

Approved form

Environmental Protection Act 1994

Transitional environmental program

This form must be used when proposing a transitional environmental program (TEP) to the administering authority pursuant to section 331 of the Environmental Protection Act 1994 (the Act).

TRANSITIONAL ENVIRONMENTAL PROGRAM FOR LORIM POINT SEWAGE TREATMENT PLANT Section 330 of the *Environmental Protection Act 1994*

Principal holder: RTA Weipa Pty Ltd
John Evans Drive
WEIPA QLD 4874
ACN 137 266 285

Title: Transitional environmental program for Lorim Point Sewage Treatment Plant

Date: 2 October 2015

Reason for TEP: section 330(c): *Comply with a condition of an environmental authority (EA)*

Site details: Lot 14 SP120446 and Lot 15 SP116851

Period of TEP: (section 331(f)): This transitional environmental program (TEP) is designed to be carried out over a period of approximately two years to encompass varied seasonal conditions, and to allow for full implementation of control measures.

Start date: 11th December 2015

Finish date: 24th December 2017

Complete the section(s) that apply:

For TEPs to reduce environmental harm caused by the activity:

Environmental harm: N/A

Description of transition: N/A

For all TEPs:

Prevention of harm: (section 331(c)): During the implementation of the program of works, the Lorim Point Sewage Treatment Plant (LP STP) will continue to operate the currently installed ozone disinfection system. The installation of the ozone disinfection system has resulted in a significant reduction in thermotolerant coliforms, thus reducing any potential impacts to the receiving environment.

The plant discharges via an outfall pipe to the Embley River. Historically the plant

has discharged at levels >64000CFU/100ml. The water quality released from the LP STP since ozone disinfection has been installed represents an improvement on the historic discharge from the plant. No adverse impacts from this release have been observed in the receiving environment.

Any harm that may be caused by the ongoing operation of the LP STP will be prevented or minimised through continued operation of the recently installed ozone disinfection system, and compliance with the actions set out in Attachment 1.

Program of works: See Table 1 and Attachment 1. Rio Tinto (RT) Weipa will progress these works in stages. Following the completion of each stage, a monitoring and review period will allow RT Weipa to understand how the changes have affected the ability of the plant to achieve the EA requirement relating to Faecal Coliforms, and to determine whether it is necessary to progress to the next stage.

For TEPs to transition to an environmental standard:

Environmental standard: [N/A]

Nature of non-compliance: N/A

Description of transition including program of works: N/A

For TEPs to comply with condition of EA/development condition/prescribed condition for carrying out a small scale mining activity:

DA/EA number: Environmental authority EPPR03383115 dated 10 August 2015 (EA)

Relevant conditions: The EA relevantly includes the following condition:

(C3) Treated sewage wastewater released from the Lorim Point Sewage Treatment Plant outfall pipe identified in Schedule G – Figure 2 (Sewage Rising Main) and Figure 3 (section details) must be monitored at the monitoring point (outfall pipeline) for the relevant quality characteristics and at the frequencies identified in Table 1 – Surface Water release limits, for all sewage effluent inflows to the treatment plant up to a flow rate of 23l/s.

Schedule C - Table 1 (Surface water release Limits) then includes a release limit of 1000CFU/100ml for Faecal Coliforms (FC).

Nature of non-compliance: (section 331(e)(i)): The Faecal Coliforms release limit was first incorporated within an earlier version of the approval by decision notice dated 11 September 2013. Previously, there was no release limit included in the EA on Faecal Coliforms.

Prior to the imposition of the current limit relating to Faecal Coliforms, it was recognised that the {LP STP} was not designed for microbiological disinfection, and therefore unable to achieve the proposed Faecal Coliform release limit.

Installation of an ozone disinfection system was completed and commissioned prior to the 1st of June 2015. Despite this modification, water quality samples of the effluent from the plant have not been able to consistently achieve the 1000CFU/100ml EA limit.

Description of transition including program of works:

(section 331(e)(ii)): The LP STP is a Pasveer ditch treatment facility, which currently does not have grit screening facilities on the incoming effluent. To compensate for this, the plant is operated at high desludging rates. This also reduces the Food to Microbe ratios in the ditch, and subsequently its ability to treat incoming effluent effectively for faecal coliforms.

Through continuing plant performance testing and research, it has been identified that the LP STP system requires more biomass to effectively treat the sewage it receives. The identified plant process changes will aim to grow more biomass by increasing the sludge age and bring the Food:Microbe (F:M) ratios within recommended values (0.04 to 0.10). To address the high desludging rates it is intended to install a screenings unit to remove objects such as rags, plastics, grit particles, and other non-biodegradable objects.

Test results indicate insufficient nitrification, and ammonia conversion (Short Circuiting) through the bioreactor, these nutrients subsequently reach the sand filter and ozone system at higher than expected levels. As ozone is highly reactive and non-selective, thus the dosed ozone is consumed prematurely leaving no to little residual ozone in the effluent.

To continue to reduce the nutrient load prior to the disinfection unit an additional anoxic treatment phase is proposed. This will require some modification of the existing infrastructure, with modification of the Sludge lagoon into a holding tank, additional pumps, and pipework modifications.

These plant modifications, in combination with the increased biomass in the bioreactor, are expected to address the current issues with the plant operation. In the meantime, NATA compliant test results show that since the installation of the ozone disinfection system, there has been significant lowering the levels of Thermotolerant coliforms. See Table 1.

Further information

For further information on transitional environmental programs, please see:

- Guideline—Transitional environmental programs (EM287);
- Information sheet—Content requirements for transitional environmental programs (EM643);
- Operational policy—Transitional environmental programs (TEP) fees (EM335);
- Form—Annual return for a transitional environmental program (TEP) (EM667).

Table 1: Program of works

Objective(s) [section 331(a)] State the objectives to be achieved and maintained under the TEP for the activity. The objectives must be specific and clear and relate to achieving compliance with the Act, the <i>Environmental Protection Regulation 2008</i>, environmental protection policies, or if relevant, the conditions of approval.		
1. Biologically optimise the plant through equipment changes and operational changes, to increase its ability to treat influent sufficiently		
2. (If required) Modify the plant to enable large influx and improve anoxic treatment phase and nutrient removal		
3. (If required) Optimise plant disinfection options analysed based on changes made to the plant.		
Actions [section 331(b)] List the actions to be taken to achieve each of the objectives. Actions must be SMART (specific, measurable, achievable, relevant and time specific) (EM1037). Actions must take into account: 1. Best practice environmental management for the activity (including how these measures stand against the measures currently used nationally and internationally for the activity [section 331(b)(i)]); and 2. The risks of environmental harm being caused by the activity (including the proposed actions, how the risks have been considered and how they will be treated or mitigated [section 331(b)(ii)]).	Commencement date [section 331(b)] A start and finishing date for each action or groups of actions must be included.	Completion date
1. <i>Please refer to Attachment 1</i>		
2.		
3.		
Performance indicators [section 331(g)] Detail how and when each action will be measured to indicate that the action was completed successfully and that the objective of the TEP is being achieved. Performance indicators must not be measured more than six months apart [section 331(g)] and must be quantitative (that is, able to be measured, assessed and audited in a consistent, objective and repeatable manner).	Commencement date	Completion date

1. Please refer to Attachment 1		
2.		
3.		
Monitoring [section 331(h)] Provide details of the monitoring activities required to ensure compliance with the proposed TEP actions and dates. This includes details of who will conduct the activities, how monitoring needs to occur and the environmental and scientific testing that may be required.	Commencement date	Completion date
1. Monitoring program to ascertain the effectiveness of Stage 1 works Water quality monitoring will be conducted by waste water personnel during and after the Stage 1 works. See Attachment 1 for further details.	11 th December 2015	30 th June 2016
2.(If required) Monitoring program to ascertain the effectiveness of Stage 2 works If Stage 2 works proceed, water quality monitoring will be conducted by waste water personnel during and after those works. See Attachment 1 for further details.	1 st August 2016	28 th February 2017
3. (If required) Monitoring program to ascertain the effectiveness of Stage 3 works If Stage 3 works proceed, water quality monitoring will be conducted by waste water personnel during and after those works. See Attachment 1 for further details.	1 st April 2017	24 th November 2017
Reporting [section 331(h)] Monthly progress reports are to be provided to EHP on specified dates including monitoring results, a description of activities and issues from the previous month and any proposed activities for the next month. A final report describing how the objective(s) of the TEP was achieved should/must be provided within one month of the final action being completed and prior to the end date of the TEP. Failure to carry out prescribed actions must be reported.	Commencement date	Completion date
1. Monthly email progress reports. The reports will include any monitoring results, a description of progress to date and issues from the previous month and any proposed activities for the next month	11 th December 2015	24 th November 2017
2. Report on monitoring program for Stage 1 works	11 th December 2015	31 st July 2016

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3. Report on monitoring program for Stage 2 works	1 st August 2016	31 st March 2017
4. Report on monitoring program for Stage 3 works	1 st April 2017	24 th November 2017
5. Final TEP report	24 th November 2017	24 th December 2017