



Application for Licence Amendment

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

Licence Number	L8870/2014/1
Licence Holder	Tronox Pigment Bunbury Ltd
ACN	008 683 627
File Number	DER2014/003202-1~5
Premises	Kemerton Pigment Plant 869 Marriott Road, Wellesley, WA 65233 Legal description – Part of Lot 1 on Plan 73196
Date of Report	31 October 2024

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 changes to the infrastructure associated with activities performed under Category 61: Liquid waste facility: premises on which liquid waste produced on other premises (other than sewerage waste) is stored, reprocessed, treated or irrigated.

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> .

Purpose and scope of assessment

On 4 July 2024, Tronox Pigment Bunbury Ltd (Licence Holder) submitted an application to the department to amend Licence L8870/2014/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The amendment seeks to gain approval to temporarily operate a mobile filter press plant while the construction of the permanent filter press plant is being undertaken at the Kemerton Pigment Plant (the Premises) at 869 Marriott Road, Wellesley. Construction of the permanent filter press plant was approved by the department and documented in the amended licence and licence amendment report dated 17 June 2024.

Background

The licence holder operates the Kemerton Pigment Plant (the Premises), located at 869 Marriott Road, Wellesley within the Kemerton Industrial Park approximately 15 km north-east of Bunbury. The Premises has been in operation since 1989. The Premises produces titanium dioxide chemicals for use in pigments, powders and catalysts.

The premises includes a neutralisation plant to treat by-products from the pigment production process. The neutralisation plant is used to treat solid residue slurry separated from the gas stream, which mainly consists of metal chlorides, oxides, hydroxides, various silicates, unreacted ore and coke. In the process, lime is added to a series of tanks to raise the pH and precipitate the contaminants as hydroxides. The waste mixture is then sent to a clarifier where the solids settle.

Tronox also operates the Australind Finishing Plant. The slurry waste stream from the Australind and Kemerton plants is collected and stored onsite, then transported offsite via a tanker truck to the Cleanaway Dardanup Waste Facility. As the two purpose-built cells for the storage of Tronox residue at the Dardanup Waste Facility are nearing capacity, the licence holder is proposing to change from external slurry disposal to internal solid residue placement at the Tronox operated Mineral Residue Facility at Cooljarloo mine, and therefore divert material from the Dardanup Waste Facility.

Proposed Amendment

The Licence Holder has been granted approval to upgrade the process waste management circuit by installing a permanent filter press plant at Premises which will dewater the current slurry stream, creating a solid filter cake for removal offsite.

The Licence Holder proposes to temporarily install and operate a mobile filter press plant on a concrete hardstand to ensure there is sufficient onsite filter press capacity during the construction and commissioning of the permanent filter press plant. The Licence Holder expects to use the temporary mobile filter press plant for up to 12 months which should provide sufficient time for

construction and commissioning of the permanent filter press plant. Once the permanent filter press plant is operating optimally, the temporary filter press plant will be removed. The concrete pad will remain in-situ.

The temporary filter press plant will comprise of the following components:

- Mobile filter press
- Compressor and air receiver
- Bunded tank area – Feed tank, filtrate tank and squeeze tank

See Figure 1 for layout of filter press plant and Figure 2 for the proposed location of the temporary filter press plant in relation to the future permanent filter press plant.

The temporary filter press plant will treat mineral process waste residue from the chemical manufacturing process and create a solid waste in the form of a filter cake. The filter cake will comprise fine particles with a pH value of between 7 and 10. The filter cake will be loaded into trucks for transport to Tronox's Mineral Residue Facility located at the Cooljarloo Mineral Sands Mine (Cooljarloo). It should be noted that Cooljarloo is licenced under Part V of the EP Act to perform activities under Category 8: Mineral sands mining or processing: premises on which mineral sands ore is mined, screened, separated or otherwise processed.

The installation of the temporary filter press plant will not increase production, instead it is a process waste treatment alternative to disposal at the Dardanup Waste Facility. The chemical make-up of the process waste remains unchanged from that described in the amendment to the licence that was granted for the construction and operation of the permanent filter press plant.

The temporary filter press plant will be connected to the existing piping and drainage at the Premises. The new concrete hardstand for the mobile filter press component of the filter press plant will have a sump and sump pump to transfer wastewater into the existing containment and treatment system. Similarly, the tanks will be located in in a bunded/earthen wall with HDPE liner as opposed to a concrete bund and will have a sump and sump pump to transfer wastewater into the existing containment and treatment system.

The proposed system uses filter presses to reduce the moisture content of the mineral processing residue to form a filter cake. The resultant process water from this process will be captured, stored, treated and discharged via the ocean outfall pipeline as per Condition 1 of the current licence.

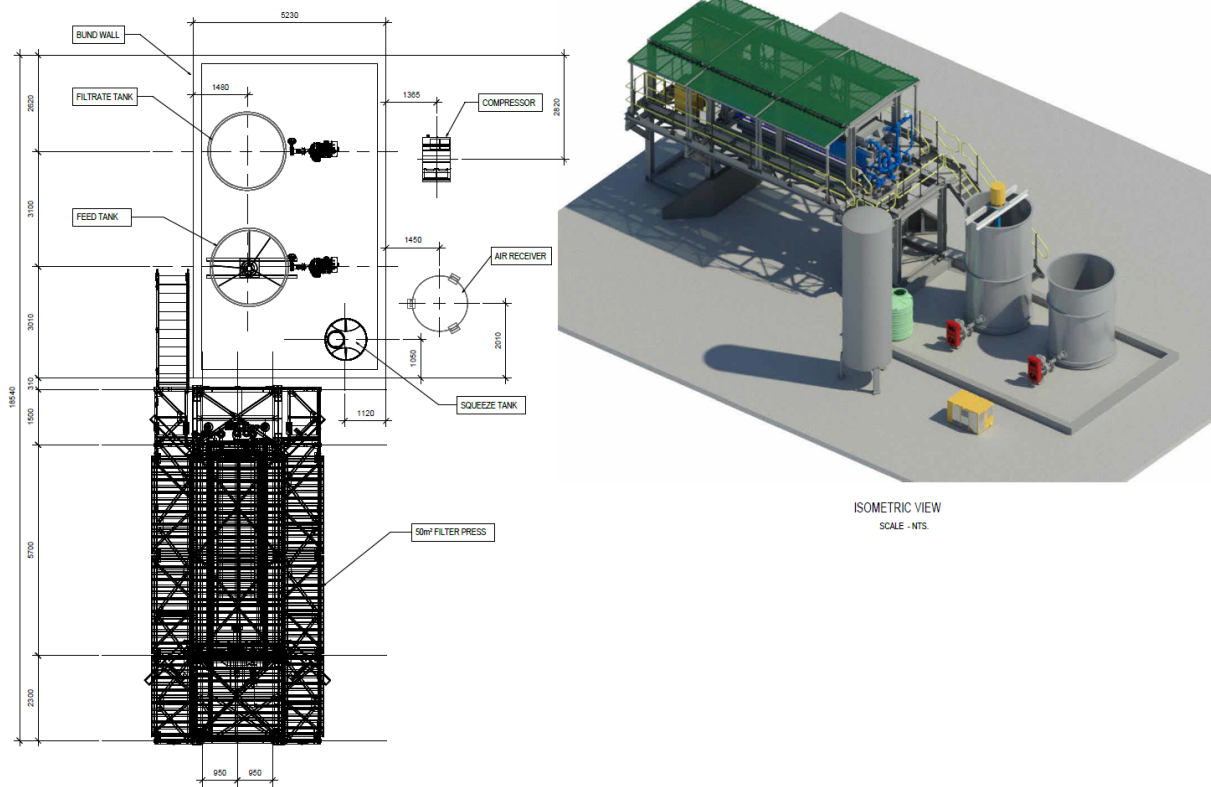


Figure 1: Proposed layout of temporary filter press plant



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Figure 2: Footprint of temporary filter press plant

Table 1 below outlines the Licence holder's proposed operational controls

Table 1: Licence Holder Proposed Controls (from application)

Emission	Sources	Potential pathways	Proposed controls
Dust	Construction activities, and installation of the mobile filter press plant and associated equipment.	Air/windborne pathway	<ul style="list-style-type: none"> a) Pre-fabrication of the mobile filter press plant will result in installation / placement onsite, minimal construction and ground disturbing works being minimised. b) Installation area is located within and away from the Premises boundary c) The Premises has adequate separation distance to sensitive receptors
	Filter cake dropping from filter press into the filter cake bund.		<p>Design Features</p> <ul style="list-style-type: none"> a) Temporary Filter Press Facility located adequate distance from premises boundary to reduce likelihood of any generated dust crossing the site boundary b) Dust emissions are not expected to be significant based Tronox's experience with operation of the filters and filter cake handling at Kwinana and expected moisture content c) Temporary Filter Cake bunker is adjacent to existing buildings, assisting in preventing windblown dust generation
	Loading of treated solid residue into trucks.		<p>Operating Strategies:</p> <ul style="list-style-type: none"> a) Regular site inspections b) Regular hose down if dust generation becoming excessive
			<p>Design Features</p> <ul style="list-style-type: none"> a) Facility located adequate distance from premises boundary to reduce likelihood of any generated dust crossing the site boundary b) Dust emissions are not expected to be significant based Tronox's experience with operation of the filters and filter cake handling at Kwinana and expected moisture content c) Temporary Filter Cake bunker is adjacent to existing buildings, assisting in preventing wind-blown dust generation
			<p>Operating Strategies:</p> <ul style="list-style-type: none"> a) Cleaning of any spills of filter cake after each truck loading (options available include hose down draining to sump)

Emission	Sources	Potential pathways	Proposed controls
			b) Truck parking up area cleaned regularly
Wastewater	Overtopping, rupture, loss of containment causing discharge of wastewater to land	Seepage to soils and groundwater	<p>Design Features</p> <ul style="list-style-type: none"> a) Concrete pad will have a sump for wastewater collection b) Location is drained towards the existing belt press hardstand and drainage system. c) In extreme events any overtopping can be adequately retained within the prescribed premises boundary <p>Operating Strategies:</p> <ul style="list-style-type: none"> a) Secondary bunds regularly inspected to ensure integrity and capacity is maintained
Noise	Construction activities, and installation of the mobile filter press plant and associated equipment.	Air/windborne pathway	<ul style="list-style-type: none"> a) Vehicles, equipment, and machinery will be regularly inspected and maintained, and operated effectively. b) Noise generating construction works will be conducted between the hours of 0600 and 1900 Monday to Saturday, excluding public holidays c) Construction area is located within and away from the Premises boundary d) The Premises has adequate separation distance to noise sensitive receptors

Risk assessment

The table 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.

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls
Source/Activities	Potential emissions	Potential receptors, pathway and impact	Licence holder controls					
CONSTRUCTION AND INSTALLATION – TEMPORARY FILTER PRESS PLANT								
Construction and installation of the temporary filter press (mobile plant and equipment)	Dust	Air/windborne pathway causing impacts to health and amenity of residences 3km west and 2km south-east.	Pre-fabrication of the mobile filter press plant will result in installation / placement onsite, minimal construction and ground disturbing works being minimised. Installation area is located within and away from the Premises boundary The Premises has adequate separation distance to sensitive receptors	Minor Minimal offsite impacts at a local scale	Rare Risk event may only occur in exceptional circumstances	Low Acceptable and will not be subject to controls	The delegated officer considers that there is sufficient separation distance in place from residential offsite receptors and does not reasonably foresee that dust from construction and installation works will impact on off-site human receptors.	Nil
	Noise		Vehicles, equipment, and machinery will be regularly inspected and maintained, and operated effectively. Noise generating construction works will be conducted between the hours of 0600 and 1900 Monday to Saturday, excluding public holidays Construction area is located within and away from the Premises boundary The Premises has adequate separation distance to noise sensitive receptors	Slight Minimal onsite impacts	Unlikely Risk event will probably not occur in most circumstances	Low Acceptable and will not be subject to controls	The delegated officer considers that there is sufficient separation distance in place from residential offsite receptors and does not reasonably foresee that noise from construction and installation works will impact on off-site human receptors. The <i>Environmental Protection (Noise) Regulations 1997</i> apply.	Nil

OPERATION – FILTER PRESS PLANT								
Filter cake dropping from filter press into the filter cake bund	Solid residue dust, containing metal hydroxides, including sodium aluminate scale	Air/windborne pathway causing impacts to health and amenity of residences 3km west and 2km south-east.	<p>Temporary Filter Press Facility located adequate distance from premises boundary to reduce likelihood of any generated dust crossing the site boundary</p> <p>Dust emissions are not expected to be significant based Tronox's experience with operation of the filters and filter cake handling at Kwinana and expected moisture content</p> <p>Temporary Filter Cake bunker is adjacent to existing buildings, assisting in preventing windblown dust generation.</p> <p>Regular site inspections.</p> <p>Regular hose down of concrete filter cake bund if dust generation becoming excessive.</p>	Minor Minimal offsite impacts at a local scale	Unlikely Risk event will probably not occur in most circumstances	Medium Acceptable subject to regulatory controls	<p>Given the composition of the filter cake, there is an inherent risk to human health if the residue dust from it dropping from the filter press and being loaded into trucks is not contained.</p> <p>The licence holder has proposed infrastructure controls including ensuring the cake bunker is adjacent to existing buildings, which will assist in preventing windblown dust generation</p> <p>Given the separation between the filter press plant and the nearest off-site receptor (2 km), the delegated officer considers the risk of impacts from solid residue dust to be acceptable provided the licence holder's infrastructure controls are implemented. Therefore, these controls have been included in the licence in conjunction with compliance reporting requirements to ensure these specifications are enforced.</p>	Infrastructure conditions: Works installation controls and compliance reporting requirements have been included.
Loading treated solid residue into trucks			<p>Facility located adequate distance from premises boundary to reduce likelihood of any generated dust crossing the site boundary</p> <p>Cleaning of any spills of filter cake after each truck loading (options available include hose down draining to sump).</p> <p>Temporary Filter Cake bunker is adjacent to existing buildings, assisting in preventing windblown dust generation.</p> <p>Truck parking up area cleaned regularly.</p>				Minor Minimal offsite impacts at a local scale	
Overtopping, rupture, loss of	Process liquid waste-treated	Direct discharge to land, infiltration	Concrete pad will have a sump for wastewater collection to transfer wastewater into the existing containment and treatment	Moderate Low level	Unlikely Risk event will	Medium Acceptable subject to regulatory		Based in the application for the permanent filter press plant, each filter cake is expected to have a 40-60% moisture content and contain bioaccumulating

containment	solid residue (TSR) leachate containing radionuclides and bio-accumulating metals.	to groundwater causing degradation of soils and groundwater quality, impacting on nearby watercourses and ecosystems including Wellesley River (1.7km southeast) and a threatened ecological community (TEC) onsite, west and south of filter press.	system Location is drained towards the existing belt press hardstand and drainage system. In extreme events any overtopping can be adequately retained within the prescribed premises boundary Secondary bunds regularly inspected to ensure integrity and capacity is maintained	offsite impacts at a local scale	probably not occur in most circumstances	controls	metals. Due to the nature of the TSR and the proximity of the filter press plant and associated infrastructure to a TEC and watercourse, there is an inherent risk of leachate impacting on the environment. The licence holder has proposed infrastructure controls including impermeable hardstands, secondary containment infrastructure, and collection sumps to prevent the discharge of process liquid waste from the filter press plant. The delegated officer considers the above infrastructure controls are required to mitigate the risk of land contamination due to containment loss, therefore has imposed the licence holder's controls as infrastructure requirements in the licence.	controls and compliance reporting requirements have been included. Operational conditions: Infrastructure table added to specify operational and maintenance requirements.
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Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Guidance Statement: Risk Assessments (DER 2017)

Other approvals

The operations at Kemerton are subject to the following other approvals:

- MS 1177 issued under Part IV of the *Environmental Protection Act 1986*.
- Groundwater Abstraction Licences issued under the *Rights in Water and Irrigation Act 1914*
- Dangerous Goods Licence from the Department of Mines, Industry Regulation and Safety
- Major Hazard Facility Registration with Department of Mines, Industry Regulation and Safety, with an approved Safety Case.
- An amended Radiation Management Plan (RMP) to allow the handling of solid waste using a filter press under the *Radiation Safety Act 1975* was approved by the Radiological Council in September 2024.
- A Development Approval application for the construction of the filter press plant building was approved under the Shire's District Planning Scheme No. 1 on 2 February 2024.

Consultation

The Licence Holder was provided with the draft amendment on 28 October 2024. Comments received from the Licence Holder on 30 October 2024 have been considered by the Delegated Officer as detailed in Appendix 1. It is also noted that on 30 October 2024 the Licence Holder waived the remaining comment period.

Decision

The proposed amendment relates to the temporary installation of a mobile filter press plant which will be operated while the permanent filter press plant is being constructed and commissioned. The Licence Holder has stated that the temporary filter press plant will only be required for approximately 12 months and will be removed when the construction of the permanent filter press plant has been completed and is operating optimally.

The Delegated Officers opinion that the licence should be amended to allow adequate time to operate the temporary filter press plant while the permanent filter press plant is being constructed. Therefore, the Delegated Officer considers the wording chosen in the Instrument Log section of the amended Licence to allow for operation of the temporary filter press plant for up to 18 months and to be removed following successful construction, operation and optimisation of the permanent filter press plant.

The Delegated Officer has included operation requirements, and design and construction/installation requirements in Tables 1 and 16 of Licence L8870/2014/1 for the proposed temporary filter press plant. In addition to the amendment of Tables 1 and 16, the Delegated Officer has also updated the corresponding requirements of Condition 29.

The Delegated Officer has completed an assessment of the application and does not consider the installation and temporary operation of the mobile filter press plant is likely to increase the risk profile of the Premises. Therefore, the Delegated Officer has granted the licence

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amendment. However, to ensure adequate management measures are undertaken while the temporary filter press plant is being operated the licence amendment will be subject to conditions consistent with the risk assessment outcomes and generally reflect the licence holder's proposed controls that were considered reasonable and adequate to manage the risk of unacceptable impacts.

Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Department of Environment Regulation (DER) 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2019, *Landfill Waste Classification and Waste Definitions 1996 (as amended 2019)*, Perth, Western Australia.
3. DWER 2019, *Guideline: Decision Making*, Perth, Western Australia.
4. Application Form – Licence Amendment July 2024
5. Tronox Pigment Bunbury Ltd 2024, *Kemerton Pigment Plant. L8870 Licence amendment request –temporary filter press installation (July 2024)*
6. Licence L8870/2014/1 – 17 June 2024
7. Amendment Report L8870/2014/1 – 17 June 2024

Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder's comment	Department's response
<p>Condition 27, Table 16, Item 3</p> <p>f) The tanks will be located in in a bunded/earthen wall with HDPE line with a sump and sump pump to transfer wastewater into the existing containment and treatment system.</p> <p>g) Pipelines transferring waste must be within a secondary containment culvert which directs any spills to the culvert sump.</p> <p>h) The filter press plant supporting infrastructure (wash water tank, filtrate tank, pipes and pumps) must a secondary bund to contain any potential wastewater generated from overtopping, rupture, or loss of containment.</p> <p>i) Sumps must be:</p> <p style="margin-left: 20px;">i. lined to maintain a permeability of less than 1×10^{-9} m/s or equivalent; and</p> <p style="margin-left: 20px;">ii. fitted with level indicators and alarms in event of overtopping.</p>	<p>The Licence Holder has requested the removal of requirement 'g' as the temporary filter press plant will be connected to existing draining structures in the existing belt press area.</p> <p>The Licence Holder has requested combining requirements 'f', 'h' and 'i' to be worded as such:</p> <p style="margin-left: 40px;">a) The tanks will be located in in a bunded / earthen wall with a HDPE liner and with a sump and sump pump to transfer wastewater into the existing containment and treatment system. Sumps must be lined to maintain a permeability of less than 1×10^{-9} m/s or equivalent. Tanks must have shut off valves.</p>	<p>The department has considered the Licence Holder's suggestions and has incorporated them into the amended Licence (L8870/2014/1).</p>