

geologger[®]

integrity monitoring solutions for
geotechnics and environmental protection

offline - online - realtime



geologger® watches out.



geologger leak detection systems have been used successfully for over 20 years monitoring HDPE plastic geomembranes. They are the best available technology for risk management and avoidance of environmental damages.

Waterproofing seals must be tight and stay tight to avoid any risks for the structure or environment. Small ruptures in waterproofing seals can result in uncontrolled spills of contaminated liquids into the environment including soil and ground water contamination.

Compromised waterproofing seals can cause far reaching structural damage to a building which could result in financially costly renovations or a catastrophic collapse of the structure itself.

The most damaging leaks caused by ruptured lined systems can only be determined by using the latest in advanced leak detection technology. Because the location of the leaks are well below ground and not visible on the surface, a large quantity of contaminated liquids can spill into the environment unnoticed for a significant amount of time.

Without an effective monitoring solution for waterproofing seals, you have no

control or knowledge regarding whether the condition of the seal is tight.

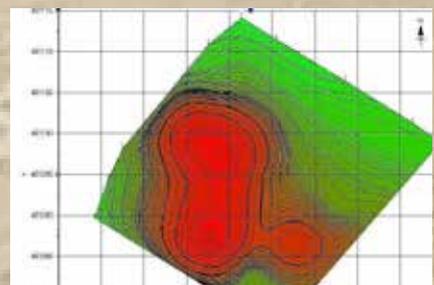
Responsibility for protecting the environment starts with an effective risk management plan. Knowing the condition of your waterproofing seals is a good start in defining yourself as an environmentally responsible person. The geologger leak detection system provides you with the intelligent monitoring tools required to

manage maintenance and repairs which reduce long term costs.

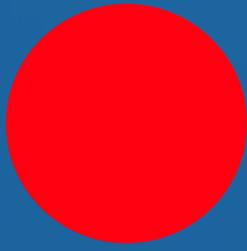
With geologger, you're safe, because you're sure that the waterproofing seals are tight. Luck is not a good responsible strategy for environmental protection. If you don't have an intelligent monitoring system, then your environmental protection strategy is based on luck.



Liner Leaks are detected safely with geologger,



even below meters of sand, waste or water.



more than **90%**
of the liner defects occur, when
the geomembrane is covered



more than **80%**
have leaks, when integrity is
tested the first time



less than **1%**
is the residual risk of undetected
leaks, if a geologger monitoring
system is used

1989. geologger is invented. Development starts within a project, funded by the German Environmental Protection Agency

1994. PROGEO is awarded with the Berlin-Brandenburg Innovation Price for the development of geologger

2005. geologger receives approval of BAM, the German Federal Material Testing Institute, for use in landfill liner systems

2009. The German landfill directive rules that liner monitoring systems have to be used in hazardous landfill sites



A Very Simple Principle

geologger uses an amazing simple yet very reliable physical principle to reliably detect and locate the damage or breaches of waterproofing seals.

„Seals are electrical insulators. As long as the geomembrane is intact, no current can flow through the lined sealing“

Geomembranes are used to avoid uncontrolled flow of liquids from a containment, e.g. a landfill cell into the environment. This is why geomembranes are usually found inside humid and therefore electrical conductive layers of soil, waste or water.

If electrical voltage is exposed to the geomembrane, no current can flow, as long as there is no breach or fault in the liner. If a liner leak occurs, a conductive path results and electrical current can flow. As a consequence of this, electrical voltage differences are induced in the layers close to the membrane.

This voltage anomalies are measured with a grid of sensor electrodes of the geologger system, positioned in one of the layers that are in contact with the geomembrane. With the help of the geologger data acquisition (DAQ) system the data is evaluated and transferred into an image, showing the spatial distribution of the voltage and the exact position of any liner leak. This is very accurate and quick and can be made in certain intervals using a mobile DAQ-System or online in real time using a permanent installed DAQ-unit with access over the internet.



geologger comes completely preassembled to the site. This allows quick and easy installation.



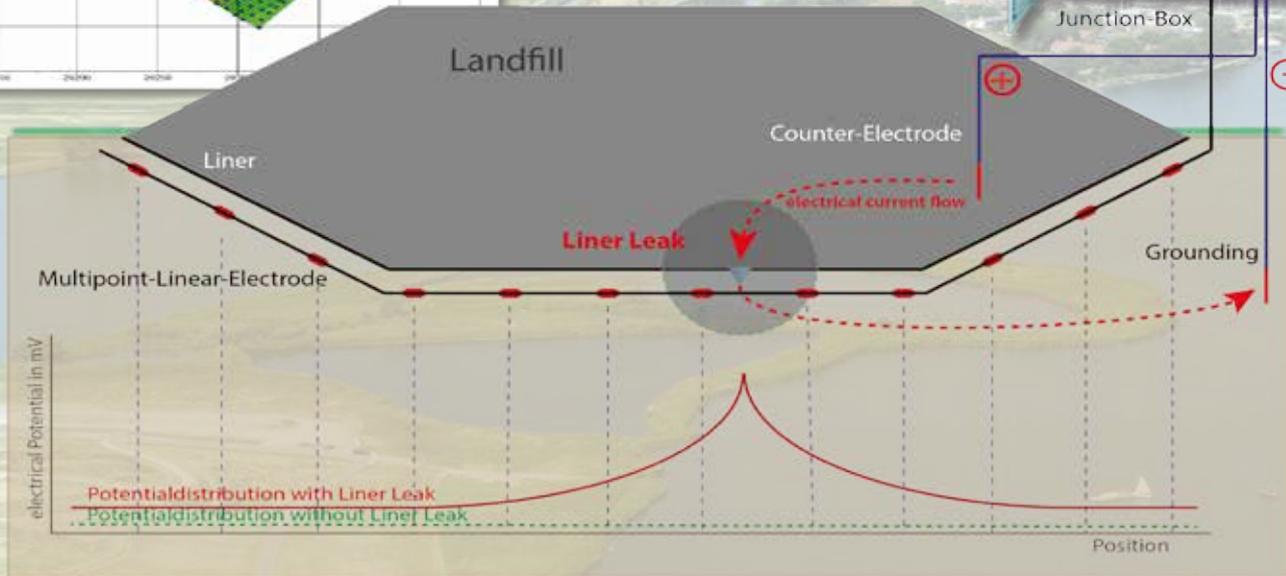
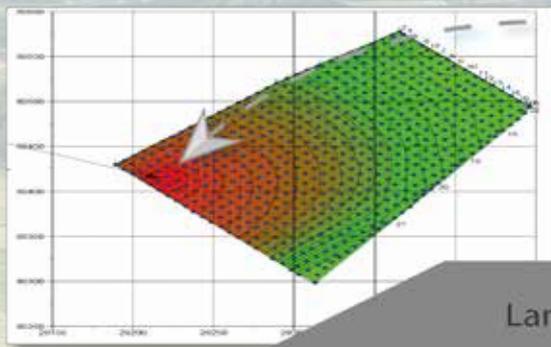
After setting out the position, the laying of the sensor cables can start immediately.



Even the data acquisition system comes ready for installation, nevertheless it is for 100 or 10.000 sensors.



In 1994, the Federal Institute for Materials Research and Testing certified that the geologger was a great benefit to the improvement in the safety of landfill waterproofing seals and considered a leading technology that was perfectly implemented.



perfectly implemented in an innovative technology

A liner monitoring system is only beneficial, if you can always be sure that it works right. Long lasting, durable components and full self-test ability assure a high availability and reliability of geologger Monitoring Systems

- sturdy, watertight extremely stretchable sensor cables with PE laminated sheath prevent damage resulting from installation and future settlements
- AL composite shield improves signal quality for measurements in harsh environments and serves as potential compensation for the optional available surge protection system
- continuous metering on outer jacket and color coded sensor wires ensure error-free assignment for installation and subsequent repairs
- optional: built-in lightning and surge protection prevents damage from lightning strikes during the many years of use
- pressure tested, self-testable sensors with stainless steel or double-sealed carbon fiber contact and integrated surge protection permanently secure function even in hostile environments
- all components completely self-testable during installation and use
- up to 40 sensors per measuring cable, fully pre-assembled and tested, sensor spacing 5 to 25 m depending on project needs assures effective and inexpensive cabling with up to 25.000 m² liner area to be monitored with on single sensor cable
- enables development of large areas with few Sensor Cables and very quick installation
- with BAM test certificate for at least 30 years of use
- with test certificate TNO for at least 100 years of use
- offline and online versions with access via the Internet from anywhere



40 core geologger Sensor Cable



Carbonfaser Sensor

Stainless Steel Sensor



since 1999 PROGEO has its own Technology Center in Großbeeren near Berlin, Germany



2014

About us

PROGEO is an information technology based company headquartered near Berlin which develops and installs intelligent monitoring systems that provide you with confidence that your structure is secure.

PROGEO's information technology delivers reliable, secure information concerning the integrity of any water proofing system whether as part of flat roofs, green roofs and parking decks, containments, landfills, dams, tunnels, ponds or mining facilities.

The main feature of these smart systems is that they provide early warning and location of damages to infrastructure for the life of the system protecting the building or the environment, while enabling access to all the data via any internet capable devices.

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