Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6090/2017/1
Works approval holder	Ecocycle Pty Ltd
ACN	146 190 516
Registered business address	Unit 3, 81-85 Heatherdale Road RINGWOOD VIC 3134
DWER file number	DER2017/001541-1
Duration	8/05/2018 to 07/12/2026
Date of amendment	05/05/2025
Premises	Kwinana Mercury Treatment Plant Lot 101 Donaldson Rd, KWINANA BEACH WA 6167 Legal description - Part of Lot 101 on Plan 73740 As defined by the coordinates in the premises map in Schedule 1: Maps

Prescribed premises category description (Schedule 1, Environmental Protection Regulations 1987)	Assessed production capacity
Category 39: Chemical or oil recycling: premises on which waste liquid hydrocarbons or chemicals are refined, purified, reformed, separated or processed.	2,000 tonnes per annual period
Category 61A: Solid waste facility: premises (other than premises within category 67A) on which solid waste produced on other premises is stored, reprocessed, treated or discharged onto land.	2,000 tonnes per annual period

This works approval is granted to the works approval holder, subject to the following conditions, on 05 May 2025, by:

Caron Goodbourn
Digitally signed by Caron Goodbourn
Date: 2025.05.05 08:35:31 +08'00'

Manager, Process Industries
Approvals – State-Wide Delivery
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Works approval history

08/05/2018	W6090/2017/1	New works approval granted.
22/05/2019		Amendment Notice 1: • increase the storage capacity for MCW from 200 to 400 tonnes. • increase throughput from 1,000 tonnes per year to 2,000 tonnes per year; and • authorise commissioning and time limited operation of the premises infrastructure.
10/01/2020		Amendment to increase the storage capacity for MCW and stabilised mercury sulphide from 400 to 500 tonnes at any one time.
20/04/2021		Amendment to extend the expiry date by 18 months, to allow for completion of commissioning (this amendment).
7/01/2022		Works approval holder-initiated amendment to: • include Sea Container Storage Area within premises boundary; • reflect as constructed the carbon filtration scrubbers; • reword mercury stabilisation infrastructure name; • specify maximum amount of waste stored on site at any one time; • specify storage and disposal options for treated mercury waste (elemental mercury sludge); and • allow for storage of overflow MCW in sea containers.
04/08/2022		Works approval holder-initiated amendment to remove Sea Container Storage Area (Part F of Lot 101 on Deposited Plan 73740) from premises boundary and extend works approval duration
31/07/2023		Works Approval Holder initiated amendment to extend the duration of the Works Approval from 7/11/2023 to 7/11/2024 and to allow installation and operation of a prefabricated mercury stabilisation unit at the premises.
24/08/2023		Transfer of Works Approval from BMT Australia Pty Ltd to Ecocycle Pty Ltd
04/06/2024		Works approval-initiated amendment to extend the expiry date by six months to 7 May 2025.
17/07/2024		Department initiated amendment to increase storage time of mercury from 6 to 12 months.
05/05/2025		Works approval holder-initiated amendment to: • install a Battery-in-Device-Shredder (BIDS), Batch Distiller (BD), Mercury Conversion Unit (MCU) and Mercury Fine Distiller (MFD), • construct a weighbridge at the premises. • remove Mercury Treatment Plant, Mobile Mercury Stabilisation Unit (MMSU) and Activated Carbon Filtration System from works approval. • remove commissioned infrastructure and equipment documented in Construction Compliance Report from works approval. Includes department-initiated amendment to extend the expiry date of the works approval to 2026

Interpretation

In this works approval:

(a) the words 'including,' 'includes' and 'include' in conditions mean 'including but not limited to,' and similar, as appropriate;
(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
(c) where tables are used in a condition, each row in a table constitutes a separate condition;
(d) any reference to an Australian or other standard, guideline, or code of practice in this works approval:
  (i) if dated, refers to that particular version; and
  (ii) if not dated, refers to the latest version and therefore may be subject to change over time;
(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and
(f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This works approval requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

Works approval conditions

The works approval holder must ensure the following conditions are complied with:

Infrastructure and equipment

1. The works approval holder must undertake the works:

(a) for the infrastructure and equipment;
(b) to the requirements; and
(c) at the location

specified in Table 12 of Schedule 2 (Infrastructure and equipment).

2. The works approval holder must not depart from the requirements specified in Table 12 of Schedule 2 (Infrastructure and equipment) except:
(a) where such departure does not increase risks to public health, public amenity, or the environment; and
(b) all other conditions in this works approval are still satisfied.

Emissions

3. The works approval holder must not cause any emissions from the works authorised through this works approval, and during commissioning and the time limited operational phase, except for general emissions described in Table 1, subject to the exclusions, limitations or requirements specified in Table 1.

Table 1: Authorised emissions table

Emission type	Exclusions, limitations or requirements
Specified emissions	
Discharges to air	Subject to compliance with conditions 2, 3, 6, 11, 12, 18, 19, 20, 21, 22, 23, 24.
General emissions (excluding Specified emissions)	

Emission type	Exclusions, limitations or requirements
Specified emissions	
Fugitive emissions which arise from undertaking the construction or pre-commissioning of infrastructure and equipment set out in Table 12 of Schedule 2 (Infrastructure and equipment)	Emissions excluded from General Emissions are: • Unreasonable emissions; or • Emissions that result in, or are likely to result in, pollution, material environmental harm or serious environmental harm; or • Discharges of waste in circumstances likely to cause pollution; or • Emissions that result, or are likely to result in, the discharge or abandonment of waste in water to which the public has access; or • Emissions or discharges which do not comply with an approved policy, a prescribed standard or the conditions in an implementation agreement or decision; or • Emissions or discharges the subject of offences under regulations prescribed under the EP Act, including materials discharged under the Environmental Protection (Unauthorised Discharges) Regulations 2004.

Records

4. The works approval holder must prepare and submit to the CEO a revised Emergency Response Plan prior to the 31 December 2023, which includes:

(a) hazard identification planning: the identification and risk assessment of all hazardous areas (e.g. areas with potentially toxic or flammable gas atmospheres) within the premises; and
(b) a description of the potential risk events associated with hazardous areas which could have adverse impacts on the public or the environment;
(c) hazard analysis planning: all relevant design and storage details which support the mitigation and allow analysis of the consequence and likelihood of risk events identified in part (a) and part (b), at the premises should they occur; and
(d) hazard operations planning the details of emergency procedures and controls in place for risk events identified in part (a) if they occur, including fire.

5. The works approval holder must submit a construction compliance document to the CEO following the construction of the works, and at least 10 days prior to commissioning of the same that:

(a) includes a detailed description addressing how each as-constructed item of infrastructure and equipment meets the requirements and the location specified in Table 12 of Schedule 2 (Infrastructure and equipment), as required by condition 1;
(b) includes a description of, and explanation for, any departure from the requirements specified in Table 12 of Schedule 2 (Infrastructure and equipment), including how the departure complies with Condition 2;
(c) contains photographs of as-constructed works to support the descriptions provided under condition 5(a);
(d) contains as-constructed plans for the works;
(e) is signed by a person authorised to represent the works approval holder and contains the printed name and position of that person within the company; and
(f) is accompanied by a construction quality assurance validation report that:
    (i) is written and certified by a suitably qualified, independent, third-party professional engineer that has undertaken construction quality assurance on the completed works;
    (ii) confirms the details reported by the works approval holder under conditions 5(a) and 5(b); and
    (iii) is signed by the suitably qualified independent third party professional engineer and contains the printed name, position and company of that person.

6. The works approval holder must notify the CEO in writing within 7 days of commencing commissioning of the works.

7. The works approval holder must notify the CEO in writing within 7 days of completing commissioning of the works.

8. The works approval holder must provide to the CEO a commissioning report within one month of the completion of commissioning of the works which includes:

(a) a description of the commissioning activities and environmental monitoring undertaken during the commissioning phase;
(b) a summary of monitoring results recorded under condition 22;
(c) a list of any original monitoring reports submitted to the works approval holder from third parties for the commissioning period;
(d) a summary of the environmental performance of the plant as installed, against the design specifications set out in Schedule 2 (Table 12);
(e) a review of performance against the works approval conditions; and
(f) where they have not been met, measures proposed to meet the design specification and/or works approval conditions, together with timescales for implementing the proposed measures.

9. The works approval holder may conduct time limited operations for the infrastructure and equipment specified in Schedule 2 (Table 12):

a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 8; or

b) until such time as a licence is granted in accordance with Division 3, Part V of the *Environmental Protection Act 1986,* whichever is sooner.

10. During time-limited operations the works approval holder must ensure the site infrastructure and equipment listed in Table 2 is maintained and operated in accordance with the corresponding operational requirements set out in Table 2.

Table 2: Infrastructure and equipment operational requirements

Site infrastructure and equipment	Operational requirements	Infrastructure location
Warehouse building	a) No more than 500 tonnes of MCW and stabilised mercury sulphide shall be stored within the building. b) Pre-processing, processing and handling of MCW outside of sealed containers is not permitted within the Warehouse building. c) External doors must be kept closed except when personnel are entering or exiting the building, or waste transfer is occurring between the warehouse and a transport vehicle. d) The building sealed bunded floor must be maintained so it is impermeable to mercury and hydrocarbons, free of liquid and obstructions to maintain a capacity of at least 35 m3 of liquid, and to drain to a collection sump. e) The collection sump must be maintained free of liquids and obstructions to permit full capacity. f) The building must be surrounded by secure fencing with lockable gates.	Location labelled “Warehouse” as shown in the Premises map Figure 1 in Schedule 1 (Maps)

Site infrastructure and equipment	Operational requirements	Infrastructure location
Pallet scales	a) Must be capable of accurately weighing all incoming and outgoing waste. b) The measuring device must be maintained and calibrated in accordance with manufacturers' specifications.	NA
Warehouse loading/ unloading bay	a) Aprons are constructed of concrete, graded in a manner which prevents runoff, and drains to a collection sump. b) The collection sump must be maintained free of liquids and obstructions to permit full capacity. c) Roller doors used to access the warehouse must remain closed where possible during processing of waste which must only occur during operational hours. Operational hours are defined as Monday to Friday. 7am to 4pm.	Location labelled "Warehouse" as shown in the Premises map Figure 1 in Schedule 1 (Maps)
Process Building	a) Negative atmospheric pressure must be maintained through operation of the HVAC system whenever pre-processing, processing or handling of MCW or stabilised mercury outside of sealed containers occurs, or maintenance activities on the mercury treatment plant are undertaken. b) Emissions to air must only be released from the Process Building via the Emissions Stack. c) MCW waste must not be stored within the Process Building for more than 24 hours prior to treatment. d) The building must be kept free of combustible and flammable materials. e) The building sealed bunded floor must be maintained so it is impermeable to mercury and hydrocarbons, free of liquid and obstructions to maintain a capacity of at least 3.5 m3 of liquid, and to drain to a collection sump. f) The collection sump must be maintained free of liquids and obstructions to permit full capacity. g) Any processed mercury wastes (such as elemental mercury sludge) shall be contained within fit for purpose fire retardant containers. h) The building must be surrounded by secure fencing with lockable gates. i) Roller doors used to access the warehouse must remain closed where possible during processing of waste. j) Waste processing must only occur during the hours 7am to 4pm, Monday to Friday.	Within the location labelled "Process" as shown in the Premises map Figure 1 in Schedule 1 (Maps)

Site infrastructure and equipment	Operational requirements	Infrastructure location
Battery-in-Device-Shredder (BIDS)	a) Operation of the BIDS machine must occur within an enclosed process chamber and direct all air emissions through the wet scrubber component before entering the HVAC system. b) Any dust that escapes the shredding must be captured by the facilities HVAC system and be filtered by panel filters before discharge c) The BIDS machine must use an aqueous shredder to mitigate fire risks within the shredder cavity caused by electrical discharge during the shredding of batteries and devices. d) Conduct waste processing based on the general operation parameters denoted in the manufacturers Operation and Maintenance Manual. Parameters to be determined during commissioning. e) The BIDS system must use a programmable logic controller (PLC) to automate and control the shredding process within the general operation parameters including an auto shutdown in the event of any irregularities in the process such as power failure, water supply failure or failure of emissions handling equipment. f) The PLC must regulate the volume of water used during waste processing based on the type of material being shredded to prevent fires in the shredder cavity.	Within the location labelled “Level 3 – Process Plant in the Site Layout map Figure 3 in Schedule 1 (Maps)
Batch Distiller (BD)	a) Processing of liquid mercury and phosphor powder must occur in a closed, pressurised system to avoid any emissions escaping the unit. b) Exhaust air must be filtered through the activated carbon filters to capture any remnant mercury before entering the HVAC system. c) The distiller must be equipped with a battery back-up system in case of power failure. d) The system must use a programmable logic controller (PLC) to automate and control the process ensuring efficiency. e) In the event of any irregularities in the process the PLC must trigger an alarm to automatically interrupt the process in a controlled manner.	Within the location labelled “Ground Floor – Process Plant in the Site Layout map Figure 3 in Schedule 1 (Maps)
Mobile Mercury Conversion Unit (MCU)	a) Conversion of mercury must occur.in a closed, pressurised system to avoid any fugitive emissions escaping the unit. b) Exhaust air must be filtered through activated carbon filters to capture any remnant mercury. c) Transfer of elemental mercury from the process	Within the location labelled “Ground Floor – Process Plant in the Site Layout map Figure 3 in Schedule 1

Site infrastructure and equipment	Operational requirements	Infrastructure location
	building to the MCU must only occur within an approved UN container with a blind flange suitable to allow transfer of mercury to occur via interlocking with the needle flange that forms part of the hermetically sealed mercury stabilisation processing equipment. d) Mercury sulphide must be transferred into a steel drum approved for containment of mercury containing wastes immediately after conversion. e) The MCU must carry out the mixing process within an airtight, nitrogen purged atmosphere to prevent oxygen from causing undesirable chemical reactions. f) Spills of sulphur, mercury and mercury sulphide must be immediately recovered. g)	(Maps)
Mercury Fine Distiller (MFD)	a) Distilling of mercury in the MFD must occur in a closed system to avoid any fugitive emissions. b) Exhaust air must be discharged through a two series activated carbon filter to remove any fugitive mercury emissions. c) In the event of any irregularities in the process an automated system must trigger an alarm to interrupt the process in a controlled manner d) The MFD must be equipped with a battery backup system in case of power failure.	Within the location labelled “Ground Floor – Process Plant in the Site Layout map Figure 3 in Schedule 1 (Maps)
HVAC System	a) Must be in operation prior to, and for the duration of, all pre-processing, processing, mercury handling or maintenance activities occurring within the Process Building. b) The HVAC system must receive all exhaust emissions produced by the BIDS, Batch Distiller, MCU and MFD during waste processing. c) Emissions captured by the HVAC system must be filtered through panel filters before being directed to the emission stack for discharge to the environment. d) The HVAC system should be programmed to start before any other site activities commence and to shut down with a delay. e) Noise levels must not exceed 80 dB(A) measured at a distance of 1 m from the HVAC fan.	Within the location labelled “Process” as shown in the Premises map Figure 1 in Schedule 1 (Maps)
Emission Stack (24.9 m in height and 0.37 in diameter)	a) Stack monitoring port maintained in accordance with AS4323.1-1995. b) Ensure the stack monitoring port is calibrated and maintained according to the manufacturer's	Within the location labelled “Emission Stack” as shown in the Premises map Figure 1 in

Site infrastructure and equipment	Operational requirements	Infrastructure location
	specifications and regulatory requirements.	Schedule 1 (Maps)
Onsite fire detection and response system	a) A two-stage alarm comprising a VESDA (first stage), and a heat detection alarm (second stage) within both the Warehouse and Process Building. b) Heat detection alarms must activate a back to base alarm for automated notification to external Emergency Services. c) A pre-action aerosol fire suppression system in the Process Building activated by the second stage alarm. d) Minimum four dry powder fire extinguishers (Warehouse). e) Minimum three dry powder fire extinguishers (Process Building). f) The system components must be operated and maintained in accordance with the manufacturer's specifications.	Location labelled "Warehouse", and the location labelled "Process" as shown in the Premises map Figure 1 in Schedule 1 (Maps)
Liquid waste storage tanks	a) Located within an impermeable sealed bund free capable of containing 110% of the liquid waste storage tank volume. b) Must be maintained to prevent leaks. c) Must be surrounded by secure fencing with lockable gates.	Location labelled "Outside" as shown in the Premises map Figure 1 in Schedule 1 (Maps)
Covered waste storage area	a) Apron is constructed of concrete, graded in a manner which prevents runoff, and drains to a collection sump. b) The collection sump must be maintained free of liquids and obstructions to permit full capacity. c) Must be surrounded by secure fencing with lockable gates.	Location labelled "Outside" as shown in the Premises map Figure 1 in Schedule 1 (Maps)

11. The works approval holder must only accept onto the premises waste of a waste type, which does not exceed the corresponding rate at which waste is received, and which meets the corresponding acceptance specification set out in Table 3.

Table 3: Types of waste authorised to be accepted onto the premises

Waste type	Rate at which waste is received	Acceptance specification
Liquid wastes 1) D120 Mercury and mercury compounds. 2) J120 Waste oil and water mixtures of emulsions and hydrocarbon and water mixtures or emulsions.	Combined total of up to 2,000 tonnes per annual period.	a) Must be packaged within sealed United Nations approved Dangerous Goods containers. b) Waste must be unloaded within the Warehouse loading/ unloading bay and transferred directly into the Warehouse for

3) L150 Industrial wash water. Solid wastes 1) D120 Mercury and mercury compounds. 2) N100 Containers and drums contaminated with residues of a controlled waste. 3) N160 Encapsulated or chemically fixed, solidified or polymerised controlled waste. 4) N190 Filter cake containing a controlled waste. 5) N205 Industrial waste treatment plant residue.		storage. c) If waste is received in damaged packaging it must be transferred into the Process Building. d) Radioactive substances (as defined by the Radiation Safety (General) Regulations 1983) must not be accepted onto the premises. e) Overflow solid MCW held within approved United Nations approved Dangerous Goods bags or drums may be stored within locked and sealed sea containers.

12. The works approval holder must ensure that where waste does not meet the waste acceptance criteria set out in condition 11 it is removed from the premises by the delivery vehicle.

13. The works approval holder must ensure that wastes accepted onto the premises are only subjected to the processes and in accordance with any process limits set out in Table 4.

Table 4: Waste accepted onto the premises

Waste type	Process	Process limits
Liquid Waste types as specified in Table 3 (condition 11) Solid waste types as specified in Table 3 (condition 11)	a) Stored within the Warehouse, within sealed United Nations approved Dangerous Goods containers. b) Overflow solid MCW held within approved United Nations approved Dangerous Goods bags or drums may be stored within locked and sealed sea containers. c) MCW waste shall not be stored within the Process Building for more than 24 hours prior to treatment. d) Pre-processing, and handling of MCW outside of sealed containers within the Process building only. e) Processing within the Mercury Treatment Plant f) Elemental mercury processed within the MMSU.	2,000 tonnes per annual period with no more than 510 tonnes stored on the premises at any time

14. The works approval holder must record the total amount of waste accepted onto the premises, for each waste type listed in Table 5, in the corresponding unit, and for each corresponding time period, as set out in Table 5.

Table 5: Waste accepted onto the premises

Waste type	Unit	Time period
Liquid Waste types as specified in Table 3 (condition 11)	tonnes	Each monthly period
Solid waste types as specified in Table 3 (condition 11)		

15. The works approval holder must record the total amount of waste removed from the premises, for each waste type listed in Table 6, in the corresponding unit, and for each corresponding time period set out in Table 6.

Table 6: Waste removed from the premises

Waste type	Unit	Time period
Stabilised mercury sulphide (D120 Mercury and mercury compounds)	tonnes	Each load removed from the premises

16. The works approval holder must ensure that wastes produced on the premises, specified in Table 7 are managed in accordance with the corresponding requirements specified in Table 7.

Table 7: Waste management specifications

Waste type	Disposal strategy	Specified requirements
Recovered pure liquid mercury	Stabilised within a mercury treatment stabilisation unit prior to form stabilised mercury sulphide.	a) Must only be stored within the Process building within sealed United Nations approved containers for storage of liquid mercury. b) Must not be stored for a period of greater than 12 months.
Elemental mercury sludge	Shall not be removed from the premises without written approval from the CEO.	a) Must only be stored within the Process Building within sealed United Nations approved Dangerous Goods containers.
Stabilised mercury sulphide (D120 Mercury and mercury compounds)	Removed from the premises.	a) Must only be stored within the Warehouse building within sealed United Nations approved Dangerous Goods containers. b) Must be removed from the premises within 12 months of being generated. c) Must not contain free mercury.
Solid waste suitable for disposal at a Class I, II or III landfill		a) Must be stored within a covered waste storage area. b) Must not contain free mercury.
Liquid waste		a) Must be stored within a liquid waste storage tank surrounded by an impermeable steel bund with capacity to contain 110% of the tank capacity. b) Must not contain free mercury.

17. The works approval holder must ensure that the emissions specified in Table 8, are discharged only from the corresponding discharge point and only at the corresponding discharge point location.

Table 8: Authorised discharge points

Emission	Discharge point	Discharge point location
Mercury	Emission stack	As shown in Schedule 1: Maps Premises Map (of W6090/2018/1)
Benzene		
H_2S		

18. The works approval holder must ensure that emissions from the discharge point listed in Table 9 for the corresponding parameter do not exceed the corresponding limit.

Table 9: Emission and discharge limits

Discharge point	Parameter	Limit
Emission stack	Mercury	0.15 mg/m^3

19. The works approval holder must monitor emissions in accordance with the requirements set out in Table 10.

.

Table 10: Emissions and discharge monitoring

Discharge point	Monitoring location	Parameter	Frequency	Averaging period	Unit [1,2]	Method
Emission stack	SP-01	Mercury	Minimum of two separate sample events separated by at least one week. The sample events must be undertaken prior to the completion of commissioning	120 minutes	mg/m^3	USEPA Method 29
		Benzene		30 minutes		USEPA Method 18
		Total VOCs				
		H_2S		10 minutes		USEPA Method 11
		Volumetric Flow rate		30 minutes	m^3/s	USEPA Method 2

Note 1: All units are referenced to STP dry.
Note 2: Concentration units for all gases are referenced to 11% O_2.

20. The works approval holder must ensure that sampling required by condition 19 is undertaken at sampling locations in accordance with the current version of AS4323.1-1995.

21. The works approval holder must ensure that all non-continuous sampling and analysis undertaken required by condition 19 is undertaken by a holder of NATA accreditation for the relevant methods of sampling and analysis.

22. The works approval holder must record the results of all monitoring activity required by condition 19.

23. The works approval holder must, within 7 days of becoming aware of any non-compliance with an emission limit specified in condition 18 of this works approval, notify the CEO in writing of that non-compliance and include in that notification the following information:

(a) the emission limit that was not complied with;
(b) the time and date when the non-compliance occurred;
(c) if any environmental impact occurred as a result of the non-compliance and if so, what that impact is and where the impact occurred;
(d) the details and result of any investigation undertaken into the cause of the non-compliance;
(e) what action has been taken and the date on which it was taken to prevent the non-compliance occurring again; and
(f) what action will be taken and the date by which it will be taken to prevent the non-compliance occurring again.

24. The works approval holder must securely lock the premises when not attended to prevent unauthorised access.

Definitions

In this works approval, the terms in Table 11 have the meanings defined.

Table 11: Definitions

Term	Definition
AS4323.1-1995	means the Australian Standard *Stationary source emissions - Selection of sampling positions* (Standards Australia, 1995)
annual period	means 1 January to 31 December each year
BD	means Batch Distiller
BIDS	means Battery-in-Device-Shredder
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the *Environmental Protection Act 1986* Locked Bag 10 JOONDALUP DC WA 6919 info@dwer.wa.gov.au
commissioning	means an activity or sequence of activities undertaken after pre-commissioning has demonstrated the integrity of the plant and equipment. The purpose of commissioning is to test equipment, infrastructure, and processes after the input of raw materials, to confirm design specifications, optimise process conditions, and to monitor/validate emissions or discharges in order to establish a steady-state operation. Commissioning also includes the acceptance of waste material onto the premises for storage pending processing.
condition	means a condition to which this works approval is subject under s.62 of the EP Act.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act.
discharge	has the same meaning given to that term under the EP Act.
DWER	Department of Water and Environmental Regulation
Elemental mercury sludge	Derived from the processing of MCW within the mercury treatment plant; prior to stabilisation stage of the process (using the mercury stabilisation unit)
emission	has the same meaning given to that term under the EP Act.
environmental harm	has the same meaning given to that term under the EP Act.
EP Act	means the *Environmental Protection Act 1986* (WA).
EP Regulations	means the Environmental Protection Regulations 1987 (WA).
H_2S	Hydrogen Sulphide
HVAC	means the mercury treatment process building Heating, Ventilation and Air Conditioning system
implementation	has the same meaning given to that term under the EP Act.

agreement or decision	
MCW	means mercury contaminated waste, including but not limited to sludges, catalysts and filters from LNG projects
Material Environmental Harm	has the same meaning given to that term under the EP Act.
mg/m^3	milligrams per cubic metre
MFD	means Mercury Fine Distiller
MCU	means Mercury Conversion Unit
pollution	has the same meaning given to that term under the EP Act.
pre-commissioning	means an activity or sequence of activities undertaken after construction (but prior to commissioning) to test equipment and infrastructure for functionality, and for any installation defects or failures. Examples include hydraulic pump, pipeline and valve testing; hydrostatic testing of vessels, tanks and ponds; electrical component testing; and liner integrity tests for landfills, tailings storage facilities, and wastewater treatment ponds. During this time, no emissions to the environment are authorised to occur and/or no waste or process material or chemicals are authorised to be deposited in the containment infrastructure.
premises	refers to the premises to which this works approval applies, as specified at the front of this works approval and as shown on the premises map in Schedule 1 (Maps) to this works approval.
prescribed premises	has the same meaning given to that term under the EP Act.
serious environmental harm	has the same meaning given to that term under the EP Act.
time limited operational phase	means full processing operations permitted under this works approval, subject to the conditions, whilst an application for is being assessed
unreasonable emission	has the same meaning given to that term under the EP Act.
USEPA	means United States [of America] Environmental Protection Agency.
USEPA Method 2	means USEPA Method 2 Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)
USEPA Method 11	means USEPA Method 11 Determination of Hydrogen Sulphide Content of Fuel Gas Streams in Petroleum Refineries
USEPA Method 18	means USEPA Method 18 Determination of Gaseous Organic Compounds Emissions by Gas Chromatography
USEPA Method 29	means USEPA Method 29 Determination of Metals Emissions from Stationary Sources
VESDA	Very Early Smoke Detection Apparatus
VOCs	Volatile Organic Compounds
waste	has the same meaning given to that term under the EP Act.
works	refers to preparation, construction/installation and pre-commissioning works for all infrastructure and equipment described in Table 12 of Schedule 2 (Infrastructure and equipment) of this works approval, to be carried out at the premises subject to the conditions.

works approval	refers to this document, which evidences the grant of the works approval by the CEO under s.54 of the EP Act, subject to the conditions.
works approval holder	refers to the occupier of the Premises being the person to whom this works approval has been granted, as specified at the front of this works approval.

END OF CONDITIONS

Schedule 1: Maps

Premises maps

The premises operational areas are shown in the two maps below.

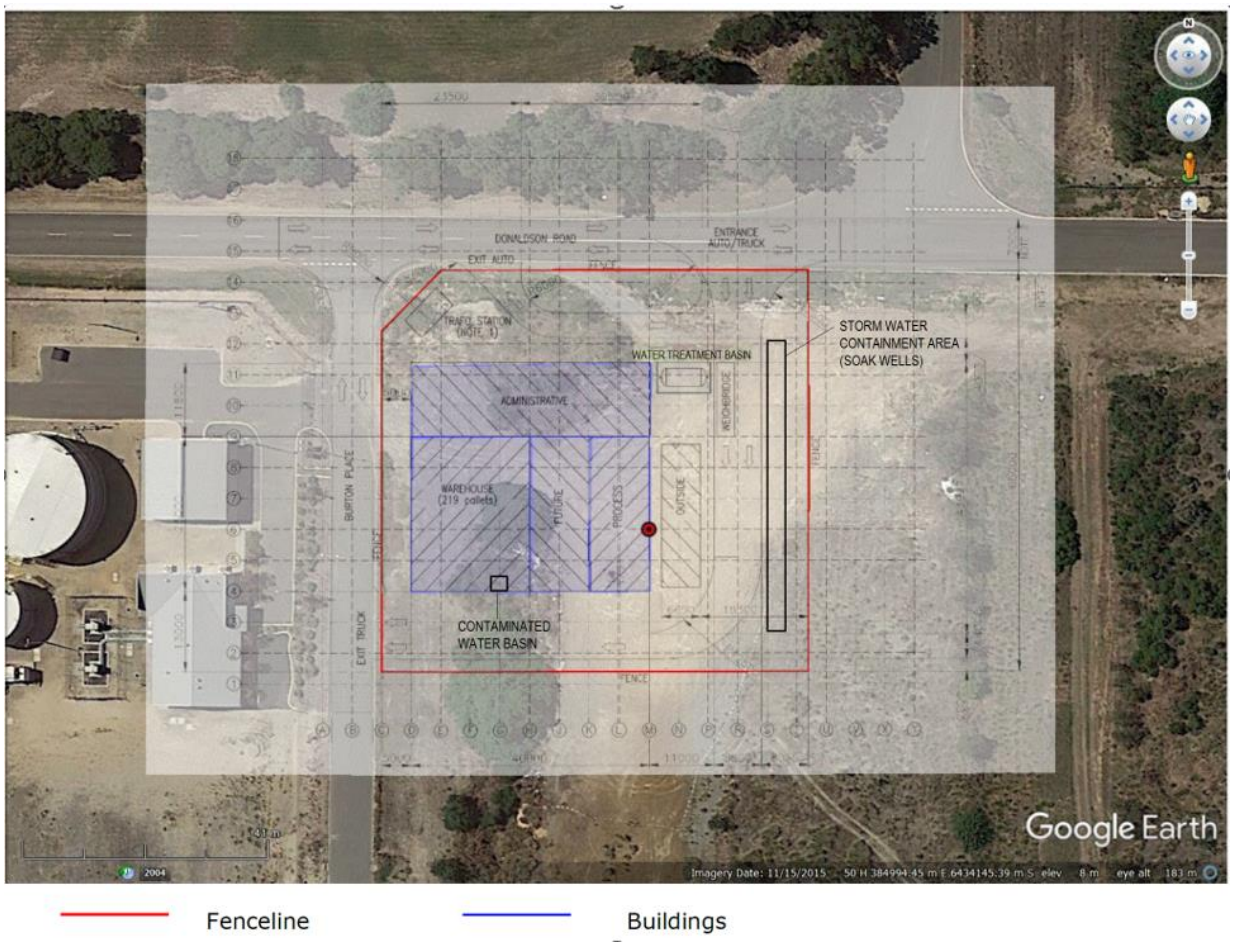

Figure 1: Map showing the location of the building operational areas and stormwater wells and basins

Premises boundary

The premises boundary is defined by the lease area, shown below.

GPS Coordinates	
32.22319° S	115.77987° E
32.22375° S	115.77989° E
32.22375° S	115.77911° E
32.22329° S	115.77908° E
32.22318° S	115.77925° E

Figure 2: Map showing the visual and relevant Global Positioning System (GPS) co-ordinates for the premises boundary

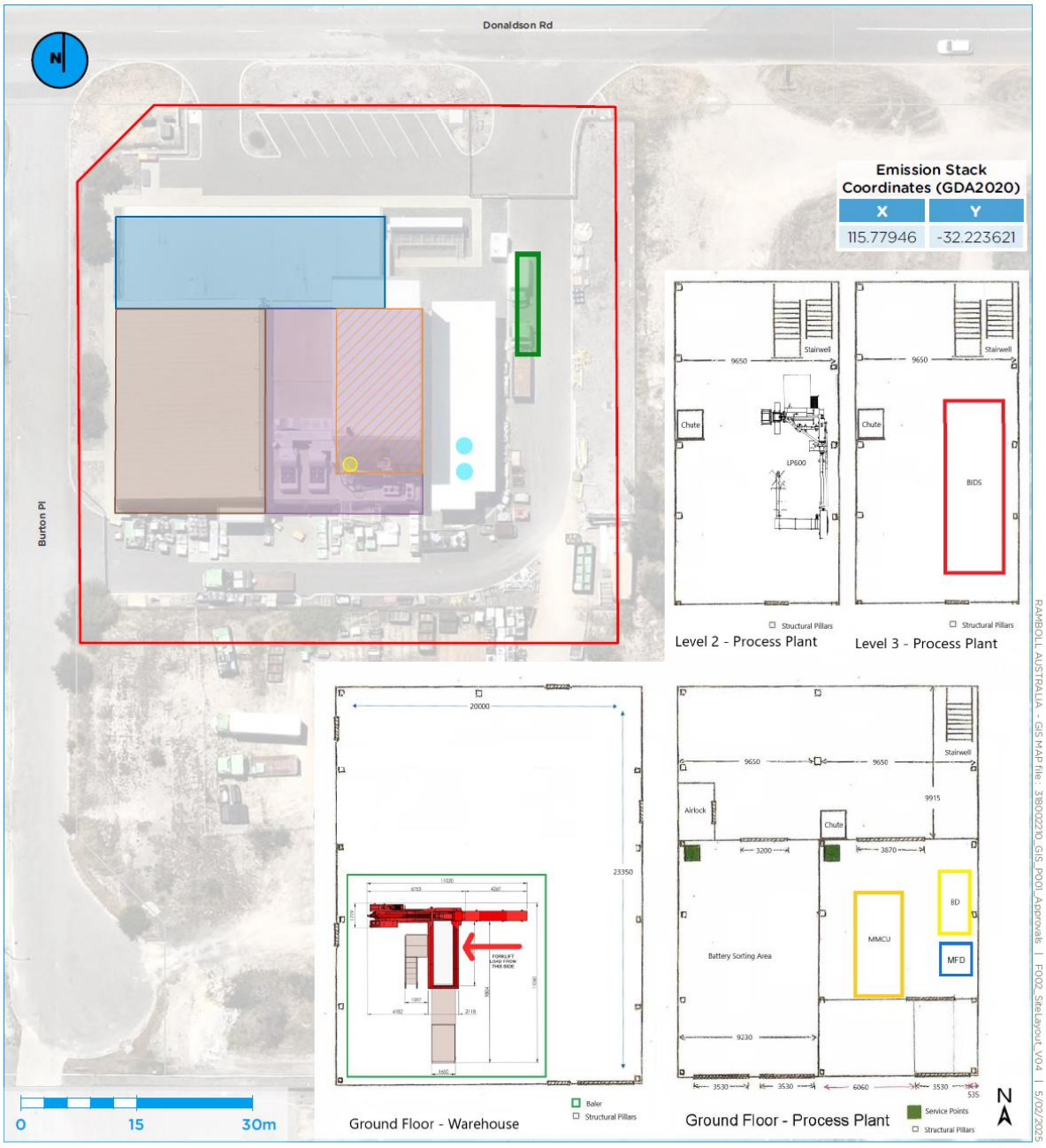

Figure 3: Premises Map – Site Layout

Schedule 2 (Infrastructure and equipment)

The minimum design and construction requirements for infrastructure and equipment on the premises are detailed in Table 12 below.

Table 12: Infrastructure and equipment construction requirements

Infrastructure and equipment	Requirements	Location
Battery-in-Device-Shredder (BIDS)	a) The BIDS plant must be installed within a secure and enclosed area on Level 3 of the Process Building. b) The installation area must have adequate space for placement of sorted battery and e-waste bins and a chute and gantry crane to operate. c) Designed for zero emissions during operation. d) Ensure the system is designed to be automated and controlled by a programmable logic controller (PLC). e) Ensure the BIDS unit is connected to the facility's HVAC system to capture any air emissions. f) Designed to direct off gases generated during the shredding process through a wet scrubber and HEPA filter prior to entering the HVAC system. g) Design must include an aqueous shredder to mitigate fire risks from electrical discharge during the shredding of batteries and devices. h) Must be designed to ensure the shredder can separate waste into plastics, metals, and black mass fractions. i) Must be designed to include a heating and cooling system within the shredder using the PLC to regulate processing temperatures. j) Design must be capable of equipping a battery backup system in case of power failure.	Within the location labelled “Ground Floor – Process Plant in the Site Layout map Figure 3 in Schedule 1 (Maps)
Batch Distiller (BD)	a) The BD must be installed within a secure and enclosed area on the ground level of the Process Building. b) The installation of the Batch Distiller (BD) should ensure there is 1 metre of clearance from the walls to allow for adequate airflow and easy access for servicing. c) The BD must be designed to operate in a closed, pressurised system to avoid any fugitive emissions of mercury.	Within the location labelled “Ground Floor – Process Plant in the Site Layout map Figure 3 in Schedule 1 (Maps)

Infrastructure and equipment	Requirements	Location
	d) Equipped with an air compressor for automatic operation of distillate flow and pressure regulation. e) The air compressor must be equipped with a functional air-drying unit to ensure the removal of moisture from the compressed air f) Equip air, nitrogen, and oxygen connections with filters and pressure regulators with an accuracy of +/- 5%. g) well-shutting valves will be installed on all connections where an uncontrolled release of product is possible. h) Ensure the system is automated and controlled by a programmable logic controller (PLC). i) Designed with activated carbon filters to capture any remnant mercury in the exhaust air. j) Must be designed to connect the exhaust vent to the facility's HVAC system, for discharging the off gas via an emission stack to the environment. k) Ensure the BD unit is integrated with the facility's HVAC system to capture any fugitive dust emissions. l) The BD must be equipped with a battery backup system in case of power failure.	
Mobile Mercury Conversion Unit (MCU)	a) Installation of MCU must occur in a workspace of minimum area 200 m^2. b) The MCU must be installed within a secure and enclosed area on the ground level of the Process Building. c) The installation of the MCU should ensure there is 1 metre of clearance from the walls to allow for adequate air flow and easy access for servicing. d) Design the MCU to operate in a closed, pressurised system to avoid any fugitive mercury emissions. e) Must be designed for the interlocking of UN approved containers with a blind flange when loading mercury into the MCU. f) Must be designed for process mercury under a nitrogen atmosphere in a hermetically sealed closed reactor under continuous, intensive mixing to ensure a complete stoichiometric reaction to form mercury sulphide	Within the location labelled “Ground Floor – Process Plant in the Site Layout map Figure 3 in Schedule 1 (Maps)

Infrastructure and equipment	Requirements	Location
	g) Designed for semi-automatic processing with automated dosing of elemental mercury over a fixed time into granular heated sulphur to fully convert reactants to produce red mercury sulphide in dryer. h) Designed with activated carbon filters to capture any remnant mercury in the exhaust air. i) The MCU's exhaust vent must be connected to the facility's HVAC system for discharge of the clean off gas via an emission stack to the environment. j) The MCU must be equipped with a battery backup system in case of power failure.	
Mercury Fine Distiller (MFD)	a) The MFD must be installed within a secure and enclosed area on the ground level of the Process Building. b) The installation of the mercury fine distiller (MFD) should ensure there is clearance from the walls to allow for adequate airflow and easy access for servicing. c) Ensure the installed MFD maintains a closed system to avoid any fugitive emissions of mercury. d) Ensure the exhaust vent is connected to the facility's HVAC system, for discharge of clean off gas air via an emission stack to the environment. e) Designed with activated carbon filters to capture any remnant mercury in the exhaust air. f) The MFD must be equipped with a battery backup system in case of power failure.	Within the location labelled "Ground Floor – Process Plant in the Site Layout map Figure 3 in Schedule 1 (Maps)
Weighbridge	No requirements specified.	Within the location labelled "Proposed Weighbridge" in the Site Layout map Figure 3 in Schedule 1 (Maps)