CIMCOR

Community Infrastructure Management Corporation

GUARDIAN®
by PINNACLE

USA & Canadian patents pending

Guardian® is an Online Monitoring & Maintenance Tracking System for Privately Owned Septic Systems, Sewage Lift Stations and Water Treatment System as available from **Community Infrastructure Management Corporation, Ontario, Canada. (CIMCOR).**

Within North America over 35% of residential and commercial facilities are served by utilities that are located on the same private land and are therefore privately owned by the landowner. These utilities may consist of any one of or combination of:

(a) an onsite sewage treatment,
(b) sewage lift stations and
(c) drinking water treatment system.

Onsite sewage treatment systems, also known as a septic system, consist of several components that treat the sewage to particular levels and disperse the treated sewage (a.k.a treated effluent) into either a soil based or surface body of water receiving area. In some circumstances the treated effluent is treated to a high level that the effluent is used within a facility to flush toilets and urinals as well as for vehicle washing and other sewage wastewater re-use applications.

These utilities are typically regulated by Federal, State, local government or Provincial regulations in regards to their design, installation and maintenance.

The ever-increasing use of these privately held operated and maintained systems cause governments to allocate more human and financial resources to manage and administer the regulations.

The **designer** of these types of utilities have designed and sized the utility to meet the regulations that typically state fixed values for estimated daily flow rates and mass organic loading rates for any particular type of facility.

Users of these types of utilities may or may not know of the limits of the utility or how to properly service and provide preventative maintenance as well as service or repair parts that need replacement or servicing. Users of onsite sewage treatment systems generally do not conduct the scheduled maintenance as typically required by system designer or equipment manufacturer.

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Maintenance providers of these types of utilities are often in the position of not knowing or having access to the system's design, layout or specifications and the required scheduled maintenance.

The Guardian® is a monitoring software system for privately owned utilities such as septic systems, sewage lift stations and water treatment system that can be a tool for governments, designers, maintenance providers and the users of such utilities to ensure compliance to regulations, proper use of the utility by users and meeting obligations for maintenance that will provide an increased level of public health and environmental protection proactively.

Regulators in many jurisdictions are required to ensure that maintenance of privately owned utilities is conducted on time and in accordance with the designer's schedule maintenance requirements. Typically, there is no central registry online or offline that the regulator can assure compliance by the user and the goods and services provided by the industry.

The Guardian® will provide, online, a method of managing the many sites within the regulators jurisdiction by providing automated notifications of schedule maintenance, name of property owner, tenant, contact information, site location, utility design, layout and specifications and a reporting process of a non-compliant utility location and thereby reducing the resources that governments need to apply to the management and administration of these types of utilities.

Regulators may also add into the Guardian® photos of the installation of the utility and current utility appearance to document and support the issuance of permits to construct or use of the utility.

The regulators may add notes into the Guardian® to advise designers, maintenance providers or future owners of the utility of issues or matters that may need attention.

The Guardian® will allow the regulator to see the maintenance done and any effluent sample results as entered in the Guardian® by the maintenance provider.

Designers of these types of utilities have little to no ability to follow-up on the performance of their design on private lands. The Guardian® will allow for data and performance of electro-mechanical components to be received by the Guardian® for producing trends and flow charts of the operation and function of the utility at any time of the year regardless of climatic conditions and without having to have a person enter private property.

This will allow the designer to ensure that the design is in compliance to regulation for its operation and performance and is maintained as required. Designer is able to respond to any re-design or upgrade of the utility based on actual data and performance of the utility.

Designers may also add into the Guardian® photos of the installation of the utility and current utility appearance.

The designer can add notes into the Guardian® to advise regulators, maintenance providers or future owners of the utility of issues or matters that may need attention.

Maintenance Providers will be able to have the Guardian® automatically notify them for the scheduled maintenance or an alarm condition at the location of the utility.

The Maintenance Provider will be able to have the Guardian® hold maintenance reports and retain a complete history of any issue or matter of the utility from which to better assess problems and the respective solutions for a utility not in compliance to regulation.

The Guardian® will advise the maintenance provider information as to components or parts by brand, make and model that may need service or repair before the maintenance provider leaves their locale to attend to the utility. This thereby reduces maintenance costs to the maintenance provider and the owner of the utility be the Guardian® providing details prior to traveling to and from the utility in search of the items needed to effect the maintenance.

Where required by regulation, the maintenance provider may place into the Guardian® effluent sample test results.

Maintenance Providers may also add into the Guardian® photos of the utilities condition before, during and after the maintenance.

Owner of the Utility is able to understand and confirm that the utility is being maintained in accordance with the regulation and design.

The Guardian® will allow the owner of the utility to operate the utility in accordance with the regulation and the design. If any dispute in regards to the utilities operation, function and performance arises between the owner and the designer, regulator, installer or maintenance provider, the Guardian® shall provide to the owner documentation and history sufficient to clarify the responsible party or parties of the dispute.

Land Use Planning & Sub-division Development

Local governments are often reluctant to sub-divide land for communities that use privately owned utilities on private land due to a concern about the lack of ability to enforce maintenance on these private utilities.

Local governments need a tool to assist them in creating bylaws that enforce maintenance as they take on a duty and responsibility to ensure that the maintenance is in fact conducted pursuant to their bylaw for the created subdivision.

Summary of the Guardian®

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The Guardian® shall be located on a website with access given to regulators, designers, maintenance providers and the utility owner each having a specific level of access and ability to make additions to the information contained within the Guardian®.

The Guardian® will relieve a resource allocation burden on the government by having the Guardian® automatically manage and track any and all obligations of the utility owner for compliance. The Guardian® will only bring in the regulator when a non-compliance problem is not corrected.

This allows the government to allocate its human and financial elsewhere, unless there is a non-compliance issue that requires direct intervention by the regulator.

The Guardian® will manage, monitor and track the use and historical operation, function, performance of the utility that will allow the designer to confirm that the utility has met the design or will allow the designer to determine corrective measures based on more accurate information.

The Guardian® will manage, monitor and track the use and historical operation, function, performance of the utility that will allow the maintenance provider to take preventative maintenance measures to ensure that the utility is in compliance to the regulations.

The Guardian® will provide to the utility owner a tool to monitor their use of the utility to maintain compliance.

Local governments that wish to pass bylaws for subdivisions based on the use of septic systems, the Guardian® will provide them a management and monitoring tool to ensure that maintenance is conducted.

Advantages

The Guardian® creates value to the governments by allowing them to allocate their resources to other public health and environmental protection programs and outcomes.

The Guardian® creates value to the designer by allowing them for the first time to see their designs to be used and maintained appropriately, and receive feedback in order that new designs take into account real world conditions, and, allows them to receive details to provide effective and efficient upgrades or re-designs if necessary.

The Guardian® creates value to the maintenance provider by allowing them to manage more effectively their staff and resources in conducting scheduled maintenance or responding to alarm notifications with the appropriate tools and parts.

The Guardian® creates value to the owner of the utility by having the utility operate and maintained in accordance with the design and regulation and thereby protect the property value from decline from utility malfunctioning and causing a public nuisance or health hazard that may take many thousands of dollars to correct after the fact.

The Guardian® creates value for local governments wishing to use onsite septic system for land use planning and sub-division creation with an enforceable maintenance plan using the Guardian® as the tool for managing and monitoring maintenance. This removes the cost to the local government for the construction or expansion of sewage collection system to a central publicly owned and operated municipal sewage treatment works.

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Description of the Guardian®

A website that has the ability to upload electronic data sent from hardware located at a location, or to upload data entered into by an authorized person and arrange the data and information, and to send out to specified persons notifications of scheduled maintenance or alarm conditions, and to hold that data and information indefinitely.

The software located within the website receives the electronic data sets in packets or streams of characters and re-arranges them into readable information and builds trends graphs and tables.

Data or information is uploaded into the website for the software to position in specific locations for viewing by readers.

The software program is managed by an administrator that through the program, sets password for persons to allow the appropriate person to enter the site with restrictions such as, to view only, to upload information, to enter maintenance data and reports.

The administrator sets the users into categories such as regulator, designer, maintenance provider and owner of the property in which the utility is located.

The administrator enters the individual utility sites and locations details and sets the level of person access and viewing privileges to each individual site.

The software organizes each individual site into a table or list per jurisdiction for the regulator when they sign in, per assigned maintenance provider when the maintenance provider signs in, and for the designer for each site designed by that designer and for the owner of the utility just the site owned by them.

The table or list is bolded in red and placed at the top of the listing if the site is in notification mode that has not had a response from the appropriate person. This table or list shows the name and contact information for the owner and/or tenant, the location of the utility, name and contact of the designer and the maintenance provider.

By highlighting and clicking onto any individual site, the site is brought forward and provides details of the utility complete with drawings, photos, reports and comments and the equipment specifications, site layout, daily flow trends, equipment components operation down to the day, hour, minute and second, as well as status and details of any alarm or maintenance notifications sent out to whom and with the acknowledgement of the receipt of the notification.

Notifications are sent by the software program by email and by telephone to the pre-set person or persons. Notifications are sent repeatedly until the notification is acknowledged. All notifications and acknowledgments are automatically registered on the specific site affected.

The notification for scheduled maintenance is automatically sent by the software program to the maintenance provider of record. If not responded to within the pre-set time, a second notification is sent to the administrator and/or the regulator or owner of the utility.

The notification of an alarm has two levels. One level is critical wherein the response to time to attend to the site to correct the alarm is within 24 hours and the notification is sent 24/7/365 until acknowledged and correction noted on the software.

The second level of alarm notification is urgent but not critical wherein the alarm notification is sent during normal business hours and corrective action has been taken with 48 hours.

In the event that corrective action in response to an alarm notification has not occurred the software alerts the regulator, owner and designer with a second notice sent to the maintenance provider of record.

The software program records all activities on each individual site in chronological order and places the most recent activities on top.

The software program is able to receive electronic data, packets or streams in various computer languages and therefore works in conjunction with several hardware manufactures to upload the data stored in such hardware when data logging or event recording capacities exit within the hardware.

For the individual utility locations that are not linked directly through the internet by hardware located at the utilities location, the administrator enters the data and information into the software program manually. The software conducts the same order of tables, lists and notifications, but the uploading of the utilities activities do not occur.