Review of intertidal reef monitoring licence conditions for the Adelaide Desalination Plant: June 2014

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EXECUTIVE SUMMARY

Purpose

This document represents a report on the extent to which monitoring of intertidal ecosystems from selected sites in the vicinity of Port Stanvac meets with the EPA Licence conditions for the construction and operation of the Adelaide Desalination Plant (ADP) over the period February 2009 to 12-Dec-2013. The monitoring reports were associated with the construction (including commissioning) of the desalination plant (by AdelaideAqua D&C Consortium – AAD&C) from February 2009 to 12-Dec-2012 and to the operation of the desalination plant (AdelaideAqua Pty Ltd) from 12-Dec-2012 to 12-Dec-2013.

Background

AdelaideAqua Pty Ltd is the operator of the Adelaide Desalination Plant at Port Stanvac South Australia. Operation of the ADP requires the discharge of reject water to the marine environment; this activity was originally conducted under a license issued to AAD&C by the Environment Protection Authority of South Australia (EPA License Number 26902) and subsequently under another license issued to AAPL (EPA License Number 39143). These licenses authorised AAD&C and AAPL to undertake a series of activities of environmental significance under Schedule 1 Part A of the Environment Protection Act 1993 (the Act). The licenses had specific requirements in relation to "Discharges to Marine Waters" that are the subject of this report.

Section 14 (305-626) of the license requires that the licensee must ensure that:

1. An independent review of all marine monitoring is conducted by independent specialist(s) as approved in writing by the EPA prior to the review commencing;
2. All marine monitoring from the period commencing with the issue of the license and ending 12 months after project handover of the 100 GL desalination plant is included in the review; and
3. The full results of the review are provided to the EPA not more than 18 months after project handover of the 100 GL desalination plant.

The EPA has also advised that prior to appointment, the independent reviewer must be able to demonstrate to the EPA that:

1. They will use their own professional judgment;
2. They will take appropriate specialised advice when the issue is outside their expertise;
3. Their opinions will be reached independently;
4. In forming opinions, they will not be unduly influenced by the views or actions of others who may have an interest in the outcome of the review; and
5. They must declare any real or apparent conflict of interest.

With the approval of the EPA, Anthony Cheshire (the author of this report) was selected by AdelaideAqua Pty Ltd (AAPL) to undertake this review.

Approach

This review of intertidal reef monitoring encompassed a study of all documentation provided by AdelaideAqua Pty Ltd which comprised a series of 7 monitoring reports each of which was produced by staff at AAD&C, AAPL or by experts contracted by the parties for that purpose.

Each report has been critically reviewed and key issues that pertain to compliance with the licence conditions have been aggregated into a summary that has been presented in this report.

Specific requirements

To consider the work done against the Scheduled Marine Monitoring Requirements detailed in Attachment A to licenses 26902 and 39143. These being:

Conduct two surveys per year at 20 sites, including 5 reference sites.

General requirements

In addition the EPA require that the Independent Reviewer is to undertake a technical review of all marine monitoring results from the commencement date of the License 26902 (D&C) until 12 December 2013 (12 months after plant handover) in order to assess the environmental impact of the desalination plant. This matter will be addressed in a subsequent report.

Conclusion

Surveys of intertidal reefs were undertaken to assess the extent to which the construction and/or operation of the ADP has had an impact on ecological communities in the intertidal region of Port Stanvac. The overall design of this monitoring program is consistent with the specific requirements for intertidal monitoring (i.e. conduct two surveys per year at 20 sites, including 5 reference sites). The program includes a total of 20 monitoring sites made up of 2 stations at each of 10 locations (including 5 reference locations). These stations have been monitored at least twice per year (and in some cases up to four times).

LICENCE CONDITION: INTERTIDAL REEF MONITORING

In the following the specific requirements pertaining to the licence condition (intertidal reef) are summarised along with information about the documents that have been reviewed.

Documents reviewed for this licence condition:

Document Name	Reference
intertidal_sep09.pdf	Stewart, T.D.C, Baring, R.J. and Benkendorff, K (2009). Intertidal Baseline Monitoring for the Adelaide Desalination Plant Preliminary Report September 2009. Flinders University, Adelaide.
intertidal_final09-10.pdf	Baring, R.J., Stewart, T.D.C. and Benkendorff, K. (2010). Adelaide Desalination Plant Final Intertidal Monitoring Report 2009/2010. Flinders University, Adelaide.
intertidal_apr11.pdf	Stewart, T.D.C, Cantin, A. and Dittmann, S. (2011). Adelaide Desalination Plant Intertidal Monitoring Third Interim Report. Flinders University, Adelaide.
intertidal_july11.pdf	Stewart, T.D.C, Cantin, A. and Dittmann, S. (2011). Adelaide Desalination Plant Intertidal Monitoring Interim Report. Flinders University, Adelaide.
intertidal_apr12.pdf	Stewart, T.D.C. and Dittmann, S. (2012). Adelaide Desalination Plant Intertidal Monitoring Progress Report. .
intertidal_jun12.pdf	Stewart, T.D.C. and Dittmann, S. (2012). Adelaide Desalination Plant Intertidal Monitoring Summer 2012. .
intertidal_nov12.pdf	Stewart, T.D.C. and Dittmann, S. (2012). Adelaide Desalination Plant Intertidal Monitoring Winter 2012. .

Specific requirement (see Attachment A – Marine Monitoring Schedule):

Conduct two surveys per year at 20 sites, including 5 reference sites.

Overall summary in relation to intertidal reef monitoring

Surveys of intertidal reefs were undertaken to assess the extent to which the construction and/or operation of the ADP has had an impact on ecological communities in the intertidal region of Port Stanvac.

The specific objectives were to apply standardized survey methods in order to assess the spatial and temporal variability in:

- Mobile gastropod abundances;
- Percent cover of sessile organisms; and
- Sediment depth

The overall design of this monitoring program is consistent with the specific requirements for intertidal monitoring (i.e. conduct two surveys per year at 20 sites, including 5 reference sites). The program includes a total of 20 monitoring sites made up of 2 stations at each of 10 locations.

These stations have been monitored at least twice per year (and in some cases up to four times). Ten of these sites are situated within the Port Stanvac Zone (2 stations at each of 5 locations) and a further 10 are reference sites that have been sampled both to the north (Northern Zone comprising 4 sites at 2 locations) and to the south (Southern Reference Zone comprising 6 sites at 3 locations) of Port Stanvac.

At each site data have been collected on the abundances of mobile gastropods, the percent cover of sessile organisms and sediment depth.

Appendix A KEY DATES IN PLANT CONSTRUCTION AND OPERATION

The following provides a list of key dates in the construction and operation of the plant. This material provides background to the review and in particular places the analysis and interpretation of each of the monitoring reports into context with the activities that were occurring on-site in the period leading up to the monitoring event.

Date	Activity
01-Feb-2009	Construction activities commenced
16-Nov-2009	Maritime platform arrived on site
08-Jul-2010	Maritime platform completed operations
01-Jun-2011	First discharge and first intake of seawater
14-Oct-2011	First Water – plant production was (30 MLD)
21-Mar-2012	SP1 – Full production from first half the plant (150 MLD)
31-May-2012	SP2 – Full production from second half of the plant (150 MLD)
24-Oct-2012	Performance test – plant running at full production for 7 days (150 MLD)
07-Nov-2012	Performance test – plant running at full production for 7 days (150 MLD)
21-Nov-2012	Reliability test – continuous running at various production rates
12-Dec-2012	Plant handover from commissioning