



Licence Number	L8434/2010/1
Licence Holder	Water Corporation
Registered business address	629 Newcastle Street LEEDERVILLE WA 6007
Date of amendment	15 November 2016
Prescribed Premises	Category 54: Sewage facility Category 61: Liquid waste facility
Premises	Alkimos Wastewater Treatment Plant Romeo Road ALKIMOS WA 6038 Being Lot 1012 on Plan 69492 as depicted in Schedule 1.

Amendment

The Chief Executive Officer (CEO) of the Department of Environment Regulation (DER) 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: 15 November 2016

Alan Kietzmann

MANAGER LICENSING (WASTE INDUSTRIES)

LICENSING AND APPROVALS

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

Amendment Notice

This notice is issued under 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.

Background

The Water Corporation (the Licence Holder) has been operating the Alkimos Wastewater Treatment Plant (WWTP) under licence L8434/2010/1 since 26 May 2011. The Alkimos WWTP project involves the staged development, construction and maintained operation of a wastewater treatment plant that has a planned operational capacity of 160ML/day. Construction of stage 1 WWTP was completed under works approval W4423/2008/1. The development of future stages will subject to further DER approval requirements.

L8434/2010/1 authorises Stage 1 of the proposal and has a nominated rate of throughput of 20ML per day while the current throughput is approximately 10ML per day.

The operation of the WWTP is also subject to Ministerial Statement (MS) 755 issued under Part IV of the EP Act. The Environmental Protection Authority report for this MS is titled *Alkimos Wastewater Treatment Plant Site B (Assessment 1529) Water Corporation, Report and recommendation of the Environmental Protection Authority* (Bulletin 1239, November 2006).

Bulletin 1239 considered the following environmental factors relevant to the proposal that required detailed evaluation:

- Biodiversity (terrestrial and marine);
- Odour; and
- Marine – Offshore disposal of treated wastewater to the marine environment

MS 755 includes conditions relating to the above environmental factors as further described below:

- Offshore disposal of treated wastewater – Part 11, conditions 11-1 to 11-15, specify requirements pertaining to the development and implementation of a Marine Treated Wastewater Discharge Monitoring and Management Plan;
- Odour emissions – Part 12, conditions 12-1 to 12-7, specify requirements pertaining to the development and implementation of an Odour Management Plan; and
- Compliance reporting requirements relating to these conditions, amongst others, are also specified in Part 4, conditions 4-1 to 4-4.

Amendment Description

This Amendment Notice is a Licence Holder initiated amendment. The Licence Holder submitted the amendment application on 11 March 2016 requesting the removal of several licence conditions relating to odour controls, limits and targets due to proposed changes to odour control measures at the Alkimos WWTP during Stage 1 operations given the current lower inflows accepted at the facility.

The proposed changes include:

- Removing the covers and therefore the air extraction from the secondary aeration treatment tanks (oxiditches); and
- Bypassing the odour scrubbing system and discharging directly to the odour stack.

Decision

The DER *Guidance Statement: Risk Assessments* (November 2016) requires DER to have regard to relevant statutory approvals such as approvals under Ministerial Statements issued under Part V of the EP Act. In regulating the site under Part V, Division 3 of EP Act, DER will seek to avoid duplication of requirements imposed under Part IV. Pursuant to section 59B(7) of the EP Act, DER will also not amend a Part V licence that is contrary to, or otherwise than in accordance with, an implementation agreement or decision.

The Delegated Officer has determined that it is appropriate for DER to avoid the duplication of conditions that relate to an Environmental Factor that is already regulated under Part IV of the EP Act. The Delegated Officer has reviewed the conditions of Licence L8434/2010/1 and has determined that there are several conditions that duplicate requirements imposed under MS 755 with regards to odour and discharges of treated wastewater to the marine environment.

Therefore the Delegated Officer has determined that an amendment is to be made to remove the licence conditions from L8434/2010/1 that relate to odour and discharges of treated wastewater to the marine environment. A detailed risk-assessment is not required as a review of the related emissions was completed as part of the Part IV assessment associated with MS 755.

In reviewing the licence the Delegated Officer has also determined to include additional conditions relating to waste acceptance and processing, containment infrastructure requirements and monitoring of inputs and outputs. A detailed risk-assessment with regards to these requirements is not required as they are considered process controls and have already been assessed as part of the existing licence for the site and were also considered in the assessment for the works approval (W4423/2008/1) for the construction of the facility.

The Delegated officer has consequently determined that:

- Licence conditions 4 to 14 are to be removed; these relate to odour and discharges of treated wastewater to the marine environment as is regulated under MS 755.
- Condition 15(a) and 15(b) are also to be removed.

Requirements of 15(a) will be incorporated into the new condition 5 for *waste processing*.

Requirements of 15(b) are not relevant to site operations. Biosolids are not produced on-site. Sludge produced at the Alkimos WWTP is thickened prior to it being tankered off-site to the Beenyup WWTP where it is fed into the existing sludge management and biosolid production process.

- New conditions 4 to 8 are included to regulate acceptance, processing, infrastructure and input/output monitoring requirements.

Waste acceptance and processing requirements, as specified in condition 4 and 5 respectively, has been limited to 20,000 m³/day in accordance with the design capacity of the plant as approved under works approval W4423/2008/1. Data reported in the 2015/16 Annual Environmental Report indicates the WWTP had an average daily inflow at 10,945 m³ for the 2015/16 period (55%, of the designed treatment capacity);

Condition 6 specifies containment infrastructure for certain waste materials and generally reflects the infrastructure approved for construction under W4423/2008/1;

Condition 7 stipulates requirements for the management of wastewater treatment vessels to ensure they are maintained appropriately;

Condition 8 specifies monitoring requirements for waste inputs and outputs at the premises.

- Licence condition 1 is updated to exclude the reporting requirements relating to emissions associated with MS755.

There are no other changes to the licence.

Amendment History

Instrument	Granted	Amendment
W4423/2008/1	28/08/2008	Approval to construct Stage 1 of the Alkimos WWTP.
L8434/2010/1	26/05/2011	Granted licence
L8434/2010/1	9/06/2011	Administrative amendment; update to Table numbers in conditions and in-text references to Tables in condition wording.
L8434/2010/1	24/05/2012	Administrative amendment; update to definition of continuous monitoring and changes to exceedance notification requirements.
L8434/2010/1	24/04/2013	Administrative amendment; correction of premises address details in definitions section of licence.
L8434/2010/1	15/11/2016	Amendment Notice 1 Removal of conditions relating to odour emissions and treated wastewater discharge to ocean.

Licence Holders Comments

The Licence Holder was provided with the draft Amendment Notice on 17 October 2016. Comments received from the Licence Holder have been considered by the Delegated Officer shown through Appendix A.

Amendment

1. The licence is amended by the deletion of condition 4 – 15(b):

DISCHARGE TO AIR

INLET SEWER

4. *The licensee shall ensure the inlet sewer is sealed at all times, except during times that maintenance works are being undertaken.*

PRELIMINARY AND PRIMARY TREATMENT AREAS

5. *The licensee shall ensure the preliminary and primary treatment areas are covered at all times, except during times that maintenance works are being undertaken.*

ODOUR CONTROL UNIT

6. *The licensee shall operate and maintain an effective odour control unit in accordance with the manufacturer photo-ionisation unit's specifications for the wastewater treatment plant.*

ODOUR CONTROL STACK – CONTINUOUS MONITORING

- 7(a) *The licensee shall continuously monitor the parameters specified in column 1 of Table 1 at the locations specified in column 2 of Table 1 and record the results of the monitoring in the units specified in column 3 of the Table 1.*

Table 1: Continuous monitoring requirements for odour control

Column 1	Column 2	Column 3
Parameters	Location	Units
<i>Hydrogen sulphide</i>	<i>Stack outlet</i>	<i>ppm</i>
<i>Volumetric flow</i>	<i>Stack outlet</i>	<i>m³/h at STP dry</i>

- 7(b) *The licensee shall ensure that the continuous monitors utilised to monitor the parameters as required by condition 7(a), are maintained and calibrated in accordance with the manufacturer's specifications.*

- 7(c) *The licensee shall monitor and record the availability of the continuous monitors referred to in condition 7(b) on a monthly basis and ensure that they are operated to achieve at least 90 per cent availability each calendar year.*

ODOUR CONTROL STACK- TARGET

- 8 *The licensee shall operate the odour control unit to achieve a hydrogen sulphide emission target of less than 1.5 ppm at the stack outlet as monitored in accordance with the condition 7(a) of this licence.*

ODOUR CONTROL STACK - MANUAL MONITORING

9. *The licensee shall monitor each of the parameters stated in column 1 of Table 2, at the locations stated in column 2 of Table 2, at the frequency stated in column 3 of Table 2 using the methods specified in column 4 of Table 2, and record the results in the units specified in column 5 of Table 2.*

Table 2: Odour control stack - manual monitoring

Column 1	Column 2	Column 3	Column 4	Column 5
Parameters	Measurement and sampling locations	Monitoring frequency	Sampling method	Units
Hydrogen sulphide	Stack outlet	Six monthly (July, January)	NATA accredited method for the measurement and analysis of hydrogen sulphide emissions from stationary sources	mg/ m ³ at STP, dry
Odour			AS/NZS 4323.3:2001	ou
Volumetric flow rate			USEPA method 2	m ³ /s at STP, dry and at STP, wet
Temperature			n/a	⁰ C

ODOUR CONTROL STACK- LIMITS

- 10 The licensee shall ensure that the emissions of the parameters specified in Column 1 of Table 3, from the locations stated in column 2 of Table 3, monitored as required by condition 9, do not exceed the concentration limits specified in column 3 and 4 of Table 3.

Table 3: Odour Control facility emission limits

Column 1	Column 2	Column 3	Column 4
Parameter	Location	Concentration limit	Mass emission rate limit
Hydrogen sulphide	Stack outlet	5mg/m ³ at STP, dry	0.14g/s at STP, dry

- 11(a) The licensee shall notify the Director, in writing, before 5pm on the next usual business day after becoming aware of any confirmed measurement which indicates that an emission target as specified in condition 8 or an emission limit as specified in condition 10 has been exceeded.
- 11(b) The licensee shall follow the notification referred to in condition 11(a) of this licence with a written report to the Director within five working days of receiving the confirmed measurement and shall include but not be limited to:
- the date and time of the exceedance;
 - monitoring results at the time of exceedance;
 - the cause of the exceedance;
 - an estimate of the period over which the limit was exceeded;
 - an indication of known or potential environmental impacts;
 - corrective actions taken or planned to mitigate environmental consequences resulting from the exceedance; and
 - corrective action taken or planned to prevent a recurrence of the exceedance.

ODOUR CONTROL CONDITIONS

12. The licensee shall ensure that odour emitted from the premises does not unreasonably interfere with the health, welfare, convenience, comfort or amenity of any person at a sensitive receptor.

DISCHARGE TO WATER

MONITORING OF DISCHARGED TREATED WASTEWATER

- 13(a) The licensee shall monitor and record the cumulative monthly volumes of treated wastewater being discharged to the ocean via Alkimos ocean outlet as recorded via the inlet magflow.
- 13(b) The licensee shall monitor the concentration of the parameters stated in column 1 of Table 4, at the monitoring frequency stated in column 2 of Table 4, within treated wastewater being discharged from the Alkimos WWTP to the ocean through the Alkimos Ocean Outlet at the treated wastewater sampling point depicted in **Attachment 3** and the results shall be recorded in the units stated in column 3 of Table 4.

Table 4: Monitoring of discharged treated wastewater

Column 1	Column 2	Column 3
Parameters	Monitoring frequency	Units
Total Nitrogen, Total Phosphorus	Monthly	Kilograms per day (monthly average)
pH	Six monthly	pH unit
E.Coli		Most probable number per 100 ml
Total suspended solids, 5-Day Biochemical Oxygen Demand (filtered), Oil and Grease, Arsenic, Cadmium, Copper, Chromium, Lead, Mercury, Nickel and Zinc		mg/l

- 13(c) The licensee shall ensure that all water samples are collected, handled and preserved in accordance with the relevant parts of the Australian Standard 5667.
- 13(d) The licensee shall ensure that all water samples are analysed in accordance with the current "Standard Methods for Examination of Water and Wastewater," APHA-AWWA-WEF.
- 13(e) The licensee shall analyse all water samples, required to be monitored by any condition of this licence, in its own laboratory, or ensure that samples are analysed in a laboratory holding NATA accreditation for the analyses specified. If the licensee uses its own laboratory, then at least one set of samples per year shall also be submitted to a laboratory holding NATA accreditation for the analysis specified.
- 14 The licensee shall ensure that the load for total nitrogen in the treated wastewater discharged from the Alkimos WWTP to the ocean via the Alkimos ocean outlet does not exceed 2400 kilograms per day recorded over the financial year.

DISCHARGE TO LAND

MANAGEMENT OF PROCESS SOLID WASTES

15(a) The licensee shall dispose of all collected grit and screenings from the pre-treatment area to a licensed or registered landfill.

15(b) The licensee shall dispose of sludge and biosolids in accordance with the document *Western Australian Guidelines for Direct Land Application of Biosolids and Biosolids Products*, Department of Environmental Protection, Water and Rivers Commission and Department of Health (February, 2002) (as amended).

2. The licence works approval is amended by the insertion of the following conditions 4, 5, 6, 7 and 8:

- 4 The Licensee shall only allow waste to be accepted on to the Premises if:
- (a) it is of a type listed in Table 1; and
 - (b) the quantity accepted is below any limit listed in Table 1; and
 - (c) it meets any specification listed in Table 1

Table 1: Waste acceptance			
Waste	Waste Code	Quantity Limit	Specification¹
Putrescible and Organic wastes			
Sewage	N/A	20,000 m ³ /day (Peak Flow)	Accepted through sewer inflow(s) only.
Sewage waste from reticulated sewage system	K130		Tankered in from pump-stations or other off-site Water Corporation infrastructure.
Septage wastes	K210	10,000 t/annual period	The waste shall be delivered to the plant via an enclosed pipeline.

- 5 The Licensee shall ensure that the wastes accepted onto the Premises are only subjected to the process(es) set out in Table 2 and in accordance with any process requirements described in that table.

Table 2: Waste processing		
Waste type	Process	Process requirements
Sewage	Wastewater treatment system: physical and biological treatment.	Treatment of sewage and septage waste shall be at or below the treatment capacity of 20,000 m ³ /day (Peak Flow).
Septage wastes		The licensee shall dispose of all collected grit and screenings from the pre-treatment area, to a licensed landfill.
Sewage sludge and Waste activated sludge	Sludge treatment (thickening and dewatering) and storage	None specified

- 6 The Licensee shall ensure that waste material, as specified in Table 3, is only stored and/or treated within vessels or compounds provided with the infrastructure detailed in Table 3.

Table 3: Containment infrastructure

Storage vessel or compound	Material	Requirements
<i>Inlet/preliminary treatment works: Screens, Grit Bin, Wash Presses, Screening Bins)</i>	<i>Screenings and Grit</i>	<i>Recovered screenings and grit to be stored in an enclosed and sealed bin which is stored within a bunded hardstand area or a hardstand area that is graded to a collection drain which returns leachate to the start of the treatment process.</i>
<i>Oxidation ditches</i>	<i>Wastewater</i>	<i>2x impervious concrete oxidation ditches, each 10ML volumetric capacity.</i>
<i>Flow splitting chamber</i>		<i>Impervious concrete chamber.</i>
<i>Secondary clarifier module: sedimentation tanks</i>		<i>2x impervious concrete tanks</i>
<i>Dissolved Air Flotation Thickening (DAFT) tanks</i>	<i>Sludge and leachate</i>	<i>2x (Duty/standby) impervious concrete tanks.</i>
<i>Thickened sludge storage tank</i>	<i>Thickened sludge and leachate</i>	<i>1x impervious concrete tank.</i>

- 7 The Licensee shall manage the wastewater treatment vessels such that:
- the integrity of the containment infrastructure is maintained;*
 - overtopping of the vessels does not occur; and*
 - there is no seepage loss from the vessels; and*
 - vegetation and floating debris (emergent or otherwise) is prevented from growing or accumulating in the vessels.*
- 8 The Licensee shall undertake the monitoring specified in Table 4 according to the specifications in that table.

Table 4: Monitoring of inputs and outputs

Input/Output	Monitoring point reference	Parameter	Units	Averaging period	Frequency
<i>Sewage - Inlet Flow</i>	<i>Inlet mag-flow (DN600)</i>	<i>Volumetric flow rate</i>	<i>m³/day</i>	<i>Monthly</i>	<i>Continuous</i>
<i>Septage wastes</i>	<i>None specified</i>	<i>Volume of septage wastes received</i>	<i>m³/day</i>	<i>N/A</i>	<i>Each load arriving at the Premises</i>
			<i>Tonnes per annual period</i>	<i>N/A</i>	<i>Annually</i>
<i>Treated wastewater discharged to</i>	<i>Determined using Inlet mag-flow</i>	<i>Volumetric flow rate</i>	<i>m³/day</i>	<i>Monthly</i>	<i>Continuous</i>

Table 4: Monitoring of inputs and outputs

<i>Ocean Outlet</i>	<i>(DN600)</i>				
<i>Waste sludge tankered off-site</i>	<i>None specified</i>	<i>Total volume</i>	<i>m³</i>	<i>Monthly and Annual Total</i>	<i>Each load leaving the Premises</i>

3. Condition 1 of the licence is amended by the by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:

ANNUAL ENVIRONMENTAL REPORT

1. The licensee shall submit to the Director, by **1 September** each year, an Annual Environmental Report providing the following information obtained during the monitoring period beginning 1 July the previous year and ending June in that year:
- ~~(i) a histogram showing the daily maximum and daily average concentrations of hydrogen sulphide emissions and the volumetric flow measured in accordance with condition 8(a);~~
 - ~~(ii) tabulated results of continuous monitor availability for each calendar month from the information required to be recorded by condition 8(c);~~
 - ~~(iii) results of odour control unit, oxidation ditches and stack manual monitoring undertaken in accordance with condition 10;~~
 - ~~(iv) a histogram showing the volumes of treated wastewater discharged each month through the Alkimos ocean outlet and re-use schemes;~~
 - ~~(v) a histogram showing the monthly average loadings for total nitrogen in treated wastewater discharged to the ocean from Alkimos WWTP through the Ocean Outlet in kg/day;~~
 - ~~(vi) a histogram showing the results of treated wastewater monitoring required by condition 14, including duplicate NATA accredited laboratory results; and~~
 - (i) a summary of the complaints including all the information required to be recorded by condition 3.
 - (ii) a summary of the monitoring of inputs and outputs required by condition 8 and an analysis against previous reporting periods

Appendix A – Licence Holders Comments on Draft Notice

Date	Event	Comments received/Notes	How comments were taken into consideration
17/10/2016	Draft Amendment Notice 1 sent to Licence Holder for comment.	<p>Removal of existing conditions 4 -15(b):</p> <ol style="list-style-type: none"> 1. Overall, consider removal of conditions that are reflected in ministerial conditions as acceptable. 2. Removal of reference to biosolid guidelines; request for more detail to be provided on how the updated guidelines are relevant. 	<ol style="list-style-type: none"> 1. Noted. 2. Additional clarification has been provided in the 'Decision' section of the Notice.
		<p>Amendments to existing conditions:</p> <ol style="list-style-type: none"> 1. Bullet numbering to amended condition 1 requires rectifying. 	<ol style="list-style-type: none"> 1. Numbering updated.
		<p>Inclusion of new licence conditions:</p> <ol style="list-style-type: none"> 1. Condition 4 (Table 1) – acceptance of septage waste; specifications state '<i>accepted from other Water Corporation assets tankered into the premises</i>'. Can't we accept septage waste from non-Water Corp assets (i.e. tankered in from other sources)? 2. Condition 4 (Table 1) – acceptance of septage waste; quantity limit is specified in tonnes. This would be better represented by volume rather than mass as that can be calculated either through installing a flow meter and receiving system or by using known volumes in a tanker. Also to be congruent with m³ used in Table 4 3. Condition 4 (Table 1) and 5 (Table 2) – waste acceptance and processing; quantity limit for 20,000m³/day - please clarify whether this is based on the annual/monthly average or 	<ol style="list-style-type: none"> 1. Restriction on accepting septage wastes only from other Water Corporation assets removed to provide flexibility. 2. The acceptance and processing of septage wastes that are tankered in from off-site is authorised on the licence under Category 61 <i>Liquid waste facility</i> as specified in Schedule 1 of <i>Environmental Regulations 1987</i> (EP Regulations). The production or design capacity threshold as per Schedule 1 is 100 tonnes or more per year. Waste acceptance is generally audited against the same unit values as specified in Schedule 1. The same unit values are also used for annual licence fee purposes (see Schedule 4 of EP Regulations). The requirement does not restrict the Licence Holder to measuring (monitoring) waste acceptance by volume – it will however require the conversion of volumes to mass using material density factors, or via other similar methodologies.

Date	Event	Comments received/Notes	How comments were taken into consideration
		<p>peak flow.</p> <p>4. Condition 5 (Table 2) – waste processing; is there a definition for an ‘authorised facility with regards to removing sewage sludge off-site?’</p> <p>5. Condition 6 (Table 3) – containment infrastructure; not appropriate to be so specific about infrastructure design. If the requirement is it’s to be impervious concrete construction, just say that.</p> <p>6. Condition 6 (Table 3) – containment infrastructure; very specific – and yet what about other structures on site – for example materials held in a workshop? If not specifically noted, does that imply they not allowed? This would not make sense.</p> <p>7. Condition 6 (Table 3) – containment infrastructure; Oxidation ditches requirements should say “3x impervious reinforced concrete oxidation ditches, each 10ML volumetric capacity”.</p> <p>8. Condition 6 (Table 3) – containment infrastructure; at the moment the physical ditches exist, but only two are equipped to treat wastewater. Does this condition reflect this? Does it mean we can equip the 3rd ditch without a licence amendment?</p> <p>9. Condition 6 (Table 3) – containment infrastructure; DAFT tanks internal diameter per Alkimos BOD is 9.2m (external diameter might be 10m) – just pointing out this is going to be tricky to audit (e.g. ID vs OD) if such detail is retained in the licence.</p>	<p>3. Quantity limit is based on peak flow. Wording in Table 1 and 2 has been updated to reflect.</p> <p>4. Wording has been deleted to remove ambiguity of condition. Any sludge removed off-site is subject to requirements of the <i>Environmental Protection (Controlled Waste) Regulations 2004</i>; all loads of bulk controlled waste, and all loads of packaged controlled waste equal to or greater than 200 kilograms or litres, are to be accompanied by a controlled waste tracking form (CWTF) from the point of generation to unloading at an approved waste facility.</p> <p>5. Wording in Table 3 updated to be more general.</p> <p>6. Wording of condition 6 updated to ensure that infrastructure requirements as detailed in Table 3 only relates to ‘waste material’ as specified in the Table. These requirements are consistent with other similar WWTP licences.</p> <p>7. Wording updated as suggested.</p> <p>8. Wording updated to reflect 2x operational oxidation ditches on-site as per previous works approval W4423/2008/1. Licence amendment may be required to equip third oxidation ditch.</p> <p>9. Details on dimensions of tanks removed. Previously approved under works approval W4423/2008/1.</p>

