



Licence number	L8108/2004/5
Licence holder	Water Corporation
ACN	28 033 434 917
Registered business address	629 Newcastle Street LEEDERVILLE WA 6007
DWER file number	DER2013/000873-1
Duration	24/09/2023 to 23/09/2043
Date of issue	22/09/2023
Premises details	Perth Seawater Desalination Plant 18 Barter Road NAVAL BASE WA 6165 Legal description - Lot 3003 on Plan 46763, Crown Reserve 48164 Barter Road and Part Lot 3000 on Plan 46736, Crown Reserve 30611

As defined by the coordinates in Schedule 2

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i>)	Assessed design capacity
Category 54A: Water desalination plant: premises at which salt is extracted from water if – (a) waste water is discharged into marine waters; and (b) the discharged waste water has a density greater than the average ambient density of the marine water at the discharge site.	45 gigalitres per year

This licence is granted to the licence holder, subject to the attached conditions, on 22 September 2023, by:

**MANAGER WASTE INDUSTRIES
REGULATORY SERVICES**

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Licence history

Date	Reference number	Summary of changes
25/09/2006	L8108/2004/1	Licence granted.
02/01/2007	L8108/2004/1	Licence amendment – additional monitoring conditions
24/09/2007	L8108/2004/2	Licence renewal for one year
24/09/2008	L8108/2004/3	Licence renewal for five years
28/02/2011	L8108/2004/3	Licence amendment due to changes to Ministerial Conditions associated with the project.
30/06/2011	L8108/2004/3	Licence amendment to amend the AACR condition to align with the annual reporting condition
24/09/2013	L8108/2004/4	Licence renewal for five years
18/12/2014	L8108/2004/4	Administrative licence amendment to update the prescribed premises boundary map to include the evaporation pond that Water Corporation are leasing from Synergy
29/04/2016	L8108/2004/4	Notice of Amendment of Licence Expiry Dates – new expiry date 23 September 2023
16/05/2022	L8108/2004/4	Notice of Amendment of Licence Reporting Requirements – biennial Environmental Reporting
22/09/2023	L8108/2004/5	Licence renewal

Interpretation

In this licence:

- (a) the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;
- (b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
- (c) where tables are used in a condition, each row in a table constitutes a separate condition;
- (d) any reference to an Australian or other standard, guideline, or code of practice in this licence:
 - (i) if dated, refers to that particular version; and
 - (ii) if not dated, refers to the latest version and therefore may be subject to change over time;
- (e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and
- (f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This licence requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this licence.

Licence conditions

The licence holder must ensure that the following conditions are complied with:

Infrastructure and equipment

1. The licence holder must ensure that the site infrastructure and equipment listed in Table 1 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 1.

Table 1: Infrastructure and equipment requirements

	Site infrastructure and equipment	Operational requirement	Infrastructure location
1.	Seawater intake	a) Screen washings must be stored within appropriately impervious bins to prevent seepage and overflow.	As shown in Schedule 1, Figure 1
2.	Seawater intake pump station		Located within the premises boundary as shown in Schedule 1, Figure 2
3.	Seawater strainers		
4.	Wet well and Stilling Basin		
5.	Dual Media Filters	a) Filter backwash must be treated to remove suspended solids and diluted with brine reject prior to marine discharge.	
6.	Cartridge filters		
7.	Reverse Osmosis (RO) Plant	a) Membrane cleaning and	

	Site infrastructure and equipment	Operational requirement	Infrastructure location
		flush water must be directed into the discharge effluent stream at a rate to ensure brine waste can neutralise and dilute the stream prior to marine discharge.	
8.	Outfall and diffusers	a) The diffusers must be maintained to achieve a minimum of 45 dilutions at the edge of the mixing zone (LEPA boundary), calculated in accordance with condition 12.	As shown in Schedule 1, Figure 1
9.	Backwash tank	a) The integrity of all containment infrastructure and pipelines must be maintained in good condition at all times, to be free from leaks and defects.	Located within the premises boundary as shown in Schedule 1, Figure 2.
10.	Sludge thickener		
11.	Centrifuge		
12.	Sludge tank		
13.	Reverse osmosis CIP sump		
14.	Chemical Storage Building		
15.	Chemical Dosing Plant		
16.	Brine tank		
17.	Outfall tank		
18.	Lime system		
19.	Lime clarifier		
20.	Permeate tank		
21.	Drinking water tank		
22.	Drinking water/product pump station		
23.	Evaporation/Storage pond	a) The integrity of the pond liner is to be maintained at all times, to be free from leaks and defects.	
24.	Containers	a) Must be maintained in good condition at all times, to be free from leaks and defects.	

Waste storage and minimisation

- The licence holder must immediately recover or remove and dispose of spills of desalination effluent and solid waste outside of an engineered containment system.
- The licence holder must ensure that solid waste from the desalination process is only stored within vessels or compounds that are impervious containers (except for seawater intake screening and collection).

Discharges to water

4. The licence holder must ensure that the emissions specified in Table 2, are discharged only from the corresponding discharge point and only at the corresponding discharge point location.

Table 2: Authorised discharge point

Emission	Discharge point	Discharge point location
Desalination effluent	Discharged into the ocean through the outfall diffuser within the LEPA.	Discharge points on the diffuser as shown in Schedule 1, Figure 1.

5. The licence holder must not cause or allow point source emissions to surface water greater than the limits listed in Table 3.

Table 3: Emission and discharge limits

Discharge point	Parameter	Limit (including units)
Outfall diffuser	Desalination effluent volume	68 gegalitres per annual period

Monitoring

6. The licence holder must ensure that all monitoring equipment used on the premises to comply with the conditions of this licence is calibrated in accordance with the manufacturer's specifications.
7. The licence holder must, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.
8. The licence holder must maintain a sampling point to ensure that representative samples of desalination effluent being discharged from the premises can be collected at any time.
9. The licence holder must undertake the monitoring in Table 4 according to the specifications in that table.

Table 4: Monitoring of water quality

Monitoring location	Parameter	Units	Frequency	Method
Intake sample point (outlet of seawater intake pump station)	Flow rate ¹	(m ³ /s)	Continuous	-
Outfall sample point (outfall tank outlet)	Flow rate of desalination effluent ¹	(m ³ /s)	Continuous	AS/NZS 5667.10
	Flow rate of brine component of desalination effluent ¹	(m ³ /s)	Quarterly	
	pH ¹	pH units		

Monitoring location	Parameter	Units	Frequency	Method
	Conductivity ¹	µS/cm		
	Turbidity ¹	NTU		
	Oxidation Reduction Potential (ORP) ¹	mV		
	Dissolved Oxygen (DO) ¹	mg/L		
	Temperature ¹	°C		
	Total Dissolved Solids (TDS) ¹	mg/L		
	Salinity ²	ppt		
Marine monitoring sites as depicted in Figure 3: DIFF50W (50H 383769 6436757) South (50H 380136 6431053) Central 50H 377908 6437643 Parmelia (50H 377334 6444407) OA2 (50H 379071 6446878)	Salinity ¹	ppt	Biannually	AS/NZS 5667.9 Monitoring is to be conducted to a depth of at least 0.2 m above the seabed
	Temperature ¹	°C		
	Dissolved Oxygen (DO) ¹	mg/L		

Note 1 – non- NATA *in situ* testing permitted

Note 2 – salinity can be derived from field sampling of electrical conductivity

10. The licence holder must undertake the monitoring in Table 5 according to the specifications in that table.

Table 5: Monitoring of inputs and outputs

Input/Output	Parameter	Units	Averaging Period	Frequency
Seawater	Inflow	Kilolitre/day	Monthly	Continuous
Process effluent	Outflow to ocean via ocean outfall diffuser within the LEPA as depicted in Figure 1			
Brine component of process effluent				

Input/Output	Parameter	Units	Averaging Period	Frequency
Process solid waste	Removed from premises	Tonnes	N/A	Monthly

11. The licence holder must undertake the monitoring in Table 6 according to the specifications in that table and calculate the dilution factor for each monitoring location in accordance with the equation in condition 12.

Table 6: Monitoring of diffuser performance

Monitoring point	Parameter	Units	Frequency
0.5 m to 5 m above the seabed at 0.5 m intervals for each monitoring location on the LEPA boundary as shown in Schedule 1, Figure 4	Salinity of seawater at the LEPA boundary	ppt	Biannually

12. The dilution factor for each monitoring location in condition 9 shall be calculated in accordance with the following formula:

$$\text{Dilution Factor} = \frac{(\text{Discharge} - \text{Intake})}{(\text{Marine} - \text{Intake})}$$

Where;

Discharge = Discharge salinity of brine effluent

Intake = Intake salinity at 5 m depth

Marine = Marine salinity average of halocline obtained from data collected in accordance with Table 6.

Records and reporting

13. The licence holder must record the following information in relation to complaints received by the licence holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:
- the name and contact details of the complainant, (if provided);
 - the time and date of the complaint;
 - the complete details of the complaint and any other concerns or other issues raised; and
 - the complete details and dates of any action taken by the licence holder to investigate or respond to any complaint.
14. The licence holder must:
- undertake an audit of their compliance with the conditions of this licence during the preceding annual period; and
 - prepare and submit to the CEO an Annual Audit Compliance Report in the approved form by 1 October each year.

15. The licence holder must maintain accurate and auditable books including the following records, information, reports, and data required by this licence:
 - (a) the calculation of fees payable in respect of this licence;
 - (b) any maintenance of infrastructure that is performed in the course of complying with condition 1 of this licence;
 - (c) monitoring programmes undertaken in accordance with conditions 9, 10, 11 and 12 of this licence; and
 - (d) complaints received under condition 13 of this licence.
16. The books specified under condition 15 must:
 - (a) be legible;
 - (b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;
 - (c) be retained by the licence holder for the duration of the licence; and
 - (d) be available to be produced to an inspector or the CEO as required.
17. The licence holder must record the results of any chemical analysis conducted on desalination process solid waste produced on the premises.
18. The licence holder must:
 - (a) Prepare an environmental report that provides information in accordance with Table 7 for the preceding two annual periods, and
 - (b) Submit the environmental report to the CEO by 1 October 2024 and biennially thereafter.

Table 7: Environmental reporting requirements

Condition	Requirement
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken.
5 and 9	A summary of monitoring results, including: <ol style="list-style-type: none">a) The daily average flow rate in m³/s of the desalination effluent discharged to the ocean.b) The daily average flow rate in m³/s of the brine component of the desalination effluent discharged to the ocean.c) A comparison of the results from the monitoring conducted at the outfall sample point and marine monitoring sites in accordance with Table 4 against the water quality targets specified in Schedule 3.
10	A summary of input and output monitoring for each annual period, including: <ol style="list-style-type: none">a) The daily total volume of seawater intake at the premises in kilolitres.b) The daily total volume in kilolitres of desalination effluent discharged into the ocean.c) The daily total volume in kilolitres of the brine component of the desalination effluent discharged to the ocean.d) The total volume of process solid waste removed from the premises.

Condition	Requirement
1, 11 and 12	A summary of diffuser performance monitoring undertaken for each annual period that includes the following: a) the number of occasions and dates where the minimum dilution factor required by condition 1 was not achieved; and b) any management actions taken in response to the non-compliance.
13	A summary of each complaint received that includes the information required to be recorded by the condition.
6 and 7	Calibration report

19. The licence holder must ensure that the environmental report also contains an assessment of the information contained within the report against previous monitoring results, licence limits and targets.
20. The licence holder shall submit the information in Table 8 to the CEO according to the specifications in that table.

Table 8: Non-annual reporting requirements

Parameter	Reporting period	Reporting date	Format or form
Copies of original monitoring reports submitted to the licence holder by third parties	N/A	Within 14 days of the CEO's request	As received by the licence holder from third parties

21. The licence holder shall ensure that the parameters listed in Table 9 are notified to the CEO in accordance with the notification requirements of the table.

Table 9: Notification requirements

Condition or table	Parameter	Notification requirement	Format or form
Condition 5, Table 3	Breach of any limit specified in the licence	As soon as practicable	Forms are available on the Department's website.
Condition 1	Minimum dilution factor not achieved	As soon as practicable	Forms are available on the Department's website.

Definitions

In this licence, the terms in Table 10 have the meanings defined.

Table 10: Definitions

Term	Definition
ACN	Australian Company Number
Annual Audit Compliance Report (AACR)	means a report submitted in a format approved by the CEO (relevant guidelines and templates may be available on the Department's website).
annual period	a 12 month period commencing from 1 July until 30 June of the immediately following year.
approved form	Means the Annual Audit Compliance Report (AACR) form template approved by the CEO for use and available via DWER's external website.
AS/NZS 5667.9	means the Australian/New Zealand Standard AS/NZS 5667.9 Water quality – Sampling Part 9: Guidance on sampling from marine waters
AS/NZS 5667.10	means the Australian/New Zealand Standard AS/NZS 5667.10 Water quality – Sampling Part 10: Guidance on sampling of waste waters
books	has the same meaning given to that term under the EP Act.
brine	means the hypersaline by-product of seawater desalination
CEO	means Chief Executive Officer of the Department. “submit to / notify the CEO” (or similar), means either: Director General Department administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 or: info@dwer.wa.gov.au
CIP	Means clean-in-place and is a procedure which allows the filters and membranes of the Reverse Osmosis system to be cleaned and rinsed without the need to disassemble the system.
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
Desalination process solid waste	means solid material collected on seawater intake screens, filtration devices and membranes, not including membrane backwash effluent.
diffuser	means a 160 metre long 40 port structure designed to facilitate uniform

Term	Definition
	mixing of the desalination effluent in seawater, as depicted in Figure 1.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
halocline	The vertical zone in the ocean water column in which salinity rapidly changes with depth.
licence	refers to this document, which evidences the grant of a licence by the CEO under section 57 of the EP Act, subject to the specified conditions contained within.
licence holder	refers to the occupier of the premises, being the person specified on the front of the licence as the person to whom this licence has been granted.
Low Ecological Protection Area (LEPA)	Means the area surrounding the brine discharge diffuser, as depicted in Schedule 1, Figure 4.
m ³ /s	means cubic metres per second
µS/cm	means MicroSiemen per centimetre
mg/L	means milligrams per litre
mV	means millivolts
NTU	means Nephelometric Turbidity Unit
NATA	means the National Association of Testing Authorities, Australia.
NATA accredited	means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis.
ppt	means parts per thousand
premises	refers to the premises to which this licence applies, as specified at the front of this licence and as shown on the premises maps (Figure 1 and 2) in Schedule 1 to this licence.
prescribed	has the same meaning given to that term under the EP Act.

Term	Definition
premises	
waste	has the same meaning given to that term under the EP Act.

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown in the map below (Figure 1).

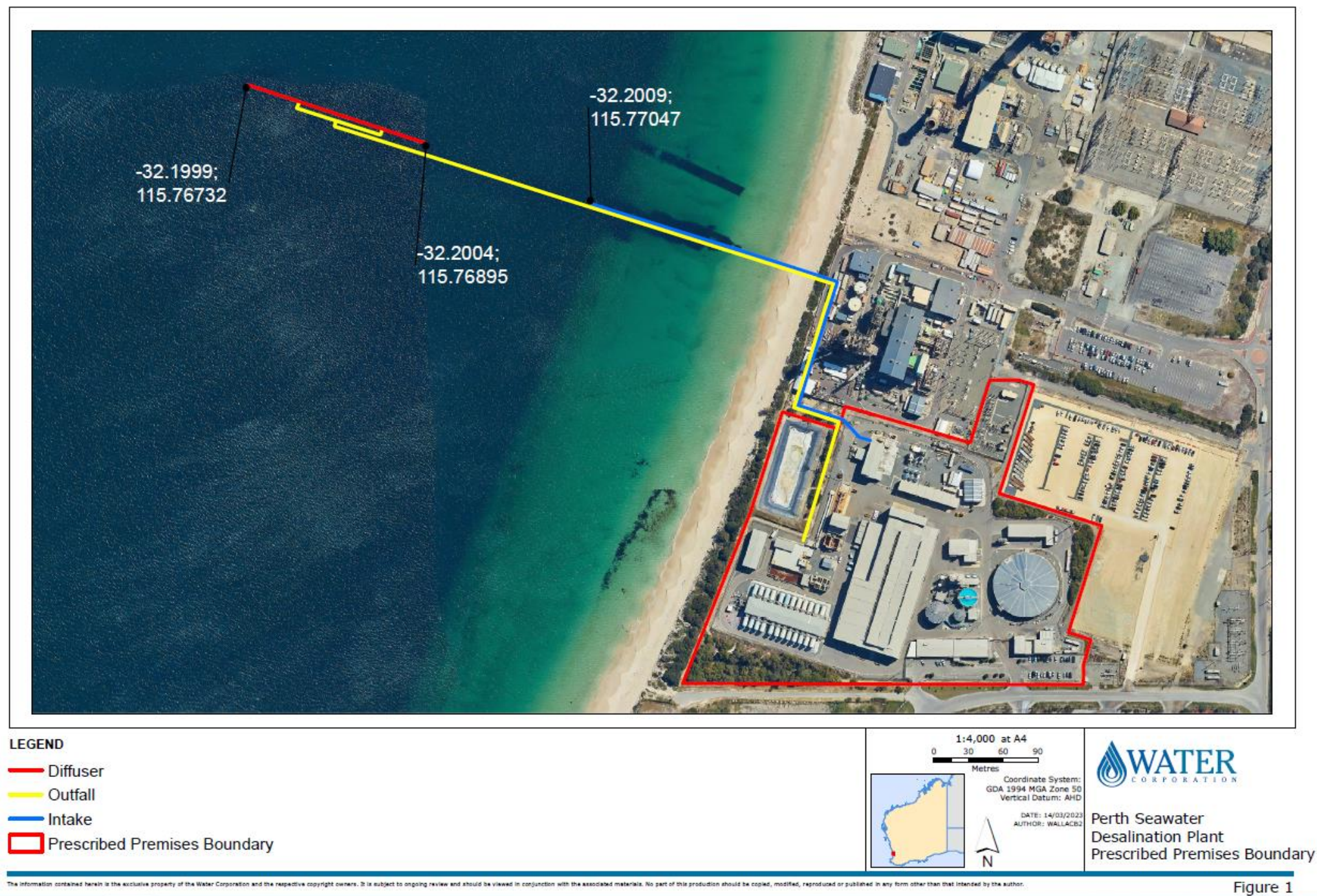


Figure 1: Map of the boundary of the prescribed premises



Figure 2

Figure 2: Infrastructure map



Figure 3: Marinemonitoringmap

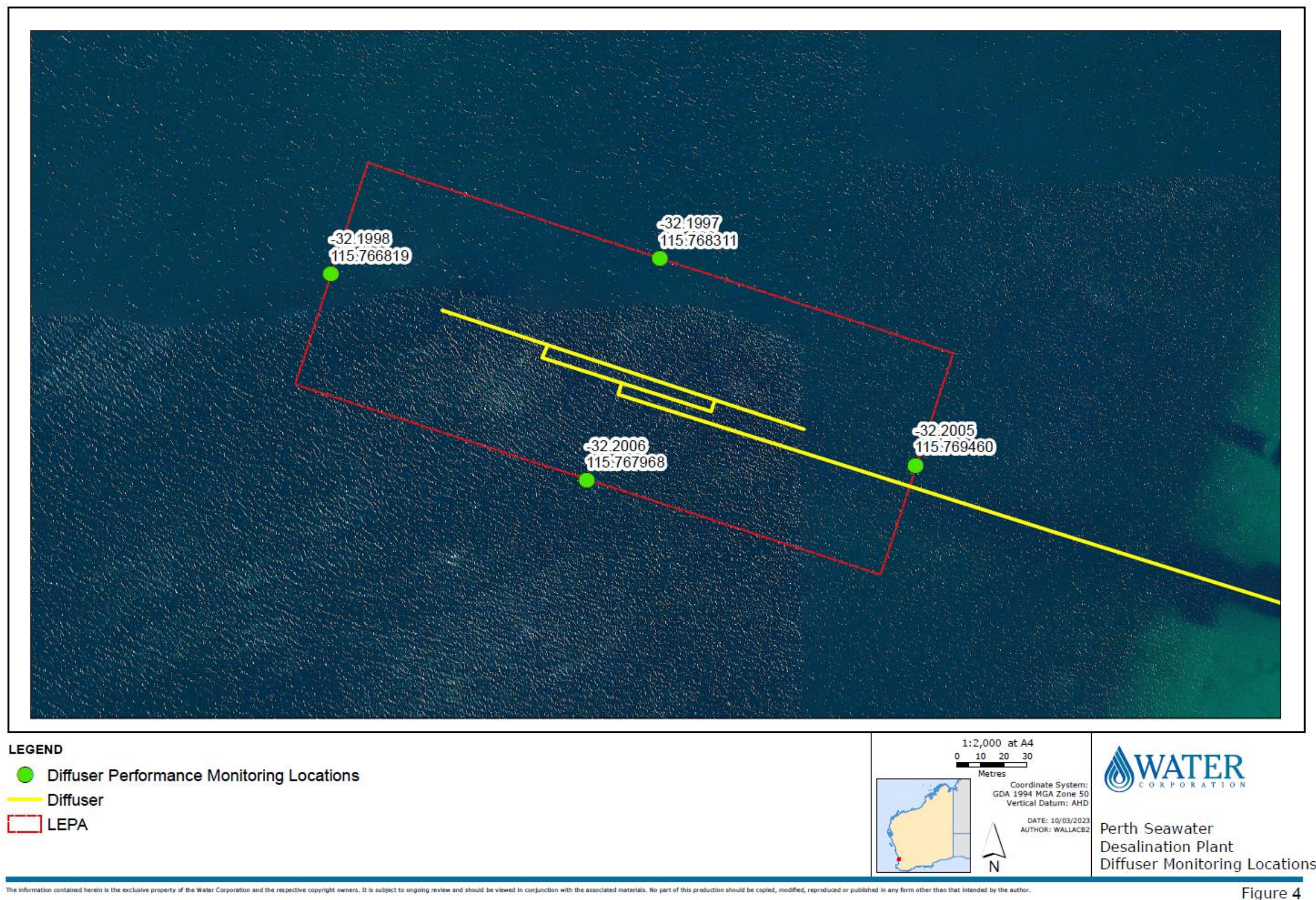


Figure 4

Figure 4: Diffuser Performance Monitoring Map

Schedule 2: Premises boundary

The corners of the premises boundary are the coordinates listed in Table 11.

Table 11: Premises boundary coordinates (GDA2020)

	Easting	Northing	Zone
1.	384191.575	6436222.270	50
2.	384278.026	6436458.257	
3.	384325.794	6436443.979	
4.	384331.765	6436463.190	
5.	384438.985	6436431.517	
6.	384456.120	6436486.036	
7.	384481.042	6436486.036	
8.	384494.283	6436481.882	
9.	384464.427	6436388.422	
10.	384552.955	6436360.124	
11.	384523.878	6436268.221	
12.	384543.609	6436262.510	
13.	384536.859	6436241.741	
14.	384536.859	6436223.828	

Schedule 3: Targets for outfall and marine water quality

Table 12: Water quality targets

Monitoring location	Parameter	Target (including units)
Outfall sample point	pH	6.7 – 8.4
	Conductivity	≤ 92, 000 µS/cm
	Turbidity	≤ 8 NTU
	Dissolved Oxygen (DO)	≥ 5 mg/L
	Salinity	≤65 ppt
Marine monitoring sites as depicted in Figure 3: DIFF50W (50H 383769 6436757) South (50H 380136 6431053) Central (50H 377908 6437643)	Salinity	± 1.4 ppt or within 5th%ile and 95th%ile of reference sites (Parmelia and OA2 as depicted in Figure 3)
	Dissolved Oxygen (DO)	DO ≥ 80% saturation, never ≤ 60% saturation
	Temperature	Temp.°C ≤ 95th%ile of reference site (Parmelia and OA2 as depicted in Figure 3)