

Case Study

Penhesgyn Landfill – Closure, Monitoring and Aftercare

Client

Isle of Anglesey County Council
(via Penhesgyn Landfill)

Industry / Sector

Waste Management / Local Authority

Location

Anglesey, Wales

Date of Work

Ongoing - 2023 to present

Relevant Egniol Services

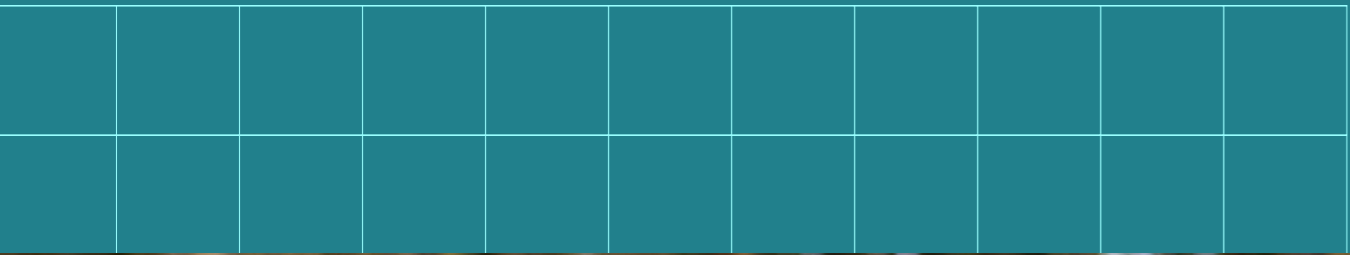
Environmental Services, Geotechnical &
Geoenvironmental Engineering



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Introduction to the project



Penhesgyn is a long-standing closed landfill site in Anglesey, Wales. The Council faced significant challenges in preparing the site for aftercare and long-term environmental protection. Historic engineering documentation was limited – in particular, the absence of basal drawings – which introduced some uncertainty around the site’s original construction and current environmental behaviour. In parallel, increasing leachate levels and the potential for gas migration required timely attention to manage associated risks to groundwater, surface water, and perimeter gas control.

The Council required expert support to investigate, interpret, and address these complex issues while working closely with Natural Resources Wales (NRW). Egniol was engaged for their proven track record in landfill site monitoring, regulatory engagement, and technical expertise.

Project Implementation & Use

Egniol provided end-to-end project coordination from the outset, overseeing all aspects of health and safety and contractor engagement. As part of this role, the team delivered detailed environmental assessments, including:

Reviewing leachate levels and construction of leachate and gas systems.

Investigating groundwater interaction, including the potential for basal heave.

Assessing gas migration via perimeter boreholes.

Through CQA (Construction Quality Assurance), Egniol ensured excavation and investigative works were delivered without compromising engineering integrity.

Egniol supported the Council in constructively re-engaging with NRW, helping to unlock progress through focused, evidence-led dialogue. By presenting robust environmental assessments and clarifying key technical aspects, Egniol contributed to the development of a closure plan addendum - providing a clear pathway towards aftercare.

The project remains an ongoing management programme, with monitoring and evaluation continuing over a 1–2 year horizon to evidence compliance.

Outcomes & Benefits

Egniol's work has delivered significant regulatory and financial benefits:

- **Cost Savings:**
Rationalised monitoring reduced the number of boreholes required, cutting unnecessary testing and maintenance spend.
- **Regulatory Compliance**
By providing clarity and evidence, Egniol ensured the Council could demonstrate compliance with NRW's strict requirements.
- **Environmental Protection**
Proactive measures were taken to minimise the risk of gas migration and potential groundwater impacts—helping to safeguard nearby sensitive habitats, including adjacent fen and wetland areas, and maintain the site's strong environmental performance.
- **Strategic Guidance**
Egniol's industry contacts and expertise supported wider due diligence, helping the Council consider long-term infrastructure and asset management options.

The ultimate impact will be securing permit surrender, substantially reducing the Council's operational costs and liabilities, while enabling land to transition toward landfill rewilding and ecological recovery.





“Working closely with the Council on the Penhesgyn Landfill project, our priority at Egniol was to provide clear, evidence-based technical guidance that enabled confident decision-making and constructive engagement with NRW. By focusing on proactive environmental management and aligning our support with the Council’s objectives, we’ve helped move the site closer to closure and permit surrender in a cost-effective and compliant manner. It’s been a collaborative and rewarding project to be part of.”

Michelle Moran
Environmental Services Director, EgniolLtd

Testimonial

“Working with Egniol on the Penhesgyn landfill site on Anglesey has been a genuine partnership. Together we’ve addressed both long-term and immediate challenges on site, from groundwater and gas monitoring to ongoing compliance with NRW. The Egniol team’s expertise in landfill management has been invaluable - guiding us through testing, trials and practical solutions that ensure the site continues to operate safely and sustainably.”

Bob Parry
Principal Waste Management Officer, Penhesgyn Waste Site,
Waste Management Section, Isle of Anglesey County Council Ltd



Next Steps

Continue environmental monitoring programme for 12–24 months to secure compliant aftercare.

Contact Us

If you'd like a quick, no-obligation review of your landfill site monitoring plan, leachate/gas strategy, or a surrender evidence "gap check", I'm happy to help.

Michelle Moran

Associate Director, Environmental Scientist, Egniol

Contact details

Email: michelle.moran@egniol.com

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Telephone: 01248 355996

Satisfaction & Ongoing Relationship

The Council has expressed strong satisfaction with Egniol's involvement. Egniol has become their first point of contact for technical support, providing fast, authoritative answers where regulators or other contractors could not.

Responsiveness:

"When we call, we get answers the same day not in two weeks."

Trust:

Egniol's expertise has enabled the Council to engage with NRW confidently, overcoming communication barriers.

Reliability:

Egniol's practical, solution-focused advice has been key to unlocking progress on a long-stalled site.

The Council has already recommended Egniol to other authorities, including Gwynedd Council, where Egniol has since secured further landfill projects.





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