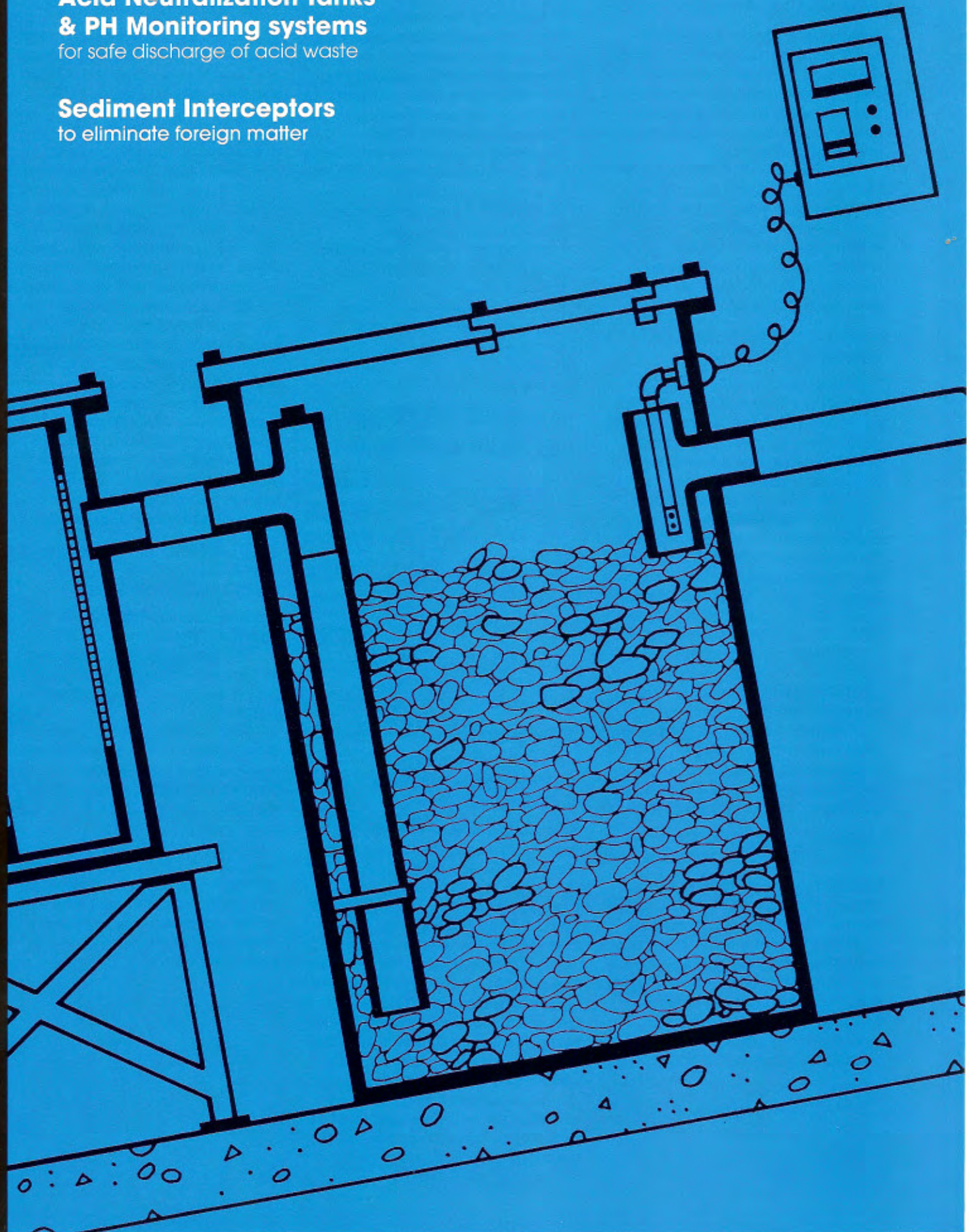




**Acid Neutralization Tanks  
& PH Monitoring systems**  
for safe discharge of acid waste

**Sediment Interceptors**  
to eliminate foreign matter



# ACID NEUTRALIZATION TANKS & PH MONITORING SYSTEMS FOR SAFE DISCHARGE OF ACID WASTE

## RESTRICTIONS IMPOSED ON WASTE DISCHARGE IN MUNICIPAL SEWERS

Municipalities across Canada are becoming increasingly concerned about the effect of hazardous effluent entering their sanitary sewer systems. Restrictions such as PH levels have been imposed on waste discharged into municipal sewers.

The use of S. M. S. Neutralizing Tanks allow facilities to legitimately discharge their waste into municipal sewer systems. In addition to conforming to local by-laws, facilities in which acid neutralizing tanks are installed reduce corrosive attack on their drainage system.

## S. M. S. SYSTEM NEUTRALIZES HARMFUL ACID WASTE

Effective operation of an S. M. S. Neutralizing System is based on two important conditions; Use of a proper neutralizing agent. A minimum of one hour contact time between the waste and neutralizing agent.

S. M. S. Acid Neutralizers operate by gravity flow of acid waste through a limestone neutralizing medium. To function properly the limestone used must have a calcium carbonate equivalent content in excess of 90 percent. Chemical reaction between acids and limestone, resulting in neutralization is a slow process, not instantaneous (figure 1). S. M. S. recommends neutralizing tanks be sized to allow a minimum contact time of one hour.

Chemical reaction between limestone and acids produces by-products of neutralized waste, carbon dioxide and neutral salts that can be safely discharged into municipal sewers.

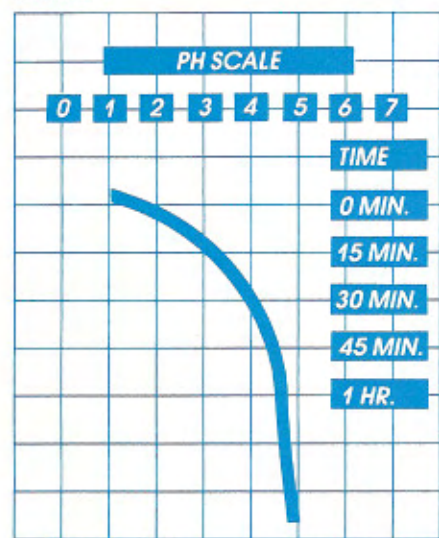
## VARIETY OF SYSTEMS TO SUIT VARIOUS APPLICATIONS

Neutralizing Tanks detailed in this literature are typically installed in acid waste drainage systems for medical and research laboratories, industrial battery charging stations, and processing equipment. There are many other facilities and types of installations requiring neutralized waste. S. M. S. has a variety of systems available to suit these various applications.

## CANADIAN MADE QUALITY AND INTEGRITY

- S. M. S. Acid Neutralizing Tanks are made in Canada with emphasis on quality workmanship and materials.
- Sumps: Rotationally molded from extra high stress, crack resistant, virgin linear, low density polyethylene.
- Tops and Inspection Ports: Minimum 1/2 inch thick extruded high density, stress relieved, fabrication grade polyethylene sheet stock.
- Fittings: Minimum, series 60 high density polyethylene pipe.
- Fastening Hardware: Stainless Steel.
- Gaskets: Neoprene or EPDM as required to suit application.
- Welding: Is fusion or inert gas (nitrogen) to provide superior strength.

FIGURE 1



## ROUTINE INSPECTION OF THE LIMESTONE LEVEL IS REQUIRED

Acid waste chemically attacks the limestone reducing its volume and, therefore, the neutralizing capacity of the system. Various factors such as flow rate, concentration of acid waste, and temperature, determine the consumption rate of the limestone.

To ensure maximum performance from a tank, a full charge of limestone should be maintained. Initially, inspection of the limestone level should be made once a month. When the rate of consumption is determined this frequency may be adjusted to suit individual installations. To replenish the charge of the tank limestone must be added up to the invert of the outlet connection.

## SELECTING TANKS WITH ADEQUATE CAPACITY IS IMPORTANT

Proper function of the neutralizing system requires determining gallons per hour of acid waste. If this information is not available, S. M. S. recommends a rate of one gallon per hour per fixture unit. This does not apply to photo processing sinks, as they have a high flow rate and must be handled separately. Select a tank with an actual liquid capacity equal to, or greater than, the gallons per hour of acid waste entering the tank. (Actual liquid capacity is the liquid capacity of the tank when filled with limestone.)

Retention time is the most important factor (see figure 1). The initial rate of neutralization is rapid, however, as the PH of the acid waste rises, the rate of neutralization slows down; requiring a minimum of one hour retention time. When the neutralizing tank is capable of allowing sufficient retention time, acid waste should reach a safe PH level; or a level high enough to be easily diluted with sanitary waste.

## UNDERSTAND THE PERFORMANCE & LIMITATIONS OF NEUTRALIZING SYSTEMS

Undersized tanks will result in harmful waste entering a facility's sanitary system or municipal sewers. While oversized tanks would insure proper neutralization and allow for expansion.

With variables such as content, flow rate and concentration of acid waste, no guarantee, written or otherwise implied; can be made on the performance of S. M. S. Neutralizing Systems.

S. M. S. systems are designed to neutralize the PH of acid waste. No provisions are made for eliminating other harmful substances such as toxins and chromates, or reducing flammability, radioactivity, etc. of prohibited wastes.

# SMS SEDIMENT INTERCEPTORS

## DESIGNED TO ELIMINATE DEBRIS & FOREIGN MATTER

Due to the nature of wastes encountered in various drainage systems, there is a crucial need to intentionally intercept debris and foreign matter.

Where municipalities have codes restricting the discharge of foreign matter with sanitary waste the installation of SMS interceptors will aid with compliance. Interceptors contribute to reducing potentially dangerous blockages and subsequent back-ups. Typical installations requiring sediment interceptors would be: art rooms, plastering sinks, geological science and biology labs.

## QUALITY FABRICATION, INNOVATIVE DESIGN & SUPERIOR PERFORMANCE

The same quality materials and workmanship found in our neutralizing tanks are utilized in the fabrication of all SMS sediment interceptors.

Innovative design features such as a positive discharge into the inner basket, solids retention chamber and basket locating guides provide optimum performance.

This combination of superior design and construction materials provide for easy maintenance and long-term reliability and service.

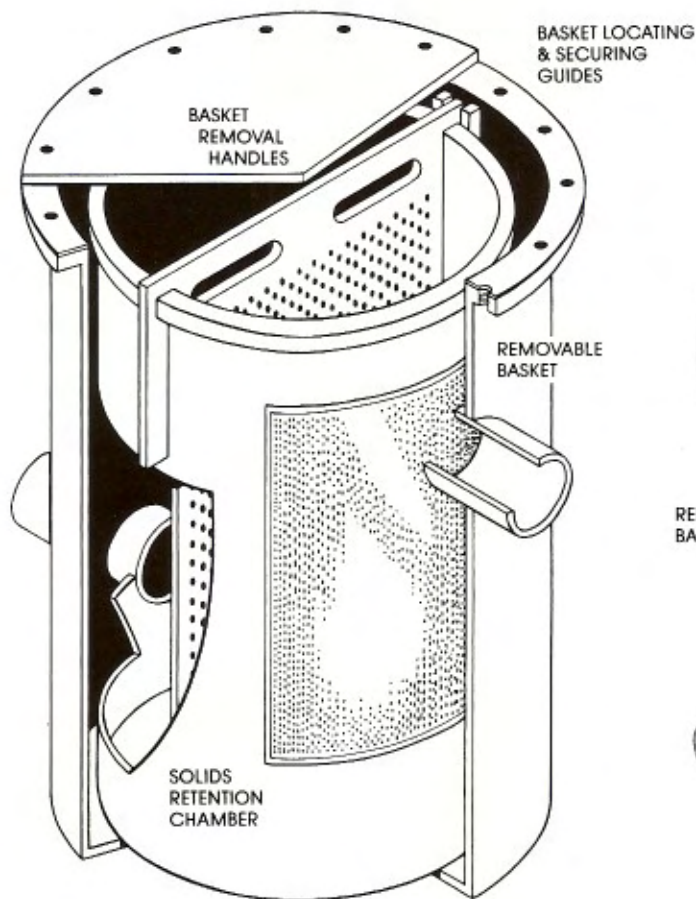
## INTERCEPTORS IN CONJUNCTION WITH NEUTRALIZING TANKS

If there is no provision elsewhere on a lab waste system, the use of a large sediment interceptor prior to a neutralizing tank is imperative.

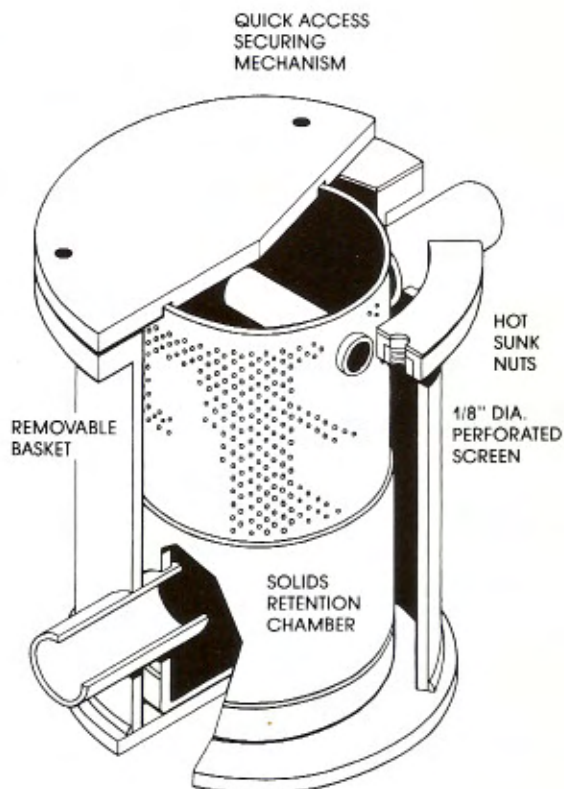
The interceptor will provide protection against excessive debris and foreign matter lodging in the inlet dip tube and limestone.

The potential blockage of a neutralizing tank and related back-up of lab waste would result in a hazardous situation for building and occupants. Another repercussion would be a complete shutdown of the lab to enable cleaning of the neutralizing tank.

### MODEL SI-XLG

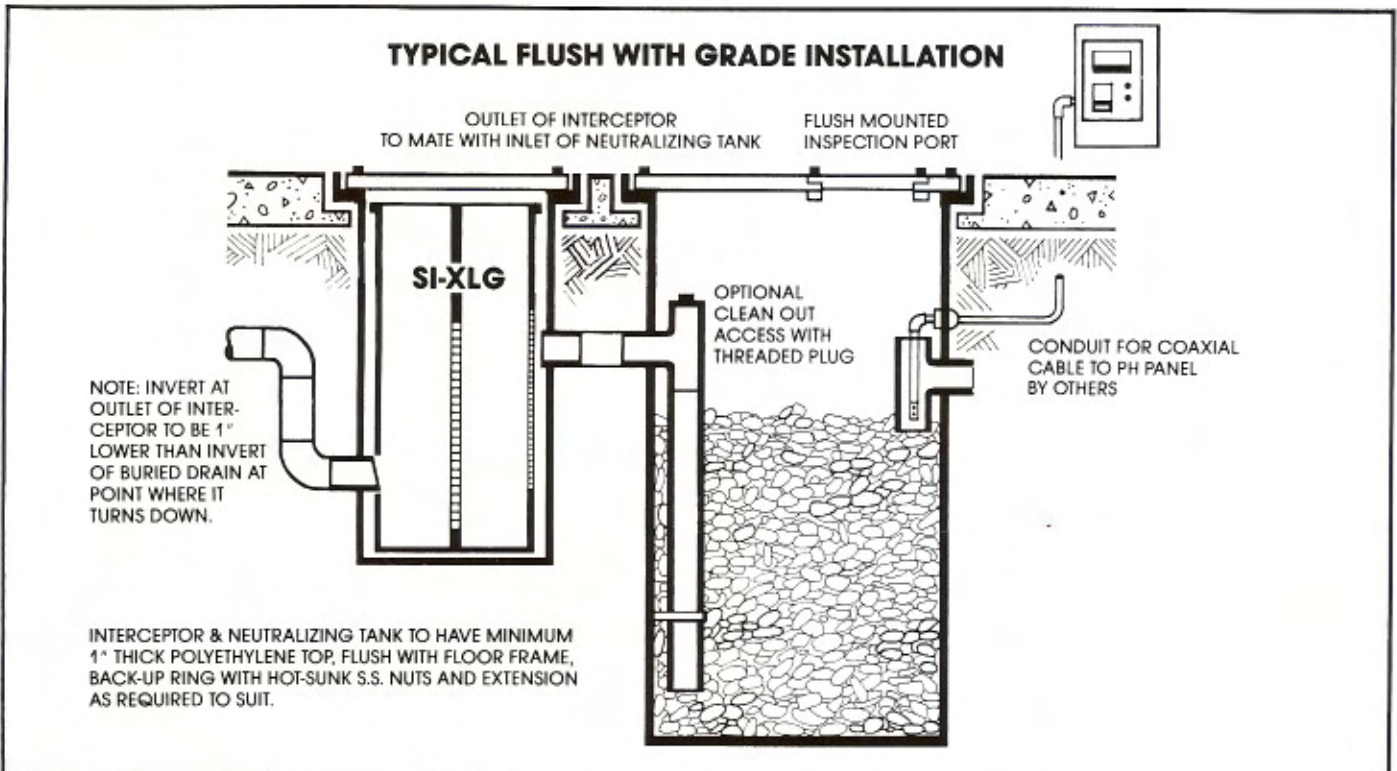
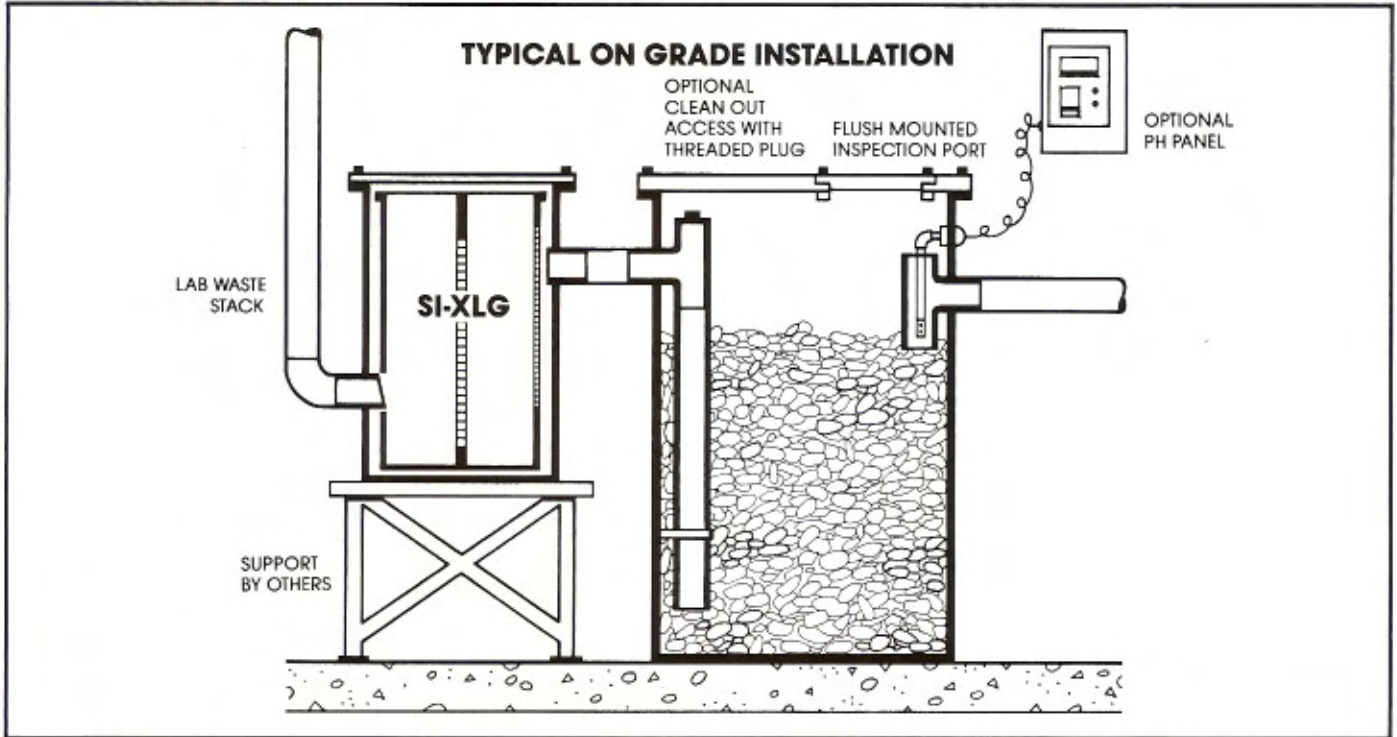
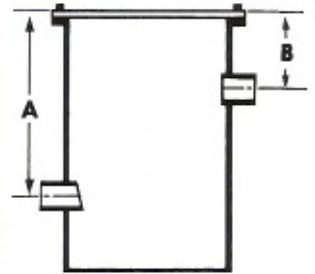


### MODEL SI-MQ

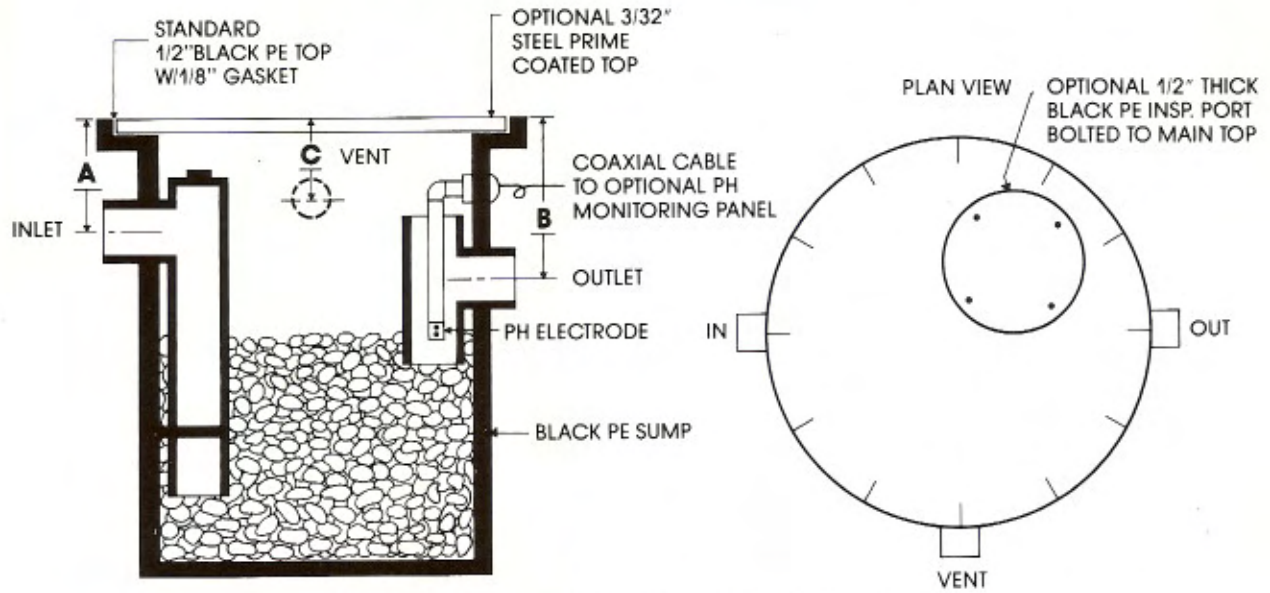


# INTERCEPTOR DIMENSIONS & CAPACITIES ±1"

| MODEL NUMBER | OUTER SUMP DIA. x HT. | BASKET DIA. x HT. | M.J. CONN. | A DIM. | B DIM. | APPROX. SINK RATING |
|--------------|-----------------------|-------------------|------------|--------|--------|---------------------|
| SI-MQ        | 8.5" x 12.5"          | 6.5" x 12"        | 1½" or 2"  | 9"     | 3"     | 1 - 2               |
| SI-MD        | 15" x 15.5"           | 11" x 13"         | 1½" or 2"  | 9.5"   | 3.5"   | 2 - 5               |
| SI-LG        | 18" x 26"             | 14" x 24"         | 3" or 4"   | 14"    | 6"     | 5 - 25              |
| SI-XLG       | 22" x 34"             | 18" x 32"         | 4" or 6"   | 20"    | 10"    | 25 - 50             |



## STANDARD FITTING CENTRELINE DATA



INLET, OUTLET AND VENT LOCATIONS SHOWN ARE STANDARD  
OTHER LOCATIONS AVAILABLE.

\* TANK DETAIL SHOWS OPTIONAL CLEANOUT ACCESS ON INLET DIP TUBE IN PLACE OF STANDARD 90° DIP TUBE.

## S. M. S. NEUTRALIZING SYSTEMS

**TANK DIMENSIONS & CAPACITY: IMPERIAL**   **METRIC**   **DIMS. ±1" (2.5 cm)**

| MODEL NUMBER | CAP. IMP. GALS./LITRES |        | SUMP DIMS. DIA. X HT. | WALL THICKNESS | TANK WEIGHT | FTG. CONN. SIZES (M.I.) |        |       | CENTRELINE DIM. |       |        | LIMESTONE CHARGE LBS./KILO |
|--------------|------------------------|--------|-----------------------|----------------|-------------|-------------------------|--------|-------|-----------------|-------|--------|----------------------------|
|              | EMPTY                  | ACTUAL |                       |                |             | INLET                   | OUTLET | VENT  | A IN            | B OUT | C VENT |                            |
| AN-2         | 4                      | 2      | 11 x 16               | 1/8            | 6           | 1-1/2                   | 1-1/2  | 1-1/2 | 3               | 4     | 3      | 50                         |
| AN-2         | 18                     | 9      | 280 x 406             | 3.2            | 3           | 38                      | 38     | 38    | 75              | 100   | 75     | 23                         |
| AN-4         | 7                      | 4      | 15 x 15               | 1/8            | 12          | 2                       | 2      | 1-1/2 | 3               | 4     | 3      | 100                        |
| AN-4         | 32                     | 18     | 380 x 380             | 3.2            | 5           | 50                      | 50     | 38    | 75              | 100   | 75     | 45                         |
| AN-5         | 12                     | 5      | 19 x 17               | 1/8            | 15          | 2                       | 2      | 1-1/2 | 4               | 6     | 3      | 150                        |
| AN-5         | 55                     | 23     | 483 x 432             | 3.2            | 7           | 50                      | 50     | 38    | 100             | 150   | 75     | 68                         |
| AN-10        | 22                     | 10     | 18 x 33               | 3/16           | 15          | 3                       | 3      | 2     | 5               | 8     | 4      | 300                        |
| AN-10        | 100                    | 46     | 457 x 838             | 4.8            | 7           | 75                      | 75     | 50    | 125             | 200   | 100    | 136                        |
| AN-15        | 35                     | 15     | 22 x 34               | 3/16           | 25          | 3                       | 3      | 2     | 5               | 8     | 4      | 500                        |
| AN-15        | 160                    | 68     | 560 x 864             | 4.8            | 11          | 75                      | 75     | 50    | 125             | 200   | 100    | 227                        |
| AN-25        | 55                     | 25     | 26 x 38               | 3/16           | 40          | 3                       | 3      | 2     | 6               | 8     | 5      | 750                        |
| AN-25        | 250                    | 114    | 660 x 965             | 4.8            | 18          | 75                      | 75     | 50    | 150             | 200   | 125    | 340                        |
| AN-30        | 68                     | 30     | 30 x 42               | 1/4            | 50          | 4                       | 4      | 3     | 6               | 10    | 5      | 900                        |
| AN-30        | 310                    | 136    | 762 x 1067            | 6.4            | 23          | 100                     | 100    | 75    | 150             | 250   | 125    | 409                        |
| AN-50        | 112                    | 50     | 36 x 42               | 1/4            | 60          | 4                       | 4      | 3     | 6               | 10    | 5      | 1500                       |
| AN-50        | 510                    | 227    | 915 x 1067            | 6.4            | 27          | 100                     | 100    | 75    | 150             | 250   | 125    | 682                        |
| AN-65        | 142                    | 65     | 36 x 48               | 1/4            | 65          | 4                       | 4      | 3     | 6               | 9     | 5      | 1800                       |
| AN-65        | 646                    | 296    | 915 x 1220            | 6.4            | 30          | 100                     | 100    | 75    | 150             | 225   | 125    | 818                        |
| AN-85        | 187                    | 85     | 42 x 48               | 1/4            | 80          | 4                       | 4      | 3     | 6               | 10    | 5      | 2400                       |
| AN-85        | 850                    | 386    | 1067 x 1220           | 6.4            | 36          | 100                     | 100    | 75    | 150             | 250   | 125    | 1091                       |
| AN-100       | 218                    | 100    | 42 x 54               | 1/4            | 90          | 4                       | 4      | 3     | 6               | 10    | 5      | 2800                       |
| AN-100       | 990                    | 455    | 1067 x 1372           | 6.4            | 41          | 100                     | 100    | 75    | 150             | 250   | 125    | 1273                       |
| AN-170       | 383                    | 170    | 52 x 60               | 3/8            | 200         | 4                       | 4      | 3     | 6               | 10    | 5      | 5000                       |
| AN-170       | 1740                   | 773    | 1321 x 1524           | 9.5            | 91          | 100                     | 100    | 75    | 150             | 250   | 125    | 2273                       |
| AN-210       | 460                    | 210    | 55 x 64               | 3/8            | 200         | 4                       | 4      | 3     | 6               | 8     | 5      | 6000                       |
| AN-210       | 2090                   | 955    | 1395 x 1625           | 9.5            | 91          | 100                     | 100    | 75    | 150             | 200   | 125    | 2730                       |
| AN-220       | 482                    | 220    | 48 x 84               | 3/8            | 200         | 6                       | 6      | 4     | 6               | 10    | 5      | 6200                       |
| AN-220       | 2190                   | 1000   | 1220 x 2134           | 9.5            | 91          | 150                     | 150    | 100   | 150             | 250   | 125    | 2818                       |
| AN-450       | 1000                   | 450    | 69 x 84               | 3/8            | 400         | 6                       | 6      | 4     | 6               | 10    | 5      | 12800                      |
| AN-450       | 4546                   | 2045   | 1753 x 2134           | 9.5            | 182         | 150                     | 150    | 100   | 150             | 250   | 125    | 5818                       |

# SMS Model 47-D

Smillie McAdams Summerland LTD. 900 KcKay Rd Unit 1, Pickering, Ontario, L1K 3X8 Tel: (905) 428-6900 Fax: (905) 428-6598

## Digital pH Monitoring and Alarm Panel

47-D controllers are simple-to-operate, microprocessor-based process meters packed with features. For more flexibility and better resolution for chart recorders, any low points between 0 and 14 pH can be chosen to correspond to the analog output spans. The microprocessor memory is fully programmable and has 3 months backup power supply. The Fail-Safe--Alarm protects the 47-D against the pitfalls of process control, like power interruption or line failure.

The 47-D offers quick, 1, 2 or 3 point calibration at pH 7.01, 4.01 and 10.01 as a standard. The temperature can be manually or automatically compensated.



### Specifications

### 47-D

|                                      |  |
|--------------------------------------|--|
| <b>RANGE</b>                         | 0.00 to 14.00 pH / -9.9 to 120.0 °C  |
| <b>RESOLUTION</b>                    | 0.01 pH / 0.1°C  |
| <b>ACCURACY (@20°C/68°F)</b>         | ± 0.02 pH / ± 0.5°C  |
| <b>CALABRATION</b>                   | 1,2 or 3 points at pH 4.01, 7.01 and 10.01   |
| <b>TEMPERATURE COMPENSATION</b>      | Automatic (with Pt100) or manual from -9.9 to 120°C  |
| <b>READOUT</b>                       | 4 ½ digit dual-level LCD with graphic symbols and messages   |
| <b>OUTPUTS</b>                       | Digital: RS485 bi-directional opto-isolated; or Analog: galvanically Isolated 0 to 1 mA, 0 to 20 mA and 4 to 20 mA, 0 to 5 VDC, 1 to 5 VDC and 0 to 10 VDC |
| <b>SETPOINT RELAY(S)</b>             | 1 or 2: SPDT contact outputs<br>5A - 250 VAC, 5A - 30 VDC (resistive load)<br>Protection fuse: 5A, 250 V <i>Quick Blow Fuse</i>                            |
| <b>POWER CONSUMPTION</b>             | 15A  |
| <b>OVER CURRENT PROTECTION</b>       | 400 mA, 250 V <i>Quick Blow Fuse</i>   |
| <b>MAXIMUM OSCILLATION FREQUENCY</b> | 4 Mhz  |
| <b>POWER SUPPLY</b>                  | 230 ± 10% VAC, 115 ± 10% VAC or<br>100 ± 10% VAC, 50/60 Hz (depending on model)  |
| <b>ENVIRONMENT</b>                   | 0 to 50°C (32 to 122°F); max 85% RH non-condensing   |
| <b>CASING</b>                        | Fiber-reinforced, self-extinguishing ABS with IP54 protection<br>181L x 221W x 142H mm (7.1L x 8.7W x 5.6H")   |
| <b>WEIGHT</b>                        | 1.4 kg (3.1lb)   |

### OPTIONAL REMOTE ALARM:

RAL offered in a PVC enclosure  
Mute switch for silence of Buzzer  
120 VAC



Data Logger  
SMS - DATSAVE 33,000 data points  
Adjustable frequency of data collection  
Complete with CD program and cable  
Interface.