

# **Amendment Report**

# **Application for Licence Amendment**

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

| Licence Number    | L8560/2011/2   |
|-------------------|--|
| Licence Holder    | City of Kalgoorlie Boulder   |
| ACN               | NA   |
| File Number       | 2012/006900-1  |
| Premises          | South Boulder Wastewater Treatment Plant                                     |
|                   | Portion of Lot 221 DP217615 and Reserve 42000                                |
|                   | Celebration Road, South Boulder  |
|                   | BOULDER WA 6432  |
|                   | As defined by the coordinates in Schedule 1: Figure 1 of the Revised Licence |
| Date of Report    | 27 November 2020   |
| Proposed Decision | Revised licence granted  |

## Stephen Checker MANAGER, WASTE INDUSTRIES

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

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## 1. Decision summary

Licence L8560/2011/2 is held by City of Kalgoorlie Boulder (Licence Holder) for the South Boulder Wastewater Treatment Plant (the Premises), located within Portion of Lot 221 and Reserve 42000, South Boulder, Western Australia.

This Amendment Report documents the assessment of potential risks to the environment and public health from the proposed changes to the operation of the Premises. As a result of this assessment, Revised Licence L8560/2011/2 has been granted.

## 2. Scope of assessment

## 2.1 Regulatory framework

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

## 2.2 Application summary

## Works Approval W6350/2020/1:

Works Approval W6350/2020/1 was issued on 20 March 2020 to allow for the upgrade of the South Boulder Wastewater Treatment Plant (SBWWTP) ponding lagoons 1, 2 and 3 (WWP1, WWP2 and WWP3). The IDEA plant flow metering indicates leakage and the earth embankments are in a deteriorated condition.

Under W6360/2020/1 the refurbishment works will be carried out in two stages (A and B). Refer to appendix one for a detailed pond upgrade summary

In construction phase the IDEA plant is to receive the full sewage flow and trade waste.

On 26 August 2020, the Licence Holder submitted an application to the department to amend Licence L8560/2011/2 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendment is being sought:

• Divert tinkered liquid waste of approximately 5m<sup>3</sup>/day to the IDEA plants for the duration of stage A works to allow for the refurbishment of ponding lagoon 1 (WWP1).

## 2.3 Premises Operation and effluent disposal

## Wastes received at the premises:

The SBWWTP receives the following waste types:

- Sewerage from the township of Kalgoorlie-Boulder via a reticulated sewerage system (K130); and
- K210 (Septage Wastes) by road transport. These wastes are received at a designated drop-off pit.

## Waste treatment processes:

Sewerage waste received via the reticulated sewerage system during normal operations is treated on the premises via an Intermittent Decant Extended Aeration (IDEA) activated sludge plant.

Treated sewerage waste is then either pumped from the balance tank offsite to the 'Old Boulder' holding ponds (located approximately 500 metres to the north of the premises) or

treated further by Wastewater Ponding Lagoons 1, 2 and 3.

Controlled Waste K210 drain from the waste receival pit via pipework to Wastewater Ponding Lagoon 1. Reticulated sewerage received at the premises during a power failure or in excess of the hydraulic capacity of the IDEA plant (i.e. surge flows during storm events) are also directed to Wastewater Ponding Lagoon 1. Overflow from Wastewater Ponding Lagoon 1 is directed to Wastewater Ponding Lagoon 2 followed by Wastewater Ponding Lagoon 3. Effluent from Wastewater Ponding Lagoon 3 is either pumped offsite to the 'Old Boulder' holding ponds or is discharged via controlled release to Hannan's Lake.

### Wastewater re-use and discharge:

Effluent from the 'Old Boulder' ponds (located off-site ) is chlorinated and pumped to a number of holding ponds and tanks located within the City of Kalgoorlie-Boulder. Effluent stored within the city storage network is further chlorinated before use for the irrigation of lawns, parks and gardens. The treatment of effluent for the re-use for irrigation is regulated by the Department of Health under the *Health Act 1911* via a Recycled Water Scheme Approval (Approval Number: B28/0000).

There are two tanker filling stations within the City of Kalgoorlie-Boulder which are supplied by effluent derived from the SBWTTP. The re-use of effluent from these locations is required to be regulated by the Department of Health under an approval issued under the *Health Act 1911*. Effluent may also be pumped from the outlet of the IDEA plant to an on-premises chlorination unit and made available for re-use by the mining industry for process water.

Treated wastewater in excess of demand discharges from Wastewater Ponding Lagoon 3 to Hannan's Lake. This discharge is not a routine method of wastewater disposal and is a disposal option of last resort.

### Existing sewage flows

Figure 1 illustrates the historic WWTP inflows between January 2011 and September 2019, indicating that over this period inflows to the IDEA plant have dropped from an average of 7.0 ML/d in 2011 to an average of just under 6.1 ML/d in 2019, significantly below the IDEA capacity of 8 ML/d.

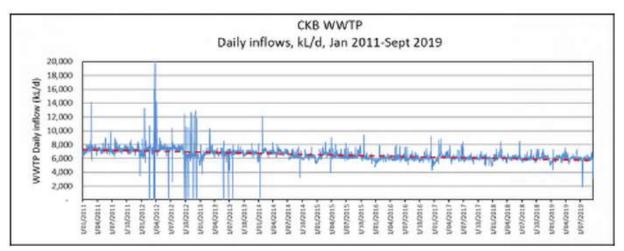


Figure 1: Historic WWTP inflows, 2011 - 2019

### Flows during planned works

### Stage A

During the refurbishment stage, the sewage flow will continue to be treated by the IDEA plant as per current operations. Tankered Cat 61 waste flows of approximately 5m<sup>3</sup>/day, will be diverted into the IDEA plant for the duration of Stage A works.

### Septage waste and treated effluent quality

The following information in relation to treated effluent quality has been summarised from the application:

Treatment of up to 7 mega litres (ML) per day of combined sewage and septage waste will occur in within the IDEA plant.

The parameters for the tankered waste (K210) received between 2016 and 2018 are shown in appendix 2. The results show that the waste quality is only slightly above the licence limits for the SBWWTP therefore the planned diversion will not alter the treated effluent quality or the current risk rating for the WWTP.

Treated effluent quality after Stage A works

Table 1 below shows the treated effluent quality results following the completion of stage A works. The treatment is to an improved standard from the existing WWTP effluent quality.

| Pollutant parameter               | Existing WWTP effluent –<br>combined sewage and septage<br>waste | WWTP treatment capability after Stage A works |
|-----------------------------------|--|---|
| Biological Oxygen<br>Demand (BOD) | <15 mg/L   | < 20 mg/L                                     |
| Total Suspended Solids<br>(TSS)   | <40 mg/L   | < 30 mg/L                                     |
| Total Nitrogen (TN)               | -  | < 30 mg/L                                     |
| Total Phosphorus (TP)             | -  | < 8 mg/L                                      |
| рН                                | > 5<br>< 9   | 6.5 – 8.5                                     |
| Faecal Coliforms                  | <1000 CFU/mL   | <1000 CFU/100 mL                              |
| Chlorine (Cl)                     | -  | 0.2 – 2.0 mg/L                                |

Table 1: WWTP effluent after the completion of Stage A works

## 2.4 Consolidation of Licence

As part of this amendment package the department has consolidated the licence by incorporating changes made under the Amendment Notices as summarised in 2.

Table 2: Licences consolidated in this amendment

| Instrument | Issued        | Summary of approval   |
|------------|---------------|---|
| L8560/2011 | /1 29/04/2016 | Notice of Amendment: to extend the expiry date of the Licence   |
| L8560/2011 | /2 24/08/2017 | Amendment notice 1 to enable extension of IR2 completion date to 22/07/2018 and amended prescribed premises boundary. |

The obligations of the Licence Holder have not changed in consolidating the licence. The department has not undertaken any additional risk assessment of the Premises related to previous Amendment Notices.

In consolidating the licence, the CEO has:

- updated the format and appearance of the Licence;
- deleted the redundant AACR form set out in schedule 1 of the previous licence and advise the Licensee to obtain the form from the department's website;
- revised licence condition's numbers, and removed any redundant conditions and realigned condition numbers for numerical consistency; and

The full consolidation of licence conditions as they relate to this Revised Licence are detailed in Section 5.1. Previously issued Amendment Notices will remain on the department's website for future reference and will act as a record of the department's decision making

# 3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guidance Statement: Risk Assessments* (DER 2017).

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

## 3.1 Source-pathways and receptors

## 3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this Amendment Report are detailed in Table 3 below. Table 3 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

| Emission                         | Sources  | Potential pathways  | Proposed controls  |
|----------------------------------|--|---|--|
| Odour                            | IDEA WWTP  | Air   | The closest residential receptor to the<br>premises is the town-site of South<br>Boulder, located approximately 1.4<br>kilometres to the north. The operation<br>of the plant can be remotely controlled.<br>Messages sent to the oncall operators<br>phone if plant not operating according<br>to the design specification.   |
| Spills and<br>leaks of<br>sewage | IDEA WWTP  | Direct<br>discharge to<br>soils and<br>seepage to<br>groundwater              | Alarm on chlorine levels, waste<br>activated sludge levels, return activated<br>sludge levels and alarms on screen<br>box, tanks and pumps/ aerators faults.<br>The balance tank can hold more than a<br>day of storage, plus the volumes within<br>the treatment plant as contingency<br>storage. A temporary pump will be<br>used to transfer excess treated effluent<br>from the balance tank to wastewater<br>pond 2 (WWP2).<br>Sludge will be emptied as required and<br>disposed off site. |
| Treated<br>effluent              | Effluent from the<br>WWTP<br>discharged at the<br>irrigation spray<br>field and<br>discharges from<br>Wastewater<br>Ponding Lagoon | Direct<br>discharge to<br>soils.<br>Pooling with<br>overflow.<br>Spray drift. | Monitoring of effluent - providing<br>information for corrective management.<br>Licence Holder has stated that there<br>will be no changes to the effluent water<br>quality.<br>Emission limits will remain the same.  |

Table 3: Licence Holder controls – operation

| Emission             | Sources                    | Potential pathways           | Proposed controls  |
|----------------------|----------------------------|------------------------------|--|
|                      | 3 to Hannan's<br>Lake.     | Infiltration to groundwater. | The treatment of effluent for the re-use<br>for irrigation is regulated by the<br>Department of Health under the <i>Health</i><br><i>Act 1911</i> via a Recycled Water<br>Scheme Approval (Approval Number:<br>B28/0000).  |
| Chlorine gas<br>leak | Chlorination unit-<br>WWTP | Inhalation                   | The Licence holder has indicated that<br>the chlorination module will be fitted<br>with gas detection alarms. A Self-<br>contained Breathing Apparatus (SCBA)<br>will also be located within the module;<br>additionally, City of Kalgoorlie Boulder's<br>operational practice states employees<br>entering the compound when<br>responding to events will be required to<br>have a SCBA in their vehicle when they<br>enter the compound. |

## 3.1.2 Key findings

The Delegated Officer has reviewed the information regarding the risk associated to the release of high concentration of nitrogen and phosphorous and has found that:

1. A nutrient irrigation management plan will be required for the reuse scheme so that treated wastewater irrigation can be appropriately managed. The Delegated Officer notes that further information will be required to determine nutrient loading of soils as a result of irrigation within the reuse scheme in order to determine regulatory controls for monitoring discharges to land.

## 3.1.3 Receptors

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), the Delegated Officer has excluded employees, visitors and contractors of the Licence Holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 44 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guidance Statement: Environmental Siting* (DER 2016)).

# Table 4: Sensitive human and environmental receptors and distance from prescribed activity

| Human receptors      | Distance from prescribed activity  |
|----------------------|--|
| Residential Premises | The closest residential receptor to the premises is<br>the town-site of South Boulder, located<br>approximately 1.4 kilometres to the north. |
| Boulder Township     | Located approximately 2 kilometres to the north.   |

| BP Kalgoorlie truck stop | Located approximately 500 metres to the north-<br>west of the premises.   |
|--------------------------|---|
| Environmental receptors  | Distance from prescribed activity   |
| Hannan's lake            | The nearest major water natural water body is<br>Hannan's Lake, which is a normally-dry<br>ephemeral lake located immediately to the east of<br>the premises. |
| Groundwater              | Depth to groundwater encountered at approximately 0.5m – 2.6mbgl (based on SWL information from the SBWWTP Facility).   |

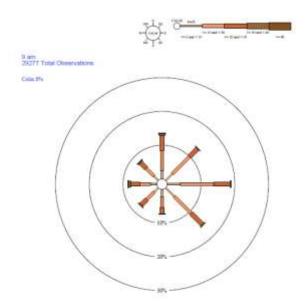
## 3.2 Soil type

Based on the 1:100,000 Kalgoorlie map series, the geology under the SBWWTP is mapped as predominantly Colluvium (map unit: Czc) with Quaternary Alluvium (map unit: Qa) occurring in the southern third and the north-eastern corner of the SBWWTP. The colluvium present consists of extensive sheets of gravel, sand, silt and clay derived by weathering, erosion and transport of a number of rock types. The Quaternary Alluvium is confined to present day and recent (i.e. paleo-channels) drainage systems, consisting of unconsolidated clay, silt, sand and gravel.

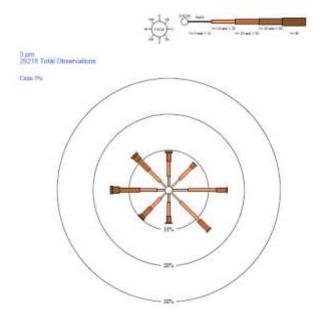
## 3.3 Meteorology

## 3.3.1 Wind direction and strength

Wind speed and wind direction are important factors influencing the pathway of emissions. It effects noise propagation and transport of fugitive dust. The closest available wind data for the area can be sourced from the Kalgoorlie Boulder airport weather station (number 012038) which is located 8.4 km north-west of the premises. The Bureau of Meteorology (BoM) provides the 9am and 3pm wind speed and direction for Kalgoorlie Boulder airport weather station. Prevailing winds are to the east, north and south easterly in the mornings, and to the west, south easterly and north westerly in the afternoons. Refer to Figures 2 and 3 below.



## Figure 2: 9am Rose of Wind

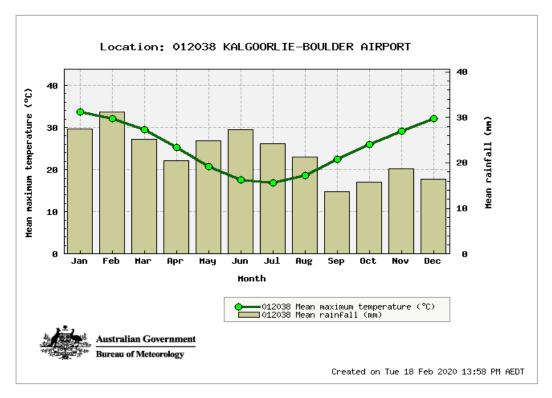


### Figure 3: 3pm Rose of Wind

### 3.3.2 Rainfall and temperature

The closest weather station for rainfall and temperature data is Kalgoorlie Boulder airport site 012038 which is located 8.4 km north-west of the premises. Maximum average rainfall is received in January, February and June annually. Minimum average rainfall is received September to December annually (Figure 4).

Highest average temperatures are experienced December to February annually. Lowest average temperatures are experienced June and July (Figure 4).



### Figure 4: Rainfall and Temperature

## 3.4 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

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

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 5.

The Revised Licence L8560/2011/2 that accompanies this Amendment Report authorises emissions associated with the diversion and treatment of trade waste within the IDEA plant

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

| Risk Event   |   |  |   |                                 | Risk rating <sup>1</sup>                          | Licence                             |   | Justification for  |
|--|---|--|---|---------------------------------|---|-------------------------------------|---|--|
| Source/Activities  | Potential emission                                    | Receptors and pathway  | Potential<br>impact   | Licence<br>Holder's<br>controls | C = consequence<br>L = likelihood                 | Holder's<br>controls<br>sufficient? | Conditions <sup>2</sup> of licence  | regulatory controls<br>additional to<br>Licence Holder<br>controls   |
| Operation  |   |  |   |                                 |   |                                     |   |  |
| Sewage treatment at the<br>WWTP                          | Spills, leaks of<br>sewage,<br>sludge at the<br>WWTP. | Direct discharge to<br>soils and<br>infiltration to<br>groundwater   | Contamination<br>of soils and<br>groundwater<br>with raised<br>nutrient levels. | Refer to<br>Section 3.1         | C = Minor<br>L = Unlikely<br><b>Risk = Medium</b> | Y                                   | Conditions 4 relating to<br>waste processing within the<br>IDEA plant, 5 relating to<br>containment infrastructure, 6<br>relating to overtopping,<br>freeboard level, integrity of<br>the containment<br>infrastructure, preventing<br>storm-water runoffs from<br>entering the treatment plant<br>and preventing vegetation<br>from encroaching onto pond<br>surfaces or inner pond<br>embankment and condition<br>7 relating to removing and<br>disposing spills. | NA- No further<br>conditions are<br>required to be<br>added to the<br>licence.   |
| Sewage treatment at the<br>WWTP                          | Odour   | The closest<br>residential<br>receptor to the<br>premises is the<br>town-site of South<br>Boulder, located<br>approximately 1.4<br>kilometres to the<br>north. | Amenity<br>impacts  | Refer to<br>Section 3.1         | C = Minor<br>L = Rare<br><b>Risk = Medium</b>     | Y                                   | Condition 23 relating to<br>recording complaints<br>received about any<br>emissions from the WWTP.  | NA- No further<br>conditions are<br>required to be<br>added to the<br>licence.<br>The Delegated<br>Officer considers a<br>separation distance<br>of 1.4km sufficient<br>to ensure odour<br>emissions will not<br>significantly impact<br>upon amenity. |
| Effluent discharge to the ovals, verge and Hannan's lake | Treated<br>effluent                                   | Direct discharge to<br>ground  | Contamination<br>of soils with<br>raised nutrient<br>levels<br>potentially      | Refer to<br>Section 3.1         | C = Minor<br>L = Unlikely<br><b>Risk = Medium</b> | Y                                   | Condition 8 relating to<br>managing uncontrolled<br>release of waste water<br>Conditions 10 - 21  | NA- No further<br>conditions are<br>required to be<br>added to the<br>licence.   |

## Table 5. Risk assessment of potential emissions and discharges from the proposed WWTP during operation.

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| Risk Event                      |                      |   |  |                                 | Risk rating <sup>1</sup> Lie                      | Licence                             |   | Justification for   |
|---------------------------------|----------------------|---|--|---------------------------------|---|-------------------------------------|---|---|
| Source/Activities               | Potential emission   | Receptors and pathway   | Potential<br>impact  | Licence<br>Holder's<br>controls | C = consequence<br>L = likelihood                 | Holder's<br>controls<br>sufficient? | Conditions <sup>2</sup> of licence  | regulatory controls<br>additional to<br>Licence Holder<br>controls  |
|                                 | Release of pathogens | Pooling and runoff<br>of effluent.<br>Human receptors,<br>and seepage of<br>contaminated<br>water into<br>groundwater | impacting<br>health of the<br>vegetation.<br>Waterlogging<br>of soils and<br>reduced<br>health of the<br>surrounding<br>vegetation.<br>Pathogens in<br>the<br>wastewater<br>may cause<br>gastroenteritis,<br>spread<br>disease or<br>create other<br>public health<br>impacts as<br>well as<br>contaminating<br>the ground<br>water. | Refer to<br>Section 3.1         | C = Minor<br>L = Unlikely<br><b>Risk = Medium</b> | Y                                   | Limit applied if discharged to<br>Hannan's creek. Annual<br>reporting of monitoring<br>results with comparison<br>against previous results<br>required to confirm plant is<br>operating as expected.<br><u>The licence holder will</u><br><u>now be required to submit</u><br><u>in kg/ha/yr total annual</u><br><u>loading rates for both TN</u><br><u>and TP. Table 13</u><br>NA- The Department of<br>Health regulates public<br>health impacts from the<br>wastewater scheme. The<br>Delegated Officer has<br>reviewed the Department of<br>Health approval for the<br>reuse scheme and considers<br>it appropriate for the<br>regulation of public health<br>impacts.<br>The Delegated Officer<br>considers that the treatment<br>standard and the quality of<br>water expected prior to<br>irrigation will allow<br>appropriate use of treated<br>wastewater with a low risk to<br>public health. | The Delegated<br>Officer notes that<br>further information<br>will be required to<br>determine nutrient<br>loading of soils as a<br>result of irrigation<br>within the reuse<br>scheme in order to<br>determine<br>regulatory controls<br>for monitoring<br>discharges to land.<br>NA |
| Sewage treatment at the<br>WWTP | Chlorine gas<br>leak | Ingestion   | Health   | Refer to<br>Section 3.1         | C = Minor<br>L = Unlikely<br><b>Risk = Medium</b> | Y                                   | Chlorine gas is considered<br>to be a Dangerous Good<br>which are regulated by<br>Department of Mines,<br>Industry Regulation and<br>Safely (DMIRS) under the<br>Dangerous Goods Safety<br>(Storage and Handling of   | NA  |

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| Risk Event        |                    |                       | Risk rating <sup>1</sup> | Licence                         |                                   | Justification for<br>regulatory controls |                                      |   |
|-------------------|--------------------|-----------------------|--------------------------|---------------------------------|-----------------------------------|--|--------------------------------------|---|
| Source/Activities | Potential emission | Receptors and pathway | Potential<br>impact      | Licence<br>Holder's<br>controls | C = consequence<br>L = likelihood | Holder's<br>controls<br>sufficient?      | Conditions <sup>2</sup> of licence   | additional to<br>Licence Holder<br>controls |
|                   |                    |                       |                          |                                 |                                   |  | Non-Explosives)<br>Regulations 2007. |   |

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

Note 2: Proposed Licence Holder's controls are depicted by standard text. Bold and underline text depicts additional regulatory controls imposed by department.

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# 4. Consultation

Table 66 provides a summary of the consultation undertaken by the department.

### Table 6: Consultation

| Consultation method  | Comments received  | Department response |
|--|--|---------------------|
| Department of<br>Health (DOH)<br>advised of proposal<br>(2 October 2020) | No comments received.  | N/A                 |
| Licence Holder was<br>provided with draft<br>amendment on<br>(Date)      | The Licence Holder advised on<br>24 November 2020 that they have<br>no further comments on the draft<br>documents and waived the<br>remaining consultation period. | N/A                 |

## 5. Conclusion

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

## 5.1 Summary of amendments

Table 77 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

| Condition no. | Proposed amendments   |
|---------------|---|
| Cover page    | Restructured to clearly indicate what prescribed activities are being<br>conducted on the premises. Assessed production throughputs for each<br>category added, based on information provided by the licence holder (to<br>be reviewed as part of licence review) |
|               | Licence version updated. Issue and expiry dates updated   |
| 1             | Inclusion of the infrastructure and equipment requirements for the IDEA WWTP  |
| 3             | Table 2 amended. Licence holder will now be required to discharge tankered waste received on site into the reticulated sewer inlet and diverted to the IDEA WWTP for treatment  |
|               | Requirement to accept condensate waste from TWM through piped in flow removed from the licence.   |
| 4             | Table 3 amended. K210 and K130 waste will now be processed within the IDEA wwtp.  |

|            | Requirement to accept condensate waste from TWM through piped in flow removed from the licence  |
|------------|---|
|            | Requirement to direct and treat tankered waste to waste water ponding lagoon 1 has been removed from the licence  |
|            | Processing of condensate waste from TWM removed from the licence  |
| 17         | Table 8 amended. Tankered waste pit monitoring location removed from the licence  |
| 19         | Table 10 amended. Influent monitoring location for tankered waste removed from the licence  |
|            | Monitoring of the incoming TWM condensate waste removed from the licence  |
| 22         | Compliance achieved. Removed Table 4.1.1.   |
| 25         | Table 13 amended. AER Table amended to include results relating to nitrogen and phosphorous contaminant loading to land   |
| 33 - 39    | Addition of commissioning conditions for the Tristar WWTP - timeframe,<br>monitoring requirements, submission of commissioning report and<br>reporting start and finish of commissioning. |
| Schedule 2 | Addition of premises boundary coordinates   |
|            | Deleted the redundant AACR form.  |

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## References

- 1. ANZECC/ARMCANZ, 1997. National Water Quality Management Strategy, Australian Guidelines for Sewerage Systems, Effluent Management
- 2. Department of Environment Regulation (DER) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
- 3. DER 2017, Guidance Statement: Risk Assessments, Perth, Western Australia.
- 4. DER 2015, Guidance Statement: Setting Conditions, Perth, Western Australia.
- 5. Department of Water and Environmental Regulation (DWER) 2019, Industry Regulation Guide to Licensing, Perth, Western Australia.

# Appendix 1: Pond upgrade summary

## Stage A:

- 1. During WWP1 works full sewer inflow including trade waste disposal directed to IDEA plant. IDEA plant design capacity being 8.0 ML/day.
- 2. TWM pond excluded from works. Normal operation for sludge lagoon 3 and sludge lagoon 4 as part of IDEA plant.
- 3. IDEA, treated effluent balance tank (TEBT) outflow directed to old boulder lagoons using existing transfer pumps with temporary pump installation for peak flow transfer to WWP2.
- 4. WWWP1 offline (drain and dry) for upgrade and construction of internal embankment for dual train operation. Includes refurbishment of all existing embankments and pond lining to DWER licence specification.
- 5. Install new gravity flow pipe from WWP1 dual trains to WWP2, including optional pipework to sludge lagoon areas for future pond capacity (Stage C).

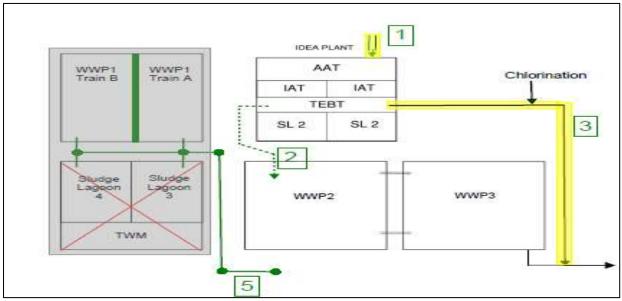
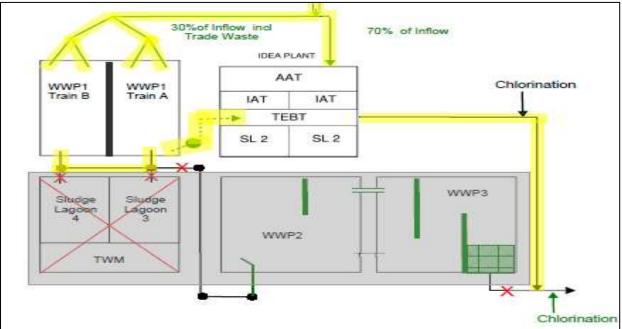


Figure 1: Primary pond upgrade

## Stage B:

- 1. At commencement of stage B works the primary ponds 1 (WWP1) will be empty.
- 2. 70% of sewage inflow will be directed to the IDEA plant, per normal operation.
- 3. 30% of sewage flow and all trade waste disposal will be directed to the refurbished primary pond 1 (WWP1).
- 4. A temporary pump may be required to transfer partially treated pond effluent to the IDEA plant for dilution with IDEA effluent and transfer to old boulder lagoons.
- 5. The secondary (WWP2) and tertiary (WWP3) pond will be offline, refurbishment of earth fill embankment and clay lining to DWER licence specification.
- 6. The secondary pond inlet will be installed with 45<sup>0</sup> bend toward southern embankment with stub baffle 60 m in length.
- 7. Final maturation pond installed with two 140m long baffles at equal longitudinal spacing.



Excavation and installation of 8000m<sup>3</sup> rock filter at outlet.

Figure 2: Secondary and Tertiary pond upgrade

| Conc. mg/L           | 1/09/16 | 1/12/16 | 1/03/17 | 1/06/17 | 1/09/17 | 1/12/17 | 1/03/18 | 1/07/18 | Avg. |
|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
| Ammonium<br>Nitrogen | 8.81    | 17.7    | 9.9     | 12.9    | 14.7    | 11.2    | 5.01    | 9.68    | 11.2 |
| Ammonia<br>Nitrogen  | -       | -       | -       | -       | 14.9    | 11.4    | 5.13    | 11.3    | 10.7 |
| Total Nitrogen       | 32.2    | 23.7    | 16.3    | 15.7    | 17.8    | 19.7    | 8.7     | 14.7    | 18.6 |
| Total<br>Phosphorus  | 10.1    | 8.0     | 5.0     | 7.9     | 11.0    | 8.6     | 4.7     | 7.9     | 7.9  |
| TDS                  | 959     | 847     | 1330    | 922     | 926     | 1070    | 1030    | 897     | 997  |
| TSS                  | 25      | 16      | 36      | 26      | 32      | 70      | 40      | 11      | 32.0 |
| BOD5                 | 29      | *1740   | 26      | 17      | 22      | 22      |         | 10      | 21.0 |
| COD                  | 87      | 58      | 85      | 49      | 106     | 132     | 94      | 27      | 79.8 |

# Appendix 2: Septage (K210) Waste Quality

# Appendix 3: Application validation summary

| PART    | 1: APPLICATION SUMMARY   |             |                  |             |       |                        |            |            |       |
|---------|--|-------------|------------------|-------------|-------|------------------------|------------|------------|-------|
|         | Application type   |             |                  |             |       |                        |            |            |       |
| 1.1     | What type of application has the app<br>application form?- <b>South Boulder V</b>                                |             |                  |             |       |                        | section of | the IR-F   | 01    |
|         | Works approval   |             |                  |             |       |                        |            |            |       |
|         | Licence  | $\boxtimes$ | Releva<br>approv |             |       | TBA                    | Ą          | None       |       |
|         | Renewal  |             | Currer<br>numbe  |             | ce    |                        |            |            |       |
|         | Amendment to works approval  |             | Currer<br>approv |             |       |                        |            |            |       |
|         | Amendment to licence   | $\boxtimes$ | Currer<br>numbe  |             | се    | L8560/201 <sup>-</sup> | 1/1        |            |       |
|         |  |             | Releva<br>approv | /al nur     | nber: |                        |            | N/A        |       |
|         | Registration   |             | Currer<br>approv | /al nur     | nber: |                        |            | None       |       |
| Cleari  | ng   |             | Yes              | No          | Prop  | osed Action            | / Notes    | (if applic | able) |
| 1.2     | Does the application include a reque<br>clearing under a works approval or<br>licence?                           | est for     |                  | $\boxtimes$ |       |                        |            |            |       |
|         | If yes, has the request already been referred to the Native Vegetation Regulation Branch?                        |             |                  | $\boxtimes$ | Date  | of referral:           | n/a        |            |       |
| Presc   | ribed premises categories  |             | Yes              | No          | Prop  | osed Action            | / Notes    | (if applic | able) |
| 1.3     | Has the applicant specified all presc<br>premises categories that are relevan<br>the activities on the premises? |             |                  |             |       |                        |            |            |       |
| Verific | cation   |             | Yes              | No          | Prop  | osed Action            | / Notes    | (if applic | able) |
| 1.4     | 4 Has the correct type of application been applied for?  |             |                  |             |       |                        |            |            |       |
| 1.5     | Has a response been provided to al applicable sections of the application form?                                  |             |                  |             |       |                        |            |            |       |
| 1.6     | Date application received:   |             | 24 Au            | gust 20     | )20   |                        |            |            |       |
| 1.7     | HPRM file reference number:  |             | DWEF             | RDT32       | 7835  |                        |            |            |       |

| PART  | 2   | Yes         | No | N/A | Proposed Action / Notes (if applicable) |
|-------|---|-------------|----|-----|---|
| Appli | cant Details  |             |    |     |   |
| 2.1   | Valid applicant name provided<br>(Full legal name must be<br>provided. Business names not<br>accepted. If a small proprietary<br>company, the Directors' full<br>names must be provided.) |             |    |     |   |
|       | Valid ACN provided (if applicable)  | $\boxtimes$ |    |     | Existing prescribed premises            |
| 2.2   | Trading name provided (if applicable)   | $\boxtimes$ |    |     | Existing prescribed premises            |
| 2.3   | Accurate authorised representative details provided   | $\boxtimes$ |    |     |   |
|       | Consent given to correspondence being exclusively via email   | $\boxtimes$ |    |     |   |
| 2.4   | Physical address for notices served under the EP Act provided   | $\boxtimes$ |    |     |   |
| 2.5   | Postal address for<br>correspondence provided (if<br>different from 2.4)  | $\boxtimes$ |    |     |   |
| 2.6   | Contact details for DWER<br>inquiries related to the application<br>provided (if different from 2.3)  | $\boxtimes$ |    |     |   |
| 2.7   | Occupier status provided  | $\boxtimes$ |    |     |   |
| Attac | hments  |             |    |     | ·                                       |
| 2.8   | Proof of occupier status provided   | $\boxtimes$ |    |     | Existing prescribed premises            |
| 2.9   | ASIC current company<br>information extract provided  | $\boxtimes$ |    |     | Existing prescribed premises            |
| 2.10  | Authorisation to act as<br>representative of the occupier<br>provided   | $\boxtimes$ |    |     |   |

| PART  | PART 3   |             | No | N/A | Proposed Action / Notes (if applicable) |
|-------|--|-------------|----|-----|---|
| Premi | ses details  |             |    |     |   |
| 3.1   | Accurate legal land description<br>provided for all areas proposed to<br>be included within the prescribed<br>premises boundary                                  | $\boxtimes$ |    |     | Existing prescribed premises            |
|       | Premises name provided (if applicable)   | $\boxtimes$ |    |     | Existing prescribed premises            |
| 3.2   | Local Government Authority area<br>correctly identified  | $\boxtimes$ |    |     |   |
| 3.3   | Accurate GPS or map coordinates<br>provided to identify the premises<br>(required where the proposed<br>premises boundary deviates from<br>a cadastral boundary) | $\boxtimes$ |    |     | Existing prescribed premises            |
| Attac | nments   |             | •  |     | ·                                       |

| PART | 3   | Yes         | No | N/A | Proposed Action / Notes (if applicable) |
|------|---|-------------|----|-----|---|
| 3.4  | Aerial photograph of sufficient<br>scale showing the prescribed<br>premises provided  | $\boxtimes$ |    |     | Existing prescribed premises            |
|      | Site plan of the premises provided  | $\boxtimes$ |    |     |   |
|      | Has the applicant provided a map<br>of the proposed premises, clearly<br>marking out the area in which the<br>activities are carried out,<br>identifying:<br>(a) Layout of key<br>infrastructure and<br>buildings, clearly labelled | $\boxtimes$ |    |     |   |
|      | (b) The premises boundary;  | $\boxtimes$ |    |     |   |
|      | (c) Emission and discharge<br>points (with GPS<br>coordinates if available)   | $\boxtimes$ |    |     | Existing prescribed premises            |
|      | (d) Sensitive receptors and<br>land uses  | $\boxtimes$ |    |     | Existing prescribed premises            |
|      | (e) All areas proposed to be cleared (if applicable)  |             |    |     | NA                                      |
|      | (f) North arrow   | $\boxtimes$ |    |     | Existing prescribed premises            |
|      | The map is of reasonable quality and has a visible scale  | $\boxtimes$ |    |     |   |

| PART  | 4   | Yes         | No | N/A         | Proposed Action / Notes (if applicable) |
|-------|---|-------------|----|-------------|---|
| Propo | osed activities (including clearing)  |             |    |             |   |
| 4.1   | Description/overview of<br>prescribed activities provided                             | $\boxtimes$ |    |             |   |
| 4.2   | Estimated operating period provided   | $\boxtimes$ |    |             |   |
| 4.3   | Proposed date/s for<br>commencement of works provided<br>(if applicable)              |             |    | $\boxtimes$ |   |
| 4.4   | Proposed date/s for<br>commissioning of works provided<br>(if applicable)             |             |    | $\boxtimes$ |   |
| 4.5   | Proposed date/s for<br>commencement of operations<br>provided (if applicable)         | $\boxtimes$ |    |             |   |
| 4.6   | Maximum production or design<br>capacity for each category<br>provided                | $\boxtimes$ |    |             |   |
| 4.7   | Estimated or actual throughput for each category provided                             | $\boxtimes$ |    |             |   |
| 4.8   | Details of proposed activities<br>provided, identifying:<br>(a) Scope, size and scale | $\boxtimes$ |    |             |   |
|       | (b) Key infrastructure and<br>equipment   | $\boxtimes$ |    |             |   |

| PART   | 4   | Yes         | No          | N/A         | Proposed Action / Notes (if applicable) |  |  |  |  |
|--------|---|-------------|-------------|-------------|---|--|--|--|--|
|        | (c) Description of processes<br>or operations   | $\boxtimes$ |             |             |   |  |  |  |  |
|        | (d) Emission and discharge points (if applicable)   | $\boxtimes$ |             |             |   |  |  |  |  |
|        | <ul> <li>(e) Locations of waste<br/>storage or disposal (if<br/>applicable)</li> </ul>                                    | $\boxtimes$ |             |             |   |  |  |  |  |
|        | <ul> <li>(f) Activities occurring during<br/>construction,<br/>commissioning and<br/>operation (if applicable)</li> </ul> |             |             | $\boxtimes$ |   |  |  |  |  |
| Attack | nments  |             |             |             |   |  |  |  |  |
| 4.9    | Are emission/discharge points clearly labelled on the map/s required for Part 2.4 of <i>IR-F09</i> ?                      | $\boxtimes$ |             |             |   |  |  |  |  |
| 4.10   | Additional information relating to the proposed activities provided (if required)   | $\boxtimes$ |             |             |   |  |  |  |  |
| Cleari | ng activities (required only if appli   | cation      | incluc      | les cle     | earing of native vegetation)            |  |  |  |  |
| 4.11   | Proposed clearing area (hectares and/or number of trees) provided   |             | $\boxtimes$ |             | Clearing not required                   |  |  |  |  |
| 4.12   | Details of relevant clearing<br>exemptions provided   |             |             | $\boxtimes$ |   |  |  |  |  |
| 4.13   | Period within which clearing is<br>proposed to be undertaken<br>provided  |             | $\boxtimes$ |             | NA                                      |  |  |  |  |
| 4.14   | Purpose of clearing provided  |             | $\boxtimes$ |             | NA                                      |  |  |  |  |
| Attack | Attachments (required only if application includes clearing of native vegetation)   |             |             |             |   |  |  |  |  |
| 4.15   | Sufficient aerial photograph or<br>map of area proposed to be<br>cleared provided   |             | $\boxtimes$ |             | NA                                      |  |  |  |  |
| 4.16   | Additional information to assist in<br>clearing assessment provided (if<br>applicable)                                    |             |             | $\boxtimes$ |   |  |  |  |  |

| PART  | PART 7   |  | No          | N/A | Proposed Action / Notes (if applicable) |
|-------|--|--|-------------|-----|---|
| Other | Approvals and Consultation   |  |             |     |   |
| 7.1   | Is the proposal a Major Project?   |  | $\boxtimes$ |     |   |
| 7.2   | Is the project subject to a State Agreement Act?                         |  | $\boxtimes$ |     |   |
|       | If "yes", specify:   |  |             |     |   |
| 7.3   | Has the proposal been allocated to a 'Lead Agency'?                      |  | $\boxtimes$ |     |   |
|       | If "yes", specify:   |  |             |     |   |
| 7.4   | Has the proposal been referred<br>and/or assessed under the EPBC<br>Act? |  | $\boxtimes$ |     |   |
|       | If "yes", specify:   |  |             |     |   |

| PART   | 7  | Yes         | No          | N/A         | Proposed Action / Notes (if applicable)              |
|--------|--|-------------|-------------|-------------|--|
| 7.5    | Has the proposal obtained all relevant planning approvals?   |             | $\boxtimes$ |             | No planning approval required. CKB operates the WWTP |
|        | If a planning approval is not<br>necessary, has the applicant<br>provided details indicating why?  | $\boxtimes$ |             |             |  |
| 7.6    | If the application is for a renewal<br>or amendment, is the relevant<br>planning approval still valid (that<br>is, not expired)?   |             |             | $\boxtimes$ |  |
| 7.7    | Has the proposal obtained all<br>other necessary statutory<br>approvals?   |             | $\boxtimes$ |             | Applicant will get email confirmation from<br>DoH    |
|        | If not, has the applicant provided<br>details of approvals already<br>obtained, outstanding approvals,<br>and expected dates for obtaining<br>these outstanding approvals? |             | $\boxtimes$ |             |  |
| 7.8    | Have all identified direct interest<br>stakeholders been invited to<br>make representations during the<br>consultation period?   |             |             | $\boxtimes$ | DoH will be invited to provide comments              |
| Attach | ments  |             |             |             |  |
| 7.9    | Has the applicant provided details<br>of other approvals specified in<br>Part 7 and consultation<br>documentation?   |             |             | $\boxtimes$ |  |

| PART 8                     |   | Yes         | No | N/A | Proposed Action / Notes (if applicable) |
|----------------------------|---|-------------|----|-----|---|
| Fit and Competent Operator |   |             |    |     |   |
| 8.1-<br>8.11               | Has the applicant correctly<br>completed Part 8 of the<br>application form?   | $\boxtimes$ |    |     |   |
| 8.12                       | If the applicant has marked "yes"<br>to any of 8.3 – 8.11, have they<br>provided in 8.12 details of any<br>convictions, penalties paid for an<br>offence or licences or other<br>authorisation suspended or<br>revoked? |             |    |     |   |