



## Application for a licence amendment

Division 3, Part V *Environmental Protection Act 1986*

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<b>Licence number</b>	L8870/2014/1
<b>Licence holder</b>	Tronox Pigment Bunbury Ltd
<b>ACN</b>	008 683 627
<b>File number</b>	DER2014/003202-1~3
<b>Premises</b>	Kemerton Pigment Plant 869 Marriott Road, WELLESLEY WA 6233
	Legal description - Part Lot 1 on Plan 73196
<b>Date of report</b>	09 May 2024
<b>Decision</b>	Amendment granted

## 1. Amendment description

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the existing licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is hereby given under section 59B(9) of the EP Act.

This amendment is limited to upgrades to the ocean outfall pipeline diffuser and updating licence holder and premises names.

In completing the assessment documented in this 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>.

### 1.1 Purpose and scope of assessment

Tronox Pigment Bunbury Pty (licence holder) submitted an application to the Department of Water and Environmental Regulation (DWER, department) on the 2 February 2024 to amend licence L8870/2014/1. The proposed amendment is seeking approval to upgrade the diffuser on the ocean outfall pipeline and update the licence holder legal and premises names.

### 1.2 Background

The licence holder operates the Kemerton Pigment Plant within the Kemerton Industrial Park at 869 Marriott Road, WELLESLEY (the premises), 15 km northeast of Bunbury. The licence holder processes titanium ore, zircon and other materials and manufactures titanium dioxide pigment, speciality-grade titanium dioxide products and high-purity titanium chemicals, producing titanium dioxide chemicals for use in pigments, powders, and catalysts.

As part of the chemical manufacturing process, the licence holder discharges treated wastewater via an ocean outfall pipeline. The existing diffuser at the end of the pipeline was licence in 1989 through licence L1697. Treated wastewater from the plant predominantly contains calcium chloride with trace concentrations of metals and is discharged into coastal waters at Buffalo Beach north of Bunbury via the existing multiport diffuser.

## 2. Proposed amendment

The licence holder is seeking approval to upgrade the diffuser on the ocean outfall pipeline with minor changes to the diffuser design to accommodate the lower-grade feedstock ore resulting in changes to both chloride concentration and volume of discharge to the ocean outfall pipeline. The discharge will remain within the existing licence Condition 2.3 limits for hourly discharge rate and total dissolved solids (TDS) concentrations. See Table 1 for existing discharge, proposed discharge, and existing conditioned limits for flow rates and TDS concentrations level.

**Table 1: Existing and proposed diffuser output (from licence holder)**

	Existing licence Condition limit 2.3 Table 2.3.2	Existing diffuser output	Proposed typical output	Proposed high flow output
Flow rate (m <sup>3</sup> /hour)	190	123.4	150	172
Salinity mg/L (TDS)	55,000	23,000	51,000	51,000
Density at 22°C (kg/m <sup>3</sup> )	n/a	1015.2	1036.1	1036.1

The upgrade to the diffuser at the ocean outfall pipeline will change the configuration of the equipment. The proposed diffuser design will change the configuration from having six diffuser ports within a 2 m spacing to three ports with a 4 m spacing and increase the maximum flow rate from 142 m<sup>3</sup>/hour to 172 m<sup>3</sup>/hour.

The diffuser upgrade will occur within the ocean at the outfall pipeline and consist of:

- Cleaning the original diffuser components (removal of marine growth) to allow for disassembling and a dimensional survey
- Disassembling the original diffuser components and removing components from the site, and
- Installing new diffuser components, with all pre-fabrication occurring on land.

The licence holder will undertake environmental commissioning of the proposed upgrade diffuser consisting of 2 phases with monitoring.

- Phase 1 will operate under existing operation conditions with 3 week of monitoring at existing monitoring points.
- Phase 2 will operate under normal conditions with the increased discharge (flow rate above 150 m<sup>3</sup>/hour) and higher salinity levels (TDS levels higher than phase 1), with a 3-week monitoring at existing monitoring points.

It is noted that within the existing licence (Condition 3.4.1, Table 3.4.4) monitoring of ambient bio monitor health -whole effluent toxicity (WET) testing is undertaken every three years. This involves sampling for microalgae, sea urchins, bivalves, macroalgae and yellow-tail kingfish. The last monitoring occurred in February 2024 with the next monitoring to be undertaken in 2027. The existing licence condition provides a before and after testing event to determine any changes to plant and animal bio-health from the increased salinity and volume.

The licence holder changed the name from Cristal Pigment Australia Ltd to Tronox Pigment Bunbury Ltd in July 2019, accordingly, the legal licence holder and premises names have changed (see Table 2), however, the registered Australian Company Number remains the same. The name change coincides with the change in parent companies to Tronox Limited.

**Table 2: Proposed licence holder and premises name changes**

	Existing	Proposed
<b>Licence holder name</b>	Cristal Pigment Australia Ltd	Tronox Pigment Bunbury Ltd
<b>Premises name</b>	Kemerton Titanium Dioxide Processing Plant	Kemerton Pigment Plant

## 2.1 DWER review of the changes to the ocean outfall.

The licence holder undertook an outfall assessment (*Tronox Outfall Upgrade – Conceptual Design and Dispersion Modelling*, BMT 2022) (modelling report) to assess the compliance of the proposed diffuser to accommodate lower grade feedstock which will change the outfall discharge rate (volume) and concentrations of salinity against the existing regulatory requirements.

The model report used established models VPlumes and TUFLOW FV and it was determined that the considerations, assumptions, and limitations of the model were appropriate and conservative. The modelled scenarios covering the two discharge conditions under a series of longshore current velocities were appropriate.

It was determined that the modelling report required further information on the proposed lower-grade ore elements and compounds to determine that parameters other than salinity are not a parameter of concern. Follow-up information provided by the licence holder indicated that the lower-grade ore contains more leucogene and ilmenite but does not introduce any new elements. The increase in salinity ocean outfall for the proposed output is mainly effluent from the increase in chlorine required to chlorinate the additional impurities in the lower-grade ores.

### 3. Risk assessment

Table 3 below describes the risk events associated with the amendments consistent with the *Guidance Statement: Risk Assessments* (DER 2017). The table identifies whether the risk events are acceptable and tolerated, or unacceptable and not tolerated, and the appropriate treatment and degree of regulatory control, where required.

**Table 3 Risk assessment**

Risk Event				Consequence rating <sup>1</sup>	Likelihood rating <sup>1</sup>	Risk <sup>1</sup>	Reasoning	Regulatory controls
Source/ Activities	Potential emissions	Potential receptors, pathway and impact	Licence holder controls					
<b>PROPOSED AMENDMENT</b>								
Discharge of wastewater through the ocean outfall pipeline new diffuser.	Brine (saline rich) wastewater	Direct discharge exceeding environmental protection triggers water quality values impacting ocean water quality and flora and fauna ecosystems.	Existing licence controls Condition 2.3 Table 2.3.2	<b>Minor</b> Minimal offsite impacts at local scale, low level impacts to amenity	<b>Unlikely</b> The risk event will probably not occur in most circumstances	<b>Medium</b> Acceptable, generally subject to regulatory control.	<p>The proposal is to upgrade the ocean outfall pipeline diffuser to allow for a higher velocity discharge rate and increased TDS (salts) concentration (resulting from lower-grade ore processed within the pigment plant). The department determined that the outfall modelling was conservative and appropriate. The lower ore quality was determined to contain more leucoxene and ilmenite but did not introduce new elements.</p> <p>The outfall modelling determined that the water quality would meet the criteria for a High Ecological Protection Area, (which means a 99% species protection level is to be achieved.</p> <p>The delegated officer considered the risk of ocean outfall discharge to exceed environmental protection levels to be medium. The delegated officer considered the existing controls on the licence to be adequate for regulating the management of wastewater and discharge of wastewater through the pipeline. The existing licence conditions for point source emissions condition 2.3 and Table 2.3.2 will remain unchanged within the revised licence</p> <p>In addition, triennial monitoring of ambient bio-monitor health (whole effluent toxicity (WET) testing undertaken for Condition 3.4.1 Table 3.4.4 occurred in February 2024. The next monitoring will occur in 2027 providing a before and after assessment of bio-health. The delegated officer determined that reporting requirements were insufficient and determined to update the reporting requirements for the Annual Environmental Reporting (AER) (Condition 4.2.1 Table 4.2.1). The delegated officer conditioned the requirement for a three yearly report to outline new results and for comparison of results with previous sampling events for the ambient bio-monitor health testing.</p> <p>Furthermore, the delegated officer determined to use the licence holder controls and conditioned compliance water quality monitoring for three weeks after installation and operation.</p>	Works installation controls and compliance reporting and compliance monitoring. Updated AER reporting.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guidance Statement: Risk Assessments* (DER 2017).

## 4. Decision

The delegated officer has determined the proposal to upgrade the outfall pipeline diffuser to allow for a higher velocity discharge rate and increased TDS (salts) concentration (resulting from lower grade ore processed within the pigment plant) and update the premises and licence holders' names is unlikely to result in a material change to the overall risk profile of the site. This determination is based on the following:

- The proposal does not involve an increase in the wastewater discharge flow rate and TDS concentration levels above the existing licence condition limits outlined in Condition 2.3 Table 2.3.2;
- The water discharged through the outfall diffuser will maintain water quality at the boundary of the defined mixing zones, with water quality meeting the criteria for a High Ecological Protection Area, (which means a 99% species protection level is to be achieved).
- Triennial monitoring of ambient bio-monitor health (whole effluent toxicity (WET) testing undertaken under Condition 3.4.1 Table 3.4.4 is undertaken in 2027 for post diffuser installation verification monitoring.

As part of this amendment, the delegated officer has consolidated the licence by incorporating changes made under the previous amendment notice issued in 2016 for licence expiry date changes. No additional assessment has been conducted as part of this consolidation. Decisions relating to the consolidated licence are published in previous amendment notices, and in accordance with section 59(1) of the EP Act, incorporating these changes into a single amended licence is not appealable.

In amending the licence, the delegated officer has also:

- updated the appearance of the licence front page;
- remove Schedule 2 obsolete Annual Audit Compliance Report Form;
- updated the correct expiry date as outlined in the notice of amendment and schedule of licences with amended expiry dates (2016) to an expiry date of 29 December 2029;
- updated CEO reference to DG (Director General) and contact details' and
- removed form references for notifications.

### 4.1 Licence holder comments on draft decision

The licence holder was provided with a draft amendment report and instrument on 6 May 2024 and replied with comments on 7 May 2024. Comments are outlined in Appendix 1.

## 5. Conclusion

Based on this assessment, it has been determined to amend the existing licence, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

### 5.1 Summary of amendments

The below table provides a summary of the proposed amendments and will act as a record of implemented changes. All proposed changes have been incorporated into the revised works approval as part of the amendment process.

**Table 4: Summary of amendment changes**

Condition no.	Proposed amendments
Cover page	Updated to existing format. Update expiry date in line with Amendment Notice May 2026
Condition 4.2.1 Table 4.2.1	Updated Annual Environmental Reporting to include a three yearly bio-monitoring

	health data report.
Section 5 Condition 5.1	Works -Design and installation requirements of the outfall diffuser
Condition 5.2, 5.3. and 5.4	Works - Compliance reporting
Condition 5.5	Works - Compliance monitoring

## References

1. BMT 2022, *Tronox Outfall Upgrade – Conceptual Design and Dispersion Modelling*, Perth, Western Australia
2. Department of Environment Regulation (DER) 2014, *Licence L8870/2014/1 Cristel Pigment Australia Pty*, Perth Western Australia
3. DER 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
4. Department of Water and Environmental Regulation (DWER) 2019, *Guideline: Decision Making*, Perth, Western Australia.
5. Tronox Pigment Bunbury Pty, 2024, *Application to amend Licence L8870/2014/1*, Bunbury Western Australia.

## Appendix 1 Summary of licence holder’s comments on risk assessment and draft condition

Document reference	Summary of licence holders’ comment	DWER response
<b>Amendment Report</b>		
Section 2 Proposed amendment	The licence holder did not acquire the premises but had their name changed because of the parent companies' changes.	The amendment report has been updated.
Section 3 Risk assessment Table 3 Section 4 Decision	Updated wording for greater accuracy of the outfall pipeline discharge.	The amendment report has been updated.
<b>Revised Licence</b>		
Condition 5.4 Compliance Reporting	The licence holder requests that the condition be removed. The in-field verification inspection will occur on the same day as installation and restarting of the ocean outfall will occur immediately after the inspection. A delay to restart the outfall until compliance documents are submitted is requested to be removed allowing for immediate recommencement of flow through the outfall.	The delegated officer notes this and will remove condition 5.4.
Condition 5.5 Compliance monitoring	The licence holder requested a slight word change to recognise that there is independent monitoring and reporting for phases 1 and 2, noting that phase 2 will occur over a 6 – 18-month period.	The licence has been updated.
Condition 5.6 Monitoring reporting	The licence holder has requested changes for two separate monitoring reports after each phase.	The licence has been updated.