South West Irrigation Management Cooperative

Brine Ocean Outfall – Compliance Assessment Report

Reporting From 01/06/2023 to 31/05/2024

Rev	Date	Details	Prepared By	Approved By
			Name	Name
0	07/06/2024	Draft	A.Lewis	
1	18/07/2024	Update	A.Lewis	
2	21/08/2024	Final	A.Lewis	
3				
4				

Contents

Abbreviations

CAP	Compliance Assessment Plan
CAR	Compliance Assessment Report
DMMP	Discharge Monitoring and Management Plan
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
HDPE	High Density Polyethylene
HEPA	High Ecological Protection Area
KSIA	Kemerton Strategic Industrial Area
LEPA	Low Ecological Protection Area
MEPA	Moderate Ecological Protection Area
MS	Ministerial Statement
WET	Whole Effluent Testing

1 Introduction

The Harvey Water brine pipeline conveys brine from the Kemerton Strategic Industrial Area (KSIA) to an ocean outfall. The pipeline is 315mm in diameter and designed to discharge up to 500ML/year of brine through a single outlet diffuser that is located approximately 400m offshore at an average depth of 8m. The outlet is located approximately 3km south of Binningup in the Southwest of Western Australia.

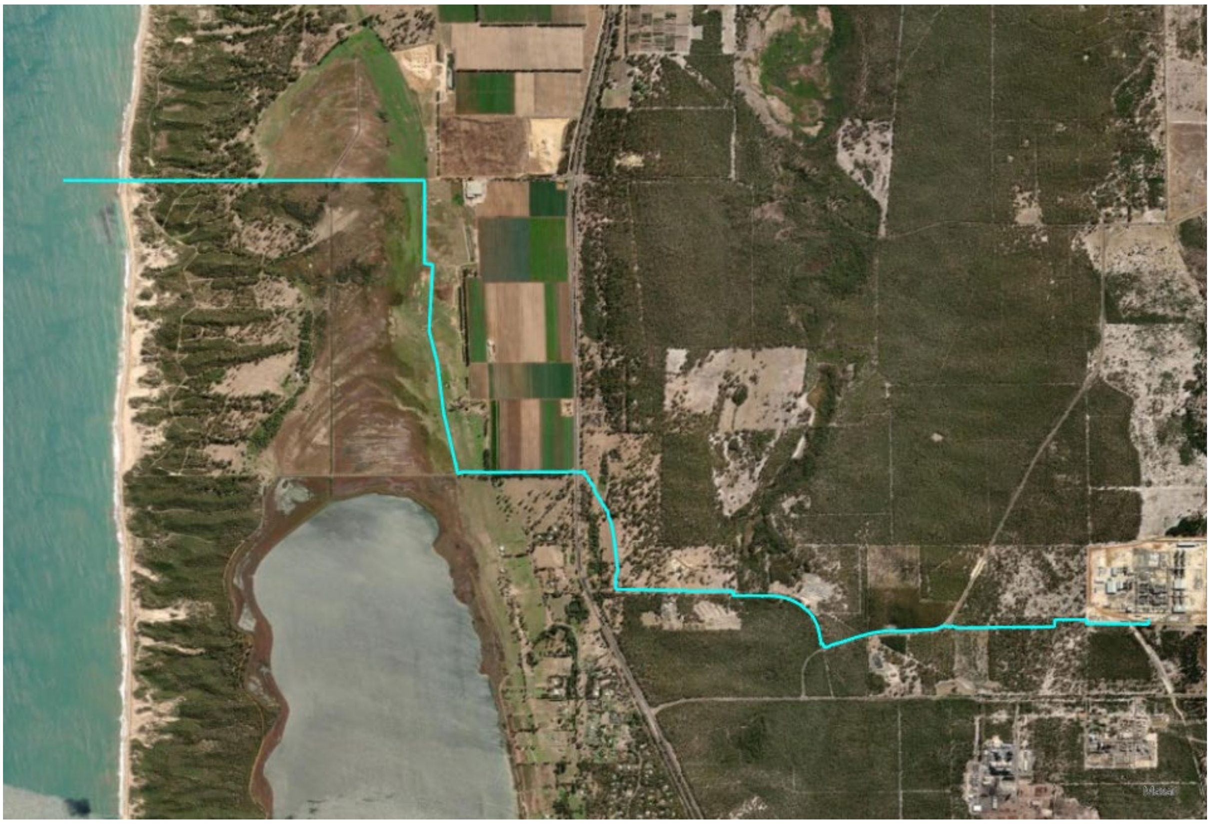


Figure 1. Route of the brine pipeline

To comply with pre-construction, construction, operating and reporting conditions in Ministerial Statement (MS) No. 1190, Harvey Water is responsible to undertake an ongoing sampling, monitoring, and reporting program. This Compliance Assessment Report (CAR) summarises the relevant phases covering a period from 01/05/2023 to 31/05/2024 inclusive.

2 Implementation Status

Construction of the brine pipeline and pump station system was completed in September 2022. Discharge of brine from the KSIA to the brine outfall commenced on 27 September 2022. Phase 1, an eight-week sampling and analysis program, commenced on the 27th September and ended on the 17th November 2022. Results from Phase 1 informed the WET testing analysis and ultimately the guideline limits for the analytes tested each month in Phase 2 of the sampling plan.

The Phase 2 sample plan, monthly testing of water quality, commenced 22nd December 2022.

To operate the brine discharge pipeline, Harvey Water is responsible for establishing baseline targets in accordance with the Environmental Quality Management Framework as described in Section 4.1. This report summarises the ongoing results as required for compliance with the Discharge Monitoring and Management Plan (DMMP).

3 Statement of Compliance

1. Proposal and Proponent Details

Proposal Title	*BRINE PIPELINE AND OUTFALL*
Statement Number	*1190*
Proponent Name	*HARVEY WATER*
Proponent's Australian Company Number *(where relevant)*	

2. Statement of Compliance Details

Reporting Period	*1/06/23* to *31/05/24*

Implementation phase(s) during reporting period (please tick ✓ relevant phase(s))							
Pre-construction		Construction		Operation	✓	Decommissioning	

Audit Table for Statement addressed in this Statement of Compliance is provided at Attachment:	2
An audit table for the Statement addressed in this Statement of Compliance must be provided as Attachment 2 to this Statement of Compliance. The audit table must be prepared and maintained in accordance with the Department of Water and Environmental Regulation (DWER) *Post Assessment Guideline for Preparing an Audit Table*, as amended from time to time. The 'Status Column' of the audit table must accurately describe the compliance status of each implementation condition and/or procedure for the reporting period of this Statement of Compliance. The terms that may be used by the proponent in the 'Status Column' of the audit table are limited to the Compliance Status Terms listed and defined in Table 1 of Attachment 2.	

Were all implementation conditions and/or procedures of the Statement complied with within the reporting period? (please tick ✓ the appropriate box)			
No (please proceed to Section 3)	✓	Yes (please proceed to Section 4)	

3. Details of Non-compliance(s) and/or Potential Non-compliance(s)

The information required Section 3 must be provided for each non-compliance or potential non-compliance identified during the reporting period covered by this Statement of Compliance.

Non-compliance/potential non-compliance 3-1

Which implementation condition or procedure was non-compliant or potentially non-compliant?
Harvey Water is potentially non-compliant with the following conditions and procedures in relation to MS 1190 and the associated CAP. **Condition 2-2** the Proponent shall implement the DMMP. **Condition 2-3** requires the Proponent to report exceedances to the CEO within two working days and within a month provide a report describing the corrective actions. **Condition 2-4** outlines that any exceedance of EQGs outlined in the DMMP should be reported to the CEO. **Condition 2-6** the Proponent shall implement the DMMP. **Condition 7-5** states that non-compliances should be reported to the CEO within seven days. **Condition 8-1** following the issue of the MS, data and management plans should be made publicly available. Environmental Quality Guideline 1 (**EQG1**) of the DMMP requires that the concentration of toxicants in the waste stream prior to discharge are below that required to protect 99% species (Levels as determined by WET testing). Environmental Quality Guideline 2 (**EQG 2**) of the DMMP requires that the salinity differential between the waste stream and natural background levels be within 20^{th} percentile. Environmental Quality Guideline 4 (**EQG 4**) of the DMMP requires that the concentration of individual chemicals (or analogues) in the waste stream prior to discharge are below that required to protect 99% species (Levels as determined by WET testing). **Monthly Sample** requirements for ocean and brine not met.
Was the implementation condition or procedure non-compliant or potentially non-compliant?
Condition 2-2 is potentially non-compliant. **Condition 2-3** is non-compliant. **Condition 2-4** is non-compliant. **Condition 2-6** is potentially non-compliant. **Condition 7-5** is non-compliant. **Condition 8-1** is potentially non-compliant. Environmental Quality Guideline 1 (**EQG1**) is potentially non-compliant.

Environmental Quality Guideline 2 (**EQG 2**) is potentially non-compliant.

Environmental Quality Guideline 4 (**EQG 4**) is potentially non-compliant.

Monthly Sample requirements are non-compliant.

On what date(s) did the non-compliance or potential non-compliance occur (if applicable)?

Condition 2-2

- EQG1: 20/05/24
- EQG2: 27/6/23, 24/4/24, 20/5/24
- EQG4: 27/6/23, 10/08/23, 29/08/23, 12/09/23, 12/02/24, 07/05/24, 20/05/24

Condition 2-3 Two days subsequent to the exceedances for 2-2.

Condition 2-4 Two days subsequent to the exceedances for 2-2.

Condition 2-6 October, November and December 2023. January and March 2024

Condition 7-5 Seven days subsequent to the exceedances for 2-2.

Condition 8-1 HW had no set date from the MS to make public.

Missed Monthly Samples October, November and December 2023. January and March 2024

Was this non-compliance or potential non-compliance reported to the Chief Executive Officer, DWER?

☐ Yes ☐ Reported to DWER verbally Date ___________
☐ Reported to DWER in writing Date ___________

☑ No

What are the details of the non-compliance or potential non-compliance and where relevant, the extent of and impacts associated with the non-compliance or potential non-compliance?

5 reporting months were not sampled for brine or for ocean results for the 2023-2024 reporting period:

- 2023: October, November, December
- 2024: January, March

Results from the brine sampling that exceed the limits provided in the DMMP are noted below.

	Units	Limits	27/06/2023	10/08/2023	29/08/2023	12/09/2023	12/02/2024	7/05/2024	20/05/2024
Zinc (Zn)	mg/L	1.16565							2
Phosphonates (PBTC)	mg/L	0.625	1.28	1.52	24	28	56	10	13

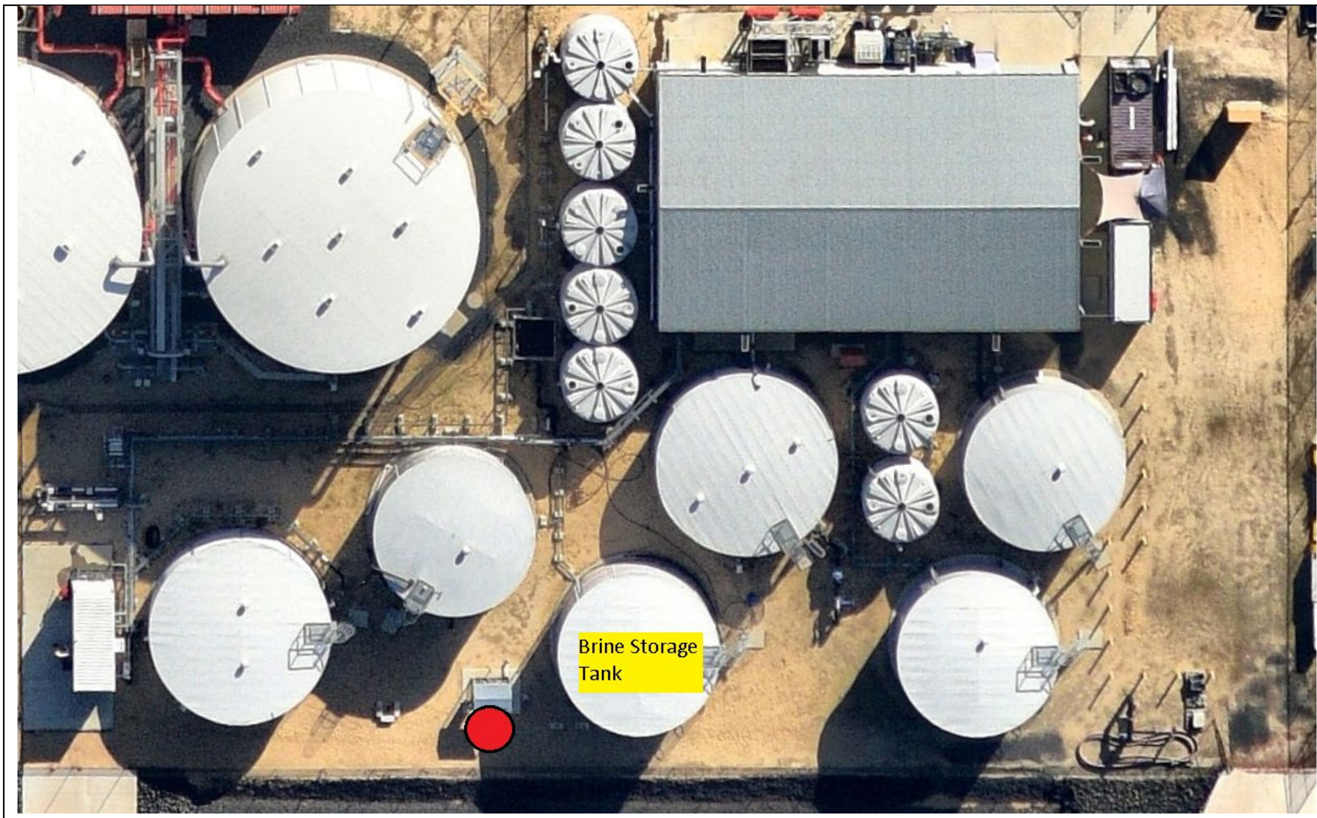
Molybdate	mg/L	14					40		

What is the precise location where the non-compliance or potential non-compliance occurred (if applicable)? (please provide this information as a map or GIS co-ordinates)

Brine samples taken at the brine pump skid sample tap, located at the treatment plant site post brine storage tank.

Coordinates:
-33.208188, 115.759314

Location of sample point in relation to overall pipe route

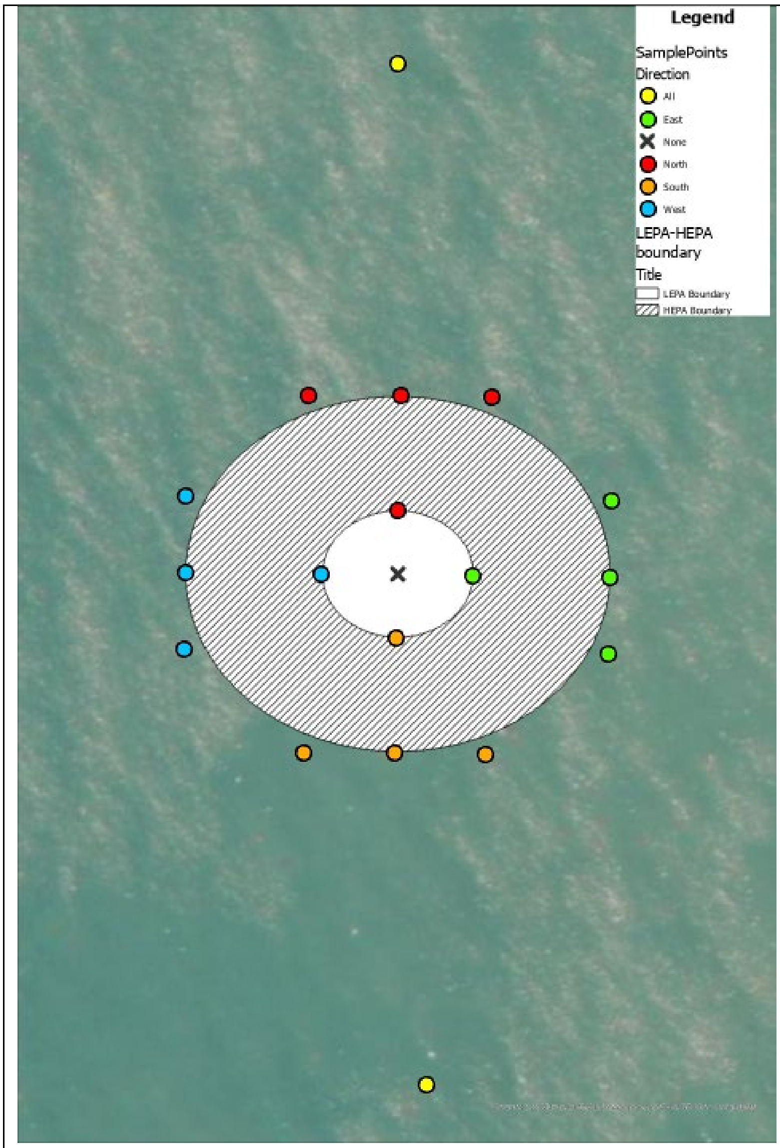


Location of sample point in relation to WTP and brine storage tanks

Ocean samples taken at the HEPA and LEPA boundaries around the ocean outfall diffuser location, located approximately 500m offshore form Binningup beach.

Outfall Coordinates:

-33.175668, 115.678997



What was the cause(s) of the non-compliance or potential non-compliance?
Condition 2-2 The cause of the potential non-compliance was unknown during this reporting period. **Condition 2-3** Harvey Water was not aware of the exceedances and therefore were not reported. **Condition 2-4** Harvey Water was not aware of the exceedances and therefore were not reported. **Condition 2-6** Harvey Water procedures were not in place to manage sampling following staff departure. **Condition 7-5** Harvey Water was not aware of the exceedances and therefore were not reported. **Condition 8-1** Harvey Water procedures were not in place to publish information. **Monthly Sampling** Harvey Water procedures were not in place to manage sampling following staff departure.

What remedial and/or corrective action(s), if any, were taken or are proposed to be taken in response to the non-compliance or potential non-compliance?
27th November 2023 Harvey Water began discussion with Albemarle for the return stream into the RO system to be tested using the onsite labs and reported to Harvey Water daily. This information will be tabulated and monitored by Harvey Water to ensure the quality of the return stream in future operations and assist in early alert for non-compliant water.
What measures, if any, were in place to prevent the non-compliance or potential non-compliance before it occurred? What, if any, amendments have been made to those measures to prevent re-occurrence?
Measures before non-Compliance - Calendar schedule for sample requirements - Sample result recording in ongoing register Amendments following non-compliance: - Improved procedures and duties for staff. - Improved communication with source water provider (Albemarle), including daily reports for incoming water for select parameters, ongoing reporting of brine results via email and plana scenario for shutdown of disposal pumping. - Monthly internal reporting to Harvey Water board to confirm compliance. - Training of additional staff for ability to cover any leave and staff rotations. - The monthly schedule for sampling has now been shared to more staff who will have a shared responsibility to ensure the sapling is done, results are recorded and reviewed then reported to the board to ensure the sapling has been undertaken and are within the acceptable range. WET testing Following the non-compliance readings, Harvey Water has begun undertaking a WET ecotoxicity testing to confirm readings are in breach of the EQG's outlined in the DMMP and information will be reassessed following the results of the WET test.
Please provide information/documentation collected and recorded in relation to this implementation condition or procedure: • in the reporting period addressed in this Statement of Compliance; and • as outlined in the approved Compliance Assessment Plan for the Statement addressed in this Statement of Compliance. (the above information may be provided as an attachment to this Statement of Compliance)

For additional non-compliance or potential non-compliance, please duplicate this page as required.

4. Proponent Declaration

I, …………………………………….......................………….., *(full name and position title)*

declare that I am authorised on behalf of ……………………………..…………………………

(being the person responsible for the proposal) to submit this form and that the information contained in this form is true and not misleading.

Signature:... Date:...................................

Please note that:

- it is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give or cause to be given information that to his knowledge is false or misleading in a material particular; and
- the Chief Executive Officer of the DWER has powers under section 47(2) of the *Environmental Protection Act 1986* to require reports and information about implementation of the proposal to which the statement relates and compliance with the implementation conditions.

5. Submission of Statement of Compliance

One hard copy and one electronic copy (preferably PDF on CD or thumb drive) of the Statement of Compliance are required to be submitted to the Chief Executive Officer, DWER, marked to the attention of Manager, Compliance (Ministerial Statements).

Please note, the DWER has adopted a procedure of providing written acknowledgment of receipt of all Statements of Compliance submitted by the proponent, however, the DWER does not approve Statements of Compliance.

6. Contact Information

Queries regarding Statements of Compliance, or other issues of compliance relevant to a Statement may be directed to Compliance (Ministerial Statements), DWER:

Manager, Compliance (Ministerial Statements)

Department of Water and Environmental Regulation

Postal Address:	Locked Bag 10 Joondalup DC WA 6919
Phone:	(08) 6364 7000
Email:	compliance@dwer.wa.gov.au

7. Post Assessment Guidelines and Forms

Post assessment documents can be found at www.epa.wa.gov.au

4 Details of Declared Compliance Status

4.1 Environmental Monitoring Plan/Program

4.1.1 Construction

Construction of the pipe was completed in September 2022 and included 9700 m of buried 315 mm high density polyethylene (HDPE) pipe via firebreaks and cleared areas, and a 1080 m drillshot of 280 mm HDPE pipe under the dunes to the ocean outfall diffuser, concluding approximately 3 km south of the town of Binningup (Figure 2).

The brine pipeline and ocean outfall was constructed in accordance with Ministerial Statement No. 1190, with details of compliance with Environmental Protection Authority (EPA) and Department of Water and Environmental Regulation (DWER) as detailed in the Construction report attached in Appendix D. Construction was contained within the Development Envelope and clearing limits were not exceeded.

The brine pipeline and ocean outfall were designed by engineering consultants GHD Pty Ltd. In accordance with Ministerial Statement No. 1190, the maximum pipeline was constructed with HDPE pipe ranging in size from 125 mm diameter to a maximum of 315 mm diameter. All pipe welding was undertaken by accredited welders.

The construction crew undertook daily pre-start meetings and checks prior to the commencement of work, with daily flora and fauna checks undertaken as detailed on the daily pre-start forms and end of day check sheets.

The majority of the pipeline was installed using standard excavation and backfill methods, however some sections of pipeline were installed utilising directional drilling techniques to provide for installation of the pipeline under roads and sand dunes prior to installation of the pipeline and diffuser into the ocean. The final coordinates of the brine outlet diffuser are 33°10’32.41126”, 115°40’44.38462.

The construction envelope for the brine pipeline was in accordance with Ministerial Statement No. 1190. Clearing of any vegetation has been minimised as much as possible, with example photos of cleared areas collected. All records have been stored and compiled in the Construction report in Appendix D.

In accordance with Ministerial Statement No. 1190, fauna inspections were carried out at the beginning and end of each shift throughout the construction phase of the works. On 5th July 2022, a deceased Southern Desert Banded Snake was discovered in the construction area. It is noted that the observation record report was filled out on the 6th July 2022 by the construction team whilst the observation was recorded in daily check sheets on 5th July 2022.

Dewatering was not undertaken during the construction works.

The design of the brine pipeline route and construction activities avoided the disturbance of acid sulphate soils. Acid sulphate soils were not encountered during the construction of the brine pipeline.

Figure 2. View of the directional drill install of the brine pipeline

4.1.2 Commissioning

The sampling and analysis program for the first eight weeks (Phase 1) of operations comprised three main components:

- Whole Effluent Testing (WET) of brine samples. The WET tests provide details of the required dilution rates to achieve a 99% species protection level in the receiving marine environment.

- Brine testing to determine the quality of brine being discharged from the KSIA to the ocean outfall.

- Marine testing to measure the chloride and salinity levels at predetermined locations around the ocean outlet to confirm the dilution rates at the boundary of the High Ecological Protection Area (HEPA) and the Low Ecological Protection Area (LEPA).

4.1.2.1 Whole Effluent Testing

Two brine samples have been taken with a suite of bioassays used to assess the toxicity of each brine sample on the marine environment on 4/10/22 and 22/11/22. WET test analysis was undertaken in accordance with the protocol outlined in ANZECC/ARMCANZ (2000) and ANZG (2018). The following bioassay tests were undertaken to determine the toxicity of the brine samples:

- 15-min Acute Microtox Bioassay

- 72-hour Microalgal Growth Bioassay – *Isochrysis galbana*
- 72-hour Microalgal Growth Bioassay – *Nitzschia closterium*
- 72-hour Microalgal Zoospore Germination Bioassay
- 48-hour Mollusc Larval Development Bioassay
- 1-hour Sea Urchin Fertilisation Bioassay
- 72-hour Sea Urchin Larval Development Bioassay
- 5-7 day Copepod Larval Development Bioassay
- 7-day Fish Larval Development Bioassay
- Species Sensitivity Distribution Analysis

A summary of the species protection trigger values and dilution factors is provided in Table 1.

WET Test Results

WET Test Sample	Level of Species Protection	Trigger Value (% Sample)	Dilution Factor Required
1	99%	3.4	29.4
	95%	5.4	18.5
	90%	6.9	14.5
	80%	9.3	10.8
2	99%	0.27	**370**
	95%	1.7	58.9
	90%	3.6	27.8
	80%	8.0	12.5

In accordance with EPA (2017), ANZECC (2000), the guidelines for the Levels of Ecological Protection (LEP's) are the basis for the EGQ's, being:

- Undisturbed (i.e. HEPA) – recommended 99% species protection guideline trigger levels for toxicant in waters.
- Slightly to moderately disturbed (i.e. MEPA) – recommended 90% species protection guideline trigger levels for toxicant in waters.
- Highly disturbed (i.e. LEPA) – for toxicants with potential to adversely bioaccumulate or biomagnifies, recommended 80% species protection guideline trigger levels for toxicant in waters.

Based on the above, and considering the results summarised in Table 1, the brine sample for WET Test 2 requires a greater level of dilution for the required species protection levels. Therefore, Harvey Water adopted the following dilution levels for operation of the brine outfall:

- HEPA provide 99% species protection with a minimum dilution factor of 370

- MEPA provide 90% species protection with a minimum dilution factor of 58.9
- LEPA provide 80% species protection with a minimum dilution factor of 12.5.

4.1.2.2 Brine Testing

The brine from the plant has been sampled and analysed for a range of analytes to record water quality of the brine discharged through the ocean outfall. The brine was sampled twice per week for an initial monitoring period of eight weeks in Phase 1. Results are summarised in Table 2, including minimum, maximum, and average concentrations of each analyte. Following the completion of the Phase 1 eight-week sampling period, the Phase 2 sampling program of monthly testing for the brine water quality commenced.

Brine Testing Results

		Minimum	Maximum	Average
Chemical Characterisation				
Vanadium	mg/L	0.002	0.003	0.00225
Cr (IV)	mg/L	<0.001	<0.001	<0.001
Cr (III)	mg/L	<0.001	<0.001	<0.001
Chromium (Cr)	mg/L	0.002	0.005	0.002938
Cobalt (Co)	mg/L	0.001	0.002	0.0011
Nickel (Ni)	mg/L	0.004	0.009	0.005688
Copper (Cu)	mg/L	0.001	0.011	0.006438
Zinc (Zn)	mg/L	0.14	0.24	0.200625
Silver (Ag)	mg/L	<0.001	<0.001	<0.001
Cadmium (Cd)	mg/L	0.0006	0.2	0.015139
Lead (Pb)	mg/L	0.001	0.006	0.003
Mercury (Hg)	mg/L	<0.00005	<0.00005	<0.00005
Salinity	mg/L	2400	3800	2875
Chloride	mg/L	890	1800	1216.25
Nitrate as N	mg/L	0.001	1.1	0.578214
THPS (Biocide)	mg/L	0.3	2.5	0.916667
Phosphonates (PBTC)	mg/L	<0.05	<0.05	<0.05
Phosphonates (HEDP)	mg/L	<0.05	<0.05	<0.05
Polyacrylate	mg/L	<0.1	<0.1	<0.1
Azole	mg/L	<0.1	0.4	<0.1
Molybdate	mg/L	1	14	4.5

These analysis results have been used to develop the EQG 1 and 4 parameters. Results of the testing are reported in the relevant table in Appendix C.

4.1.2.3 EQG1

From the WET testing goal of 99% HEPA protection, the dilution factor required is 370. based on the equations outlined in the DMMP, Table 3 has been prepared to provide the limit to the toxicant in the brine stream samples.

Table 1. Dilution Factor for EQG1

	Dilution Factor	99% factor	Existing Ambient	Brine Limit

Nitrate as N	mg/L	370	0.7	0.1	**222.1**
Vanadium	mg/L	370	0.05	0.002	**17.762**
Cr (IV)	mg/L	370	0.00014	0.000025	**0.043**
Cr (III)	mg/L	370	0.0077	0.000025	**2.840**
Chromium (Cr)	mg/L	370	0.0044	0.0002	**1.554**
Cobalt (Co)	mg/L	370	0.001	0.00001	**0.366**
Nickel (Ni)	mg/L	370	0.007	0.001	**2.221**
Copper (Cu)	mg/L	370	0.0003	0.00008	**0.081**
Zinc (Zn)	mg/L	370	0.0033	0.00015	**1.166**
Silver (Ag)	mg/L	370	0.0008	0.0000007	**0.296**
Cadmium (Cd)	mg/L	370	0.0007	0.000005	**0.257**
Lead (Pb)	mg/L	370	0.0022	0.00002	**0.807**
Mercury (Hg)	mg/L	370	0.0001	0.0000004	**0.037**

4.1.2.4 EQG4

EQG 4 requires the concentration of each process chemical (or analogue) prior to discharge to be below the concentration outlined in the initial 8 week commissioning test for 80% LEPA protection.

Table 4 outlines the chemical limits for this EQG, levels calculated to minimise any risk of environmental impact from the brine outfall.

Table 2. Dilution Factor for EQG4

		Max reported from Commissioning	Dilution factor	Max allowable
Sodium Molybdate	mg/L	As Molybdate	As Molybdate	As Molybdate
THPS (Biocide)	mg/L	2.5	12.5	31.25
Phosphonates (PBTC)	mg/L	0.05	12.5	0.625
Phosphonates (HEDP)	mg/L	0.05	12.5	0.625
Polyacrylate	mg/L	0.1	12.5	1.25
Azole	mg/L	0.1	12.5	1.25
Molybdate	mg/L	12	12.5	150

4.1.2.5 Marine Sampling

During the eight-week commissioning period of the brine discharge pipeline, monthly marine samples have been taken at the LEPA and HEPA locations surrounding the outlet as shown in figure 3. Each sample was analysed for chloride and salinity to confirm compliance with EQG 2. Reference samples have been taken to both the north and south of the outlet due to possible changes in the prevailing wind and tidal direction.

In addition to the marine samples taken for laboratory analysis, vertical CTD profiles of the water column at each marine monitoring site were undertaken to allow accurate characterisation of the salinity levels at each point on the HEPA-LEPA boundary.

Results for both tests are reported in Appendix C.

4.1.2.6 EQG2

EQG 2 refers to the salinity differential in marine waters at the LEPA/HEPA boundary and the reference site. This difference should be 2.5 PSU or less, with the conversion factor of: 1 PSU = 1000mg/L salinity.

Table 5 presents the results from the sampling schedule and confirms compliance with EQG2.

Table 5. Marine salinity results mg/L

All Values in mg/L	27/06/2023	10/08/2023	29/08/2023	14/09/2023	9/02/2024	24/04/2024	20/05/2024
Reference +2.5 PSU	*37200*	*37100*	*37350*	*38050*	*39200*	*38400*	*38150*
Reference South	34700	34600	34850	35550	36700	35900	35650
Reference -2.5 PSU	*32200*	*32100*	*32350*	*33050*	*34200*	*33400*	*33150*
LEPA	34850	34550	34900	35550	36750	36000	35600
HEPA Central	34450	34600	34900	35550	36700	35850	35700
HEPA North	33950	34600	34900	35550	36750	35800	35950
HEPA South	34500	34600	34900	35500	36750	35800	35950
Reference +2.5 PSU	*36700*	*37050*	*37450*	*38000*	*39250*	*38200*	*38250*
Reference North	34200	34550	34950	35500	36750	35700	35750
Reference -2.5 PSU	*31700*	*32050*	*32450*	*33000*	*34250*	*33200*	*33250*

4.1.2.7 EQG3

EQG 3 refers to the number of dilutions between the outlet and the LEPA/HEPA boundary required to achieve a 99% species protection level. Table 6 confirms that dilution rates meet the required minimum value.

Table 6. Marine Dilution Calculation

EQG3 - Dilution Min: 370	27/06/2023	10/08/2023	29/08/2023	14/09/2023	9/02/2024	24/04/2024	20/05/2024
Salinity	4600	4700	3700	2300	6200	3500	4300
HEPA result	34500	34600	34900	35550	36750	35850	35950
Dilution	597	1195	623	1329	1221	646	125.6

4.1.3 Operation

Regular ongoing sampling and monitoring has followed the eight (8) week commissioning period, with the dates of samples compiled in Table 7. The sampling plan now consists of a monthly brine sample taken only from the current brine source; Albemarle process water, at the brine tank sample point. This is sampled on the same day or as close as possible to the day that the ocean sampling is undertaken at sea. Using the sampling plan outlined in Harvey Waters DMMP and commissioning report (Appendix D), ocean sampling includes six (6) locations that will have a water sample taken (0.5m depth) for lab analysis of chlorine and salinity, and a CTD taken at the same location(Figure 3).

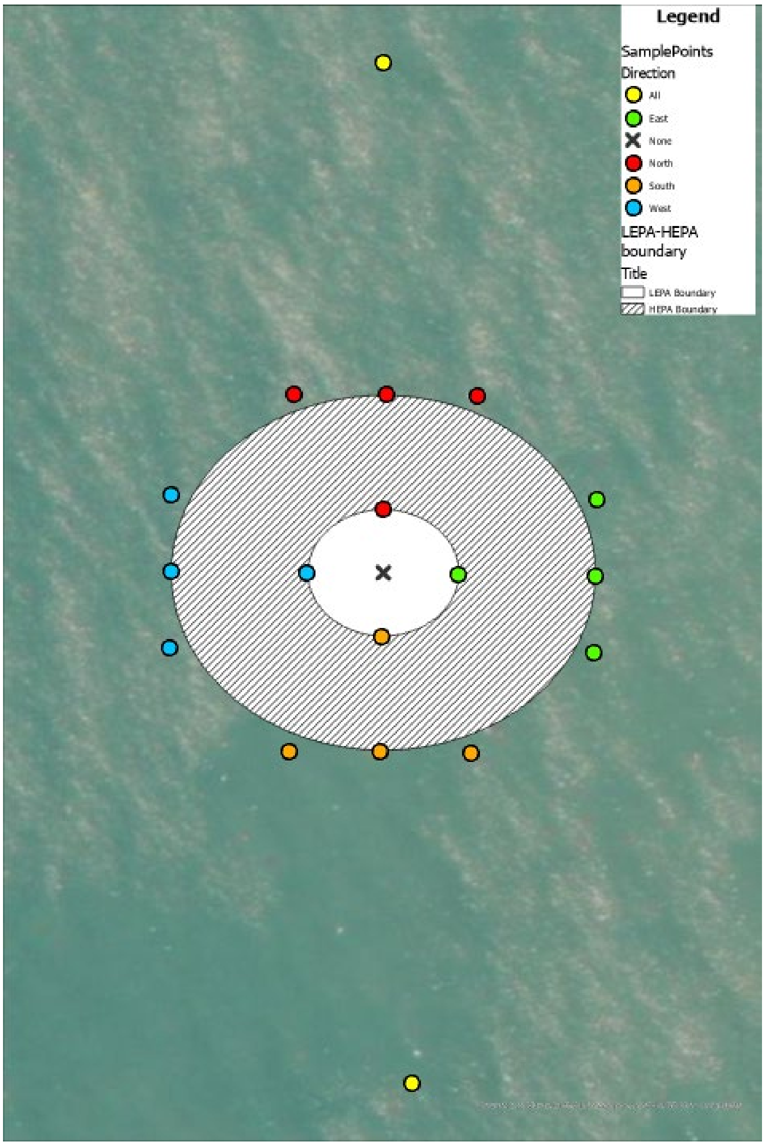


Figure 3. Ocean Sampling Location

The results for these samples are provided in Appendix A for the lab analysis results and in Appendix C for the compiled data and EQG compliances.

Table 7. Sample Dates

Phase 1	27/06/2023	10/08/2023	29/08/2023	14/09/2023	9/02/2024	24/04/2024	20/05/2024
Site Brine	✓	✓	✓	✓	✓	✓	✓
CTD	✓	✓	✓	✓	✓	✓	✓

Marine samples	✓	✓	✓	✓	✓	✓	✓

4.1.4 Overall statement

The Harvey Water brine pipeline and outfall sampling of the discharge water and surrounding waters this reporting year has had a number of non-compliance readings outlined in attachment 2 for EQG 4. The raw data for the non-compliances can be found in Appendix A for the lab analysis results and in Appendix C for the compiled data and EQG compliances.

4.2 Supporting Information and Documentation

A flow meter is used to monitor the volume of brine discharged through the pipeline, with the monthly logging of the meter readings reported in Table 8.

Table 8. Brine Outfall Meter Reading

Date	Meter Reading (kL)	Monthly use (kL)	Reportable Year (kL)	
31/05/2023	7,419	1,150	7,419	2022-23
21/06/2023	8,368	949		2023-24
28/07/2023	10,034	1,666		
31/08/2023	11,567	1,533		
27/09/2023	12,686	1,119		
27/10/2023	14,281	1,595		
29/11/2023	15,894	1,613		
19/12/2023	17,842	1,948		
31/01/2023	19,555	1,713		
27/02/2024	21,104	1,549		
28/03/2024	22,653	1,549		
26/04/2024	24,447	1,794		
28/05/2024	26,801	2,354	19,382	

Harvey Water has a feedback form for the brine project available through the appropriate project page on the Harvey water website. Following construction, there have been no recorded questions or complaints logged via through this format. Furthermore, there have been no complaints in person or by alternate methods (Phone, email, etc.).

4.3 Raw Data

Reviewed in Attachment 2 and Section 5.1.4 the data does not support compliance.

All raw data from laboratory analysis are provided in Appendix A.

Operational data from the plant producing the brine is included in Appendix C

5 Other Information

No additional information has been presented with this 2023 – 2024 CAR

ATTACHMENT 1

Table 1 Compliance Status Terms

Compliance Status Terms	Abbrev	Definition	Notes
Compliant	C	Implementation of the proposal has been carried out in accordance with the requirements of the audit element.	This term applies to audit elements with: • ongoing requirements that have been met during the reporting period; and • requirements with a finite period of application that have been met during the reporting period, but whose status has not yet been classified as 'completed'.
Completed	CLD	A requirement with a finite period of application has been satisfactorily completed.	This term may only be used where: • audit elements have a finite period of application (e.g. construction activities, development of a document); • the action has been satisfactorily completed; and • the DWER has provided written acceptance of 'completed' status for the audit element.
Not required at this stage	NR	The requirements of the audit element were not triggered during the reporting period.	This should be consistent with the 'Phase' column of the audit table.
Potentially Non-compliant	PNC	Possible or likely failure to meet the requirements of the audit element.	This term may apply where during the reporting period the proponent has identified a potential non-compliance and has not yet finalized its investigations to determine whether non-compliance has occurred.
Non-compliant	NC	Implementation of the proposal has not been carried out in accordance with the requirements of the audit element.	This term applies where the requirements of the audit element are not "complete" have not been met during the reporting period.
In Process	IP	Where an audit element requires a management or monitoring plan be submitted to the DWER or another government agency for approval, that submission has been made and no further information or changes have been requested by the DWER or the other government agency and assessment by the DWER or other government agency for approval is still pending.	**The term 'In Process' may not be used for any purpose other than that stated in the Definition Column.** The term 'In Process' may not be used to describe the compliance status of an implementation condition and/or procedure that requires implementation throughout the life of the project (e.g. implementation of a management plan).

Note:

- Phases that apply in this table = Pre-Construction, Construction, Operation, Decommissioning, Overall (several phases).
- This audit table is a summary and timetable of conditions and commitments applying to this project. Refer to the Minister's Statement for full detail/precise wording of individual elements.
- Code prefixes: M = Minister's condition, P = Proponent's commitment.
- Acronyms list: CEO = Chief Executive Officer of OEPA; DEC = Department of Environment Regulation; DPAW = Department of Parks and Wildlife; DIA = Department of Indigenous Affairs; DMP = Department of Mining and Petroleum; DWER = Department of Water and Environmental Regulation; EPA = Environmental Protection Authority; DoH = Department of Health; DoW = Department of Water, Minister for Env = Minister for the Environment; OEPA = Office of the Environmental Protection Authority.
- Compliance Status: C = Compliant, CLD = Completed, NA = Not Audited, NC = Non – compliant, NR = Not Required at this stage. Please note the terms VR = Verification Required and IP = In Process are only for OEPA use.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1-1	Limitations and Extent of Proposal	When implementing the proposal, the proponent shall ensure the proposal does not exceed the following extents: **Proposal element** | **Location** | **Maximum extent or range** Physical elements Brine wastewater pipeline | Figure 1 | Up to 315 mm in diameter Development envelope | Figure 1 | 17.16 ha Clearing of native vegetation | Figure 1 | Up to 0.27 ha Clearing of Priority 3 ecological community Banksia Woodlands of the Swan Coastal Plain | Figure 1 | No more than 0.14 ha Clearing of foraging habitat for black cockatoos | Figure 1 | No more than 0.17 ha Clearing of western ringtail possum habitat | Figure 1 | No more than 0.05 ha Construction dewatering | Figure 1 | Between 1 March to 30 June in any year Operational elements Ocean outfall | Figure 2 | No more than 500 ML/year, at ambient density less than seawater.	Clearing records. GIS ground disturbance layers Outfall volumes Construction dewatering records (if applicable)	Annual CAR	Overall	Ongoing	C	Construction of pipeline complete. Construction Report submitted including physical element results. The construction envelope for the brine pipeline was in accordance with the MS. Clearing of any vegetation has been minimised as much as possible by installation in firebreaks, road verge and previously cleared areas. Brine ocean outfall recording on 28/05/24: **19,382kL** From the licenced limit of 500,000kL
2-1	Marine Environmental Quality – Discharge Monitoring and Management Plan	The proponent shall ensure there are no project attributable impacts on the following environmental outcome: (1) The environmental values of Ecosystem Health, Fishing and Aquaculture, Recreation and Aesthetics and Cultural and Spiritual are protected and for Ecosystem Health the levels of ecological protection are no lower than the low and high ecological protection levels for the 'Low Ecological Protection Area' and the 'High Ecological Protection Area' respectively, as delineated and shown in Figure 2.	WET testing to be undertaken on brine discharge to determine minimum dilution level to ensure 99% species protection guideline trigger levels as per the Discharge Monitoring and Management Plan	Annual CAR	Overall	Ongoing	C	2 x WET testing undertaken on the brine produced on 4/10/22 and 22/11/22 .
2-2	Marine Environmental Quality – Discharge	The proponent shall implement the Discharge Monitoring and Management Plan (March 2022) (the Plan) which specifies: (1) how the outcome of condition 2-1(1) will be met;	Sampling and monitoring program in accordance with the Discharge Monitoring and Management Plan (March 2022) and the Compliance Assessment Plan	Annual CAR	Overall	Ongoing	(1) C	(1) As part of commissioning report, Appendix D.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
	Monitoring and Management Plan	(2) that within the Low Ecological Protection Area, the proponent shall achieve the 80% species protection guideline 'trigger' levels for bio-accumulating toxicants as defined in the ANZG; (3) that within the High Ecological Protection Area, the proponent shall protect all the environmental values and for ecosystem integrity achieve the 99% species protection guideline 'trigger' levels for toxicants as defined in the ANZG; (4) the environmental quality guidelines relevant to this discharge that will be achieved to protect all environmental values, including the levels of ecological protection; (5) the environmental quality standards relevant to this discharge that will be achieved to protect all environmental values; (6) the monitoring and evaluation, including remodelling, of the social and environmental effects of discharging wastewater into the marine environment off Binningup to assess performance against the environmental outcome; (7) the specific management and monitoring actions that will be implemented in the event the environmental quality standards are not met, including the option of modifying the diffuser to increase dilution; (8) a program to undertake whole-of-effluent toxicity testing of treated wastewater; (9) the reporting procedures, including the format, timing, and frequency for the reporting of monitoring data against the relevant environmental quality guidelines and environmental quality standards and the outcome of condition 2-1(1).					(2) NC (3) NC (4) NC (5) NC (6) NC (7) NC (8) C (9) C	(2) Noncompliance in sample results. WET test will confirm (3) Noncompliance in sample results WET test will confirm (4) Noncompliance in sample results WET test will confirm (5) Noncompliance in sample results WET test will confirm (6) Some months missed in sample schedule (7) Modifications not implemented immediately following noncompliance (8) WET testing programme with commissioning report completed (Appendix D) (9) Timing for CAR met
2-3	Marine Environmental Quality – Discharge Monitoring and Management Plan	In the event that an environmental quality standard referred to in condition 2-2(5) is exceeded, the proponent shall: (1) report the matter to the CEO within two (2) working days and discuss the corrective actions that will be investigated; (2) within one month of the exceedance provide a report to the CEO describing the corrective actions being taken to meet the environmental quality standards and ensure the environmental values are protected; (3) continue implementing the corrective actions until the CEO has provided advice by notice in writing that the outcome of condition 2-1(1) is being met.	Report exceedance within two working days and report of corrective actions within one month.	Notification to the CEO within two working days, with report of findings and corrective actions within one month.	Overall	In the event that an environmental quality standard referred to in condition 2-2(5) is exceeded, report to the CEO within two (2) working days and provide a report within one month.	NC	Breaches have not been reported
2-4	Marine Environmental Quality – Discharge Monitoring and Management Plan	The exceedance of an environmental quality standard and/or failure to comply with the requirements of the Plan represents a non-compliance with these conditions.	Report exceedance within two working days and report of corrective actions within one month	Notification to the CEO within two working days, with report of findings and corrective actions within one month	Overall	In the event of an exceedance of an environmental quality standard, report to the CEO within two working days and provide a report within one month	NC	Exceedances of EQG Exceedances not reported. WET test will confirm breach

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
2-5	Marine Environmental Quality – Discharge Monitoring and Management Plan	The proponent: (1) may review and revise the Discharge Monitoring and Management Plan; or (2) must review and revise the Discharge Monitoring and Management Plan as and when directed by the CEO.	Review and revise Discharge Monitoring and Management Plan	Revised DMMP CEO notification letter to revise CEO letter of approval of revision	Overall	As required or when requested by CEO	NR	No request for review given as of date of report submission
2-6	Marine Environmental Quality – Discharge Monitoring and Management Plan	The proponent shall implement the Discharge Monitoring and Management Plan (March 2022) or the most recent version of the Plan, which the CEO has confirmed by notice in writing, satisfies the requirements of condition 2-2.	Implement the most recent version of the Discharge Monitoring and Management Plan	Annual CAR	Overall	Ongoing	NC	Implemented following receival of: "*Ministerial Statement 1190 – Harvey Water – Brine Pipeline And Outfall – Compliance Assessment Plan Approval*" Non-compliance attributed to months missed in monitoring schedule
3-1	Construction Impacts – Inland Waters	The proponent shall minimise project attributable impacts to conservation category wetlands during construction activities by managing soil and groundwater disturbing activities in accordance with the Acid Sulfate Soil Guideline Series Identification and investigation of acid sulfate soils and acidic landscapes (2015) and Treatment and management of soil and water in acid sulfate soil landscapes (2015), or any approved update of these guidelines.	Groundwater shall not be exposed, extracted or dewatered unless the appropriate approval has been obtained from the Department of Water and Environmental Regulation	Annual CAR	Construction		**CLD**	Construction of pipeline complete utilising DWER's acid sulphate soil guidelines
4-1	Terrestrial Fauna	The proponent shall undertake the following actions to minimise impacts to terrestrial fauna during pipeline excavation: (1) clear and record trapped fauna from within open trenches, using a suitably trained and licensed fauna handler, within one (1) hour prior to backfilling of trenches; (2) ensure open trench lengths shall not exceed a length capable of being inspected and cleared by a suitably trained and licensed fauna handler within the required times set out in condition 4-1(1); (3) in the event of rainfall, and following the clearing of fauna from the trench, pump out any pooled water in the open trench (with the exception of groundwater) and discharge it to adjacent vegetated areas in a manner that does not cause erosion; (4) produce and provide a report on fauna management within the pipeline corridor no later than twenty-one (21) days after the completion of construction activities to the CEO. The report shall include the following: a) details of fauna inspections; b) the number and type of fauna cleared from trenches and actions taken; and c) vertebrate fauna mortalities.	Clear and record trapped fauna from open trenches within one hour prior to backfilling of trenches. Ensure open trench lengths are capable of being inspected cy a trained and licensed fauna handler.	Report on fauna management no more than 21 days after the completion of construction activities	Construction	During pipeline excavation. Record trapped fauna within one hour prior to backfilling trenches. Report to the CEO on fauna management due 21 days after completion of construction activities.	**CLD**	Construction of pipeline complete using Harvey Water practices to minimise impact to fauna. One record of fauna noted through constructions, included in construction report attached in Appendix D No rainfall or groundwater required pumping
5-1	Contact Details	The proponent shall notify the CEO of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty-eight (28) days of such change. Where the	Notify the CEO in writing of any change in the proponent details.	Copy of written notification to the CEO of any change of	Overall	Within 28 days of a change in name, physical address, or postal address.	NR	No changes to corporation details

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.		proponent detail.				
6-1	Time Limit for Proposal Implementation	The proponent shall not commence implementation of the proposal after five (5) years from the date of this Statement, and any commencement, prior to this date, must be substantial.	Commence implementation of the proposal.	Annual CAR	Overall	By 25 May 2027	**CLD**	Construction complete September 2022. Construction report included in Appendix D
6-2	Time Limit for Proposal Implementation	Any commencement of implementation of the proposal, on or before five (5) years from the date of this Statement, must be demonstrated as substantial by providing the CEO with written evidence, on or before the expiration of five (5) years from the date of this Statement.	Provide evidence to the CEO in writing to demonstrate the proposal has substantially commenced. Include photographs.	Annual CAR	Overall	On or before 25 May 2027	**CLD**	Construction complete September 2022. Construction report included in Appendix D
7-1	Compliance Reporting	The proponent shall prepare and maintain a Compliance Assessment Plan which is submitted to the CEO at least six (6) months prior to the first Compliance Assessment Report required by condition 7-6, or prior to implementation of the proposal, whichever is sooner.	Prepare and submit a Compliance Assessment Plan to the CEO	Approved CAP or evidence of submission	Overall	Before 25 February 2023 or prior to implementation of the proposal, whichever is sooner.	**CLD**	CAP submitted 12/5/23. Email confirmation of CAP approval received from DWER 10/01/24
7-2	Compliance Reporting	The Compliance Assessment Plan shall indicate: (1) the frequency of compliance reporting; (2) the approach and timing of compliance assessments; (3) the retention of compliance assessments; (4) the method of reporting of potential non-compliances and corrective actions taken; (5) the table of contents of Compliance Assessment Reports; and (6) public availability of Compliance Assessment Reports.	Compliance Assessment Plan prepared in accordance with condition 7-1.	Approved CAP	Overall	Before 25 February 2023 or prior to implementation of the proposal, whichever is sooner.	**CLD**	CAP submitted 12/5/23. Email confirmation of CAP approval received from DWER 10/01/24
7-3	Compliance Reporting	After receiving notice in writing from the CEO that the Compliance Assessment Plan satisfies the requirements of condition 7-2 the proponent shall assess compliance with conditions in accordance with the Compliance Assessment Plan required by condition 7-1.	Assess compliance in accordance with approved Compliance Assessment Plan	Annual CAR	Overall	By 25 August 2023 and annually thereafter, addressing the previous twelve months.	C	CAR 2023 – 2024 submitted by scheduled date 25th August 20241
7-4	Compliance Reporting	The proponent shall retain reports of all compliance assessments described in the Compliance Assessment Plan required by condition 7-1 and shall make those reports available when requested by the CEO.	Assess compliance in accordance with approved Compliance Assessment Plan	Annual CAR	Overall	Annually, or as requested by the CEO	C	All sample results have been saved digitally in Harvey waters records. No request given to make reports available as of submission of the report.
7-5	Compliance Reporting	The proponent shall advise the CEO of any potential non-compliance within seven (7) days of that non-compliance being known.	Written notification to the CEO	Copy of written notification to the CEO	Overall	Within 7 days of a potential non-compliance being known.	NC	Non compliances not reported. WET test will confirm exceedances
7-6	Compliance Reporting	The proponent shall submit to the CEO the first Compliance Assessment Report fifteen (15) months from the date of issue of this Statement addressing the twelve (12) month period from the date of issue of this Statement and then annually from the date of submission of the first Compliance Assessment Report, or as otherwise agreed in writing by the CEO. The Compliance Assessment Report shall: (1) be endorsed by the proponent's Chief Executive Officer or a person delegated to sign on the Chief Executive Officer's behalf;	Submit the first annual CAR by the 25 August 2023 and subsequent CARs annually from the date of the initial CAR submission	Annual CAR	Overall	By 25 August 2023 and annually thereafter, (unless approved from a different date), addressing the previous twelve months.	C	Date for submission met

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		(2) include a statement as to whether the proponent has complied with the conditions; (3) identify all potential non-compliances and describe corrective and preventative actions taken; (4) be made publicly available in accordance with the approved Compliance Assessment Plan; and (5) indicate any proposed changes to the Compliance Assessment Plan required by condition 7-1.						
8-1	Public Availability of Data	Subject to condition 8-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal, the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)), management plans and reports relevant to the assessment of this proposal and implementation of this Statement.	Make publicly available all validated environmental data relevant to the assessment of this proposal and implementation of Statement 1190	Annual CAR	Overall	Ongoing	NC	Plan not available online. Awaiting confirmation from DWER CEO to publish.
8-2	Public Availability of Data	If any data referred to in condition 8-1 contains particulars of: (1) a secret formula or process; or (2) confidential commercially sensitive information, the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.	Submit request to CEO to keep sensitive information confidential.	Correspondence with CEO	Overall	Ongoing	NA	Not applicable