Government of Western Australia
Department of Water and Environmental Regulation

Amendment Notice 1

Licence Number	L4474/1976/14
Licence Holder	Fremantle Port Authority
Registered business address	1 Cliff Street FREMANTLE WA 6160
Date of amendment	8 June 2018
Prescribed Premises	Category 58: Bulk material loading or unloading
Premises	Kwinana Bulk Jetty Port Road KWINANA BEACH WA 6167 Lot 4552 on Plan 220690; and Portion of Lot 497 on Plan 35196

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice.

Date signed: 8 June 2018

Danielle Eyre

Senior Manager, Resource Industries

Regulatory Services (Environment)

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

Definitions and interpretation

Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
AER	Annual Environment Report
Amendment Notice	refers to this document
ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AS 4156.6 – 2000	Australian Standard AS 4156.6 – 2000: Determination of Dust/moisture Relationship for Coal.
Assigned Level	A noise level determined under regulation 8 of the Noise Regulations.
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the *Environmental Protection Act 1986* Locked Bag 33 Cloisters Square PERTH WA 6850 info@dwer.wa.gov.au
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986 (WA)*

EP Regulations	*Environmental Protection Regulations 1987 (WA)*
EQG	Environmental Quality Guidelines specified in the *Reference Document for Cockburn Sound – A Supporting Document to the State Environmental (Cockburn Sound) Policy 2005* (EPA, 2015)
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
ISQG	Interim Sediment Quality Guidelines specified in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ, 2000).
Licence	means L4474/1976/14 issued under Part V of the EP Act
Licence Holder	Fremantle Port Authority
m^3	cubic metres
NEPM	National Environmental Protection (Ambient Air Quality) Measure
Noise Regulations	*Environmental Protection (Noise) Regulations 1997 (WA)*
Occupier	has the same meaning given to that term under the EP Act.
PM_{10}	used to describe particulate matter that is smaller than 10 microns (µm) in diameter.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.
$\mu g/m^3$	micrograms per cubic metre

Amendment Notice

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

The following Department of Water and Environmental Regulation (DWER) Guidance Statements have informed the decision made on this amendment:

- Guidance Statement: Regulatory Principles (July 2015)
- Guidance Statement: Setting Conditions (October 2015)
- Guidance Statement: Risk Assessment (February 2017)

Amendment Description

Under the existing Licence (L4766/1984/12) the Licence Holder loads and unloads the following bulk materials:

- Ammonium sulfate
- Cement clinker
- Granulated slag
- Gypsum
- Phosphates
- Potash
- Soya bean meal
- Sulfur
- Urea

On 15 March 2017, Fremantle Port Authority (the Licence Holder) applied under the EP Act to authorise the:

- export of 624,000 tonnes per year (TPA) of silica sands
- increase in cement clinker imports from 350,300 to 650,300TPA;
- increase of phosphate imports from 300,000 to 600,000TPA; and
- increase of urea imports from 300,600 to 440,000TPA

from the Kwinana Bulk Jetty (the Premises).

A second application was submitted by the Licence Holder on 12 April 2017 to authorise an increase in potash import tonnage from 90,000 to 150,000TPA.

It is proposed that silica sands will be transported to the ship via a mobile ship loader that consists of two loading arms. Trucks will enter the premises and unload the product to one of two road hoppers. All other materials currently handled at the Premises will continue to use the same method of unloading.

It should be noted that requested increases in authorised import volumes for phosphate rock are administrative in nature due to an error made during the issue of the existing Licence, last amended 29 July 2016. Assessed import rates for phosphate rock in the Decision Report totalled 533,621 tonnes per year based on 2014/15 import volumes. Increases in authorised volumes for phosphate imports have therefore been risk assessed in the Decision Report and will not form part of the decision-making for this Amendment Notice. The Licence Holder has continued to import this product at similar rates with no complaints from sensitive receptors.

A third application was received by DWER on 22 August 2017 for the installation and operation of two bulk material hoppers on KBB3 Berth. The hoppers will reduce the operational requirement for smaller mobile hoppers currently used to load trucks with

phosphates, potash and urea and that have lesser in-built controls for dust management. Each hopper has a capacity of 100m^3 and can also be connected to cross conveyors that allow the Licence Holder to unload fertiliser products from the grab bucket directly to CSBP Limited sheds via the jetty conveyor.

Onsite construction and commissioning activities will consist of unloading, unpacking and installation of prefabricated equipment commencing approximately September 2018. Commissioning activities will commence shortly after involving dry-test runs and test runs with product, taking one to two months. Operation of the two bulk material hoppers is anticipated to commence in November 2018. Figure 1 depicts the design and layout of the proposed bulk material hopper and cross conveyor that transports product to CSBP Limited sheds.

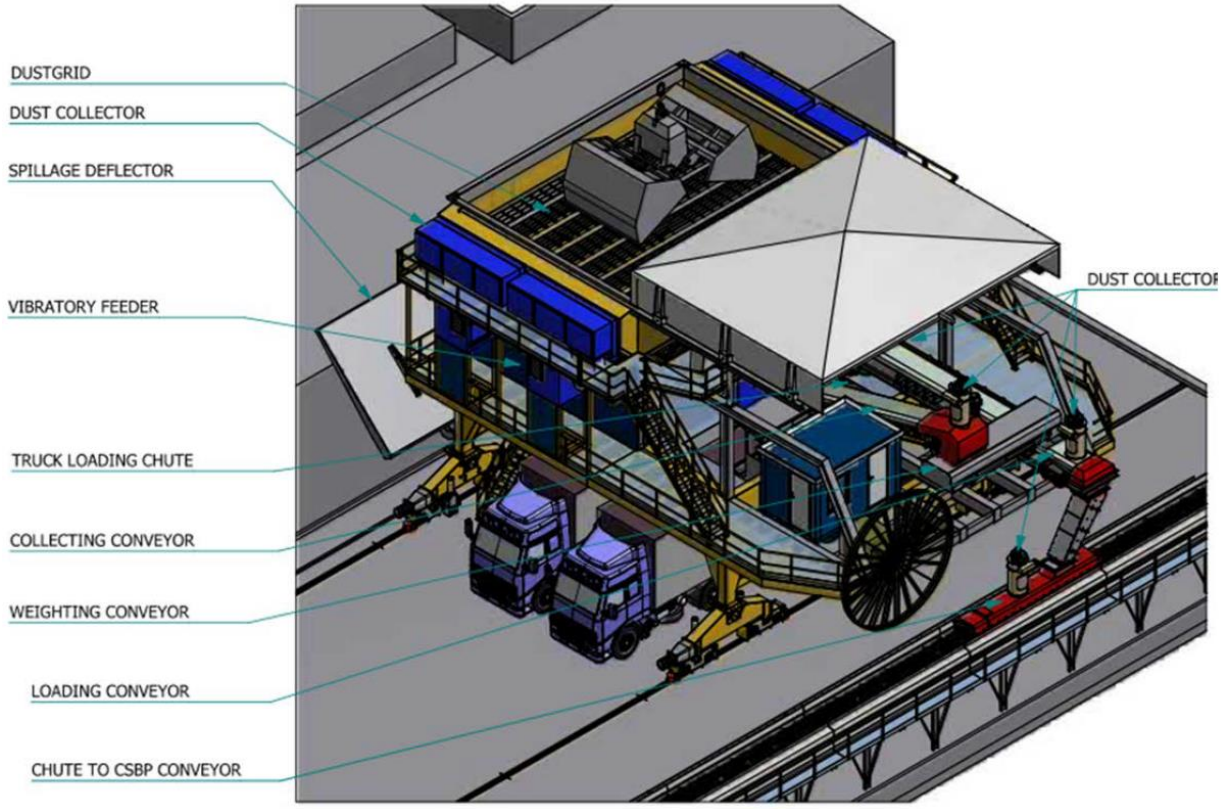

Figure 1. New bulk material hopper and cross conveyor configuration

Operation of the hoppers will not change the nature of materials handled at the Premises.

Licence history

A full risk based review and amendment of Licence L4474/1976/14 was issues on 29 July 2016. No further amendments have been made to the licence since 4 April 2012.

Material change notifications

Table 2 summarises Material Change notifications submitted by the Licence Holder requesting a trial period for the export of silica sands from the Premises.

Table 2. Material Change notifications

Date	Summary of Notice of Material Change	DER response
30/11/2016	Notice of Material Change for a trial to export approximately 20,000 tonnes of silica sand (new commodity) on approximately 7 December 2016. Controls have been included. An application for licence amendment was submitted 15 March 2017.	DER responded 13 December 2016 requesting further information. Following consideration of additional information provided 24 February 2017, the Delegated Officer formed the view that the three trial shipments of silica sands at KBJ will not have an unacceptable impact on public health, amenity or the environment.
31/03/2017	Addendum to 30 November 2016 Material Change Notice for the continued trial export of three shipments of silica sand. Each shipment will be up to 52,000 tonnes and be completed by 30 June 2017.	No response provided. DWER notes that silica sands export was not expected to have an unacceptable impact on public health, amenity or the environment.
05/04/2017	Notice of Material Change for an increase in the volume of potash exports (existing commodity) above 10% of the 90,000 tonnes specified in the Licence. The Licence Holder noted that exports in the annual period had totalled 117,775 tonnes prior to the notification, with a further 5,000 tonnes proposed. This would bring the total potash export to 122,775 tonnes for the 2016/17 annual period and 30.9% above authorised volumes. An application for licence amendment was submitted12 April 2017.	DER provided a response on 24 April 2017 forming that the view that the three shipments of silica sand will not have an unacceptable impact on public health, amenity or the environment. DER further noted that the Material Change notification does not pre-empt the outcome of the Licence amendment application assessed under this Amendment Notice.
27/07/2017	Notice of Material Change for the export shipment of 55,007 tonnes of silica sand that commenced on 14 July 2017 and was complete on 23 July 2017.	No response provided. DWER notes that silica sands export was not expected to have an unacceptable impact on public health, amenity or the environment.
23/08/2017	Notice of a further 52,370 tonnes of silica sands being exported from the Premises in a shipment completed 22 August 2017.	No response provided. DWER notes that silica sands export was not expected to have an unacceptable impact on public health, amenity or the environment.
17/11/2017	Notification of an additional shipment of silica sands (53,503 tonnes) undertaken on 3 November 2017 and notification to undertake an additional two shipments, up to 55,000 tonnes per vessel, from the date of notification until 31 December 2017.	No response provided. DWER notes that silica sands export was not expected to have an unacceptable impact on public health, amenity or the environment.
16/02/2018	Two notifications of Material Change received by the Department for the unloading of two shipments of phosphate and one shipment of gypsum each triggering an exceedance of assessed throughput amounts for each product by greater than 10%.	A DWER response was provided on 26 February 2018 noting that an application to increase gypsum at KBJ had not been received by DWER. Increases in throughputs for phosphate imports is addressed

		through this Amendment Notice.
27/02/2018	Material Change notification submitted on 27 February 2018 following a shipment of approximately 53,007 tonnes of silica sand on 13 February 2018. The Licence Holder also notified DWER of their intent to undertake an additional two shipments of silica sand up until 31 May 2018.	DWER responded on 6 March 2018 noting that there were likely to be no unacceptable risks on the basis of product moisture content and particle size distribution limiting dust potential.
09/04/2018	Notice of Material Change for the import of 12,099 tonnes of potash on 7 March 2018, resulting in the combined potash import tonnages to 101,897 tonnes and above authorised throughput amounts (90,000 tonnes).	DWER responded on 10 May 2018 noting that the notification follows an application submitted on 15 March 2017 and that the additional shipment is not likely to have had an unacceptable impact on public health, amenity or the environment.

Incidents and Complaints

A compliance history check identified no substantiated complaints relating to prescribed activities at the Premises. Of the three complaints received since 2010, two were in relation to Premises activities noting a black dust being deposited onto the beach (ICMS 35105 and 35619) and the third to a minor diesel leak not associated with Category 58 activities.

In addition, one complaint was received by DER on 3 September 2013 in relation to clinker cement handling activities at the nearby Kwinana Bulk Terminal (KBT). The complainant, a commercial receptor located approximately 1,850m from the KBT shiploader, advised DER that clinker cement dust was deposited on vehicles. The same commercial receptor is located approximately 2,300m from the KBB3 shiploader at the Premises.

An earlier inspection of KBT conducted by DER officers on 19 April 2010 noted dust arising from the unloading of cement clinker when a machine was working within the hold to redistribute the load. There was also dust generated when the grab removed the clinker and the face of the bulk material collapsed within the hold. DER officers also noted that extraction systems at the foot of the unloader appeared effective at removing dust but was not operated at all times due to the collection of product.

DWER has considered this information in the assessment of new cement clinker unloading infrastructure and the application to increase authorised volumes of cement clinker handled at the Premises.

Location, environmental siting and potential receptors

The Premises is located centrally within the Kwinana Industrial Area (KIA), a significant industrial estate in Western Australia established in the early 1950's. The KIA covers an area of approximately 8 km north-south and 2 km east-west on the eastern side of Cockburn Sound, approximately 30 km south of the Perth Central Business District. The KIA contains a highly diverse range of industries from smaller service industries to very large heavy process industries. Table 2 below lists the relevant sensitive land uses and environmental receptors near the Premises, as depicted in Figure 2.

Table 3: Receptors and distance from prescribed premises

Receptor	Distance from Prescribed Premises
Closest residential premises	Approximately 2,100 m to the south-west of KBB4 Berth

(zoned residential)	and 2,350 m from KBB3 Berth.
Commercial premises – Kwinana Beach Lunch Bar (zoned industrial)	Approximately 670 m south-east of KBB4.
Public open space – Park (zoned parks and recreation)	Approximately 550 m east of KBB4.
Industrial neighbours (industrial zoning)	Industrial zoning is immediately adjacent to the premises with the closest office buildings located approximately 1,200 m north-east of the ship-loading facilities.

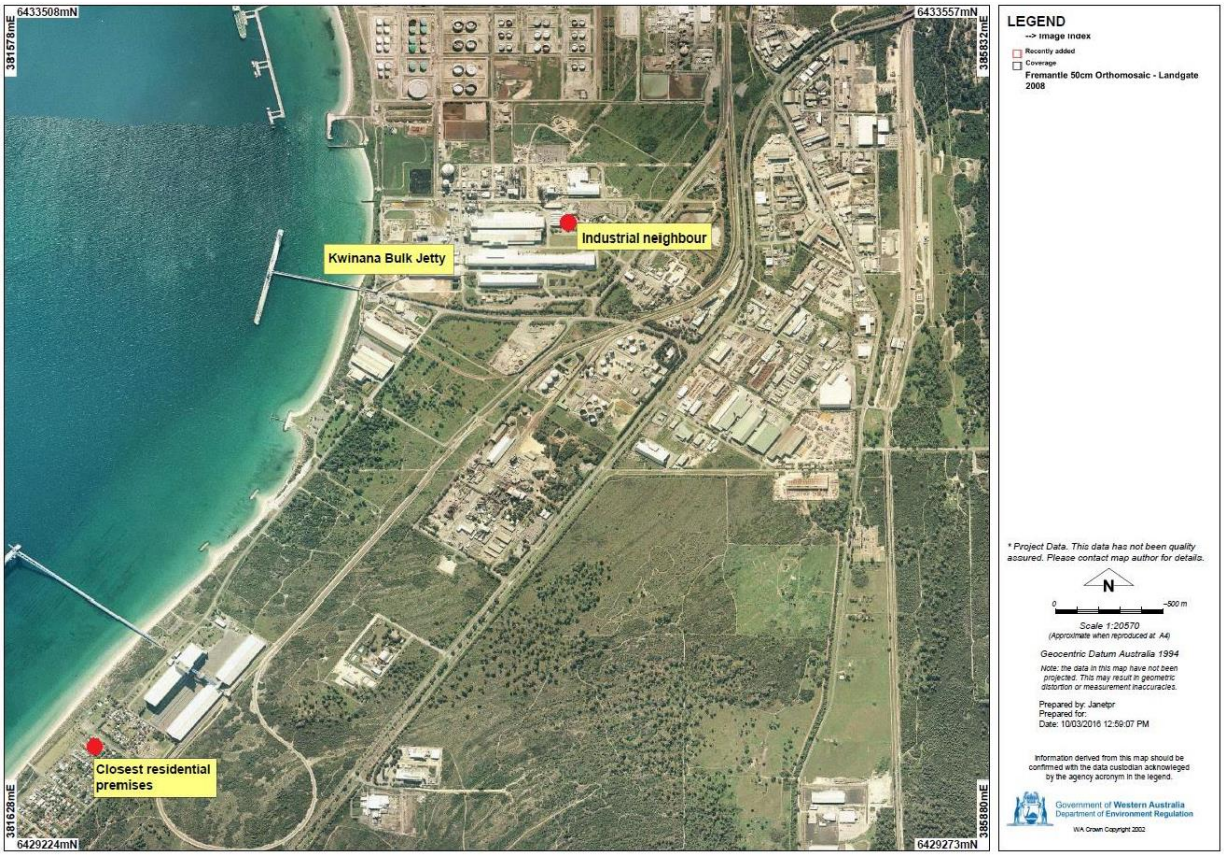

Figure 2. Proximity of the Premises to industrial and residential receptors

Table 4 below lists the relevant environmental receptors near the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 4: Environmental receptors and distance from activity boundary

Sensitive ecosystems	Distance from Prescribed Premises
Cockburn Sound (proclaimed State Environmental Policy area)	Within and directly adjacent to the premises boundary
Resource enhancement wetland – unnamed	2,350 m to the east
Conservation Category wetland – unnamed	2,350 m to the east

Groundwater in the area is used for industrial purposes. Potable water is not drawn from the groundwater on or near the premises. The Standing Water Level of all bores ranges from 2.6 m to 3.0 m below ground level (mbgl).

Annual Marine Monitoring Report

Over the months of March and April 2017, the Licence Holder commissioned the monitoring of the tissue samples taken from mussels, water and sediment quality in accordance with Condition 7 of the Existing Licence.

Metals in sediment only exceeded ANZECC Interim Sediment Quality Guidelines (ISQG) at KBJ1 for cadmium and mercury for low trigger values only. ISQC High trigger values were not exceeded and do not require resampling in accordance with the *Environmental Quality Criteria Reference Document for Cockburn Sound* (EPA, 2015).

Analysis of the tissue samples taken from mussels around the berth identified that metals were below Environmental Quality Guidelines (EQG) set for safe human consumption of seafood (EPA, 2015).

Water quality monitoring alongside the Premises' berth identified nutrient concentrations were elevated above default ANZECC (2000) trigger values for inshore marine waters in south-west Australia (refer to Table 5). Monitoring of the same parameters at the Kwinana Bulk Terminal approximately 3.1 km to the north showed only minor exceedances of Total Phosphorous trigger values (0.23 mg/L) at one of six sampling locations.

Table 5: Water quality sampling conducted 1 March 2017

	Ammonium (mg/L)	Ortho-P (mg/L)	Nitrate + Nitrite (mg/L)	Total Phosphorus (mg/L)	Total Nitrogen (mg/L)	Dissolved Organic Carbon (mg/L)	Total Suspended Solids (mg/L)
Trigger values[2]	**0.005**	**0.005**	**0.005**	**0.020**	**0.23**	**N/A**	**N/A**
KBJ1_T	**0.2800**	0.003	**0.077**	0.016	**0.46**	1.2	1.7
KBJ2_T	**0.0290**	**0.007**	**0.010**	0.020	0.15	1.1	1.1
KBJ3_T	**0.0110**	0.004	0.005	0.016	0.13	1.2	1.1
KBJ1_B	0.0015	0.002	0.001	0.017	0.13	-	-
KBJ2_B	**0.0160**	**0.012**	0.003	**0.038**	0.18	-	-
KBJ3_B	**0.0370**	**0.019**	**0.010**	**0.067**	0.18	-	-

Note: _T refers to water quality samples collected from approximately 0.5m below sea level; and _B refers to water quality samples collected from approximately 0.5m above the seabed.

There are inconsistent results from year to year possibly due to different mixing conditions in the marine environment and different materials handled near to the time of sampling, which only occurs once per year. There exist other sources of nutrients including the CBH grain handling berth located approximately 1.5 km south of KBJ3. However, elevated concentrations of inorganic nitrogen and phosphorous (nitrate, nitrite, ammonium and orthophosphate) near to the berth are more likely to come from fertiliser handling activities.

Key finding: Based on current fertiliser handling methods, the high solubility of fertiliser products and historical monitoring data, the Delegated Officer has determined that fertiliser handling activities at the Premises are likely to be contributing the overall nutrient content of inshore waters.

Cockburn Sound Annual Environmental Monitoring Report 2015/16

The Cockburn Sound Annual Environmental Monitoring Report 2015/16 noted that nutrient enrichment EQC were met in high and moderate ecological protection areas indicating "a high degree of certainty that the Environmental Quality Objective 'Maintenance of ecosystem integrity' is being achieved in most of Cockburn Sound" (Cockburn Sound Management Council (CSMC), 2016).

The highest nutrients were found at monitoring points near to the Premises and the CBH grain terminal which are both located in the Moderate Protection Area Eastern Sound. Highest concentrations were found in bottom water samples. Dissolved oxygen was also observed to be below minimum EQG (≥5 mg/L) in bottom waters at 12 of 18 monitoring sites in Cockburn Sound (CSMC, 2016).

The report concluded that it is difficult to derive any conclusion from annual monitoring data conducted by the Licence Holder at the monitoring locations specified in Table 5 and that ideally a minimum of five samples is required for comparison with EQG. As a result the report drew conclusions based on the monitoring at other locations throughout the Cockburn Sound that had been sampled more than five times.

2015 Fish Kill Event

In November to December 2015 there was a fish kill in the Cockburn Sound, killing approximately 2,000 fish and invertebrates across 15 species. Current modelling reviewed by the Department of Fisheries identified the source area of the kill was likely to be in the southern Cockburn Sound where the Premises is located. Causes are thought to be a combination of a spike in the densities of a potentially harmful phytoplankton taxon, low dissolved oxygen concentrations and unseasonably high water temperatures (Department of Fisheries, 2016).

The Department of Environment Regulation also investigated and found no potential pollution or industrial sources were identified as a cause of the fish kill.

Risk assessment

Table 6 below apply a risk assessment to the potential emissions which may arise from the amendment applications, according to the *Guidance Statement: Risk Assessments*. The tables identify whether the emissions present a risk to human health or the environment, requiring regulatory controls.

Table 6: Risk assessment for proposed amendments during construction of the KBB3 Berth hoppers

			Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Continue risk assessment?	Reasoning
Source	**Cat 58** Bulk material loading or unloading	Installation of the new bulk material hoppers	**Noise** associated with the installation of the new bulk material hoppers.	Residential receptors (see Table 3)	Air/wind dispersion	Impacts to amenity	No	Equipment will be prefabricated before being brought to the Premises. Installation is not expected to be greater than existing operation noise at KBB3 Berth during unloading. No further assessment is required.

Table 7. Risk assessment for proposed amendments during commissioning (of the KBB3 Berth hoppers) and operation

			Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Continue risk assessment?	Reasoning
Source	**Cat 58** Bulk material loading or unloading	Storage, stockpiling, reclaiming and loading of silica sands, cement clinker, phosphate, potash and urea into vessels	**Dust** associated with the handling of bulk material using mobile hoppers (during operation and commissioning), conveyance systems and ship loaders.	Residential receptors (see Table 3)	Air/wind dispersion	Impacts to public health and amenity	Yes	Refer to risk assessment below.
			Noise associated with additional vehicle movements, hoppers, conveyors and operation of ship loading equipment.	Residential receptors (see Table 3)	Air/wind dispersion	Impacts to amenity	Yes	Refer to risk assessment below.
			Spills and stormwater contaminated with bulk product	Aquatic organisms of Cockburn Sound (see Table 4)	Direct discharge Surface water runoff	Reduced water quality resulting in declining ecosystem health	Yes	Refer to risk assessment below.

Risk of Dust Emissions

The key emission arising from loading of silica sands is fugitive dust.

Dust can represent a health hazard by increasing the concentration of airborne particulate matter (PM). The respirable fraction (defined as particles smaller than 10 microns and expressed as PM_{10}) has been linked to adverse health impacts on respiratory and cardiovascular systems with the most severe effects resulting from long term, sustained exposure.

Silica sands

The risks to human health associated with dust from silica sands relates to that from crystalline silica and potential respirable particulates.

Composition analysis of the ore product has identified a silica (SiO_2) content of 99.87% (SGS, 2016). Crystalline silica as a respirable dust is listed as carcinogenic to humans by the International Agency for Research on Cancer (IARC) with the most severe effects being scarring of the lungs (silicosis), autoimmune diseases and lung cancer occurring from long term exposure at occupational levels (IARC, 2009). However, particle size distribution analysis has revealed that less than 1% of the product is smaller than 75 microns in diameter (i.e. not detected) (ALS Environmental, 2017; Hanson, 2017) suggesting that the overall respirable fraction of the total product, including crystalline silica, is very low.

For the purposes of this assessment respirable particulates are those to be smaller than 10 microns.

The Licence Holder has proposed the following key controls to manage dust from the increase in volumes of silica sands handled:

- No silica sands stored onsite.
- Loading hoppers installed with side guarding.
- A shroud placed around the ship loader.
- Spillage clean-up using a bobcat, shovels and road sweeper.

In addition, the moisture content of silica sands received at the Premises is expected to exceed 2.76%. As the product is washed prior to entering the Premises many of the fines material within the mineral sands product has been removed and therefore the dust extinction moisture (DEM) Level[1] required to eliminate dust is very low. For silica sands the DEM Level could not be accurately determined with dust only measurable in testing where the silica sands had a moisture content of equal to or less than 0.2% (Jenike and Johanson, 2017).

Based upon the product specifications provided to DWER and volume of the materials being loaded, the consequence of dust impacts has been determined to be **minor**.

The nearest receptors are expected to be recreational users of the nearby park approximately 550 m away. Although there is a pathway for dust to travel to these receptors, exposure times are expected to be low and infrequent when compared to industrial receptors. Therefore time weighted average exposure levels are likely to be well below occupational levels.

The distance between the nearest industrial receptors and the mobile ship loader is approximately 2,100 m suggesting that a significant dust event would be required to create a possible pathway for dust to reach receptors. Based on Licence Holder controls, namely moisture content, ambient concentrations at nearby recreational or industrial receptors are not

[1] The DEM level is defined as the moisture content at which the dust number is 10, which corresponds to a dust yield of 0.01% in mass (Ilic et. al, 2016).

expected to reach occupational exposure limits of 0.1 mg/m^3 for respirable silica (Safe Work Australia, 2013).

The Delegated Officer has therefore determined the likelihood to be **rare** based on the application of proposed Licence Holder controls and the distance to receptors.

The overall rating for the risk of dust impacts on sensitive receptors during silica sands handling is **Low**.

Increased throughput volumes

The proposed increase in overall throughput volumes is 1,123,400 TPA representing an approximate 54% increase from current throughput volumes. Therefore ambient PM_{10} concentrations in the local air shed are expected to increase as a result of proposed activities having potential cumulative impacts on air quality.

None of the existing materials have been identified as presenting toxic or carcinogenic risks to public health. As described above, silica sands contain crystalline silica which is a known carcinogen. However, the respirable fraction of crystalline silica is very low, presenting a low risk to nearby receptors. As such, risks to public health associated with increased fugitive dust emissions from the Premises are more likely to be associated with an increased load of PM_{10} in the ambient environment. An increase in ambient Total Suspended Particulates may impact the local amenity for nearby sensitive receptors.

Vessel unloading methods for cement clinker, phosphates (including phosphate rock), potash and urea involve the use of the ship's grab and deposition into an open truck via a hopper, presenting a clear pathway to air.

Of the materials increasing in volume, cement clinker presents the greatest potential source of PM_{10} when taking into consideration the nature of the material and low product moisture when handled meaning that fines are easily mobilised in air. Cement clinker will continue to be handled using a grab bucket and specialised hopper used to load trucks. The cement clinker hopper is fitted with a dust extraction unit that discharges filtered air through one of two exhausts. Testing of the efficiency of this unit revealed that total suspended particulates (TSP) is discharged to air via each exhaust at an average rate of 1.8 mg/m^3 or 0.39 g/min (Ektimo, 2014).

Dust is mitigated to some extent for most fertiliser products (urea and phosphates excluding rock) due to the presence of a wax-like anti-caking agent in phosphates and pelletised nature of urea although fines may arise from these materials, particularly when being unloaded using a grab bucket and existing hoppers. Unlike cement clinker hoppers, these hoppers are not equipped with a dust extraction unit or any other dust mitigating infrastructure, for example misting sprays[2]. However, the Licence Holder does operate the Siwertell, a fully enclosed auger-type continuous unloader, for urea and potash.

The *Environmental Protection (Kwinana) (Atmospheric Wastes) Regulations 1992* criteria for air quality in Policy Area A, which requires ambient TSP to remain below 260 µg/m^3 over a 24-hour averaging period, is at risk of not being met as a result of increases to cement clinker. In addition, the Delegated Officer has determined that mid-level impacts to amenity for users of the nearby recreational space may occur where there are unfavourably high northerly/north-westerly winds and products are received with low moisture content. Therefore the consequence rating of overall increases to throughput volumes is raised from minor to **moderate**.

Taking into consideration the distance to nearby sensitive land users (refer to Table 3) and

[2] The proposed operation timeframes for the installation of two bulk material hoppers extend beyond the commencement of requested increases to volume throughputs. Therefore the Delegated Officer has determined the risk of increased throughputs in the context of operating existing infrastructure and equipment only.

proposed controls, the Delegated Officer has determined that it is the probability of health impacts or loss of amenity from increased throughput volumes is unlikely for silica sands, potash and urea and **possible** for cement clinker.

The overall rating for the risk of dust impacts on sensitive receptors during the handling of increased product volumes at the Premises is **Medium**.

Two mobile hoppers at KBB3 Berth

The Licence Holder proposes to install two mobile hoppers at KBB3 Berth for operation during of phosphates (including phosphate rock), potash and urea unloading. A cross conveyor will be connected to the existing CSBP conveyor for delivery of some fertiliser products to the CSBP shed.

Proposed hoppers and cross conveyors are equipped with the following controls:

- A dust grid at the top of the hopper designed to allow product to drop through the grid while preventing dust from escaping.
- Automatic pulse-jet cleaned dust collectors mounted at the top of the hopper.
- Dust collectors located along the conveyor and at the feed chute.
- Discharge and feed chutes equipped with skirts and profiled curtains.
- Covered conveyors with spillage plate at the bottom.
- Truck loading chute that loads product directly into the truck's bin.

Dust extraction units will be visually inspected following each shipment to ensure that pulse reverse jets and filtration fabric is clean.

The Delegated Officer has determined the consequence of dust generation from materials handled at the Premises to be **moderate** (above).

Bulk material hoppers proposed for installation at KBB3 Berth are expected to reduce the potential for dust generation during unloading using a grab bucket when compared existing hoppers due to the increased availability of dust controls. The likelihood of dust emissions causing amenity impacts during phosphates (excluding phosphate rock) and urea unloading is reduced from unlikely to **rare** based on proposed controls being conditioned and the nature of materials.

Due to the nature of phosphate rock and potash, the likelihood of dust emissions being generated is greater the risk of dust remains as **unlikely** based on the additional controls being conditioned.

As a consequence the overall risk rating applied to the operation of grab buckets unloading product into the two new bulk material hoppers reduces although remains as **Medium**.

Risk of Noise Emissions

The Premises' nearest noise sensitive receptors are located within the KIA and are therefore assigned a higher acceptable noise level than other industrial receptors under the *Environmental Protection (Noise) Regulations 1997* (EP Noise Regulations), as shown in Table 8. Excluded from assigned levels are noise emissions from trains, reverse alarms, equipment start-up alarms and machinery operated on a vessel.

Table 8. Assigned noise levels for KIA industrial receptors

Receptor	Time of day	Assigned level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Industrial and utility premises in the KIA (industrial receptors A, B and C)	All hours	75	85	90
Industrial and utility premises other than those in the KIA	All hours	65	80	90

Source: EP Noise Regulations

An increase in volumes of material handled at the Premises will result in the generation of noise from additional truck movements and the mobilisation/operation of loading equipment.

There are no current exports of bulk granular material from the Premises authorised under the existing Licence. The introduction of a mobile ship loader for the export of silica sands and two new bulk material hoppers to replace existing hoppers present new noise sources. Noise from new equipment is not expected to be significantly greater than current unloading operations.

Increased annual loading rates are expected to increase the frequency of loading during night time hours when residential receptors are at their most sensitive to noise. Therefore the consequence is expected to increase from slight to **minor** as there may be low level impacts to amenity during cooler conditions and low winds. Noise criteria are expected to continue to be met.

The nearest industrial and residential receptors are located approximately 1,200 m and 2,100 m from the Premises respectively and are not expected to be significantly impacted by noise from Primary Activities unless in exceptional circumstances. Therefore the likelihood of noise impacts to amenity is **rare**.

The overall rating for the risk of noise impacts on sensitive receptors during operation is **Low**.

Risk of Discharges to Water

The *State Environmental (Cockburn Sound) Policy 2015* (the Policy) identifies environmental values for Cockburn Sound that must be maintained. Monitoring of water quality by the Licence Holder is reported to the Cockburn Sound Management Council (CSMC) and also annually to DWER under conditions in the existing Licence. The Licence Holder also conducts annual monitoring of sediment and mussels for contaminants.

A moderate level of protection has been assigned to the eastern side of Cockburn Sound, where the Premises is located, to ensure that the protection of the remaining seagrass meadows, commercial and recreational values and to minimise the occurrence and extent of phytoplankton blooms. The Environmental Protection Authority (2017) recommends that a 90% species protection level be applied to this area, consistent with the Australian and New Zealand Guidelines for Marine Water Quality (ANZECC and ARMCANZ 2000) for ecosystems that are slightly to moderately disturbed.

Silica sands and cement clinker

Cement clinker is soluble in water and mixes evenly whereas silica sands are water insoluble. Both products are not toxic in the marine environment suggesting that the greatest impact to the marine environment will be from sedimentation.

The most likely pathway for silica sands to enter the marine environment is via dust deposition and therefore volumes are expected to be insignificant. However, there is the potential for

product to be lost at transfer points located on the shiploader that may be inadvertently positioned to overhang the berth.

For cement clinker, the most probable pathway is via direct spillage, which may come from the early release of a grab bucket, which has an approximate volume of 8 m^3, spilling clinker in the narrow gap between the ship and berth. A spillage of cement clinker at these volumes are expected to be small enough to result in minimal localised impacts to a disturbed shipping area and allow for sufficient mixing within the Cockburn Sound that would result in undetectable turbidity impacts to seagrass meadows approximately 3.2 km away. Therefore the Delegated Officer has determined that there will be a **minor** consequence.

The following existing controls will continue to be implemented to reduce the likelihood of cement clinker spillages into the Cockburn Sound:

- Containment of product contaminated stormwater by drainage collection system on KBB3 and KBB4 which directs stormwater to a storage tank, prior to removal by liquid waste carrier.
- Deflector plates between the ship and the berth to capture spills.
- Sweeper trucks used to remove dust and spilt material from the berth.

Taking into consideration the handling method for cement clinker (grab bucket) and controls implemented by the Licence Holder, a spill event resulting in product entering the marine environment and impacting seagrass communities would probably not occur in most circumstances and is therefore **unlikely**. Provided the mobile ship loader only discharges silica sands when it is positioned above the ship's hold, there is a limited potential for access the marine environment unless conveyor transfer points are positioned between the vessel and the berth. In these situations, the likelihood of a small spill is also possible.

The consequence and likelihood ratings determined that the overall rating for impacts to water from silica sands and cement clinker handling is **Medium**.

Urea and potash

Increasing urea and potash imports by total of 51% (199,400 TPA) has the potential to raise nutrient concentrations within the Cockburn Sound in the event of a spill. In December 2015, Cockburn Sound was subject to a severe fish kill event probably caused by a bloom of microscopic algae. Results of water and tissue samples were not able to identify the chemical agents responsible for causing the algal bloom (Department of Fisheries, 2016) although elevated nutrient concentrations do have the potential to reduce oxygen available in water.

Mixing and dilution of potash and urea is expected to result in rapidly diminished nutrient concentrations beyond the berth and have a minimal cumulative impact to marine water quality at a wider scale. The volume of a potential potash or urea spill is expected to be restricted to the size of the grab bucket, which ranges between 10 and 12 m^3. The whole grab bucket volume is not expected to reach the marine environment as the gap between the ship and the berth is narrow meaning that most of any spill is expected to land on the berth. Such an event may result in a reduction in oxygen levels at a local scale, particularly in bottom waters, reducing the ability for marine life to survive. A fish kill similar to that experienced in November to December 2015 is not expected to occur as a result of a fertiliser spill as other contributory factors are likely to be required.

The Delegated Officer has determined such an impact to be mid-level impacts at a local scale based on the propensity for fertilisers to dissolve and be mixed rapidly in the marine environment. Therefore the consequence of such a spill would be **major**.

Some vessels importing urea and potash are unloaded via Siwertell meaning that spills to the Cockburn Sound may also occur at transfer stations and along the ship to shore conveyors. Therefore, additional to the controls listed above, the Licence Holder also maintains:

- a spill tray under the jetty portion of southern conveyor CV1 and CV2 which is regularly cleared of spills; and
- partially enclosed transfer stations to prevent spillage of fertilisers.

Based on Licence Holder handling methods and controls for spillages, the likelihood of a spillage impacting the Cockburn Sound has been determined to be **unlikely**.

The consequence and likelihood ratings determined that the overall rating for impacts to water from bulk urea and potash handling is **Medium**.

Two mobile hoppers at KBB3 Berth

The Delegated Officer notes that operation of the two proposed bulk material hoppers does not decrease the likelihood of direct spills to the marine environment as spill plates will continue to be used. The likelihood of spillages relates to the operation of the grab bucket used to unload the ship.

The likelihood of spillages on KBB3 Berth decreases slightly as the size of the new bulk material hoppers is greater than existing hoppers decreasing the likelihood of an inaccurate/early release of product onto the berth. However, existing Licence Holder controls including bunding and the operation of a sweeper truck and capture of berth stormwater have the greatest effect on the likelihood of product entering the Cockburn Sound. Therefore the Delegated Officer has determined that the above risk assessments for each product above remain unchanged.

Decision

This Amendment Notice authorises the:

- continued import of up to 600,000 TPA of phosphate;
- introduction of silica sands as an authorised material for handling at a rate of 624,000 TPA;
- increase in cement clinker imports from 350,300 to 650,300 TPA;
- increase of urea imports from 300,600 to 440,000 TPA;
- increase in potash import tonnage from 90,000 to 150,000 TPA.

from the Premises.

Overall throughput volumes at the Premises may reach 3,515,800 TPA under this Amendment Notice.

In addition this amendment authorises the construction and operation of the two new bulk material hoppers to be located at KBB3 Berth to receive phosphates, potash and urea.

The key emissions associated with the proposed amendments during operations are dust and discharges to water. Conditions have been applied, removed or not applied based on the risk-based approach, provided above.

Regulatory controls

Dust

Through the risk assessment cement clinker has been identified as presenting the greatest potential source of dust impacts. Therefore conditions have been applied to the Licence through this Amendment Notice to operate the dust extraction unit fitted on the cement clinker hopper at all times during unloading. Although the dust extraction unit is existing, the Delegated Officer has determined that with increased volumes of cement clinker it is necessary to ensure its operation to control the risk of dust through Licence conditions.

The existing Licence condition listed in Schedule 3, Table 5 requiring the operation of a dust extraction system at the gantry conveyor during unloading via Siwertell will be retained to limit dust generated using this system. Further requirements to place side guards on the loading hopper and on the ship loader conveyor will be added to the existing licensed controls. The Delegated Officer has determined these controls to be necessary to prevent the exposure of silica sands product to wind.

Cement clinker was identified as having the greatest potential to generate dust. Therefore additional requirements have been applied to the Licence including the operation of a dust extraction unit on the cement clinker hopper at all times when the grab bucket is loading trucks. Existing hoppers are fitted to the truck loading chute to minimise exposure to wind. Although this currently exists on cement clinker hoppers, the Delegated Officer has conditioned for the Licence Holder to maintain this equipment to ensure ongoing pollution control.

Through the application of the above controls, the risks of dust from the handling of silica sands and increased volumes of cement clinker, urea and potash are reduced to acceptable levels. Increases to authorised phosphate import volumes have been justified in the Decision Report.

The installation of the two new bulk material hoppers will further reduce the risk of dust from phosphate, urea and potash unloading. Therefore construction and operation conditions have been added to authorise the immediate operation of the new bulk material hoppers once installed.

Noise Emissions

No conditions have been applied to the Licence in relation to noise as the risks have been determined as acceptable.

Discharges to Water

To prevent discharges to water during silica sands shiploading the Licence Holder will not be permitted to allow any conveyor transfer point to overhang the berth.

Existing Licence conditions specifying that bulk granular material must not spill, or cause to be spilt, into the marine environment necessitate the routine inspection and cleaning of the under floor spill tray along conveyor CV01 and CV02. Therefore no further conditions are required to reduce the likelihood of product buildup and spillage along the conveyor system during operations of the Siwertell system.

Controls required by the existing Licence for the operation of the grab buckets have been amended to include the requirement to remove any build-up of bulk granular material that may land on the berth's edge during loading. This condition is risk based and determined to be necessary based on existing marine water quality testing conducted by the Licence Holder and the CSMC. A large spill to the marine environment can be regulated using general provisions of the EP Act.

The requirement to ensure that deflector plates are in place during operation will remain applicable to all use of grab buckets, including for cement clinker to be deposited to the new bulk material hoppers.

Through the application of the above controls, the risks of discharges to the marine environment are reduced to acceptable levels.

Construction conditions

Construction conditions have been applied to the Licence through this Amendment Notice to ensure that the two bulk material hoppers can be operated with the dust controls specified in the Application once installed.

The same conditions as for dust controls at the cement clinker hopper have been applied to the new bulk material hoppers, which are proposed for operation by late 2018. As these hoppers represent an improvement to fertiliser handling practices at the Premises, the Delegated Officer has elected to authorise their immediate operation so long as they are constructed in accordance with construction conditions.

Material Change conditions removed

DWER notes that each Material Change notifications received from other ports in Western Australia have resulted in the decision to amend the respective port Licences. In addition, the use Material Change conditions presents a risk to the environment where a deviation from authorised activities is later assessed by the CEO as being unacceptable.

The Delegated Officer has therefore determined that Material Change conditions should be removed from the Licence. To ensure consistency of regulation for other similar operations, these conditions will also be progressively removed from other port licences in due course.

Administrative amendment

DWER has also made minor amendments to reporting requirements to align annual compliance reporting dates with annual marine monitoring reporting dates. This amendment is administrative in nature and does not affect the level of environmental risk. The beginning of the new annual period has been changed from 30 July each year to 1 August each year, consistent with other licenced annual periods that commence at the beginning of the calendar month.

Licence Holder's Comments

The Licence Holder was provided with the draft Amendment Notice on 28 February 2018 to provide comment. The Licence Holder provided comment on the draft Amendment Notice on 10 April 2018. Comments and DWER's responses are provided in Appendix 2.

Amendment

1. The Licence is amended by the deletion of the following Conditions 2 to 4 as shown in strikethrough:

~~2. The Licensee must notify the CEO of any Material Change within 14 days of a Material Change occurring. The Licensee's notification (which the CEO will make publicly available) must:~~
~~(a) be in writing;~~
~~(b) include details of the changes, including duration, infrastructure details (if any); and~~
~~(c) include risk analysis of the changes, including proposed controls to mitigate risks.~~

~~Nothing in this Condition constitutes a defence to offences under the EP Act.~~

~~3. The Licensee must provide to the CEO any additional information the CEO may reasonably require to assess the Material Change and for the CEO to determine if an amendment to the Licence is required.~~

~~4. The Licensee must cease carrying out, or modify, a Material Change in the manner and at the time required by the CEO if:~~
~~(a) the CEO forms the view, acting reasonably, that the Material Change has or may have an unacceptable impact on public health, amenity or the environment; and~~
~~(b) the CEO has provided written notice (which the CEO will make publicly available) to the Licensee specifying the grounds for the CEO's views.~~

~~Nothing in this Condition prevents the Licensee subsequently submitting an amendment in relation to the Material Change.~~

2. Condition 9 is amended by the deletion of the red text shown in strikethrough and insertion of red text below:

9. The ***Licensee*** must not cause any ***Emissions*** from the ***Premises*** except for Specified Emissions and General Emissions described in column 1, subject to the exclusions, limitations or requirements specified in column 2, of Table 3.

If the ***Licensee*** proves that it has acted in accordance with this ***Condition***, it may be a defence under s 74A of the ***EP Act*** to proceedings for offences under the ***EP Act*** (including offences under section 56).

Table 3: Emissions Table

Column 1	**Column 2**
Emission Type	**Exclusions/Limitations/Requirements**
Specified Emissions	
Dust Management	Subject to compliance with: • rows 1 to 4 of the table in Schedule 3; and • ***Conditions*** 5 and 6.
Spill Management	Subject to compliance with:

Column 1	Column 2
Emission Type	**Exclusions/Limitations/Requirements**
	• Rows 5 to 9 ~~2 to 5~~ of the table in Schedule 3; and • ***Conditions*** 5 to 8.
Discharge washwater and stormwater from the Premises	Subject to: • compliance with row ~~6~~ 10 of the table in Schedule 3; and • ***Condition*** 5 to 8.
General Emissions **(excluding Specified Emissions)**	
Emissions which: • arise from the activities on the ***Premises*** through matters set out in, or incidental to the matters set out in, the ***General Description*** in Schedule 2~~; or~~ • ~~occurs from a ***Material Change*** (except where ***Condition 4*** applies).~~	***Emissions*** excluded from General Emissions are: ***Unreasonable emissions***; or emissions that result in, or are likely to result in, ***Pollution, Material environmental harm*** or ***Serious environmental harm***; or ***Discharges*** of ***Waste*** in circumstances likely to cause ***Pollution***; or ***Emissions*** that result, or are likely to result in, the ***Discharge*** or abandonment of ***Waste*** in water to which the public has access; or ***Emissions*** or ***Discharges*** which do not comply with an ***Approved policy***; or ***Emissions*** or ***Discharges*** which do not comply with ***Prescribed standard***; or ***Emissions*** or ***Discharges*** which do not comply with the ***Conditions*** in an ***Implementation agreement or decision***; or ***Emissions*** or ***Discharges*** the subject of offences under regulations prescribed under the ***EP Act***, including materials ***Discharged*** under the *Environmental Protection (Unauthorised Discharges) Regulations 2004*.

3. Condition 10 is amended by the deletion of the red text shown in strikethrough below:

10. The Licensee must receive and maintain accurate records including information, reports and data in relation to:

(a) the calculation of fees payable in respect of the Licence;

~~(b) any Material Change;~~

4. Condition 13 is amended by the deletion of the red text shown in strikethrough and insertion of red text shown in italics below:

13. The Licensee must submit to the CEO ~~within 30 days after the Anniversary Date~~ *by no later than 30 September each year*, a Compliance Report indicating the extent to which the Licensee has complied with the Conditions in this Licence for the *preceding* Annual Period.

5. The Licence is amended by insertion of Condition 15, 16 and 17 shown in red text below:

15. The Licensee must ensure that the two bulk material hoppers described in the application documents specified in Column 1 of Table 3A, are installed in accordance with the requirements specified in Column 3 of Table 3A.

Table 3A: Installation requirements for two bulk material hoppers

Document	Date of document received	Key Application Commitments
Email received from Fremantle Ports Authority: *Application for Licence Amendment – Fremantle Ports – Kwinana Bulk Jetty – L4474/1976/14 – Two Bulk Material Hoppers*.	22 August 2017	Offsite fabrication to incorporate: • dust collectors at the top of the hopper capable of providing continuous filtration of air within the hopper; • a dust collector at discharge and feed chutes to the conveyor; • a dust grid on the top of the hopper capable of reducing dust escape; and • a truck-loading chute.

16. The Licence Holder must not depart from the requirements in Table 3A except:
    (a) where such departure is minor in nature and does not materially change or affect the infrastructure or equipment; or
    (b) where such departure improves the functionality of the infrastructure or equipment and reduces the risk to public health and the environment,
    (c) and all other Conditions in this Licence are still satisfied.

17. The Licence Holder must provide a report to the CEO within one month of completing the installation and commissioning of the two bulk material hoppers that includes:
    (a) confirmation that works were completed in accordance with the Key Application Commitments specified in Table 3A;
    (b) is signed by a person authorised to represent the Licence Holder and contains the printed name and position of that person within the Licence Holder's organisation; and
    (c) certification of works by a suitably qualified professional engineer or builder confirming that there are no material defects.

6. The Definitions in the Licence have been amended for CEO as shown by the deletion

of the text with the strikethrough and the insertion of red text below:

~~***Anniversary Date*** means the anniversary of the date of grant of this Licence.~~

Annual Period means the ~~a~~ 12 month period commencing from 1 August each year. ~~an Anniversary Date and concluding one day prior to the subsequent anniversary date.~~

CEO for the purposes of notification means:

Director General
~~Department of Environment Regulation~~
~~Locked Bag 33 Cloisters Square~~
~~Perth WA 6850~~
~~info@der.wa.gov.au~~
Department Administering the *Environmental Protection Act 1986*
Locked Bag 33 Cloisters Square
PERTH WA 6850
Email: info@dwer.wa.gov.au

~~***Material Change*** means a change to the activities carried out on the ***Premises*** as described in the ***General Description*** set out in Schedule 2 and:~~

~~(a) that may result in an increased risk to public health, amenity or the environment; and~~
~~(b) includes the types of changes specified in Schedule 2; and~~
~~(c) does not include the excluded changes specified in Schedule 2.~~

7. Schedule 2 is amended by the deletion of the red text shown in strikethrough and insertion of red text shown in italics below:

Table 4: Bulk Material volumes assessed

Commodity	**Volume *(per Annual Period)***
Ammonium sulfate	20,900 tonnes (imported)
Cement clinker	~~350,300~~ *650,300* tonnes (imported)
Granulated slag	300,600 (imported)
Gypsum	40,000 (imported)
Phosphates	~~300,000~~ *600,000* tonnes (imported)
Potash	~~90,000~~ *150,000* tonnes (imported)
Silica sands	*624,000 tonnes (exported)*
Soya bean meal	60,000 tonnes (imported)
Sulfur	600,000 tonnes (imported)
Urea	440,000 tonnes (imported)
Total volume handled	~~**2,062,400**~~ ***3,485,800*** **tonnes**

~~Examples of Material Change~~

- ~~new commodities;~~
- ~~volume changes of commodities exceeding 10%;~~
- ~~changes to the control or ownership of the infrastructure or equipment within the ***Premises***; and~~
- ~~changes to the site layout of infrastructure and equipment specified on the plans in Schedule 1.~~

~~Non-Material Change~~

~~Improvements or additions to infrastructure and equipment that decrease the risk of ***Emissions*** and ***Discharges***.~~

8. Table 5 of Schedule 3 is amended by the insertion of red text shown in italics below:

	Column 1	Column 2
	Infrastructure/Equipment	**Requirements**
Dust Management		
1.	A self-contained fully enclosed auger-type continuous unloader (Siwertell) onto CV1 conveyor	Vertical screw conveyor system which transfers material from ships hold either: • directly onto the conveyor belt system; or • underneath through bellows (chutes) to trucks. Dust extraction system at the gantry conveyor must be on, operating and not full or blocked when unloading suitable dusty products (excluding sulfur). For the unloading of sulfur, water sprays must be used to minimise dust generation.
2.	Mobile Shiploader (silica sands)	Side guards on the ground hopper and conveyor in place during truck unloading for the purpose of reducing the exposure of product to wind.
3.	Cement clinker hopper	Dust extraction unit/s operating at all times when the grab bucket releases cement clinker into the hopper. Fitted with a loading chute to minimise exposure to wind when loading trucks.
4.	Bulk material hoppers	Dust extraction unit operating at all times when the grab bucket releases bulk granular material into the hopper.
Spill Management		
~~2.~~ 5.	Ship grab and hoppers (Deflector plates) Berths 3 and 4	Deflector plates are to be designed and maintained to deflect spills from the grabs to deck of the jetty. Deflector plates are to be in place along the length of loading/unloading area when loading or unloading of vessels using the grabs. Following the spill of bulk granular material, built up material on the berth's edge is removed as soon as practicable.
~~3.~~ 6.	Conveyor system (CV1, CV2, CV3, CV5, CV6)	Bulk granular material must not spill, or cause to be spilt, into the marine environment. Enclosed conveyor system designed with: • steel cladded walls and roof (excluding

	Column 1	Column 2
	Infrastructure/Equipment	**Requirements**
		CV1 which has no roof); and • an under floor spill tray which is either sloped to direct spills and washwater to collection point via a gutter or contained to prevent spills entering the environment.
~~4.~~ 7.	Transfer Stations (T1, T2, T3, T4)	Enclosed transfer stations with fiberglass cladded walls and roof and concrete flooring.
8.	Mobile ship loader	Conveyor transfer points do not overhang the berth's edge.
~~5.~~ 9.	Specified Action KBB3 and KBB4 and Jetty Neck.	Following the completion of loading or unloading activities involving the use of ship grabs and/or hoppers the berth used and jetty neck is cleaned to remove any spilt or accumulated material.
Washwater and stormwater management		
~~6.~~ 10.	Stormwater containment infrastructure for KBB3 and KBB4	Vessels and their holds, deck and equipment must not be washed into marine waters. Collect and contain stormwater contaminated with product and washwater that collects on the deck of the wharf, so that it does not enter marine waters. Berths bunded and sealed to contain all product contaminated stormwater/wastewater and prevent any material spilt entering the marine environment. Product contaminated stormwater/wastewater directed to drains located on the berths. Product contaminated stormwater/wastewater either held in holding tank or pumped into truck for disposal.

Appendix 1: Key Documents

	Document Title	Availability
1.	ALS Environmental (2017) Analytical Results. EP1709034.	DER records (A1518102)
2.	ANZECC and ARMCANZ (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality	Available at: www.environment.gov.au
3.	Department of Fisheries (2016) Fish kill incident – Cockburn Sound, Western Australia November-December 2015.	Available at: www.fish.wa.gov.au
4.	Ektimo (2014) Emission Testing Report: Mideco, QUBE Logistics Facility – Kwinana. Report Number R000131	DER records (A1518102)
5.	Environmental Protection Authority (2017) Environmental quality criteria reference document for Cockburn Sound – A supporting document to the State Environmental (Cockburn Sound) Policy 2015	Available at: www.epa.wa.gov.au
6.	*Environment Protection (Noise) Regulations 1997*	Available at: www.slp.wa.gov.au
7.	EPA (2015) Environmental Quality Criteria Reference Document for Cockburn Sound – A Supporting Document to the State Environmental (Cockburn Sound) Policy 2005. Environmental Protection Authority, March 2015.	Available at: http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EQC%20Ref%20Doc%20for%20Cockburn%20Sound%20Feb%202017-2.pdf
8.	Hanson (2017) Material Test Report. Report Numbers: MAT:RED17-00772-Q01 and MAT:RED17-00516-Q01.	DER records (A1518102)
9.	Hanson (2015) Silica Sand Safety Data Sheet. Heidelberg Cement Group.	DER records (A1518102)
10.	Ilic, Planner, Biswas and Reid (2016) Revision of AS4156.6 – Coal Preparation – Part 6: Determination of Dust/Moisture Relationship for Coal.	Accessed at: https://www.researchgate.net/publication/304216182_Revision_of_AS41566_-_Coal_Preparation_-_Part_6_Determination_of_DustMoisture_Relationship_for_Coal
11.	International Agency for Research on Cancer (2009) Silica Dust, Crystalline, in the Form of Quartz or Cristobalite.	Available at: https://monographs.iarc.fr/ENG/Monographs/vol100C/mono100C-14.pdf
12.	Jenike and Johanson (2017) Report 70875-1 R1 Dust Extinction Moisture (DEM) Testing of Silica Sands.	DER records (A1502400)
13.	National Environment Protection Council (2016) National Environment Protection (Ambient Air Quality) Measure as amended 25 February 2016.	Available at: https://www.legislation.gov.au/Details/F2016C00215
14.	Safe Work Australia (2013) Workplace Exposure Standards for Airborne Contaminants.	Available at: https://www.safeworkaustralia.gov.au/system/files/documents/1705/workplace-exposure-standards-airborne-contaminants-v2.pdf
15.	SGS Australia Pty Ltd (2016) AFS30-35 Comp 4 RED16-975-Q4.	DER records (A1394627)

Appendix 2: Summary of Licence Holder comments

Condition	Summary of Licence Holder Comment	DWER Response
Conditions 2, 3 & 4	FPA objects to removal of the Notification of Material Change Conditions in line with comments in the covering letter.	Noted. Most of the determinations in response to Material Change notifications received from all ports in Western Australia have been to amend each respective port Licence following a detailed risk assessment. DWER will continue to work with the Licence Holder and other Port Authorities to develop an appropriate alternative to the previous 'Material Change' provision. The objective of the revised condition will be to improve operational flexibility at the Premises without resulting in an increased or unknown risk to public health or the environment.
Condition 9	FPA notes the deletion of text relating to Material Change under General Emissions, Column 1. FPA notes the amendment of Dust Management, Column 2, 'row 1', to 'rows 1 to 4'. FPA notes the amendment of Spill Management, Column 2, Rows 2 to 5, to Rows 5 to 10. The amendment should refer to Rows 5 to 9 to align with current Licence requirements.	Noted. Changes made.
Condition 10	FPA notes the deletion of text relating to Material Change. Note that Amendment Notice Page 18, Section 3. refers to Condition 12, not 10.	Noted. Changes made.

Condition 13	FPA notes the amendment of the submission date for the annual Compliance Report to align with annual marine monitoring reporting dates, and the deletion of Anniversary Date. Please confirm the applicable dates of the Annual Period to be reported.	Noted. The definition for "Annual Period" has been amended to clarify that the 12 month reporting period commences 1 August each year.
Addition of Conditions 15 & 16	FPA notes the addition of these conditions relating to the installation and operation of two bulk material hoppers on KBB3 berth. FPA accepts Conditions 15 & 16.	Noted.
Addition of Condition 17	FPA notes the addition of this condition relating to the installation and operation of two bulk material hoppers on KBB3 berth. The provision of the report may take longer than one month following completion of the infrastructure. The potential delay is in relation to the availability/scheduling of bulk material imports that are required for final acceptance testing of the equipment. FPA suggests amending this condition to require provision of the report within 30 days of completion of final acceptance testing. Condition 17(c) - There is no suitably qualified person (Mechanical/Structural Engineer) at FPA to sign off on an engineering report of this type. We would rely on the Owner of the hoppers to provide engineering certification (Condition 17b) that they had been constructed in accordance with the approved plans. FPA requests that this condition is deleted, or amended to require provision of the report with a cover letter signed by a person authorised to represent the licence Holder.	Noted. Condition amended to refer to installation and commissioning to allow for final acceptance testing prior to reporting. Condition 17 has been amended to require certification by a suitably qualified professional engineer or builder to confirm no material defects of the infrastructure prior to installation. This may be done by the current owner of the hoppers and prior to installation and submitted as an attachment to the compliance report. An authorised representative of the Licence Holder must confirm that installation works were completed in accordance with the Key Application Commitments specified in Table 3A.
Definitions	FPA notes the deletion of Anniversary Date and previous CEO details for the purposes of notification, and insertion of the updated CEO for the purposes of notification. FPA notes the deletion of Material Change.	Noted.

Schedule 2	FPA notes the updated Commodity Volumes per Annual Period noting the volumes are in line with the Licence Amendment applications. FPA notes the removal of Examples of Material Change and Non-Material Change.	Noted.
Schedule 3, Table 5 Item 4, Column 1	FPA requests the removal of 'New' and '(to be constructed in accordance with Condition 15)'. FPA would like the infrastructure to be referred to as 'Bulk Material Hoppers'.	Changes made. DWER notes that the Licence Holder will still be required to construct the Bulk Material Hoppers in accordance with Condition 15.
Schedule 3, Table 5 Item 4, Column 2	FPA advises that products other than phosphate, potash and urea will be imported using these hoppers, in line with Section 2.3.3 & 5.2 of the Supporting Documentation (GHD, August 2017) which states that products to be handled include but are not limited to these three cargoes. FPA requests that reference to these three cargoes is removed and replaced with 'bulk material'. FPA advises that Sulfur and Cement Clinker are not suitable products to be imported using the hoppers. FPA objects to the requirement for dust extraction units to be operating at all times when releasing product into the bulk material hoppers as not all products generate visible dust during unloading operations, making use of the dust extraction units unnecessary. FPA suggests that the requirement is amended to 'dust extraction units operating at all times when the grab bucket releases dust generating bulk material into the hopper or when visible dust occurs.'	Noted. DWER has amended the item to allow other products to be unloaded using the Bulk Material Hopper. This does not present an additional risk to environmental values or public health risk as the Bulk Material Hopper is equipped with greater controls for the management and prevention of spills and dust than standard hopper equipment. DWER disagrees with the proposed changes relating to the operation of the dust extraction units. This Amendment Notice authorises significant increases in throughput tonnages and in turn, increases the risk of dust emissions. Therefore additional controls relating to the operation of materials handling equipment have been assessed as being necessary for the prevention and control of dust emissions from bulk materials handling.
Schedule 3, Table 5 Item 5, Column 2	FPA notes the addition for spilled bulk granular material to be removed as soon as is practicable.	Noted.

Schedule 3, Table 5 Item 8, Columns 1 & 2	FPA notes the addition of Item 8 and the requirement for conveyor transfer points of the mobile ship loader to not overhang the berths edge.	Noted.
General comments		
Page 2	Last paragraph, 2nd sentence – "The hopper will replace the need for smaller mobile hoppers used to load trucks with phosphates, potash and urea." This statement is incorrect as the smaller mobile hoppers may still be used when required.	Noted. Changes made.
Page 4 – Table 1	Material Change Notifications are not complete. Additional notifications include: MC2 – 24/02/17 – Silica Sand MC6 – 23/08/17 – Silica Sand MC7 – 17/11/17 – Silica Sand MC8 – 27/02/18 – Silica Sand	Noted. Table 1 updated to include additional Material Change notifications.
Page 6 – Last paragraph	Last sentence – "This would suggest that fertiliser handling activities at the Premises are likely to be contributing (to) the overall nutrient content of inshore waters." FPA objects to this sentence as it has been based only on the 2017 Marine Quality Monitoring Program (MQMP) data. Nutrient related water quality varies greatly across the whole of Cockburn Sound as can be seen from the Cockburn Sound Management Council monitoring reports. Data from the 2016 MQMP showed higher levels of nutrient related water quality at Kwinana Bulk Terminal, which does not handle fertilisers, in comparison to Kwinana Bulk Jetty. FPA requests that this sentence is removed from the Amendment Notice.	Noted. Amendments have been made to clarify that the statement is based on historical monitoring data, handling methods and the solubility of fertiliser products. DWER has stated that water quality monitoring results are inconsistent from year to year and that there exist other sources of nutrients within Cockburn Sound. However, DWER notes that there is evidence to suggest that bulk material handling activities at the Premises are contributing to nutrient loads. These changes can now be seen on pages 9 and 10.

Page 7	The reference to and relevance of the 2015 fish kill event is not clear as the cause was toxic phytoplankton. At the time FPA was subjected to extremely thorough scrutiny by the Department of Environment Regulation Pollution Response Unit and there was no evidence to suggest FPA operations contributed to this event. Reference to the fish kill event infers that FPA may have caused and/or contributed to it. FPA requests that this section is removed from the Amendment Notice.	Noted. Discussion on the 2015 fish kill event provides context in terms of the sensitivities of the marine environment within the Cockburn Sound and the potential for contributory effects of future bulk materials handling activities at the Premises. The Department of Fisheries 2016 report concludes that the fish kill was the result of toxic phytoplankton but notes that contributory effects from low dissolved oxygen are also likely. To further clarify that the Premises was not directly responsible for incident, the following statement has been added: "The Department of Environment Regulation also investigated and found no potential pollution or industrial sources were identified as a cause of the fish kill." This change is now found on page 10.
Page 10, Last Paragraph	The use of the Environmental Protection (Kwinana Atmospheric Wastes) Regulations 2002 criteria for assessing point source dust emissions was not the intent of the Regulations or the Environmental Protection (Kwinana) (Atmospheric Wastes) Policy Approval Order 1999. The 260ug/m^3 24-hour average is a prescribed level of particulates in ambient air within the Policy Area A air shed. FPA requests that further clarification in relation to reference of the EPP is provided, an in particular the applicability of the 260ug/m^3 TSP limit to point sources.	DWER notes that reference has been made to Policy Area A and has inserted the word "ambient" to further clarify that the criterion is for the whole area and not in reference to a point source. This change can be seen now on pages 12 and 13.