Remote Community Waste Discharge Licences
Waste Stabilisation Ponds

Performance Improvement Plan 2021

Belyuen Waste Discharge Licence 215-01

Water Services
Remote Water Planning
April 2021

PowerWater

Document History and Status

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1. INTRODUCTION

Power and Water Corporation operates the Belyuen Wastewater Treatment Plant (WwTP) within the eastern side of Cox Peninsula, Northern Territory. The wastewater treatment plant services a population of approximately 225 (DHCD 2017) from the Belyuen community. The primary purpose of the treatment system is to provide a centralised facility for the treatment of sewage to reduce the public health risk within communities located in the sewerage catchment and to provide a treatment barrier that prevents direct faecal contamination of receiving waters consistent with National Guidelines (NHMRC 2008).

The *Water Act* 1992 (NT) prohibits a person from allowing waste to come into contact with water or to pollute waters, except where specifically authorised to do so through the granting of a Waste Discharge Licence (WDL). In the context of the *Water Act*, to pollute means to directly or indirectly alter the physical, thermal, chemical, biological or radioactive properties of the water so as to render it less fit for a prescribed beneficial use for which it is, or may reasonably be used, or to cause a condition which is hazardous or potentially hazardous to public health, safety, or welfare; animals, birds, fish or other aquatic life or other organisms or plant. A WDL permits the discharge of wastewater to 'waters' in circumstances that would otherwise be an offence under the *Water Act 1992* (NT). The discharge of treated effluent from Belyuen WwTP is authorised under WDL 215-01.

As detailed in the Power and Water and NT EPA Agreement document (2014) a Performance Improvement Plan that details the implementation of necessary improvement items identified through the environmental risk assessment process. The submission of this document fulfils PWC's requirement to provide a performance improvement plan under Condition 32 of the WDL.

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 PWC 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 Belyuen WwTP indicates:

- Risks to the assessment end-points, associated with the source, were assessed as having low to high risk rankings. These rankings were associated with the low discharge volumes into macro-tidal estuary, while higher risk rankings were associated with impacts to cultural values including human health risks through primary and secondary contact and aquatic food safety.
- The risk rankings may change as uncertainties associated with current assessments are addressed. A range of recommendations have been made in this risk assessment to address knowledge gaps and identify opportunities for improvement.

2. ENVIRONMENTAL VALUES

Beneficial Use Declarations (BUD's) may be declared under section 73(1) of the *Water Act.* BUD's in place for this site are:

- The Darwin Harbour Region (Northern Territory Gazette No. G27, July 2010.

Environmental Values have also been identified. Environmental Values are particulate values or uses of the environmental 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 water body for this discharge is a tidal brackish creek and subsequently Woods Inlet and Darwin Harbour.

The environmental values are:

- Environment; and
- Cultural

3. MANAGEMENT OBJECTIVES

The Power and Water 2019-20 *Statement of Corporate Intent* was tabled in parliament detailing Power and Water's commitment to government in setting out the Corporation's objectives, scope of business, strategies, funding mechanisms, approach to risk management and financial performance targets over a four year period commencing 1 July 2019. Under the *Statement of Corporate Intent* (PWC 2019), Power and Water will continue to deliver on our objective of providing safe and reliable services to our customers, while maintaining a focus on commercial sustainability.

Long-term goals of relevance to the licensed activity include:

- **Safety** – implement and sustain a proactive safety culture supported by effective safety management systems, governance and visible safety leadership.
- **Operational performance** – identify and adopt best practice methodologies across the organisation structure to deliver services to customers.
- **Environment** – ensure prudent, effective risk and governance practices, including environmental management.

4. 2021 IMPROVEMENT PLAN ACTIONS

Under this Improvement Plan, Power and Water will ensure that in order to minimise impacts associated with the licensed activity that:

- The discharge of treated effluent from the Belyuen WwTP will be undertaken within the legal framework provided by the licence; and that
- Power and Water will progress the management actions identified in Attachment A within budgetary and resource constraints.

ATTACHMENT A - Power and Water Corporation Water Management Actions 2021-2023

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 developed, implemented and refined. • Increase frequency of monitoring at selected sites in increase datasets – Belyuen monitoring increased from biannually to monthly • Conduct inflow monitoring at selected sites to gain better understanding of pond performance.	Established January 2016. This is an ongoing action. Allocated funding in 2020-21 allowed inflow monitoring to be conducted at a number of sites, however funding was unavailable for Belyuen. Inflow monitoring to be collected within 2021-22 where funding is available.	✓
2	Verify *Remote Operations Waste Stabilisation Pond Performance Evaluation Model* for this facility with field monitoring data.	Completed in previous PIP. No longer required as field monitoring data is available.	N/A	✓
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 quality in relation to factors that may affect discharge water quality (i.e. pond design, operational and maintenance factors) with respect to environmental values.	No Very High level risks identified within environmental risk assessment.	2021	Not required
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 PWC environmental risk	Funding to be sourced where viable.	!

Action	Action Identified	Action Progress	Timeframes	Status
		assessments.		
5	Develop and implement a PWC 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. • Desludging at Belyuen WwTP not deemed a priority at this time • Conduct a sludge survey at Belyuen ponds where viable	Ongoing	Not required

*As per the PWC corporate risk approach

5. REFERENCES

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