

VIRGINIA DEPARTMENT OF HEALTH  
ENGINEERING DESCRIPTION SHEET

DATE: June 14, 2013

WATERWORKS NAME      Long Island Estates

WATERWORKS CLASS: V

COUNTY/CITY:            Franklin County

TYPE: Community

LOCATION:                From the Town of Rocky Mount, take State Route 122 (Booker T. Washington Highway) for approximately 15.7 miles. Turn left onto Red Bud Lane and travel approximately 0.8 miles; turn right onto Long Island Drive; waterworks is located on the right.

OWNER:                 Petrus Environmental Services, Inc.  
                              Contact: Mr. David Petrus  
                              P.O. Box 21173  
                              Roanoke, VA 24018  
                              Phone: (540) 344-9800

OPERATOR:              Licensed Class V Operator Required

PERMIT NUMBER:        5067440

EFFECTIVE DATE:        September 19, 1979                      Amended  
   April 18, 2003  
   June 14, 2013

TYPE OF TREATMENT:    None

SOURCE:                Westlake Area Public Water System Water Supply

DESIGN CAPACITY:       13,600 GPD

**DESCRIPTION OF THE WATERWORKS**

The waterworks consists of a master meter located at the entrance of Long Island Estates, two booster pumps, a 1000-gallon hydropneumatic tank, a 20,000-gallon atmospheric tank and distribution system.

**20,000-Gallon Standpipe Atmospheric Tank:** The 20,000 gallon standpipe storage tank is located adjacent to the main control building. The effective volume of tank is 18,800 gallons. The standpipe is equipped with a square roof hatch with shoe-box type cover; screened vent; screened overflow pipe; and screened drain. The atmospheric tank has an electronic valve that controls the flow control filling of the tank.

**Booster Pumps:** Two centrifugal pumps are located in the main control building. Appurtenances include a shut-off valve on each suction line and a check valve and shut-off valve in each discharge line. The pumps are controlled by a pressure switch. Each pump is rated 140 gpm @ 99 feet TDH with a combined rate capacity of 185 gpm @ 132 feet TDH.

**Hydropneumatic Tank:** A 1,000-gallon hydropneumatic tank is located adjacent to the control building. The control end of the tank extends into the building. Appurtenances include a drain line, pressure relief valve, pressure gauge, sight glass and means for pressurizing the tank.

### CAPACITY EVALUATION OF THE WATERWORKS

**Design Basis:** Commonwealth of Virginia *Waterworks Regulations*  
One Equivalent Residential Connection (ERC) = 400 gpd

**Source Capacity:** No allocation of source capacity by WVWA. Source capacity based on 80% maximum monthly historical water use. Maximum monthly consumption over two year period = 10,860 gpd  
(August 2012 maximum month)  
 $10,860 \text{ gpd} / 0.8 = 13,600 \text{ gpd}$

**Storage Capacity:** 20,000-Gallon Standpipe Atmospheric Storage tank  
Effective volume 18,800 gallons  
Hydropneumatic Storage tank- 1,000 gallons/3 = 333 Effective volume  
Total Effective Storage: 333 gallons + 18,800 gallons = 19,133 gallons  
 $19,133/200 \text{ gallons/ERC} = 96 \text{ ERCs}$   
 $96 \text{ ERCs} \times 400 \text{ gpd/ERC} = 38,400 \text{ gallons per day}$

### **Booster Pump Capacity:**

Combined Capacity= 185 gpm @ 132 feet TDH  
Based on  $Q=11.4N^{0.544}$ , Q is the combined booster pump rate in gpm and N is ERCs,  
the combined booster pumps are rated at 168 ERCs  
 $168 \text{ ERCs} \times 400 \text{ gpd/ERC} = 67,200 \text{ gpd}$

### **Conclusions:**

This waterworks is permitted for a design capacity of 13,600 gpd due to limited source capacity described above. This permit does not suspend, minimize, or otherwise alter this owner's obligation to comply with applicable federal, state, or local laws and regulations or permits.

RLP:jk/ga



Commonwealth of Virginia  
Department of Health  
Office of Drinking Water

## Waterworks Operation Permit

Petrus Environmental Services, Inc. is hereby granted permission to operate a Class V community waterworks having a design capacity of 13,600 gpd at Long Island Estates located in Franklin County in accordance with Title 32.1 of the Code of Virginia, and the *Waterworks Regulations* of the Virginia Department of Health (12 VAC 5-590). This permit is issued in accordance with previously issued Operation Permit No. 5067440 dated April 18, 2003 and with the understanding that this owner will operate the waterworks in accordance with Part II, "Operation Regulations for Waterworks," of the *Waterworks Regulations* of the Virginia Department of Health and any variances or special requirements noted below. This permit does not suspend, minimize, or otherwise alter this owner's obligation to comply with applicable federal, state, or local laws and regulations or permits.

Variances, Exemptions, or Special Permit Requirements issued: (✓) None ( ) See Attached

An Engineering Description Sheet is attached dated June 14, 2013

PERMIT NO.: 5067440

EFFECTIVE DATE: June 14, 2013

APPROVED

John J. Anlbach II, P.E., Director, Office of Drinking Water  
for the State Health Commissioner pursuant to VA Code § 2.2-604