# SCARBOROUGH SANITARY DISTRICT

# SEWER REGULATIONS

Adopted May 23, 1985

# Revised:

July 23, 1987 May 26, 1988 July 28, 1994 June 22, 1995 March 29, 2001 March 27, 2003 May 22, 2003 October 28, 2004 October 27, 2005 October 22, 2009

# **CONTENTS**

			<u>Page</u>
Article	Ι	Definitions	3
Article	II	Use of Public Sewers Required	6
Article	III	Permit Allocation	7
Article	IV	Building Sewers and Connections	8
Article	V	Sewer Extensions	9
Article	VI	Use of Public Sewers	13
Article	VII	Protection From Damage	16
Article	VIII	Power and Authority of Inspectors	17
Article	IX	Acceptance	17
Article	X	Penalties	18
Article	XI	Violations	18
Article	XII	Schedule of Rates	19
Appendix A		House/Building Service Connection Policy	24
Appendix B		Regulations for the Discharge of Septic Tank Wastes	25

#### SEWER REGULATIONS

SECTION 9. Regulations for the use of public and private sewers and drains; the installation of public and private sewers and the discharge of waters and wastes into the public sewer system; and providing penalties for violations thereof in any area under the jurisdiction of the Scarborough Sanitary District, Cumberland County, State of Maine.

#### ARTICLE I

#### **DEFINITIONS**

Unless the context specifically indicates otherwise, the meaning of the terms used herein shall be as follows:

- 1. "ASTM" shall mean American Society for Testing and Materials.
- 2. "Average Daily Flow" shall mean the daily flow averaged over a 90 day period.
- 3. "BOD" (denoting Biochemical Oxygen Demand) shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in five (5) days at 20 C, expressed in milligrams per liter.
- 4. "Builder" shall mean any person, persons, or corporations who undertake to construct, either under contract or for resale, any habitable building.
- 5. "Building Drain" shall mean that part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer, beginning ten (10) feet outside the inner face of the building wall.
- 6. "Building Sewer" shall mean the extension from the building drain to the public sewer or other place of disposal.
- 7. "Coliform Count" shall mean the number of the all coliform bacteria per one hundred (100) milliliters of solution, as determined in accordance with standard methods.
- 8. "Color of Liquid" shall mean the appearance of a liquid, from which the suspended solids have been removed, as determined in accordance with standard methods.
- 9. "Combined Sewer" shall mean a sewer receiving both surface runoff and sewage.
- 10. "Contractor" shall me any person, firm, or corporation which does work in the District.
- 11. "DEP" shall mean Maine Department of Environmental Protection.

- 12. "Developer" shall mean any persons or corporations who undertake to construct simultaneously amore than one housing unit on a given tract or land subdivision.
- 13. "District" shall mean the Scarborough Sanitary District.
- 14. "Easements" shall mean an acquired right for the specific us of land owned by others.
- 15. "Floatable Oil" is oil, fat or grease in a physical state such that it will separate by gravity from wastewater by treatment in an approved pre-treatment facility. A wastewater shall be considered free of floatable fat if it is properly pre-treated and the wastewater does not interfere with the collection system.
- 16. "Garbage" shall mean solid wastes from the domestic and commercial preparation, cooking, and dispensing of food, and from the handling, storage, and sale of produce.
- 17. "Industrial Wastes" shall mean the liquid wastes from industrial manufacturing processes, trade, or business as distinct from sanitary sewage.
- 18. "Natural Outlet" shall mean any outlet into a watercourse, pond, ditch, lake, or other body of surface or groundwater.
- 19. "Owner" shall mean any individual, firm, company, association, society, corporation, group, partnership or combination of these.
- 20. "Person" shall mean any individual, firm, company, association, society, corporation, group, partnership or combination of these.
- 21. "Property Line" shall mean the property boundary line if the building sewer is to connect with the public sewer in a public street, "Property Line" shall mean the edge of a sewer right-of-way in these instance where the building sewers connect to the public sewer in a right-of-way.
- 22. "pH" shall mean the logarithm of the reciprocal of the weight of hydrogen ions in grams per liter of solution.
- 23. "Properly Shredded Garbage" shall mean the wastes from the preparation, cooking, and dispensing of food that have been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater then one-half (1/2) inch (1.27) centimeters in any dimension.
- 24. "Public Sewer" shall mean a sewer in which all owners of abutting properties have equal rights, and is controlled by public authority
- 25. "Sanitary Sewer" shall mean a sewer which carries sewage and to which storm, surface, and ground waters are not intentionally admitted.
- 26. "Sewage" shall mean a combination of the water carried waste from residences, business buildings, institutions, and industrial establishments.

- 27. "Sewage Treatment Plant" Shall mean any arrangements of devices and structures used for treating sewage.
- 28. "Sewage Works" shall mean all facilities for collecting, pumping, treating and disposing of sewage.
- 29. "Sewer" shall mean a pipe or conduit for carrying sewage.
- 30. "Shall" is mandatory; "May" is permissive.
- 31. "Slug" shall mean any discharge of water, sewage, or industrial waste which in concentration of any given constituent or in quantity of flow exceeds for any period of duration longer than fifteen (15) minutes, more than five (5) times the average twenty-four (24) hour concentration or flows during normal operation and shall adversely affect the collection system and /or performance of the sewage treatment plant.
- 32. "Standard Methods" shall mean the methods and procedures set out in the edition of "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association and current at the time of any examination of wastewater.
- 33. "State Plumbing Code" shall mean the State of Maine Plumbing code, as amended from time to time.
- 34. "Storm Drain" (sometimes termed "Storm Sewer") shall mean a sewer which carries storm and surface waters and drainage, but excludes sewage and industrial wastes, other than unpolluted cooling water.
- 35. "Sub-meter" shall mean a meter that is permanently installed and hard plumbed that measures the amount of water used that is not discharged to the sewer.
- 36. "Superintendent" shall mean the Superintendent of the Scarborough Sanitary District.
- 37. "Suspended Solids" shall mean that either float on the surface of, or are in suspension in water, sewage, or other liquids, and which are removable by laboratory filtering as prescribed in Standard Methods and referred to as non-filterable residue.
- 38. "Watercourse" shall mean a channel in which a flow of water occurs, either continuously or intermittently.
- 39. "Town" shall mean the Town of Scarborough, Maine or its authorized agent or representative.
- 40. "Trustees" shall mean the Trustees of the Scarborough Sanitary District, or their authorized agent or representative.

#### ARTICLE II

# USE OF PUBLIC SEWERS REQUIRED

- 1. Any person proposing a new discharge into the system or a substantial change in the volume or character of pollutants that are being discharged into the system shall notify the Superintendent at least forty-five (45) days prior to the proposed change or connection, and shall comply with Maine Revised Statutes Annotated, Title 38, Chapter 3, Subchapter 1, 361.
- 2. It shall be unlawful to discharge to any outlet within the Town of Scarborough, any sewage or other polluted waters, except where suitable treatment has been provided in accordance with subsequent provision of the ordinance, or with the requirements of the State of Maine Plumbing Code, Part II, and the Department of Environmental Protection.
- 3. Where a public sanitary sewer is not available, the owner must utilize a private sewage disposal system. A permit must be obtained from the Town of Scarborough's Plumbing Inspector prior to constructing private sewage disposal system, pursuant to the State of Maine Plumbing Code, Part II, and the Scarborough Plumbing Ordinance.
- 4. Every building, within the boundaries of the Scarborough Sanitary District, which is intended for human habitation or occupancy or with facilities for discharge or disposal of sewage or commercial or industrial waste, which is accessible to a sewer of the District's, shall have a sanitary sewer, or drainage system which shall be caused to be connected with such sewer of the District by the owner or person against whom the taxes on the premises are assessed, in the most direct manner possible, within 90 days after receiving request thereof from the District, or within such further time as the Trustees of the District may grant, and, if feasible, with a separate connection for each building. Existing building which are already served by a private sewer or drainage system shall not be required to connect with any sewer or drain of the District so long as the private sewer or drainage system functions in a satisfactory and sanitary manner, and does not violate any law or ordinance applicable thereto or any applicable requirement of the State of Maine Plumbing Code, as determined by the Town Plumbing Inspector, or the Division of Health Engineering. A building shall be deemed to be accessible to a sewer or drain of the District for the purpose of this section if such building, or any private sewer or drain directly or indirectly connected thereto or carrying sewage or commercial or industrial waste therefrom, shall at any point be or come within 200 feet of a sewer or drain of the District; provided that nothing in this section shall require the owner of any such building to acquire any real property or easement therein for the sole purpose of making such connection.
- 5. At such time as a public sewer becomes available to a property served by a private disposal system, connection shall be made to the public sewer in compliance with this ordinance. and any septic tanks, cesspools, or similar private sewage disposal facilities shall be emptied, abandoned, and filled with suitable material.

#### ARTICLE III

#### PERMIT ALLOCATION

- SEC. 1. No unauthorized person shall uncover, make any connections with or opening into, use, alter, or disturb any public sewer or appurtenance thereof which includes the building sewer without first obtaining a written permit from the Trustees.
- SEC. 2. (a) There shall be (3) classes of building sewer permits: (1) for residential service, (2) for commercial service, and (3) for service to establishments producing industrial wastes. In any case, the owner or his agent shall make application on a special form furnished by the Trustees. The permit application shall be supplemented by any plans, specifications, or other information considered pertinent in the judgement of the District.
- (b) A permit and inspection fee of \$75.00 for each residential building and dwelling unit, \$100.00 for a commercial building, and \$150.00 for an industrial building sewer shall be paid to the Scarborough Sanitary District at the time the application is filed.
- (c) Permits shall be allocated or issued only to persons having some right, title or interest to the property to be served.
- (d) No permit shall be issued until plans for the proposed construction have been finally approved by the Scarborough Planning Board, or certification is received from the Town confirming that such Planning Board approval is not required. In the case where service by the District's sewer is proposed as a part submitted to the Town Planning Board, the plan for the sanitary sewers must receive approval from the Trustees before sewer permits are issued. Should an application to the Planning Board expire or be withdrawn from consideration or if the Planning Board's approval should expire, the approval by the Trustees shall be deemed to have lapsed, and no sewer permits may be issued until a new application is submitted to the Trustees for approval. A sewer permit must be obtained prior to issuing a building permit for the proposed construction. All the final plans and written evidence of all approvals required must be filed with the Scarborough Sanitary District.
- (e) The construction of any building sewers, sewers, sewage works, or sewage treatment plans shall be complete and inspected within twelve (12) months from the date of issuance of a permit hereunder unless for good cause shown, the time for completion is extended by vote of the Trustees. If the construction has not been commenced within six (6) months from date of issuance of a permit, then the permit shall be voided by the Scarborough Sanitary District and the owner so notified. The owner must file a new application to obtain a new permit for the proposed construction.
- (f) The initial permit and inspection fee shall cover only the initial inspection and (2) two follow-up inspections. Additional required inspections shall require prior payment of an additional inspection fee of \$25.00 per each additional inspection.

- (g) All persons to whom permits have been allocated or issued shall pay to the Treasurer of the Scarborough Sanitary District such rates, tolls, rents, entrance charges and other lawful charges as may be established by the Trustees in accordance with the payment schedule established by the Trustees.
- (h) All persons to whom permits have been allocated or issued shall notify the District a minimum of twenty-four (24) hours in advance of starting the construction of the building sewer. The connection to the public sewer shall be made under the supervision of the Superintendent or his designee.

#### ARTICLE IV

# **BUILDING SEWERS AND CONNECTIONS**

- SEC. 1. (a) All costs and expenses incident to the installation and connection of the building sewer or the extension of a public sewer main in order to provide service shall be borne by the owner. The owner shall indemnify the District from any loss or damage that may directly or indirectly be occasioned by the installation of the building sewer or the extension of a public sewer main.
- (b) All users shall show on plans and profile submitted to the Scarborough Sanitary District the location of structure, sill and sub-floor elevation, location where sanitary sewer enters the building, and the elevation where connection is to be made into the lateral sewer.
- (c) The size and slope of the building sewer shall be subject to approval of the District but in no event shall the diameter be less than four inches. The slope of a four inch pipe shall not be less than one-quarter (1/4) inch per foot. The slope of a six inch pipe shall not be less that one-eighth (1/8) inch per foot.
- (d) Back flow preventers shall be required in accordance with the Maine Sate Plumbing Code. This rule shall not be construed to impose liability on the District from damage caused by a malfunction of the sewage works
- (e) A separate and independent building sewer shall be provided for every building. Where one building stands at the rear of another on an interior lot and no private sewer is available or can be constructed to the rear building through an adjoining alley, court, yard, or driveway, the building sewer from the front building may be extended to the rear building and the whole considered as one building sewer, provided that prior approval is granted by the District.
- (f) Existing building sewer may be used in connection with new buildings only when they are found, on examination and test by the District to meet all requirements of this regulation

- (g) The size, slope, alignment, materials of construction of a building sewer, and the methods to be used in excavating., placing of the pipe, jointing, testing, and backfilling the trench, shall all conform to the requirements of the building and plumbing code and Appendix A of this regulation.
- (h) Whenever possible, the building sewer should be brought to the building at an elevation below the basement floor. In all buildings in which any building drain is too low to permit gravity flow to the public sewer, sanitary sewage carried by such building drain shall be lifted by an approved means and discharged to the building sewer.
- (i) No person shall make connection of roof downspouts, exterior foundation drains, areaway drains, or other sources of surface runoff, ground water or cellar water to a building sewer or building drain which in turn is connected directly or indirectly to a public sanitary sewer.
- (j) The connection of the building sewer into the public sewer shall conform to the requirements of the building and State Plumbing Code and/or the District's "House/Building Service Connection Policy". (See Appendix A) All such connections shall be made gas tight and water tight and verified by proper testing.
- (k) All excavations for building sewer installation should be adequately guarded with barricades and lights so as to protect the public form hazard. Streets, sidewalks, and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the Town. The owner is responsible for obtaining a street opening permit from the Town.

# ARTICLE V

#### SEWER EXTENTIONS

- SEC. 1. Public sewer extensions may be constructed by the District under public contract if, in the opinion of the Trustees, the extension is in the best interest of the District. Property owners may propose such sewer extension within the District by drafting a written petition signed by a majority of the benefiting property owners and filing it with the Trustees. The cost of such extensions may be assessed to the benefited property owners in accordance with the provision of Title 38, Section 1203 of the Maine Revised Statutes as amended. Under this agreement the property owner shall pay for and install the building sewer from the public sewer to his residence or place of business in accordance wit the requirements of Article III and IV of these Rules and Regulations.
- SEC. 2. If the District does not elect to construct a sewer extension under public contract, the property owner, builder or developer may construct the necessary sewer extension if such extension is approved by the Trustees in accordance with the requirements of Sec. 3 of this Article. The cost of sewer extensions thus made, including all building sewers, shall be absorbed by the developers or property owners. Each building sewer must be installed and inspected as

previously required and inspection fees shall be paid therefor. Design of sewers shall be as specified in Sec. 3 and 4 of this Article. Prior to starting the construction, an application for an inspection permit must be filed with the District. An inspection fee in the amount of \$325.00 per 1,000 feet of sewer pipe installed shall be paid to the Scarborough Sanitary District at the time the application is filed. The installation of the sewer extension shall be subject to periodic inspection by the District. The Superintendent's decision shall be final in matters of quality and methods of construction. Before it may be used, the sewer construction must pass the testing requirements in Sec. 4 and 5 of this Article.

- SEC. 3. All extensions to the sanitary sewer system shall be properly designed by a Registered Professional Engineer of the State of Maine in accordance with the Recommended Standards for Sewage Works, as adopted by the Great Lakes Upper Mississippi River Board of Station Sanitary Engineers. Plans and specifications for sewer extensions shall be submitted to and approval obtained from the District before construction may proceed. The design of sewers must anticipate and allow for flows from all possible future extensions or developments within the immediate drainage area.
- SEC. 4 Gravity sewer design shall be in accordance with the following provisions: Pipe material shall be either, a) asbestos cement sewer pipe conforming to ASTM C42B, Type II and he Class recommended by the manufacturer, but in no case less than Class 3300, or, b) polyvinyl chloride pipe (PVC), couplings and fittings shall conform to the ASTM designation D3034 with an SDR 35. The minimum internal pipe diameter shall be eight (8) inches. The joints for each kind of pipe shall be push-on joints using "0" rings gaskets provided by the pipe manufacturer and installed in accordance with the pipe manufacturer's recommendations. Six (6) inch wye branches or tees shall be installed for connection to building sewer. A six (6) inch building sewer shall be run from the sewer main to the property line. The end of the building sewer shall be capped for the final testing. The location of the end of the sewer shall be tied to a minimum of three points. Upon acceptance of the sewer extension by the District, the building sewers may be extended in accordance with the provisions of these Rules and Regulations and the District's "House/Building Service Connection Policy".

Sewers shall be laid in granular fill from the bottom of the excavation to the middiameter of the pipe for the full width of the trench and compacted to a minimum density of 90% of the maximum density determined by ASTM Method D1557, (Modified Proctor). The type of granular fill to be used and the thickness of same will be determined in the field based on the subgrade soil and the groundwater conditions encountered along the pipeline route.

- (a) Where the bottom of the excavated trench is above the natural groundwater level or the level of groundwater maintained continuously by a dewatering system installed in advance of construction, four (4) to six (6) inches of crushed stone or a minimum of six (6) inches of gravel borrow shall be placed beneath all barrels, bells or couplings of all pipes installed.
- (b) Where the bottom of the trench excavation is below the groundwater level and pumping of water is done from within the excavation, the contractor shall use a bedding system which provides a stable working surface, will limit disturbance of the subgrade and will limit as much as practicable the piping or washing of fine soil grains from the subgrade soils due to the flow of water into the trench. In all cases where groundwater is present as defined herein before, crushed stone shall be installed from the mid-diameter of the pipe to a point four (4) to six (6) inches beneath the bottom of all barrels, bells or couplings of all pipes installed. Where the

10

subgrade soil type is a low or nonplastic silt (ML), silty or clayey sand (SM, SC), fine to medium sand (SP), or silty or clayey gravel (GM, GC) as defined by the soil classification system described in ASTM Standard Method D2487 (Unified System) a two-layer bedding system shall be utilized. The top layer of this of this bedding system shall be crushed stone as described hereinbefore and the lower layer shall be a minimum of six (6) inches thick and be comprised of gravel borrow.

(c) No more than six (6) inches of crushed stone bedding shall be placed beneath the bottom of <u>any</u> pipe and/ or structure. If through an error in excavation by the contractor or due to a need to remove unsuitable material to depths greater than required to install the pipe bedding, the contractor shall backfill this additional excavation with a gravel borrow. Gravel barrow may be placed in a single lift if the total thickness of gravel borrow beneath the pipe does not exceed twelve (12) inches. If greater than twelve (12) inches of gravel bedding or backfill is required below the pipe barrel, second and successive lifts shall be placed in lifts not greater than eight (8) inches loose measure. Gravel shall achieve a minimum density of 90 percent of maximum density determined by ASTM Method D1557, (Modified Proctor).

Clean fill material shall be installed from the mid-diameter of the pipe to a point twelve (12) inches over the top of the pipe to a minimum density of 90 percent of the maximum density determined by ASTM Method D155, (Modified Proctor).

Manholes shall be constructed at all changes in slope and alignment or at intervals not exceeding three hundred (300) linear feet. The manholes shall be constructed of precast reinforced concrete conforming to ASTM C478. Horizontal joints between sections of precast concrete manholes shall be sealed with a self-sealing butyl rubber based flexible joint sealant in rope from. Sealant shall be Kent-Seat No. 2, Ram-Nek, or equal.

Manhole steps shall be of cast aluminum or steel reinforced copolymer polypropylene plastic. All steps shall be twelve (12) inches on center with abrasive step surface and safety edge, drop front design one (1) inch diameter and sixteen (16) inch wide.

Pipe connections shall be made with premolded elastomeric sealant joints. Premolded elastomeric sealed joints shall be A-Lok, Res-Seal, Press Wedge II Lock Joints Flexible Manhole Sleeve, Kor-N-Seal Joint Sleeve, or approval equal.

Manhole covers and frames shall be cast iron conforming to the requirement of ASTM Specification A48, Class 30, and shall be of noiseless non-rocking design with pick holes at the circumference of the cover. The word "sewer" shall be cast on each cover along with the words "Scarborough Sanitary District". Each manhole cover and frame shall have a minimum total weight of 450 pounds with a clear opening of 24 inches. Manhole covers and frames shall be comparable to Ethridge Model M2675 or comparable models as manufactured by LeBaron Foundry Company, or Neenah Foundry Company. Frames and covers shall be adjusted to grade with a minimum of two (2) bricks and a maximum of five (5) bricks.

Tables and inverts shall be constructed of hard smooth brick set in concrete made of Portland Cement. Inverts shall have the exact shape of the sewers which are connected, and any change in size or direction shall be gradual and even.

After the completed sewer line, including service connections, has been installed, the sewer must pass the District's leakage limitations before they will be approved and sewage flow accepted from them by the District. The primary means of such testing in gravity sewers shall be by low pressure air after installation and capping of house services and backfilling of the gravity sewer trench.

Pneumatic plugs used for pipe plugging shall be checked before being used in the actual test installations. One length of pipe shall be laid on the ground and sealed at both ends with

these plugs and air shall be introduced to them at 25 psig. The sealed pipe shall then be pressurized to 5 psig. The plugs shall hold against this pressure without bracing and without movement of the plugs out of the pipe. After a manhole to manhole reach of pipe has been backfilled and cleaned and the pneumatic plugs checked by the above procedure, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Low pressure air shall be introduced into this sealed line until the internal air pressure reaches 4 psig greater than the maximum pressure exerted by groundwater that may be above the invert of the pipe at the time of the test. However, the internal air pressure in the sealed line shall not be allowed to exceed 8 psig. At least two minutes shall be allowed for the air pressure to stabilize.

After the stabilization period with 3.5 psig. minimum pressure in the sealed line, its air supply shall be disconnected. The portion of line being tested shall be termed acceptable if the time required in minutes for the pressure to decrease from 3.5 to 2.5 psig shall not be less than the time shown for the given diameters in the following table:

Pipe Diameter (inches)	<u>Minutes</u>
4	3.0
6	4.0
8	5.0
10	6.5
12	7.5
15	9.5
18	11.5

An inplace deflection test shall be performed when PVC gravity sewers are installed. The gravity sewer shall have a maximum deflection of 5 percent at the time of testing. Upon completion of a sewer section, including the placement and compaction of backfill and the cleaning of the sewer, the deflection shall be measured in 10 percent of the sewer lines. The testing shall be done by the use of a deflectometer, a properly sized "go, no go" mandrel, or a sewer ball, in accordance with the manufacturers recommendations. All sewer lines with a deflection greater than 5 percent shall be repaired by rebedding or replacement of the pipe.

At the conclusion of the work, the sewer shall be thoroughly cleaned by flushing with water to remove dirt, stones and other material.

SEC. 5. Force main design shall be in accordance with the following provisions: Pipe material shall be either Ductile Iron Pipe conforming to ANSI A21.51 and ANSI A21.50, composite PVC/FRP pipe conforming to ASTM D2992 and ASTM D2996-71, or polyvinyl chloride (PVC) pressure pipe, Class 150, conforming to AWWA C900-75. The joints for each kind of pipe shall be push-on joints "O" ring gaskets provided by the pipe manufacturer and installed in accordance with the pipe manufacturer's recommendations.

Bedding material shall be in accordance with SEC. 4.

Concrete thrust blocks shall be placed at all force main bends 11 1/4 degrees and greater.

The force main shall be tested by water pressure equal to two times the total dynamic head of the pump to which the force main is attached, unless this produces greater than the working pressure of the pipe. In that case, the pipe shall be tested to the working pressure of the pipe. This pressure shall be held for a period at least fifteen (15) minutes, allowing a maximum pressure drop of 5 psi.

SEC. 6. The District currently owns and maintains pump stations from several manufacturers. In order to limit the number of different pump stations that the District must maintain, the District will only accept a pump station that is manufactured by Smith & Loveless, Boydco, Superior Concrete, Gorman-Rupp, or Usemco.

In the event that a developer proposes to install a pump station that will be maintained by the District, the Superintendent will work with the developer to establish specifications for the pump station.

In general, the pump station shall be of the dry pit type, precast reinforced concrete, or prefabricated steel construction, complete with non-clog sewage pumps, motors, motor starters, piping and valves, automatic pumping level controls, sump, sump pump, entrance hatch, lighting alarms, hour meters, conduit and wiring, and other necessary appurtenances.

SEC. 7 All extensions of the public sewers within town right-of- ways furnished to the District, that have been constructed and tested at the expense of the property owner, builder, or developer, after approval of such test by the Superintendent and acceptance by the District, shall become the property of the District which shall thereafter maintain them. Said sewers after their acceptance by the District, shall be guaranteed against defects in materials and workmanship for twelve (12) months, the guarantee being in the form stipulated by the District. At the sole discretion of the District, a completion bond or certified check may be demanded as part of the guarantee.

# ARTICLE VI

# USE OF THE PUBLIC SEWERS

- SEC. 1. No person shall discharge or cause to be discharged any stormwater, surface water, groundwater, roof runoff, subsurface drainage, uncontaminated cooling water, or unpolluted industrial process waters to any sanitary sewer.
- SEC. 2. No person shall discharge or cause to be discharged any of the following described waters or waste to any public sewers:
- (a) Any gasoline, benzene, naphtha, fuel oil, or other flammable or explosive liquid, solid, or gas.
- (b) Any waters or wastes containing toxics or poisonous solids, liquids, or gases in sufficient quantity, either singly or by interaction with other wastes, to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals. create a public nuisance, or create any hazard in the receiving waters of the sewage treatment plant.
- (c) Any waters or wastes having a pH lower than 5.0, or having any other corrosive property capable of causing damage or hazard to structures, equipment and personnel of the sewage works.

- (d) Solid or viscous substance in quantities or of such size capable of causing the flow in sewers, or other interference with the proper operation of the sewage works as, but not limited to, ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, unground garbage, whole blood, paunch manure, hair and fleshings, entrails, and paper dishes, cups, milk containers, etc. either whole or ground by garbage grinders.
- SEC. 3. No person shall discharge or cause to be discharged the following described substances, materials, waters or wastes if it appears likely in the opinion of the District that such waste can harm either the sewers, sewage treatment process, or equipment, have an adverse effect on the receiving stream, or can otherwise endanger life, limb, public property, or constitute a nuisance. In forming its opinion as to the acceptability of these wastes, the District will give consideration to such factors as the quantities of subject wastes in relation to flows and velocities in the sewers, materials of construction of the sewers, nature of the sewage treatment process, capacity of the sewage treatment plant, degree of treatability of waste in sewage treatment plant, and other pertinent factors. The substance prohibited are:
- (a) Any liquid or vapor having a temperature higher than one fifty (150 F) (65 C).
- (b) Any water or waste containing fats, wax, grease or oils, whether emulsified or not, in excess of one hundred (100) mg/1 or containing substances which may solidify or become viscous at temperatures between thirty-two (32 F) and one hundred fifty (150 F) (0 and 65 C).
- (c) Any garbage that has not been properly shredded. Garbage grinders may be connected to sanitary sewers from homes, hotels, institutions, restaurants, hospitals, catering establishments, or similar places where garbage originates from the preparations of food, in kitchens for the purpose of consumption on the premises or when served by caterers.
- (d) Any waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions whether neutralized or not.
- (e) Any water or wastes containing iron, chromium, copper, zinc, and similar objectionable toxic substances; or wastes exerting an excessive chlorine requirement, to such degrees that any such material received in the composite sewage at he sewage treatment works exceeds the limits which may be established by the District for such materials.
- (f) Any waters or wastes containing phenols or other taste or odor producing substance, in such concentrations exceeding limits which may be established by the District as necessary, after treatment of the composite sewage to meet the requirement of the State, Federal, or other public agencies or jurisdictions for such discharge to the receiving waters.
- (g) Any radioactive waste or isotopes of such half-life or concentration as may exceed limits established by the District in compliance with applicable State or Federal regulations.
  - (h) Any waters or wastes having a pH in excess of 9.5.
  - (i) Materials which exert or cause:

- (1) Unusual concentrations of inert suspended solids (such as, but limited to, Fullers earth, lime slurries, and lime residues) or of dissolved solids (such as, but not limited to, sodium chloride and sodium sulfates).
- (2) Excessive discoloration ( such as, but not limited to, dye wastes and vegetable tanning solutions).
- (3) Unusual BOD, chemical oxygen demand, or chlorine requirements in such quantities as to constitute a significant load on the sewage treatment works.
- (4) Unusual volume of flow or concentration of wastes constituting "slugs" as defined herein.
- (j) Waters or wastes containing substances which are not amenable to treatment or reduction by the sewage treatment process employed, or are amenable to treatment only to such degree that the sewage treatment plant effluent cannot meet the requirements of other agencies having jurisdiction over the discharge to the receiving waters.
- SEC. 4. If any waters or wastes are discharged or are proposed to be discharged to the public sewers, which waters contain the substances or posses the characteristics enumerated in SEC. 3 of this Article, and which in the judgement of the District may have a deleterious effect upon the sewage works, processes, equipment, or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the District may:
  - (a) Reject the wastes,
- (b) Require pretreatment to an acceptable condition for discharge to the public sewers,
  - (c) Require control over the quantities and rates of discharge, and /or
- (d) Require payment to cover the added cost of handling and treating the waste not covered by existing taxes or sewer charges under the provisions of SEC. 9 of this Article.

If the District permits the pretreatment or equalization of waste flows, the design and installation of the plant and equipments shall be subject to the review and approval of the District and subject to the requirement of all applicable codes, ordinances, laws and regulations.

- SEC. 5. Grease, oil, and sand interceptors shall be provided when, in the opinion of the District, they are necessary for the proper handling of liquid wastes containing grease in excessive amounts, or any flammable wastes, sand, or other harmful ingredients. All interceptors shall be of a type and capacity approved by the District and shall be located as to be readily and easily accessible for cleaning and inspection.
- SEC. 6. Where preliminary treatment or flow-equalizing facilities are provided for any waters or wastes, they shall be maintained continuously in satisfactory and effective operation by the owner at his expense.

15

- SEC. 7. When required by the District the owner of any property services by a building sewer carrying commercial or industrial wastes shall install a suitable control manhole together with such necessary meters, and other appurtenances in the building sewer to facilitate observation, sampling, and measurement of the wastes. Such manhole, when required, shall be accessible and safely located and shall be constructed in accordance with plans approved by the Trustees. The manhole shall be installed by the owner at his expense, and shall be maintained by him so as to be safe and accessible at all times.
- SEC. 8. All measurements, tests, and analyses of the characteristics of waters and wastes to which reference is made to this ordinance shall be determined in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater", published by the American Public Health Association, and shall be determined at the control manhole provided or upon suitable samples taken at said control manhole. In the event that no special manhole has been required, the control manhole shall be considered to be the nearest downstream manhole in the public sewer to the point at which the building sewer is connected. Sampling shall be carried out by customarily accepted methods to reflect the effect of constituents upon the sewage works and to determine the existence of hazards to life, limb, and property.

All industries discharging into a public sewer shall perform such monitoring of their discharge as the District may reasonably require, including installation, use, and maintenance of monitoring equipment, keeping records and reporting the results of such monitoring to the District. Such records shall be made available upon request by the District to other agencies having jurisdiction over discharges to the receiving waters.

- SEC. 9. No statement contained in this article shall be construed as preventing any special agreement or arrangement between the Scarborough Sanitary District and any industrial concern whereby an industrial waste of usual strength of character may be accepted by the District for treatment, subject to payment therefore, by industrial concern.
- SEC. 10. Septage waste will be allowed to be discharged into the treatment system, subject to the conditions outlined in Attachment B.

# ARTICLE VII

# PROTECTION FROM DAMAGE

SEC. 1. No unauthorized person shall maliciously, willfully, or negligently break, damage, destroy, uncover, deface, or tamper with any structure, appurtenance, or equipment which is a part of the sewage works.

# ARTICLE VIII

# POWER AND AUTHORITY OF INSPECTORS

- SEC. 1. The Superintendent and other duly authorized employees bearing proper credentials and identification shall be permitted to enter all properties at reasonable hours for the purpose of inspection, observation, measurement, sampling, and testing in accordance with the provisions of these regulations. The Trustees shall have no authority to inquire into any process including metallurgical, chemical, oil, refining, ceramic, paper, or other industries beyond that point having a direct bearing on the kind and source of discharge to the sewers or waterways or facilities for waste treatment.
- SEC. 2. The Superintendent and other duly authorized employees of the District bearing proper credentials and identification shall be permitted to enter all private properties through which the District holds a duly negotiated easement for the purpose of, but not limited to, inspection, observation, measurement, sampling, repair, and maintenance of any portion of the sewage works lying within said easement. All entry and subsequent work, if any, on said easement, shall be done in full accordance with the terms of the duly negotiated easement pertaining to the private property involved.

#### ARTICLE IX

#### **ACCEPTANCE**

- SEC. 1. Notwithstanding any other provision of law, ordinance, by-law, contract or these regulations, the Trustees may refuse to accept any sewer, sewage works or sewage treatment plants which are:
- (a) not constructed in accordance with final approved plans and applicable local, State or Federal regulations; or
  - (b) located on private property, unaccepted ways other non-public property; or
- (c) where in the judgement of the District such acceptance would not be in the best interests of the health, safety or welfare of the residents of the District.

# ARTICLE X

#### **PENALTIES**

- SEC. 1. Any person found to be violating any provision of this ordinance shall be served by the District with written notice stating the nature of the violation and providing a reasonable time limit for the satisfactory correction thereof. The offender shall, within the period of time stated in such notice, permanently cease all violations.
- SEC. 2. Any person who shall continue any violation beyond the time limit provided for in Article X, Sec. 1, shall be guilty of a misdemeanor, and on conviction thereof shall be fined in the amount of not exceeding fine hundred (\$500) dollars for each violation. Each day in which any such violation shall continue shall be deemed a separate offense.
- SEC. 3. Any person violating any of the provisions of this ordinance shall become liable to the District for any expense, loss, or damage occasioned the District by reason of such violation.

# ARTICLE XI

#### **VIOLATIONS**

SEC. 1. The failure to make any payment required pursuant to the provisions of these Rules and Regulations or the violation of any of the provisions herein shall constitute cause for the revocation of any allocations made or permits issued hereunder. The Trustees may, after notice and hearing, and upon a finding that a violation of these Rules and Regulations exists, suspend or revoke any allocations or permits and make such further orders as may be required to secure compliance with these Rules and Regulations.

#### ARTICLE XII

#### SCHEDULE OF RATES

- SEC. 1. The District shall establish the user charge in accordance with appropriate Federal and State laws, rules, and regulations. The rates shall be reviewed by the Trustees each year and shall be adjusted as required to meet the financial obligations of the District.
- SEC. 2. The rate structure which became effective October 1, 2003 is as follows:

SCHEDULE OF RATES EFFECTIVE OCTOBER 1, 2003 (First quarter billing is January 1, 2004 for months of October, November and December)

# **RESIDENTIAL**

Houses, apartments, condominiums, mobile homes, seasonal cottages, or other residential dwelling unit, will be charged a flat fee of \$330.00 per year. (\$214. for debt service and \$116. for operations and maintenance)

# COMMERCIAL AND INSTITUTIONAL

Annual charges to commercial and institutional establishments will be computed according to water usage and will be composed of two components:

- 1) A flat fee of \$214.00 per equivalent user will be assessed to recover the debt service of the user fee. For the purposes of this computation, the establishment's highest quarterly water consumption from the previous year will be utilized. For each 1950 cubic feet of consumption, one equivalent user will be assigned. Fractions will be rounded to the nearest whole number. (1950 cubic feet represents the average residential use per quarter)
- 2) The remainder of the user fee will be based on the quarterly water consumption as measured by the water district and will be charged at the rate of \$1.73 per 100 cubic feet or fraction thereof.
- 3) The District allows Sub-meters that measures water usage that is not discharged to the sewer. Sub-meter readings are subtracted from the quarterly water consumption as measured by the water district. Requests for sub-meters shall be in writing. The sub-meters shall be permanently installed and approved by the District in writing.

The user fee will be billed quarterly with a minimum fee of \$82.50.

# **INDUSTRIAL**

Basic annual charges will be computed the same as for commercial and institutional users. For industries that measure their discharge, their meter will be used in determining flow. In addition to this, a surcharge will be added to the basic annual charge to recover the cost of treating a more concentrated waste. The surcharge will be calculated as follows:

S.C. = 
$$8.34 \text{ V} [a (BOD - 200) + b (SS - 200) + c (COD - 600)]$$

Where SC = Surcharge, Dollars Where V = Wastewater volume, millions gallons a = \$0.19/lb; b = \$0.095/lb; c = \$0.10/lb.

# USER RATE SCHEDULE AMENDMENT NO. 1 (Revised 3/29/01)

# CAPACITY RESERVE FUND

Should the District approve a sewer extension request, a one-time charge shall be computed for all requests to extend sewers to service property outside of the designed service area. As a condition to District approval of a development proposal within the design service area that will generate flows in excess of the design flows set forth in the District's Facilities Planning, a one-time charge shall be computed based upon the difference between the planned flow and the proposed flow. The proceeds of these charges shall be placed in a reserve fund for use by the Trustees for upgrade and expansion of the collection system, pump stations and treatment plant.

The capacity charge shall be calculated based upon the average daily flow of wastewater to be generated by projects serviced by the extended sewer. The following table shall be used as the minimum basis of estimating average daily flows:

Retail Uses	8.5 gal/day/100 Sq. Ft. Floor Area
Office/Service	4.0 gal/day/100 Sq. Ft. Floor Area
Manufacturing *	3.5 gal/day/100 Sq. Ft. Floor Area
Residential	200 gal/day/dwelling unit
Industrial & Other Uses	To be determined by engineering evaluation
Infiltration	500 gal/inch of pipe diameter/mile/day

<sup>\*</sup> It is noted that manufacturing is defined as light industry that does not generate significant volumes of process water and whose wastewater characteristics are similar to domestic wastewater, i.e., no high organic loads or toxic

materials.

The charge shall be established by multiplying the average daily flow (in gallons) times \$9.13 per gallon and shall be paid prior to the issuance of a sewer extension permit. The per gallon multiplier (\$9.13) shall be adjusted monthly according to the Engineering News-Record Construction Cost Index relative to the index value of 6281 for January 2001.

# SAMPLE CALCULATION

For February 2001:

$$6272 / 6281 = X / 9.13 X = 9.13 (6272 / 6281) X = 9.117$$

The February 2001 fee would be based on \$ 9.117 / gallon average daily flow (ADF).

#### USER RATE SCHEDULE AMENDMENT NO. 2

# **ENGINEERING AND TECHNICAL REVIEW**

When in the judgement of the District it is determined to be in the District's interest to require engineering and/or technical review of any proposal to extend sewers or to discharge wastewater to the District's sewers, the person, firm, or corporation that necessitates that review shall pay all of the costs incurred by the District. The Superintendent, with the approval of the Trustees, shall select the consultant (s) to be retained by the District. Review costs will be based upon contract prices for required services and hourly rates for in house staff review. Charges shall be paid in advance based upon estimated costs. Excess charges will be returned at the completion of the work.

In the event that actual expenses exceed the estimated costs, the District shall advise the applicant as soon as possible, and the applicant shall pay the additional funds or request the evaluation be terminated, thereby withdrawing his proposal.

- SEC. 3. Interest will be assessed for charges outstanding 30 days or more from the billing date. The interest will be assessed at the rate of 1.0% per month.
- SEC. 4. Collection of unpaid rates shall be through the lien process on real estate served or benefited by the sewers or the District. The liens shall be filed in accordance with Chapter IV, Section 1208 of the Maine Sanitary District Enabling Act, Title 38, Chapter 11, of the Maine Revised Statues Annotated.

#### USER RATE SCHEDULE AMENDMENT NO. 3

# PLEASANT HILL DRAINAGE AREA COST RECOVERY CHARGE

In order to recover the District's capital costs of construction of public sewer improvements within the Pleasant Hill Drainage Area, a one-time charge shall be established for all requests for the sewer service within the Pleasant Hill Drainage Area, which area is more particularly described on a plan entitled "Exhibit A, Pleasant Hill Drainage Area, Sewer Feasibility Study, Scarborough, Maine, January 1995" by Whitman & Howard, Inc. and on file in the District Office in Scarborough, Maine.

As a condition to the issuance, by the District, of a permit for sewer service within the Pleasant Hill Drainage Area the applicant shall pay to the District, in addition to any other required fees and charges, a Cost Recovery Charge as follows:

- 1. For approvals issued during the 1995 calendar year the charge shall be \$1,175 per equivalent dwelling unit approved by the District for sewer service.
- 2. In each successive year beginning in 1996 and thereafter, the charge established in Paragraph 1. above shall be increased over the preceding year's charge by the percentage reported by the <u>Wall Street Journal</u> as the "Coupon Equivalent for 26 Week Treasury Bill". This adjustment shall be made effective February 1 each year, based upon the first available report by the <u>Wall Street Journal</u> of the "Summary of Treasury Bond Auctions", issued in January.

<u>DATE</u>	COUPON EQUIVALENT RATE	CALENDAR YEAR CHARGE
2/1/96	5.25 %	\$1,237.00
2/2/97	5.32	\$1,303.00
2/1/98	5.34	\$1,373.00
2/1/99	4.514	\$1,435.00
2/1/00	5.768	\$1,518.00
2/1/01	5.244	\$1,598.00
2/1/02	1.779	\$1,626.00
2/1/03	1.232	\$1,646.00
2/1/04	0.990	\$1,662.00
2/1/05	2.673	\$1,706.00
2/1/06	4.488	\$1,783.00
2/1/07	5.131	\$1,874.00
2/1/08	2.935	\$1,929.00
2/1/09	0.247	\$1,934.00
		• /

# USER RATE SCHEDULE AMENDMENT NO. 4

# PRIVATELY FUNDED SEWER EXTENSIONS

- 1. The District, acting through its Board of Trustees, may approve a privately funded sewer extension to serve one or more existing dwellings if found to be necessary to protect the public health, safety and welfare and in the best interests of the District and upon such terms and conditions, including but not limited to those set forth in the Amendment, that the District deems to be fair and equitable.
- 2. All cost of a privately funded sewer extension, including any required sewer entrance fees, shall be borne by the applicant for the extension.
- 3. Privately funded sewer extensions shall be made in an existing municipally accepted public way and shall be to serve existing dwellings. The District may approve a sewer extension across private property provided that adequate easements are obtained. The applicant shall be responsible for providing the District with such easements as the District deems necessary.
- 4. All sewer facilities and equipment constructed or installed in connection with the privately funded sewer extension (exclusive of building sewers and/or individual lift stations), together with any necessary easements, shall be conveyed or otherwise transferred to the District without cost to the District.
- 5. The District may approve the connection of additional users to the privately funded sewer extension. When the District permits additional users to connect to the privately funded sewer extension within ten (10) years following connection of the first user, each additional user shall be required to pay to the District a fair and equitable share of the cost of construction of the sewer extension, in addition to any required sewer entrance fees. The final cost of the private sewer extension shall be determined by the District Superintendent. Upon payment, the District will make a rebate, without interest, to those users (or their successors in interest) who have made a contribution to the cost of the privately funded sewer extension.

#### APPENDIX A

# SCARBOROUGH SANITARY DISTRICT HOUSE/BUILDING SERVICE CONNECTION POLICY

# PERMITS REQUIRED PRIOR TO COMMENCEMENT OF WORK

- 1) Scarborough Sanitary District Sewer Permit Fees:
  - \$75 per permit for residential dwelling units
  - \$100 per permit for commercial building
  - \$150 per permit for industrial building
- 2) Town of Scarborough Road Opening Permit if applicable
- 3) Town of Scarborough Plumbing Permit if applicable (this is required if interior plumbing changes are to be made)

#### **PROCEDURES**

- 1) At permit issuance, the Scarborough Sanitary District inspector will discuss Scarborough Sanitary installation requirements with the homeowner/contractor based upon know site conditions and provide available information on stub-out location.
- 2) The homeowner/contractor shall notify the Scarborough Sanitary District at lease 24 hours in advance of when excavation in to commence (during normal business hours only ) and a Scarborough Sanitary District inspector will be on site before excavation for the stub-out location is undertaken.
- 3) When excavating for the stub, care shall be taken not to damage the end of the stub-out. The homeowner/contractor is not to remove the cap on the stub until the inspector is present. Prior to removing the cap, the excavation must be dry such that groundwater will not enter the stub-out. The District inspector will inspect the stub-out prior to the homeowner/contractor connecting to it. The homeowner/contractor will be required to test his installation. To provide for testing, the homeowner/contractor should first install a 6" tee on the stub-out. This will allow the homeowner/contractor to install a test plug in the tee. Upon completion of the test, the cap which was on the stub-out can be used to cap the top of the tee. The homeowner/contractor can then reduce the 4" pipe and complete the installation of the service. The pipe should not be backfilled above the mid-depth of the pipe to allow visual inspection during the test. After the test plug is installed, the service shall be filled with water to the height of the lowest building drain and held for 15 minutes. Any leaks shall be repaired and the pipe retested prior to backfilling. The District inspector will also visually inspect the internal house plumbing for illegal connections (roof drains, sump pumps, floor drains, etc.).
- 4) Acceptable house/building service pipe shall include: SDR 35 (Ringtite) PVC;

#### APPENDIX B

# REGULATIONS FOR THE DISCHARGE OF SEPTIC TANK WASTE

- 1. (a) No person or company shall discharge septic tank pumpage into the District's facilities until a permit has been obtained in accordance with these Regulations. A separate permit must be obtained for each vehicle which will be used to discharge waste to the system. Each permit will include the license plate number of the vehicle for which it is issued and cannot be transferred to another vehicle. Application forms and copies of these Regulations may be obtained at the District's office.
- (b) Each applicant for a permit or permits shall be charged an initial fee of \$25, payable to the Scarborough Sanitary District. This payment should accompany the initial application form.
- (c) Each applicant for a permit or permits shall execute and deposit with the District a surety bond in the sum of \$1,000. This bond shall provide reimbursement to the Scarborough Sanitary District for any work required for the elimination of any unsanitary conditions caused by the permittee on the facilities of the District or for repair of facilities of the District damaged by the permittee. Such bond shall be received by the District before a permit will be issued.
- (d) Permits will be issued on an annual basic. Permits may be renewed at no additional charge if the renewal is applied for prior to the beginning of each calendar year. An updated surety bond covering the year for which the permit is being renewed must accompany a renewal request.
- (e) Any permit issued in accordance with these Regulations will be subject to revocation by the District on the basis of failure to pay proper charges, use of other authorized disposal sites, failure to meet sanitary standards, discharging or industrial sludge or other unacceptable waste into the system or for any other infraction of these Regulations.
- 2. (a) Because the septage handling capacity of the plant is limited, all haulers must schedule discharges at least one day, but no more than three days, in advance. Deliveries can be scheduled by calling the Chief Operator. Failure to schedule in advance may cause refusal to discharge.
- (b) Such contents shall be discharged into the treatment system only at such points as may be designated by the District.
- (c) Such contents shall be discharged into the treatment system only during the normal working hours of the District.
- (d) Such contents shall not contain any articles of substances which may tend too injure any part of the treatment system.

- (e) No person shall discharge into the treatment system contents removed from any privy vaults, cesspools, or septic tanks located outside the Town of Scarborough. This provision shall not pertain to transient trailers.
- (f) Every tank truck whose contents shall be discharged into the treatment system shall be equipped with a discharge system that will insure the clean and complete discharge of such contents into the designated area provided by the District.
- (g) Prior to discharging, the hauler must notify a member of the treatment plant operations crew at the plant administration building. A Septage Discharge Record must be signed by the hauler certifying the information on the form is correct and that the waste contains no suspected toxic materials.
- (h) The District maintains the right to sample the contents or measure the amount of any load prior to discharge to the plant; also, the District reserves the right to confirm by telephone the source of the load. If there is a question as to whether a load is septage or holding tank waste, the following test will determine the results. A sample will be taken and allowed to settle for one-half hour. If the sample contains 200ml or more of solids per liter of sample, the load will be considered to be septage.
- 3. (a) The current charge is \$110 per 1,000 gallons (\$.11/gal.) for septage and \$20 per 1,000 gallons (\$.02/gal.) for holding water. All contractors will be billed monthly for the total amount discharged. Bills are due within 30 days and the District reserves the right to revoke a permit for bills overdue for 30 days or more.
- (b) The hauler will be charged at the current rate for the capacity of his tank unless he demonstrates to the plant operations staff by measurement of depth in the tank that a smaller volume was actually discharged.