



Application for Licence Amendment

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L4404/1991/15
Licence Holder	Harvey Fresh (1994) Ltd
ACN	065 591 219
File Number	DWERVT2474
Premises	<p>Harvey Fresh Dairy and Juice Factories Third Street HARVEY WA 6229</p> <p>Legal description –</p> <p>Lot 1 on Diagram 4786, Lots 20 and 22 on Plan 2344, Lots 187, 189 and 190 on Plan 202110, Lot 200 on Diagram 66494, Lots 33, 34, 35 and 36 on Plan 205324, and Lots 191 and 192 on Plan 202109</p> <p>As defined by the Premises maps attached to the Revised Licence</p>
Date of Report	18 December 2023
Proposed Decision	Revised licence granted

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1. Decision summary

Licence L4404/1991/15 is held by Harvey Fresh (1984) Ltd (licence holder) for the Harvey Fresh Dairy and Juice Factories, (Harvey Fresh, the premises), located at Third Street, Harvey, WA, 6229.

This Amendment Report documents the assessment of potential risks to the environment and public health from emissions and discharges emitted during the construction and operation of the proposed works on the premises. As a result of this assessment, revised licence L4404/1991/15 has been granted.

The revised licence issued because of this amendment supersedes the licence previously granted in relation to the premises.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Application summary

Harvey Fresh holds licence L4404/1991/15 for milk processing (Category 17) and non-alcoholic beverage (juice) manufacturing (Category 24) at the premises with processing facilities located approximately 1.5 km north of Harvey on the Swan Coastal Plain, approximately 120 km south of Perth.

On 24 August 2023 the licence holder submitted an application to the department to amend licence L4404/1991/15 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The application was prepared by South West Irrigation Management Co-operative (Harvey Water) to support a future proposal by Harvey Water to take treated wastewater from Harvey Fresh and transfer the wastewater to Harvey Dam for disposal and re-use (not this application)

The following amendments are being sought:

- Approval to install and operate a new ultraviolet (UV) and chlorination wastewater treatment facility with 5x 50kL polyethylene above ground storage tanks.
- Associated on-site wastewater transfer pipelines from the existing SBR Plant to the proposed treatment plant and from the treatment plant to the boundary of the premises for future connection to an off-site transfer pipeline.

The new wastewater treatment plant will treat wastewater before discharging from the Harvey Frsh premises into a 'still to be' constructed Harvey Water managed pipeline that will convey the wastewater for discharge into Harvey Dam.

This application only assesses and authorises the proposed works and infrastructure located on the Harvey Fresh premises and does **not assess or authorise the discharge into the Harvey Water managed pipeline and Harvey Dam.**

This aspect of the proposal is subject to a separate works approval application.

This amendment does not change the existing assessed production capacities to Categories 17 and 24. This amendment relates only to the wastewater generated from the existing milk and juice processing, including treatment and off-site disposal from the existing licence.

2.3 Background

The juice factory was established in 1986, followed by the dairy factory in 1989. The premises covers several individual land titles which are physically separated by a gazetted road but are linked via wastewater disposal infrastructure.

Currently wastewater generated from the milk and juice processing facilities is combined and treated through a dissolved air floatation (DAF) clarification system and a dual sequence batch reactor (SBR) system prior to being discharged to storage ponds 1 and 2. The existing licence then authorises disposal via irrigation of up to 85.2 ha of pasture (L4, L5, L7 and L8).

2.4 Proposed construction

The proposed wastewater treatment and storage infrastructure and equipment includes:

- Ultraviolet disinfection system housed in a 20-foot container, capable of treating a maximum of 3 ML/day. The system includes a UV sterilizer validated for a 2-log reduction with a 316SS reactor house, opti-cone flow diverter and electrically actuated 3-ring wiper cleaning system.
- Sodium hypochlorite dosing and pumped recirculation system housed in a 20-foot container with five 50 kL tanks on a sand pad hardstand. Tanks provide sufficient volume for a minimum of 30 minutes residence time required for chlorine disinfection.
- Proposed pump set to deliver disinfected treated recycled water from Harvey Fresh to Harvey Dam. The pumps set will contain a flow meter to measure all outgoing volumes and additional flow meter will be located at the Harvey Dam to determine leakage issues.
- Proposed inline continuous samplers for chlorine, pH and turbidity and a general wastewater sampling tap.
- Proposed 3-way valve capable off diverting wastewater to the existing onsite storage pond (Pond 3) within the Harvey Fresh premises.

The wastewater pipeline within the Harvey Fresh premises includes:

- DN200 below-ground pipeline from the existing SBR decant line through to the proposed UV disinfection system (530m in length).
- DN150 below-ground pipeline from the proposed UV infection system to the five 50 kL storage tanks and their proposed sodium hypochlorite dosing system.
- DN150 below-ground pipeline from the proposed storage tanks to the Harvey Fresh boundary (500 m in length)

A sand pad will be created, and tanks and containers craned in and placed on site. Pipes will be installed connecting the existing wastewater treatment plant to the new treatment plant, between the new treatment plant and storage tanks and from the tanks to leaving site with a diversion to the existing storage pond 3.

2.5 Proposed operations

The licence holder has indicated that a current average of 1,000 kL/day is treated through the existing wastewater treatment plant up to a maximum of 1,400 kL/day. Stormwater is captured and directed through the existing wastewater treatment system that can elevate wastewater levels to 2,500 kL/day. It is anticipated that the average throughput to the proposed UV and chlorination wastewater treatment plant will remain at an average of 1,000 kL/day with a daily maximum of 2,500 kL/day and a total annual throughput of 365,000 kL/year.

Treated wastewater from the existing wastewater treatment plant will be directed to either

ponds 1 and 2 for on-site irrigation or to the proposed WWTP before being dosed with a 12.5% solution of sodium hypochlorite on the inlet to the five 50 kL recirculation / storage tanks. The system will operate to maintain a free chlorine residual in the range of 0.2 to 2.0 mg/L at the point of discharge to the Harvey Water pipeline, hence a higher free chlorine residual will be maintained at Harvey Fresh to allow for chlorine decay in transit.

Wastewater will sit within the storage tanks for a minimum of 30 minutes residency time to allow for chlorine disinfection. On the chlorination outlet treated wastewater will be directed through inline continuous samplers for chlorine, pH, and turbidity. If treated wastewater compliance limits (see section 2.6) are not met for any of these parameter's, wastewater will be diverted automatically from the storage tanks to the adjacent holding pond (pond 3) which has a 30 ML capacity (equating to 30 days storage). Several other parameters will be sampled and analysed monthly from the chlorination outlet (see section 2.6).

Environmental commissioning of the proposed WWTP with discharge to existing wastewater storage pond 3 (constructed under W6463/2020/1) has been requested indicating that frequent sampling of the water quality will occur to verify treatment.

The delegated officer has determined that environmental commissioning of the proposed WWTP can be undertaken during operations once the Environmental Compliance Report has been submitted. However, no wastewater may be discharged from the premises until such time as a works approval has been granted authorizing this off-site discharge.

2.6 Proposed wastewater disposal water quality

Table 1 outlines the licence holder's sampling program and water quality limits for discharge through the pipeline to the Harvey Dam. Compliance limits have been set by the Department of Health (DoH).

Table 1: Proposed water quality discharge compliance limits and sampling set by Harvey Fresh and the Department of Health

Parmeter	Proposed compliance limits *Denotes set by DoH	Sample Point	
		UV Outlet	Chlorination Outlet
<i>E. coli</i>	<1 cfu / 100 ml*		Monthly
Biological Oxygen Demand (BOD)	<20 mg/L*		Monthly
Total Suspended Solids (TSS)	<20 mg/L*		Monthly
pH	6.5 – 8.5*		Continuous online
Free chlorine residual	0.2 – 2.0 mg/L*		Continuous online
Turbidity	<2 NTU (95%ile)* <5 NTU*		Continuous online
Ultra Violet (UV)	Intensity drop <25% at 254 nm* UVT . 75 %* UV dose 40 – 70 mJ/cm ² *	Continuous online	
Coliphages	<1 cfu / 100 ml*		Monthly
Clostridia	<1 cfu / 100 ml*		Monthly

Parameter	Proposed compliance limits *Denotes set by DoH	Sample Point	
		UV Outlet	Chlorination Outlet
Ammonia as N	<10 mg/L		Monthly
Nitrate as N	<10 mg/L		Monthly
Nitrite as N	<10 mg/L		Monthly
Kjedahl Nitrogen	<10 mg/L		Monthly
Total Nitrogen	<15 mg/L		Monthly
Total Phosphorus	<5 mg/L		Monthly
Total Dissolved Solids (TDS)	2000 mg/L		Monthly
Conductivity (EC)	2500 µS/cm		Monthly
Thermotolerant Coliforms	<1cfu / 100 ml		Monthly
Total Coliforms	<1cfu / 100 ml		Monthly
Chloride	140 mg/L		Monthly
Total Alkalinity	300 mg/L		Monthly

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2020).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this Amendment Report are detailed in Table 2 below. Table 2 also details the proposed control measures the licence holder has proposed to assist in controlling these emissions, where necessary.

Table 2: Licence holder controls

Emission	Sources	Potential pathways	Proposed controls
Nutrient and salt laden wastewater from the SBR transferred to and from the WWTP and	Transfer of wastewater through pipelines and storage within above ground tanks.	Overtopping from tanks and leaks and spills from ruptured pipelines resulting in infiltration to soil, surface and ground	High level sensors on tanks. Early alert alarm for high and high-high tank levels. Alerts sent to HMI and email alert. Existing 30ML pond (Pond 3) for

Emission	Sources	Potential pathways	Proposed controls
stored within 5 x polyethylene tanks		water	excess wastewater.

3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the delegated officer has excluded employees, visitors and contractors of the licence holder from its assessment. Protection of these parties often involves different exposure risks and prevention strategies and is provided for under other state legislation.

Table 3 below provides a summary of potential human and environmental receptors that may be impacted because of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020)).

Table 3: Sensitive human and environmental receptors and distance from prescribed activity

Residential and sensitive receptors	Distance from proposed WWTP
Residential premises	Residential premises located within 660m east, 750 m northeast, 765m northwest, 765 m west, 890 m southwest of the proposed WWTP.
Environmental receptors	Distance from prescribed activity
Geomorphic Wetlands – Swan Coastal Plain (management)	Proposed WWTP area located within: Swan Coastal Plain – Semeniuk, Palusplain (seasonally waterlogged) multiple use wetland
<i>Environmental Protection (Peel Inlet – Harvey Estuary) Policy 1992 (EPP)</i>	Proposed WWTP area (and premises) are entirely within the EPP with the Premises being identified in the Hydrological and Nutrient Modelling of the Peel Harvey Catchment – Water Science Technical Series Report and the Agriculture Futures: Potential rural land uses on the Palusplain as being in a high-risk nutrient export area requiring a significant phosphorus load reduction. (DWER, 2019). River health surveys carried out by Aquatic Science Branch of DWER showed that the Harvey River downstream of the premises has significantly degraded water quality and ecological condition compared to upstream.
Surface water	The proposed WWTP area is located within the Harvey Irrigation District proclaimed under the Rights in Water and Irrigation Act 1914 (RIWI Act). The Harvey Dam is located 4 km SE of the proposed WWTP. The Harvey Main Drain, a modified section of the Harvey River, is located 374 m southwest, of the proposed WWTP area. A minor, non-perennial river is located 170 m northeast of the proposed WWTP area which flows into the existing agricultural drainage network. Existing agricultural drainage networks are located adjacent (north) and further west and south of the proposed WWTP area. These drainage networks flow to the Harvey River Main drain discharging into the Harvey Estuary approximately 40 km downstream. DWER Water Services advice states that there is connectivity between the perched and seasonal groundwater and the Harvey River drainage network, and as such, any nutrient leaching from groundwater or surface flows can directly impact

	on the quality of the Harvey River (Harvey Estuary).
Groundwater Rights to Water and Irrigation Act 1914 (RIWI)	The South West Coastal Groundwater Area, proclaimed under the RIWI Act, is located 5.3 km NW of the proposed WWTP area. There are approximately 50 groundwater bores within a 3 km radius of the premises, most of which are for production purposes associated with livestock and domestic requirements.

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and considers potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the licence holder has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the delegated officer considers the licence holder’s proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the licence holder’s controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

The Revised Licence L4404/1991/15 that accompanies this Amendment Report authorises emissions associated with the operation of the premises i.e. wastewater treatment and storage activities. The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 4. Risk assessment of potential emissions and discharges from the Premises during construction and operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Justification for additional regulatory controls	Regulatory controls – conditions of licence.
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence holder's controls			
Construction							
Placement of sand pad, tanks, wastewater treatment container and pipeline.	Dust	Air/windborne pathway causing impacts to amenity	Residences 660m east, 750 m northeast, 765m northwest, 765 m west, 890 m southwest of the proposed WWTP.	No controls	Minimal local scale impact to amenity C = Slight The risk event may only occur in exceptional circumstances. L = Rare Low Risk	A sand pad is spread via earthworks with tanks, and containers containing chlorination and UV treatment placed onto the sand pad adjacent to the operating dairy and juice factory. The pipeline are place underground. The delegated officer does not reasonably foresee off site impacts from dust or noise above the existing factory levels and has assessed the risk as low.	N/A
	Noise						N/A
Operation							
Operating of UV and chlorination wastewater treatment plant with storage tanks and transferring wastewater through pipelines to existing storage ponds.	Spills, overtopping and leaks of nutrient and salt laden wastewater from containments when processed through the WWTP	Overland runoff of nutrient and salt rich wastewater from WWTP, contaminating soil, groundwater and surface waters.	Entire site lies within a palusplain and Peel-Harvey EPP, Harvey River is 374m southwest and irrigation drainage 170 m northeast of the WWTP, 50 bores users within 3 km radius of the WWTP.	Sensors and alarms for high and high-high levels, and alerts sent to HMI and emails. Existing 30 MI pond for storage.	Mid-level onsite impacts, low level local scale impacts C = Moderate The risk event may only occur in exceptional circumstances. L = Rare Medium Risk	Treated wastewater from the SRB is directed for UV treatment and then chlorinated and held in tanks for a minimum of 30 minutes before being discharge through a pipeline either offsite or to an existing wastewater holding pond. The licence holder's controls consist of sensors, alerts and alarms to prevent leaks, spills and overtopping from containments. The delegated officer considered the risk of spills, leaks and overtopping to be medium. The licence holder's controls were assessed and were considered acceptable to mitigate against the risk of spills, leaks and overtopping. The delegated officer determined to apply the licence holder's infrastructure and operation requirements as they are considered critical for maintaining an acceptable level of risk to the receiving environment.	N/A

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2020).

4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Shire of Harvey Authority advised of proposal 27 September 2023	No response received.	The delegated officer noted that the application submitted by the licence holder contained Shire of Harvey approval for the groundworks and installation of the tanks at Third Street Harvey dated 25 July 2023.
Other stakeholder – invited to comment on the proposal on 27 September 2023	Stakeholder replied on the 29 September 2023 raising the following concerns: <ul style="list-style-type: none"> Requested more information about the pipeline to Harvey Dam Possibility of leakage from existing wastewater treatment ponds Requested information on the chemical composition of the wastewater that will be discharged off-site into the Harvey Water pipeline 	The existing wastewater treatment ponds are lined and are managed under the existing licence and are not being re-assessed as part of this licence amendment. The discharge of wastewater from the Harvey Fresh premises will be the subject of a separate works approval application, to which the stakeholder will be consulted if an application is received.
Licence Holder was provided with draft amendment on 23 October 2023	Licence holder responded on the 30 November 2023 Refer to Appendix 1	Refer to Appendix 1

5. Decision

Based on this assessment in this Amendment report, the delegated officer has determined to grant a licence amendment to authorise the construction and operation of a UV and chlorination WWTP, associated wastewater storage tanks and on-site wastewater transfer pipelines.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Health, 2023, *Record Number DWERDT785400: Email approval in principle for wastewater discharge from Harvey Fresh to Harvey Dam*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2023, *Licence L4404/1991/15 Harvey Fresh (1994) Ltd*, Perth, Western Australia
4. DWER 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
5. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
6. Harvey Fresh 1984 Ltd, 2023, *Submitted application and supporting documents for a licence amendment to L4404/1991/15*, Harvey, Western Australia.

Appendix 1: Summary of licence holder's comments on risk assessment and draft conditions

Condition	Summary of licence holder's comment	Department's response
Amendment Report		
Section 2.4	Change DN150 to DN200 for the below-ground pipeline from the existing SBR decant line through to the proposed UV disinfection system (530m in length).	Amendment Report has been updated.
Section 2.5 Discharge through pipeline	Licence holder requested that the current annual throughput of 365,000 kL be removed to allow future increases. Licence holder has requested that all treated wastewater is directed through the UV chlorine dosing plant before directed to the pipeline, deleting the option for treated wastewater to be stored in ponds 1 and 2 before irrigation.	The delegated officer will keep the existing application applied throughput to the pipeline as 365,000 kL. Over doubling the discharge at this late stage in the amendment process would require a new assessment. The licence holder can apply for a licence amendment should it wish to increase throughput to the pipeline.
Section 2.5 Pond 3	The licence holder has submitted and Environmental Compliance Report (ECR) / Critical Containment Infrastructure Report (CCIR) relating to pond 3 on the 29 November 2023.	The delegated officer has assessed the ECR/CCIR and determined that Pond 3 can be used under time limited operations under works approval W6463/2020/1 (noting that it expires on the 11 May 2024). A future licence amendment will be required for ongoing use.
Section 2.6 Table 1 Proposed water quality	The licence holder has requested to change TDS concentration limit from 1500 to 2000 mg/L so it aligns to Harvey Water application and community information disseminated. Licence holder requested that conductivity is removed as Harvey Water have not raised it as a parameter to be measured,	Amendment Report has been updated and TDS has been changed. Conductivity will remain as the Harvey Water assessment has not occurred and the nature of the discharge is salty, indicating that measuring salt levels may provide beneficial understanding of water quality and ecological impacts.
Section 4.1.1 Table 2, Applicant controls	The licence holder has submitted and Environmental Compliance Report (ECR) / Critical Containment Infrastructure Report (CCIR) relating to pond 3 on the 29 November 2023.	The delegated officer has assessed the ECR/CCIR and determined that Pond 3 can be used under time limited operations under works approval W6463/2020/1 (noting that it expires on the 11 May 2024). A future licence amendment will be required for ongoing use.
Licence Amendment		
History table	Licence holder has requested the 1,000 kL per day of wastewater through the pipeline is changed to 2,500 kL/day	The delegated officer will keep the existing application applied throughput to the pipeline as 1,000 kL/day. This amendment does not allow the licence holder to discharge treated wastewater through the pipeline, therefore changes to the volume of wastewater discharged have not been assessed at this stage.
Conditions 7,8, 9, 10, 11	Licence holder have highlighted these conditions indicating that they could be removed	The delegated officer considers conditions 7 to 10 met and can be removed from the licence. Condition 11 has not been demonstrated in full and will remain in the licence.