ECOPOD®

FIXED FILM WASTEWATER TREATMENT SYSTEM
MINNESOTA MANUAL

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12/17/08
NOTICE

This booklet provides operations, installation and warranty information on the TREATMENT ECOPOD, 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.

DELTA ENVIRONMENTAL PRODUCTS
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 (Initial)
Air Drop Lines Complete & Secured
Discharge Tee Assy Secured
A WORD ABOUT YOUR DELTA ADVANCED WASTEWATER TREATMENT SYSTEM AND HOW IT WORKS

The ECOPOD® 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® 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® 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® 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® 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® 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® 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® 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® 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.
The advanced wastewater treatment system described by these specifications is a Delta Environmental Products. ECOPOD® 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 treatment unit shall be Registered in the Minnesota Rule 7083.4030 for treatment levels A, B & C.

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 BOD$_5$. A minimum of 4,850 cubic feet of aeration capacity shall be provided for each pound of BOD$_5$.

**Constitution**

**Material Options**

**Fiberglass**

Fiberglass tanks shall be part of the ECOPOD 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 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 system.
**Primary Tank**

A primary tank shall be provided as shown on the plans to receive the incoming flow. If a separate tank is being utilized as a primary tank before the ECOPOD Reactor unit, the primary tank shall be sized per Minnesota state rules on septic tank requirements for hydraulic detention at the ADF rate. 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.

If a two compartment concrete tank is being utilized for a combination primary tank and ECOPOD Reactor tank, then the primary tank size shall be no less than the design average daily flow. Example: A 500 gallon ECOPOD unit shall have a minimum 500 primary tank.

**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 Products registration. One Salcor 3G unit is required per E50 and E60 ECOPOD unit.

**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 treatment unit shall be PVC and be provided by the manufacturer. At the exterior wall of the ECOPOD 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. Contractor or owner shall be responsible for necessary piping and valves between all systems.
SIZING EXAMPLES

Average daily 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 treatment unit sizing:

Example 1

Select an ECOPOD treatment unit for a three bedroom house.

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

Example 2

Select an ECOPOD treatment unit for a four bedroom house.

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

Example 3

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

- 6 bedrooms X 150 gallons = 900 gallons per day
- 900 gallons per day = Two (2) ECOPOD E50, 500 gallon per day units

The above are examples of normal domestic wastewater ECOPOD sizing. Influent from various sources can be converted into equivalent per capita flow for selection of the appropriate size treatment ECOPOD.
# CHART 1

**ECOPOD® Fixed Film Wastewater Treatment System**  
**ECOPOD 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>E- 50</td>
<td>500</td>
<td>1.25</td>
</tr>
<tr>
<td>E- 60</td>
<td>600</td>
<td>1.50</td>
</tr>
</tbody>
</table>

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

The ECOPOD® 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. 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 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 operation, waste should be disposed of in the garbage container.

The ECOPOD® 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 Products.
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 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 Average daily 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 Products. Delta Environmental Products 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® 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 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 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® 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® 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 (CBOD₅) 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 (CBOD₅) 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 (CBOD₅) 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. Warn 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.
SAMPLE PROCEDURES:

1. PRIOR TO TAKING SAMPLE HAVE ECOPOD PLANT DISCHARGE EFFLUENT FOR UP TO 4 MINUTES BY FLUSHING TOILETS AND/OR USE GARDEN HOSE TO FLUSH OUT SAMPLE PORT.

2. INSERT SAMPLE COLLECTING BOTTLE TO COLLECT ONLY EFFLUENT WHICH IS CASCADING OVER THE CASCADING EDGE.

3. HANDLE, STORE, AND TRANSPORT SAMPLES AS SPECIFIED BY POLICIES AND PROCEDURES PROVIDED BY THE TESTING LABORATORIES.

EXAMPLES OF SAMPLE PORTS

4" INLINE CROSS SAMPLE PORT

4" INLINE TEE SAMPLE PORT

6" PVC RISER W/THIRD CAP
4" INLET

RUBBER SEAL PIPE OFFSET TO BE 1/2" THE PIPE Dia.

MIN. 6" DEPTH PORT

4" OUTLET

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

SAMPLE PORTS

DWN BY: C.RACHAL
DATE: 10/16/08
SCALE: N.T.S.
DWG. NO.: MN EP Sample Ports
INSTALLATION INSTRUCTIONS ONLY
FOR USE BY CERTIFIED, LICENSED INSTALLERS

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 in the excavation so that the inlet and outlet line up with the sewer piping. The inlet line should slope down toward the ECOPOD treatment unit and the outlet line should slope down away from the ECOPOD treatment unit. The ECOPOD 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, 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 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.

10. After the control panel is properly mounted, connect conduit and install wiring as shown on drawings.

11. Install float switch wire from the control panel to the treatment ECOPOD 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.

12. 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.

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

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

15. 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 to grade level.

16. Re-check water level in the tank.

17. ECOPOD 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.
18. 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.

19. Close cover to control panel, and lock if necessary.

20. 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.

21. 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.

22. 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.

23. Retain these instructions for future reference.

24. **WARNING:** CONTROL PANEL CONTAINS HIGH VOLTAGE AND MUST ONLY BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL.
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 see 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. You should 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 ECOPODs, 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.
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
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 AS PER MINNESOTA CODE 7080-1900 (OPTIONAL INFLUENT PUMP APPLICATION)

CP52RCT15UV CONTROL PANEL

AS REQUIRED

E-50 TREATMENT UNIT MINNESOTA REGISTERED

BURIAL 18" BELOW FINAL GRADE FROM TOP OF TANK FLANGE

High Level Alarm Float
Primary timer On/Off Float
Redundant Low Level Float
High Head Turbine Pumps Or Submersible Sump Pump

24" MANWAYS

J-BOX
2" PVC

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

DELTA ECOPOD 500GPD UNIT PRIMARY TANK
SALCOR 3G U.V. DISINFECTION & EFFLUENT PUMP TANK WITH OPTIONAL DEP.5115 HIGH HEAD SCREEN PUMP VAULT

DWN BY: C.RACHAL
DATE: 9/22/08
SCALE: N.T.S.

M. N." PT FV, ECOPOD, SALCOR & EFF PUMP TANK

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

1000 GALLONS

CP52RCTISSLUV CONTROL PANEL

COMPRESSOR INCLUDES POLYETHYLENE BASE AND ENCLOSURE

SALCOR 3G UV LIGHT OPTIONAL PLACEMENT

J-BOX

2" PVC

CONCRETE PAD

TWO COMPARTMENT CONCRETE TANK AS PER MINNESOTA CODE 7080-1900

INLET

OUTLET

Burial 12" below final grade from top of tank

24" MANWAYS

Air Vent

PUMP TANK AS PER MINNESOTA CODE 7080-1900

High Level Alarm Float
Primary timer On/Off Float
Redundant Low Level Float
High Head Turbine Pumps
Or Submersible Sump Pump

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

DELTA ECOPOD 1500 GALLON TWO COMPARTMENT TANK
SALCOR 3G U.V. DISINFECTION & EFFLUENT PUMP TANK

DWN BY: C.RACHAL
DATE: 9/22/08
SCALE: N.T.S.
DWG. NO.: E50 ECOPOD 500 GPD/1500 GAL TWO COMP. TANK
MEDIA CONTAINER SIZES

E60

E50

Note:
For Dimensions, please see Appendix A - Specifications and Dimensions
APPENDIX A
SPECIFICATIONS AND DIMENSIONS
ECOPOD® FIXED FILM WASTEWATER TREATMENT SYSTEM UNIT
SPECIFICATIONS

<table>
<thead>
<tr>
<th>TREATMENT ECOPOD</th>
<th>TREATMENT CAPACITY (GPD)</th>
<th>PRIMARY TANK TOTAL VOLUME MIN - MAX (GAL)*</th>
<th>REACTOR TANK VOLUME MIN - MAX (GAL)*</th>
<th>REACTOR TANK DILUTION VOLUME MIN - MAX (GAL)*</th>
<th>MEDIA SIZE</th>
<th>AIR REQUIREMENTS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>E50</td>
<td>500</td>
<td>500 - 1000</td>
<td>700 - 1000</td>
<td>580 - 880</td>
<td>2'X2'X4'</td>
<td>12 CFM</td>
</tr>
<tr>
<td>E60</td>
<td>600</td>
<td>600 - 1200</td>
<td>840 - 1200</td>
<td>660 - 1020</td>
<td>3'X2'X4'</td>
<td>14.4 CFM</td>
</tr>
</tbody>
</table>

*These are minimum volumes and air requirements.
*Concrete tanks must meet Minnesota tank construction specifications and registration requirements.

MATERIALS OF CONSTRUCTION

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

Suffix CA
- Reactor Tank: Concrete
- Cover: Concrete
- Media Container: Fiberglass

These are standard production units. Other configurations are available upon request.
## 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</td>
<td>Delta Model E50</td>
<td>3.5</td>
<td>185 watts</td>
<td>115 volt - single phase</td>
</tr>
<tr>
<td>E60</td>
<td>Delta Model E60</td>
<td>4.7</td>
<td>280 Watts</td>
<td>115 volt - single phase</td>
</tr>
</tbody>
</table>
**DIMENSIONS**  
*For Delta furnished fiberglass tanks only*

<table>
<thead>
<tr>
<th>TREATMENT ECOPOD</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>E50</td>
<td>4'-11</td>
<td>4'-2&quot;</td>
<td>6'-0&quot;</td>
<td>4'</td>
<td>5'-0&quot;</td>
<td>10&quot;</td>
<td>2'</td>
<td>3'</td>
</tr>
<tr>
<td>E60</td>
<td>5'-7 3/4&quot;</td>
<td>4'-6&quot;</td>
<td>6'-3&quot;</td>
<td>4'-4&quot;</td>
<td>5'-0&quot;</td>
<td>11 1/2&quot;</td>
<td>2'</td>
<td>3'</td>
</tr>
</tbody>
</table>

REFER TO TREATMENT ECOPOD DRAWINGS ON THE ABOVE DIMENSIONS.

NOTE: For special cargo or container shipments 12 inches must be added to the diameters of all fiberglass units (due to the fiberglass flange and lifting lugs).
APPENDIX B
ELECTRICAL CONTROL PANELS
DELTA ENVIRONMENTAL PRODUCTS
ATU/EFFLUENT PUMP/UV
ALARM CONTROL PANEL
POWER DIAGRAM

SCHEMATIC DIAGRAM
CP52RCT15SUV

* SIZE VARIES WITH COMPRESSOR SIZE PER NATIONAL ELECTRICAL CODE
** WIDE ANGLE FLOAT MUST CARRY PUMP CURRENT

PUMP INTERNAL THERMAL OVERLOAD IS REQ'D
ENCLOSURE EXTERIOR

COMPRESSOR/ HIGH LEVEL

UV LIGHT FAILURE

BUZZER SILENCE NORMAL

BUZZER SILENCE NORMAL

DANGER "HIGH VOLTAGE" SERVICE BY QUALIFIED PERSONNEL ONLY

EXTERIOR VIEW
* Fuse size varies with compressor size per National Electrical Code

** Wide angle floats must be used (must carry pump current)
APPENDIX C
MISC EQUIPMENT SPECIFICATIONS
F.P.Z. GmbH
Kilianstraße 142
90425 NÜRNBERG
Tel. 0911.36.76.68.00
Fax 0911.36.76.68.01
E-mail deutschland@fpz.com

SEITENKANALVERDICHTER GEBLÄSE
LATERAL CHANNEL BLOWERS - EXHAUSTERS
SCL 06 MOR

DRUCKBETRIEB - COMPRESSOR

<table>
<thead>
<tr>
<th>kW</th>
<th>mbar</th>
<th>psig</th>
<th>m³/h</th>
<th>cfm</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.2</td>
<td>50 Hz - 2900 rpm</td>
<td>90</td>
<td>1.30</td>
</tr>
<tr>
<td>B</td>
<td>0.23</td>
<td>60 Hz - 3500 rpm</td>
<td>80</td>
<td>1.16</td>
</tr>
<tr>
<td>C</td>
<td>0.2</td>
<td>50 Hz - 2900 rpm</td>
<td>82</td>
<td>1.18</td>
</tr>
<tr>
<td>D</td>
<td>0.23</td>
<td>60 Hz - 3500 rpm</td>
<td>80</td>
<td>1.16</td>
</tr>
</tbody>
</table>

SAUGBETRIEB - EXHAUSTER

<table>
<thead>
<tr>
<th>kW</th>
<th>mbar</th>
<th>psig</th>
<th>kW</th>
<th>mbar</th>
<th>psig</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.2</td>
<td>50 Hz - 2900 rpm</td>
<td>235</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>0.23</td>
<td>60 Hz - 3500 rpm</td>
<td>235</td>
<td>7.1</td>
<td></td>
</tr>
</tbody>
</table>

MAXIMALER SCHALDDRUCKPEGEL
MAXIMUM NOISE LEVEL

50 Hz - 2900 rpm: 58
60 Hz - 3500 rpm: 59

Für einen einwandfreien Betrieb muß die Maschine MINDESTENS mit einem ANSAUGFILTER und einem SICHERHEITSVENTIL ausgerüstet sein. Weiteres Zubehör auf Anfrage.

Weitere Daten beziehen sich auf die Förderung von Gas bei einer Ansaugtemperatur von 15°C, Dichte von 1,23 kg/m³ und einem absoluten Druck von 1013 mbar (Ansaugbedingungen bei Druckbetrieb / Ausblasbedingungen bei Vakuumbetrieb).


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 exhauster. Dimensions in mm. Noise level measured at 1 m distance with in/outlets 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
SALCOR UV DISINFECTION UNIT

ELECTRICAL JUNCTION BOX WITH INDICATORS AND ALARM CONTACTS

GROUND LEVEL

4" PIPE

TREATMENT PLANT EFFLUENT

DISINFECTED EFFLUENT

26
(ADJUSTABLE AT INSTALLATION)

HANDLE FOR REMOVAL

SUPPORT FRAME & GASKET

UV LAMP/QUARTZ TUBE & TEFOLN COVER

SECTION A-A

NOTE: NOT ALL DIMENSIONS TO SCALE
APPENDIX D
NAMEPLATES
TREATMENT ECOPOD DATA PLATES

4”

ECOPOD®
Delta Environmental Products
8275 Florida Boulevard
Denham Springs, LA 70726
Phone: 1-800-219-9183
Model E XXX-X
ANSI/NSF STD 40
XXX GPD Class I

Serial No. XX-XXXXX XX

2”

ALARM MALFUNCTION ELECTRICAL PANEL

ECOPOD®
Delta Environmental Products
8275 Florida Boulevard
Denham Springs, LA 70726
Phone: 1-800-219-9183
Model E XXX-X
ANSI/NSF STD 40
XXX GPD Class I

Serial No. XX-XXXXX XX

3”
APPENDIX E
SERVICE POLICY, WARRANTIES
AND NSF POLICIES
DELTA ENVIRONMENT PRODUCTS  
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. 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 Products.

COMPLAINTS:

In order for Delta Environmental Products 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 Products  
P. O. Box 969  
Denham Springs, LA 70727-0969
LIMITED WARRANTY

Delta Environmental Products warrants the parts in each treatment system for a limited two (2) years. All warranty questions shall be resolved through Delta Environmental Products. 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 Products shall fulfill this warranty by repairing or exchanging any component part, F.O.B. factory that in Delta Environmental Products 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 Products 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 damage or expenses arising from the manufacture, sale or use of this process/device.

Delta Environmental Products 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 Products 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 Products 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 caused 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.

The 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 Products.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.
# Delta Environmental Products Checklist for Minnesota Regulators

<table>
<thead>
<tr>
<th>Project Information</th>
<th>Primary Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permit#: ________________</td>
<td>Primary Tank. Verify the following:</td>
</tr>
<tr>
<td>Owner: __________________________</td>
<td>Number of Tanks: _____ Tank size: ______ gallons</td>
</tr>
<tr>
<td>Address: __________________________________</td>
<td>Number of compartments: ________</td>
</tr>
<tr>
<td>City: ______________ State: _____ Zip: ____________</td>
<td>Tank construction: □ Concrete  □ Fiberglass</td>
</tr>
<tr>
<td>Phone Number: __________________________</td>
<td>Tank manufacturer: ____________________</td>
</tr>
<tr>
<td>Designer/Engineer: __________________________</td>
<td>Effluent Tank Pumping Equipment. Verify the following:</td>
</tr>
<tr>
<td>Phone Number: __________________________</td>
<td>□ Pumping equipment installed property.</td>
</tr>
<tr>
<td>Authorized Installer: __________________________</td>
<td>□ Discharge plumbing properly installed through watertight grommet and ball valve is in open position.</td>
</tr>
<tr>
<td>Phone Number: __________________________</td>
<td>□ Float assembly mounted in and properly set per Delta Installation Guide. Float cords neatly wrapped around splice box and tied.</td>
</tr>
<tr>
<td>Delta Distributor: __________________________</td>
<td>□ Floats operate properly.</td>
</tr>
<tr>
<td>Phone Number: __________________________</td>
<td>□ Floats set properly at ________ &quot; ________ &quot; ________ &quot;</td>
</tr>
<tr>
<td>Electrician: __________________________</td>
<td>□ Splice box mounted on access riser. Watertight connectors used.</td>
</tr>
<tr>
<td>Phone Number: __________________________</td>
<td>Pump Verification. Verify proper operation of the pumps.</td>
</tr>
<tr>
<td>Residential System Information</td>
<td></td>
</tr>
<tr>
<td>Number of Bedrooms: __________________________</td>
<td>□ Pumps operate in Manual.</td>
</tr>
<tr>
<td>Number of Occupants: __________________________</td>
<td>□ Pumps operate in Automatic.</td>
</tr>
<tr>
<td>NSF Certification Labeling on Panel &amp; Tank? __________</td>
<td></td>
</tr>
<tr>
<td>Serial #: __________________________</td>
<td></td>
</tr>
<tr>
<td>Disposal Method: __________________________</td>
<td></td>
</tr>
</tbody>
</table>

Regulator: __________________________ Date of Inspection: ________________
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.

Control 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: _________________________
# Delta Environmental Products
## Installer/Service Provider Checklist

### Proprietary Treatment Unit / Reaeration

<table>
<thead>
<tr>
<th>Delta Model Number(____). Verify the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ All tanks installed level.</td>
</tr>
<tr>
<td>□ All piping properly covered and compacted.</td>
</tr>
</tbody>
</table>

**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:

<table>
<thead>
<tr>
<th>Number of Tanks: _____ Tank size: _____ gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of compartments: __________</td>
</tr>
<tr>
<td>Tank construction: □ Concrete □ Fiberglass</td>
</tr>
<tr>
<td>Tank manufacturer: ____________________________</td>
</tr>
</tbody>
</table>

**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. |

---

### Proprietary Treatment Unit / Reaeration

<table>
<thead>
<tr>
<th>SALCOR 3G ULTRAVIOLET UNIT. Verify the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ 3G Unit installed level.</td>
</tr>
<tr>
<td>□ Inlet &amp; Outlet connection properly glued.</td>
</tr>
<tr>
<td>□ 4&quot; riser pipe at proper level.</td>
</tr>
<tr>
<td>□ Disinfection sub-assembly properly installed.</td>
</tr>
<tr>
<td>□ Visually check aeration.</td>
</tr>
<tr>
<td>□ Electrical wiring properly connected.</td>
</tr>
<tr>
<td>□ LED light inside junction box on when power is connected.</td>
</tr>
</tbody>
</table>

**3G Notes:**

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### 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:** _____________________________________

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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