Strong disinfectants or bleaches, particularly products containing chlorine or ammonia.
- Commercial septic tank additives; they do more harm than good.
- Kitchen garbage grinders (disposals) should be used sparingly, if at all. Dispose of food waste in a solid waste bin or compost heap. Food waste represents additional loading on the aerobic plant, possibly causing organic overloading and more frequent pump-outs of the system.

Volumetric Overload of an Aerobic System

Our system is rated for a maximum volume throughput per day, ie. 500 gallons per day (GPD) for an AP-500, 600 GPD for an AP-600, etc., and only household wastewater (sinks, tubs, washing machines, toilets, etc.) should be allowed into the unit. 'Volumetric overloading' is simply a term used to describe putting more than the rated amount of wastewater through the system during a 24 hour period.

To avoid volumetric overloading of our system, which can result in incomplete treatment conditions, observe the following:

- Avoid multiple wash loads in one day; spread out your laundry during the week.
- Watch for leaking/flowing faucets or toilets and repair immediately.
- Use water flow reducing devices whenever possible.
- Be aware of any excessive water use of any kind.

Home Cleaning Products Guidelines:

- Recommended laundry detergents are: Powdered, low-sudsing, low-phosphate, non-antibacterial and bio-degradable.
- Recommended household cleaning products are: Non-chlorine, non-ammonia, non-antibacterial, non-toxic and bio-degradable.

Initial Service Policy

Our company, _____ will provide a two-year initial service policy, which will provide for inspection and service of your **Hydro-Action® Industries** plant. The policy will include the following:

- Four inspection/service calls (at least one every six (6) months) over the two (2) year period including inspection, adjustment and servicing of the mechanical electrical and other applicable component parts to ensure proper function. This includes inspecting OPS®, air pump, air filter, diffuser operation, and cleaning and replacing or repairing any component not found to be functioning correctly.
- An effluent quality inspection consisting of a visual check for color, turbidity, scum overflow and examination for odors.

If any improper operation is observed that cannot be corrected at that time you shall be notified immediately in writing of the conditions and the estimated date of correction.

At the conclusion of the initial service policy, our company will make available, for purchase on an annual basis, a continuing service policy to cover labor for normal inspection, maintenance and repair.

Owner/user operation instructions must be strictly followed or warranties are subject to invalidation.

Pumping of sludge build-up from the plant, if necessary, is not included in these services.

Owner:

Service Dealer:

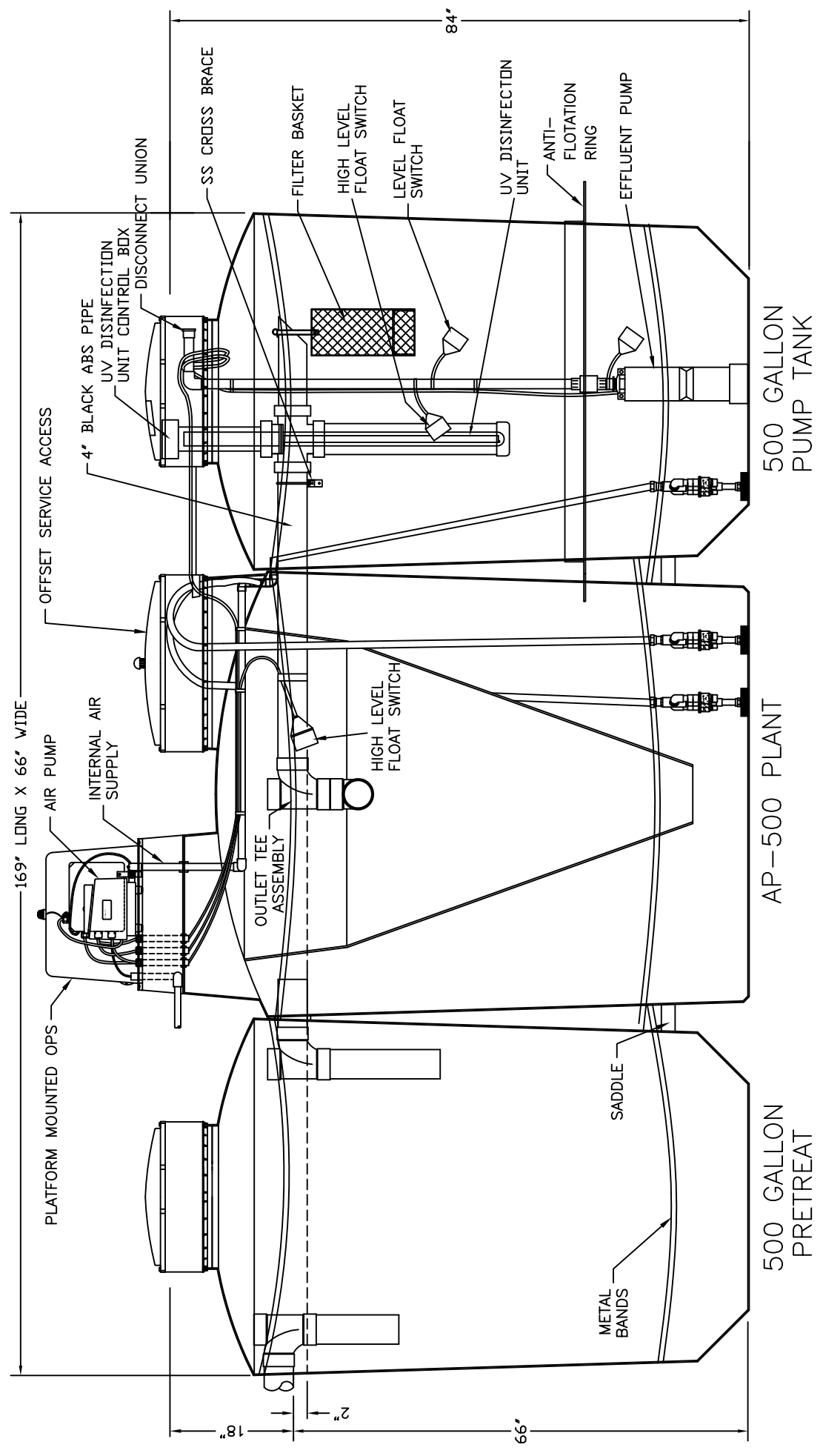
Date: _____

Date: _____

PART/PRINT NO.

PART DESCRIPTION

DATE
1/2/08



DRAWN BY:
A. DAVIS

APPROVED BY:

SIGNATURE

Plant Capacities																											
Model		AP-500	AP-600	AP-750	AP-1000G	AP-1500G																					
Design Flow	Gallons/Day	500	600	750	1000	1500																					
CBOD₅	Pounds/Day	1.25	1.50	1.88	2.50	3.75																					
Plant Component																											
		1/4 HP			3/4 HP																						
Rotary Air Pump		HAR 0608	HAR 0608	HAR 0608	HAR 1023	HAR 1023																					
Number of Pump(s)		1	1	1	1	1																					
		<table border="1"> <thead> <tr> <th colspan="3">HAR 0608 / 1023</th> </tr> </thead> <tbody> <tr> <td>Voltage</td> <td>VAC</td> <td>115 / 220</td> </tr> <tr> <td>Current</td> <td>Amps</td> <td>3.9 / 7.8</td> </tr> <tr> <td>Power</td> <td>Watts</td> <td>120 / 560</td> </tr> <tr> <td>Frequency</td> <td>Hertz</td> <td>60 / 50</td> </tr> <tr> <td>Phase</td> <td></td> <td>1 / 1</td> </tr> <tr> <td>Flow</td> <td>SCFM</td> <td>4.3 / 8.2</td> </tr> </tbody> </table>					HAR 0608 / 1023			Voltage	VAC	115 / 220	Current	Amps	3.9 / 7.8	Power	Watts	120 / 560	Frequency	Hertz	60 / 50	Phase		1 / 1	Flow	SCFM	4.3 / 8.2
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