Fac/Perm/Co ID #	Date	Doc ID#
4410-COMPOST	1/19/15	24352

Advanced Composting
TECHNOLOGIES

OPERATION AND MAINTENANCE PLAN

FOR TROUT WASTE COMPOSTING FACILITY

OWNER: SUNBURST TROUT COMPANY, LLC
OPERATOR: General Manager: Mr. Chris Inman

LOCATION: 128 RACEWAY PLACE
CANTON, NC 28716
Telephone (828) – 648 – 3010
Cell (828) – 702- 0167

TYPE OF OPERATION: Trout Processing Operation

SYSTEM SUPPLIER: Advanced Composting
Technologies, LLC
1-888-600-3004

Aquaculture Processing Waste composting systems shall be operated and maintained in accordance with the policy of the NC Dept. of Environment and Natural Resources, Division of Waste Management, Solid Waste Section. Disposal (land application) or other disposal shall also be in accordance with the policy of this Division. The address is:

Solid Waste Section
Division of Waste Management
Composting and Land Application Branch
NC Dept. of Environment & Natural Resources
1646 Mail Service Center
Raleigh, NC 27699-1646
Phone: 919-508-8508
Attn: Mr. Michael Scott

Landowner / Operator concurrence: __ __Sunburst Trout Company

_____

Date: _____1-19-15_____

Basics of Composting

Composting is a natural biological process of decomposition of organic materials in a predominantly **aerobic** environment. Because forced aeration mechanically moves fresh oxygen-rich air up through the composting pile, evenly and at pre-determined intervals, optimum aerobic conditions are maintained throughout the duration of the composting process. Forced aeration removes one of the limiting factors associated with the traditional static pile composting process – the lack of oxygen within the pile – and results in maximum breakdown of the material in a minimum amount of time.

During the process, bacteria, fungi and other microorganisms break down organic materials to a stable mixture called compost while consuming oxygen and releasing heat, water, and carbon dioxide (CO_2). The finished compost resembles humus and can be used as a soil amendment. Composting reduces the volume of the parent materials and pathogens are destroyed when the process is controlled properly.

All disease-causing organisms are subjected to at least three adverse conditions during composting: heat, toxicity caused by products of decomposition, and microbial antagonism. Heat generated in the composting process is the primary determinant studied as the inactivator of disease-causing organisms. Heat is also the performance indicator of microbial activity within the composting pile. An extended period of heat (minimum of 5 consecutive days) in the desired range (above 140°F) achieved during composting is essential for the destruction of most pathogens. With proper management, the forced aeration composting process will produce temperatures consistently higher than the typical static pile composting pile as noted earlier. Higher temperatures translate into higher microbial activity, reduced retention time in each bin and better pathogen reduction. Normal temperatures for forced aeration are typically in the range of 150°F for 10 or more consecutive days.

The effect of pH and the action of other bacteria and fungi on the destruction of disease-causing organisms is still largely unknown. Only minimal research has been done with disease-causing organisms of animals with regard to the ability of the composting process to destroy them.

Some important procedures to minimize risk include the following.

- Manage the site to prevent contaminated runoff or leachate from contacting animal housing or vehicles and equipment. Disease-causing organisms may survive in contaminated leachate for at least several days and possibly a longer period of time. (Advanced Composting's sloped floor design combined with a geo-textile filtration material on the floor of each bin, facilitate proper drainage and capture of the excess moisture).

- Prevent rodents and scavenging animals from digging in the pile and spreading the contaminated material.

- Following recommendations for sawdust covering will provide a barrier to most pests.
- Fencing may be necessary if proper coverage is not maintained and animals have gained access.
- Fly infestation problems are minimized with appropriate pile temperature and sawdust cover over the processing waste.

All living organisms require carbon, nitrogen, oxygen, hydrogen, and many other elements to survive. Any requirement that is not met will limit the growth, reproduction, and ultimate survival of the organism. Composting is focused on understanding and meeting the needs of the organisms that are actually doing the composting. While composting occurs naturally, the process requires proper conditions to occur rapidly, minimize odor generation, and prevent nuisance problems. Over 20 controllable factors affect composting. Table 1 lists eight of those factors and acceptable ranges to aim for when composting. Of these factors, the four major factors to be controlled in the composting process are the **material mix (nutrient balance)**, **water content**, **porosity or aeration**, and **temperature**.

Table 1. Guidelines for composting- major factors.

	Reasonable Range	**Preferred Range**
Nutrient balance, C/N	**25:1 - 40:1**	**30:1 – 35:1**
Water Content	**45-65% w.b.**	**50-60% w.b.**
Particle Size	0.8-1.2 cm (1/8-1/2 inch)	Depends on Material
Porosity	30-50%	35-45%
Bulk Density	<640 kg/m^3 (1100lb/yd^3)	
pH	5.8-9.0	6.5-8.0
Oxygen Concentration	>5%	**> 10%**
Temperature	(110-155°F)	**(130-150°F)**

Material Mix (C/N)

The proper composting mixture requires both carbon and nitrogen at the proper Carbon/Nitrogen ratio. A proper C/N ratio will result in a composting process that generates little odor, yet offers an environment where microorganisms can flourish. Generally an initial C/N ratio that is 25:1 to 40:1 is satisfactory. Most "compostable" animal materials have a C/N ratio that is too low to compost properly on their own, usually below 10:1. In order to compost these materials, amendments that contain high levels of carbon must be added. Plant materials such as wood chips, sawdust, chopped corn stover or straw have a high C/N ratio and are ideal for on-farm composting. A sample of the trout processing waste recently tested for C/N ratio came back at 6.7/1. This high level of nitrogen dictates the need for several volumes of sawdust (or equally high carbon source) in order to obtain the desired C/N ratio.

Water Content & Porosity

Like all living things, microorganisms need water. To encourage their growth and rapid composting, **water content of the mixture should be 50 to 60%** (wet basis). It is critical to the process that this moisture content be maintained from the very beginning and throughout the composting process. The forced aeration floor design compensates for excess moisture by allowing it to leach out of the materials and drain to the back of each bin, where it is captured and *returned to the process during the construction of the composting piles.* ***Leachate must be returned to the composting process prior to PFRP and VAR as stated in section 1406.12. Once a bin is capped off with sawdust or other carbon source, you must use only clean water (not leachate) as the source of additional moisture.*** This prevents contaminating the processed compost with untreated microbial organisms.

Determining the level of moisture present in each pile is not as complicated as one might think. **Take a small sample (a handful) of material from each pile. If the mixture feels moist, and when a handful is squeezed only one or two drops of moisture is released, the mixture has adequate water content.** Low moisture content significantly slows down the composting process. And since this is a covered facility, adding leachate during the filling stage and **clean water only during the composting process** may be needed to avoid process inhibition.

Microorganisms that are encouraged to grow in a compost pile are aerobic, or require oxygen. Open spaces (porosity) must be maintained to allow air to penetrate and move through the pile providing oxygen. Approximately 20 to 25% of the pile volume is anticipated to be small open spaces. This percentage is directly related to the coarseness of the carbon source. **Sawdust is typically very fine particles of wood and therefore provides less porosity than does a wood chip. Woodchips, although they provide greater porosity than do sawdust, they also tend to be only partially composted at the end of the composting process.**

The addition of forced aeration greatly improves the availability of fresh oxygen for microbial activity. The rule of thumb for controlling the amount of aeration in this particular system is to start at 2 min/cycle during the filling process, increasing to 3 min/cycle about half way through the filling process and once the bin is completely filled and capped off increasing to 5 min/cycle. A control panel is provided to make selecting and directing aeration to the bins extremely simple. Since each bin is aerated separately, simply switch the On/Off switch to the "On" position for the bin that you want to provide aeration to, and set the aeration cycle time for that bin to the desired number of minutes, from two to five. If there is not a noticeable increase in temperature once the bin is capped off, then increase the time to six minutes and wait till the following day to look for improved temperatures. A maximum of six minutes per cycle can be used during the initial start-up of the composting pile if temperatures are not rising fast enough at five min/cycle.

Do not hesitate to contact Advanced Composting Technologies, LLC should temperatures not reach the 140°F level in the first seven days after capping off a bin.

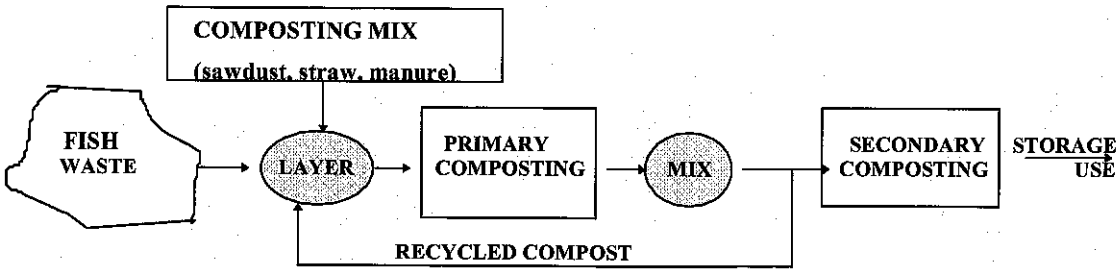
Temperature

By forcing fresh air up through the pile, exhausting the CO_2, aerobic environments can be maintained even in the denser environments. Forced aeration composting allows the grower to regulate temperature by controlling the amount of aeration, generating greater microbial activity and therefore higher processing temperatures.

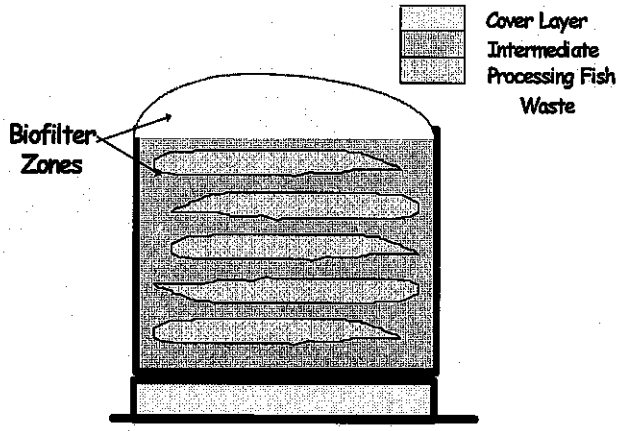
Since concrete has little insulation value, we recommend at least 6" of clearance (buffer or insulation) from the fish waste and the concrete wall. Temperatures measured less than 6" from the wall will reveal a 10 to 20 degree drop from those further than 6" away from a wall surface.
The NC Dept. of Environment and Natural Resources, Division of Waste Management, **Solid Waste Division policy requires a minimum of 131°F for three consecutive days. With forced aeration composting you should target a minimum of 10 days above 150°F therefore exceeding the above mentioned policy. You are required to make the composting operation available for inspection by any NCDENR's Officer. All records of material composted and temperature records must be available to solid waste section staff.**

The following figure is a schematic showing the process followed for forced aeration composting of processing fish waste material. The bin compost pile is an inconsistent mixture with multiple layers of material (the processing waste) having a low C/N ratio, a high moisture content, and very limited porosity surrounded by a material (the composting medium) with a high C/N ratio, low moisture levels, and good porosity. The processing waste and the composting medium are layered into the pile and no mixing is required until after the "*first stage*" of high microbial decomposition stage –high temperatures – of composting has occurred. **If the composting material has reached the required 131°F for three consecutive days and has remained above 104°F for the required 14 days where the average daily temperature for the period has been above 113°F, then from a regulatory standpoint the material requires no additional composting.**

However; in order to produce a more marketable product, we recommend removing the material from the first stage of composting; mixing and turning the material, and replacing the composting material into another bin for what is referred to as *second stage composting.* In this stage, the composted material has been homogenized and should see a second highly active stage of microbial activity even though it may not be as hot or last as long as the first stage. This second stage will also provide additional pathogen reduction and significantly reduce the amount of time required in storage before the compost reaches maturity.



Material flow in a typical "processing fish waste composting system" utilizing forced aeration. Mixing of the carbon and nitrogen sources into a composting medium and surrounding the waste with the mix is critical in accelerating the composting process. With fish processing waste, a layering of nitrogen (waste) and carbon (sawdust) in the first stage may be adequate.



Cross-Sectional View of Composting in a forced aeration bin for fish waste. The layering process is critical to getting consistent decomposition as fast as possible. Thin layering of the processing waste surrounded by a drier layer of sawdust allows the process of decomposition to begin immediately after filling of the bins takes places. This material is not moved to the second phase or second stage of composting until the material has finished the first phase of composting where temperatures reach 150°F or greater.

The above figure is a cross section of the compost pile for fish process materials. The decomposition process in static pile composting typically is anaerobic (lacking oxygen) in and around the fish waste, which generates odors in turning. Forced aeration minimizes this anaerobic zone by continually purging CO_2 and replacing it with fresh oxygen-rich ambient air. Surrounding the layers of fish waste with a high carbon source and frequently aerating the compost pile has the potential to accelerate the decomposition significantly faster than static pile composting, up to three times faster.

Operating Procedures for Composting Fish Processing Waste

1. **After inspecting and/or cleaning each aeration tube and manifold connection, place a pre-cut geo-textile mat down covering the entire floor of the composting bin.** Using filter material allows the compost to drain excess liquids better while preventing solids from clogging the aeration holes and the leachate collection lines. Inspection and cleaning of the bins and pipes after each cycle will be much easier if a clean fresh geo-textile mat is used.
2. **Lay two un-treated 12' wooden boards down (front to rear) on top of the fabric to serve as guides for the loader's bucket during unloading.**
3. **Construct a base of sawdust or acceptable carbon amendment at least 10" thick.** This base will filter out liquids that are present in the processing waste. It also permits air movement and microbial action underneath the first layer of processing waste. Spread sawdust immediately in front of the doors to absorb the liquids, and plan on a thorough cleaning of the bin floors and pipes after emptying.
4. **With the geo-textile material in place, and a 10" base of sawdust, you can place a single layer (4" – 6"thick) of process waste on the previous layer of sawdust or mix and spread evenly across the base.** (Mixing of the process waste with sawdust prior to loading will accelerate the rate of decomposition. If this is done, mix one part of processing waste with one part of sawdust and cover the mixed material with one part sawdust.) A rake or other long handled tool may be needed to spread the fish waste out evenly.
5. **Estimate and Document the weight of material loaded each day.** (see Data Collection and Record Keeping below for detailed procedures)
6. **Add a minimum 8" to 12" of sawdust to the top of each layer of process waste in order to minimize odors and vectors as well as providing an absorbing layer for the next layer of fish waste.**
7. **After the first layer of processing waste is added to the bin, turn the aeration control switch for that bin to the "On" position and set the timing for 2 minutes.** This short duration of aeration will accelerate the growth of microbes while the bin is being filled.
8. **Fill the last bin with sawdust only. This will be the leachate treatment bin.** Excess leachate will be drained and captured for recirculation back into the next bin that is being filled or handled separately in this bin designated for filtering and processing the leachate. After a few weeks, this material can be removed and used to cover the daily process waste.
9. **Pump the collected leachate onto the designated sawdust bin while filling the other bins.** Emptying the leachate tank daily will reduce the potential hazard associated with flooding and minimize the total amount of time involved daily in processing the waste. Remember to cut the pump off with the switch even though the limit switch will cut the pump off automatically once the level of leachate drops to the minimum level. This will prevent the pump from

automatically turning on again once leachate has accumulated enough to raise the float switch back up to the "ON" position.

10. **Repeat Steps 4 and 5 until the bin is full.**
11. **Once the bin is completely filled (just below the top of the walls), cover the pile with at least 6" of pure clean sawdust or other carbon-rich source.** This clean cover acts as the Biofilter for odor control around the pile and insulates the pile to retain heat.
12. **Increase the timing for that bin to the maximum 6 minutes.** Add clean water only from this point in the composting process forward in order to prevent contaminating the composting material with untreated microbes. The aeration cycle time can be adjusted down once the material has reached the desired 150°F processing window.
13. **Record internal temperatures for all active bins each time process waste is received which should be Monday, Tuesday, Thursday, and Friday.** A 36" long stem temperature probe (with ¼" or greater dia.) is the best method for determining internal temperatures. Take as many samples as necessary to insure that the pile is reaching temperatures throughout the bin.
14. **Take daily temperature readings at the same three places in each active bin; 12" from the middle of the back wall, center of the bin, and 12" from the middle of the front doors.** These locations will typically represent the average temperatures in the bin. Record these temperatures a minimum of four times per week on the log sheets at the end of this manual. The first stage of fish waste composting is generally 25 to 30 days after being capped with sawdust but it may require longer than that. We recommend moving the material only after the average temperature in the bin drops below 140°F. Note which bin the material has been moved to for second stage and start the recording of temperatures over again for second stage.
15. **After first stage is complete, remove the compost from the first stage bin and place it on the working pad or in front of the storage shed for mixing and turning.**
16. **Prepare the floor of the second stage bin by adding 6" of moist sawdust.**
17. **After mixing the first stage material, reload all that material into the next available forced aeration bin for second stage composting, capping the bin again with 6" of fresh sawdust. Add only clean water if necessary.**
18. Allow the second stage material to compost for an additional time period of 15 to 30 days in this second stage. The material should stay in second stage until temperatures begin to drop below 135°F. Should the pile need additional moisture, use only clean water, and never use leachate after the initial filling stage. The secondary pile should then be taken out of the bin, mixed and turned on the working pad and placed in the storage facility for curing for another 30 to 90 days depending on the desired maturity of the finished compost.

Data Collection and Record Keeping

Estimate and Document the weight of material loaded each day. As the trout processing waste is being mixed and loading into the composting bins, it is critical that the amount of both components, process waste and sawdust, is estimated and documented. Based on the original sample of process waste, which had a **C/N ratio of 6.7/1,** a minimum of two volumes of sawdust will have to be added per volume of process waste. This recipe may have to be adjusted upward if odor in both the composting process and in the finished compost is unacceptable. Adding another volume of sawdust (carbon) to the mix will increase the C/N ratio and reduce odor emissions during composting as well as ammonia emissions in the finished compost. Weighing each load of process waste and sawdust brought to the bins is not practical or necessary. A detailed weighing of one loader bucket (or other primary collection container) full of sawdust and then process waste once during each quarter can be used to estimate the weight of these materials during normal production.

Use one of the Data Collection Sheets (page #16 of this manual) per composting bin filled. Recording weight and process temperatures on this standard one page document is required by law. Recording the amount of material placed in each bin will also assist in troubleshooting any process problems that might occur. Keep this data for each bin of material composted in a manner that can be accessed and stored for a minimum of two years.

TEMPERATURE Sampling and Recording:

In order to monitor the composting process, it is necessary to monitor the internal temperatures being generated by the compost pile. Temperatures should be taken at several places in the pile that represent the entire pile; usually one or two samples from each of three separate locations; along the back of the bin, in the middle of the bin and along the front of the bin. Temperature recording can be done easily with a three ft. stainless steel temperature probe; (1/4 inch probe diameter or larger is recommended).

From an operational standpoint, monitoring temperatures within the composting bin indicates the progress of the composting process. These temperatures need to be taken and recorded at or near the same location from day to day. Randomly check other places in the pile to verify that the rest of the bin is progressing at the same levels as those locations that are being monitored and recorded. These temperatures should be recorded each day that additional material is being brought to the composting site, typically Monday, Tuesday, Thursday, and Friday. Temperature records must be kept for each bin in both first stage and second stage processes. This is absolutely critical in the first several weeks of both first and second stages the compost process. This can be extremely helpful in identifying problems that may occur during start-up of each bin. Typically, once the process is running, checking temperatures and adding moisture is about all that is required.

From a regulatory standpoint, monitoring and recording temperatures insures that the process has been performing at or above the required temperatures in order to reduce the level of pathogens in the finished compost. **It is therefore critical not only from an operational concern but also from a regulatory requirement that temperatures be taken at least on the four processing days, currently designated as Monday, Tuesday, Thursday, and Friday. Using the same Data Collection Sheet noted earlier where loading data was recorded for that bin meets the state's requirements for documentation of the temperatures for the reduction of pathogens. Again, temperatures need to be documented for both first and second stages.**

SAMPLING and TESTING:

Before the finished compost can be moved off site and every six months thereafter, either for sale or for land application, a representative sample of the finished composted material must be tested for the following:

- **Pathogen Reduction** to meet Section 1406.12's requirement for PFRP. This test will predict the Most Probable Number of Fecal Coliform per gram of sample. The result must be below 1,000 MPN/g as tested in accordance with the Test Methods for the Evaluation of Compost and Composting (TMECC) and the U.S. Composting Council's Seal of Testing Assurance Program.
- **Heavy Metals** to include, Cadmium, Copper, Nickel, Lead, and Zinc. Results will be in milligrams per kilogram. Sampling should be done on each bin before it moves to storage by taking several random pint size samples from the bin, mixing them together, and from the mix, taking one pint size sample. Store the representative bin samples in a clean 5-gallon bucket in a cool place until you have accumulated 3 months of samples. Mix the contents of the bucket several times during the 3 months and again before the final sample is taken from the bucket. This quart sample should be sent to NCDA an approved lab after each three month period for a Heavy Metals Analysis as noted above.
- **Inert Materials Test** to look for any inert or non-compostable materials, such as glass, plastic, metals, etc. This test is to be performed on the same accumulated samples taken and stored for three months as noted in *Heavy Metals*. A one gallon sample should be taken and visually inspected for the above noted materials. Any thing in the sample that is not organic should be noted on the test. This visual inspection for inert materials must be documented each quarter in order to meet the requirements of the Division of Waste Management.

Land Application of Compost

First and foremost, follow an approved nutrient management plan for any material that is class A. Test compost material for carbon, nitrogen, moisture, and pH if compost fails to reach the proper temperature or if odor problems develop. The finished compost material should be periodically tested for constituents that could cause plant phytotoxicity as the result of application to crops. Compost

made from dead animal or animal parts should be tested for indicator pathogens such as E. coli and salmonella. The disposal of the compost shall adhere to all federal, state, and local laws, rules, and regulations. It is the responsibility of the producer to properly manage the facility on a daily basis. Any material that is not class A will be recomposed or landfilled.

Pest Management

Animals digging into the compost can be a problem, although it is less likely in forced aerated concrete bins with tight fitting doors. Measures must be taken if this occurs to maintain bio-security and a positive public perception. The easiest way to prevent this from occurring is to maintain the necessary minimum cover (6 inches sawdust for bins over all process waste.

NEVER ALLOW PROCESSING WASTE TO BE EXPOSED. It may become necessary to fence or build a structure to eliminate scavengers from the compost unit if they cannot be kept out. It is easier and cheaper to maintain adequate cover than to incur the additional cost of a fence or structure. Operation and management will determine the needs of the system.

Maintenance

Inspect each compost bin unit when it is empty. Semi-annually remove the geo-textile fabric after unloading and spray from the bottom side through the material to remove solids trapped on the top side. The geo-textile fabric should last at least one year if not longer. Inspect the tubes, and the aeration holes. These holes must be open in order to provide uniform and even distribution of the aeration. The pipes should last several years before needing to be replaced. All of the plastic components of the system are common plumbing supplies and are conveniently carried by most large home improvement retailers.

The regenerative blower is equipped with an inlet filter that should be cleaned monthly and replaced at least annually. Because there are few moving parts in the air blower, reliability has been excellent. After five years it is recommended that the blowers be returned to Advanced Composting for credit on a refurbished unit. Contact Advanced Composting @ 1-888-600-3004 for replacement filters and geo-textile fabric.

Patch concrete floors, curbs, or gravel areas as necessary to assure proper operation and integrity. Examine roofed structures for structural integrity and leaks. Maintain a dense stand of vegetation around the composting facility year round.

Contingency Planning

It is critical that you make specific plans for waste disposal in the event of an emergency. Depending on the type and degree of emergency, there are several alternatives. There are several situations that must be addressed and a contingency plan developed so that if and when the situation occurs, the appropriate responses are already approved and planned for. A list follows that addresses those situations that can be anticipated:

Situation	**Response**
A Fish Kill	"Advanced Composting" has several 40-yard portable composting containers that can be brought to the facility for composting during emergency situations. Of the total number of bins in this particular system, only half of them are involved in first stage composting. These should not be disturbed in the event of an emergency. However, those bins involved in second stage composting of material that have already undergone a high heat cycle can be moved to the storage area. This opens up a significant amount of composting capacity and should be the first line of action in the event of unusually high processing waste. The storage building or drystack could be emptied and fish mortalities covered with sawdust or other carbon source until the capacity is available for composting.
Freezing Weather	This situation should not present an emergency due to the fact that the composting process works well, although a bit slower, even in cold weather conditions. The leachate lines are covered sufficiently with dirt to prevent freezing pipes and the leachate storage tank is below grade. And since the structure is covered, snow and freezing rain should not create an adverse situation for the composting operation.
Rain	Since the composting bins are covered, and any excess leachate present in the bins will drain to the back of the bins, rain should not create emergency situations...normally. However, too much rain that results in flooding could present an emergency situation.

Situation	Response
Flies	Flies are typically attacked to a composting pile particularly if there is animal waste present. This condition can be minimized by keeping a thin cover of sawdust or other high carbon source over each layer of fresh processing waste. Adding leachate back to the new piles before adding the sawdust cover should also help. Another operational method of reducing the amount of flies is to pressure-wash the doors and floors of the composting area. Keeping the processing area clean also tends to reduce flies.
Odors	Odors generated from the composting process can be minimized in the same way as described for fly control. If one pile is producing more odors than normal, taking the material out, mixing it, and returning it to the bin can usually solve excessive odors. Note that high odors tend to indicate a problem within the bin and should not be ignored.
Blowers/valves	The regenerative blower is a highly reliable and relatively low maintenance piece of equipment. Advanced Composting will stock both blowers and valves for easy replacement and or repair.
Leachate System	Cleanouts on both ends of the composting bin structure have been installed to facilitate cleaning of the leachate collection line. The leachate tank sump pump was selected because of its corrosion resistance and extremely reliable performance. Advanced Composting will also stock spare leachate sump pumps. Should all else fail, the leachate tank can be pumped by a local septic tank pumping company. If the leachate drainage line becomes clogged, liquids may begin to drain out of the pile under the front door.
Reporting	Facility Annual Reports Sunburst Trout Company 128 Raceway place Canton NC 28716 Permit 4410-Compost ID P1122 1. Total quantity received at facility 2. Total processed 3. Total of Class A type compost 4. Total of compost for use and total for disposal 5. Monthly weight charts and temperatures 6. Results of compost testing required

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
Haywood County Soil and Water Conservation District
Kara M. Cassels, District Conservationist
589 Raccoon Road Suite 203
Waynesville, NC 28786-3217

Client Contact Information	**Tract #**
Richard Jennings, Sunburst Trout Farm	**Acres:**
	FSA #
Howard Tew Recommendations	**Type**
Home # **Cell #**	**Work#**

Issues/Practice Interest: Composting facility pre-construction meeting. Howard Tew, Ted Lyon, Skip Thompson, Keith Warren, Mike Kirchmeyer, Chris Inman, Dick Jennings, Kara Cassels

Date	Activity
9/27/2006	1– Stay a minimum of 5 feet away from chain link fence in all construction
	2– Bed the leachate tank with a minimum of 8 inches of 1/2-3/4 inch washed stone with geotextile fabric filter cloth underneath.
	Install a perforated PVC or polyethylene pipe on top of the geotextile in the washed stone running the long dimension in the
	center of the trench. Outlet the pipe on the trout farm side of the tank in a location where it can be easily inspected.
	Install an animal guard (nail through center of pipe) on the outlet of the drainpipe.
	3- Collect roof runoff on all structures. Convey runoff well away from structures. Do not allow the roof runoff to flow and
	mix with runoff from concrete lots. Gutter the stacking facility. With composting facility, will need to trench behind the
	building and put washed stone down, with a pipe leading into the stream.
	4-Construct a diversion (swale) from the entrance Access Road berm at the upper end of the site to the (beyond) pine tree at the
	lower end. Grade the diversion in such a manner that it can be mowed and maintained easily. All site runoff (except roof
	runoff) is to be captured in the diversion as a filter strip. Grade should be a minimum of 1 ft deep at a 2-4% grade.

COMPOST BIN NUMBER _____

LOADING DATA							TEMPERATURE DATA			
			Est. Total Weight (lbs)				Temperature After Full °F			
Day No.	Date		Est. Process Waste	Carbon Source Sawdust	Total pounds		Date	Avg. Back Temp.	Avg. Middle Temp.	Avg. Front Temp.