TOWN OF
OCEAN CITY
The White Marlin Capital of the World

Town of Ocean City
Wastewater Department
6405 Seabay Drive
Ocean City, MD 21842

April 30, 2025

State of Delaware
Dept. of Natural Resources
Environmental Control
Division of Water Resources
89 Kings Hwy.
Dover, DE 19901

Attn: Brian Churchill
Discharges Section

Re: Permit DM1503-MD-03

Dear Mr. Churchill,

The Town of Ocean City requests the renewal of permit # DM1503-MD-03 for distribution of biosolids in Delaware, which is due to expire June 30, 2025. I have included a copy of our Maryland Sewage Sludge Utilization Permit # 2020-STF-5852 and our current product label. If you have any questions or need additional documents, please contact me at:

816-654-3367 – cell
410-524-6760 – office

Sincerely,

Matt Pielstick
Biosolids Process Supervisor

Cc: Elton R. Bradford
File

APPLICATION FOR A PERMIT TO DISTRIBUTE AND MARKET WASTEWATER SLUDGE IN DELAWARE

PRELIMINARY INFORMATION

1. Name of facility: TOWN OF OCEAN CITY

   Mailing Address: 6405 SEABAY DRIVE
   OCEAN CITY, MD 21842

   Location (street address, if different from mailing address):

2. Name of operator: MICHAEL K. SHOWELL

   Mailing Address: 6405 SEABAY DRIVE
   OCEAN CITY, MD 21842

   Telephone Number: 410-524-6760

1. Does this facility have a currently effective NPDES permit?
   X Yes _____ No

2. Is this facility required to have, or is it requesting, permit(s) from other agencies under other programs (e.g. RCRA, UST, CERCLA, etc.)?
   _____ Yes X No

Send the completed application information to:

State of Delaware
Division of Water Resources
Department of Natural Resources and Environmental Control
Surface Water Discharges Section
89 Kings Highway, P.O. Box 1401
Dover, Delaware 19901

BACKGROUND INFORMATION:

1. Does this operator own the facility for which the information is submitted?
   _____ Yes __X__ No

2. Indicate type of facility:
   _____ Federally owned treatment works
   _____ Privately owned treatment works
   __X__ Publicly owned treatment works (POTW)
   _____ Other _____

3. **Description of Sewage Sludge Use or Disposal Practices.** Provide the following information on the quantity (total dry metric tons per year) of sewage sludge handled at the applicants facility:

   Amount of sewage sludge:
   _____ generated at the facility:
   _____ received from off-site:
   _____ land applied on-site:
   _____ sent off-site for land application:
   _____ sent off-site for further treatment or distribution
   2087.957 for ultimate land application:
   _____ disposed of in a surface disposal unit on-site:
   _____ sent off-site for surface disposal:
   _____ used or disposed of by a method not described above, including sewage sludge sent to a municipal solid waste landfill unit (explain below):

   _____
   _____

4. **Sludge Quality Data.** Attach any data available on the quality of the sewage sludge, including but not limited to pollutant concentrations and the level of pathogen reduction attained.

5. **Certification.** Sign the certification statement below.

   I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person/s who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Officer:	RANDY BRADFORD
Official Title of Officer:	WASTEWATER SUPERINTENDENT
Telephone Number:	410-524-6760
Signature of Officer:	E R Bradford
Date Signed:	5-2-23

SECTION A. SEWAGE SLUDGE GENERATION OR PREPARATION

A.1. To be completed if the applicant processes or packages sewage sludge for sale or give-away in a bag or other container for application to land (as explained in the instructions)

a. Provide the total dry metric tons per year processed or packaged for sale or give-away in a bag or other container for application to land. _____

b. Indicate which class of pathogen reduction is met by the sewage sludge processed or packaged for sale or give away in a bag or other container for application to land. CLASS 'A'

Describe the process(es) used to meet this class of pathogen reduction. ALTERNATIVE 6, P.F.R.P

Are all processes used to meet this class of pathogen reduction provided by the applicant?
X Yes _____ No

If no, explain. _____

c. Which of the following vector attraction reduction requirements is met by the sewage sludge processed or packaged for sale or give away in a bag or other container for application to land?

_____ Minimum 38 percent reduction in volatile solids
_____ Anaerobic process, with bench-scale demonstration
_____ Aerobic process, with bench-scale demonstration
_____ Specific oxygen uptake rate (SOUR) for aerobically digested sludge
_____ Aerobic processes plus raised temperature
X Raise pH to 12 and retain at 11.5
_____ 75 percent solids with no unstabilized solids
_____ 90 percent solids with unstabilized solids
_____ Other, explain. _____

Describe the process(es) used to meet this vector attraction reduction requirement. BIOSOLIDS ARE LIME STABILIZED.

Are all processes used for vector attraction reduction provided by the applicant?
X Yes _____ No

If no, explain. _____

d. Briefly describe any blending or manufacturing processes employed prior to sale or give away in a bag or other container. _____

e. Attach a copy of all labels or notices that accompany the product being sold or given away.

SECTION B. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Officer:	E.R. Bradford Jr
Name of Officer:	RANDY BRADFORD
Official Title of Officer:	WASTEWATER SUPERINTENDENT
Telephone Number:	410-524-6760
Date Signed:	5-7-25

All Federal, State, and Local Permits applicable to the Town of Ocean City:

NPDES MD-0020044

DNREC DM-1503-MD-03

MDE 2017-STR-5975

MDE 2013-STF-4830

MDE 2020-STF-5852

MARYLAND DEPARTMENT OF THE ENVIRONMENT

Larry Hogan
Governor

Land and Materials Administration • Resource Management Program
1800 Washington Boulevard • Suite 610 • Baltimore, Maryland 21230-1719
410-537-3314 • 800-633-6101 x3314 • www.mde.maryland.gov

Ben Grumbles
Secretary

Sewage Sludge Utilization Permit
Number: 2020-STF-5852

ISSUE DATE: January 31, 2020 ***EXPIRATION DATE:*** January 30, 2030

Issued to: Town of Ocean City

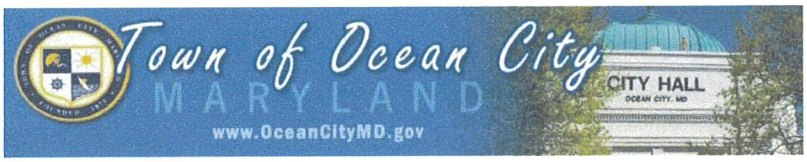
Authorizing: The treatment of sewage sludge in a Class B process as specified in this permit

At: The Town of Ocean City Wastewater Treatment Plant located at 6405 Seabay Drive in Worcester County, Maryland

This permit is renewed pursuant to the provisions of Title 9 of the Environment Article, Annotated Code of Maryland, and regulations promulgated thereunder, and is subject to the attached terms and conditions, and compliance with all applicable laws and regulations.

Kaley Laleker, Director
Land and Materials Administration

Town of Ocean City, Maryland



Shore Gro

Biosolids Fertilizer Product

TOWN OF OCEAN CITY TREATMENT FACILITY
6405 SEABAY DRIVE
OCEAN CITY MARYLAND 21842
410-524-6760

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1 - 1 - 0

Guaranteed Analysis (wet weight basis)

Total Nitrogen (N)	Minimum	1.0 %
Available Phosphate (P_2O_5)	Minimum	1.0 %
Potassium (K)		0%
Calcium Carbonate Equivalent (CCE)		23 %
NET WEIGHT		TON

BASED ON WET WEIGHT

Storage and Application

Restrictions on Usage

1. Land application of sewage sludge is prohibited except in accordance with the instructions on this information sheet.

2. This product shall only be transported from Ocean City's facility to the distribution destination in accordance with the Delaware waste transportation requirements;

3. Shore Gro should be utilized, spread, or incorporated into the soil as soon as possible. Shore Gro shall be land applied in a manner that will not cause an undue risk to the environment or public health, or safety, or in a manner that causes or is likely to cause a discharge of pollutants to the waters of the State;

4. **The Delaware Department of Natural Resources (DNREC) must approve the delivery site and location of any product prior to the product being field stockpiled (staged). Written approval from DNREC is required to field stockpile (stage) beyond seven (7) calendar days. It is the responsibility of the recipient of Shore-Gro to obtain written approval from DNREC prior to seventh (7) calendar day of field stockpiling (field staging). DNREC may approve field stockpiling (field staging) for up to ninety (90) calendar days. It is the responsibility of recipient of Shore-Gro to obtain written approval from DNREC. DNREC'S authorization shall not relieve the user of the obligation to comply with other applicable State, Federal, and Local Laws and Regulations;**

5. **This product shall not be field stockpiled (staged) within 100 feet from a drainage system, or water of the State. Additional unacceptable locations for field stockpiling (staging) include areas where water is ponded or likely to be ponded during a rain event; low areas where surface water accumulates or is likely to accumulate during a rain event; areas where water from a stream that is swollen due to rain contacts or is likely to come in contact with the product; or areas where the product will block the natural surface drainage to the extent that it will cause ponding of surface water;**

6. No product shall be applied to any site that is flooded, frozen or snow covered,

7. This product shall only be land applied on agricultural land in accordance with a nutrient management plan prepared by a certified and licensed nutrient management consultant in accordance with Delaware Department of Agriculture requirements; and

8. If the product stockpiled (staged) at a site is otherwise regulated by an individual or general NPDES Permit, if the provisions of that permit are more stringent than the above requirements they shall take precedence over Items 4 – 5 of this label.

Applying to Fields

In addition to the restrictions listed above, applicable **Delaware Department of Agriculture and DNREC** regulations shall be adhered to when applying **Shore Gro** to fields.

DISCLAIMER AND NOTICE

Use this product only in accordance with its labeling and with all applicable local, state, and federal standards. In no event shall the Town of Ocean City Maryland be liable for consequential, special or indirect damages resulting from the use, handling, application, storage or disposal of this product.

Town of Ocean City
Department of Waste Water
Biosolids Operational Manual
March 2, 2010

Press Start-Up Polymer Dosage Determination

1. Established sampling procedures should be used when obtaining samples, per the standardized sampling procedures. All employees have been issued safety glasses and latex gloves. Personal protective equipment should be used accordingly when sampling. If employees do not have safety glasses or gloves, they should contact the safety technician.

2. Obtain at least two quarts of a representative feed sludge sample from the holding tank. Mix well, measure 100 milliliters, and transfer to a plastic cup.

3. Obtain polymer solution sample from polymer solution makeup tank.

4. Review the operator log sheet over the past week to determine the typical polymer ratio required for effective dewatering. The percent polymer ratio will be equivalent to the milliliters of polymer solution added to a 100 milliliter sludge sample.

5. Select an initial polymer solution dosage of 5 milliliters less than the typical polymer ratio, i.e. if the typical percent polymer ratio has been 20%, select an initial polymer solution dosage of 15 milliliters for testing.

6. Add the initial dosage of polymer solution to a second cup, and pour the sludge back and forth from one cup to the other until a stabilized floc formation is seen. Count pours during the test, and if excessive pours result in broken floc, repeat the test with only enough pours to form a stable floc.

7. Proceed to the shop towel test to evaluate dewatering performance. Pour the treated sample into a double shop towel held over a clean cup.

8. Observe the free drainage through the shop towels. After the free drainage is complete, gently squeeze the shop towels over the clean cup to release any additional free water. Evaluate drainage while squeezing. If the shop towels are torn during the test, the test is invalid and must be repeated.

9. Evaluate the sludge remaining in the shop towel for dryness and traction. Also evaluate the clarity of the water in the cup.

10. Repeat the tests at various polymer dosages, first increasing the polymer solution addition in increments of 2 milliliters over the initial test dosage. Be sure to mix the sludge well before obtaining each additional 100 milliliter sample. Evaluate the sludge dryness and traction and the water clarity after each test.

11. If test results degrade with increasing polymer solution dosages, perform additional tests while decreasing the dosage in 2 milliliter increments below the initial test dosage.

12. Select the optimum polymer start-up dosage based on all test results. Set the start-up polymer ratio at the number of milliliters polymer solution that produced the optimum test results, i.e. if optimum test results were seen when adding 19 milliliters of polymer solution, set the start-up polymer ratio at 19%.

Fournier Press Start-up Procedure

1. Perform jar tests and paper towel tests on sludge sample obtained from holding tank to determine optimum polymer ratio for dewatering.

2. Check press, polymer system, holding tank, grinders, and sludge pumps to insure that all equipment is prepared for start-up.

3. Verify that Valves 1, 2, 3, and 4 by the press sight column and sink are closed. Also verify that the inlet press channel valves are open. The Main Drain Valve has been preset to maintain an inlet pressure of 2 - 3 psi during recirculation. Adjust only if needed after start-up, but verify that valve is not completely closed prior to start-up.

4. Set press parameters as follows for start-up:

	West Press	**East Press**
Flow Control (GPM)	17	17
Inlet Pressure	2.5	2.5
Outlet Pressure	14	35
Press Speed	0.35	0.35
Flocculator	300	300
Polymer Ratio	Determine based on bench tests	
Recirculation Time (Min)	20	20
Flow Control Time	-	4

5. Initiate recirculation cycle on press by pushing "recirculation" on panel screen. Verify that recirculation is still set on 20 minutes.

6. After press is in recirculation mode, verify that the inlet pressure is 2 -3 psi on screen. If inlet pressure is not in range, make only very small adjustments to Main Drain Valve and never close valve.

7. Open bottom valve of sight column (Valve 1)

8. Slowly crack open top vent valve of sight column (Valve 2) to allow column to fill, then close vent valve (Valve 2).

9. Close bottom valve of sight column (Valve 1).

10. Evaluate sludge in sight column to insure flocculation.

11. Open sink valve (Valve 3), and slowly open column top vent valve (Valve 2) to allow sludge in sight column to drop to sink. Typically, recirculation cycle is used to insure flocculation, and polymer feed rate optimization is then performed on-line. Evaluate floc size and strength with beaker pours and paper towel test. Ideally, a small, distinct floc should remain after at least 5 - 6 pours. After pours, use the paper towel test to verify proper dewatering. If acceptable floc for start-up is not observed, adjust polymer ratio as needed and repeat test. To drain sink after each test, open sink drain valve (Valve 4) and then re-close when sink is clean. If flocculation is acceptable, recirculation cycle can be terminated early by pushing "dewatering" on the panel screen. The press will then start up in flow control mode.

12. The West Press will automatically switch from flow control to pressure control when outlet pressure reaches 10. The East Press will automatically switch to pressure control at the end of the flow control time setting of 4 minutes. Just before the press switches to pressure control, manually set the inlet pressure setting to match the actual process inlet pressure reading on the panel screen.

13. Gradually continue to increase inlet pressure set point in 0.5 increments as inlet pressure increases until the inlet pressure reaches 3.0 psi.

14. As the press stabilizes, begin adjusting polymer feed, flocculator, inlet pressure, outlet pressure, and press speed to optimize cake quality, centrate quality, and sludge production rate. Change only one variable at a time until that variable is optimized. Wait a minimum of 10 – 15 minutes until press stabilizes between each change and then inspect cake and centrate before making further changes.

Typical Ranges and Recommended Rate of Change During Start-Up:

Flocculator – 100 – 450 (Adjust in increments of 50)
Polymer Ratio – Variable (Adjust in increments of 1)
Inlet Pressure – 3.5 – 5.0 (Adjust in increments of 0.5)
Outlet Pressure –
West Press - 14 – 20 (Adjust in increments of 1)
East Press – 35 – 50 (Adjust in increments of 5)
Press Speed - 0.35 – 1.0 (Adjust in increments of 0.05)

RDP Start-Up Procedure

1. After Fournier Press is in operation, wait until there is enough material in the screw feeder before beginning the RDP start-up process in auto.

2. The odor control unit dust collector should be turned on at this time if it is not already on.

3. Make sure that the oilers on the RDP system are on and working.

4. Start the RDP process in the AUTO mode. NOTE: The safety interlocks will only work in AUTO mode.

RDP Automatic Mode Start-up Operation

1) Put the selector switch in the interlock position. Verify that all switches on the RPD panel are in auto position and system ready light is on.

2) Press the "auto start" button on the RDP panel. All the equipment is set to come on line automatically; each unit will start as it is timed out.

   A. Reversing Belt Conveyor
   B. Pasteurization Belt Conveyor
   C. Pasteurization Vessel and its heat zone #3 set at 200°F.
   D. Thermoblender and its heat zones #1 and #2 set at 900°F.
   E. Sludge Belt Conveyor
   F. Sludge Screw Conveyor

When the reversing belt conveyor starts, verify that it is set to fill the "off-spec" trailer. At any point, the system will wait for an operator adjustable period of time normally set at four minutes for the sludge to reach the Thermoblender point of lime addition, and then continue as follows:

   G. At this time, set Lime for 900 lbs.
   H. Lime Addition Conveyor
   I. Lime Feed Conveyor (2 Minutes)
   J. Day Bin Activator

NOTE: Upon "Auto Start", the Thermoblender Heat system will turn on though sludge is not present. The heat system will only be enabled for a period of time to allow sludge to reach its discharge point, thereby activating the "Sludge Present" flap switch. If the switch is not activated in the above period of time, the heat system will shut down and wait until sludge is present. Check the Thermoblender at this point.

Important: Regardless of Operational Mode, the Thermoblender should never operate without both motors running and sludge being processed or else equipment damage could occur.

3) Note the time when the pasteurization vessel inlet temperature reaches 158°F.

   - **On the West RDP** - Thirty five (35) minutes after reaching 158°F, you should receive an alarm on the scada system
   - **On the East RDP** - Fifty (50) minutes after reaching 158°F, you should receive an alarm on the scada system.

   Take manual temperature reading for log. To switch the reversing belt to the class 'A' trailer: verify that the pasteurization vessel outlet temperature is up to 158°F and switch the reversing belt. Note the time switched on the operator log sheet.

4) Once started, make operational adjustments on the Fournier panel to optimize press performance.

5) When the sludge feed is increased, you will need to check the Thermoblender and increase the speed as needed to avoid overfeed and clogging.

6) Check the lime feed tubes. If the lime tubes clog, you will notice a drop in the Thermoblender discharge temperature. This is possible at any time when operating.

7) Take manual temperature readings on both the East and West sides if operational every four hours.

8) Run a pH sample test DAILY and log on sheet.

RDP Manual Mode Start-up Operation

NOTE: Never run a material-filled conveyor onto a stopped conveyor. Never run a lime system without sludge present. Never energize a heat zone without sufficient sludge feed present.

There are (2) Manual modes of operation in this system; with interlocks or without interlocks

1) With Interlocks
   This mode ensures that no conveyor will discharge into a non-moving conveyor even while operating the equipment manually. To operate equipment manually with interlocks, the Hand Mode Interlock "Interlock-Bypass" key operated selector switch must be in the "Interlock" position. The individual equipment can only be started in the order listed below by turning their "Hand-Off-Auto" selector switches to the "Hand" position.

   A. Reversing Belt Conveyor
   B. Pasteurization Belt Conveyor
   C. Pasteurization Vessel and its heat zone (#3)
   D. Thermoblender
   E. Sludge Belt Conveyor
   F. Sludge Screw Conveyor

   At this point in start-up, the RDP Pasteurization System will wait for the Rotary Press to furnish a signal representing "Running w/ Sludge Present". Once received, the RDP system will wait for an operator adjustable period of time set at four minutes to allow the sludge to reach the Lime inlet point on the Thermoblender, and then finish the "Auto Start" (interlock system) sequence as follows:

   G. Lime Addition
   H. Lime Feed Conveyor
   I. Day Bin Activator

2) Note the time when the pasteurization vessel inlet temperature reaches 158°F.

   - **On the West RDP** – Thirty five (35) minutes after reaching 158°F, you should receive an alarm on the scada system
   - **On the East RDP** – Fifty (50) minutes after reaching 158°F, you should receive an alarm on the scada system.

Take manual temperature reading for log. To switch the reversing belt to the class 'A' trailer: verify that the pasteurization vessel outlet temperature is up to 158°F and switch the reversing belt. Note the time switched on the operator log sheet.

3) Once started, make operational adjustments on the Fournier paned to optimize press performance.

4) Take manual temperature readings on both the East and West sides if operational every four hours.

5) Run a pH sample test DAILY and log on sheet.

Important: Regardless of Operational Mode, the Thermoblender should never operate without both motors running and sludge being processed or else equipment damage could occur.

Auto Shutdown

In the auto mode (RDP), you initiate the shutdown by touching "dewatering" on the Fournier panel screen. This will stop the press and initiate an automatic shutdown in the RDP process. The auto stop light on the RDP pane (red) will come on, indicating that the auto stop sequence has begun. The equipment will time out and stop.

Channel Wash

Once the press has stopped, it will be necessary to wash out the press. It is recommended that the press be washed out after each use or every eight hours of operation for at least twenty minutes.

1. West Press – Put the outlet pressure control in the hand position and turn the control knobs to close the discharge plates, by turning the controllers to 10 which closes the discharge plates.

   East Press – On the Fournier panel, set the discharge pressure to 100% to close the discharge plates.

2. Start the channel wash by pressing "Channel Wash" on the Fournier panel screen.

3. Set the press speed to 1.6 rpm.

4. After the wash has proceeded for ten minutes, close the exterior screen spray valves to allow full water flow to the inlet spray wash bar until the wash is complete. The press wash cycle will stop automatically when completed.

Thermoblender Overheating

There is a possibility of overheating or even a fire starting in the Thermoblender during an improper shutdown. It is important to remember that all material must be out of the system to prevent this from occurring. If the temperature in the Thermoblender exceeds 250°F, it may be necessary to start the Fournier Press and the RDP System in manual and put enough sludge through the Thermoblender to cool it down. Do not add lime.

Note: All sludge used to cool the Thermoblender is "off spec". Sludge should be disposed of in "OFF SPEC" sludge trailer.

Manual Shutdown

In the manual mode (RDP), after the press has stopped it will be necessary to shut off the equipment as the material clears the system.

1. Shut off the lime screw, lime feed, and bin activator. Note: It will only be Class 'A' for thirty five (35) minutes on the West Side and fifty (50) minutes on the East side unless temperature drops below 158°F. If it drops below 158°F, switch immediately to the "0FF SPEC" trailer.

2. Run the press if needed to allow the Thermoblender to cool down. The time will vary; therefore, it will be necessary to keep a check on the Thermoblender temperatures.

3. Run the screw conveyor, Thermoblender, pasteurization belt conveyor, and reversing belt until all material has cleared the system.

Thermoblender Overheating

There is a possibility of overheating or even a fire starting in the Thermoblender during an improper shutdown. It is important to remember that all material must be out of the system to prevent this from occurring. If the temperature in the Thermoblender exceeds 250°F, it may be necessary to start the Fournier Press and the RDP System in manual and put enough sludge through the Thermoblender to cool it down. Do not add lime.

Note: All sludge used to cool the Thermoblender is "OFF SPEC". Sludge should be disposed of in "OFF SPEC" sludge trailer.

Heat System Operation and Equipment Safety

The Thermoblender Heat System should never operate without both Thermoblenders running and sludge being processed, or else equipment damage could occur. Therefore, the Thermoblender Heat System will be enabled during the "Auto Start" for a period of time after the PSCP has received the "Running w/ Sludge Present" signal from the RPCP to allow sludge to reach the mechanical sludge detect arm at the Thermoblender discharge. After which, the Thermoblender Heat System, in both Automatic and Manual modes, shall be enabled as long as the following interlocks below are satisfied:

1. The Thermoblender is confirmed running via its zero speed switches.

2. The Thermoblender Trough is not in an "Overtemperature" condition. If the trough shall fall into an "Overtemperature" condition, the entire Thermoblender Heat System shall shut down and remain off (latched). The trough "Overtemperature" Pilot Light will illuminate. It may be reset by the Trough Overtemperature "Reset" Pushbutton only after temperature has dropped below set point. **This set point is factory set. Warranty may be void if changed by anyone except RDP personnel.**

3. Sludge processing is confirmed via the "Sludge Detect" switch at the discharge of the Thermoblender.

4. The rotary press confirms that it is running while processing sludge.

RDP PANEL

Emergency Stop and Motor Failure

The maintained contact push-button and remote emergency stop devices will immediately stop all motors and heat in the system. In an E-Stop case, the alarm horn shall sound, which may be silenced. However, the reset is accomplished by resetting the E-Stop device and pressing the panel-mounted reset push-button. A motor failure will shut down the failed equipment and all equipment upstream, and initiate shutdown sequence of equipment downstream. Failure is indicated by the alarm horn and the equipment's "Fault" light.

Pasteurization System Control Panel Operating Procedure

Fault Conditions and Recovery Procedure

Emergency Stop Procedure:

If an emergency stop condition occurs, the alarm horn will sound, the "Emergency Stop" light will illuminate, and all PSCP equipment will shut down simultaneously.

- Press the "Horn Silence" push-button.
- Resolve the problem causing the emergency stop condition.
- Once all personnel are clear of RDP equipment, reset the emergency stop switch and the PSCP.

Motor Overload or Zero Speed Condition

If a fault condition occurs, the alarm horn will sound, and the corresponding motor "fault" light will illuminate to indicate which motor faulted. The Alarm Horn will sound, which may be silenced by the "Alarm Silence" push-button.

If the system is operating in Automatic Mode, it will shut down as if in the Automatic Stop Mode. However, all equipment feeding the equipment of the faulted motor will shut down immediately. You can shut down all equipment immediately by pressing the "Reset" push-button.

If the system is operating in Hand Mode, turn the corresponding Off-On/Auto switch to the "Off" position and shut off all upstream equipment.

Regardless of the operational mode, inspect the motor and wiring for any potential problem. Once the problem is cleared, reset the overload relay or breaker at the Motor Control Center (MCC), and press the "Reset" pushbutton on the PSCP.

Trough Over-Temperature Control

The Thermoblender will be furnished with a thermocouple mounted directly to the trough to monitor/protect the trough from possible over temperature damage. Should the trough temperature rise above the set point, the entire heat system shall shut down and remain off (latched). The PSCP shall illuminate the trough "Overtemperature" pilot light and initiate the "Auto Stop" if running in Auto. This condition must be reset at the PSCP via the Trough Overtemperature "Reset" pushbutton only after temperature has dropped below set point. **This set point is factory set. Warranty may be void if changed by personnel other than RDP.**

CLASS A BIOSOLIDS

YOU WILL NEED TO MAINTAIN

158 Degrees for 30 Minutes in the Pasteurization Vessel

12.0 pH or Higher on Initial pH
12.0 pH or Higher on 2 Hour pH
11.5 pH or Higher on 24 Hour pH

Fecal less than 1000 mpn/g

You must verify that the trailer when loaded is either class A or "OFF SPEC", and class should be noted on daily log sheet

Town of Ocean City
Department of Wastewater
Biosolids Management
Draft Biosolids Sampling Protocol
March 2, 2010

Sample Collection

A sampling protocol is being established to insure standardized sampling, which will allow proper evaluation and optimization of the biosolids management system. Sampling frequency requirements will be posted on the bulletin board above the lab bench in the biosolids office. All employees have been issued safety glasses and latex gloves. Personal protective equipment should be used accordingly when sampling. If employees do not have safety glasses or gloves, they should contact the safety technician.

When obtaining a full set of samples of the biosolids system for laboratory analysis, feed solids sample should be collected first. Centrate and press solids samples should then be collected within twenty minutes of the feed solids sample collection. The RDP sample should then be collected within thirty minutes of the centrate and press samples. All samples should be obtained from the same train of operation (i.e. East or West) to allow proper evaluation of system operation. Plastic 150 ml cups have been provided for collection of samples. Samples should be labeled East or West when collected.

Sampling Procedures

Feed Solids

Two sample points are now available for feed solids. The samples are located by the holding tank, and they are labeled East Feed Solids and West Feed Solids. The feed solids sample must be obtained when a press is in operation, and it is critical that the feed solids sample is obtained for the corresponding press that is in operation.

1. Fully open valve for West or East Feed Solids sample based on corresponding press that is in operation.
2. Allow sample to run to drain for a full two minutes before obtaining sample.
3. Collect sample in a properly labeled clean container for lab. Fill container approximately half full.
4. Seal container immediately after sampling.

RDP Solids – Composite Sample

Two sample points are now labeled for East and West RDP Solids. The sample points are located where the RDP solids drop from the RDP Pasteurization Vessel onto the conveyor belt. Use care when collecting sample due to high temperature of solids.

1. Utilize a long handled dipper to collect sufficient sample to completely fill a plastic sample container.
2. Mix the sample thoroughly with a scoop or knife, and fill the sample container.
3. Transfer a representative sample into the composite holding container located in the refrigerator in the biosolids office. Do not separate large and small particles when transferring the sample. The refrigerator temperature should be maintained at 1° C to 4° C.

DAF Inlet Solids

Two sample points are established for DAF inlet solids samples. The sample points are located on the individual inlet sludge piping to the East and West DAF at Valve V34. The DAF inlet solids sample must be obtained when a DAF is in operation, and it is critical that the DAF inlet solids sample is obtained for the corresponding DAF that is in operation.

1. Fully open valve V34 for the West or East DAF inlet solids sample based on the corresponding DAF that is in operation.
2. Allow sample to run to drain for ten seconds before obtaining sample.
3. Collect sample in a properly labeled clean container for lab. Fill container approximately half full.
4. Seal container immediately after sampling.

DAF Outlet Solids

A sample point is established for DAF outlet solids samples. The sample point is located on the combined thickened sludge piping from the East and West DAF to the holding tank, on the vertical pipe line by the sludge flow meter. The DAF outlet solids sample must be obtained when a DAF is in operation, and it is critical that the DAF outlet solids sample is obtained when a thickened sludge pump is pumping.

1. Partially open the valve for the thickened solids. Use care when opening valve.
2. Allow sample to run to bucket for ten seconds before obtaining sample.
3. Collect sample in a properly labeled clean container for lab. Fill container approximately half full.
4. Seal container immediately after sampling.

5. SYSTEM OPERATION INSTRUCTIONS

The following instructions pertain only to the Pneumatic Lime Transfer Panel. Instructions for other RDP-supplied equipment can be found in the RDP manual specific for the corresponding equipment.

A. Pneumatic Lime Transfer Panel Setup: With panel feeder power off, open the panel doors and check/accomplish the following:

1. Set all circuit breakers to the "On" position.
2. Visually inspect all panel fuses. Replace if required.
3. Reset the motor starter overloads as required. Verify that each is set to match its corresponding motor.
4. Reset the motor protector for each Lime Blower. Verify that each is set to match its corresponding motor.
5. Adjust timer TR12 for the desired on/off cycle timing of the Silo Bin Activator.
6. Turn off disconnect CB0 and close the panel doors.
7. Turn on the disconnect CB0. The "Power On" light should illuminate.
8. Turn on all Local Pneumatic Conveyance Motor Disconnect Switches, if applicable.

B. Pnuematic Lime Transfer Panel Operating Procedure

NOTE: All circuit breakers relating to this system must be on, as well as motor disconnect switches.

1. Panel Start-up
   a. Turn the main power operating handle to the "On" position. The white "Power On" light, and the red "Emergency Stop" light should illuminate and the alarm horn will sound.
   b. Check all indicator lights by pressing their indicating lens. If any fail to illuminate, then replace the bulb(s).
   c. Pull the Emergency Stop push-button out until it stops.
   d. Reset all remote Emergency Stop push-buttons controlled by this panel.
   e. Press the "Reset" push-button on the PLTP. The red "Emergency Stop" light should go out and the horn should silence.

RDP Technologies, Inc.

2. Manual Mode Operation

Never attempt to convey lime to non-moving equipment run a material-filled conveyor onto a stopped conveyor.

There are (2) Manual modes of operation in this system; with interlocks or without interlocks.

With Interlocks

This mode ensures no equipment will operate unless the equipment downstream is also operating, even while operating the equipment manually. To operate equipment manually with interlocks, the Hand Mode Interlock "Interlock-Bypass" key operated selector switch must be in the "Interlock" position. The individual equipment must then be turned in the following order by turning their "Hand-Off-Auto" selector switches to the "Hand" position.

1. Lime Blower #1 or #2
2. Rotary Airlock
3. Rotary Feeder
4. Silo Bin Activator

Without Interlocks

This mode allows any piece of equipment to be operated without interlocks to adjacent equipment. To operate equipment without interlocks, the Hand Mode Interlock "Interlock-Bypass" key operated selector switch must be in the "Bypass" position. The individual equipment may then be operated by turning their "Hand-Off-Auto" selector switches to the "Hand" position.

Note #1: The Hand Mode Interlock "Interlock-Bypass" key can only be removed while the switch is in the "Interlock" position.

Note #2: Emergency Stop devices will shut down all equipment regardless of which manual mode is selected.

3. Automatic Mode Operation

The Pneumatic Lime Transfer System is ready for automatic operation when all equipment "Hand-Off-Auto" selector switches (except the Diverter Valve) are in the "Auto" position. A Day Bin will automatically fill when the lime has reached the low level as determined by it's low level probe. A Day Bin will automatically stop filling when the lime has reached the high level as determined by it's high level probe. The filling sequence may be initiated at any time regardless of lime level by positioning the Diverter Valve via it's "1-Auto-2" selector switch and pressing the "Initiate Fill" combination pushbutton/light. A filling sequence may be terminated at any time during a fill cycle by pressing the "Terminate Fill" combination pushbutton/light. When a fill sequence is initiated, the equipment will start one conveyor at a time in the order listed below. A short time delay is provided between each to allow for a soft starting.

1. Lime Blower #1 or #2
2. Rotary Airlock
3. Rotary Feeder
4. Silo Bin Activator

Once the system has started, switching any equipment "Hand-Off-Auto" selector switch out of "Auto" will immediately shut down all equipment, as the operator has assumed system control. Regardless of operation, Seal Purge solenoids on the Rotary Airlock and Rotary Feeder will operate when their respective equipment operates.

RDP Technologies, Inc.

B. Pneumatic Lime Transfer Panel Operating Procedure (Continued)

4. Fault Conditions and Recovery Procedure

a. Emergency Stop Condition:

If an emergency stop condition occurs, the alarm horn will sound, the "Emergency Stop" light will illuminate, and all PLTP equipment will shut down simultaneously.

- Press the "Horn Silence" push-button.
- Resolve the problem causing the emergency stop condition.
- Once all personnel are clear of RDP equipment, reset the emergency stop switch and the PLTP.

b. Motor Overload or Zero Speed Condition:

The following is a description of the individual faults and the handling procedure for each scenario:

- A Lime Blower motor overload fault is indicated by a flashing motor "Stopped/Fault" light. If this fault occurs, the Alarm Horn will sound and all equipment will shut down immediately. The Dust Collector will continue to run for a preprogrammed period of time to completely clean the filter cones. Other Lime Blower faults include High Pressure and Motor Overtemperature which are indicated by independent fault lights and equipment shutdown is the same

- A Rotary Airlock or Rotary Feeder motor overload fault is indicated by a flashing motor "Stopped/Fault" light. A zero speed fault is indicated by a flashing motor "Running/Zero Speed" light. Either fault will cause the motor to stop immediately, as well as all equipment upstream. The Lime Blower will continue to run for a preprogrammed period of time as well as the Dust Collector.

- A Silo Bin Activator motor overload fault is indicated by a flashing motor "Stopped/Fault" light. This fault will cause the motor to stop immediately. All equipment downstream from the Silo Bin Activator will run for preprogrammed periods of time to allow each to purge.

Motor overload faults require manual reset of the motor overload on the starter unit in the panel. This fault and the remaining faults require the PLTP "Reset" pushbutton to be pressed.

Regardless of operational mode, **all faults must be investigated**. This includes inspecting the motor and wiring for any potential problem or equipment for lime plugging.

The system can now be restarted.

C. Panel Shutdown Procedure

1. Ensure all lime has been transferred out of the System to a Day Bin.
2. Turn the PLTP disconnect handle to the "Off" position.
3. Turn off all disconnect switches in the system.

Town of Ocean City
Department of Waste Water
Biosolids Operational Manual
March 25, 2013

Press Start-Up Polymer Dosage Determination

1. Established sampling procedures should be used when obtaining samples, per the standardized sampling procedures. All employees have been issued safety glasses and latex gloves. Personal protective equipment should be used accordingly when sampling. If employees do not have safety glasses or gloves, they should contact the safety technician.

2. Obtain at least two quarts of a representative feed sludge sample from the holding tank. Mix well, measure 100 milliliters, and transfer to a plastic cup.

3. Obtain polymer solution sample from polymer solution makeup tank.

4. Review the operator log sheet over the past week to determine the typical polymer ratio required for effective dewatering. The percent polymer ratio will be equivalent to the milliliters of polymer solution added to a 100 milliliter sludge sample.

5. Select an initial polymer solution dosage of 5 milliliters less than the typical polymer ratio, i.e. if the typical percent polymer ratio has been 20%, select an initial polymer solution dosage of 15 milliliters for testing.

6. Add the initial dosage of polymer solution to a second cup, and pour the sludge back and forth from one cup to the other until a stabilized floc formation is seen. Count pours during the test, and if excessive pours result in broken floc, repeat the test with only enough pours to form a stable floc.

7. Proceed to the shop towel test to evaluate dewatering performance. Pour the treated sample into a double shop towel held over a clean cup.

8. Observe the free drainage through the shop towels. After the free drainage is complete, gently squeeze the shop towels over the clean cup to release any additional free water. Evaluate drainage while squeezing. If the shop towels are torn during the test, the test is invalid and must be repeated.

9. Evaluate the sludge remaining in the shop towel for dryness and traction. Also evaluate the clarity of the water in the cup.

Fournier Press Start-up Procedure

1. Perform jar tests and paper towel tests on sludge sample obtained from holding tank to determine optimum polymer ratio for dewatering.

2. Check press, polymer system, holding tank, grinders, and sludge pumps to insure that all equipment is prepared for start-up.

3. Verify that Valves 1, 2, 3, and 4 by the press sight column and sink are closed. Also verify that the inlet press channel valves are open. The Main Drain Valve has been preset to maintain an inlet pressure of 2 - 3 psi during recirculation. Adjust only if needed after start-up, but verify that valve is not completely closed prior to start-up.

4. Set press parameters as follows for start-up:

	West Press	East Press
Flow Control (GPM)	20	20
Inlet Pressure	2.0	2.0
Outlet Pressure	30	30
Press Speed	0.35	0.35
Flocculator	300	300
Polymer Ratio	Determine based on bench tests	
Recirculation Time (Min)	20	20
Flow Control Time	1.5	1.5

5. Initiate recirculation cycle on press by pushing "recirculation" on panel screen. Verify that recirculation is still set on 20 minutes.

6. After press is in recirculation mode, verify that the inlet pressure is 2 -3 psi on screen. If inlet pressure is not in range, make only very small adjustments to Main Drain Valve and never close valve.

7. Open bottom valve of sight column (Valve 1)

8. Slowly crack open top vent valve of sight column (Valve 2) to allow column to fill, then close vent valve (Valve 2).

9. Close bottom valve of sight column (Valve 1).

10. Evaluate sludge in sight column to insure flocculation.

RDP Start-Up Procedure

1. After Fournier Press is in operation, wait until there is enough material in the screw feeder before beginning the RDP start-up process in auto.

2. The odor control unit dust collector should be turned on at this time if it is not already on.

3. Make sure that the oilers on the RDP system are on and working.

4. Start the RDP process in the AUTO mode. NOTE: The safety interlocks will only work in AUTO mode.

RDP Automatic Mode Start-up Operation

1) Put the selector switch in the interlock position. Verify that all switches on the RPD panel are in auto position and system ready light is on.

2) Press the "auto start" button on the RDP panel. All the equipment is set to come on line automatically; each unit will start as it is timed out.

   A. Reversing Belt Conveyor
   B. Pasteurization Belt Conveyor
   C. Pasteurization Vessel and its heat zone #3 set at 200°F.
   D. Thermoblender and its heat zones #1 and #2 set at 900°F.
   E. Sludge Belt Conveyor
   F. Sludge Screw Conveyor

When the reversing belt conveyor starts, verify that it is set to fill the "off-spec" trailer. At any point, the system will wait for an operator adjustable period of time normally set at four minutes for the sludge to reach the Thermoblender point of lime addition, and then continue as follows:

   G. At this time, set Lime for 900 lbs.
   H. Lime Addition Conveyor
   I. Lime Feed Conveyor (2 Minutes)
   J. Day Bin Activator

NOTE: Upon "Auto Start", the Thermoblender Heat system will turn on though sludge is not present. The heat system will only be enabled for a period of time to allow sludge to reach its discharge point, thereby activating the "Sludge Present" flap switch. If the switch is not activated in the above period of time, the heat system will shut down and wait until sludge is present. Check the Thermoblender at this point.

RDP Manual Mode Start-up Operation

NOTE: Never run a material-filled conveyor onto a stopped conveyor. Never run a lime system without sludge present. Never energize a heat zone without sufficient sludge feed present.

There are (2) Manual modes of operation in this system; with interlocks or without interlocks

1) With Interlocks
   This mode ensures that no conveyor will discharge into a non-moving conveyor even while operating the equipment manually. To operate equipment manually with interlocks, the Hand Mode Interlock "Interlock-Bypass" key operated selector switch must be in the "Interlock" position. The individual equipment can only be started in the order listed below by turning their "Hand-Off-Auto" selector switches to the "Hand" position.

   A. Reversing Belt Conveyor
   B. Pasteurization Belt Conveyor
   C. Pasteurization Vessel and its heat zone (#3)
   D. Thermoblender
   E. Sludge Belt Conveyor
   F. Sludge Screw Conveyor

   At this point in start-up, the RDP Pasteurization System will wait for the Rotary Press to furnish a signal representing "Running w/ Sludge Present". Once received, the RDP system will wait for an operator adjustable period of time set at four minutes to allow the sludge to reach the Lime inlet point on the Thermoblender, and then finish the "Auto Start" (interlock system) sequence as follows:

   G. Lime Addition
   H. Lime Feed Conveyor
   I. Day Bin Activator

2) Note the time when the pasteurization vessel inlet temperature reaches 158°F.

   - **On the West RDP** – Thirty five (35) minutes after reaching 158°F, you should receive an alarm on the scada system
   - **On the East RDP** – Fifty (50) minutes after reaching 158°F, you should receive an alarm on the scada system.

Auto Shutdown

In the auto mode (RDP), you initiate the shutdown by touching "dewatering" on the Fournier panel screen. This will stop the press and initiate an automatic shutdown in the RDP process. The auto stop light on the RDP pane (red) will come on, indicating that the auto stop sequence has begun. The equipment will time out and stop.

Channel Wash

Once the press has stopped, it will be necessary to wash out the press. It is recommended that the press be washed out after each use or every eight hours of operation for at least twenty minutes.

1. West Press – On the Fournier panel, set the discharge pressure to 80% to close the discharge plates.

   East Press – On the Fournier panel, set the discharge pressure to 80% to close the discharge plates.

2. Start the channel wash by pressing "Channel Wash" on the Fournier panel screen.

3. Set the press speed to 1.6 rpm.

4. After the wash has proceeded for ten minutes, close the exterior screen spray valves to allow full water flow to the inlet spray wash bar until the wash is complete. The press wash cycle will stop automatically when completed.

Thermoblender Overheating

There is a possibility of overheating or even a fire starting in the Thermoblender during an improper shutdown. It is important to remember that all material must be out of the system to prevent this from occurring. If the temperature in the Thermoblender exceeds 250°F, it may be necessary to start the Fournier Press and the RDP System in manual and put enough sludge through the Thermoblender to cool it down. Do not add lime.

Note: All sludge used to cool the Thermoblender is "off spec". Sludge should be disposed of in "OFF SPEC" sludge trailer.

Heat System Operation and Equipment Safety

The Thermoblender Heat System should never operate without both Thermoblenders running and sludge being processed, or else equipment damage could occur. Therefore, the Thermoblender Heat System will be enabled during the "Auto Start" for a period of time after the PSCP has received the "Running w/ Sludge Present" signal from the RPCP to allow sludge to reach the mechanical sludge detect arm at the Thermoblender discharge. After which, the Thermoblender Heat System, in both Automatic and Manual modes, shall be enabled as long as the following interlocks below are satisfied:

1. The Thermoblender is confirmed running via its zero speed switches.

2. The Thermoblender Trough is not in an "Overtemperature" condition. If the trough shall fall into an "Overtemperature" condition, the entire Thermoblender Heat System shall shut down and remain off (latched). The trough "Overtemperature" Pilot Light will illuminate. It may be reset by the Trough Overtemperature "Reset" Pushbutton only after temperature has dropped below set point. **This set point is factory set. Warranty may be void if changed by anyone except RDP personnel.**

3. Sludge processing is confirmed via the "Sludge Detect" switch at the discharge of the Thermoblender.

4. The rotary press confirms that it is running while processing sludge.

RDP PANEL

Emergency Stop and Motor Failure

The maintained contact push-button and remote emergency stop devices will immediately stop all motors and heat in the system. In an E-Stop case, the alarm horn shall sound, which may be silenced. However, the reset is accomplished by resetting the E-Stop device and pressing the panel-mounted reset push-button. A motor failure will shut down the failed equipment and all equipment upstream, and initiate shutdown sequence of equipment downstream. Failure is indicated by the alarm horn and the equipment's "Fault" light.

CLASS A BIOSOLIDS

YOU WILL NEED TO MAINTAIN

158 Degrees for 30 Minutes in the Pasteurization Vessel

12.0 pH or Higher on Initial pH
12.0 pH or Higher on 2 Hour pH
11.5 pH or Higher on 24 Hour pH

Fecal less than 1000 mpn/g

You must verify that the trailer when loaded is either class A or "OFF SPEC", and class should be noted on daily log sheet

FECAL COLIFORM SAMPLES

OPERATORS,

PLEASE FILL OUT FECAL COLIFORM *CHAIN OF CUSTODY* SHEETS CORRECTLY. THERE HAS BEEN SOME DIFFERENCES IN THE WAY WE HAVE BEEN USING THESE FORMS.

- **SAMPLE TIME *MUST* BE THE TIME SAMPLE IS GRABBED**
- ***COLLECTOR* IS THE OPERATOR WHO GRABBED THE SAMPLE**
- ***RELINQUISHED BY* IN THE FIRST BOX IS ALSO THE OPERATOR WHO HAS GRABBED THE SAMPLE. EVEN IF THE SAMPLE WAS PLACED IN THE REFRIGERATOR.**
- **IF AN OPERATOR OTHER THAN THE *COLLECTOR* TAKES SAMPLE FROM REFRIGERATOR TO THE LAB THEN THE OPERATOR MUST SIGN IN THE *RECEIVED BY* BOX AND THEN ALSO SIGN IN THE NEXT *RELINQUISHED BY* BOX.**
- **IF THE SAMPLE IS GRABBED BY THE SAME OPERATOR WHO TAKES THE SAMPLE TO THE LAB THEN ONLY THE *COLLECTOR* AND FIRST *RELINQUISHED BY* BOXES NEED TO BE SIGNED. THE LAB SIGNS AS THE FINAL *RECEIVED BY*.**
- **BE SURE TO DATE AND TIME SIGNATURES**
- **PH, TEMPERATURE, CHLORINE RESIDUALS, AND DECHLORINATION ARE NOT NEEDED.**

THANK YOU

pH sample test

1. Take a grab sample of finished biosolids from the trailer.
2. Weigh out 50 grams of biosolids into a small beaker. Set rest of sample to the side.
3. In a graduated cylinder measure out 100 ml of de-ionized water.
4. Add the water to the 50 grams of sample in the beaker and mix thoroughly.
5. Note the time on pH worksheet.
6. Insert the probe into mixed sample.
7. Take the pH reading after the meter has reached equilibrium. Record the reading, time and date on the pH worksheet.
8. After an additional 2 hours, has passed, run 2nd pH on this sample Record the reading, time and date on the pH worksheet.
9. Run the 3rd and final pH test after 24 hours has past since the initial pH test. Record the reading, time and date on the pH worksheet
10 After all test have met pH requirements discard samples

- Please note: In order to meet State and Federal requirements, the measured pH should have been 12.00 or above, both initially and after two hours. If the samples does not maintain a pH of 11.5 after 24 hours:
    1. Contact the supervisor and together;
    2. Recalibrate the pH meter and take the final pH reading again.
    3. The sample should never have a pH of 13 or above, at any time.

pH TEMPERATURE CORRECTION FORMULA AND CORRECTION FACTORS AT VARYING TEMPERATURES FROM THE STANDARD (25°C)

Formula:

Correction Factor (CF) = 0.03 pH units x (°C Temp. Measurement - 25°C)
Actual pH = Measured pH +/- the Correction Factor

Sample Calculation (Sample Temp. = 30°C; pH Meter Reading = 12.304)
CF = 0.03 x (30-25); CF = 0.03 x 5; CF = +0.15
Actual (Corrected pH) = 12.304 + 0.15 = 12.454

Correction Factors

Sample Temp °C	Correction Factor
40	Plus 0.45
39	Plus 0.42
38	Plus 0.39
37	Plus 0.36
36	Plus 0.33
35	Plus 0.30
34	Plus 0.27
33	Plus 0.24
32	Plus 0.21
31	Plus 0.18
30	Plus 0.15
29	Plus 0.12
28	Plus 0.09
27	Plus 0.06
26	Plus 0.03
25	0.00

Sample Temp °C	Correction Factor
24	Minus 0.03
23	Minus 0.06
22	Minus 0.09
21	Minus 0.12
20	Minus 0.15
19	Minus 0.18
18	Minus 0.21
17	Minus 0.24
16	Minus 0.27
15	Minus 0.30
14	Minus 0.33
13	Minus 0.36
12	Minus 0.39
11	Minus 0.42
10	Minus 0.45

PAINT FILTER LIQUIDS TEST FOR ALL Trailer SAMPLE

1. COLLECT A 100 ML COMPOSIT SAMPLE FROM SIX PLACES IN FINISHED TRAILER .
2. PLACE FUNNEL IN RING STAND AND INSERT PIANT FILTER
3. PLACE GRADUATED CYLINDER UNDER FUNNEL
4. PLACE SAMPLE IN FILTER.
5. ALLOW SAMPLE TO DRAIN FOR 5 MIN. INTO GRADUATED CYLINDER.
6. IF ANY PORTION OF THE TEST MATERIAL LIQUID COLLECTS IN GRADUATED CYLINDER TRAILOR CAN NOT BE SHIPPED

CONTACT SUPERVISOR IF ANY LIQUID IS FOUND IN THE GRADUATED CYLINDER

➢ Fournier reversing screw operation

This screw is an extension of the RDP operation and it comes on automatically when the reversing screw is in remote on the Fournier control panel. You must select east or west RDP. This will make the backside press available for the selected RDP. When you start the backside press and it switches to dewatering then start RDP. When the backside sludge screw comes on in reverse, set the screw speed to 100% backside only and run it with the Fournier reversing screw which will come on automatically.

If you start the backside press when the RDP is in operation, the backside sludge screw will come on and run in reverse. Set the sludge screw speed to 100% backside only and the Fournier reversing screw will start in 2 minutes after the backside press goes into dewatering. Then adjust the front side sludge screw as needed.

To switch RDP units, stop both presses and select east or east RDP on your Fournier control panel. Restart the RDP units as normal.

If you what to run both RDP units(east & west) select the off setting on the Fournier control panel and run both units individually.

Local mode

To manually operate the Fournier reversing screw, first select (local) and then (east or west) on the Fournier control panel.

FECAL COLIFORM SAMPLES

OPERATORS,

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- **SAMPLE TIME *MUST* BE THE TIME SAMPLE IS GRABBED**
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- **IF THE SAMPLE IS GRABBED BY THE SAME OPERATOR WHO TAKES THE SAMPLE TO THE LAB THEN ONLY THE *COLLECTOR* AND FIRST *RELINQUISHED BY* BOXES NEED TO BE SIGNED. THE LAB SIGNS AS THE FINAL *RECEIVED BY*.**
- **BE SURE TO DATE AND TIME SIGNATURES**
- **PH, TEMPERATURE, CHLORINE RESIDUALS, AND DECHLORINATION ARE NOT NEEDED.**

THANK YOU

CHAIN OF CUSTODY RECORD
WATER/WASTEWATER COLIFORM AND/OR NITRATE SAMPLE

BOTTLE NUMBER: _____

DATE: _____ TIME: _____

CHLORINE RESIDUAL (FREE) _____

CHLORINE RESIDUAL (TOTAL) _____

DECHLORINATION RESIDUAL _____

pH: _____ @ _____ °C

LOCATION: _____

_____

COLLECTOR (PRINT NAME) _____ NUMBER _____

Relinquished by: Signature	Received by: Signature	Date/Time
Relinquished by: Signature	Received by: Signature	Date/Time
Relinquished by: Signature	Received by: Signature	Date/Time

Town of Ocean City
Department of Wastewater
Biosolids Management
Biosolids Sampling Protocol
March 2, 2010

Sample Collection

A sampling protocol is being established to insure standardized sampling, which will allow proper evaluation and optimization of the biosolids management system. Sampling frequency requirements will be posted on the bulletin board above the lab bench in the biosolids office. All employees have been issued safety glasses and latex gloves. Personal protective equipment should be used accordingly when sampling. If employees do not have safety glasses or gloves, they should contact the safety technician.

When obtaining a full set of samples of the biosolids system for laboratory analysis, feed solids sample should be collected first. Centrate and press solids samples should then be collected within twenty minutes of the feed solids sample collection. The RDP sample should then be collected within thirty minutes of the centrate and press samples. All samples should be obtained from the same train of operation (i.e. East or West) to allow proper evaluation of system operation. Plastic 150 ml cups have been provided for collection of samples. Samples should be labeled East or West when collected.

Sampling Procedures

Feed Solids

Two sample points are now available for feed solids. The samples are located by the holding tank, and they are labeled East Feed Solids and West Feed Solids. The feed solids sample must be obtained when a press is in operation, and it is critical that the feed solids sample is obtained for the corresponding press that is in operation.

1. Fully open valve for West or East Feed Solids sample based on corresponding press that is in operation.
2. Allow sample to run to drain for a full two minutes before obtaining sample.
3. Collect sample in a properly labeled clean container for lab. Fill container approximately half full.
4. Seal container immediately after sampling.

Press Solids

Two sample points are now labeled for East and West Press Solids. The sample points are located where the cake solids drop from the press auger onto the conveyor belt.

1. Utilize a long handled dipper to collect sufficient sample to fill a plastic sampling container three quarters full.
2. Mix the sample thoroughly with a scoop or knife.
3. Transfer a representative sample to a properly labeled clean container, filling container about three quarters full. Do not separate large and small particles when transferring.
4. Seal container immediately after sampling.

Centrate

Two sample points for the East and West press centrate are now labeled at the centrate discharge pipe for each press. Please be certain to obtain the centrate sample at the same time that the press solids sample is obtained.

1. Using a properly labeled clean container, dip container into centrate discharge flow from same press that the press solids sample was collected. Fill container approximately half full.
2. Do not pour any sample out of container to insure that sample is representative of discharge flow.
3. Seal container immediately after sampling.

RDP Solids – Grab Sample

Two sample points are now labeled for East and West RDP Solids. The sample points are located where the RDP solids drop from the RDP Pasteurization Vessel onto the conveyor belt. Use care when collecting sample due to high temperature of solids.

1. Utilize a long handled dipper to collect sufficient sample to fill a plastic sample container three quarters full.
2. Mix the sample thoroughly with a scoop or knife.
3. Transfer a representative sample to a properly labeled clean container, filling container about three quarters full. Do not separate large and small particles when transferring.
4. Seal container immediately after sampling.
5. Store samples in the sample refrigerator in the biosolids office. The refrigerator temperature should be maintained at 1° C to 4° C.

RDP Solids – Composite Sample

Two sample points are now labeled for East and West RDP Solids. The sample points are located where the RDP solids drop from the RDP Pasteurization Vessel onto the conveyor belt. Use care when collecting sample due to high temperature of solids.

1. Utilize a long handled dipper to collect sufficient sample to completely fill a plastic sample container.
2. Mix the sample thoroughly with a scoop or knife, and fill the sample container.
3. Transfer a representative sample into the composite holding container located in the refrigerator in the biosolids office. Do not separate large and small particles when transferring the sample. The refrigerator temperature should be maintained at 1° C to 4° C.

DAF Inlet Solids

Two sample points are established for DAF inlet solids samples. The sample points are located on the individual inlet sludge piping to the East and West DAF at Valve V34. The DAF inlet solids sample must be obtained when a DAF is in operation, and it is critical that the DAF inlet solids sample is obtained for the corresponding DAF that is in operation.

1. Fully open valve V34 for the West or East DAF inlet solids sample based on the corresponding DAF that is in operation.
2. Allow sample to run to drain for ten seconds before obtaining sample.
3. Collect sample in a properly labeled clean container for lab. Fill container approximately half full.
4. Seal container immediately after sampling.

DAF Outlet Solids

A sample point is established for DAF outlet solids samples. The sample point is located on the combined thickened sludge piping from the East and West DAF to the holding tank, on the vertical pipe line by the sludge flow meter. The DAF outlet solids sample must be obtained when a DAF is in operation, and it is critical that the DAF outlet solids sample is obtained when a thickened sludge pump is pumping.

1. Partially open the valve for the thickened solids. Use care when opening valve.
2. Allow sample to run to bucket for ten seconds before obtaining sample.
3. Collect sample in a properly labeled clean container for lab. Fill container approximately half full.
4. Seal container immediately after sampling.

Town of Ocean City
Department of Wastewater
Biosolids Management
Draft Biosolids Sampling Protocol
March 2, 2010

Sample Collection

A sampling protocol is being established to insure standardized sampling, which will allow proper evaluation and optimization of the biosolids management system. Sampling frequency requirements will be posted on the bulletin board above the lab bench in the biosolids office. All employees have been issued safety glasses and latex gloves. Personal protective equipment should be used accordingly when sampling. If employees do not have safety glasses or gloves, they should contact the safety technician.

When obtaining a full set of samples of the biosolids system for laboratory analysis, feed solids sample should be collected first. Centrate and press solids samples should then be collected within twenty minutes of the feed solids sample collection. The RDP sample should then be collected within thirty minutes of the centrate and press samples. All samples should be obtained from the same train of operation (i.e. East or West) to allow proper evaluation of system operation. Plastic 150 ml cups have been provided for collection of samples. Samples should be labeled East or West when collected.

Sampling Procedures

Feed Solids

Two sample points are now available for feed solids. The samples are located by the holding tank, and they are labeled East Feed Solids and West Feed Solids. The feed solids sample must be obtained when a press is in operation, and it is critical that the feed solids sample is obtained for the corresponding press that is in operation.

1. Fully open valve for West or East Feed Solids sample based on corresponding press that is in operation.
2. Allow sample to run to drain for a full two minutes before obtaining sample.
3. Collect sample in a properly labeled clean container for lab. Fill container approximately half full.
4. Seal container immediately after sampling.

Press Solids

Two sample points are now labeled for East and West Press Solids. The sample points are located where the cake solids drop from the press auger onto the conveyor belt.

1. Utilize a long handled dipper to collect sufficient sample to fill a plastic sampling container three quarters full.
2. Mix the sample thoroughly with a scoop or knife.
3. Transfer a representative sample to a properly labeled clean container, filling container about three quarters full. Do not separate large and small particles when transferring.
4. Seal container immediately after sampling.

Centrate

Two sample points for the East and West press centrate are now labeled at the centrate discharge pipe for each press. Please be certain to obtain the centrate sample at the same time that the press solids sample is obtained.

1. Using a properly labeled clean container, dip container into centrate discharge flow from same press that the press solids sample was collected. Fill container approximately half full.
2. Do not pour any sample out of container to insure that sample is representative of discharge flow.
3. Seal container immediately after sampling.

RDP Solids – Grab Sample

Two sample points are now labeled for East and West RDP Solids. The sample points are located where the RDP solids drop from the RDP Pasteurization Vessel onto the conveyor belt. Use care when collecting sample due to high temperature of solids.

1. Utilize a long handled dipper to collect sufficient sample to fill a plastic sample container three quarters full.
2. Mix the sample thoroughly with a scoop or knife.
3. Transfer a representative sample to a properly labeled clean container, filling container about three quarters full. Do not separate large and small particles when transferring.
4. Seal container immediately after sampling.
5. Store samples in the sample refrigerator in the biosolids office. The refrigerator temperature should be maintained at 1° C to 4° C.

RDP Solids – Composite Sample

Two sample points are now labeled for East and West RDP Solids. The sample points are located where the RDP solids drop from the RDP Pasteurization Vessel onto the conveyor belt. Use care when collecting sample due to high temperature of solids.

1. Utilize a long handled dipper to collect sufficient sample to completely fill a plastic sample container.
2. Mix the sample thoroughly with a scoop or knife, and fill the sample container.
3. Transfer a representative sample into the composite holding container located in the refrigerator in the biosolids office. Do not separate large and small particles when transferring the sample. The refrigerator temperature should be maintained at 1° C to 4° C.

DAF Inlet Solids

Two sample points are established for DAF inlet solids samples. The sample points are located on the individual inlet sludge piping to the East and West DAF at Valve V34. The DAF inlet solids sample must be obtained when a DAF is in operation, and it is critical that the DAF inlet solids sample is obtained for the corresponding DAF that is in operation.

1. Fully open valve V34 for the West or East DAF inlet solids sample based on the corresponding DAF that is in operation.
2. Allow sample to run to drain for ten seconds before obtaining sample.
3. Collect sample in a properly labeled clean container for lab. Fill container approximately half full.
4. Seal container immediately after sampling.

DAF Outlet Solids

A sample point is established for DAF outlet solids samples. The sample point is located on the combined thickened sludge piping from the East and West DAF to the holding tank, on the vertical pipe line by the sludge flow meter. The DAF outlet solids sample must be obtained when a DAF is in operation, and it is critical that the DAF outlet solids sample is obtained when a thickened sludge pump is pumping.

1. Partially open the valve for the thickened solids. Use care when opening valve.
2. Allow sample to run to bucket for ten seconds before obtaining sample.
3. Collect sample in a properly labeled clean container for lab. Fill container approximately half full.
4. Seal container immediately after sampling.

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Sampling Procedures

Feed Solids

Two sample points are now available for feed solids. The samples are located by the holding tank, and they are labeled East Feed Solids and West Feed Solids. The feed solids sample must be obtained when a press is in operation, and it is critical that the feed solids sample is obtained for the corresponding press that is in operation.

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3. Collect sample in a properly labeled clean container for lab. Fill container approximately half full.
4. Seal container immediately after sampling.

Press Solids

Two sample points are now labeled for East and West Press Solids. The sample points are located where the cake solids drop from the press auger onto the conveyor belt.

1. Utilize a long handled dipper to collect sufficient sample to fill a plastic sampling container three quarters full.
2. Mix the sample thoroughly with a scoop or knife.
3. Transfer a representative sample to a properly labeled clean container, filling container about three quarters full. Do not separate large and small particles when transferring.
4. Seal container immediately after sampling.

Centrate

Two sample points for the East and West press centrate are now labeled at the centrate discharge pipe for each press. Please be certain to obtain the centrate sample at the same time that the press solids sample is obtained.

1. Using a properly labeled clean container, dip container into centrate discharge flow from same press that the press solids sample was collected. Fill container approximately half full.
2. Do not pour any sample out of container to insure that sample is representative of discharge flow.
3. Seal container immediately after sampling.

RDP Solids – Grab Sample

Two sample points are now labeled for East and West RDP Solids. The sample points are located where the RDP solids drop from the RDP Pasteurization Vessel onto the conveyor belt. Use care when collecting sample due to high temperature of solids.

1. Utilize a long handled dipper to collect sufficient sample to fill a plastic sample container three quarters full.
2. Mix the sample thoroughly with a scoop or knife.
3. Transfer a representative sample to a properly labeled clean container, filling container about three quarters full. Do not separate large and small particles when transferring.
4. Seal container immediately after sampling.
5. Store samples in the sample refrigerator in the biosolids office. The refrigerator temperature should be maintained at 1° C to 4° C.

RDP Solids – Composite Sample

Two sample points are now labeled for East and West RDP Solids. The sample points are located where the RDP solids drop from the RDP Pasteurization Vessel onto the conveyor belt. Use care when collecting sample due to high temperature of solids.

1. Utilize a long handled dipper to collect sufficient sample to completely fill a plastic sample container.
2. Mix the sample thoroughly with a scoop or knife, and fill the sample container.
3. Transfer a representative sample into the composite holding container located in the refrigerator in the biosolids office. Do not separate large and small particles when transferring the sample. The refrigerator temperature should be maintained at 1° C to 4° C.

DAF Inlet Solids

Two sample points are established for DAF inlet solids samples. The sample points are located on the individual inlet sludge piping to the East and West DAF at Valve V34. The DAF inlet solids sample must be obtained when a DAF is in operation, and it is critical that the DAF inlet solids sample is obtained for the corresponding DAF that is in operation.

1. Fully open valve V34 for the West or East DAF inlet solids sample based on the corresponding DAF that is in operation.
2. Allow sample to run to drain for ten seconds before obtaining sample.
3. Collect sample in a properly labeled clean container for lab. Fill container approximately half full.
4. Seal container immediately after sampling.

DAF Outlet Solids

A sample point is established for DAF outlet solids samples. The sample point is located on the combined thickened sludge piping from the East and West DAF to the holding tank, on the vertical pipe line by the sludge flow meter. The DAF outlet solids sample must be obtained when a DAF is in operation, and it is critical that the DAF outlet solids sample is obtained when a thickened sludge pump is pumping.

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3. Collect sample in a properly labeled clean container for lab. Fill container approximately half full.
4. Seal container immediately after sampling.