

ELIS RTK GPS eDipole with Case Studies – Compact Leak Detection Technology for Covered Geomembrane Liners (ASTM D8265-21)

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Detecting leaks on covered geomembrane liners presents unique challenges, and ELIS’s eDipole technology is designed to tackle them head-on. This portable, rugged system, specifically developed for use on covered geomembranes, provides a reliable solution for demanding field conditions. Available in two versions—one with advanced RTK GPS tracking for pinpoint accuracy (ASTM D8265-21) and a standard (upgradeable) model without GPS (ASTM D7007-24) — the eDipole is ready to meet diverse project needs across industries where safe containment is essential.



eDipole can be upgraded from the basic model to the RTK GPS model (ASTM D7007-24 -> ASTM D8265-21)

Wondering how this compact technology performs in real-world applications? The eDipole has already been put to the test, proving its worth on sand-covered geomembrane liners across North America. Whether you’re in landfill management,

wastewater treatment, or industrial containment, the eDipole has the versatility to fit your needs today, with the flexibility to adapt for tomorrow. Keep reading to see how the eDipole can make a difference in your projects and discover its results in the field.

eDipole Explained - Covered Geomembrane Surveys Made Efficient

Both eDipole versions are designed for environments where geomembranes are covered by soil, sand, water or other similar materials, making them ideal for applications in landfills, wastewater treatment facilities, freshwater storage and mining containment areas.

The ELIS eDipole technology consists of several integrated components, each essential to the success of a leak detection survey on covered geomembrane liners. At its core, the system includes the **eDipole survey probe**, which is available in two versions: one with RTK GPS capabilities for precise positioning and one without GPS, offering a more budget-friendly option.



RTK GPS eDipole survey probe with display, RTK GPS unit and a trigger for easy data collection

For those using the RTK GPS eDipole, an **RTK GPS base station** is also included to provide centimeter-level accuracy.



RTK GPS base station

Additionally, both versions rely on the **eSource 360** unit, which creates an artificial electric field within the containment facility, enabling the probe to detect any disruptions caused by leaks in the liner.



Dipole Survey Explained

In a typical dipole survey, the electric field generated by the **eSource 360** interacts with the geomembrane liner. The eDipole probe, moved systematically across the liner's surface, detects variations in the electrical field. A break or disruption in the field—caused by a potential leak—triggers the probe, which logs this as an anomaly. For RTK GPS-equipped systems, the precise location of each detected anomaly is recorded, allowing for pinpoint accuracy in locating and addressing any potential leaks. This structured approach provides reliable, consistent results across large, covered geomembrane surfaces, making it a powerful tool for containment facility maintenance and leak prevention.

Key Features of the RTK GPS eDipole Kit (ASTM D8265-21)

With RTK GPS tracking, the eDipole offers precise positioning data, which is especially beneficial on extensive geomembrane liners where accuracy and reporting is key. Here's a closer look at what the RTK GPS model brings to the table:

- **High Efficiency:** Survey up to 10,000 m²/ 107,639 sq ft per day/technician, covering large areas quickly and effectively.
- **ASTM Standards Compliance:** Compliant with ASTM D8265-21 for advanced leak detection on covered geomembranes, while the non-GPS model meets ASTM D7007-24 standards.
- **User-Friendly Design:** The system features a large, easy-to-read display, external trigger support, and an audible alarm, ensuring quick feedback during inspections.



For users seeking a more budget-conscious option, the **non-RTK version** provides the same ease of use and ASTM D7007-24 compatibility, with an option to upgrade to the GPS model when needed.



Case studies start on the next page.

Case Studies in Leak Detection on Covered Geomembranes

To illustrate the eDipole's capabilities, here are two recent projects in North America:

Case Study 1: Sand-Covered Geomembrane Liner Survey

- **Area:** 39,000 m²
- **Geomembrane Status:** 1.5mm HDPE roughened, under 15 cm of sand
- **Outcome:** Detected 2 critical damage points



Picture of the site & ELIS RTK GPS eDipole



Damage & Repair Sample

Case Study 2: Survey on Sand-Covered Geomembrane Liner

- **Area:** 44,000 m²
- **Geomembrane Status:** 1.5mm HDPE roughened, under 20 cm of sand
- **Outcome:** Located 7 areas of damage



Picture of the site



Damage & Repair Sample

The above projects highlight the eDipole's effectiveness in identifying leaks under protective covers, providing critical information for repairs and ensuring containment integrity.

Ready to Meet Future Needs

Compact, field-ready, and adaptable, the ELIS eDipole is designed to grow with your needs. The standard eDipole model can be upgraded with RTK GPS capabilities, making it a versatile choice for professionals in leak detection.

To learn more about how the eDipole can support your geomembrane monitoring, contact Matej Turjanik - Head of Global Markets at ELIS Technologies: matej.turjanik@elis.tech