



**Licence Number** L6637/1995/15

**Licence Holder** Electricity Generation and Retail Corporation

**ACN** 58 673 830 106

**File Number:** DER2015/000109

**Premises** Collie 'A' Power Station  
Boys Home Road  
  
PALMER WA 6225  
  
Being Part of Lot 3001 on Plan 51101

**Date of Amendment** 30 April 2018

## Amendment

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* (EP Act), as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

Date signed: 30 April 2018

**Caron Goodbourn**

**A/Manager Licensing (Process Industries)**

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

## Document control

## Definitions and interpretation

### Definitions

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

**Table 1: Definitions**

Term	Definition
Bluewaters	Bluewater I & II Power Station
DER	Department of Environment Regulation (former)
FAD	Fly Ash Dam
Noise Regulations	Environmental Protection (Noise) Regulations 1997 (WA)

### 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 guidance statements have informed the decision made on this amendment

- *Guidance Statement: Regulatory Principles* (July 2015)
- *Guidance Statement: Setting Conditions* (October 2015)
- *Guidance Statement: Decision Making* (February 2017)
- *Guidance Statement: Risk Assessment* (February 2017)
- *Guidance Statement: Environmental Siting* (November 2016)

### Amendment description

On 12 January 2018, the Licence Holder submitted an application to amend Licence L6637/1995/15 for the Collie 'A' Power Station. Appendix 1 contains a list of the documents that form that Application.

The Licence Holder has applied to make the following changes:

- To accept fly ash and bottom ash waste from the Bluewaters Power Station for disposal into the Collie 'A' Power Station Ash Storage Dam (or flyash dam) Cell 2A;
- To temporarily increase the approved throughput storage capacity for total ash disposal from 120,000 tonnes per annum to 140,000 tonnes per annum for the period from March 2018 to December 2019.

The Bluewaters I & II Power Station (Bluewaters) operates under EP Act Licence No. L8326/2008/5 and is located on the adjacent landholding, west to the Collie 'A' Power Station. Bluewaters does not have an ash disposal dam on the premises and relies on legal access to the Ewington mine void at the Griffin Coal Mine (L6363/1995/14) to dispose of fly and bottom ash generated at the premises. Bluewaters generates up to 300,000 tonnes per annum of ash requiring disposal. This amendment notice is to allow up to 20,000 tonnes of fly ash and

bottom ash per to be disposed of within the Collie 'A' Power Station Flyash Dam (FAD). This amendment is sought as a short term contingency measure in the event that legal access to the Ewington mine void should unexpectedly cease which would result in Bluewaters not being able to continue operating in the short term, until other waste disposal options can be secured. The Licence Holder has requested this change as a short term measure (up to the end of 2019).

The Licence Holder has also requested an increase in throughput of 20,000 tonnes per annum as part of this amendment to accommodate any ash received from the Bluewaters premises without limiting the operational capacity of the Collie 'A' Power Station. The Licence Holder is requesting a corresponding increase of fly ash disposal from the approved 120,000 tonnes per annum to 140,000 tonnes per annum during this two-year period only (2018 to 2019) and would revert back to the 120,000 tonnes per annum throughput in 2020

The Bluewaters plant is approximately 3km from the Collie 'A' Power Station FAD; however transport by road will require semi-trailer haulage trucks to travel approximately 7.5km from the Bluewaters boilers to the nominated discharge area along the northern access ramp in Cell 2A (see Figure 1). Up to 500 tonnes will be transported each day for campaign period lasting between 10 to 40 days. The transportation will use of a sealed public access road (Boys Home Road) with the exception of a 700m stretch on the Collie 'A' Power Station site. The Licence Holder has submitted an addendum to the existing Fly Ash Dam Cell 2 operating manual (GHD2017) which includes advice that a Traffic Management Plan will be developed by Bluewaters and approved by the Licence Holder prior to the transport of ash between the two premises.

**Figure 1: The Collie 'A' Power Station Flyash dam access ramp**

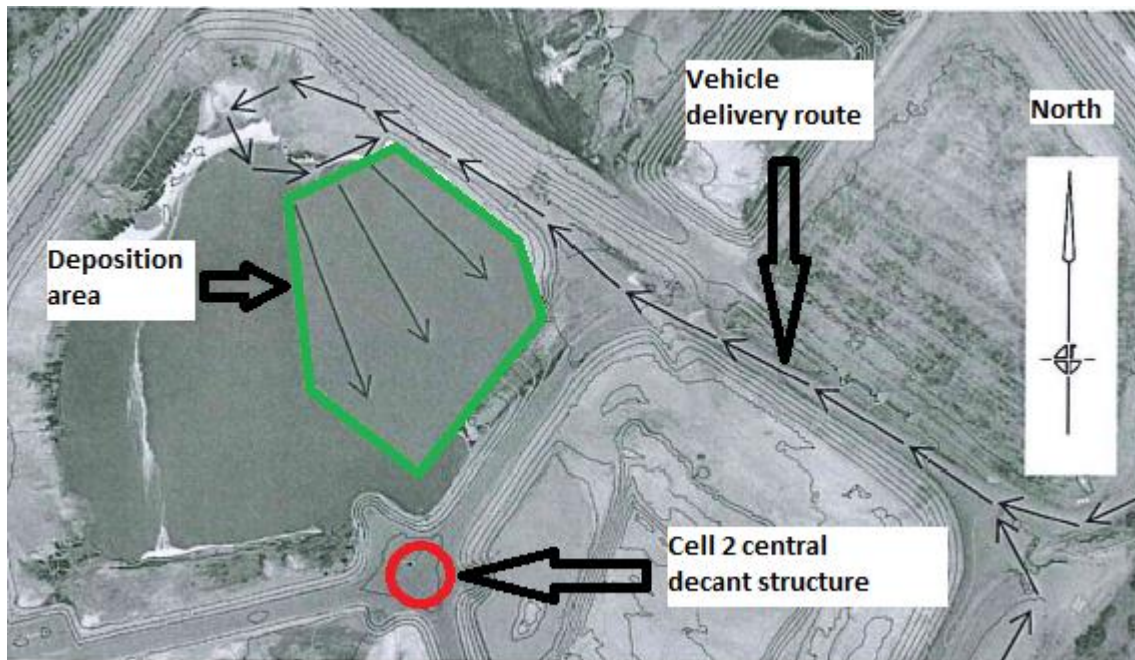


The ash will be transported with a consistency of approximately 15% moisture content and bottom ash will be used to cover the fly ash where available to minimise dust lift off during transportation. During ash deposition water suppression methods such as dust carts will be

used as required during tipping, bulldozing and compaction.

Minor earthworks are required to ensure safe vehicular access to Cell 2A using the existing ramp, which is formed from the borrow material that is already in place. These earth works will primarily to undertake maintenance to the existing ramp and to create a suitable platform for semi-trailers to tip the ash at the base of the ramp and are expected to last for no longer than two days. Once the ash is tipped, the material will be pushed towards the Cell 2 internal decant structure via a swampy dozer, which will evenly spread the materials and to ensure drainage towards the centrally located embankments which adjoin the water recovery infrastructure. The movement of ash down the ramp, and then as it is pushed towards the central embankment, is shown in Figure 2.

**Figure 2: The Flyash delivery and deposition area within Cell 2A**



*Adapted from: Figure 2: Collie Power Station Fly Ash Dam Cell 2 Operating Manual Addendum for Bluewaters Power Station Fly Ash Acceptance (GHD, 2017)*

## Amendment history

Table 1 provides the amendment history for L6637/1995/15.

**Table 1: Licence amendments**

Instrument	Issued	Amendment
L6637/1995/15	10/10/2014	The then Department of Environment Regulation (DER) initiated amendment to convert Licence to new format, to authorize operation of an embankment raise to Cell 1A and incorporate requirements of the Minister for Environment appeal determination No. 2633/11.
L6637/1995/15	02/06/2015	Licence Holder initiated amendment to revise licence limits for discharge to surface water via the ocean outfall and to extend the expiry date to 17 October 2036.
L6637/1995/15	06/01/2017	Amendment Notice 1 Licence Holder initiated amendment to change registered business address.
L6637/1995/15	26/10/2017	Amendment Notice 2 Licence Holder initiated amendment to construct a 3m embankment raise on Ash Storage dam Cell 2B and to increase the approved throughput capacity for the disposal of fly and bottom ash from 95,000 tonnes per annum to 120,000 tonnes per annum.
L6637/1995/15	30/04/2018	Amendment Notice 3 Licence Holder initiated amendment to allow the burial of up to 20,000 tonnes of ash from Bluewaters Power station within the Ash storage cell.

## Location and receptors

Table 2 below lists the relevant sensitive land uses in the vicinity of the prescribed premises which may be receptors relevant to the proposed amendment.

**Table 2: Receptors and distance from activity boundary**

Residential and sensitive premises	Distance from flyash dam
Rural residences (R1, R2, R3 and R4 as depicted in Figure 3)	As measured from the boundary of the FAD (Cell 1 and Cell 2) as depicted in Figure 3: R1 – approx. 4.6 km northwest R2 – approx. 3.5 km northeast R3 – approx. 4.0 km northeast R4 – approx. 6.6 km southeast
Semi-Rural residential area (SR1 as depicted in Figure 3)	SR1 – approx. 5.2 km west
Collie Hills Village Accommodation (CHV as depicted in Figure 3)	CHV – approx. 4.8 km west

The location of these receptors from the FAD is illustrated in Figure 3 below.

**Figure 3: Location of sensitive receptors to the Collie 'A' premises boundary and flyash dam**

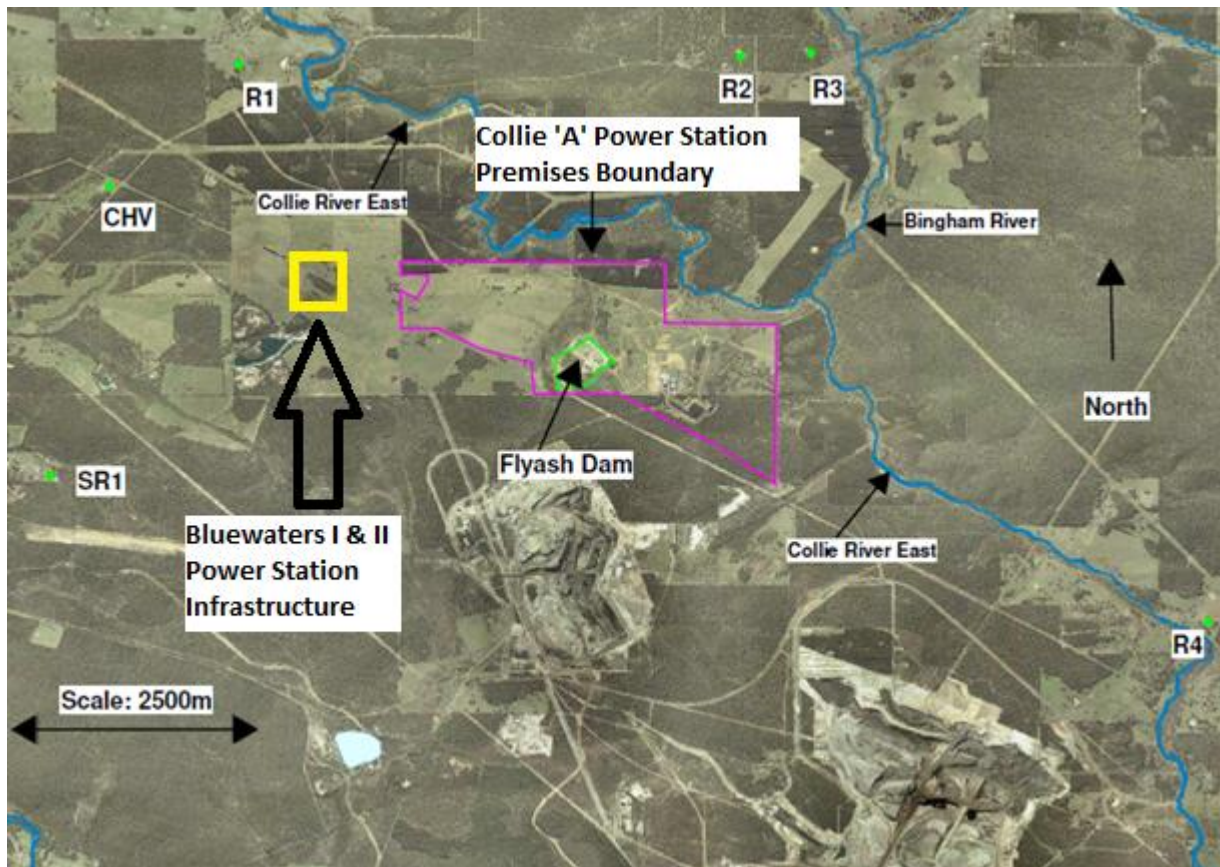


Table 3 below lists the relevant environmental receptors in the vicinity of the prescribed premises which may be receptors relevant to the proposed amendment.

**Table 3: Environmental receptors and distance from activity boundary**

Environmental receptors	Distance from Prescribed Premises
<i>Rights in Water and Irrigation Act 1914</i> (RIWI Act) Groundwater Area	<p>The premises are within the proclaimed Collie Groundwater Area. Monitoring Location 14 lies closest to the Cell 2B western wall. Baseline data shows that the beneficial use of the water is limited due to high salinity, but is potentially suitable for stock watering.</p> <p>No bore logs were identified for the monitoring bores present on the site.</p>
RIWI Act Surface water Area	The premises lie within the proclaimed Collie River Irrigation District.
Public Drinking Water Source Protection Area (PDWSA)	The premises lie within the Wellington Dam Catchment Area; however, a priority category for the protection of the resource has not been assigned.
Rivers	<p>The Collie River East Branch runs north and east of the premises boundary. The river is approximately 100 m north of the premises boundary and 1.1 km northeast of the FAD.</p> <p>The Bingham River intersects the Collie River East and is the closest major river to the premises. At its closest, the Bingham River is approximately 500 m northeast of the premises boundary and 2.2 km northeast of the FAD.</p>
Other	<p>The Licence Holder has identified a wetland 100 m west of FAD Cells 2A and 2B. The wetland is not considered as a specified ecosystem; however, it is likely to have value to local wildlife.</p> <p>Figure 4 below shows the location of the wetland area in relation to the FAD.</p>

Figure 4 indicates the location of the wetland 100m west of FAD Cells 2A and 2B.

**Figure 4 Location of wetland area downstream of flyash dam**



### **Risk assessment**

Table 6 below describes the construction, commissioning, and operational Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. The table identifies the determined risk to public health or the environment from the amendment, and whether activities require further regulatory controls.



**Table 6: Risk assessment for proposed amendments during operation**

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	
Source/Activities	Potential Emissions	Potential Receptors	Potential Pathway	Potential Adverse Impacts					
<b>Cat 53</b> <i>Flyash disposal</i>	Minor earthworks to Cell 2A access ramp	<b>Dust:</b> from construction activities	Single rural dwelling, closest being 3.5 km northeast of the FAD	<b>Air:</b> transport and dispersion of particulates (fugitive dust)	Health and amenity impacts	Slight	Rare	Low	The Delegated Officer considers that the separation distance between the construction area and the residential dwellings is sufficient.
			Native vegetation and wetland approximately 100 m from the FAD	<b>Air:</b> transport and dispersion of particulates (fugitive dust)	Deposition on vegetation which may prevent photosynthesis and plant respiration	Slight	Rare	Low	The Delegated Officer considers that the separation distance between the FAD and the receptor is sufficient.  Construction works will be of short duration.
		<b>Noise:</b> from construction activities	Single rural dwelling, closest being 3.5 km northeast of FAD	<b>Air:</b> transport and dispersion	Health and amenity impacts	Slight	Rare	Low	The Delegated Officer considers that the separation distance between the construction area and the residential dwellings is sufficient.  Construction works will be of short duration.  The Noise Regulations apply.

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential Emissions	Potential Receptors	Potential Pathway	Potential Adverse Impacts				
Transportation, deposition and spreading of fly ash and bottom ash	<b>Dust:</b> from <b>Flyash:</b> containing SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , CaO and metal particulates.	Single rural dwelling, closest being 3.5 km northeast of the FAD.  Soil, native vegetation and wetland approximately 100 m from the FAD.	<b>Air:</b> transport and dispersion of particulates (fugitive dust).	Health and amenity impacts.  Deposition on soil, vegetation and into wetland areas contributing to a loss terrestrial and nearby aquatic ecosystem health.	Moderate	Unlikely	Medium	<p>The Delegated Officer considers that the separation distance between the FAD and the residential dwellings is sufficient such that no impacts on human sensitive receptors will occur.</p> <p>The Delegated Officer considers there is a risk that metal and metalloid particulates (dust) will be deposited on nearby soil and wetland areas. Impacts to surface water quality are possible, and infiltration into soil profile may also impact on localised native vegetation health.</p> <p>See the risk dust emissions from transportation, deposition and spreading activities is assessment in the decision section below</p>

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential Emissions	Potential Receptors	Potential Pathway	Potential Adverse Impacts				
<p><b>Cat 53</b> <i>Flyash disposal</i></p>	<p>Increase in throughput of Flyash to 140,000 tonnes per annum</p>	<p>Discharge of Flyash slurry to the environment through embankment failure</p> <p><b>Flyash slurry:</b> Approximately 30% acidic water with elevated metals and approximately 70% fine particle ash.</p>	<p>Native vegetation and wetland approximately 100 m from the FAD.</p> <p>Collie River 1000 m from the FAD.</p> <p>People travelling in vehicles on Boys Home Road 400 m from the FAD.</p>	<p><b>Land and water:</b> covering and inundation of nearby land and surface water resources; infiltration to groundwater</p>	<p>Injury to people travelling in vehicles on Boys Home Road.</p> <p>Soil contamination</p> <p>Loss of terrestrial and nearby aquatic ecosystems through burial.</p> <p>Degradation of groundwater quality impacting on beneficial use of Collie River.</p>	Major	Unable to determine	<p>The consequence of embankment failure is considered major due to the potential for high-level impacts on site and off site.</p> <p>There is insufficient information available to assess the likelihood of the risk event occurring, or determining the overall risk associated with this increase.</p> <p>Refer to the detailed risk assessment in the decision section below for further information.</p>

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	
Source/Activities	Potential Emissions	Potential Receptors	Potential Pathway	Potential Adverse Impacts					
<b>Cat 53</b> <i>Flyash disposal</i>	Increase in throughput of Flyash to 140,000 tonnes per annum	Increase in seepage of contaminants through the FAD liner causing groundwater contamination and mounding  <b>Slurry water:</b> acidic with elevated metals, salts and metalloids.	Soil and Groundwater	<b>Land:</b> direct infiltration through soil profile.  <b>Groundwater:</b> Infiltration through soil to groundwater.	Groundwater acidification contributing to a decline in beneficial use.  Rise in groundwater levels causing harm to vegetation and a decline in water quality within the wetland.	No change to existing risk profile	The Delegated Officer considers the risk from the <i>increase</i> in seepage through the liner to be high.  No further assessment required.		
		Overtopping due to excess loading or heavy rainfall events or both.	Groundwater (superficial aquifer)	<b>Groundwater:</b> Infiltration through soil to groundwater.	Groundwater acidification contributing to a decline in beneficial use.			No change to existing risk profile	No further assessment required.
		<b>Contact:</b> Birds exposed to potential toxins or hazardous materials from the surface of	Birdlife	<b>Animal:</b> direct contact and ingestion of water with elevated metals and very low pH	Harm to birds such as soft tissue damage (eyes, digestive tract) caused by ingestion of and contact with acidic water.			No change to existing risk profile	No further assessment required.

## Dust from transportation, deposition and spreading of ash

The Licence Holder has provided an Addendum to the existing FAD Operating Manual (GHD, 2015) as part of the application for this amendment. The Operating Manual and the Addendum includes measures to minimise fugitive dust emissions during the transportation, deposition and handling of flyash from the Bluewaters Power Station to Collie 'A' Power Station Cell 2A. These measures include:

- Dust suppression measures on unsealed vehicular access areas, including the Cell 2A ramp (water cart).
- Tipping of the loads within the confines of the Cell 2A embankment;
- Use of a swampy dozer to compact and mix in fly ash into the existing deposition surface ;
- Placement of bottom ash as a physical barrier over loads of flyash;
- Use of water for dust suppression on the deposited fly ash in case of extraordinary circumstances (such as extreme wind events).
- Development of a Traffic Management Plan
- Daily visual inspections

Other dust management measures include covering of loads and ensuring fly ash contains at least 15% moisture content prior to transportation.

## Decision

The Delegated Officer has considered the location of Cell 2A in relation to sensitive human receptors, nearby native vegetation and a small wetland area 100west of the the FAD, the high levels of metals and metalloid particles in the ash and determined that there will be mid-level on site impacts and low level off site impacts on a local scale. Therefore, the Delegated Officer considers the consequence to be moderate.

The Delegated Officer has considered the short travel distance, the requirement to transport the fly ash at 15% moisture, the covering of loads, the use of water carts, the short duration of ash transportation, the updated to the Operating Manual, and concludes that impacts to soil, vegetation and water quality will probably not occur in most circumstances, especially as this is a contingency option only. Therefore, the Delegated Officer considers the likelihood of the consequence occurring to be unlikely.

The overall rating for the risk of fugitive dust emissions during operating causing adverse impacts on the on-site local environment to be medium and subject to regulatory controls.

## Regulatory Controls

Existing Condition 1.3.7 has been amended to allow the acceptance of waste onto the premises that includes flyash from the Bluewaters Power Station. This condition requires the Licece Holder to comply with updated Operating Manual (GHD, 2015).

Condition 1.3.8 has been included to require the Licence Holder to cease deposition and spreading of fly and bottom ash should visible dust be evident above the Cell 2A embankment wall.

## Increase in throughput capacity

Based on the application supporting documentation, the Delegated Officer has determined that the proposal to increase the quantity of flyash deposited in the FAD may have unacceptable long term impacts to the environment at the current time. The Delegated Officer notes that unlike Cell 2B, Cell 2A does not have an underdrainage system for the removal of

slurry water contained within the deposition mass. There was approximately 83,169 tonnes of flyash deposited into the FAD over the 2016 annual reporting period (AACR, 2017). At this deposition volume, seepage was evident on the perimeter embankment along Cell 2A and Cell 2B, which has the potential to impact on the long term structural integrity of the embankment walls.

The recent amendment to the Licence requested an increase to the approved Flyash deposition from 95,000 tonnes per annum to 120,000 tonnes per annum and included construction of a seepage berm along the seepage line along Cell 2A and Cell 2B to manage this issue. This increase was granted providing a geotechnical annual audit of Cell 2 of the entire Ash Storage dam Cell 2 was undertaken post construction. The audit is intended to validate and demonstrate that seepage at the increased volume of 120,000 tonnes per annum is not having an adverse impact on the structural integrity of the FAD (existing Licence Condition 5.1.7) and that the seepage berm as proposed and constructed is successfully maintaining the phreatic surface within the FAD.

## Decision

The Delegated Officer has determined that an increase in throughput capacity of up to 140,000 tonnes per annum is a significant increase on the recent actual deposition volumes. The Delegated Officer determines to reconsider this portion of the when the Licence Holder is able to demonstrate the structural integrity of the FAD is capable of meeting the required performance standards at the reduced deposition volume. The requirement to carry out an annual audit by a suitably qualified geotechnical engineer or geotechnical specialist in accordance with the Department of Mines and Petroleum (November 2015), Tailings Dam audit – guide, is viewed as an appropriate standard to demonstrate that performance standards are being met for the entire FAD.

Upon the provision of the information required by condition 5.1.7, DWER will reconsider this aspect of the current amendment application, by way of a DWER initiated amendment.

## Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 13 March 2018. No comments were received in relation to this Licence Amendment.

## Amendment

- Condition 1.3.7 of the Licence is amended by the insertion of the red text in Table 1.3.2 as shown in underline below:

Table 1.3.2: Waste acceptance		
Waste	Quantity Limit	Process requirements
Wastewater from Bluewaters power station, Muja power station, the CWRF, and Colltech	None specified	Wastewater from Bluewaters power station, Muja power station, the CWRF, and Colltech may be accepted for final disposal via ocean outfall pipeline.
<u>Flyash from the Bluewaters Power Station</u>	<u>20,000 tonnes per annum</u>	<u>Accepted into Cell 2A of the Ash Storage Dam at no less than 15%v/w moisture content at the time of receipt</u> <u>Transport, acceptance and deposition of flyash in accordance with the Collie Power Station Fly Ash Dam Cell2 Addendum to Operating manual 0 Revision 1 (December 2015)</u>

- The Licence is amended by the insertion of the following Condition 1.3.8:

1.3.8 The Licensee shall cease deposition of flyash into Cell 2A in the event of dust emissions being visible above the crest of the Ash Storage Dam Cell 2A embankment

## Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L6637/1995/15 – Collie ‘A’ Power Station	L6637/1995/15	accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
2	Electricity Generation and Retail Corporation T/A Synergy – Collie ‘A’ Power Station – Proposal to Accept Bluewaters Flyash for Disposal. Licence Amendment Supporting Document (GHD, December 2017)	GHD, 2017	DWER records (A1597600)
3	Collie Power Station Fly Ash Dam Cell 2 Operating Manual Addendum for Bluewaters Power Station Fly Ash Acceptance (GHD, 2015)	GHD, 2015	DWER records (A1597600)
4	Annual Audit Compliance Report for the Collie ‘A’ Power Station	AACR, 2017	accessed at: <a href="https://www.der.wa.gov.au/images/documents/our-work/aacr/Reports/L6637-1995-15_1Jul16-30Jun17.pdf">https://www.der.wa.gov.au/images/documents/our-work/aacr/Reports/L6637-1995-15_1Jul16-30Jun17.pdf</a>