

REPORT TO THE SITE SELECTION COMMITTEE FOR THE EP DESALINATION PLANT

INDEPENDENT MARINE SCIENCE REVIEW PANEL

The Independent Marine Science Review Panel (Panel) met for the fifth time on Tuesday 25 October 2022. The main agenda items for the meeting were:

- Review of the Oceanographic and particle movement modelling report (final draft)
- Discuss with SARDI's representatives regarding way forward with the modelling

Role and Membership of the Panel

The role of each panel member is to provide independent technical feedback and advice to ensure the objectives of the environmental assessment process are achieved.

The membership of the Panel is as follows:

- Dr Don Plowman – former Deputy Chief Executive of Primary Industries and Regions and Director of Research, SA Research and Development Institute.
- Dr Ian Wallis – Environmental engineer with extensive experience with desalination plant site selection and operations.
- Dr John Luick – Oceanography and Modelling, formerly with SARDI and currently a consultant
- Professor Sean Connell – Environmental Scientist and Marine Ecologist, University of Adelaide
- Dr Anu Kumar – Environmental toxicologist and environmental risk assessment, CSIRO
- Dr Alistair Hobday – Spatial management and migration of pelagic species and marine environmental impacts, Research Director, CSIRO
- Dr Hazel Vandeleur – Senior Environmental Impact Assessment Officer, SA Water
- Ms Nancy Nguyen – Executive Officer TSA

All Panel members were present at the fifth meeting.

It should be noted that the Panel represents a broad base of experience and technical expertise in areas of direct relevance to advising on the location and operation of a desalination plant. The advice provided to the Site Selection Committee is based on both reviewing documents available to the Panel and the experience and capability of each Panel member.

Oceanographic modelling report (final draft)

The final draft report includes details of the Boston and Proper Bay water movements (including 12 months of new data collection), 5yr dispersion modelling (far-field movement) of the brine discharge (validated by the new data) and particle tracking modelling (with a focus on predicted intake impacts on particles)

The updated modelling has not changed the earlier advice to the Site Selection Committee to under all conditions the salinity levels did not exceed background variability and for the worst-case scenario the salinity increase predicted is .4 PSU at 300 metres and therefore meets all assessment guidelines, particularly the ANZECC/ARMCANZ water quality guidelines.

A further observation from the SARDI modelling was that the natural seasonal variation in salinity within the bays was greater than the variation in salinity due to brine release and dispersion from the plant.

The MSRP also considered it important to note that the hydrodynamic modelling assumed all brine was expelled from one port (i.e. a single grid cell) in the bottom layer of the model. It is therefore a worst-case scenario as it is expected that a multi-port diffuser will be used in practice to discharge brine.

To clearly demonstrate a scenario closer to the actual operations of the desalination plant, SARDI modellers were asked to report on the impacts if the brine was mixed into a number of layers.

The Panel also reviewed the particle tracking modelling undertaken by SARDI. The actual particle tracking was considered to reflect the movement of particles in the near-shore area, however the Panel thought the treatment of the zone of water extraction could be refined by determining the actual volume of water extracted, the predicted zone the water was extracted from and therefore the number of particles that would be entrapped.

The advice being provided by Panel has as its prime purpose to aid decision making to select a preferred site. Once the site has been selected the Panel will provide more detailed and specific advice around location of the intake and pipe and the outfall.

Reports still to be received

The Panel suggested further tests/scenarios to be examined by the Oceanographic modelling, which will be addressed in the report's final version. This final version of the report is due for delivery by SARDI to SAW end of November 2022.

A second key report required to assess the suitability of the proposed plant relates to the diffuser design and the dilution and movement of brine discharge in the near-field zone. Initial work in the site selection stages has indicated the 40:1 dilution criterion can be achieved at the short-listed site locations. The MSRP understand that the near-field modelling report will be developed during the detailed design stage and will form part of the Development Approval.