according to the invention may be adapted to monitor a number of different fluid conditions, and to trigger sampler program operation on the basis of any desired one(s) of such conditions. To this end, the program storage memory in the form of pre-installed EPROM chips may be programmed to perform the calculations necessary for a variety of different fluid conditions, and to allow for necessary calibration. As such, the program storage memory can be programmed to have a relatively universal capacity capable of processing inputs from a variety of different fluid condition sensors. A skilled technician could then convert the fluid condition monitoring assembly of the apparatus from one type to the other merely by replacing the circuit board containing the sensor interface electronics, as needed, to accommodate different sensors. Alternatively, the apparatus could be pre-equipped with more than one such circuit board so as to be inherently capable of monitoring more than one fluid condition as desired, and of triggering sampling operations on the basis of more than one fluid condition.

It will also be understood that the invention is not limited to the particular fluid conditions and sensors described above, and other suitable known sensors and corresponding interface electronics and programming may alternatively be employed for monitoring other conditions. For example, the apparatus could be adapted to monitor total organic carbon levels, and to trigger sample collection on the basis of predetermined levels, by employing a total organic carbon sensor and suitable interface electronics and programming.

In use, the apparatus according to any of the embodiments of the invention can be conveniently transported for mounting in sewer manholes, or to remote sites for use in other types of applications. When used in a sewer manhole, the apparatus can be conveniently mounted as a single unitary structure above an open flowing sewer passage. The apparatus is mounted for use by: connecting the sensor with one of the connectors **16**; connecting the fluid intake conduit **9** with the pump **8**; appropriately mounting the sensor relative to the fluid in the channel; positioning the weighted strainer **12** at the end of conduit **9** within the fluid in the channel; and suspending the unit from the upper end of the manhole (FIG. **6**).

The integral unit includes all the electronics, computer programming, and hardware required for fully automatic sampling and fluid condition monitoring, as well as storage of sampling and fluid condition data for later retrieval. The unit can be user-programmed to collect samples at desired time intervals; or when the calculated values of a given fluid condition falls outside a predetermined range, or above or below a predetermined level; or on the basis of some combination of both criteria. The stored data will reflect the time and date of each sample, the value of the fluid condition (such as pH level) at user-selected intervals, as well as the various other parameters described above. The user can call the data up for display on the alphanumeric display of the unit, and/or can transfer the data to a remote output device via the portable data transfer unit. Transfer of the data via the data transfer unit permits recording of the data in hard copy form via a printer, permanent storage of the data in a database, and/or manipulation of the data for statistical analyses, etc., via a conventional software program.

It will be further understood that the integral fluid sampling and fluid condition monitoring apparatus of the invention may be selectively employed for use for sampling and fluid condition monitoring both, for sampling only, or for monitoring one or more fluid conditions only, as desired. The independent operation of either the sampling assembly or the fluid condition monitoring assembly can be effected via user input to the computer control means according to the invention.

While there have been described hereinabove what are at present considered to be the preferred embodiments of the invention, it will be understood that various modifications may be made therein without departing from the spirit and scope of the invention. The present embodiments are therefore to be considered in all respects as illustrative, and not restrictive. The scope of the invention is indicated by the appended claims rather than by the foregoing description.

We claim:

1. An apparatus for automatically collecting samples from a fluid channel and for monitoring a fluid condition, according to modes of operation selected by a user, said modes of operation including sampling on the basis of time and/or at least one predetermined value of said fluid condition being monitored, comprising:

means for controlling said apparatus;

a fluid sampling assembly having an inlet for receiving fluid from said channel;

power means for supplying power to each element of said apparatus;

said fluid sampling assembly, said control means and said power means comprising an integral operating unit disposed within a single case, said case being sufficiently compact so as to be receivable in a manhole;

said fluid condition being monitored comprises a fluid condition other than flow rate;

said integral operating unit further including at least one input connection for receiving at least one detected signal related to said fluid condition; and

said control means comprising a microprocessor, program memory and data memory, wherein:

said program memory is programmed for computing values of said fluid condition;

said data memory stores user-selected input parameters including operating mode selection data, said at least one predetermined value of said fluid condition, and sampling times;

said microprocessor receives said at least one signal related to said fluid condition via said input connection and utilizes said program memory to calculate values of said fluid condition based on said at least one signal;

said microprocessor controls said fluid sampling assembly according to at least one of said modes of operation selected by the user, based on said user input sampling times and/or a deviation of computed values of said fluid condition from said user-selected predetermined value of said fluid condition; and

said data memory stores fluid sampling data and fluid condition data.

2. An apparatus according to claim **1**, wherein:

said apparatus further comprises means for conditioning said at least one signal for input to said control means; and

said integral operating unit further comprises means for displaying said stored fluid sampling data and fluid condition data.

3. An apparatus according to claim **2**, wherein: