AusNet

APGA Environment Award 2026

Award submission: Effective Management of an On-going Environmental Risk

Monday, 22 June 2026

Table of contents

Executive Summary

The Portland Gasworks Remediation Project represents a leading example of how a complex, on-going legacy environmental risk can be substantially reduced and brought under active management through a structured, risk-based approach that delivers both measurable environmental improvement and strong community confidence.

Delivered by Ventia on behalf of AusNet, the project involved the remediation of a historically contaminated former gasworks site in Portland, Victoria. Legacy operations by formed landowners had resulted in significant impacts to soil, groundwater and vapour, creating ongoing risks to the surrounding environment, nearby residents, and future land use opportunities. Addressing these risks required not only technical expertise, but a disciplined approach to environmental management that balanced regulatory compliance, operational delivery, and community expectations.

In alignment with the APGA Code of Environmental Practice (2022), the project implemented a robust and methodical remediation strategy that focused on identifying and controlling environmental risks at their source. This approach resulted in:

- Excavation of approximately 6,854 m³ of contaminated material for off-site treatment and disposal at licensed facilities
- Removal and management of approximately 13,800 tonnes of contaminated soil off site
- Implementation of a fully enclosed odour management system, with no attributable complaints recorded
- Successful operation of a water treatment plant achieving 100% compliance with discharge criteria

Importantly, the project achieved zero environmental permit non-compliances throughout construction, demonstrating consistent adherence to regulatory requirements. Beyond compliance, however, the project delivered meaningful reduction in long-term environmental and human health risks, while maintaining strong stakeholder relationships and community trust.

Through the integration of best practice environmental management, continuous improvement, and proactive engagement, the Portland Gasworks Remediation Project has substantially reduced a complex legacy liability, with validation and ongoing monitoring in place to confirm the final outcome for both industry and community.

Identification and Understanding of Environmental Risk

The environmental risks associated with the Portland Gasworks site were the result of historical gas manufacturing operations dating back to the late nineteenth and early twentieth centuries. As with many former gasworks facilities, the production processes generated a range of by-products that were disposed of on site, resulting in widespread contamination that persisted long after operations ceased. Much of this contamination also came from leaky pipes and vessels that were designed at the time without much consideration for environmental impacts.

Over time, multiple investigations were undertaken to better understand the condition of the site. These studies identified contamination across a range of environmental media, including soil, groundwater, sediment and vapour. The behaviour of these contaminants within the subsurface environment was complex, influenced by site geology, groundwater movement, and historical land use practices. While the existing body of data provided valuable insights, it also revealed gaps in the understanding of contamination extent and migration pathways, highlighting the need for further detailed assessment.

To address this issue, the project undertook a comprehensive program of investigation and analysis, culminating in the development of a Conceptual Site Model as part of the Remediation Action Plan. The Conceptual Site Model provided an integrated and evidence-based understanding of the site, clearly defining the location and nature of contaminants, the mechanisms by which they could move through the environment, and the potential receptors that could be affected.

This process identified that contamination was primarily associated with gasworks-derived compounds, including hydrocarbons and other hazardous substances typical of historical gas production. These contaminants presented multiple risk pathways. Groundwater movement created the potential for offsite migration, while vapour generation posed a risk to air quality and local amenity. Direct contact with contaminated soil also represented a potential human health risk, particularly in the context of future land use. In addition, the presence of contamination imposed long-term constraints on how the site could be safely redeveloped.

The site's location within a well-established and active community added an additional layer of complexity. The proximity of residential and commercial receptors meant that any environmental impact, particularly odour or visible dust, had the potential to directly influence community perception and confidence. Recognising this early was critical in shaping the overall approach to remediation.

The Remediation Action Plan ultimately determined that targeted excavation and off-site treatment of contaminated soils, supported by robust environmental controls, would provide the most effective means of addressing the identified risks. This strategy was grounded in the strong understanding provided by the Conceptual Site Model, contributing to a remediation approach was both proportionate to the risks and focused on achieving clear environmental outcomes.

Approach and Implementation

The successful delivery of the project was underpinned by a structured and disciplined approach to environmental management that aligned with the principles of the APGA Code of Environmental Practice. Central to this approach was the use of the Conceptual Site Model as a living framework to guide decision-making throughout the project lifecycle.

Rather than treating environmental management as a static or compliance-driven function, the project team used field data to update the Conceptual Site Model and demonstrate how the model evolved. This approach informed remediation extents while continuously linking contamination sources, exposure pathways and sensitive receptors. This supported the alignment of all remediation activities with risk reduction objectives and could be adapted as site conditions evolved.

Environmental risks were assessed and managed in accordance with a clear mitigation hierarchy, prioritising avoidance wherever possible, followed by minimisation of impacts and, where necessary, control and containment. This hierarchy was embedded into all aspects of project planning and delivery, enabling environmental considerations to be integrated into operational decision-making rather than addressed retrospectively.

The development and implementation of a comprehensive Construction Environmental Management Plan translated the strategic objectives of the Remediation Action Plan into practical, site-specific controls. These controls were further reinforced through activity-specific risk assessments, Safe Work Method Statements, and Inspection and Test Plans, providing multiple layers of assurance that environmental performance requirements were clearly defined and consistently met.

This integrated approach embedded environmental management as a core component of how the project was planned and executed on a day-to-day basis, rather than a separate discipline.

Water Risk Management

Water management represented one of the most critical environmental challenges associated with the project. Groundwater and surface water were identified as key pathways through which contaminants could migrate beyond the site boundary if not effectively controlled. Excavation activities, combined with natural groundwater ingress and rainfall events, created conditions where water could readily mobilise contaminants if unmanaged.

To address this risk, we used a containerised plant that could be rapidly reconfigured to meet site conditions and water volumes rather than over capitalising on one purpose built for the project. This provides significant cost savings while keeping the plant flexible to react to changing site conditions.

The system was capable of treating groundwater inflows, stormwater and process water generated during excavation activities, using a multi-stage treatment process to remove contaminants and achieve required discharge standards.

Water within excavations was actively managed to prevent accumulation and uncontrolled release. Groundwater and rainfall were promptly pumped to the treatment system, while bunding and site grading were used to ensure that water remained contained within controlled areas. These measures significantly reduced the risk of contaminated water migrating across the site or entering surrounding environments.

A strict discharge protocol was maintained throughout the project. Monthly sampling was carried out to confirm compliance with all relevant criteria. This rigorous approach enabled the protection of the receiving environment at all times.

The water management system operated consistently, with all treated water meeting discharge requirements and no environmental incidents recorded in connection with water management. Importantly, the system was operated in an adaptive manner, with treatment processes and capacity adjusted as required to respond to changing site conditions, including periods of increased rainfall or groundwater inflow.

General Environmental Controls and Site Management

In addition to primary risks such as groundwater and vapour, the project identified a range of secondary environmental risks that required careful management to protect both the environment and the surrounding community. These included dust generation, material tracking, spills, and potential impacts to noise and amenity.

Dust management was a key focus, particularly during excavation and material handling activities. Proactive measures were implemented across the site to ensure that dust generation was minimised at all times. Stockpiled materials were regularly wetted and, where necessary, covered to prevent wind dispersion. Trafficked areas were stabilised to reduce dust from vehicle movement, and work practices were adjusted in response to weather conditions. These measures maintained air quality and supported the control of potential airborne contaminants, minimising impact to surrounding areas. Minimising dust also functioned as a key control for asbestos and benzo (a) pyrene.

In addition to bunding, the risk of spills and surface contamination was also managed through the use of and containment systems in high-risk areas, including around the water treatment plant, fuel storage zones and material handling areas. Site surfaces were designed to support controlled drainage, ensuring that any spills could be captured and managed without risk of uncontrolled release.

Vehicle movements were carefully controlled to prevent the tracking of contaminated soils beyond the site boundary. A dedicated wheel wash system was installed at site exits, ensuring that all vehicles were cleaned prior to entering public roads. This was supported by traffic management measures and controlled access points, resulting in consistently clean surrounding roadways throughout the project.

Noise and vibration impacts were also actively managed, with works scheduled to minimise disruption and plant selection carefully considered to reduce emissions. Where possible, higher-impact activities were planned to avoid sensitive periods, and enclosure systems provided additional mitigation.

Outcome

The coordinated implementation of these environmental controls played a critical role in the overall success of the project. By proactively managing both primary and secondary environmental risks, the project was able to maintain a high level of environmental performance throughout all stages of delivery.

Importantly, the approach taken was not static. Environmental controls were continuously monitored and refined in response to site conditions and performance data, ensuring that they remained effective as the project progressed. This adaptive management approach allowed the project team to respond quickly to emerging risks and maintain alignment with environmental objectives.

The outcomes achieved reflect the strength of this approach. The project recorded zero environmental incidents resulting in regulatory non-compliance, with all works delivered in accordance with permit conditions and regulatory expectations. There were no substantiated community complaints relating to dust, tracking or general environmental impacts, and surrounding public areas remained clean and well maintained throughout construction.

These results demonstrate that even in the context of a complex and high-risk remediation project, strong environmental performance can be consistently achieved through disciplined planning, effective controls and a commitment to continuous improvement.

Monitoring, Verification and Continuous Improvement

Consistent with the on-going nature of the risk, the project is now in a structured validation and verification phase. Post-excavation validation sampling and ongoing groundwater and vapour monitoring are being undertaken in accordance with the Remediation Action Plan, with the results to be reviewed and signed off by an independent environmental auditor. This staged approach enables confirmation of the substantial risk reduction achieved prior to the site being formally closed out, reflecting a disciplined commitment to verification rather than reliance on construction outputs alone.

Water quality monitoring and laboratory analysis confirmed the effectiveness of the treatment system, while air quality and odour monitoring provided additional confidence that surrounding receptors were protected. Compliance tracking supported a clear understanding of regulatory obligations and their consistent adherence.

Importantly, monitoring data was not only used for compliance purposes but also to inform decision-making. Trends and observations were reviewed regularly, allowing the project team to refine controls and improve performance over time. This demonstrated a strong commitment to continuous improvement and ensured that environmental management remained responsive and effective.

Stakeholder and Community Engagement

Community, Sustainability and Social Value

A defining feature of the Portland Gasworks Remediation Project was its deliberate integration of community outcomes and sustainability principles into the delivery of technically complex environmental works. Recognising that the project was being undertaken within a closely connected regional community, the project team adopted a proactive and values-driven approach to engagement that prioritised transparency, trust, and long-term local benefit.

From the outset, a tailored Community and Stakeholder Engagement Plan was developed to reflect the unique characteristics of Portland, including its industrial heritage, strong community networks, and sensitivity to environmental issues. This approach placed a strong emphasis on direct, face-to-face engagement. The team had a full time Stakeholder and Engagement resource working on site, building important relationships with the local community. This resulted in more than 300 in-person interactions with residents, businesses and local organisations. These interactions provided an opportunity to clearly explain remediation activities, address concerns in real time, and demonstrate the environmental safeguards in place.

This level of engagement played a critical role in building community confidence in what is inherently a high-risk and highly visible remediation process. It also directly contributed to project outcomes, including negligible complaints and sustained positive sentiment throughout the duration of the works. Importantly, this approach safeguarded the reputation of the asset owner while positioning the project as a transparent and responsibly managed operation.

Beyond communication, the project team actively sought to embed broader social and environmental value into project delivery. Community partnerships were established to ensure that the project contributed positively to the local area. A key example was participation in the Portland Upwelling Festival, where the team partnered with the Portland Community Garden Landcare Group to distribute native seedlings. This initiative promoted biodiversity, encouraged community participation in environmental stewardship, and created a visible and positive connection between the remediation project and local environmental outcomes.

The project also delivered meaningful social impact through its support of United Way Glenelg's Christmas Hamper Drive. Through direct involvement and collaboration with local subcontractors, the team helped increase the number of hampers delivered from the original commitment of 200, to an upgraded commitment of 260, providing essential support to vulnerable members of the community during a period of heightened financial and social pressure. Feedback from recipients highlighted the significant emotional and practical value of this contribution, reinforcing the importance of integrating social responsibility into infrastructure delivery.

Economic sustainability was also a key consideration. The project prioritised the use of local suppliers and employment providers, with approximately 43 percent of project spend directed to regional businesses. This approach not only supported the local economy but also reduced transport-related impacts and strengthened supply chain resilience. In parallel, the project demonstrated a strong commitment to diversity and inclusion, achieving approximately 40 percent female participation on site- significantly exceeding industry norms and contributing to a more inclusive workforce.

Importantly, the benefits delivered extend beyond the life of the project. Relationships established with local organisations provide a foundation for ongoing collaboration, while the engagement framework developed for Portland offers a scalable model for integrating social value into environmental and infrastructure projects. The project has demonstrated that effective remediation can coexist with meaningful community benefit, setting a benchmark for how environmental works can contribute to broader sustainability outcomes.

Through this integrated approach, the Portland Gasworks Remediation Project has not only addressed a legacy environmental issue, but has also strengthened community resilience, supported regional economic development, and contributed to a more sustainable and inclusive future.

Conclusion

The Portland Gasworks Remediation Project demonstrates how a complex, on-going legacy environmental risk can be substantially reduced and actively managed through a disciplined, risk-based approach that integrates technical expertise, practical controls and strong stakeholder engagement.

By combining a robust understanding of site conditions with carefully designed and implemented management strategies, the project was able to interrupt the primary source-pathway-receptor linkages, reduce risks to human health, maintain environmental values, and maintain full compliance with permit conditions throughout the works to date.

Beyond these outcomes, the project has also demonstrated the importance of adaptability, transparency and continuous improvement in achieving environmental excellence. It stands as a strong example of how industry can responsibly address historical contamination and deliver lasting benefits for both the environment and the community.

Measurable Environmental Outcomes

The project delivered significant and verifiable environmental improvements:

- 100% compliance with treated water discharge requirements
- No recorded odour complaints attributable to remediation works
- Approx. 13,800 tonnes of contaminated soil removed and managed off site (verified by disposal dockets)
- Approx 6,854 m^3 of contaminated material removed
- Post-excavation validation sampling completed in accordance with the RAP, with residual site conditions being documented through a Validation Report, updated Conceptual Site Model and Post-Remediation Site Contamination Management Plan. Ongoing groundwater and vapour monitoring forms part of the auditor-reviewed framework for assessing long-term remediation performance and residual risk management
- Zero recorded offsite contamination events
- One minor environmental event (groundwater leak from steel water storage tank during initial filling). Fully contained on site (water captured in bunded area). Event investigation found a faulty tank had been supplied by hire company. Tank removed from site for repairs.