

Gapuwiyak Wastewater Treatment Ponds WDL 230-02 Performance Improvement Plan

2025

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1. Introduction

Discharges from the Gapuwiyak Wastewater Treatment Ponds (WwTPs) are regulated under conditions specified in Waste Discharge Licence WDL230-02, granted under Section 74 of the Water Act 1992.

Condition 33 of WDL 230-02 states, “the licensee must review and update the Performance Improvement Plan for the licensed activity, as required and at minimum every 2 years”.

This updated Performance Improvement Plan outlines actions to be implemented in upcoming years to improve the performance of Gapuwiyak WwTPs, and in turn improve environmental outcomes. It is important to understand the context in which this improvement plan has been developed and that the implementation of the suggested improvement strategies are subject to many factors, not least of which is funding.

The Gapuwiyak WwTPs are not situated within a Water Control District and at present there are no beneficial uses declared under the Water Act 1992 (NT). All improvement actions are geared toward reducing risks to the receiving environment, declared beneficial uses and water quality objectives described in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000). This risk-based approach is the foundation for decisions on improvement strategies outlined in this Performance Improvement Plan.

2. Scope

The performance improvement plan will identify measures as necessary to reduce or otherwise manage the impacts associated with a discharge in order to maintain the relevant environmental values. This includes the development of appropriate commitments, such as schedules for:

- Implementation of measures to rectify any non-compliance(s);
- Design studies for the improvement of wastewater treatment and discharge strategies and infrastructure; and
- Further monitoring and impact assessment.

The emphasis for Power and Water for the immediate future at wastewater treatment sites that discharge to the environment is on:

- Providing appropriate infrastructure to remove, collect and treat centralised wastewater generated by communities;
- Operating and maintaining wastewater systems to protect the public from microbiological pathogens that can cause disease in the community and to minimise impacts of wastewater on the environment;
- Minimising adverse effects on the environment from the disposal of effluent to land, water and or water recycling, through prevention and continual improvement in accordance with the relevant legislation, regulation, guidelines and Power and Water documentation; and
- Improving our understanding of the water cycle flows through the wastewater systems and the impacts of these on the waste stabilisation pond treatment performance.

An environmental risk assessment undertaken on the Gapuwiyak WwTPs indicates:

- Consistently low-risk levels determined regarding environmental and cultural assessment endpoints.

- The influence of the discharge on the receiving environment is considered sustainable given irrigation and evaporation is used as a primary disposal method with most effluent disposed of on site. If discharge were to reach the creek during the wet season, significant dilution would occur. Based on the ERA and modelled water quality data, there is limited evidence to suggest deleterious impacts to the receiving environment.
- All risk rankings have considerable uncertainties attached to the assessments. The risk rankings may change as uncertainties associated with current assessments are addressed.

3. Beneficial Uses

The Water Act 1992 (NT) is the primary piece of legislation that governs water resource regulation and management in the Northern Territory. Under the Water Act 1992 (NT), beneficial uses can be declared for specific Water Control Districts and water bodies, and water quality objectives are established to describe the water quality targeted to protect the relevant beneficial uses.

As stated, Gapuwiyak WWTs are not situated within a Water Control District and at present there are no declared beneficial uses. In the absence of beneficial uses, Environmental Values have been identified. Environmental Values are particular values or uses of the environment that are important for a healthy ecosystem or for public benefit, welfare, safety or health which require protection from the effects of pollution, waste discharges and deposits. The receiving environment for this discharge is vegetation within an allocated irrigation discharge area.

The Environmental Values are:

- Surrounding environment; and
- Cultural

4. Statement of Corporate Intent

Power and Water is established under the Power and Water Corporation Act 2002 and the Government Owned Corporations Act 2001. We have a board of directors, which is responsible to the shareholding minister for our operating and financial performance. The Statement of Corporate Intent (SCI) outlines how we intend to meet the expectations of our shareholder.

Our objectives are to:

- operate at least as efficiently as any comparable business
- maximise the sustainable return to the NTG on its investment in Power and Water.

Power and Water's not-for-profit subsidiary, Indigenous Essential Services (IES), supports 72 remote communities across the Territory. IES is funded through a funder-purchaser-provider model, with the specific terms set out in the Agreement for Provision of Essential Services to Nominated Aboriginal Communities (IES Agreement). The IES Agreement sets out the roles and responsibilities of Department Housing, Local Government and Community Development (DHLG&CD) and IES, governance structures, service levels and reporting requirements.

4.1. Strategic Plan

Our Strategic Plan focuses on 2 goals, each with its own objectives:

1. Modernising our business
2. Embracing a sustainable future with innovation.

Our Strategic Plan informs our planning cycle, focusing on our 2 strategic goals and 6 strategic objectives. Our planning underscores our commitment to embracing a sustainable future while connecting us to goals that enhance customer services and community experiences and help us meet the expectations of the NTG as our shareholder.

Our strategic plan crosses five key areas:

- **Health and Safety:** A proactive safety culture across the corporation based on accountability, trust and ethical behaviour.
- **People and Culture:** A high performing, diverse workforce that has capability to drive business effectiveness.
- **Financial Performance:** A financially robust commercially sustainable organisation with a strong capital discipline framework and delivering appropriate returns to our shareholders.
- **Operational performance:** An efficient provider of services supported by strong asset management, governance and protection of the environment.
- **Customer:** A customer-centric organisation achieving the respect and trust of all our customers and stakeholders across all parts of the business in delivering our services.

5. Improvement Plan Actions

Under this Improvement Plan, impacts associated with the licensed activity will be minimised by ensuring that:

- The discharge of treated effluent from the Gapuwiyak WwTPs will be undertaken within the legal framework provided by the licence; and
- Power and Water will progress the management actions identified in
- Table 1 within budgetary and resource constraints.

Table 1. Gapuwiyak Improvement Action Plan - informed by input from across all of Water Services.

Action No.	Action Identified	Action Progress	Timeframes	Status
				Completed = ✓
				In Progress = ✓
				On hold = ! No progress = ✗
1	Characterise the risks associated with the discharge through continued monitoring of wastewater discharged to the environment.	Routine wastewater quality monitoring programs have been developed, implemented and refined. • Review sampling and handling processes to ensure confidence in wastewater quality data collected.	2027	✓
2	Undertake a more robust Waste Stabilisation Pond process modelling assessment in line with the Power and Water Waste Stabilisation Pond Design Manual. This is an updated assessment of pond performance.	Conduct assessments at selected communities where population growth is expected - Gapuwiyak is listed under the Remote Housing Project for population growth – an assessment has been completed at this site.	An assessment was completed in 2023 (D2022/493971)	✓
3	Develop an action plan to address “very high” or above level risks* as identified in the risk assessment. The action plan is to include an assessment of the discharge water	No Very High level risks identified in environmental risk assessment.	N/A	Not Required

Action No.	Action Identified	Action Progress	Timeframes	Status
				Completed = ✓
				In Progress = ✓
				On hold = !
				No progress = ✗
	quality in relation to factors that may affect discharge water quality (i.e. pond design, operational and maintenance factors) with respect to environmental values.			
4	Implement options to accurately quantify the volume of treated wastewater discharged to the environment.	Develop a risk-ranked program for installation of flow monitoring improvements. Flow meters have been installed progressively based on priority and budget availability. Flows at non-metered sites are estimated using water balances and climatic data as per the methodology in the Power and Water environmental risk assessments. A flow meter was installed at Gapuwiyak in 2017. Discharge flow data is recorded manually by USCWs - QA process required.	Completed – Magflow meter is installed	✓
		Funding to be sought to add remote flowmeters to the regular maintenance schedule for calibration.	Completed	✓
5	Develop and implement a desludging program for all remote communities to inform a desludging works prioritisation list	Schedule work orders per financial year based on funding availability. Conduct sludge surveys to inform the desludging program. - Conduct sludge survey at Gapuwiyak ponds – Desludging completed at Gapuwiyak ponds in 2014. Sludge survey undertaken in 2021 and sludge levels were low. - Add to desludge prioritisation list if necessary – As above.	By expiration of WDL230-02	✓
6	Short circuit prevention in the WSPs	Consider options to prevent short-circuiting and improve retention time, improving discharged wastewater quality. Implement baffles.	By expiration of WDL230-02	✓
7	Increase existing BOD loading capacity to accommodate projected community	Consider an options assessment for wastewater pond augmentation. reconfigure ponds to operate Pond 3 as a facultative pond and Ponds 1 and 2 as parallel maturation ponds.	Funding to be sought – estimated timeframe 2027	!

Action No.	Action Identified	Action Progress	Timeframes	Status
				Completed = ✓
				In Progress = ✓
				On hold = !
				No progress = ✖
	growth			

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