NOTICE

This booklet provides operations, installation and warranty information on the **TREATMENT OF ECOPOD-N, ONLY**. Other components which you may have, such as dosing equipment, drip irrigation or other components require additional operations booklets and carry separate warranties.

Be sure that you have all of the correct booklets for each of the component pieces in your system.

Contact your installer or call (800) 219-9183.

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**DELTA ENVIRONMENTAL QUALITY ASSURANCE TAG**

S/N ______________  DATE ______

Fiberglass Integrity:
- Barcol Tested
- Thickness Verified
- Clarifier Solid

(Initial)

Water Tested

(Initial)

Compressor Package Complete:

(Initial)

Internal Assembly:
- Clarifier Intact
- Air Header Complete & Secured
- Air Drop Lines Complete & Secured
- Discharge Tee Assy Center & Level
- Cover Attached, Sealed & Secured

(Initial)

Component Kit:
- Air Header Complete & Secured
- Air Drop Lines Complete & Secured
- Discharge Tee Assy Secured

(Initial)
A WORD ABOUT YOUR DELTA ADVANCED
WASTEWATER TREATMENT SYSTEM
AND HOW IT WORKS

The ECOPOD-N Fixed Film Wastewater Treatment System that you have purchased produces high quality water suitable for various disposal methods. It is used to enhance your on-site wastewater treatment and dispersal system. You can be proud that in purchasing your ECOPOD -N Fixed Film Wastewater Treatment System and with the proper amount of maintenance, you can directly contribute to a cleaner, safer environment.

All wastewater treatment systems of this type work by using the bacteria that nature has provided. By pumping air into the system, the bacteria grow and thrive in much larger amounts than would occur naturally. The over population of bacteria speeds up the process of breaking down domestic wastewater, making it safe for release into the environment. This entire process takes place within the walls of your specially designed, self-contained ECOPOD -N Fixed Film Wastewater Treatment System.

The result of this process is a clear, odorless discharge, which meets water quality standards as contained in the Minnesota Rule 7083.4030 for treatment levels A, B & C.

By following the few simple steps that you find in this manual, your ECOPOD-N Fixed Film Wastewater Treatment System will provide you with years of service and the knowledge that you are doing your part to protect public health, our ground water, lakes, rivers, and streams.

The ECOPOD-N Fixed Film Wastewater Treatment System may be only one of several components required by your local unit of government to provide a complete on-site system.

PROCESS DESCRIPTION

Wastewater enters a pretreatment/settling tank similar to conventional septic tanks. In this tank, debris and settleable solids settle to the bottom and are decomposed by anaerobic bacteria.

The effluent enters the ECOPOD-N Fixed Film Wastewater Treatment System from the primary tank where it is introduced into an oxygen rich environment. In this oxygen rich environment, a colony of bacteria, called the biomass, develops and is capable of digesting (breaking down) biodegradable waste into carbon dioxide and water. This is a continuous process as long as the biomass is supplied with incoming wastewater and oxygen. The ECOPOD -N Fixed Film Wastewater Treatment System is a specially designed containment device that houses an engineered plastic media specifically designed to treat domestic wastewater. The ECOPOD-N Fixed Film Wastewater Treatment System is submerged in a tank of liquid, which operates as a dilution zone. An external air compressor is connected to the tanks to provide the necessary air to the system. There are no moving mechanical parts or filters in the ECOPOD-N Fixed Film Wastewater Treatment System.

In this system, conditions are favorable only to attached growth bacteria. This means that the most common disadvantages of other types of systems are eliminated. No rising sludge, floating sludge or washouts can occur.

In addition to CBOD and TSS reduction, ammonia nitrogen is one of the contaminants. Wastewater nitrification of the ammonia and denitrification of nitrates occur within the bacteria masses. A 60%+ removal rate of total nitrogen is common without any type of recirculation or cycling of the blower.

The result of this process is a clear, odorless discharge, which meets minimum water quality standards as contained in the Minnesota Rule 7083.4030 for treatment levels A, B & C.
SPECIFICATIONS FOR DELTA ENVIRONMENTAL
ECOPOD-N FIXED FILM WASTEWATER TREATMENT
SYSTEM

REGISTERED IN MINNESOTA RULE 7083.4030 FOR
TREATMENT LEVELS A, B & C

GENERAL SPECIFICATIONS

The advanced wastewater treatment system described by these specifications is a Delta Environmental. ECOPOD-N Fixed Film Wastewater Treatment System Model E______. This device shall essentially consist of a media container, engineered media, air diffusion system, specially designed discharge outlet tee, blower assembly, and control/alarm panel. Additional features and accessories are as shown on the Delta Environmental job drawing or drawings and as hereinafter specified and described. ECOPOD-N treatment unit shall be Registered in the Minnesota Rule 7083.4030 for treatment levels A, B & C.

OPERATING CONDITIONS

The treatment system shall be capable of treating _______ gallons per day average daily flow (ADF) of domestic raw sewage waste with an organic loading of _______ pounds of BOD₅. A minimum of 4,850 cubic feet of aeration capacity shall be provided for each pound of BOD₅.

CONSTRUCTION

Material Options

Fiberglass

Fiberglass tanks shall be part of the ECOPOD-N NSF certification and shall be constructed of ¼ inch minimum thickness fiberglass. The tank shall be molded of fiberglass reinforced polyester resin manufactured by the lay-up and spray technique to assure that the interior has a smooth resin rich finish.

Concrete (Tanks housing ECOPOD-N Reactor Unit)

Concrete tanks shall be as outlined in Minnesota rules Chapters 7080.1900 through 7083.2020. Concrete tanks shall be approved by Delta Environmental for use with the ECOPOD-N system.

Primary Tank

A primary tank shall be provided as shown on the plans to receive the incoming flow. The primary tank shall be designed to collect large incoming solids. This shall be accomplished by extending the inlet pipe downward below the trash floatable zone and above the settling zone. The discharge pipe shall also be extended downward so as to draw pretreated sewage from the median zone, keeping both floatable and settle-able solids out of the reactor tank. The primary tank shall be sized as shown in the specifications under Chart 2.
**Reactor/Dilution Tank**

The reactor tank shall be sized to provide a minimum of 33.6 hour hydraulic detention time at the average daily flow (ADF). The dilution zone shall also be designed as to provide optimum liquid-solid separation and shall be sized to provide 24 hours hydraulic detention at the ADF rate.

**Air Delivery System**

Air delivery system shall be constructed of schedule 40 PVC pipe. Air ports shall be designed for non-clogging and shall be maintenance free.

**Disinfection (Required for Level A & B)**

A disinfection system of Ultraviolet light shall be included in the treatment system to achieve disinfection of the final effluent. The Ultraviolet Light shall be a Salcor 3G Ultraviolet disinfection unit per Delta Environmental registration. Refer to Chart # 3.

**Aeration Blower**

Provide one aeration blower system with sufficient capacity to furnish the treatment units air requirements. The blower(s) shall be capable of delivering a minimum of 4,850 cubic feet per pound of BOD₅ influent at required discharge pressure.

**Electrical Controls**

An electrical control panel shall be furnished with each compressor that will protect the compressor from overload and failure to start. Included in the panel shall be a pressure switch alarm system that will sound an alarm upon loss of air supply as well as a high water. System shall be ANSI/NSF International certified utilizing UL (Underwriters Laboratories) rated components in an indoor/outdoor enclosure.

**Piping**

All necessary piping and valves inside the ECOPOD-N treatment unit shall be PVC and be provided by the manufacturer. At the exterior wall of the ECOPOD-N treatment unit, as shown on the plans, the manufacturer shall provide properly sized inlet and outlet connections. The manufacturer shall not be responsible for piping or valves outside the ECOPOD-N. Contractor or owner shall be responsible for necessary piping and valves between all systems.
SIZING EXAMPLES

Design flow for residential domestic sewage is normally considered to be 100 gallons per capita per day containing 0.25 pounds of BOD. Minnesota requires sizing based on 150 gallons per bedroom. Check with local and/or state units of government to find out the actual requirements. The following examples are reasonable methods for ECOPOD-N treatment unit sizing:

Example 1
Select an ECOPOD-N treatment unit for a three bedroom house.

- 3 bedrooms X 150 gallons = 450 gallons per day.
- 450 gallons per day = ECOPOD-N E50, 500 gallon per day unit

Example 2
Select an ECOPOD-N treatment unit for a four bedroom house.

- 4 bedrooms X 150 gallons = 600 gallons per day.
- 600 gallons per day = ECOPOD-N E60, 600 gallon per day unit

Example 3
Select an ECOPOD-N treatment unit for a two (2) 3 bedroom houses.

- 6 bedrooms X 150 gallons = 900 gallons per day
- 900 gallons per day = One (1) ECOPOD-N E100, 1000 gallon per day units

The above are examples of normal domestic wastewater ECOPOD-N sizing. Influent from various sources can be converted into equivalent per capita flow for selection of the appropriate size treatment ECOPOD-N.
**ECOPOD-N Fixed Film Wastewater Treatment System**

**ECOPOD-N treatment unit – Sizes/Capacities**

Treatment levels A, B and C ECOPOD treatment units

<table>
<thead>
<tr>
<th>Model</th>
<th>Size (GPD)</th>
<th>BOD Treatment Capacity (lbs/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E50-N</td>
<td>500</td>
<td>1.25</td>
</tr>
<tr>
<td>E60-N</td>
<td>600</td>
<td>1.50</td>
</tr>
<tr>
<td>E75-N</td>
<td>750</td>
<td>1.87</td>
</tr>
<tr>
<td>E100-N</td>
<td>1000</td>
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<tr>
<td>E150-N</td>
<td>1500</td>
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<td>E200-N</td>
<td>2000</td>
<td>5.00</td>
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<tr>
<td>E250-N</td>
<td>2500</td>
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<td>4000</td>
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<tr>
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<td>5000</td>
<td>12.5</td>
</tr>
<tr>
<td>E900-N</td>
<td>9000</td>
<td>22.5</td>
</tr>
</tbody>
</table>

Treatment Level A and B requires the UV Disinfection Unit
HOMEOWNER CARE AND OPERATION INSTRUCTIONS

The ECOPOD-N Fixed Film Wastewater Treatment System has been designed and built to provide long term, reliable and efficient service.

Once the unit has been installed, (see installation instructions) the unit will operate with a proper amount of maintenance.

Please reference the system’s Data Plates that are located on the tank, air pump and the alarm panel in the event that a problem arises or service is required.

The following should be accomplished as checks for system failure:

**Daily -** Unit is furnished with audible and visual alarms. If there is an alarm or offensive odors, please contact your service provider.

**Every 3 Months -** **The air filter on the air pump should be cleaned.** Rinse with warm water if necessary. (See installation instructions). Do not use oil or other solvents. Observe the warning device, which comes on when the power to the air pump has been interrupted or when the air supply system has malfunctioned or when there is a high water level in the treatment ECOPOD-N. If the alarm is activated check for a blown fuse or thrown circuit breaker. Check air pump to be sure it is operating. Once accustomed to the soft humming sound of a properly operating unit, any unusual noise is an indication of malfunction. If an unusual noise is detected or total failure is observed, call your local dealer for service. Check the treatment ECOPOD-N for offensive odor. If such a condition should develop, call an authorized Delta dealer/distributor.

**Every 6 Months -** Service Provider - Inspect and make any necessary adjustments to mechanical and electrical components.

- Inspect effluent quality’s color, turbidity and check for any odor.
  Take a sample from the reactor tank to check the sludge level described in the “Solids Removal” section.

- **The homeowner must be notified in writing if any improper operation is observed and cannot be corrected at the time of service.**

**Note -** To keep maintenance to a minimum and ensure high effluent quality, the following items should **not** be permitted to enter the system.
ITEMS NOT PERMITTED IN SYSTEM

- Strong disinfectants or bleaches, other than small amounts normally utilized in day to day cleaning and laundry (be conservative). Laundry detergents recommended for use are low-sudsing, low phosphates and biodegradable, such as Gain, Arm & Hammer, All, Fresh Start and Dash Bright.

- Discharge from water softener.

- Any type of oils, greases, or other chemical wastes.

- Disposable baby diapers and wipes.

- Sanitary napkins, condoms or other similar items.

- Hair, bandages, rags or string.

- Latex, plastic or metallic objects.

- Coffee grounds or cigarette butts, dental floss.

- Mud or sticks.

- Paper towels, napkins or Kleenex

- Tidy Bowl type products.

- Beer waste or any other rich liquids.

- Garbage disposal should be used sparingly, not as a method of disposing all solid food waste. In order to ensure good ECOPOD-N operation, waste should be disposed of in the garbage container.

The ECOPOD-N Fixed Film Wastewater Treatment System is designed to handle domestic wastewater and nothing else should go into it. For anything other than domestic wastewater contact Delta Environmental.
WARNINGS

1. The proper operation of this or any other home sewage system depends upon proper organic loading and the life of the microorganisms inside the system. Delta is not responsible for the in-field operation of a system, other than the mechanical and structural workings of the ECOPOD-N itself. We cannot control the amount of harsh chemicals or other harmful substances that may be discharged into the system by the occupants of a household, we can only provide a comprehensive owner’s manual that outlines substances that should be kept out of the system.

2. Hydraulic overloading (flows in excess of design flow) may cause the sewage treatment system not to perform to the fullest capabilities.

3. Ants have been shown to be destructive to the air pump. Regular care should be taken to prevent infestation of ants near the system. Damage or destruction by ants is not covered under manufacturer’s warranty.

4. The Minnesota Pollution Control Agency, MPCA, or Local unit of government may require other pieces of equipment to function separately or in conjunction with equipment manufactured by Delta Environmental. Delta Environmental is not responsible for the mechanical or electrical safety of equipment it does manufacture or supply with its Fixed Film Wastewater Treatment System. A licensed electrical contractor, as registered by the state of Minnesota and inspected by a state Electrical Inspector should be required to insure that all electrical components are installed and operating properly. Particular care should be used in evaluating the electrical or mechanical safety of equipment manufactured by others. This may include but not be limited to electrical control panels or air pumps.

5. If electrical service has not been installed for checking air distribution system during installation, and if an extension cord is used to test the air pump, never leave the extension cord plugged in. Remove it after testing is completed.

6. Due to a possible fire hazard, DO NOT plug into service equipment or power pole and DO NOT use extension cords. All electrical work performed by the installer or others must be in accordance with the National Electrical Code and Local Codes.

Links –
http://www.pca.state.mn.us/
http://www.electricity.state.mn.us/
SOLID REMOVAL

The ECOPOD-N Fixed Film Wastewater Treatment System is designed to provide years of trouble free operation however periodic removal of solids may be required.

Determination of the need for solids removal can be done through a simple test. A sludge judge should be used to pull a core sample of sludge level from the reactor tank and can be done so through the 4” sample port. If the solids content exceeds more than 15 inches of sludge, using the sludge judge, which is a visual measurement, the treatment unit should be pumped out. Call your local authorized MPCA licensed maintenance service provider (pumper) to have the tank contents pumped out and disposed of properly.

The method of pumping out should be as follows:

- Remove all of the solids from both the reactor tank, primary tank and pump tank.
- The air pump should be in the off position.

After the pump-out process is complete:

OPTION 1 – Fill Reactor tank with 400 gallons of potable water to deactivate low pressure alarm circuit.

OPTION 2 - With the lack of water, the low level alarm will activate both the visual and audible alarms on the ECOPOD-N alarm/control panel. The silence switch will deactivate the audible alarm only and the visual alarm will remain activated. After the tanks are filled back to operating levels, the reset button must be reset to return the audible and visual alarm circuits back to normal operation.

Should indication of improper operation be observed at any point in time, contact your local licensed service provider of responsibility.

NOTE: THE COST ASSOCIATED WITH PUMPING THE TREATMENT SYSTEM IS NOT COVERED UNDER WARRANTY AND IS NOT INCLUDED IN THE SERVICE POLICY.
SEASONAL USE GUIDELINES OF
ECOPOD-N FIXED FILM WASTEWATER TREATMENT SYSTEM

These guidelines are for conditions as outlined below and apply for systems that are not in use for periods of time indicated. Site conditions not covered by the following must be forwarded to Delta for recommended guidelines to meet the particular site conditions.

1. System not in use for more than one month and less than three months. Electrical power is left on and there are no frost conditions.
   • Leave air pump on.

2. System not in use more than three months. Electrical power is turned off and there are frost conditions.
   • Turn off power to unit.
   • Upon returning, turn power back on and allow to run for 1 hour before use.
SAMPLE REQUIREMENTS

An ECOPOD-N Fixed Film Wastewater Treatment System properly operated and maintained should provide the Minnesota Registered Rules 7083.4030 for treatment levels A, B and C. for the following effluent quality:

Level A
Carbonaceous Biological Oxygen Demand 5 day average (CBOD) of less than 15 mg/l
Total Suspended Solids (TSS) of less than 15 mg/l
Fecal Coliform 1,000/100 ml (Requires UV Disinfection Unit)

Level B
Carbonaceous Biological Oxygen Demand 5 day average (CBOD) of less than 25 mg/l
Total Suspended Solids (TSS) of less than 30 mg/l
Fecal Coliform 10,000/100 ml (Requires UV Disinfection Unit)

Level C
Carbonaceous Biological Oxygen Demand 5 day average (CBOD) of less than 125 mg/l
Total Suspended Solids (TSS) of less than 80 mg/l, Oil and Grease of less than 20 mg/l

Taking Effluent Samples

Samples must be taken in the effluent pump tank and after the ultraviolet disinfection device. We recommend allowing the effluent to flow through the discharge pipe for a minimum of two minutes before taking the sample. This will allow any solids to be flushed out that might have accumulated in the discharge pipe and ultraviolet disinfection unit. See attached drawings of a Sample Port if a pump tank is not being utilized in the system.

SAMPLING SHOULD BE TAKEN BY MPCA LICENSED SERVICE PROVIDER AND TESTED AT A MINNESOTA STATE CERTIFIED TESTING LABORATORY OR BY FOLLOWING THEIR PROCEDURES. THE FOLLOWING RECOMMENDED GUIDELINES MAY BE USED IF LOCAL PROCEDURES ARE NOT AVAILABLE.

1. Carbonaceous Biochemical Oxygen Demand (CBOD)

Samples for CBOD analysis may degrade significantly during storage between collection and analysis, resulting in low CBOD values. Minimize reduction of CBOD by analyzing the sample promptly or by cooling it to near freezing temperature during storage. However, even at low temperature, keep the holding time to a minimum. Warm the chilled samples to 20°C before analysis; some storage time can be used to accomplish this conveniently.

   a. Grab Samples: If analysis is begun within two hours of collection, cooling is unnecessary. If analysis not started within two hours of sample collection, keep sample at or below 4°C from the time of collection. Begin analysis within six hours of collection; when this is not possible because the sampling site is distant from the laboratory, store at or below 4°C and report length and temperature of storage to the Lab. In no case, start analysis more than 24 hours after grab sample collection. When samples are to be used for regulatory purposes, make every effort to deliver samples for analysis within six hours of collection.

2. Total Suspended Solids (TSS)

Use resistant-glass or plastic bottles, provided that the material is suspension does not adhere to container walls. Begin analysis as soon as possible, because of the impracticality of preserving the sample. Refrigerate sample at 4°C to minimize microbiological decomposition of solids.

3. Fecal Coliform

Use resistant-glass or plastic bottles, provided that the material is suspension does not adhere to container walls. Sterilize sample bottle using sterile water before inserting bottle for collection. Collect the sample either in a sample port or as it cascades into the pump tank. Allow the effluent to sufficiently flush through the sample bottle for 30 seconds before pulling sample. The sample must be tested within six hours of sample and must be refrigerated. To remain within the six hours you would have to begin testing within five hours.
1. Prepare an excavation, having a diameter approximately one foot larger than the tank and a depth that will allow approximately three inches of the inspection port to extend above normal ground level. Backfill with a six inch layer of sand or gravel if otherwise unable to provide a smooth, level, compact base. We recommend that the hole be roped off in some fashion to prevent injury to passerby.

2. Utilizing lifting lugs provided, place the ECOPOD-N in the excavation so that the inlet and outlet line up with the sewer piping. The inlet line should slope down toward the ECOPOD-N treatment unit and the outlet line should slope down away from the ECOPOD-N treatment unit. The ECOPOD-N treatment unit should be level within one-half inch, edge to edge.

3. Position inlet and outlet lines and make connections as necessary, depending upon the construction materials. The inlet line should be inserted and glued into the inlet elbow and the discharge line should be inserted and glued into the outlet coupling. Note: Open inspection port and make sure discharge tee assembly is level and centered in clarifier prior to attaching discharge piping. Fill the tank with water until water flows from the discharge before back-filling. Backfill around ECOPOD-N, up to the bottom of the discharge connections.

4. Do not install the air pump(s) in a low lying area where water may accumulate. The air pump should be installed near the control panel and within one hundred feet of the tank. Air pump can be installed outdoors. Air pump must be installed on a concrete pad sized sufficiently to support entire base.

5. Mount the control panel in an area such that the alarm can be heard and be readily observed. A 3-wire grounded GFI circuit is required for safety. Install a disconnect switch near the panel to visually disconnect the control panel from the power source. All electrical work shall be done according to Minnesota state code requirements. The control panel must be grounded. Connect the source ground wire to the ground location in the panel.

6. The control panel is rated for indoor and outdoor use and contains a fuse or circuit breaker for the air pump. An electrical malfunction in the air pump or wiring to the air pump will cause the fuse to blow or circuit breaker to trip. The control panel also contains a pressure switch and visual and audible alarm. Loss of air pressure caused by the air pump system malfunction or a high water level in the treatment ECOPOD-N will cause the alarm to sound and light to illuminate.

7. Attach control panel to suitable mounting surface using all four mounting holes on back of box. Use proper screws of sufficient length to insure a secure and permanent mounting.

8. Control panel is rated for outdoor service; however, do not place it where it can be immersed in rising water or where run-off water such as from a roof will fall on it. Do not mount it where it is subject to wetting from sprinklers, hoses, etc.

9. The control panel must never be connected to a circuit that is not properly grounded. Never connect the unit to a non-grounded circuit. If there is doubt, have a Minnesota state licensed electrician check for proper grounding. The control panel must be connected to a 20 amp maximum electric source equipped with a ground fault interrupter (GFI) circuit breaker. A standard circuit breaker can be replaced with a GFI circuit breaker which can be obtained from almost any store that sells electrical supplies.
After the control panel is properly mounted, connect conduit and install wiring as shown on drawings.

Install float switch wire from the control panel to the treatment ECOPOD-N as per Minnesota state code requirements. As a recommendation, wire can be direct burial type UF 600 volt or can be installed in schedule 40 PVC conduit. Use type THWN, 600 volt if installed in conduit. Wire must be buried in accordance with NEC table 300-5. If in doubt, bury 24 inches deep. Keep sufficient distance or depth from air line to avoid confusion of pipes or damage to wiring during installation or repair or air piping. Connect to the float switch normally open contacts using underground rated compound filled wire nuts. Float switch is not required when a dual pressure switch is utilized which detects high water conditions.

Connect the pressure air tubing to the 1/8" barb-fitting in the air piping system. The air tubing should be protected by conduit as shown on drawing.

Install 2" schedule 40-PVC piping between air pump and treatment unit. A minimum of 12 inches ground cover is recommended.

Turn power on to control panel. Air pump should start.

Check air piping joints for leakage using a soapy water solution. Repair if necessary and then carefully backfill air line and inlet and discharge piping and cover ECOPOD-N to grade level.

Re-check water level in the tank.

ECOPOD-N is ready to receive incoming sewage. No special start-up procedures are required. The process is naturally occurring and does not require any special additives.

Test alarm circuit by momentarily squeezing air tubing and allowing air pressure to decrease. This should take a few minutes. Alarm should occur. Release air tubing and alarm should stop. Lift float in tank (if included) to horizontal position. Alarm should occur. Release float. Alarm should stop. The audible alarm can be turned off by flipping the toggle switch on the panel front door to the left.

Close cover to control panel, and lock if necessary.

In the event that a fuse blows, replace with time delay or slow blow, 125 volt minimum voltage rating and the same amp rating as the existing fuse.

The distribution of air to all drop lines must be uniform. If the air flow is not evenly distributed, check the air pump or the main air line.

Spend time with your customer whenever possible. Review operation instructions. Be sure that the customer has a manual to keep. This saves valuable time avoiding return visits.

Retain these instructions for future reference.

WARNING: CONTROL PANEL CONTAINS HIGH VOLTAGE AND MUST ONLY BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL.
TROUBLE SHOOTING GUIDE FOR DELTA ECOPOD-N FIXED FILM WASTEWATER TREATMENT SYSTEM

AIR SUPPLY MALFUNCTION

1. Check to be sure that the air system is working properly. This will be evident in the reactor as the liquid will be forcefully agitated. A septic (rotten egg) odor could mean that the system is not getting enough air. If the air system is not working, partially working or working very little (slight bubbles), check the following:

   a. Check to be sure the air pump is working.
      - Check timer if one is used;
      - Bypass timer temporarily connect directly to source;
      - Check the electrical source;
      - If electrical source is okay, check service guide on pump unit for troubleshooting information;
      - Wash air filter on pump;
      - Consult manufacturer for servicing information.

   b. Check to be sure tank is not severely out of level. Air follows a path of least resistance. The pressure differences can be enough to prevent or restrict air flow.

   c. Check for broken or cracked air lines both outside and inside the tank.

   d. Ants will destroy an air pump. Check to see if there is an ant nest around the air pump.

   e. Air pump should be protected from rising water.

   f. Always check to se if inlet and outlet lines are correctly installed.

INTERNAL ASSEMBLY MALFUNCTION

1. Primary treated wastewater from the primary tank should not enter directly into the dilution zone because of improperly installed or loose seals or gaskets where pipe goes through the tank wall. Check the size of holes to be sure that there is no clearance for matter to pass through the wall around the piping.

2. Check to be sure all internal piping and connections are tight.

DESIGN OVERLOAD

1. The system could be hydraulically overloaded (there is too much water going through the system for the size of the system).

2. The system could be biologically overloaded (there is too much waste for the size of the system).
IMPROPER INSTALLATION OR SETTLING

1. Follow the manufacturer installation procedures very carefully.

2. Where settling is common, approximately 2 inches of sand should be placed and tamped in the bottom of the hole.

3. Proper installation is the first step in preventing call backs for service problems.

4. Whenever possible, it is important to spend time with the homeowner. Be sure they have an operations book. A few minutes invested in the beginning will avoid service calls later.

NO HARSH CHEMICALS SHOULD BE PUT INTO THE SYSTEM

1. Water in the reactor tank should be the relatively clear in both the reactor and dilution zone. Blue or gray/blue water indicates heavy use of detergents or other chemicals. If water appears sudsy, there is too much detergent being used.

2. Water in the dilution zone should be clear. Water is discharged into the discharge tee at a minimum of 6-8 inches below water surface. You MAY not be able to see clear water by looking into the tank. Samples must be taken at the sample port.

3. Oils and grease should be kept to a minimum. Grease tends to form in white balls.

TROUBLE SHOOTING ELECTRICAL SYSTEM

1. Air pump does not run:
   a. Check main service for power;
   b. Check and/or replace fuse with same rating as is in control panel.

2. Alarm does not occur when air pump is off:
   b. Malfunctioning light or buzzer – replace.

3. Alarm occurs continuously even when air pump is running:
   a. Air-leak in main air system or air tubing to pressure switch – repair leak or replace air line.
   b. Malfunctioning pressure-switch – replace.
   c. High water level in tank – inspect for cause.
   d. Short in float switch wire or float switch – repair or replace.

NOTE: All replacement parts are available from your local dealer.
CAUTION: Electrical shock or hazard may occur if unit is not serviced properly. The manufacturer recommends that a Minnesota state licensed electrician be called when electrical problems occur.
COMPONENT REPLACEMENT PROCEDURE

1. Air Pump – Follow same procedure as outlined in the “Installation Instructions”.


3. Pressure Switch – Turn all power off to control panel. Remove screws securing pressure switch as well as connectors and tubing. Reverse procedure to install new pressure switch.

4. Buzzer – Turn all power off to control panel. Remove screw attaching buzzer to back plate as well as connectors. Reverse procedure to install new buzzer.

5. Lamp-holder – Turn all power off to control panel. Remove lock nut securing lamp-holder to door as well as connectors. Remove lamp-holder. Install new lamp-holder with gaskets furnished. Continue with reverse procedure.

6. Lamp – Turn all power off to control panel. Remove red lamp cover from front of control panel. Remove and replace lamp which is a push in type. Replace lamp cover and cover gasket.

7. Fuse – Turn all power off to control panel. Pull top of fuse holder outward. Remove and replace fuse. Push fuse back into place.

8. Buzzer Switch – Turn all power off to control panel. Remove rubber boot on switch. Remove hex nut from switch on panel front as well as connectors on switch. Reverse procedure to install new switch.

GENERAL COMMENTS

1. Only factory approved equipment can be used for replacement on individual treatment systems.

2. If the decision is made to pump out a system, be sure to contact a licensed waste hauler.

3. If a chronic problem develops and all items listed have been checked, consult with the factory.

4. Taking pictures of systems when troubleshooting will help document activity in the field.

5. Keep good records.

NOTE: If the entire cover needs to be removed on any one of the various model treatment ECOPOD-Ns, the existing silicone or strip seal must be removed and replaced with a new one. This will provide a positive seal which will not allow any infiltration into or out of the treatment ECOPOD-N.
DRAWINGS
ECOPOD INSTALLATION INSTRUCTIONS

1. Anchor (4) corner legs to the base of the tank.

2. The air supply in the ECOPOD must be secure so as to prevent damage.

3. Secure 4" PVC inlet pipe into gasketed reactor inlet.

4. Secure 3" x 4" discharge tee assembly to the outlet of the tank.

5. The vent shall be located above finish grade or higher.

6. Air compressor shall be located above grade in a well-ventilated area.

PATENT PENDING

ECOPOD FLOW PATTERN
REDUCER BUSHING

COMPRESSOR INCLUDES POLYETHYLENE BASE AND ENCLOSURE CONCRETE PAD

SPLICE BOX 2" UNION LIFT-OUT ROPE

FLOAT 4 FLOAT 3 FLOAT 2 FLOAT 1

4" PUMP SEAT PRIMARY TANK

(OPTIONAL INFLUENT PUMP APPLICATION)

CP52RCT1SSUV CONTROL PANEL

E-50 TREATMENT UNIT MINNESOTA REGISTERED

BURIAL 18" BELOW FINAL GRADE FROM TOP OF TANK FLANGE

BASIN FLOAT LEVELS

1 44.5' Max 10 gallons per pump cycle
2 46.5' Every 15 minutes
3 48.5' Off @ min 900
4 51.5' gallons provided 15 gallons of storage

* Other pump options may be used in lieu of submersible turbine pump. Consult factory.

PUMP TANK AS PER MINNESOTA CODE 7080-1900

SALCOR 3G UV LIGHT

OPTIONAL PLACEMENT Air Vent

24" MANWAYS

J-BOX

High Level Alarm Float

Primary timer On/Off Float

Redundant Low Level Float

High Head Turbine Pumps Or Submersible Sump Pump

DELTA ECOPOD 500GPD UNIT PRIMARY TANK

SALCOR 3G U.V. DISINFECTION & EFFLUENT PUMP TANK

WITH OPTIONAL DEP.5115 HIGH HEAD SCREEN PUMP VAULT

DELTA ENVIRONMENTAL PRODUCTS
F. O. BOX 969 DENHAM SPRINGS, LA 70727

DWN BY: C.RACHAL
DATE: 9/22/08
SCALE: N.T.S.
DWG. NO: MN PT FV, ECOPOD, SALCOR & EFF PUMP TANK
NOTES:

1. Blower piping to ECOPOD-N not to exceed 100 FT total length in the piping system. For distances greater than 100 FT, consult factory. Blower must be located above flood levels on a solid base.

2. Vent to be located above finish grade or higher to avoid infiltration. Cap on vent must be secured with a stainless steel screw.

3. All other tanks to/from ECOPOD-N must conform to applicable country, state, province, and local plumbing and electrical codes.

4. The primary tank/compartment volume must be 1 to 2 times the rated ECOPOD-N GPD. Primary and Reactor tank volumes are listed in the ECOPOD-N Design Manual. The primary tank may be integrated with the reactor tank or stand alone in a separate tank.

5. All manways, pump out ports, and vents must be secured to prevent accidental or unauthorized access.

6. ECOPOD-N media is recommended to be at least 19" from bottom of tank. Distances not 19" need factory approval.

7. ECOPOD-N media VF19Plus.

8. Tanks with higher inlets, install SCH 40 PVC pipe over legs to elevate reactor to correct height.

9. Air supply line should be secured with non-corrosive clamps where required to prevent vibration damage.

10. Effluent discharge level must be at a height no more, or no less than 2" above vertical tube PVC media.

11. Use epoxy, or another approved method or substance, to create strong connection & watertight seal (TYP.)

12. Risers must conform to country, state, province, and local acceptable codes. Fiberglass riser shown.

13. The Salcor 3G disinfection chamber couples directly to the aerobic plant discharge pipe and is permanently installed below grade.
NOTES:

1. Blower piping to ECOPOD-N not to exceed 100 FT total length in the piping system. For distances greater than 100 FT, consult factory. Blower must be located above flood levels on a solid base.

2. Vent to be located above finish grade or higher to avoid infiltration. Cap on vent must be secured with a stainless steel screw.

3. All other tanks to/from ECOPOD-N must conform to applicable country, state, province, and local plumbing and electrical codes.

4. The primary tank compartment volume must be 1 to 2 times the rated ECOPOD-N GPD. Primary and Reactor tank volumes are listed in the ECOPOD-N Design Manual. The primary tank may be integrated with the reactor tank or stand alone in a separate tank.

5. All manways, pump out ports, and vents must be secured to prevent accidental or unauthorized access.

6. ECOPOD-N media is recommended to be at least 19" from bottom of tank. Distances not 19" need factory approval.

7. ECOPOD-N media VF19PLUS.

8. Tanks with higher inlets, install SCH 40 PVC pipe over legs to elevate reactor to correct height.

9. Air supply line should be secured with non-corrosive clamps where required to prevent vibration damage.

10. Effluent discharge level must be at a height no more, or no less than 2" above vertical tube PVC media.

11. Use epoxy, or another approved method or substance, to create strong connection & watertight seal (TYP.)

12. Risers must conform to country, state, province, and local acceptable codes. Fiberglass riser shown.

13. The Salcor 3G disinfection chamber couples directly to the aerobic plant discharge pipe and is permanently installed below grade.

### 600 GPD TREATMENT UNIT

- **Discharge From Tank:** 4"-0"
- **Primary Volume:** 600-1200 Gallons
- **Reactor Volume:** 840 Gallons
- **Recommended Distance Under Reactor Box:** 19"

---

**E60NCA REACTOR IN CONCRETE TANK - MINNESOTA**

**PENTAIR**

**DELTA ENVIRONMENTAL**

**DWN BY:** D. WRIGHT  
**DATE:** 11/15/10  
**SCALE:** N.T.S.  
**DWG. NO.:** E60NCA-REACTOR - MINNESOTA  
**REV:** 1  
**PAGE:** 1 OF 3
NOTES:

1. Blower piping to ECOPOD-N not to exceed 100 FT total length in the piping system. For distances greater than 100 FT, consult factory. Blower must be located above flood levels on a solid base.

2. Vent to be located above finish grade or higher to avoid infiltration. Cap on vent must be secured with a stainless steel screw.

3. All other tanks to/from ECOPOD-N must conform to applicable country, state, province, and local plumbing and electrical codes.

4. The primary tank/compartment volume must be 1 to 2 times the rated ECOPOD-N GPD. Primary and Reactor tank volumes are listed in the ECOPOD-N Design Manual. The primary tank may be integrated with the reactor tank or stand alone in a separate tank.

5. All manways, pump out ports, and vents must be secured to prevent accidental or unauthorized access.

6. ECOPOD-N media is recommended to be at least 19" from bottom of tank. Distances not 19" need factory approval.

7. ECOPOD-N media VF19PLUS

8. Tanks with higher inlets, install SCH 40 PVC pipe over legs to elevate reactor to correct height.

9. Air supply line should be secured with non-corrosive clamps where required to prevent vibration damage.

10. Effluent discharge level must be at a height no more, or no less than 2" above vertical tube PVC media.

11. Use epoxy, or another approved method or substance, to create strong connection & watertight seal (TYP.)

12. Risers must conform to country, state, province, and local acceptable codes. Fiberglass riser shown.

13. The Salcor 3G disinfection chamber couples directly to the aerobic plant discharge pipe and is permanently installed below grade.

<table>
<thead>
<tr>
<th>75G GPD TREATMENT UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge From Tank: 4&quot;-0&quot;</td>
</tr>
<tr>
<td>Primary Volume: 750-1500 Gallons</td>
</tr>
<tr>
<td>Reactor Volume: 1050 Gallons</td>
</tr>
<tr>
<td>Recommended Distance Under Reactor Box: 19&quot;</td>
</tr>
</tbody>
</table>

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750 GPD SALCOR UV LIGHT DISINFECTION SYSTEM

DISTRIUTION BOX

TYP. 2

A

B

SALCOR 3G UV LIGHT (TYP.)

DISTRIUTION BOX

SECTION "A-A"

BAFFLED FOR MAX FLOW OF 6 GPM

SECTION "B-B"

POLYLYCON EQUILIZER
PART NO. - 3049
MATERIAL - FILLED POLYPROPYLENE

GEAR AND RACK PROVIDE POSITIVE ONE-TIME LEVELING

THESE RIBS PROVIDE FRICTION FIT FOR ALL 4" POLE OD

THIS WIRED SHAPE IS SELF LEVELING

Delta Environmental
Pentair Water
NOTES:

1. Blower piping to ECOPOD-N not to exceed 100 FT total length in the piping system. For distances greater than 100 FT, consult factory. Blower must be located above flood levels on a solid base.

2. Vent to be located above finish grade or higher to avoid infiltration. Cap on vent must be secured with a stainless steel screw.

3. All other tanks to/from ECOPOD-N must conform to applicable country, state, province, and local plumbing and electrical codes.

4. The primary tank compartment volume must be 1 to 2 times the rated ECOPOD-N GPD. Primary and Reactor tank volumes are listed in the ECOPOD-N Design Manual. The primary tank may be integrated with the reactor tank or stand alone in a separate tank.

5. All manways, pump out ports, and vents must be secured to prevent accidental or unauthorized access.

6. ECOPOD-N media is recommended to be at least 19" from bottom of tank. Distances not 19" need factory approval.

7. ECOPOD-N media VF19PLUS.

8. Tanks with higher inlets, install SCH 40 PVC pipe over legs to elevate reactor to correct height.

9. Air supply line should be secured with non-corrosive clamps where required to prevent vibration damage.

10. Effluent discharge level must be at a height no more, or no less than 2" above vertical tube PVC media.

11. Use epoxy, or use another approved method or substance, to create strong connection & watertight seal (TYP.)

12. Risers must conform to country, state, province, and local acceptable codes. Fiberglass riser shown.

13. The Salcor 3G disinfection chamber couples directly to the aerobic plant discharge pipe and is permanently installed below grade.

<table>
<thead>
<tr>
<th>1000 GPD TREATMENT UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge From Tank</td>
</tr>
<tr>
<td>Primary Volume</td>
</tr>
<tr>
<td>Reactor Volume</td>
</tr>
<tr>
<td>Recommended Distance</td>
</tr>
<tr>
<td>Under Reactor Box</td>
</tr>
</tbody>
</table>
1,000 GPD SALCOR UV LIGHT DISINFECTION SYSTEM

ACCESS HATCH

THIS WIER SHAPE IS SELF LEVELING

THESE RIBS PROVIDE FRICTION FIT FOR ALL 4" PIPE ID

GEAR AND RACK PROVIDES POSITIVE ONE TIME LEVELING

POLYLOK EQUALIZER PART NO. - 3849 MATERIAL - FILLED POLYPROPYLENE

ACCESS HATCH

BAFFLED FOR MAX FLOW OF 6 GPM

SECTION "A-A"
MINNESOTA APPROVED PUMP TANK

SECTION "B-B"

SALCOR ULTRAVIOLET LIGHT SYSTEM - MINNESOTA WITH PUMP TANK
1. Blower piping to ECOPOD-N not to exceed 100 FT total length in the piping system. For distances greater than 100 FT, consult factory. Blower must be located above flood levels on a solid base.

2. Vent to be located above finish grade or higher to avoid infiltration. Cap on vent must be secured with a stainless steel screw.

3. All other tanks to/from ECOPOD-N must conform to applicable country, state, province, and local plumbing and electrical codes.

4. The primary tank compartment volume must be 1 to 2 times the rated ECOPOD-N GPD. Primary and Reactor tank volumes are listed in the ECOPOD-N Design Manual. The primary tank may be intergrated with the reactor tank or stand alone in a separate tank.

5. All manways, pump out ports, and vents must be secured to prevent accidental or unauthorized access.

6. ECOPOD-N media is recommended to be atleast 19" from bottom of tank. Distances not 19" need factory approval.

7. ECOPOD-N media VF19PLUS.

8. Tanks with higher inlets, install SCH 40 PVC pipe over legs to elevate reactor to correct height.

9. Air supply line should be secured with non-corrosive clamps where required to prevent vibration damage.

10. Effluent discharge level must be at a height no more, or no less than 2" above vertical tube PVC media.

11. Use epoxy, or use another approved method or substance, to create strong connection & watertight seal (TYP.)

12. Risers must conform to country, state, province, and local acceptable codes. Fiberglass riser shown.

13. The Salcor 3G disinfection chamber couples directly to the aerobic plant discharge pipe and is permanently installed below grade.

### 1500 GPD TREATMENT UNIT

<table>
<thead>
<tr>
<th>Discharge From Tank</th>
<th>4&quot;-0&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Volume</td>
<td>1500-3000 Gallons</td>
</tr>
<tr>
<td>Reactor Volume</td>
<td>2100</td>
</tr>
<tr>
<td>Recommended Distance Under Reactor Box</td>
<td>19&quot;</td>
</tr>
</tbody>
</table>
1,500 GPD SALCOR UV LIGHT DISINFECTION SYSTEM

DISTRIUTION BOX

TYP: 3

THIS WIER SHAPE IS SELF LEVELING

TYP COR 3G UV LIGHT (TYP.)

THESE REBS PROVIDE FRICTION FIT FOR ALL 4" PIPE OD

GEAR AND RACK PROVIDES POSITIVE ONE TIME LEVELING

POLYFOAM EQUALIZER PART NO. - 3049 MATERIAL - FILLED POLYPROPYLENE

BAFFLED FOR MAX FLOW OF 6 GPM

SECTION "A-A"

SECTION "B-B"
1,500 GPD SALCOR UV LIGHT DISINFECTION SYSTEM

ACCESS HATCH

DISTRIBUTION BOX

THESE REBS PROVIDE FRICTION FIT FOR ALL 4" PIPE ID

GEAR AND RACK PROVIDES POSITIVE ONE TIME LEVELING
POLYLOK EQUILIZER PART NO. 3849 MATERIAL - FILLED POLYPROPYLENE

ACCESS HATCH

SECTI0N "A-A"
MINNESOTA APPROVED PUMP TANK

BRAFFLED FOR MAX FLOW OF 6 GPM

SECTI0N "B-B"
SALCOR ULTRAVIOLET LIGHT SYSTEM- MINNESOTA WITH PUMP TANK
NOTES:

1. Blower piping to ECOPOD-N not to exceed 100 FT total length in the piping system. For distances greater than 100 FT, consult factory. Blower must be located above flood levels on a solid base.

2. Vent to be located above finish grade or higher to avoid infiltration. Cap on vent must be secured with a stainless steel screw.

3. All other tanks to/from ECOPOD-N must conform to applicable country, state, province, and local plumbing and electrical codes.

4. The primary tank/compartment volume must be 1 to 2 times the rated ECOPOD-N GPD. Primary and Reactor tank volumes are listed in the ECOPOD-N Design Manual. The primary tank may be integrated with the reactor tank or stand alone in a separate tank.

5. All manways, pump out ports, and vents must be secured to prevent accidental or unauthorized access.

6. ECOPOD-N media is recommended to be at least 19” from bottom of tank. Distances not 19” need factory approval.

7. ECOPOD-N media VF19PLUS.

8. Tanks with higher inlets, install SCH 40 PVC pipe over legs to elevate reactor to correct height.

9. Air supply line should be secured with non-corrosive clamps where required to prevent vibration damage.

10. Effluent discharge level must be at a height no more, or no less than 2” above vertical tube PVC media.

11. Use epoxy, or use another approved method or substance, to create strong connection & watertight seal (TYP.)

12. Risers must conform to country, state, province, and local acceptable codes. Fiberglass riser shown.

13. The Salcor 3G disinfection chamber couples directly to the aerobic plant discharge pipe and is permanently installed below grade.

<table>
<thead>
<tr>
<th>2000 GPD TREATMENT UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Volume</td>
</tr>
<tr>
<td>Reactor Volume</td>
</tr>
<tr>
<td>Recommended Distance</td>
</tr>
<tr>
<td>Under Reactor Box</td>
</tr>
</tbody>
</table>

---

**E200NCA REACTOR IN CONCRETE TANK - MINNESOTA**

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2,000 GPD SALCOR UV LIGHT DISINFECTION SYSTEM

This weir shape is self-leveling.

These ribs provide friction fit for all 4" pipe ID.

Gear and rack provides positive one time leveling.

Polylok equalizer part no. - 3849
Material - filled polypropylene

Access Hatch

Section "A-A"
Minnesota Approved Pump Tank

Section "B-B"

Baffled for Max Flow of 6 GPM

Delta Environmental
Pentair Water
NOTES:

1. Blower piping to ECOPOD-N not to exceed 100 FT total length in the piping system. For distances greater than 100 FT, consult factory. Blower must be located above flood levels on a solid base.

2. Vent to be located above finish grade or higher to avoid infiltration. Cap on vent must be secured with a stainless steel screw.

3. All other tanks to/from ECOPOD-N must conform to applicable country, state, province, and local plumbing and electrical codes.

4. The primary tank/compartment volume must be 1 to 2 times the rated ECOPOD-N GPD. Primary and Reactor tank volumes are listed in the ECOPOD-N Design Manual. The primary tank may be integrated with the reactor tank or stand alone in a separate tank.

5. All manways, pump out ports, and vents must be secured to prevent accidental or unauthorized access.

6. ECOPOD-N media is recommended to be at least 19” from bottom of tank. Distances not 19” need factory approval.

7. ECOPOD-N media VF19PLUS.

8. Tanks with higher inlets, install SCH 40 PVC pipe over legs to elevate reactor to correct height.

9. Air supply line should be secured with non-corrosive clamps where required to prevent vibration damage.

10. Effluent discharge level must be at a height no more, or no less than 2” above vertical tube PVC media.

11. Use epoxy, or use another approved method or substance, to create strong connection & watertight seal (TYP.)

12. Risers must conform to country, state, province, and local acceptable codes. Fiber glass riser shown.

13. The Salcor 3G disinfection chamber couples directly to the aerobic plant discharge pipe and is permanently installed below grade.

<table>
<thead>
<tr>
<th>2500 GPD TREATMENT UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Volume</td>
</tr>
<tr>
<td>Reactor Volume</td>
</tr>
<tr>
<td>Recommended Distance Under Reactor Box</td>
</tr>
</tbody>
</table>
2,500 GPD SALCOR UV LIGHT DISINFECTION SYSTEM

DISTRIUTION BOX

TYP. 5

SALCOR 3G UV LIGHT (TYP.)

DISTRIUTION BOX

SECTION "A-A"

B A A

SECTION "B-B"

BAFFLED FOR MAX FLOW OF 6 GPM

DELTA ENVIRONMENTAL
Pentair Water

SALCOR ULTRAVIOLET LIGHT SYSTEM - MINNESOTA WITHOUT PUMP TANK

DRAWN BY: D. WRIGHT
DATE: 04/12/11
SCALE: N.T.S.
REV: 2
PAGE: 1 OF 1
NOTES:

1. Blower piping to ECOPOD-N not to exceed 100 FT total length in the piping system. For distances greater than 100 FT, consult factory. Blower must be located above flood levels on a solid base.

2. Vent to be located above finish grade or higher to avoid infiltration. Cap on vent must be secured with a stainless steel screw.

3. All other tanks to/from ECOPOD-N must conform to applicable country, state, province, and local plumbing and electrical codes.

4. The primary tank volume must be 6 to 1 times the rated ECOPOD-N GPD. Primary and Reactor tank volumes are listed in the ECOPOD-N Design Manual. The primary tank may be integrated with the reactor tank or stand alone in a separate tank.

5. All manways, pump out ports, and vents must be secured to prevent accidental or unauthorized access.

6. ECOPOD-N media is recommended to be at least 19" from bottom of tank. Distances not 19" need factory approval.

7. ECOPOD-N media VF19PLUS.

8. Tanks with higher inlets, install SCH 40 PVC pipe over legs to elevate reactor to correct height.

9. Air supply line should be secured with non-corrosive clamps where required to prevent vibration damage.

10. Effluent discharge level must be at a height no more, or no less than 2" above vertical tube PVC media.

11. Use epoxy, or use another approved method or substance, to create strong connection & watertight seal (TYP.)

12. Risers must conform to country, state, province, and local acceptable codes. Fiberglass riser shown.
NOTES:

1. Blower Model Delta K04-MS

2. Setting High Level Pressure Switch
   Bring plant to operating water level with compressor turned on. Using properly sized screw driver, turn high level alarm adjustment screw clockwise until alarm occurs. Once alarm occurs, turn the screw counter-clockwise until alarm stops.
   Setting Low Level Pressure Switch
   Factory set

3. All of Delta's control panels are manufactured to UL508A requirements. All enclosures are NEMA rated.

4. Pressure switch tubing is used for high and low level pressure detection.

5. All piping from the blower to the ECOPOD-N to be 2" sch 40 PVC pipe.

6. All blowers are housed in a polyethylene enclosure supplied with necessary piping for installation.

7. Inlet Filters must be mounted on outside of enclosure. Filters not mounted on outside could contribute to blower malfunction and void manufacture's warranty.

8. Filter elements must be non-paper type.
ECOPOD-N SERIES SPECIFICATIONS

1. The ECOPOD-N Series is an Advanced, Fixed Film Wastewater Treatment device from 500 to 9,000 GPD. It has been tested under NSF Std 40 and Std 245 and meets or exceeds requirements for effluent quality. The ECOPOD-N significantly reduces nutrients in the wastewater as well as BOD & TSS and performs nitrification and de-nitrification in a single tank. The ECOPOD-N series utilizes a Fixed Film process which is characteristically stable, reliable, and sturdy. Fixed Film is a preferred treatment process in many areas for on-site wastewater treatment systems.

2. The ECOPOD-N shall essentially consist of a media container, engineered media, air diffusion system, specially designed discharge outlet tee, blower assembly, and control/alarm panel. Additional features and accessories are as shown on the Delta Environmental job drawing and as hereinafter specified and described.

3. The reactor tank shall be sized to provide a minimum of 33.6 hours of hydraulic detention time at the average daily flow (ADF). The dilution zone shall also be designed as to provide optimum liquid-solid separation and shall be sized to provide 24 hours hydraulic detention at the ADF rate.

4. The aeration blower shall provide the system with sufficient capacity to furnish the treatment units air requirements. The blower(s) shall be capable of delivering a minimum of 4,850 cubic feet per pound of BOD5 influent at required discharge pressure.

5. An electrical control panel shall be furnished with each compressor that will protect the compressor from overload and failure to start. Included in the panel shall be a pressure switch alarm system that will sound an alarm upon loss of air supply as well as a high water. System shall be NSF/ANSI International certified utilizing UL rated components in an indoor/outdoor NEMA rated enclosure.

6. Air delivery system shall be constructed of schedule 40 PVC pipe. Patented air ports shall be designed for non-clogging and shall be maintenance free.

7. All necessary piping and valves inside the plant shall be PVC and provided by the manufacturer. At the exterior wall of the plant, as shown on the plans, the manufacturer shall provide properly sized inlet and outlet connections. The manufacturer shall not be responsible for piping or valves outside the plant. Contractor or owner shall be responsible for necessary piping and valves between all systems.

8. All workmanship and materials shall be of the highest quality. The waste treatment plant shall be the product of an experienced manufacturer actively engaged in manufacturing and research and development of sewage treatment systems. NSF International test documents shall be available upon request of the engineer.

Delta Environmental has a limited warranty on the parts in each treatment system for a period of (2) years. All warranty questions shall be resolved through Delta Environmental. The warranty on the treatment device is that the device is free from defects in material and workmanship from the date of installation treating household wastewater. The warranty does not cover treatment processes and devices that have been flooded, by external means, or that have been disassembled by unauthorized persons, improperly installed, subjected to external damage or damaged due to altered or improper wiring of overload protection.
3,000 GPD SALCOR UV LIGHT DISINFECTION SYSTEM

SECTION "A-A"

SECTION "B-B"

BAFFLED FOR MAX FLOW OF 6 GPM
NOTES:

1. Blower piping to ECOPOD-N not to exceed 100 FT total length in the piping system. For distances greater than 100 FT, consult factory. Blower must be located above flood levels on a solid base.

2. Vent to be located above finish grade or higher to avoid infiltration. Cap on vent must be secured with a stainless steel screw.

3. All other tanks to/from ECOPOD-N must conform to applicable country, state, province, and local plumbing and electrical codes.

4. The primary tank volume must be .6 to 1 times the rated ECOPOD-N GPD. Primary and Reactor tank volumes are listed in the ECOPOD-N Design Manual. The primary tank may be integrated with the reactor tank or stand alone in a separate tank.

5. All manways, pump out ports, and vents must be secured to prevent accidental or unauthorized access.

6. ECOPOD-N media is recommended to be at least 19" from bottom of tank. Distances not 19" need factory approval.

7. ECOPOD-N media VF19PLUS.

8. Tanks with higher inlets, install SCH 40 PVC pipe over legs to elevate reactor to correct height.

9. Air supply line should be secured with non-corrosive clamps where required to prevent vibration damage.

10. Effluent discharge level must be at a height no more, or no less than 2" above vertical tube PVC media.

11. Use epoxy, or use another approved method or substance, to create strong connection & watertight seal (TYP.)

12. Risers must conform to country, state, province, and local acceptable codes. Fiberglass riser shown.
NOTES:

1. Blower Model Delta K05-MS

2. Setting High Level Pressure Switch
   Bring plant to operating water level with compressor turned on. Using properly sized screw driver, turn high level alarm adjustment screw clockwise until alarm occurs. Once alarm occurs, turn the screw counter-clockwise until alarm stops.

3. Setting Low Level Pressure Switch
   Factory set

4. All of Delta's control panels are manufactured to UL508A requirements. All enclosures are NEMA rated.

5. Pressure switch tubing is used for high and low level pressure detection.

6. All piping from the blower to the ECOPOD-N to be 2" sch 40 PVC pipe.

7. All blowers are housed in a polyethylene enclosure supplied with necessary piping for installation.

8. Inlet Filters must be mounted on outside of enclosure. Filters not mounted on outside could contribute to blower malfunction and void manufacturer's warranty.

9. Filter elements must be non-paper type.
ECOPOD-N SERIES SPECIFICATIONS

1. The ECOPOD-N Series is an Advanced, Fixed Film Wastewater Treatment device from 500 to 9,000 GPD. It has been tested under NSF Std 40 and Std 245 and meets or exceeds requirements for effluent quality. The ECOPOD-N significantly reduces nutrients in the wastewater as well as BOD & TSS and performs nitrification and de-nitrification in a single tank. The ECOPOD-N series utilizes a Fixed Film process which is characteristically stable, reliable, and sturdy. Fixed Film is a preferred treatment process in many areas for on-site wastewater treatment systems.

2. The ECOPOD-N shall essentially consist of a media container, engineered media, air diffusion system, specially designed discharge outlet tee, blower assembly, and control/alarm panel. Additional features and accessories are as shown on the Delta Environmental job drawing and as hereinafter specified and described.

3. The reactor tank shall be sized to provide a minimum of 33.6 hours of hydraulic detention time at the average daily flow (ADF). The dilution zone shall also be designed as to provide optimum liquid-solid separation and shall be sized to provide 24 hours hydraulic detention at the ADF rate.

4. The aeration blower shall provide the system with sufficient capacity to furnish the treatment units air requirements. The blower(s) shall be capable of delivering a minimum of 4,850 cubic feet per pound of BOD5 influent at required discharge pressure.

5. An electrical control panel shall be furnished with each compressor that will protect the compressor from overload and failure to start. Included in the panel shall be a pressure switch alarm system that will sound an alarm upon loss of air supply as well as a high water. System shall be NSF/ANSI International certified utilizing UL rated components in an indoor/outdoor NEMA rated enclosure.

6. Air delivery system shall be constructed of schedule 40 PVC pipe. Patented air ports shall be designed for non-clogging and shall be maintenance free.

7. All necessary piping and valves inside the plant shall be PVC and provided by the manufacturer. At the exterior wall of the plant, as shown on the plans, the manufacturer shall provide properly sized inlet and outlet connections. The manufacturer shall not be responsible for piping or valves outside the plant. Contractor or owner shall be responsible for necessary piping and valves between all systems.

8. All workmanship and materials shall be of the highest quality. The waste treatment plant shall be the product of an experienced manufacturer actively engaged in manufacturing and research and development of sewage treatment systems. NSF International test documents shall be available upon request of the engineer.

Delta Environmental has a limited warranty on the parts in each treatment system for a period of (2) years. All warranty questions shall be resolved through Delta Environmental. The warranty on the treatment device is that the device is free from defects in material and workmanship from the date of installation treating household wastewater. The warranty does not cover treatment processes and devices that have been flooded, by external means, or that have been disassembled by unauthorized persons, improperly installed, subjected to external damage or damaged due to altered or improper wiring of overload protection.
NOTES:

1. Blower piping to ECOPOD-N not to exceed 100 FT total length in the piping system. For distances greater than 100 FT, consult factory. Blower must be located above flood levels on a solid base.

2. Vent to be located above finish grade or higher to avoid infiltration. Cap on vent must be secured with a stainless steel screw.

3. All other tanks to/from ECOPOD-N must conform to applicable country, state, province, and local plumbing and electrical codes.

4. The primary tank volume must be .6 to 1 times the rated ECOPOD-N GPD. Primary and Reactor tank volumes are listed in the ECOPOD-N Design Manual. The primary tank may be integrated with the reactor tank or stand alone in a separate tank.

5. All manways, pump out ports, and vents must be secured to prevent accidental or unauthorized access.

6. ECOPOD-N media is recommended to be at least 19" from bottom of tank. Distances not 19" need factory approval.

7. ECOPOD-N media VF19PLUS.

8. Tanks with higher inlets, install SCH 40 PVC pipe over legs to elevate reactor to correct height.

9. Air supply line should be secured with non-corrosive clamps where required to prevent vibration damage.

10. Effluent discharge level must be at a height no more, or no less than 2" above vertical tube PVC media.

11. Use epoxy, or use another approved method or substance, to create strong connection & watertight seal (TYP.)

12. Risers must conform to country, state, province, and local acceptable codes. Fiberglass riser shown.

5000 GPD TREATMENT UNIT
Primary Volume 3000–5000 Gallons
Reactor Volume 7000 Gallons Min.
Recommended Min. Distance Under Reactor Box 19"
NOTES:

1. Blower Model Delta K05-MS

2. Setting High Level Pressure Switch
   Bring plant to operating water level with compressor turned on. Using properly sized screw driver, turn high level alarm adjustment screw clockwise until alarm occurs. Once alarm occurs, turn the screw counter-clockwise until alarm stops.
   Setting Low Level Pressure Switch
   Factory set

3. All of Delta's control panels are manufactured to UL508A requirements. All enclosures are NEMA rated.

4. Pressure switch tubing is used for high and low level pressure detection.

5. All piping from the blower to the ECOPOD-N to be 2" sch 40 PVC pipe.

6. All blowers are housed in a polyethylene enclosure supplied with necessary piping for installation.

7. Inlet Filters must be mounted on outside of enclosure. Filters not mounted on outside could contribute to blower malfunction and void manufacturer's warranty.

8. Filter elements must be non-paper type.
ECOPOD-N SERIES SPECIFICATIONS

1. The ECOPOD-N Series is an Advanced, Fixed Film Wastewater Treatment device from 500 to 9,000 GPD. It has been tested under NSF Std 40 and Std 245 and meets or exceeds requirements for effluent quality. The ECOPOD-N significantly reduces nutrients in the wastewater as well as BOD & TSS and performs nitrification and de-nitrification in a single tank. The ECOPOD-N series utilizes a Fixed Film process which is characteristically stable, reliable, and sturdy. Fixed Film is a preferred treatment process in many areas for on-site wastewater treatment systems.

2. The ECOPOD-N shall essentially consist of a media container, engineered media, air diffusion system, specially designed discharge outlet tee, blower assembly, and control/alarm panel. Additional features and accessories are as shown on the Delta Environmental job drawing and as hereinafter specified and described.

3. The reactor tank shall be sized to provide a minimum of 33.6 hours of hydraulic detention time at the average daily flow (ADF). The dilution zone shall also be designed as to provide optimum liquid-solid separation and shall be sized to provide 24 hours hydraulic detention at the ADF rate.

4. The aeration blower shall provide the system with sufficient capacity to furnish the treatment units air requirements. The blower(s) shall be capable of delivering a minimum of 4,850 cubic feet per pound of BOD5 influent at required discharge pressure.

5. An electrical control panel shall be furnished with each compressor that will protect the compressor from overload and failure to start. Included in the panel shall be a pressure switch alarm system that will sound an alarm upon loss of air supply as well as a high water. System shall be NSF/ANSI International certified utilizing UL rated components in an indoor/outdoor NEMA rated enclosure.

6. Air delivery system shall be constructed of schedule 40 PVC pipe. Patented air ports shall be designed for non-clogging and shall be maintenance free.

7. All necessary piping and valves inside the plant shall be PVC and provided by the manufacturer. At the exterior wall of the plant, as shown on the plans, the manufacturer shall provide properly sized inlet and outlet connections. The manufacturer shall not be responsible for piping or valves outside the plant. Contractor or owner shall be responsible for necessary piping and valves between all systems.

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NOTES:
1. Blower piping to ECOPOD-N not to exceed 100 FT total length in the piping system. For distances greater than 100 FT, consult factory. Blower must be located above flood levels on a solid base.
2. Vent to be located above finish grade or higher to avoid infiltration. Cap on vent must be secured with a stainless steel screw.
3. All other tanks to/from ECOPOD-N must conform to applicable country, state, province, and local plumbing and electrical codes.
4. The primary tank volume must be 6 to 1 times the rated ECOPOD-N GPD. Primary and Reactor tank volumes are listed in the ECOPOD-N Design Manual. The primary tank may be integrated with the reactor tank or stand alone in a separate tank.
5. All manways, pump out ports, and vents must be secured to prevent accidental or unauthorized access.
6. ECOPOD-N media is recommended to be at least 19" from bottom of tank. Distances not 19" need factory approval.
7. ECOPOD-N media VF19PLUS.
8. Tanks with higher inlets, install SCH 40 PVC pipe over legs to elevate reactor to correct height.
9. Air supply line should be secured with non-corrosive clamps where required to prevent vibration damage.
10. Effluent discharge level must be at a height no more, or no less than 2" above vertical tube PVC media.
11. Use epoxy, or use another approved method or substance, to create strong connection & watertight seal (TYP.)
12. Risers must conform to country, state, province, and local acceptable codes. Fiberglass riser shown.
NOTES:

1. Blower Model Delta K07-MS

2. Setting High Level Pressure Switch
   Bring plant to operating water level with compressor turned on. Using properly sized screw driver, turn high level alarm adjustment screw clockwise until alarm occurs. Once alarm occurs, turn the screw counter-clockwise until alarm stops.
   Setting Low Level Pressure Switch
   Factory set

3. All of Delta's control panels are manufactured to UL508A requirements. All enclosures are NEMA rated.

4. Pressure switch tubing is used for high and low level pressure detection.

5. All piping from the blower to the ECOPOD-N to be 3" sch 40 PVC pipe.

6. All blowers are housed in a polyethylene enclosure supplied with necessary piping for installation.

7. Inlet Filters must be mounted on outside of enclosure. Filters not mounted on outside could contribute to blower malfunction and void manufacture's warranty.

8. Filter elements must be non-paper type.
ECOPOD-N SERIES SPECIFICATIONS

1. The ECOPOD-N Series is an Advanced, Fixed Film Wastewater Treatment device from 500 to 9,000 GPD. It has been tested under NSF Std 40 and Std 245 and meets or exceeds requirements for effluent quality. The ECOPOD-N significantly reduces nutrients in the wastewater as well as BOD & TSS and performs nitrification and de-nitrification in a single tank. The ECOPOD-N series utilizes a Fixed Film process which is characteristically stable, reliable, and sturdy. Fixed Film is a preferred treatment process in many areas for on-site wastewater treatment systems.

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APPENDIX A
SPECIFICATIONS AND DIMENSIONS
### CHART 2
ECOPOD-N FIXED FILM WASTEWATER TREATMENT SYSTEM UNIT
SPECIFICATIONS

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>TREATMENT CAPACITY (GPD)</th>
<th>PRIMARY TANK TOTAL VOLUME (GAL)*</th>
<th>REACTOR TANK VOLUME (GAL)*</th>
<th>REACTOR TANK DILUTION VOLUME (GAL)*</th>
<th>MEDIA SIZE</th>
<th>AIR REQUIREMENTS *</th>
</tr>
</thead>
<tbody>
<tr>
<td>E50-N</td>
<td>500</td>
<td>500</td>
<td>700</td>
<td>560</td>
<td>2’X2’X4’</td>
<td>12 CFM</td>
</tr>
<tr>
<td>E60-N</td>
<td>600</td>
<td>600</td>
<td>840</td>
<td>672</td>
<td>3’X2’X4’</td>
<td>14.4 CFM</td>
</tr>
<tr>
<td>E75-N</td>
<td>750</td>
<td>750</td>
<td>1050</td>
<td>840</td>
<td>3’X2’X4’</td>
<td>18 CFM</td>
</tr>
<tr>
<td>E100-N</td>
<td>1000</td>
<td>1000</td>
<td>1400</td>
<td>1120</td>
<td>4’X2’X4’</td>
<td>24 CFM</td>
</tr>
<tr>
<td>E150-N</td>
<td>1500</td>
<td>1500</td>
<td>2100</td>
<td>1680</td>
<td>6’X2’X4’</td>
<td>36 CFM</td>
</tr>
<tr>
<td>E200-N</td>
<td>2000</td>
<td>2000</td>
<td>2800</td>
<td>2240</td>
<td>8’X2’X4’</td>
<td>48 CFM</td>
</tr>
<tr>
<td>E250-N</td>
<td>2500</td>
<td>2500</td>
<td>3500</td>
<td>2800</td>
<td>10’X2’X4’</td>
<td>60 CFM</td>
</tr>
<tr>
<td>E300-N</td>
<td>3000</td>
<td>2000-3000</td>
<td>4200</td>
<td>3360</td>
<td>8’X2’X6’</td>
<td>72 CFM</td>
</tr>
<tr>
<td>E450-N</td>
<td>4500</td>
<td>3000-4500</td>
<td>6100</td>
<td>4880</td>
<td>12’X2’X6’</td>
<td>108 CFM</td>
</tr>
<tr>
<td>E500-N</td>
<td>5000</td>
<td>3000-5000</td>
<td>7000</td>
<td>5743</td>
<td>14’X2’X6’</td>
<td>120 CFM</td>
</tr>
<tr>
<td>E900-N</td>
<td>9000</td>
<td>6000-9000</td>
<td>12000</td>
<td>9600</td>
<td>10’X2’X16’</td>
<td>288 CFM</td>
</tr>
</tbody>
</table>

*These are minimum volumes and air requirements.

**MATERIALS OF CONSTRUCTION**

**Suffix FF**
- Reactor Tank: Fiberglass
- Cover: Fiberglass
- Media Container: Polyethylene

**Suffix CA**
- Reactor Tank: Concrete
- Cover: Concrete
- Media Container: Polyethylene

These are standard production units. Other configurations are available upon request.

*Used in this O & M Manual
**CHART 3**

UV Chart SALCOR 3G

<table>
<thead>
<tr>
<th>Model</th>
<th>Compressor</th>
<th># of Units in Parallel</th>
<th>UV Model #</th>
</tr>
</thead>
<tbody>
<tr>
<td>E50-N</td>
<td>Delta Model E50</td>
<td>1</td>
<td>SALCOR 3G</td>
</tr>
<tr>
<td>E60-N</td>
<td>Delta Model E60</td>
<td>1</td>
<td>SALCOR 3G</td>
</tr>
<tr>
<td>E75-N</td>
<td>Delta Model E75</td>
<td>2</td>
<td>SALCOR 3G</td>
</tr>
<tr>
<td>E100-N</td>
<td>Delta Model E100</td>
<td>2</td>
<td>SALCOR 3G</td>
</tr>
<tr>
<td>E150-N</td>
<td>Delta Model E150</td>
<td>3</td>
<td>SALCOR 3G</td>
</tr>
<tr>
<td>E200-N</td>
<td>Delta Model E200</td>
<td>4</td>
<td>SALCOR 3G</td>
</tr>
<tr>
<td>E250-N</td>
<td>Delta Model E250</td>
<td>5</td>
<td>SALCOR 3G</td>
</tr>
<tr>
<td>E300-N</td>
<td>Delta Model E300</td>
<td>5</td>
<td>SALCOR 3G</td>
</tr>
</tbody>
</table>

**CHART 4**

Chlorination

<table>
<thead>
<tr>
<th>Model</th>
<th>Chlorine Contact Tank Volume</th>
<th>Chlorinator Model Norweco</th>
<th>De-chlorinator Model Norweco</th>
</tr>
</thead>
<tbody>
<tr>
<td>E300-N</td>
<td>250 Gallons</td>
<td>LF 2000</td>
<td>LF 2000</td>
</tr>
<tr>
<td>E450-N</td>
<td>375 Gallons</td>
<td>LF 2000</td>
<td>LF 2000</td>
</tr>
<tr>
<td>E500-N</td>
<td>420 Gallons</td>
<td>LF 2000</td>
<td>LF 2000</td>
</tr>
<tr>
<td>E900-N</td>
<td>750 Gallons</td>
<td>LF 2000</td>
<td>LF 2000</td>
</tr>
</tbody>
</table>
# Chart 5

## Electrical Requirements

<table>
<thead>
<tr>
<th>Model</th>
<th>Compressor</th>
<th>Motor Full Load Amps</th>
<th>Measured Operating Watts</th>
<th>Electrical Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>E50-N</td>
<td>Delta Model E50</td>
<td>3.5</td>
<td>185 watts</td>
<td>115 volt - single phase</td>
</tr>
<tr>
<td>E60-N</td>
<td>Delta Model E60</td>
<td>3.5</td>
<td>185 watts</td>
<td>115 volt - single phase</td>
</tr>
<tr>
<td>E75-N</td>
<td>Delta Model E75</td>
<td>4.7</td>
<td>280 watts</td>
<td>115 volt - single phase</td>
</tr>
<tr>
<td>E100-N</td>
<td>Delta Model E100</td>
<td>4.7</td>
<td>280 watts</td>
<td>115 volt - single phase</td>
</tr>
<tr>
<td>E150-N</td>
<td>Delta Model E150</td>
<td>4.7</td>
<td>280 watts</td>
<td>115 volt - single phase</td>
</tr>
<tr>
<td>E200-N</td>
<td>FPZ K03MS</td>
<td>6.9</td>
<td>380 watts</td>
<td>115 volt - single phase</td>
</tr>
<tr>
<td>E250-N</td>
<td>FPZ K03MS</td>
<td>7.9</td>
<td>520 watts</td>
<td>115 volt - single phase</td>
</tr>
<tr>
<td>E300-N</td>
<td>FPZ K03MS</td>
<td>8.9</td>
<td>650 watts</td>
<td>115 volt - single phase</td>
</tr>
<tr>
<td>E450-N</td>
<td>FPZ K03MS</td>
<td>12</td>
<td>1305 watts</td>
<td>115 volt - single phase</td>
</tr>
<tr>
<td>E500-N</td>
<td>FPZ K03MS</td>
<td>12</td>
<td>1305 watts</td>
<td>115 volt - single phase</td>
</tr>
<tr>
<td>E900-N</td>
<td>FPZ K03MS</td>
<td>12.2</td>
<td>2400 watts</td>
<td>115 volt - single phase</td>
</tr>
</tbody>
</table>
### CHART 6

**TANK REQUIREMENTS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Size (GPD)</th>
<th>Reactor Tank</th>
</tr>
</thead>
<tbody>
<tr>
<td>E50-N</td>
<td>500</td>
<td>W1000/600-MR</td>
</tr>
<tr>
<td>E60-N</td>
<td>600</td>
<td>W1500/100-FDL</td>
</tr>
<tr>
<td>E75-N</td>
<td>750</td>
<td>W1500/100-FDL</td>
</tr>
<tr>
<td>E100-N</td>
<td>1000</td>
<td>W2500-FDL</td>
</tr>
<tr>
<td>E150-N</td>
<td>1500</td>
<td>W2500-FDL</td>
</tr>
<tr>
<td>E200-N</td>
<td>2000</td>
<td>W3000-MR</td>
</tr>
<tr>
<td>E250-N</td>
<td>2500</td>
<td>W4200</td>
</tr>
<tr>
<td>E300-N</td>
<td>3000</td>
<td>W4200</td>
</tr>
<tr>
<td>E450-N</td>
<td>4000</td>
<td>W6010</td>
</tr>
<tr>
<td>E500-N</td>
<td>5000</td>
<td>W7700</td>
</tr>
<tr>
<td>E900-N</td>
<td>9000</td>
<td>W10000</td>
</tr>
</tbody>
</table>
APPENDIX B
ELECTRICAL CONTROL PANELS
DELTA ENVIRONMENTAL PRODUCTS
ATU/EFFLUENT PUMP/UV
ALARM CONTROL PANEL
* Fuse size varies with compressor size per National Electrical Code

** Wide angle floats must be used (must carry pump current)

INTERIOR VIEW

COX
Research and Technology, Inc.

P.O. Box 77808
Baton Rouge, LA 70889
Ph. (225)756-3271
Fax (225)755-1030

PROJECT Title: ATU/EFUENT PUMP/UV ALARM CONTROL PANEL

DATE 9/10/08
APPENDIX C
MISC EQUIPMENT SPECIFICATIONS
Für einen einwandfreien Betrieb muß die Maschine MINDESTENS mit einem ANSAUGFILTER und einem SICHERHEITSVENTIL ausgerüstet sein. Weitere Zubehör auf Anfrage.

(1) Motorleistung.
(2) Maximale Differenzdruck bezogen auf installierte Motorleistung.
(3) Ansaugvolumenstrom bezogen auf inst. Differenzdruck bezogen auf installierte Motorleistung.


To allow the perfect performing of the machine, it has to be equipped with the INLET FILTER and the SECURITY VALVE AT LEAST; other accessories available on request.

(1) Installed power.
(2) Maximum differential pressure referred to installed motor.
(3) Inlet flow at max. differential pressure per installed motor.

The characteristics data given, refer to the handling of gas with inlet temperature of 15°C, normal density of 1,23 kg/m³ and absolute pressure of 1013 mbar in suction in case of performing as compressor, in discharge in case of performing as exhaustor. Dimensions in mm. Noise level measured at 1 m distance with inlets piped. Tolerance on given values ±10% - unbinding and can be changed without prior notice.
ONSITE WASTEWATER EFFLUENT
UV DISINFECTION UNIT MODEL 3G

INSTALLATION INSTRUCTIONS

I. First, unpack the unit and check for any damage in shipping. There are 7 sub-assemblies that comprise the UV system, which are:

1. Disinfection, chamber – 3 inch ABS with 4-inch inlet and outlet hubs.
2. Disinfection subassembly – anodized aluminum frame, pure fused quartz sleeve, Teflon® cover, packed inside the disinfection chamber.
3. PVC handle for disinfection subassembly.
4. Long Life UV lamp- packed inside the PVC handle.
5. Riser pipe 4 inch ABS with a ¾ inch PVC nipple at one end.
   The PVC handle and UV lamp are packed inside.
6. Electrical subassembly- junction box with pre wired alarm board, electronic ballast, and UV lamp power cable.
7. Two 4-inch Sch 40 ABS pipe couplings.

Note: Inspect the unit upon receipt and report any damage.

There will be some additional items needed for installation, which are:

1. ABS cement (also multipurpose cement if bonding to PVC pipe)
2. Silicone sealant
3. Teflon tape
4. Isopropyl (rubbing) alcohol
5. Glycerin (available from drug stores)
6. Wires

A schematic drawing of the unit is shown in figure 1.
II INSTALLATION ALTERNATIVES

1. In ground – couple the 4-inch inlet to the exit pipe of the pretreatment unit, and couple the 4-inch outlet to the drain field pipe.
2. Pump tank - couple the UV unit inlet pipe to the pretreatment unit exit pipe at the entrance of the pump tank.
3. Figure 1 shows that the electrical junction box should be above ground level. If this should pose a problem with lawn mowers, the box could be placed below grade in an irrigation or water meter box. Or an artificial rock could cover the junction box.

The Junction box is rated NEMA 4X. However, to be safe it should be protected from flooding.

In pump tank installations care should be taken to prevent flooding of the junction box or the ballast suspended below it.
III  DETAILED STEPS

1. Cut 4 inch riser pipe and lamp handle to meet job needs. Use the 4-inch connection to the pretreatment unit as a reference point. The lamp handle upper end should be slightly below the ¾ inch nipple and the riser pipe.

2. Attach the threaded end of the lamp handle to the 1 inch threaded nipple on the upper end of the disinfection subassembly, which is packed inside the disinfection chamber. Teflon tape should be used to seal the threads. Then remove the disinfection subassembly by pulling the handle upward.

3. Bond the riser pipes and couplings and connect the disinfection chamber to the upstream and downstream (if any) pipes. The unit symmetrical and either port can be used as the inlet (or outlet).

4. Inspect the disinfection subassembly. Using a clean, soft cloth and isopropyl (rubbing) alcohol, clean the Teflon ® cover and remove any fingerprints. Then lubricate the rubber gaskets with either water or glycerin.

   **Note: Do not use silicone or petroleum based lubricants.**

5. Slide the disinfection subassembly through the riser pipe into the disinfection chamber using the handle. Make sure that the subassembly is at a right angle to the inlet and outlet pipes, and that the holes on the upper hub of the subassembly lock into two pins in the disinfection chamber. The orientation is very important for successful UV unit operation.

6. The UV unit operates on 120 VAC single phase (50 or 60 HZ) power and consumes 30 watts. A dedicated 10-15-amp breaker on the main electrical panel should be used for service.

7. An electrical junction wiring diagram is shown in figure 2. Inlet power, ground and alarm wires are fed through conduit to the ¾ inch nipple on the riser pipe. Enough wire should be pulled through the riser pipe to reach about one foot above it.
8. The wires should then be fed through the cord grip on the bottom side of the electrical junction box. The cord grip can accommodate five 12 AWG wires in addition to those pre-wired.

9. Attach the wires to the terminal block as shown in figure 2. The wiring schematic is also shown on the inside of the junction box cover.

10. The alarm contacts are compatible with both normally open (N/O) and normally closed (N/C) external alarm units (furnished by others). They accommodate up to 120 volts and up to 500 milliamps. Select the common and the contact that complies with the receiving alarm panel.

11. Tighten the cord grip, attach the four pin connector to the UV lamp and carefully lower the lamp through the handle. Be careful to not damage the quartz tube during insertion.

12. Lower the ballast so that it is loosely attached to the PVC handle by the two tie wraps.

13. Place the electrical junction box on top of the 4 inch riser pipe. Tuck excess wire into the riser pipe.

14. Turn the breaker at the main electrical panel on. The LED light on the side of the junction box should now be on, indicating that the unit is operational.

15. Fill the recess in the bottom of the electrical junction box where the wires feed into the cord grip with silicone sealant. Then, replace the electrical junction box lid.
MAINTENANCE AND SERVICE

The Salcor UV 3G disinfection unit is designed to provide long service life. It is recommended that the UV lamp be replaced every two years to insure proper disinfection. To replace the lamp:

1. Turn off the dedicated breaker located in the main electrical panel that supplies power to the UV system.
2. Remove the electrical junction box and ballast from the UV disinfection chamber and carefully set it aside.
3. Using the power line connected to the UV lamp, lift the lamp out of the disinfection subassembly.
4. Disconnect the four pin connector attaching the power line to the UV lamp.
5. Connect the new lamp to the four pin connector and completely lower the new lamp into the UV subassembly.
6. Tuck the remaining power line into the riser pipe.
7. Make sure the ballast is still in position on subassembly handle and insert the plastic section on the back side of the control center enclosure into the top of the riser pipe.
8. Turn on the dedicated breaker located in the main electrical panel that supplies power to the UV system.

It is recommended that the disinfection subassembly be removed and serviced a minimum of once per year to insure proper effluent disinfection. To clean the Teflon® sheath and disinfection subassembly:

1. Clean with a soft sponge and detergent.
2. Use isopropyl alcohol on a soft cloth to remove difficult stains like finger prints and other films.
Electrical Junction Box

Salcor, Inc
PO Box 1090
Fallbrook, CA 92028
760-731-0745
APPENDIX D
NAMEPLATES
APPENDIX E
SERVICE POLICY, WARRANTIES
AND NSF POLICIES
DELTA ENVIRONMENTAL
INDIVIDUAL MECHANICAL WASTEWATER TREATMENT SYSTEM
SERVICE POLICY

INITIAL POLICY:

A two year initial service policy shall be furnished to the user by the manufacturer or the distributor through the dealer. **This policy is included in the original price** and shall provide the following:

1. An inspection/service call every six months, which includes inspection, adjustment, and servicing of the mechanical and electrical component parts as necessary to ensure proper function.

2. An effluent quality inspection every six months consisting of a visual check for color, turbidity, scum overflow, and an examination for odors.

3. A sample shall be pulled from the aeration tank every six months as described in the “SOLIDS REMOVAL” section to determine if there is an excess of solids in the treatment ECOPOD-N. If the test results determine a need for solids removal, the user will bear the cost and responsibility for doing so.

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

CONTINUING SERVICE POLICY:

An annually renewable service policy affording the same coverage as the Initial Service Policy is available. Consult your dealer for pricing information.

PARTS:

Replacement parts or components may be obtained from your local distributor or directly from Delta Environmental.

COMPLAINTS:

In order for Delta Environmental to properly address complaints, we require that you put in writing the date and nature of the complaint as detailed as possible. This **must** include the Serial Number of your system.

Send to: Delta Environmental
9263 Florida Blvd.
Denham Springs, LA 70726
LIMITED WARRANTY

Delta Environmental warrants the parts in each treatment system for a limited two year period. All warranty questions shall be resolved through Delta Environmental. The warranty on the treatment device is that the device is free from defects in material and workmanship from the date of installation treating household wastewater. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply. Sole obligation under this warranty is as follows: Delta Environmental shall fulfill this warranty by repairing or exchanging any component part, F.O.B. factory that in Delta Environmental judgment shows evidence of defects, provided said component part has been paid for and is returned through an authorized dealer, transportation prepaid. The warrantee must also specify the nature of the defect to the manufacturer.

The warranty does not cover treatment processes/devices that have been flooded, by external means, or that have been disassembled by unauthorized persons, improperly installed, subjected to external damage or damaged due to altered or improper wiring or overload protection.

This warranty applies only to the treatment process/device and does not include any of the house wiring, plumbing, drainage, or disposal system. Delta Environmental is not responsible for any delay or damages caused by defective components or material, or for loss incurred because of interruption of service, or for any other special or consequential damages or incidental expenses arising from the manufacture, sale or use of this process/device.

Delta Environmental reserves the right to revise, change or modify the construction and design of the treatment process/device for household wastewater or any component part or parts thereof without incurring any obligation to make such changes or modifications in previously sold equipment. Delta Environmental also reserves the right, in making replacements of component parts under this warranty, to furnish a component part which, in its judgment is equivalent to the part replaced.

Under no circumstances will Delta Environmental be responsible to the warrantee for any other direct or consequential damages, including but not limited to lost profits, lost income, labor charges, delays in production, and/or idle production, which damages are cause by a defect in material and/or workmanship in its parts. Some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty is expressly in lieu of any other express or implied warranty, excluding any warranty of merchantability or fitness and of any other obligation on the part of Delta Environmental.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Rev 5/2012
Delta Environmental Products Checklist
for Minnesota Regulators

Regulator: ___________________________ Date of Inspection: ________________

### Project Information

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<td>Owner</td>
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### Primary Treatment

**Primary Tank. Verify the following:**
- Number of Tanks: ____ Tank size: _____ gallons
- Number of compartments: _______
- Tank construction: □ Concrete □ Fiberglass
- Tank manufacturer: __________________________

**Effluent Tank Pumping Equipment. Verify the following:**
- □ Pumping equipment installed properly.
- □ Discharge plumbing properly installed through watertight grommet and ball valve is in open position.
- □ Float assembly mounted in and properly set per Delta Installation Guide. Float cords neatly wrapped around splice box and tied.
- □ Floats operate properly.
- □ Floats set properly at ______" ______ " ______"
- □ Splice box mounted on access riser. Watertight connectors used.

### Residential System Information

| Number of Bedrooms | ___________________________ |
| Number of Occupants | ___________________________ |
| NSF Certification Labeling on Panel & Tank? | ____________ |
| Serial # | ___________________________ |

**Disposal Method:** ___________________________
Delta Environmental Products Checklist for Minnesota Regulators

Ecopod  
Secondary Treatment System

Delta Model Number (______). Verify the following:
- All tanks installed level.
- All piping properly covered and compacted.

Air Vents. Verify the following:
- Ventilation properly located and installed.

Air Unit Operation.
- Visually check aeration.

Secondary Treatment Notes: ________________________________

______________________________

______________________________

SALCOR 3G ULTRAVIOLET UNIT. Verify the following:
- 3G Unit installed level.
- Inlet & Outlet connection properly glued.
- 4” riser pipe at proper level.
- Disinfection sub-assembly properly installed.
- Visually check aeration.
- Electrical wiring properly connected.
- LED light inside junction box on when power is connected.

3G Notes:

______________________________

______________________________

______________________________

Controls

Note: Refer to the control panel instructions for detailed operational features of the control panel itself.

CP Number: ____________________________

Control Panel model installed: ____________________________

______________________________

______________________________

- Proper wire size used based on information provided by code.
- Conduit to local code installed.
- All electrical connections in panel are secure.
- Panel wired per manufacturer’s wiring diagram.
- Control panel start-up procedures, as detailed in the Delta Installation Guide, have been followed.
- Appropriate diagrams left in panel for future review.

______________________________

______________________________

______________________________

Final/Safety Inspection

Verify the following:
- Lid is secured on all splice boxes.
- All access riser hardware is in place. Lids are secured.
- Control panel documentation is left at site; panel is set for automatic operation and secured.

Final Notes:

______________________________

______________________________

______________________________

Revised 09/23/2008

2008 Delta Environmental Products
### Proprietary Treatment Unit / Reaeration

**Delta Model Number(____).** Verify the following:

- [ ] All tanks installed level.
- [ ] All piping properly covered and compacted.

**Air Vents.** Verify the following:

- [ ] Ventilation intake(s) properly located and installed.

**Air Unit Operation.**

- [ ] Visually check aeration.

Proprietary Treatment Notes: __________________________

_________________________________________________

_________________________________________________

_________________________________________________

### Primary Treatment

**Primary Tank.** Verify the following:

Number of Tanks: _____ Tank size: ______ gallons

Number of compartments: ______

- Tank construction: [ ] Concrete  [ ] Fiberglass

Tank manufacturer: ________________________________

**Effluent Tank Pumping Equipment.** Verify the following:

- [ ] Pumping equipment installed properly.
- [ ] Discharge plumbing properly installed through watertight grommet and ball valve is in open position.
- [ ] Float assembly mounted in and properly set per Delta Installation Guide. Float cords neatly wrapped around splice box and tied.
- [ ] Floats operate properly.
- [ ] Floats set properly at ______ " ______ " ______
- [ ] Splice box mounted on access riser. Watertight connectors used.

**Pump Verification.** Verify proper operation of the pumps.

- [ ] Pumps operate in Manual.
- [ ] Pumps operate in Automatic.

### Controls

Note: Refer to the control panel instructions for detailed operational features of the control panel itself.

Control Panel model installed: __________________________

_________________________________________________

_________________________________________________

- [ ] Proper wire size used based on information provided by code.
- [ ] Appropriate diagrams left in panel for future review.
- [ ] All electrical connections in panel are secure.
- [ ] Panel wired per manufacturer's wiring diagram.
- [ ] Control panel start-up procedures, as detailed in the Delta Installation Guide, have been followed.

Control Notes: ______________________________________

_________________________________________________

_________________________________________________

### Proprietary Treatment Unit / Reaeration

**SALCOR 3G ULTRAVIOLET UNIT.** Verify the following:

- [ ] 3G Unit installed level.
- [ ] Inlet & Outlet connection properly glued.
- [ ] 4" riser pipe at proper level.
- [ ] Disinfection sub-assembly properly installed.
- [ ] Visually check aeration.
- [ ] Electrical wiring properly connected.
- [ ] LED light inside junction box on when power is connected.

3G Notes:

_________________________________________________

_________________________________________________

_________________________________________________

______________________________
Final/Safety Inspection

Verify the following:

- □ Lid is secured on all splice boxes.
- □ All access riser hardware is in place. Lids are secured.
- □ Control panel documentation is left at site; panel is set for automatic operation and secured.

Final Notes: ______________________________________
_________________________________________________
_________________________________________________
_________________________________________________

Homeowner's Package

- □ Homeowner's Package (and manual) has been reviewed with homeowner by...(check one)

- □ Installer
- □ Service Provider
- □ Dealer