DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

Revised North Carolina Prefabricated Tank Approval

(Formerly Innovative Wastewater System No.: IWWS-96-1-R1)

Issued To: Norwesco, Inc.
4365 Steiner Street
P. O. Box 439
St. Bonifacius, MN 55375-0439

For: 1000-Gallon, and 1500-Gallon Polyethylene Septic Tanks and 1000-Gallon and 1500-Gallon Polyethylene Pump Tanks

Date: June 4, 2002

In accordance with 15A NCAC 18A .1954, an application by Norwesco, Inc. of St. Bonifacius, Minnesota, for a revised approval of their 1000 and 1500-gallon polyethylene septic tanks and 1000-gallon and 1500-gallon polyethylene pump tanks has been reviewed, and found to meet the standards for approved prefabricated tanks when the following conditions for use, installation, operation and monitoring are met. **Note that this approval supersedes the innovative wastewater system approval IWWS-96-1-R issued February 26, 1997, which is being concurrently rescinded.**

I. Permitting:

Prior to the installation of a Norwesco Polyethylene Septic and/or Pump Tank at a site for which application is being made for an Improvement Permit or Construction Authorization or at a site for which an Improvement Permit and Construction Authorization have been previously issued for a system described in 15A NCAC 18A .1955, 1956, .1957, or .1969, the owner or authorized agent shall notify the local health department. The local health department shall indicate on the Construction Authorization to be issued or amend the previously issued Improvement Permit and Construction Authorization to allow for the use of the proposed tank(s) upon a finding that all provisions of this approval and all other applicable rules shall be met. Use of the proposed tank(s) and any conditions shall be described in the Construction Authorization or amended Improvement Permit and Construction Authorization, as applicable. Such information shall also be described on the Operation Permit to be issued upon the acceptable completion of the system installation.

II. System description:

a. Tanks

i. 1000 or 1500-gallon Norwesco, Inc. polyethylene **septic** tanks constructed in accordance with plans, specifications and testing reports submitted in support of this approval and as indicated below. **Note that these septic tanks may not under any conditions be used for pump or siphon dosing tanks.**

Tank size	**1000-gallon**	**1500-gallon**
Approval number	STB -254	STB/IWWS-255
Length (longest dimension)	98 inches	143 inches
First compartment length	68 inches	95 5/8 inches
Width	18 to 59 inches	0 to 54 inches
Liquid depth	48 inches	54 inches
Total depth	58 inches	66 inches
Effluent filter/case tee material*	Polyethylene	Polyethylene
Sanitary tee/effluent filter housing extension depth	18-11/16 inches	19 inches
Baffle wall opening size	Five 6" dia. holes	Five 6" dia. holes
Baffle wall opening depth (measured from liquid level)	between 12 and 24 inches	between 13.5 and 27 inches
Wall thickness	1/4-inch, min.	1/4-inch, min.
Baffle wall thickness	3/16-inch, min.	3/16-inch, min.
Access opening inside diameter	20 inches	20 inches

***Effluent filter to be provided shall be Fist Model F-100-N or alternate state-approved equal.**

ii. 1000 or 1500-gallon Norwesco, Inc. polyethylene **pump** tanks constructed in accordance with plans, specifications and testing reports submitted in support of this approval and as indicated below.

Tank size	**1000-gallon**	**1500-gallon**
Approval number	PT/IWWS-254	PT/IWWS-256
Length (longest dimension)	98 inches	143 inches
Width	18 to 59 inches	0 to 54 inches
Total depth	58 inches	66 inches
Wall thickness	5/16-inch, min.	5/16-inch, min.
Access opening inside diameter*	20 inches	20 inches

*** These pump tanks may only be used with a pump with a maximum radial dimension of 14 inches or less and with the pump, valve and float access provisions shown on the approved plans and detailed in the approved specifications.**

b. Tanks must be permanently identified at the place of fabrication with the following designation which must be located to the right (for **septic** tanks) or left (for **pump** tanks) of the outlet pipe:

Tank Type	Tank size	Approval number	Identification imprint
Septic	1000 gallons	STB-254	Norwesco-STB-254-1000
Septic	1500 gallons	STB-255	Norwesco-STB-255-1500
Pump	1000 gallons	PT-254	Norwesco-PT-254-1000
Pump	1500 gallons	PT-256	Norwesco-PT-256-1500

c. All applicable requirements for wastewater systems described in 15A NCAC 18A .1900, et seq. shall be met.

II. Siting criteria:

a. **Tanks shall not be installed in areas with saturated soil conditions or indication of a seasonal high water table, per 15A NCAC 18A .1942(a), between the ground surface and the bottom of the proposed tank installation excavation.**

b. Tanks shall not be installed in areas which are to be subject to vehicular or other live loading of any kind.

c. Tanks shall not be installed in areas which may be subject to exposure to open flame or heat in excess of 180 degrees, Fahrenheit.

d. Tanks shall be located and oriented in such a way that the inlet pipe shall enter the tank through the preformed inlet pipe penetration point and pipe connection gasket at a 90-degree angle to its inlet end wall. No side entry of these tanks are allowed. Inlet shall be through gasket provided by the manufacturer.

e. Tank top must be 6 inches below the finished grade for septic tanks and 6 inches above the finished grade for pump tanks.

f. Other siting criteria as specified in 15A NCAC 18A .1900, et seq. and minimum setback distances, as specified in 15A NCAC 18A .1950, shall be met.

III. Tank sizing:

Per the criteria established in 15A NCAC 18A .1952.

IV. Design criteria:

Per the approved drawings, specifications and testing results. All other wastewater system components shall be as described in 15A NCAC 18A .1900, et seq.

Specific design criteria for these tanks which have been demonstrated via third-party testing and shall be met include:

a. **Material and Property Standard for Prefabricated Septic Tanks, IAPMO PS 1-93, section 5.4.**

Polyethylene shall be type II or III and Category 3 per ASTM Standard D 1248, Specification for Polyethylene Plastics Molding and Extrusion Materials, Class B (requiring an ultraviolet stabilizer) or Class C (requiring a minimum of 1-percent carbon black); and shall have the following physical properties:

Property	Minimum value	Test procedure
Stress crack resistance	150 hours	ASTM D 1693
Ultimate tensile strength	2400 psi	ASTM D 638
Flexural modulus of elasticity	85,000 psi	ASTM D 790

b. **Structural integrity and tank watertightness in accordance with CAN/CSA-B66-M90, Prefabricated Septic Tanks and Sewage Holding Tanks, sections 8.2.2 and 8.3.**

V. Installation and testing procedures:

a. Sharp objects must be kept away from the tanks.

b. Tanks must be bedded with at least six inches of clean compacted backfill, as specified in item i. below, where the bottom of the tank is installed in soil or unconsolidated material and at least twelve inches of clean compacted backfill, as specified in item i. below, where the bottom of the tank is installed in partially-weathered rock or rock.

c. The excavation hole must be as small as possible while allowing for a minimum of 6 inches and a maximum of 24 inches of sidewall and endwall clearance.

d. The following items must be done after the setting the tank into the excavation and before backfilling the tank:

For septic tanks: install rubber gasket in predrilled inlet hole (note that inlet pipe connection must be made at the predrilled hole through the inlet gasket; no side entry is allowed); install outlet pipe onto end of sanitary tee extension with flexible (Fernco) connection and stainless steel strap; inlet gasket and outlet flexible connection and strap provided by the manufacturer.

For pump tanks: circular saw-cut 5-inch diameter hole at inlet and install rubber gasket (note that inlet pipe connection must be made at the provided flat spot on the end of the tank; no side entry is allowed); install 4-inch inlet pipe through gasket; outlet pipe shall be through four-inch outlet pipe sleeve through gasket with resilient rubber adapters between sleeve pipe and pump discharge supply pipe; alternately exit tank outlet through bulkhead type connectors provided by the manufacturer and installed per manufacturer's

recommendations, to make a secure watertight connection; install properly-sized holes into riser (for electrical wire penetration and float access support) using punch kit or drill, install outlet pipe, float tree support and electrical wiring through preformed holes in accordance with the approved installation drawings.

e. Risers with locking covers, when used, must be provided by Norwesco, Inc., and installed prior to backfill or addition of water to the tank. To install a riser, a prefabricated Norwesco manhole extension (riser) must be secured to the tank using stainless steel screws and foam gasket supplied with the riser.

f. Tank must be backfilled with maximum 12-inch thick layers of clean compacted backfill, as specified in item i. below. Tank ends are to be backfilled first and the **septic** tank must be filled with water to a level even with the backfill level during backfilling. Backfill under inlet and outlet pipes must be tamped and compacted.

g. Tank must be filled to its outlet with water and the tank excavation must be backfilled with clean compacted backfill, as specified in item i. below, to at least six inches above the top of the tank. The remaining backfill required to bring the level to finished grade may be additional compacted stone, or native soil material. Maximum backfill over the top of the tanks (tank depth) is 24 inches. Final grading must divert surface water away from the tank area and its access openings. Perforated or slotted tubing or PVC pipe may be used within the gravel bedding to intercept and drain stormwater which may accumulate within the gravel matrix.

h. A 24-hour tank leakage test may be required by the local health department following tank installation. Vacuum testing is not recommended for buried polyethylene tanks.

i. The bedding under the tank and backfill surrounding and covering the tank must be free of any wood, masonry debris, or sharp objects and shall consist of a mixture of sand and gravel, with 80 to 100 percent retention on a #200 sieve, 40 to 50 percent retention on a 1/4-inch sieve and zero percent retention on a 1-1/2-inch sieve, in accordance with the recommendations of Norwesco, Inc. **This bedding/backfill specification may be met by using #78M, NC DOT-approved stone.** The fill material must be compacted in layers not exceeding 12 inches and must be compacted by hand-tamping to a density of 90-percent of the maximum, as determined by the Modified AASHTO Method of Compaction Testing.

j. Manufacturer's installation instructions for Norwesco Polyethylene Tanks shall be adhered to, except as required herein or by 15A NCAC 18A .1900, et seq.

k. Tanks shall be distributed through a network of dealers/distributors authorized by Norwesco, Inc., after all personnel involved in the sale of the tanks have completed Norwesco-authorized product training. Authorized dealers may only sell tanks to authorized installers.

l. Tanks shall installed by an installer who has completed a Norwesco-authorized training session and has been authorized in writing by Norwesco, Inc.

VI. Operation, maintenance and monitoring requirements:

a. System management entity, inspection/maintenance and reporting frequency requirements shall be in accordance with 15A NCAC 18A .1961.

b. The operator in responsible charge (ORC), where applicable, during their regular inspection and the local health department, during their regular system review, should remove any access lids and inspect the tanks for signs of infiltration, leakage and structural failure. Any problems noted shall be reported to the local health department, Norwesco, Inc., and the Division of Environmental Health, On-Site Wastewater Section. Repairs made shall be consistent with the recommendations of Norwesco, Inc. and the Division of Environmental Health, On-Site Wastewater Section.

c. **When the septic tanks are pumped, as required for routine maintenance, the tank must be refilled with water immediately after pumping.**

Approved by: _____ Date: _____