

Permit

Environmental Protection Act 1994

Environmental authority P-EA-100563650

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Environmental authority number: P-EA-100563650

Environmental authority takes effect on the date that your related development approval A006403145 takes effect or 1 July 2026, whichever is the latter. This is the take effect date.

Within 5 business days of the environmental authority taking effect, the administering authority must be given written notice of the occurrence. Prior to the commencement of the activity, the administering authority must be given written notice of the proposed date of commencement.

The first annual fee is payable within 20 business days of the take effect date.

The anniversary date of this environmental authority is the same day each year as the take effect date. The payment of the annual fee will be due each year on this day.

Environmental authority holder

Name	Registered address
WILDFIRE ENERGY BULWER ISLAND PTY LTD	Unit 2, 118 Racecourse Rd ASCOT QLD 4007

Environmentally relevant activity and location details

Environmentally relevant activities	Location
ERA 54 - Mechanical waste reprocessing - 2(c) - Operating a facility for receiving and mechanically reprocessing, in a year, the following quantity of general waste - more than 10,000t	392A Tingira Street PINKENBA QLD 4008 – Part of Lot 913/SP118221
ERA 61 - Thermal waste reprocessing and treatment - 1(c) - Thermally reprocessing or treating, in a year, the following quantity of general waste - more than 10,000t	
ERA 61 - Thermal waste reprocessing and treatment - 2(a) - Thermally reprocessing or treating, in a year, the following quantity of category 2 regulated waste - not more than 5,000t	

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

An EA authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the EA specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land

It is a requirement of the EP Act that an owner or occupier of land give written notice to the administering authority if they become aware of the following:

- the presence of, or happening of an event involving, a hazardous contaminant on the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- if the land is contaminated land – a change in the condition of the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the land (notice must be given within 20 business days).

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term 'duty to notify'.

Take effect

Please note that, in accordance with section 200 of the EP Act, an EA has effect:

- a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority – on the nominated day; or
- b) if the authority states a day or an event for it to take effect – on the stated day or when the stated event happens; or
- c) otherwise – on the day the authority is issued.

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Planning Act 2016* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

The anniversary day of this environmental authority is the same day each year as the effective date. The payment of the annual fee will be due each year on this day.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading

information or operating without a valid environmental authority.

Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department and other State Government agencies prior to commencing any activity at the site. For example, this may include permits / approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access State controlled roads), the Department of Resources (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

Development Approval

This permit is not a development approval under the *Planning Act 2016*. The conditions of this environmental authority are separate, and in addition to, any conditions that may be on the development approval. If a copy of this environmental authority is attached to a development approval, it is for information only, and may not be current. Please contact the Department of Environment, Science and Innovation to ensure that you have the most current version of the environmental authority relating to this site.



Signature

22 October 2024

Date

Scott Blanchard

Department of Environment, Science and Innovation
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:

Waste Assessment
Department of Environment, Science and Innovation
GPO Box 2454, BRISBANE QLD 4001
Phone: 1300 130 372
Email: palm@des.qld.gov.au

Conditions of environmental authority

Location: 392A Tingira Street, PINKENBA QLD 4008 – Part of Lot 913/SP118221

Relevant Activities: ERA 54 - Mechanical waste reprocessing - 2(c) - Operating a facility for receiving and mechanically reprocessing, in a year, the following quantity of general waste - more than 10,000t

ERA 61 - Thermal waste reprocessing and treatment - 1(c) - Thermally reprocessing or treating, in a year, the following quantity of general waste - more than 10,000t

ERA 61 - Thermal waste reprocessing and treatment - 2(a) - Thermally reprocessing or treating, in a year, the following quantity of category 2 regulated waste - not more than 5,000t

The environmentally relevant activities conducted at the location as described above must be conducted in accordance with the following site-specific conditions of approval.

Condition number	Condition																	
Agency interest: General																		
G1	This environmental authority authorises the activities listed in <i>Table 1 – Authorised activities</i> to the extent that they are carried out in accordance with the following limitations: a) Phase 1 consists of one pair of Moving Injection Horizontal Gasification (MIHG) reactors and one syngas combustion engine; and b) Phase 2 consists of more than one pair of MIHG reactors and more than one syngas combustion engine; and c) The total capacity of the activity must not exceed three pairs of MIHG reactors and six syngas combustion engines; and d) as depicted in <i>Appendix A – Site Plan</i>. Table 1 – Authorised activities <table><tr><th colspan="2">Type of waste</th><th>Amount (t/yr)</th><th>Activity</th><th>Process</th><th>Location</th></tr><tr><td rowspan="2">Residual solid waste that has either been source separated or sourced from a recycling facility</td><td>a) commercial and industrial (C&I) waste (including residual solid waste from material recovery facilities (MRFs) and residual agricultural waste); and</td><td>Phase 1: 10,000 Phase 2: 40,000</td><td>Mechanical waste reprocessing</td><td>Receiving, storing, shredding, screening and drying</td><td>Within the enclosed ‘solids storage and preparation’ area as depicted in <i>Appendix A – Site Plan</i></td></tr><tr><td>b) construction and demolition (C&D) waste; and c) municipal solid waste (MSW); and d) green waste.</td><td></td><td>Thermal waste reprocessing</td><td>MIHG</td><td>Within the ‘gasification section’ as depicted in <i>Appendix A – Site Plan</i></td></tr></table>	Type of waste		Amount (t/yr)	Activity	Process	Location	Residual solid waste that has either been source separated or sourced from a recycling facility	a) commercial and industrial (C&I) waste (including residual solid waste from material recovery facilities (MRFs) and residual agricultural waste); and	Phase 1: 10,000 Phase 2: 40,000	Mechanical waste reprocessing	Receiving, storing, shredding, screening and drying	Within the enclosed ‘solids storage and preparation’ area as depicted in <i>Appendix A – Site Plan</i>	b) construction and demolition (C&D) waste; and c) municipal solid waste (MSW); and d) green waste.		Thermal waste reprocessing	MIHG	Within the ‘gasification section’ as depicted in <i>Appendix A – Site Plan</i>
Type of waste		Amount (t/yr)	Activity	Process	Location													
Residual solid waste that has either been source separated or sourced from a recycling facility	a) commercial and industrial (C&I) waste (including residual solid waste from material recovery facilities (MRFs) and residual agricultural waste); and	Phase 1: 10,000 Phase 2: 40,000	Mechanical waste reprocessing	Receiving, storing, shredding, screening and drying	Within the enclosed ‘solids storage and preparation’ area as depicted in <i>Appendix A – Site Plan</i>													
	b) construction and demolition (C&D) waste; and c) municipal solid waste (MSW); and d) green waste.		Thermal waste reprocessing	MIHG	Within the ‘gasification section’ as depicted in <i>Appendix A – Site Plan</i>													

	Category 2 regulated waste	a) Dried biosolids	Phase 1 and Phase 2: 5,000	Thermal waste reprocessing	Receiving and storing	Within the enclosed 'solids storage and preparation' area as depicted in <i>Appendix A – Site Plan</i>
					MIHG	Within the 'gasification section' as depicted in <i>Appendix A – Site Plan</i>
G2	All reasonable and practicable measures must be taken to prevent or minimise environmental harm caused, or likely to be caused, by the activities.					
G3	Unless specifically authorised by a condition of this environmental authority, this environmental authority does not authorise a relevant act which is: a) an act that causes serious or material environmental harm or an environmental nuisance; or b) an act that contravenes a noise standard; or c) a deposit of a contaminant, or release of stormwater run-off, mentioned in section 440ZG of the <i>Environmental Protection Act 1994</i>.					
G4	Contravention of conditions Unless specifically authorised by a condition of this environmental authority, details of any contravention of a condition of this environmental authority must: a) be reported to the administering authority within 24 hours of becoming aware of the contravention; and b) include the nature and circumstances of the contravention and any immediate actions taken.					
G5	As soon as reasonably practicable but no later than 20 business days of a report made under condition G4 (or a longer period agreed to in writing by the administering authority), an investigation must be undertaken to determine: a) the potential circumstances and actions that may have contributed to the contravention; and b) reasonable and practicable measures that will be implemented to address the cause of the contravention to prevent future contraventions of this nature.					
G6	As soon as reasonably practicable but no later than 20 business days of investigating a contravention under condition G5 (or a longer period agreed to in writing by the administering authority), the reasonable and practicable measures identified in the investigation must be implemented.					
G7	The outcome of the investigation carried out under condition G5 and the reasonable and practicable measures implemented under condition G6 must be recorded.					

G8	Complaints The following details must be recorded for all complaints received and provided to the administering authority upon request: a) date and time the complaint was received; and b) if authorised by the person making the complaint, their name and contact details; and c) nature and details of the complaint.
G9	As soon as reasonably practicable but no later than 5 business days of receiving a complaint (or a longer period agreed to in writing by the administering authority), an investigation must be undertaken to determine: a) the potential circumstances and actions on site that may have contributed to the basis of the complaint; and b) reasonable and practicable measures that will be implemented to address the complaint.
G10	As soon as reasonably practicable but no later than 5 business days of investigating a complaint under condition G9 (or a longer period agreed to in writing by the administering authority), the reasonable and practicable measures identified in the investigation must be implemented.
G11	The outcome of the investigation carried out under condition G9 and the reasonable and practicable measures implemented under condition G10 must be recorded.
G12	Environmental risk management procedures Written procedures must be developed and implemented by an appropriately qualified person that ensure: a) all potential risks to the environment from the carrying out of the activity are identified and assessed, including: i) during routine operations; and ii) outside routine operations (e.g., maintenance, start up and shut down); and iii) during preparation, rehabilitation, and closure; and iv) in an emergency (e.g., explosion, fire, flood, or other natural disaster); and b) for each potential risk identified, any necessary measures to prevent or minimise the potential for environmental harm are implemented; and c) staff understand their obligations under this environmental authority and the <i>Environmental Protection Act 1994</i>; and d) environmental risk management procedures are continually reviewed and improved, based on a reasonable risk-management approach.
G13	Plant and equipment An appropriately qualified person must install, operate, calibrate, and maintain the plant and equipment required to carry out the activity (including monitoring devices) in a proper and effective manner.
G14	Records of installation, calibration and maintenance carried out under condition G13 must be kept.
G15	Record keeping Unless otherwise specified by a condition of this environmental authority, records must be: a) kept for the period outlined in <i>Table 2 – Record keeping requirements</i>; and

	b) provided to the administering authority upon request and in the format requested. Table 2 – Record keeping requirements <table> <tr> <th>Description of records</th><th>Retention requirement</th></tr> <tr> <td>Monitoring results</td><td>Retain for 15 years</td></tr> <tr> <td>All other records</td><td>Retain for 5 years</td></tr> </table>	Description of records	Retention requirement	Monitoring results	Retain for 15 years	All other records	Retain for 5 years
Description of records	Retention requirement						
Monitoring results	Retain for 15 years						
All other records	Retain for 5 years						
G16	Chemical storage All liquid chemicals and fuels in containers of greater than 15 litres must be stored within a secondary containment system.						
G17	Monitoring and sampling All monitoring and sampling required by the conditions of this environmental authority must be carried out, interpreted, and recorded by an appropriately qualified person.						
G18	Unless otherwise authorised in writing by the administering authority, all laboratory analyses required under this environmental authority must be carried out by a laboratory that has National Association of Testing Authorities (NATA) accreditation for such analyses.						
G19	A monitoring report must be prepared by an appropriately qualified person and submitted to the administering authority prior to commencement of Phase 2 of the activity. The monitoring report must include: a) a summary of all monitoring data obtained in accordance with any of the monitoring requirement of this environmental authority; and b) an evaluation/explanation of the data from any monitoring programs, including graphical representations showing relevant limits and trends; and c) an outline of actions taken, and proposed to be taken, to minimise the environmental risk from any deficiency identified by the monitoring or recording programs.						
Agency interest: Air							
A1	Odours or airborne contaminants must not cause environmental nuisance to any sensitive place or commercial place.						
A2	Treatment of air emissions via activated carbon filter units is required prior to release to the atmosphere from: a) the waste dryer; and b) the condensate storage tanks.						
A3	The activated carbon filter units required by condition A2 must: a) have a removal efficiency of not less than 90 percent in respect of the release of odorous gases and volatile organic compounds; b) be maintained to the manufacturer's specifications and in a manner to prevent or minimise the release of contaminants to the atmosphere; c) be replaced when the carbon filter is saturated and the efficiency is reduced below the manufacturers' specifications; and d) have an indicator or a device installed to alarm the operator when the carbon filter is required to be replaced.						

A4	Dust and particulate matter emissions must not exceed the following concentrations at any sensitive place or commercial place: a) dust deposition of 120 milligrams per square metre per day, when monitored in accordance with Australian Standard AS 3580.10.1 (or more recent editions), or b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM ₁₀) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, when monitored in accordance with Australian Standard AS 3580.9.6 (or more recent editions) or any other method approved by the administering authority; or c) a concentration of respirable crystalline silica (as PM _{2.5}) of 3 micrograms per cubic metre annual average period, when monitored in accordance with Australian Standard AS 3580.9.10 (or more recent editions) or any other method approved by the administering authority.																																										
A5	All air emissions from the MIHG reactors must be treated via the following air pollution controls: a) electrostatic precipitator; b) syngas blower and cooler; c) tar-water condensate system; and d) adsorption beds (e.g. iron oxide and activated carbon).																																										
A6	Contaminants must only be released to air from the point sources in accordance with <i>Table 3 – Point Source Parameters</i> and <i>Table 4 – Point Source Air Release Limits</i> and the associated requirements. Table 3 – Point Source Parameters <table><tr><th rowspan="2">Release point (Note 1)</th><th rowspan="2">Minimum release height above ground (m)</th><th rowspan="2">Minimum exit velocity (m/s)</th><th colspan="2">Number of stacks</th><th rowspan="2">Description</th></tr><tr><th>Phase 1</th><th>Phase 2</th></tr><tr><td>Genset stacks</td><td>6</td><td>30</td><td>1</td><td>6</td><td>Syngas combustion engine exhaust stacks</td></tr><tr><td>Heater/boiler stack</td><td>6</td><td>31</td><td>1</td><td>1</td><td>Syngas-fired hot oil heater/boiler unit</td></tr><tr><td>Flare</td><td>6</td><td>16</td><td>1</td><td>1</td><td>Startup, shutdown and emergency use only</td></tr><tr><td>Cold vent stacks</td><td>16</td><td>3.9</td><td>2</td><td>6</td><td>Air and nitrogen purging vents from reactor start up and cooling</td></tr></table> Note 1: As depicted in <i>Appendix A – Site Plan</i> Table 4 – Point Source Air Release Limits <table><tr><th>Release point (Note 1)</th><th>Contaminant</th><th>Maximum release limit (Note 3)</th><th>Monitoring frequency</th></tr><tr><td rowspan="2">Genset stacks and heater/boiler stack</td><td>Total Solid Particulates (TSP)</td><td>30 mg/Nm³ (dry) (half hourly)</td><td rowspan="2">Phase 1: Quarterly in the first year and six-monthly thereafter.</td></tr><tr><td>Carbon Monoxide (CO)</td><td>623 mg/Nm³ (dry) (half hourly)</td></tr></table>	Release point (Note 1)	Minimum release height above ground (m)	Minimum exit velocity (m/s)	Number of stacks		Description	Phase 1	Phase 2	Genset stacks	6	30	1	6	Syngas combustion engine exhaust stacks	Heater/boiler stack	6	31	1	1	Syngas-fired hot oil heater/boiler unit	Flare	6	16	1	1	Startup, shutdown and emergency use only	Cold vent stacks	16	3.9	2	6	Air and nitrogen purging vents from reactor start up and cooling	Release point (Note 1)	Contaminant	Maximum release limit (Note 3)	Monitoring frequency	Genset stacks and heater/boiler stack	Total Solid Particulates (TSP)	30 mg/Nm ³ (dry) (half hourly)	Phase 1: Quarterly in the first year and six-monthly thereafter.	Carbon Monoxide (CO)	623 mg/Nm ³ (dry) (half hourly)
Release point (Note 1)	Minimum release height above ground (m)				Minimum exit velocity (m/s)	Number of stacks		Description																																			
		Phase 1	Phase 2																																								
Genset stacks	6	30	1	6	Syngas combustion engine exhaust stacks																																						
Heater/boiler stack	6	31	1	1	Syngas-fired hot oil heater/boiler unit																																						
Flare	6	16	1	1	Startup, shutdown and emergency use only																																						
Cold vent stacks	16	3.9	2	6	Air and nitrogen purging vents from reactor start up and cooling																																						
Release point (Note 1)	Contaminant	Maximum release limit (Note 3)	Monitoring frequency																																								
Genset stacks and heater/boiler stack	Total Solid Particulates (TSP)	30 mg/Nm ³ (dry) (half hourly)	Phase 1: Quarterly in the first year and six-monthly thereafter.																																								
	Carbon Monoxide (CO)	623 mg/Nm ³ (dry) (half hourly)																																									

		<table><tr><td>Oxides of Nitrogen (as NO₂)</td><td>400 mg/Nm³ (dry) (half hourly)</td></tr><tr><td>Sulphur dioxide (SO₂)</td><td>200 mg/Nm³ (dry) (half hourly)</td></tr><tr><td>Hydrogen chloride (HCl)</td><td>60 mg/Nm³ (dry) (half hourly)</td></tr><tr><td>Total fluoride (as HF)</td><td>4 mg/Nm³ (dry) (half hourly)</td></tr><tr><td>Volatile Organic Compounds (VOC)</td><td>20 mg/Nm³ (dry) (half hourly) as total organic carbon (TOC)</td></tr><tr><td>Cadmium and its compounds (expressed as Cd)</td><td>0.05 mg/Nm³ (dry) (sampling period)</td></tr><tr><td>Mercury and its compounds (expressed as Hg)</td><td>0.05 mg/Nm³ (dry) (sampling period)</td></tr><tr><td>Total heavy metals (Note 2)</td><td>0.5 mg/Nm³ (dry) (sampling period)</td></tr><tr><td>Dioxins and furans (I-TEQ for PCDDs and PCDFs)</td><td>0.1 ng/Nm³ (sampling period)</td></tr><tr><td>Polycyclic Aromatic Hydrocarbons (PAH) (as BαP equivalent)</td><td>3 µg/Nm³ (sampling period)</td></tr><tr><td>PFAS compounds</td><td>Monitor only (sampling period) (Note 4)</td></tr></table>	Oxides of Nitrogen (as NO ₂)	400 mg/Nm ³ (dry) (half hourly)	Sulphur dioxide (SO ₂)	200 mg/Nm ³ (dry) (half hourly)	Hydrogen chloride (HCl)	60 mg/Nm ³ (dry) (half hourly)	Total fluoride (as HF)	4 mg/Nm ³ (dry) (half hourly)	Volatile Organic Compounds (VOC)	20 mg/Nm ³ (dry) (half hourly) as total organic carbon (TOC)	Cadmium and its compounds (expressed as Cd)	0.05 mg/Nm ³ (dry) (sampling period)	Mercury and its compounds (expressed as Hg)	0.05 mg/Nm ³ (dry) (sampling period)	Total heavy metals (Note 2)	0.5 mg/Nm ³ (dry) (sampling period)	Dioxins and furans (I-TEQ for PCDDs and PCDFs)	0.1 ng/Nm ³ (sampling period)	Polycyclic Aromatic Hydrocarbons (PAH) (as BαP equivalent)	3 µg/Nm ³ (sampling period)	PFAS compounds	Monitor only (sampling period) (Note 4)	Phase 2: Quarterly.
Oxides of Nitrogen (as NO ₂)	400 mg/Nm ³ (dry) (half hourly)																								
Sulphur dioxide (SO ₂)	200 mg/Nm ³ (dry) (half hourly)																								
Hydrogen chloride (HCl)	60 mg/Nm ³ (dry) (half hourly)																								
Total fluoride (as HF)	4 mg/Nm ³ (dry) (half hourly)																								
Volatile Organic Compounds (VOC)	20 mg/Nm ³ (dry) (half hourly) as total organic carbon (TOC)																								
Cadmium and its compounds (expressed as Cd)	0.05 mg/Nm ³ (dry) (sampling period)																								
Mercury and its compounds (expressed as Hg)	0.05 mg/Nm ³ (dry) (sampling period)																								
Total heavy metals (Note 2)	0.5 mg/Nm ³ (dry) (sampling period)																								
Dioxins and furans (I-TEQ for PCDDs and PCDFs)	0.1 ng/Nm ³ (sampling period)																								
Polycyclic Aromatic Hydrocarbons (PAH) (as BαP equivalent)	3 µg/Nm ³ (sampling period)																								
PFAS compounds	Monitor only (sampling period) (Note 4)																								
Flare	<table><tr><td>Volume flow rate</td><td rowspan="5">N/A – monitoring only</td></tr><tr><td>Hydrogen</td></tr><tr><td>Carbon Monoxide</td></tr><tr><td>Carbon Dioxide</td></tr><tr><td>Oxygen</td></tr></table>	Volume flow rate	N/A – monitoring only	Hydrogen	Carbon Monoxide	Carbon Dioxide	Oxygen	When flare is operating																	
Volume flow rate	N/A – monitoring only																								
Hydrogen																									
Carbon Monoxide																									
Carbon Dioxide																									
Oxygen																									

Note 1: As depicted in *Appendix A – Site Plan*

Note 2: Total heavy metals: limit is for the total of antimony, arsenic, cadmium, lead, mercury, beryllium, chromium, cobalt, manganese, nickel, selenium, and vanadium and their compounds.

Note 3: All concentrations limits refer to 11% O₂ reference level and average over 30 minutes, except for heavy metals, dioxins and PAHs that refer to a sampling period.

Note 4: PFAS monitoring in accordance with the US EPA Other Test Method 45 (OTM-45) Measurement of Selected Per- and Polyfluorinated Alkyl Substances from Stationary Sources and Other Test Method 50 (OTM-50) Sampling and Analysis of Volatile Fluorinated Compounds from Stationary Sources Using Passivated Stainless-Steel Canisters.

Associated requirements:

a)

The release of contaminants from a point source must be directed vertically upwards without any impedance or hindrance.

b)

Monitoring must be undertaken during a release and at the authorised release points, frequency and for the

	contaminants specified in <i>Table 3 – Point Source Parameters</i> and <i>Table 4 – Point Source Air Release Limits</i>. c) Monitoring must be undertaken when emissions are expected to be representative of actual operating conditions for the sample period. d) All monitoring devices must be effectively calibrated and maintained in accordance with the manufacturer's instructions and Australian and international standards. e) Air Monitoring must be in accordance with the current edition of the administering authority's Air Quality Sampling Manual. If monitoring requirements are not described in the administering authority's Air Quality Sampling Manual, monitoring protocols must be in accordance with a method as approved by New South Wales Environmental Protection Authority, Victorian Environmental Protection Authority or United States Environmental Protection Agency. f) Monitoring provision for the release points (stacks) listed in <i>Table 3 – Point Source Parameters</i> and <i>Table 4 – Point Source Air Release Limits</i> must comply with the Australian Standard AS 4323.1 - 1995 "Stationary source emissions Method 1: Selection of sampling positions". g) All air emission stack monitoring must be conducted by an experienced person or body which holds current National Association of Testing Authorities (NATA). h) The following tests must be performed for each required determination specified in <i>Table 4 – Point Source Air Release Limits</i>: i. gas velocity and volume flow rate; ii. temperature and oxygen content; and iii. water vapour concentration. i) During the sampling period, the following additional information must be gathered: i. plant throughput rate at the time of sampling; ii. plant operating parameters which includes but is not limited to: material feed rate, feed-stocks composition/characteristics, residence time, amount of primary air (oxygen) injected into the MIHG reactor etc.; iii. any typical factors that may influence air pollutant emissions; iv. reference to the actual test methods and accuracy.
A7	The flare must be designed to meet the standards as outlined by the United States Environmental Protection Agency Code of Federal Regulations 40 CFR 60.18 and 40 CFR 63.11 and operated to meet the following conditions: a) It must be able to achieve a VOC destruction efficiency of 98%; b) It must be operated with a flame present at all times; c) It must be equipped with a flare tip design to provide good mixing with air and flame stability; d) Visible smoke emissions of flare must not be permitted for more than five minutes in any two hour period; e) At all times during operation, the hydrogen gas concentration of the flare feed gas must be greater than 8% on a volumetric basis or the net heating value of the gas must be ≥ 200 BTU per standard cubic foot (BTU/Scf) or ≥ 7.45 MJ/Sm³; and f) Contaminants are released to the atmosphere from the flare at a height not less than the 6m above ground.
A8	The flare is to be operated for startup, shutdown and emergency purposes only.
A9	The mass of any PFAS released into the atmosphere must not exceed 0.01% of the mass of the respective and total compounds measured in biosolids prior to entering the MIHG reactor. <u>Note:</u> where any PFAS compound concentration is below the detection limit, a value of zero (0) must be used for mass calculations for compliance purposes; and a value of 50% of LOR must be used for making and reporting medium-bound estimates.
A10	The PFAS destruction efficiency required by condition A9 must be calculated during the thermal reprocessing of dried biosolids that have been accepted from a new source. <u>Note:</u> a new source is somewhere that has not previously provided dried biosolids for thermal reprocessing within the MIHG reactors at the site.

A11	For calculations required by condition A9 and A10, the percentage of PFAS compounds release limit must be determined using the following equation: PFAS compounds mass air emission (%) = [(MS ÷ MV) x 100]. Where: a) MS is the mass emission rate of PFAS compounds in the stack; and b) MV is the mass of PFAS compounds measured in the biosolids prior to entering the MIHG reactor.																										
A12	The investigation of the PFAS destruction efficiency required by condition A9 and A10 must include at least the following: a) measurements of PFAS in the dried biosolids feedstock, and the gas, solid and liquid waste residuals from the process, including stack emissions, char, slag, tar-water condensate and waste material collected from the gas clean-up system. These measurements must, as far as practicable, be accurate to plus or minus 1% (<u>Note</u>: the 1% accuracy requirement applies to waste mass and volume estimated used in generating input for mass estimates, not error margins in analyses); and b) PFAS monitoring must be conducted in accordance with US EPA Other Test Method 45 - (OTM-45) Measurement of Selected Per- and Polyfluorinated Alkyl Substances from Stationary Sources and Other Test Method 50 (OTM-50) Sampling and Analysis of Volatile Fluorinated Compounds from Stationary Sources Using Passivated Stainless-Steel Canisters; and c) a determination of partitioning of PFAS through the char production process and associated pollution control system; and d) a determination of the destruction efficiency of the gasification process; and e) the concentration of other contaminants present in the biosolids feedstock and char produced; and f) the concentration of fluorinated hydrocarbons.																										
Agency interest: Land																											
L1	Contaminants must not be released to land.																										
Agency interest: Noise																											
N1	Noise generated by the activity must not cause environmental nuisance to any sensitive place or commercial place.																										
N2	Noise from the activity must not include substantial low frequency noise components and must not exceed the levels identified in <i>Table 5 – Noise limits</i> when measured in accordance with the associated monitoring requirements at any sensitive place or commercial place. Table 5 – Noise limits <table><tr><th rowspan="3">Noise level measured in dB(A)</th><th colspan="3">Monday to Saturday</th><th colspan="3">Sunday and Public Holidays</th></tr><tr><th>7am–6pm</th><th>6pm–10pm</th><th>10pm–7am</th><th>9am–6pm</th><th>6pm–10pm</th><th>10pm–9am</th></tr><tr><th colspan="6">Noise measured a sensitive place</th></tr><tr><td>L_{Aeq} adj,1 hr</td><td>background</td><td>background</td><td>background</td><td>background</td><td>background</td><td>background</td></tr></table>	Noise level measured in dB(A)	Monday to Saturday			Sunday and Public Holidays			7am–6pm	6pm–10pm	10pm–7am	9am–6pm	6pm–10pm	10pm–9am	Noise measured a sensitive place						L _{Aeq} adj,1 hr	background	background	background	background	background	background
Noise level measured in dB(A)	Monday to Saturday			Sunday and Public Holidays																							
	7am–6pm		6pm–10pm	10pm–7am	9am–6pm	6pm–10pm	10pm–9am																				
	Noise measured a sensitive place																										
L _{Aeq} adj,1 hr	background	background	background	background	background	background																					

	L_{Amax},1 hr	N/A	N/A	47	N/A	N/A	47
		Noise measured at a commercial place					
	L_{Aeq} adj,1 hr	55	55	55	55	55	55
	L_{A1} adj,1 hr	60	60	60	60	60	60
	Associated requirements: a) All monitoring devices must be calibrated and maintained according to the manufacturer's instruction manual. b) Any monitoring must be in accordance with the most recent version of the administering authority's Noise Measurement Manual. c) Any monitoring of noise emissions from the activity must be undertaken when the activity is in operation. d) The number and type of equipment operating at the time of the noise measurement must be recorded. e) Monitoring must include: i. L_{Aeq,adj,1hr}, L_{A1,adj,1hr}, L_{Amax} and background noise as L_{A90,T}; ii. The level and frequency of occurrence of any impulsive or tonal noise; iii. Atmospheric conditions including wind speed and direction; iv. Effects due to extraneous factors such as traffic noise; and v. Location, date and time of recording. f) All monitoring must be performed by an appropriately qualified person(s). g) During the monitoring period the following additional information must be gathered: i. Plant throughput rate at the time of monitoring; and ii. Number and types of equipment operating.						
Agency interest: Waste							
W1	Other than biosolids, waste from any discrete source that is reasonably suspected to contain any PFAS compounds must not be accepted or reprocessed on site ¹ .						
W2	Prior to the commencement of the activity, a Feedstock Management Plan must be developed and implemented which includes procedures for: a) characterising the feedstocks received at the site; and b) identifying feedstock storage requirements based on the chemical and physical compositions of each type of feedstock; and c) assessing if the feedstock received at the site is suitable for the reprocessing techniques being used; and d) assessing if the feedstock received at the site is lawfully able to be used as a feedstock, including under the conditions of this environmental authority; and e) for rejecting unsuitable and/or unlawful feedstock, including PFAS contaminated feedstock; and f) reporting unlawful waste delivery to the administering authority; and g) reviewing and improving the plan at least annually.						
W3	Putrescible waste can only be stored onsite for a maximum of 72 hours.						
W4	All waste generated in carrying out the activity must be lawfully reused, recycled, or removed to a facility that can lawfully accept the waste.						
W5	Incompatible wastes must not be mixed in the same container or waste storage area.						

¹ Examples of waste streams that may be expected to contain PFAS compounds include carpet, textiles, leather, tile/stone coatings, paints, varnishes, sealants, and more as identified within *Appendix B Activities associated with point sources of PFAS contamination* within the most recent version of the PFAS National Environmental Management Plan.

Agency interest: Water	
WT1	Contaminants must not be released to any waters.

Definitions

Where a word or phrase in this document is defined in this Schedule or within the document, it has its corresponding meaning. Where a word or phrase in this document is not defined in this Schedule, it has the meaning given to it in (in order of priority):

- the *Environmental Protection Act 1994* (EP Act), its regulations or its environmental protection policies;
- the *Acts Interpretation Act 1954*;
- the Macquarie Dictionary (taking account of the context in which the word or phrase is used in this document).

For example, environmental value, environmental harm, environmental nuisance, material environmental harm, serious environmental harm and relevant act are defined in the EP Act and groundwater is defined in the Environmental Protection Regulation 2019.

Defined words or phrases in the singular include the plural and vice versa.

Activity means the environmentally relevant activities to which the environmental authority relates.

Appropriately qualified person means a person who has professional qualifications, training, skills or experience relevant to the EA requirements and can give authoritative assessment, advice and analysis in relation to the EA requirements using the relevant protocols, standards, methods or literature.

Administering authority means the Department of Environment, Science and Innovation or its successors or predecessors.

Background means noise, measured in the absence of the noise under investigation, as $L_{A90,T}$ being the A-weighted sound pressure level exceeded for 90 per cent of the time period of not less than 15 minutes, using Fast response

Biosolids means treated tank sludges and residues from a sewage treatment plant including sedimentation tank and clarifier sludges, aerobically and anaerobically digested sludge and cake products from those sewage treatment plants.

Commercial and industrial waste as defined in the Waste Reduction and Recycling Regulation 2011.

Commercial place means a place used as a workplace, an office or for business or commercial purposes and includes a place within the curtilage of such a place reasonably used by persons at that place.

Construction and demolition waste as defined in the Waste Reduction and Recycling Regulation 2011.

General waste means waste other than regulated waste.

Green waste means grass cuttings, trees, bushes, shrubs, loppings of trees, bushes or shrubs, or similar matter produced as a result of the ordinary use or occupation of premises.

Incompatible waste means waste that may chemically react when:

- a) placed in proximity to other wastes; and / or
- b) mixed with other wastes.

$L_{A1, adj, 1 hr}$ means the A-weighted sound pressure level that is exceeded for 1% of a 1-hour period when measured using time-weighting 'F'.

L_{Aeq adj, 1 hr} means an A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within a 1-hour period has the same mean square sound pressure of a sound that varies with time.

L_{Amax, 1 hr} means the maximum A-weighted sound pressure level over the 1-hour measurement period.

Land does not include waters.

Measures has the broadest interpretation and includes plant, equipment, physical objects, monitoring, procedures, actions, directions and competency.

Monitoring results includes analysis results (laboratory and in situ) and monitoring reports.

Municipal solid waste as defined in the Waste Reduction and Recycling Regulation 2011.

PFAS means per-and poly-fluoroalkyl substances.

PFAS Compounds means the PFAS sub-classes outlined in Appendix A of the most recent edition of the PFAS National Environmental Management Plan.

Polycyclic Aromatic Hydrocarbons (PAH) means limit is for total of the 16 priority pollutants listed by the United States EPA, namely, Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benz(α) anthracene, Chrysene, Benzo(β)fluoranthene, Benzo(κ)fluoranthene, Benzo(α)pyrene, Indeno[123cd] pyrene, Dibenz[ah]anthracene and Benzo[ghi] perylene, expressed as Benzo(α)pyrene equivalents using the potency equivalence factors specified by the World Health Organisation.

Records include any written procedures, plans, monitoring results, monitoring reports and monitoring programs required under a condition of this environmental authority.

Regulated waste as defined in Section 42 of the Environmental Protection Regulation 2019.

Residual solid waste means waste that is not technically, environmentally, and economically practicable to reuse or recycle.

Secondary containment system means a system designed, installed and operated to prevent any release of contaminants from the system, or containers within the system.

Sensitive place includes the following and includes a place within the curtilage of such a place reasonably used by persons at that place:

- a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- b) a motel, hotel or hostel; or
- c) a kindergarten, school, university or other educational institution; or
- d) a medical centre or hospital; or
- e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area; or
- f) a park or garden; or
- g) for noise, a place listed as a sensitive receptor in Schedule 1 of the Environmental Protection (Noise) Policy 2019.

Substantial low frequency noise means a noise emission that has an unbalanced frequency spectrum shown in a one-third octave band measurements, with a predominant component within the frequency range 10 to 200 Hz. It includes any noise emission likely to cause an overall sound pressure level at a noise sensitive place exceeding 55 dB(Z).

Volatile organic compounds (VOC) means any chemical compound based on carbon chains or rings with a vapour pressure greater than 2mm of mercury (0.27 kPa) at 25°C), that participate in atmospheric photochemical reactions. The substances that are specifically excluded are: methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonate salts. This is according to the definition of VOC outlined in the Australian Government National's Pollutant Inventory.

Waters includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water, natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

