Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Works Approval

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

Works Approval Number	W2927/2025/1
Applicant	Cleanaway Co Pty Ltd
ACN	127 853 561
File number	APP-0028122 DER2014/000655-1
Premises	Karratha Hazardous Waste and Decontamination Facility Lot 126 on Plan 183297 COOYA POOYA WA 6714 As defined by the premises map attached to the issued works approval
Date of report	9 September 2025
Decision	Works approval granted

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction, installation and operation of the premises. As a result of this assessment, works approval W2927/2025/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary and overview of premises

On 21 March 2025, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The applicant currently holds licence L8332/2009/3 under Part V of the EP Act to operate the premises. The premises serves as a liquid and solid waste storage and treatment facility. Waste is stored and processed before being sent off-site to alternative authorised premises or directed, as treated liquid waste, to lined evaporation ponds on-site.

In May 2017, the applicant received approval from DWER through an amendment to the licence for the acceptance and storage of infrastructure associated with the offshore oil and gas industry contaminated with naturally occurring radioactive material (NORM). In December 2020, the Radiation Council of Western Australia (RCWA) approved the decontamination of NORM surface contaminated objects at the premises under the *Radiation Safety Act 1975* (registration reference RS5/2020/31906). Subsequently, in May 2022, the applicant was granted a further licence amendment to authorise the decontamination of NORM surface contaminated objects to align with the RCWA approval. This works approval application seeks to permit construction, installation and operations associated with:

- Expansion of decontamination activities to include other contaminants (mercury) present in decommissioned items from various industries, including the offshore oil and gas industry following installation of the following infrastructure and equipment in the existing decontamination / quarantine area (now referred to as Decon zones 1 & 2 as shown in Figure 1 and Figure 2):
    - Large mobile chemical bath with air diffusion system for mixing (13m x 2.5m with maximum capacity of 57.1kL)
        - Used to submerge larger waste items requiring a chemical bath to dissolve/dislodge NORM and mercury scale.
    - Small mobile chemical bath with air diffusion system for mixing (5m x 2.5m with maximum capacity of 21.96kL)
        - Used to submerge smaller waste items requiring a chemical bath to dissolve/dislodge NORM and mercury scale.
    - Chemical circulation area (portable collapsible bund)
        - Portable containment area used for items too large for the other chemical baths in combination with the closed-loop filtration and pump skid to flush the item with the required chemicals to dissolve/dislodge NORM and mercury scale.

- Large mobile wash bay (13m x 2.5m)
  - Used for rinsing of items after sufficient treatment time in the chemical baths or chemical circulation area.
- Dangerous goods container with bunded floor (13m x 2.5m steel container)
  - Used for storing chemicals associated with decontamination processes.
- Filtration and pump skid
  - Used in combination with the chemical circulation area where required.
- Wastewater skid
  - Used to process decontamination wash waters through a settlement, decanting and/or filtration system down to 1 micron or equivalent filters.

- Addition of a category 47: Scrap metal recovery prescribed premises category to permit the breakdown and dismantling of decontaminated metal infrastructure using various methods such as grinding, air gouging, cold cutting, shear cutting, waterjet cutting, plasma cutting and oxy cutting. The clean metals will then be stored pending removal from the premises for metal recycling.
- Installation of the following infrastructure and equipment to allow improvements in dewatering processes for treating sludges to reduce the volume of waste sent to landfill via fixation:
  - Mix tank (20 - 30m^3 capacity steel tank on bunded concrete pad)
    - Sludge to first be sent to this mix tank where agitators will homogenise the liquid, soil and oil material before it is discharged to the decanting centrifuge.
  - Centrifuge (on bunded concrete pad)
    - Infrastructure to sperate sludge into liquids, solids and oils.
  - Centrate tank (20 - 32m^3 capacity steel tank on bunded concrete pad)
    - Centrate separated in the centrifuge is stored in this tank.
  - Oil/hydrocarbon tank (20 - 32m^3 capacity steel tank on bunded concrete pad)
    - Oils/hydrocarbons separated in the centrifuge is stored in this tank

The premises relates to the categories and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W2927/2025/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W2927/2025/1.

2.3 Waste acceptance

The premises will accept equipment from decommissioned offshore oil and gas operations, such as flexible flowlines, risers, drilling and process piping, production tubing, subsea trees, and caissons. These items will arrive in grouped deliveries, referred to as "packages," transported by truck.

Majority of these packages will be delivered sealed (e.g., pipe ends closed) to prevent potential contamination during transport and arrival. For any items not delivered sealed, these will be delivered onto a bunded concrete hardstand to contain any potential contamination. Items accepted at the premises may be contaminated by:

- naturally occurring radioactive materials (NORM) through amalgamation of radium and diffusion into scale.
- mercury residues resulting from contamination of process equipment, adsorption and chemisorption to steel surfaces, primarily through amalgamation and diffusion into scale.
- hydrogen sulphide (H2S) residues trapped within sludge, scale, or sour service system by-products.
- benzene, toluene, ethylbenzene and xylene (BTEX) compounds which may be present in tank residues, pipeline debris or adsorbed onto oily sludge.
- marine growth (biological fouling) which may potentially contain heavy metals, hydrocarbons and pathogenic organisms.

All delivered waste packages will be assessed by a trained technician to identify the type of contamination and determine the appropriate decontamination method to be conducted in Decon zones 1 & 2. Waste items will be inspected and surveyed for contamination at various points across the surfaces to determine if decontamination is required. The applicant has specified trigger levels for each contaminant which if exceeded, will deem the waste item to be contaminated and require processing for decontamination. These trigger levels are outlined below in Table 1:

Table 1: Contamination inspection / survey criteria and trigger levels for offshore decommissioned infrastructure

Criteria	Equipment	Trigger levels
NORM Surface Contamination	Contamination Meter	≥0.2 Bq/cm^2
NORM Surface Gamma Dose Rate	Gamma Survey Meter	Above twice reference background (µSv/h)
Mercury Vapour (Elemental)	Mercury Vapour Monitor	>0.012 mg/m^3
Mercury in Scale and Surface Bound Mercury	pXRF Surface Measurement	>15 mg/kg
Hydrogen Sulphide (H_2S)	H_2S Gas monitor	>5 ppm
Benzene (BTEX)	Gas monitor	>0.5 ppm

Items that may contain NORMS will be accepted in accordance with the premises existing RCWA approval and Code for the Safe Transport of Radioactive Material (Australian Radiation Protection and Nuclear Safety Agency, 2019), as per condition 1, table 1 in Licence L8332/2009/3.

To enable an assessment for mercury contamination, a coupon will be removed via a cold cut method from the object, the scale completely dissolved using a laboratory digestion technique such as Aqua Regia or similar, and assessed via Vapor Atomic Absorption (Cold Vapor Atomic Absorption) (USEPA/SW-846 Methods 7000A/7470A/7471A/7471B) or via ICP-MS (Inductively Coupled Plasma Mass Spectrometry). In accordance with UNEP/MC/COP.5/9 - Establishment of mercury waste thresholds (article 11) to which Australia is a signatory of the Minamata convention, a clearance criterion of 15 mg/kg has been selected by the applicant. Portable XRF testing will only be used as an in-field tool to inform measurement, testing and validation.

2.4 Decontamination activities

Items associated with certain industrial processes have the potential to be contaminated with material that can accumulate within them as a hard scale or absorb/chem-absorb within the structure. The contaminants of concern associated with the proposed incoming waste materials requiring specific decontamination processes include mercury and NORM.

2.4.1 Mercury decontamination

To effectively remove mercury contamination, an initial degreasing step may be required to eliminate hydrophobic materials such as oils and greases. This is typically done using an alkaline degreasing solution that contains sodium hydroxide (NaOH), trisodium phosphate (Na_3PO_4), sodium metasilicate (Na_2SiO_3), and a surfactant such as TERGITOL NP-10 or a similar compound.

These degreasers are free of volatile organic compounds (VOCs) and solvents, so they do not increase the risk of mercury vapor release. The surfactant also acts as a vapor mitgant, further reducing the likelihood of mercury vapor generation during this step.

The scale removal process is based on submersing the items in chemical baths, which dissolves the steel-scale interface and liberates the scale. Elemental mercury (Hg^0) is converted to mercurous sulphate in the process so that it does not re-absorb. The dislodged scale and metallic ions are then removed via flushing, washing or jetting.

The chemicals used in the decontamination process are low-strength acids, typically sulfuric acid (H^2SO^4) used at concentrations less than 15% by weight. Oxidisers are introduced via bubble aeration or low strength chemical oxidants (<1%).

The decontamination baths contain an aqueous mixture of sulfuric acid enhanced with hydrogen peroxide (H^2O^2). Mercury has a high affinity to sulfuric acid and reacts with it to form mercuric sulfate ($HgSO^4$), as follows:

$Hg^0 + 2H^2SO^4 \rightarrow HgSO^4 + SO^2 + 2H^2O$

The mercuric sulfate decomposes in water to form insoluble mercuric subsulfate and sulfuric acid meaning the process regenerates the acid as it consumes it.

Hydrochloric acid may be added the baths to enhance the corrosiveness of the chemicals on steel items, and hydrogen peroxide is used to oxidise any organic matter on the surface of the item and improve the hydrophilic properties of the metal surface.

The hydrogen peroxide is consumed during the cleaning process and needs to be periodically replenished. The consumption of hydrogen peroxide is reduced by whitewater (micro-bubbles) generated using aerators fed by a centrifugal pump.

At the low concentrations of acid used, the reaction rates are slow, and mercury emissions are mitigated to low levels (i.e., <0.00 µg/m^3) believed to be due to the density of mercury inhibiting its migration to the surface, allowing for sufficient time for the chemical reaction to occur to form non-volatile mercury sulphate or mercury subsulfate.

2.4.2 NORM decontamination

NORM contamination is typically in the form of an insoluble barite and/or celestine scale on the process piping, which can be removed through the same action described above or via the use of chelating agents that dissolve the corrosion formation layer in the first few millimetres of the scale, resulting in the scale layer being dislodged. The dislodged scale and metallic ions are then removed via flushing, washing or jetting, or via air displacement or ultrasonic cleaning methods. Like mercury removal process, a degreasing step may also be required, using the same chemicals as described above.

The removal of the NORM via chelating agents involves the use of potassium carbonate (K^2CO^3) and EDTA (ethylenediaminetetraacetic) acid to create an acidic mix, and a surfactant (TERGITOL NP-10) at between 70 and 80 degrees Celsius. Wastewater filters to <1 µm remove the dislodged scale. Once complete, the acid solution is neutralized with NaOH.

In accordance with the existing RCWA approval and the approved Radiation Safety Management Plan (RSMP) for the premises, Cleanaway currently carries out decontamination of NORM contaminated items, which includes:

- The washing, including high pressure water jetting, of NORM contaminated material and treatment of wash waters; and
- The containment and storage of NORM, including adding reagents to solidify wastes.

The Delegated Officer notes that the applicant is proposing to decontaminate items by immersion in a chemical bath or by circulation of cleaning chemicals through the item at low velocity, followed by a rinse with non-high-pressure water. It is the responsibility of the applicant to ensure they hold a current registration reflecting the proposed changes to premises operations and should liaise with the Radiological Council for any proposed changes to their existing approvals.

2.4.3 Hydrogen Sulphide and BTEX decontamination

The decontamination of hydrogen sulphide and other sulphides, such as ferric sulphide, and BTEX occurs via mobilisation of these contaminants during the degreasing or washing stages. For sulphides, these are treated via controlled aqueous oxidation using the hydrogen peroxide noted in Section 2.4.1or via reagents such as potassium permanganate and converted to non-reactive sulphates. The degreasing or washing step for BTEX introduces a surfactant to mitigate vapour generation and subsequent treatment managed on-site in accordance with Licence L8332/2009/3 or removed off-site to a facility authorised to accept the waste.

2.4.4 Decontamination zones 1 & 2 operations

The two decontamination zones (Figure 1 and Figure 2) are in an existing covered workshop area (approximately 20 m x 20 m) with a bunded concrete and graded floor draining to a drain-pit. The bund is approximately 200 mm high providing a containment capacity of approximately 80 kL. This has been sized to exceed 110% of the capacity of the large chemical bath (62.81kL).

Contaminated items will be placed in the either the small or large mobile chemical bath using a mobile or overhead crane where the scale will be subject to the chemical and physical (i.e., aeration) processes to dislodge and dissolve the scale.

Larger items that cannot fit in the baths will be treated in the chemical circulation area where they will be connected to a closed-loop system and flushed with chemicals using the pump and filtration skid.

Once an item is removed from the bath or chemical circulation area after sufficient treatment time, it will be rinsed in the large mobile wash bay or existing bunded water pressure cleaning bay using non-high-pressure water.

Wash water will be collected and processed via a wastewater skid, which will employ a neutralisation and precipitation as the main treatment method. The neutralisation and precipitation results in a filterable calcium compound, which is removed in a filtration skid. The separated solids will be drummed, packed and stored in the existing NORMS Shed Storage and NORMS Storage Compound (Figure 1) prior to disposal off-site.

The treated water is reused until clearance testing carried out in accordance with

Table 2 shows that the decontamination process is not being carried out effectively or efficiently. At that point, the used treated water will be segregated in containers (e.g., intermediate bulk containers (IBC's)) and replaced with fresh water. The used water will be tested to confirm that it can be managed on-site in accordance with Licence L8332/2009/3 or removed off-site to a facility authorised to accept the waste. The Delegated Officer considers the contaminated wastewater must be appropriately treated to an acceptable standard to ensure it does not pose a risk in contaminating other parts of the premises or other receiving facilities.

When not in use, chemicals and wastewater will be pumped from the baths using the pump and filtration skid into IBCs and stored in the dangerous goods container.

2.4.5 Decontamination validation

Once waste items have been decontaminated, they will be inspected and surveyed for any residual contamination. The following methods and criteria will be used to determine whether items are satisfactorily decontaminated and suitable for further processing:

Table 2: Decontamination acceptance criteria and testing methods

Criteria	Equipment / Method	Clearance levels
NORM Surface Contamination	Contamination Meter	<0.2 Bq/cm^2 above background
NORM Surface Gamma Dose Rate	Gamma Survey Meter	<2 x background (µSv/h)
Mercury Vapour (Elemental)	Mercury Vapour Monitor	<0.012 mg/m^3
Elemental Mercury (Liquid)	Visual	None
Mercury in Scale and Surface Bound Mercury	Vapor Atomic Absorption (CVAA) USEPA/SW-846 Methods 7000A / 7470A / 7471A / 7471B or ICP-MS	<15 mg/kg
	pXRF Surface Measurement	
Hydrogen Sulphide (H_2S)	H_2S Gas monitor	<5 ppm
Benzene (BTEX)	Gas monitor	<0.5 ppm

Where waste items are found to exceed these clearance levels, they will be reprocessed in decontamination zones 1 & 2 using the decontamination processes mentioned above. Once waste items are verified below the clearance level in

Table 2, metal structures requiring resizing will be moved to the scrap metal processing area.

2.4.6 Scrap metal processing and fire prevention considerations

The decontaminated scrap items will be resized using a combination of shears (e.g., mounted on an excavator boom) and flame cutting (e.g., oxy cutting). There will be no shredding of scrap metal. Flame cutting will be carried out using the following controls to minimise the risk of fire:

- The flame cutting will be kept free of combustible materials including vegetation and organic litter.
- Any combustible materials that cannot be removed will be covered using suitable guards or covers during flame cutting activities.
- Cutting will cease immediately if visible smoke is observed crossing over the boundary of the premises.
- Fire extinguisher(s) and firefighting equipment will be on standby while flame cutting.
- Two filled operational water carts (1 x 10kL and 1 x 15kL capacity) are available onsite for use where required.
- Where practicable, all non-metal surface coatings (including but not limited to plastic, resin, paint, rubber) will be removed from the work surface of a scrap metal item prior to flame cutting. The scrap material will be stored in stockpiles prior to export off-site.

Stockpiles of scrap metal will be formed in accordance with the following specification:

- Scrap metal Stockpiles will not exceed 5 m in height at any point from the base of the stockpile.

- Scrap metal stockpiles will not exceed 20 m in width and 30 m in length.
- A clearance of 5m will be maintained between scrap metal stockpiles.
- A clearance of 4 m will be maintained around the boundary of the premises and any stockpiled scrap metal.
- Maximum 3 stockpiles at any one time.

2.4.7 Secondary contaminant monitoring and decontamination

The transport of contaminated infrastructure has the potential to contaminate transport vehicles and storage containers. Floor contamination surveys will be conducted after the unloading of contaminated waste items to ensure that any spills of contaminants are identified and cleaned up prior to the containers being taken off-site for reuse in accordance with Table 3.

Table 3: Container floor contamination survey

Criteria	Equipment	Trigger level	Management action	Clearance criteria
NORM surface contamination	Contamination meter	≥0.2 Bq/cm^2 above background	• Floor must be vacuumed with a HEPA filter vacuum. • If contamination remains after this action, floor must be washed down and wastewater from this process captured for treatment.	<0.2 Bq/cm^2 above background
Mercury on the surface, scale and wall-bound	Visual check	Visible mercury	• Apply a sulphur-based compound to the work surface and use HEPA and activated carbon vacuum. • If contamination remains, use chemical decontamination methods and capture and treat wastewater.	No Visible mercury
	Mercury vapour meter	>0.012 mg/m^3		<0.012 mg/m^3
	Portable XRF measurement	>15 mg/kg		<15 mg/kg

Mercury vapour and NORM monitoring will also be conducted at the following frequencies and locations:

Monitoring Area/Type	Instrument	Contaminants	Frequency
Decontamination Zones	Mercury vapour and NORM meter	Mercury Vapour Survey, NORM	Daily, where applicable
NORM Storage	Mercury vapour and NORM meter	Mercury Vapour Survey, NORM	Weekly
Personal Radiation Dosimeters	OSL Badges	Cumulative dose rates per quarter, calculated per year	Worn by Radiation Workers Daily

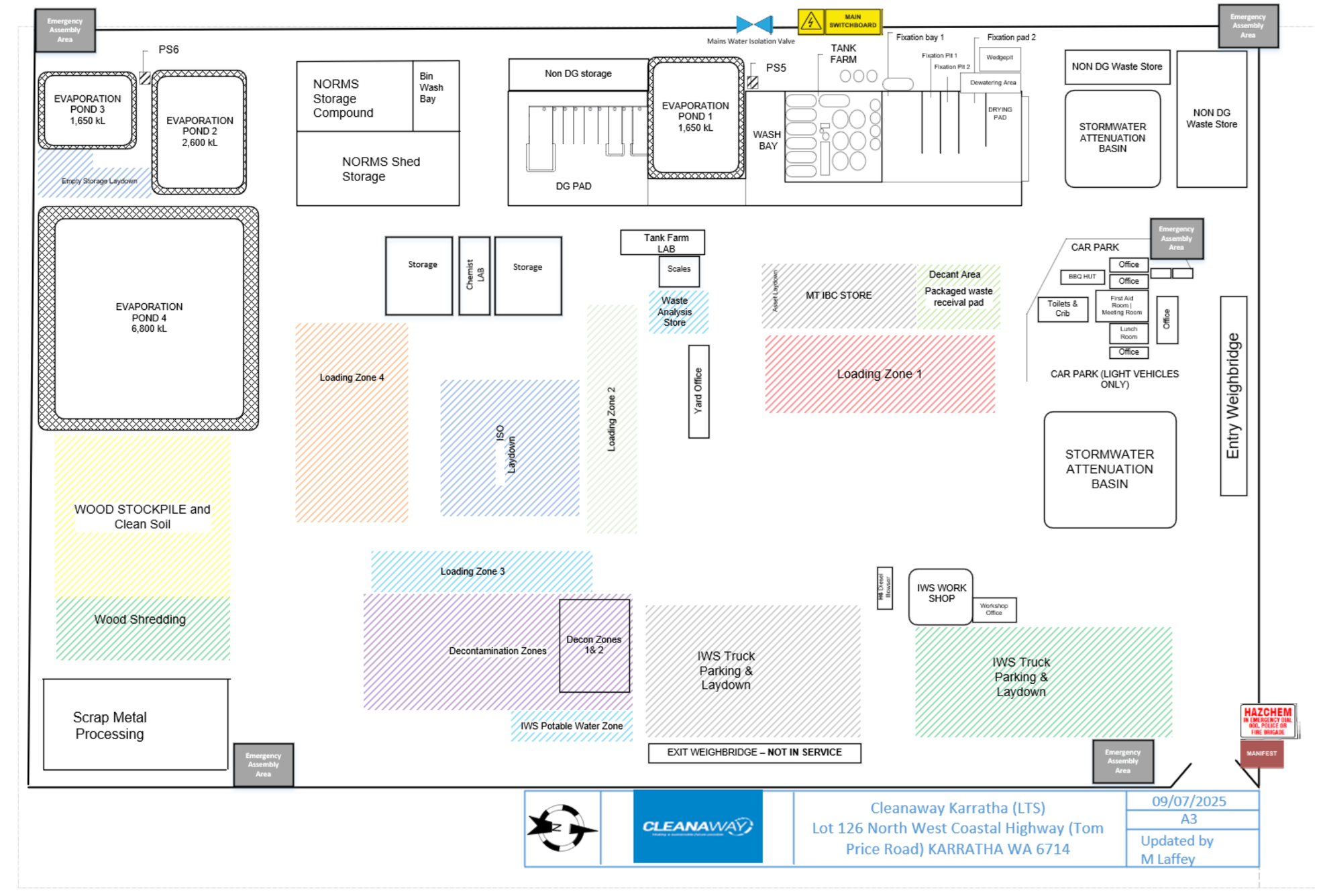

Figure 1: Infrastructure Layout Plan

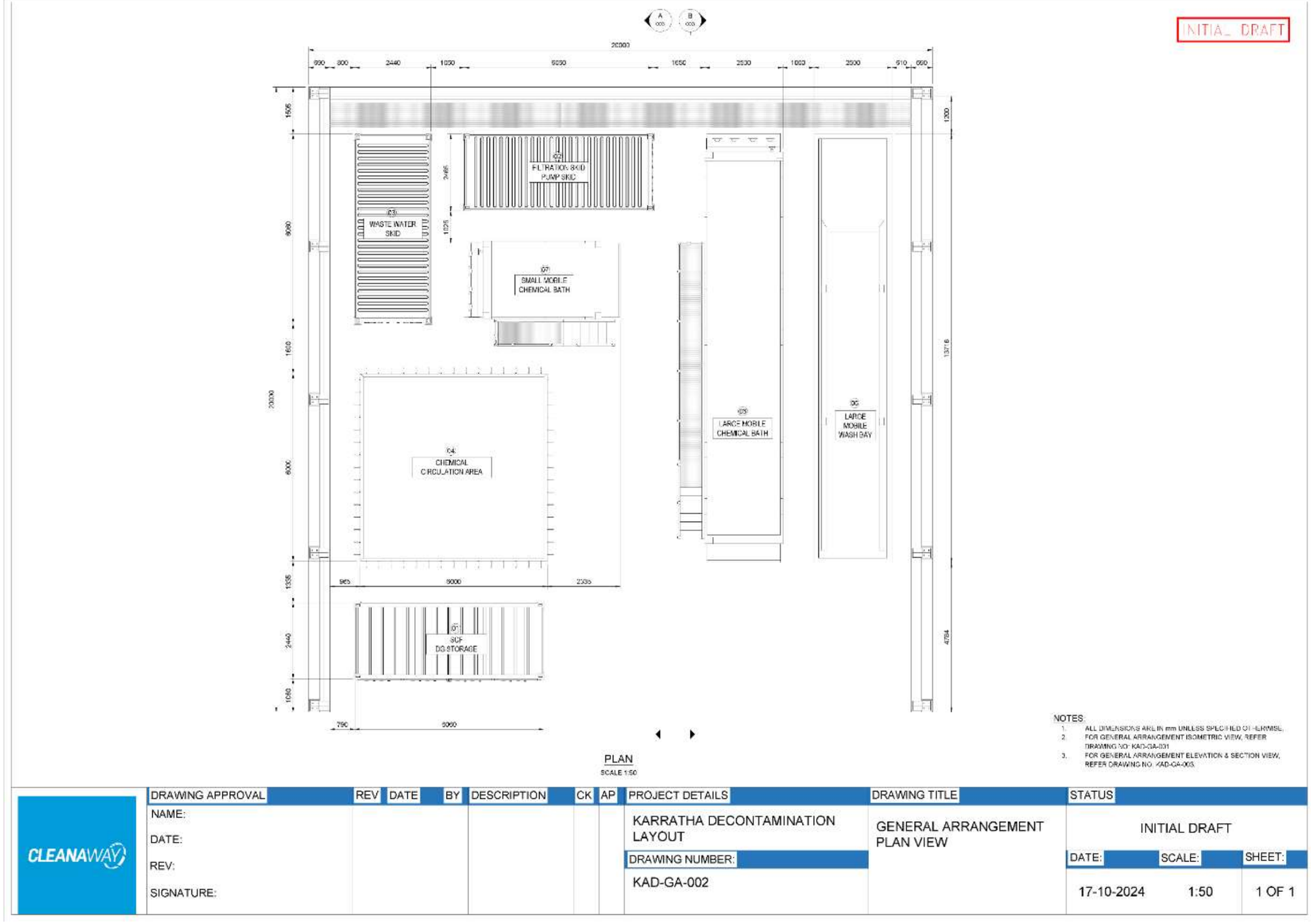

Figure 2: Proposed decontamination infrastructure and equipment (Decon zones 1 & 2)

2.4.8 Dewatering operations

The sludge will first be pumped to the mix tank where agitators will homogenise the material before it is discharged to the decanting centrifuge. The decanting centrifuge receives slurry through a feed tube at the pulley end (solids discharge) of the machine. The slurry is dispersed into the rotating bowl, where centrifugal force produced by the high-speed rotation of a cylindrical bowl separates liquid from the solids and, in the case of a three-phase decanter (Figure 3), weir plates separate the water from the oil based on density. The performance of the centrifuge is based on three variable factors which can be controlled to alter the liquid and solids discharge parameters:

- Force exerted on the fluid – centrifugal force pulling fluid against the outside wall of the centrifuge;
- Retention time in the centrifuge – the longer the slurry remains in the centrifuge the smaller the particle that can be separated; and
- Differential speed of conveyor – the faster the conveyor rotates the wetter the solids.

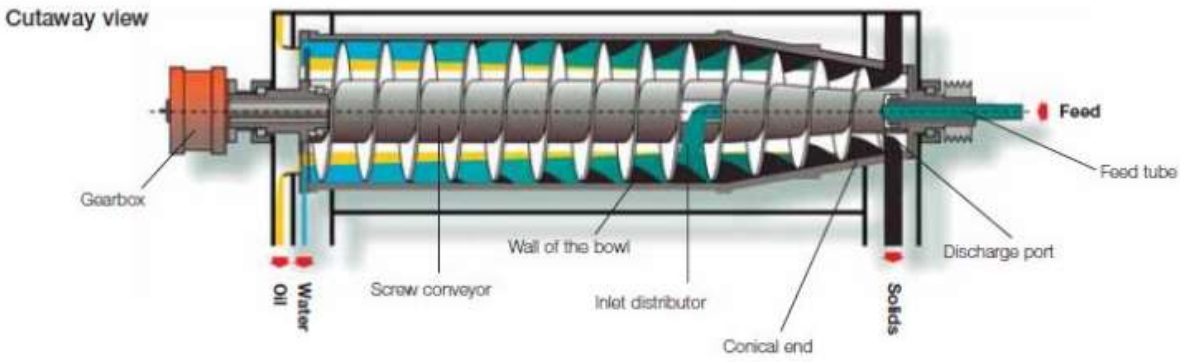

Figure 3: Example three phase centrifuge

Liquid (water and oil) flows out the liquid discharge end of the machine and solids are conveyed to the solids discharge point located at the pulley end of the machine whey they fall into a chute at the bottom of the machine. The solids will be stored in the existing drying pad (Figure 1).

The separated liquids and oils will be further processed for the purposed as required. The water phase will be transferred to the existing tank farm or evaporation ponds and the settled solids will be periodically cleaned out and re-treated through the dewatering process, the oil phase being removed offsite to recycled oil processing facilities

The dewatering process will take place on an existing bunded concrete pad with sufficient capacity to contain 110% of the largest container in the bund.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

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

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this decision report are detailed in Table 4 below. Table 4 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 4: Proposed applicant controls

Emission	Sources	Potential pathways and impact	Proposed controls
Construction and installation			
Dust Noise	Vehicle movements Installation of infrastructure and equipment	**Pathway**: Air/windborne pathway **Impact**: Health and amenity	The Delegated Officer considers that existing controls at the Premises will be sufficient to mitigate emissions resulting from minor construction and installation works. As such, emissions generated during construction and installation will not be considered in the Departments risk assessment (as outlined in Section 3.2 below.
Operation (decontamination activities)			
Contaminated stormwater	Acceptance, storage, and handling of contaminated wastes (NORM, mercury, BTEX, H^2S)	**Pathway**: Overland runoff and or/seepage into soils **Impact:** Ecosystem disturbance or impact to surface water or groundwater quality	• Waste items delivered sealed (e.g., pipe ends closed) to prevent potential contamination during transport, arrival and storage. • Any items not delivered sealed will be delivered onto a bunded concrete hardstand. • Bunding infrastructure on the premises is inspected and maintained. • Spills or leaks of contaminated material or chemicals are immediately cleaned up using dedicated spill kits or equivalent. • Floor contamination surveys conducted on delivery vehicles and containers after unloading of contaminated offshore decommissioned infrastructure for NORM and mercury. • NORM waste handling and storage conducted in accordance with existing RCWA approval and the approved Radiation Safety Management Plan (RSMP) for the premises.
Spills and leaks of contaminated material or chemicals		**Pathway**: Seepage through soils or overland runoff **Impact:** Human health	
Contaminated water (spray/mist)	Decontamination of wastes	**Pathway**: Air/windborne pathway **Impact**: Health and amenity	• Decontamination methods involve immersion in a chemical bath or by circulation of cleaning chemicals through the item at low velocity, followed by a rinse with non-high-pressure water. • Wind direction and strength will be observed, and activities moderated according to conditions.

Emission	Sources	Potential pathways and impact	Proposed controls
Mercury vapour			• Chemical treatment process binds the mercury to prevent release of mercury vapour. • Mercury waste stored in lined, sealed UN-rated drums in lockable container. • Periodic mercury vapour monitoring around decontamination zones and waste storage area.
Filtered industrial wash water or cleaning chemicals	Decontamination of wastes (leaks, spills from baths, IBCs and transfer hoses)	**Pathway**: Overland runoff and seepage through soils to groundwater **Impact**: Ecosystem disturbance or impact to surface/ground water quality	• Decontamination area in covered shed with concrete walls, bunded concrete floor and blind concrete sumps (decon zones 1 & 2). • Bunding regularly inspected to ensure integrity and capacity is maintained. • Chemicals and wastewater stored in IBCs in DG container when not in use. • Personnel appropriately trained in handling containers. • Periodic gamma and mercury vapour monitoring around decontamination zones and waste storage area. • Treated wastewater from decontamination activities is only reused in the decontamination process and not used anywhere else on-site. • Treated wastewater will be filtered and tested to confirm that it can be managed on-site in accordance with Licence L8332/2009/3 or removed off-site to a facility authorised to accept the waste.
Operation (scrap metal processing)			
Dust and fumes	Release of NORM, mercury, BTEX, H^2S from scrap metal processing	**Pathway**: Air/windborne pathway **Impact**: Human health	• Contaminant criteria levels set for NORM, mercury, BTEX, H^2S to ensure waste items are tested and deemed decontaminated before waste is sent to the scrap metal processing area.
Noise	Processing and storage of scrap metal	**Pathway**: Air/windborne pathway **Impact**: Human health	• Vehicles, equipment, and machinery regularly inspected and maintained, and operated effectively. • Compliance with the Environmental Protection (Noise) Regulations 1997. • Works approval holder to handle complaints in accordance with its complaints management system and maintain records. • Scrap metal processing conducted during daylight hours.
Residual scrap metal waste and contaminated stormwater		**Pathway**: Air/windborne pathway	• Scrap metal processing only occurs within the designated processing area (bunded concrete pad). • Metal shavings and residual waste materials routinely collected and contained in an impermeable container. • Only decontaminated metals are processed in this area.

Emission	Sources	Potential pathways and impact	Proposed controls

Smoke	Upset conditions (fire)	**Pathway**: Air/windborne pathway
		Impact: Health and amenity
			• Fire-fighting equipment including extinguishers and water carts available and ready for use where required.
			• Prior to hot cutting, the works approval holder will:
			  ○ Ensure the area is cleared of any combustible material including vegetation and organic litter.
			  ○ Ensure any combustible materials unable to be removed must be covered with suitable non-flammable guards or covers during hot cutting.
			  ○ All non-metal surface coatings must be removed from the work surface of scrap metal prior to hot cutting where practicable.
			  ○ Ensure firefighting equipment is available for immediate use where required.
			• Cease hot cutting if visible smoke is observed crossing the premises boundary.
			• Ensure stockpiles of scrap metal do not:
			  ○ Exceed 5m in height, 20m in width or 30m in length.
			  ○ A clearance of 5m is maintained between stockpiles and 4m from the boundary of the premises boundary
			  ○ Not hold more than 3 stockpiles at any one time.
			• Fire and Emergency Management Plan currently being reviewed and will be implemented with next licence amendment.

Fire-fighting washwater		**Pathway**: Overland runoff and or/seepage into soils **Impact**: Ecosystem disturbance or impact to surface/ground water quality	• Avoid over-watering or runoff into stormwater systems to minimise environmental impact • Containment within bunded concrete areas. • Fire and Emergency Management Plan currently being reviewed and will be implemented with next licence amendment.
Operation (dewatering activity)			
Sludge centrate	Sludge dewatering (leak, spill from container/ tank/ centrifuge)	**Pathway**: Direct discharge to ground, seepage through soils to groundwater **Impact**: Impact to ground water quality	• Activity carried out on bunded concrete hardstand. • Regular inspection of tanks, centrifuge and pipes.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 5 and Figure 4 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental Siting* (DWER 2020)).

Table 5: Sensitive human and environmental receptors and distance from prescribed activity

Map Ref.	Human receptors	Distance from prescribed activity
A	Commercial / industrial receptors	~ 0.15 km west of the prescribed premises boundary
B		~ 0.25 km north of the prescribed premises boundary
C	Kingfisher accommodation village	Approximately 2.2 km north of the prescribed premises boundary
-	Groundwater abstraction bore (CAW201542(1))	Approximately 0.5 km north of the prescribed premises boundary
	Environmental receptors	**Distance from prescribed activity**
D	Seven Mile Creek	Approximately 1.2 km east of the prescribed premises boundary
E	Mapped Roebourne Plains gilgai grasslands (threatened ecological community)	Approximately 1.6 km east of the prescribed premises boundary
F	Mapped minor non-perennial water courses	Overlaps the south-eastern corner of the prescribed premises boundary.
G		Approximately 0.3 km west and 1 km east of the prescribed premises boundary
-	Underlying groundwater (non-potable purposes)	Between 7m and 10 m below ground level

Figure 4: Distance to sensitive receptors

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

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

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 6.

Works approval W2927/2025/1 that accompanies this decision report authorises construction, installation and time-limited operations. The conditions in the issued works approval, as outlined in Table 6 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence amendment is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operations, subject of this works approval. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence amendment application.

Table 6: Risk assessment of potential emissions and discharges from the premises during time-limited operations

Risk Event					Risk rating C = consequence L = likelihood	Applicant controls sufficient?	Conditions of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emissions**	**Potential pathways and impact**	**Receptors (Section 3.1.2)**	**Applicant controls**				
Operation (decontamination activities)								
Acceptance, storage, and handling of contaminated wastes (NORM, mercury, BTEX, H^2S)	Contaminated stormwater	**Pathway: O**verland runoff and or/seepage into soils **Impact:** Ecosystem disturbance or impact to surface water or groundwater quality	Minor water courses Seven Mile Creek Beneficial uses of groundwater	Refer to Table 4	C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 1, 6, 9, 10, 11, 12, 16, 17, 18	N/A
	Spills and leaks of contaminated material or chemicals	**Pathway:** Seepage through soils or overland runoff **Impact:** Ecosystem disturbance or impact to surface water or groundwater quality			C = Moderate L = Unlikely **Medium Risk**	Y		N/A
Dispersal of contaminants via premises foot traffic (surface soil contamination and fugitive dust lift off).	Dust containing mercury and other contaminants	**Pathway:** Air/windborne pathway **Impact:** Human health	Nearby commercial / industrial premises		C = Moderate L = Possible **Medium Risk**	N	Conditions **1, 6**	The Delegated Officer notes that the applicant has not included information on how contaminants will be prevented from being tracked out of decontamination zones 1 & 2. The requirement to install decontamination stations at each exit to prevent contaminants being tracked outside of decon zones 1 & 2 has been included as an additional regulatory control.
Decontamination of wastes (leaks, spills from baths, IBCs and transfer hoses)	Contaminated water, sprays or mist	**Pathway:** Air/windborne pathway **Impact:** Human health	Nearby commercial / industrial premises		C = Moderate L = Unlikely **Medium Risk**	N	Conditions 1, **6**	Based on the applicant's updated information that the new decontamination process primarily uses circulation of cleaning chemicals through the item at low velocity, followed by a rinse with non-high-pressure water and request to remove requirements to install a spray curtain, an outcome based condition has been added to ensure any spray drift is prevented from leaving decon zones 1 & 2.
	Mercury vapour	**Pathway:** Air/windborne pathway **Impact:** Human health	Nearby commercial / industrial premises		C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 1, 6, 9, 11, 12, 15, 16, 17	The applicant has a responsibility to comply with workplace exposure standards and current Occupational Health and Safety legislation to protect their workers from the risks of exposure to mercury vapour. Compliance with this legislation would also protect workers at adjacent industrial lots. The applicant has proposed to conduct routine mercury monitoring as per Section 2.4.7 of this report.
	Filtered industrial wash-water or cleaning chemicals	**Pathway:** Overland runoff and seepage through soils to groundwater **Impact:** Ecosystem disturbance or impact to surface/ground water quality	Minor water courses Seven Mile Creek Beneficial uses of groundwater		C = Moderate L = Unlikely **Medium Risk**	N	Conditions 1, 6, 12, **15**, 16, 17	The Delegated Officer considers contaminated wastewater must be appropriately treated and tested to confirm an acceptable standard prior to removal from decon zones 1 & 2 to ensure it does not pose a risk in contaminating other parts of the premises or other receiving facilities.
Operation (Dewatering activities)								
Sludge dewatering in centrifuge (leak, spill from container / tank / centrifuge)	Contaminated waste	**Pathway:** Direct discharge to ground, seepage through soils to groundwater **Impact:** Impact to ground water quality	Minor water courses Seven Mile Creek Beneficial uses of groundwater	Refer to Table 4	C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 1, 6, 16, 17,18	N/A

Risk Event					Risk rating C = consequence L = likelihood	Applicant controls sufficient?	Conditions of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emissions**	**Potential pathways and impact**	**Receptors (Section 3.1.2)**	**Applicant controls**				
Operation (scrap metal processing)								
Breaking down decontaminated equipment/structures (metal processing)	Contaminated stormwater from contact with wastes containing residual chemicals and/or heavy metals	**Pathway:** Overland runoff and seepage through soils to groundwater **Impact:** Ecosystem disturbance or impact to surface/ground water quality	Nearby commercial / industrial premises	Refer to Table 4	C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 1, 6, 12, 14	N/A
	Noise	**Pathway:** Air/windborne pathway **Impact:** Health and amenity	Nearby commercial / industrial premises		C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 12, 26	Applicant to ensure compliance with the Environmental Protection (Noise) Regulations 1997 and investigate any noise complaints accordingly.
Upset conditions (scrap metal fire)	Smoke	**Pathway:** Air/windborne pathway **Impact:** Health and amenity	Nearby commercial/industrial premises Kingfisher accommodation village		C = Major L = Unlikely **Medium Risk**	Y	Conditions 1, 6, 12, 22, 23	Additional controls may be included in the licence amendment and will be informed by submission of the applicant's fire and emergency management plan.
	Fire wash-water	**Pathway:** Overland runoff and seepage through soils to groundwater **Impact:** Ecosystem disturbance or impact to surface/ground water quality	Minor water courses Seven Mile Creek Beneficial uses of groundwater		C = Moderate L = Unlikely **Medium Risk**	N	Conditions 1, 17, 18, **22** and 23	The Delegated Officer considers it reasonable to stipulate controls for the management of firefighting wash-water on the premises within the works approval in the unlikely event of a fire. Additional controls may be included in the licence amendment and will be informed by submission of the applicant's fire and emergency management plan.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 7 provides a summary of the consultation undertaken by the department.

Table 7: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website 17 April – 8 May 2025	None received.	N/A
Local Government Authority advised of proposal on 10 April 2025	The City of Karratha responded on 1/05/2025 confirming that the proposed works approval application is consistent with the City's Development Approval issued on 14/12/2023. The City has not raised any concerns associated with the proposal.	Noted.
Radiological Council (Department of Health) advised of proposal on 14 April 2025	The Radiological Council responded on 02/05/2025 advising that the changes to the operation can be managed under an update to the existing registration under the Radiation Safety Act and will liaise with the proponent to action this.	It is the applicant's responsibility to ensure they hold a current registration reflecting the proposed changes to the premises and should liaise with the Radiological Council where required.
Department of Planning, Lands and Heritage advised of proposal on 10 April 2025	The Department of Planning, Lands and Heritage responded on 1 July 2025 and 5 August 2025 advising that comments were being complied and will be provided to the Department. Final comments received on 19 August 2025 advising the applicant maintains valid tenure over the subject land and is subject to lease terms and conditions which include obligations to rehabilitate the leased premises and remediate any contamination, pollution or environmental harm of or to the subject land arising from the use and occupation of land.	Noted.
Department of Energy, Mines Industry Regulation and Safety (Dangerous Goods Team) advised on 10 April 2025	None received.	It is the applicant's responsibility to ensure they hold a current dangerous goods licence reflecting the proposed changes to the premises and should liaise with DEMIRS where required.
Applicant was provided with draft documents on 12 June 2025 and revised draft documents on 15 August 2025	Applicant responded to draft documents on 11 July 2025 and revised draft documents on 29 August 2025. Refer to Appendix 1.	Refer to Appendix 1.

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Department of Environmental Regulation (DER), July 2015. *Guidance Statement: Regulatory principles*. Perth, Western Australia. Accessed at: www.wa.gov.au
2. DER, October 2015. *Guidance Statement: Setting conditions*. Perth, Western Australia. Accessed at: www.wa.gov.au
3. DWER, June 2019. *Guideline: Decision Making*. Perth, Western Australia. Accessed at www.wa.gov.au
4. DWER, June 2019. *Guideline: Industry Regulation Guide to Licensing*. Perth, Western Australia. Accessed at www.wa.gov.au
5. DWER, December 2020, *Guideline: Environmental Siting*, Perth, Western Australia. Accessed at: www.wa.gov.au
6. DWER, December 2020, *Guideline: Risk Assessments*, Perth, Western Australia. Accessed at: www.wa.gov.au
7. JBS&G, March 2025. *Karratha Hazardous Waste and Decontamination Facility Cleanaway Co Pty Ltd Part V Environmental Protection Act 1986 – Works Approval Application Supporting Document.* Perth, Western Australia Accessed via Environment Online APP-0028122.
8. JBS&G, July 2025, *Applicant comments on draft Works Approval W2927/2025/1*. Perth, Western Australia. Accessed via Environment Online APP-0028122.
9. JBS&G, August 2025, *Applicant comments on revised draft Works Approval W2927/2025/1*. Perth, Western Australia. Accessed via Environment Online APP-0028122.

Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

First draft consultation				
	Condition	**DWER Request**	**Summary of applicant's comment**	**DWER's response**
1.	Condition 1 Table 1, Row 1 (Decon zones 1 & 2)	Applicant to confirm infrastructure to contain overspray – spray curtain has been assumed, provide specifications of curtain material if being used	Applicant has requested removal of requirements to install a spray curtain with justification that contaminated items are decontaminated by immersion in a chemical bath or by circulation of cleaning chemicals through the item at low velocity, followed by a rinse with non-high-pressure water. Therefore, there is very low risk for spray drift being generated and no specific controls required.	The Delegated Officer accepts this request and has removed reference to installation of a spray curtain, however, will add a condition in Table 2 that use of high-pressure water for cleaning or rinsing waste materials in this area is not permitted. Definition for 'high-pressure water added to the Definitions table.
2.	Condition 1 Table 1, Row 4 (Chemical circulation area (portable collapsible bund))	Applicant to confirm specifications of structures material and bund height	The chemical circulation area will be lined with a nominal 1.0 mm thick geomembrane liner rated for the cleaning chemicals that will be used. The bund will be constructed with a minimum height of 100 mm and will be sized around containment infrastructure to contain more than 125% of the volume of the largest container stored within the bunded area.	The Delegated Officer has included the applicable bunding specifications for the chemical circulation area within Table 1 and Table 2.
3.	Condition 1 Table 1, Row 8 (Waste items storage areas (contaminated))	Applicant to provide more detailed layout plan of where these storage areas are located on the premises (including extent of bunding and concrete pad, where applicable)	Contaminated items that are not in containers or sealed will be stored on the concrete pad outside of the decontamination building ('Decon Zones 1 & 2'). Contaminated items that are sealed or in sealed containers will be stored on hardstand in the 'Decontamination Zones' compound in a manner that prevents discharge of waste to the environment	The Delegated Officer has included these requirements within Table 1 and added a condition that these two areas must be clearly delineated.
4.	Condition 1 Table 1, Row 9 (Waste items storage areas (decontaminated))		Decontaminated items will be stored on hardstand outside of the decontamination building or in the scrap metal processing area ('Decontamination Zones' and 'Scrap Metal Processing').	
5.	Condition 1 Table 1, Rows 11-14 (Dewatering activities)	Applicant to provide more detailed layout plan of where this infrastructure is located on the premises (including extent of bunding and concrete pad).	The 'Dewatering Area' is shown in the revised Infrastructure Layout Plan and layout plans for the dewatering activity area are provided. The equipment and activities are all carried out on concrete pad that forms a bunded apron to the drying and fixation pits (i.e., any leachate/water generated on the pad will drain to the pits).	Revised plan has been included in the works approval.

First draft consultation				
	Condition	**DWER Request**	**Summary of applicant's comment**	**DWER's response**
6.	Condition 1, Table 1, Row 14 (Bioremediation)	Applicant to provide further information and specifications on the leachate collection system (bunding, sumps, capacity, permeability of liner system, fall, geotextile material type and thickness - technical drawings and lining system CQA requirements/plan to be provided)	The applicant requests that the bioremediation pads are removed from the works approval. Additional time is required to finish the detailed design specification and, therefore, removed from the draft approval so as not to hold up the other aspects. Construction of the pads will be sought through a future works approval or licence amendment application.	Reference to the bioremediation pads and associated construction requirements have been removed from the works approval.
7.	Condition 1, Table 1, Row 16 (Scrap metal processing area)	Applicant to provide information on the proposed scrap metal processing area and storage of scrap metal	The decontaminated scrap items will be resized using a combination of shears (e.g., mounted on an excavator boom) and flame cutting (e.g., oxy cutting). There will be no shredding of scrap metal. Flame cutting will be carried out using the following controls to minimise the risk of fire: • The flame cutting will be kept free of combustible materials including vegetation and organic litter. • Any combustible materials that cannot be removed will be covered using suitable guards or covers during flame cutting activities. • Cutting will cease immediately if visible smoke is observed crossing over the boundary of the premises. • Fire extinguisher(s) and firefighting equipment will be on standby while flame cutting. • Where practicable, all non-metal surface coatings (including but not limited to plastic, resin, paint, rubber) will be removed from the work surface of a scrap metal item prior to flame cutting. • The scrap material will be stored in stockpiles prior to export off-site.	The Delegated Officer considers the inclusion of hot cutting on the premises requiring suitable fire prevention measures and has included these requirements within Table 6.
8.		Applicant to provide more detail on the infrastructure layout plan to indicate where the processing and storage area are.	The scrap metal processing area is shown on the revised Infrastructure Layout Plan.	Revised plan has been included in the works approval.

<table>
<tr><th colspan="5">First draft consultation</th></tr>
<tr><th></th><th>Condition</th><th>DWER Request</th><th>Summary of applicant's comment</th><th>DWER's response</th></tr>
<tr><td>9.</td><td>Condition 6, Table 2, Row 17 (All on-site fire management and prevention equipment)</td><td>Applicant to provide a current premises map showing location of all on-site fire management and prevention equipment.</td><td>The locations of on-site fire management equipment (extinguishers and fire hose reels and foam) are shown on the Storage Plan.</td><td>Plan has been included in the works approval and referenced in Table 2.</td></tr>
<tr><td>10.</td><td>Condition 9, Table 5 (Contamination inspection/ survey criteria and trigger levels)</td><td>Applicant to confirm if incoming waste materials are likely to be contaminated with H2S and BTEX and what proposed equipment/trigger levels will be used.</td><td>Incoming items may be contaminated by H2S and BTEX. The test methods and trigger levels for these contaminants are shown in the table below.<table><tr><th>Criteria</th><th>Equipment</th><th>Trigger levels</th></tr><tr><td>Hydrogen Sulphide (H_2S)</td><td>Gas monitor</td><td>>5 ppm</td></tr><tr><td>Benzene (BTEX)</td><td>Gas monitor</td><td>>0.5 ppm</td></tr></table><table><tr><th>Criteria</th><th>Equipment</th><th>Clearance levels</th></tr><tr><td>Hydrogen Sulphide (H2S)</td><td>Gas monitor</td><td><5 ppm</td></tr><tr><td>Benzene (BTEX)</td><td>Gas monitor</td><td><0.5 ppm</td></tr></table></td><td>Contaminant, test methods and trigger levels have been added to surveying and decontamination criteria in Table 4 and Table 7.</td></tr>
<tr><td>11.</td><td>Conditions 10-11, Table 5 (Floor contamination survey)</td><td>Applicant to confirm if floor contamination surveys (e.g. Table 5) will be conducted after the unloading of contaminated waste items to ensure that any spills of contaminants are identified and cleaned up. Sampling, monitoring and cleanup procedures to be provided.</td><td>Contamination surveys or containers used to transport and store contaminated items will be carried out prior to the containers being taken off-site for reuse. Proposed floor survey has been provided.</td><td>Requirement to conduct floor contamination surveys has been included in Conditions 10, 11 and Table 5.</td></tr>
</table>

First draft consultation				
	Condition	**DWER Request**	**Summary of applicant's comment**	**DWER's response**
12.	Condition 12, Table 6, Row 3 (Offshore Decommissioned infrastructure (Not contaminated/ decontaminated))	Further information on sizing and setbacks of scrap metal stockpiles is required.	Stockpiles of scrap metal will be formed in accordance with the following specification: • Scrap metal stockpiles will not exceed 5 m in height at any point from the base of the stockpile. • Scrap metal stockpiles will not exceed 20 m in width and 30 m in length. • A clearance of 5m will be maintained between scrap metal stockpiles. • A clearance of 4 m will be maintained around the boundary of the premises and any stockpiled scrap metal. • Maximum 3 stockpiles at any one time.	Scrap metal stockpile specifications included in Table 6.
13.	Condition 17 (Testing of decontamination wastewater)	-	Request that Condition 17 and Table 8 are deleted. Treated wastewater is reused in the decontamination process; however, it is not tested prior to each use as this would cause unnecessary delays. The treated water is reused until clearance testing carried out in accordance with Condition 15 of the draft works approval shows that the decontamination process is not being carried out effectively or efficiently. At that point, the used treated water will be segregated in containers (e.g., IBCs) and replaced with fresh water. The used water will be tested to confirm that it can be managed on-site in accordance with Licence L8332/2009/3 or removed off-site to a facility authorised to accept the waste. Note: treated wastewater from the decontamination activities is not used anywhere else on-site other than in the decontamination process.	The Delegated Officer accepts the request to remove reference to testing prior to each use in the decontamination process however the wastewater testing condition and criteria will remain for when the applicant wants to use, treat of dispose wastewater outside of the decontamination process. The Delegated Officer considers contaminated wastewater must be appropriately treated to an acceptable standard to ensure it does not pose a risk in contaminating other parts of the premises or other receiving facilities.

First draft consultation				
	Condition	**DWER Request**	**Summary of applicant's comment**	**DWER's response**
14.	Conditions 24 and 25	Provide a Fire and Emergency Management Plan (FEMP)	Request that Conditions 24 and 25 are deleted. Cleanaway requests that the preparation of a FEMP is included in the current amendment application being assessed for Licence L8332/2009/3 with a deadline for submission to be agreed through that process. Fire and emergency management provisions of the whole premises are currently being reviewed (i.e., not just the decontamination activities proposed under the works approval), and more time is needed to prepare a new FEMP. The current requirement in the draft works approval for the FEMP to be submitted to DWER prior to time limited operations would delay the implementation of the decontamination activities. The risk of fire associated with the decontamination activities is low given the types of items being cleaned (e.g., metal structures, pipes) and the water-based cleaning activities. The main risk is associated with the flame cutting of scrap metal with controls specified to mitigate the risk. The configuration of the scrap metal stockpiles will also reduce this risk. More generally, the site maintains fire management and control equipment across the site and two (1 x 10kL and 1 x 15kL capacity) water carts. The water carts provide a mobile water supply for initial fire response in high-risk areas such as combustible and hazardous material storage zones. The use of the carts is subject to the following protocols: • Operator Training: Staff are trained and authorised to operate water carts, following site-specific procedures and equipment guidelines. • Pre-Start Checks: Daily inspections are completed to ensure all mechanical, braking and spray systems are in working order. • Fire Readiness: Water carts are always filled and accessible for operational readiness. • Environmental considerations: Avoid over-watering or runoff into stormwater systems to minimise environmental impact.	The Delegated Officer accepts the applicant's request as there is a concurrent licence amendment assessment being undertaken. The requirement for a FEMP will be implemented through licence conditions. The fire prevention and management controls relating to scrap metal hot cutting have been included in the works approval.

	Revised draft consultation		
	Condition	**Summary of applicant's comment**	**Department's response**
Works Approval			
1.	Condition 1, Table 1, Row 1, (a) (Decon zones 1 & 2)	Request to remove requirement for '*200mm high concrete bunding'*. Provision of a 200 mm high solid bund would make the area unsafe to access with mobile plant. The engineered slope of the impervious concrete floor means that any discharge of liquids within Decon zones 1 & 2 will be captured within the area and will not spill outside. If DWER require bunding to be provided, Cleanaway would install a trafficable/rollover type bund	The Delegated Officer notes the applicant's concerns and accepts the change to the bunding requirement based on the existing concrete flooring gradient towards the wastewater collection sumps and proposed implementation of a trafficable rollover type bund instead.
2.	Condition 1, Table 1, Row 1, (d) (Decon zones 1 & 2)	The existing shed is constructed with impervious steel walls (i.e., Colorbond cladding) and not concrete as currently stated. Request specification is changed to: *d. Must be fitted with a roof cover and impervious ~~concrete~~ walls*	The Delegated Officer accepts the removal of a concrete specification as the requirement to contain wastewater with an impervious material will achieve the same outcome.
3.	Condition 1, Table 1, Row 8, (a) (Waste items storage areas)	Request that part (a) of the specification is amended to reflect the request to remove the 200 mm high bund: *a. Area must be located over an impervious ~~bunded~~ concrete pad capable of containing all potentially contaminated solid or liquid waste.*	The Delegated Officer accepts this deletion with the provision that only waste items that are received sealed or in sealed containers can be stored on a non-bunded area. This requirement will be included in Table 2.
4.	Condition 1, Table 1, Row 10, (Transition stations)	Request works approval description changed from 'Transition stations' to 'PPE Decon. Zone' to match premises layout plan. Updated premises layout plan attached.	The Delegated Officer accept this name change and has updated Figure 3 with the updated site plan.
5.	Condition 1, Table 1, Row 13, (Centrate tank)	DWER request - Applicant to confirm which Figure this tank is referenced – Figure to be updated where required. Centrate Tank is labelled as 'Centrate (Water) Storage Tank' on Figure 7 of the draft works approval. Revised figure attached with correct tank label. Request that Site infrastructure and equipment (Column 2) reference is updated to match figure.	The dewatering activity tanks and figure 7 have been updated accordingly.
6.	Condition 1, Table 1, Row 14, (Oil/hydrocarbon tank)	Amend site infrastructure and equipment reference to 'Centrate (Oil) Storage Tank' to match figure.	

	Revised draft consultation		
	Condition	**Summary of applicant's comment**	**Department's response**
7.	Condition 6, Table 2, Row 1 (c) (Decon zones 1 & 2)	The request that the restriction on use of high-pressure water for cleaning or rinsing waste materials is removed and replaced with: (c) Use of high-pressure water for cleaning or rinsing waste materials permitted must be carried out in a manner that prevents spray drift escaping the operational areas within Decon Zones 1 & 2. Note: the use of high-pressure water for cleaning and rinsing contaminated items is already authorised in Licence L8332/2009 using existing infrastructure. Cleanaway may employ several techniques for preventing spray drift, including but not limited to: • Spray curtains or other impervious barrier to prevent overspray or loss of containment during high-pressure cleaning and rinsing. • Elbow or shroud to control the flow of water into items being cleaned, e.g., internal cleaning of tubulars during high-pressure and low-pressure cleaning and rinsing.	The Delegated Officer accepts the applicant's request for an outcome based condition noting a variety of impervious barriers may be used to prevent any spray drift of potentially contaminated wastewater.
8.	Condition 6, Table 2, Row 8 (a) (Waste items storage)	Request that part (a) of the specification is amended to reflect the request to remove the 200 mm high bund: (a) All potentially contaminated waste materials not received sealed or in sealed containers must be stored over an impervious bunded concrete pad capable of containing all potentially contaminated solid or liquid waste. To clarify, potentially contaminated waste materials that are received sealed or in sealed containers will be stored in areas of the decontamination zone that are not on an impervious concrete pad.	The 200mm high bund was not specified in this operational condition and therefore no change is required as the condition is already written as requested.
9.	Condition 6, Table 2, Row 10 (Transition stations)	Refer comment against Table 1. Request description changed from 'Transition stations' to 'PPE Decon Zone' and infrastructure location described as 'Exit point from Decon zones 1 & 2'. Updated premises layout plan attached.	The Delegated Officer accept this name change and has updated Figure 3 with the updated site plan. The infrastructure location description is remaining as 'at all exit points' as it has not been specified in the site plan or information provided on how many exits there will be from this area. It is considered appropriate that these stations are positioned at all exits to prevent contaminants being tracked outside this area.

	Revised draft consultation		
	Condition	**Summary of applicant's comment**	**Department's response**
10.	Condition 6, Table 2, Row 16 (All on-site fire management and prevention equipment)	Request that specification is amended to require at least one water cart to be always filled and accessible for operational readiness. The site operates two carts, with one maintained ready whilst the other one is being serviced/repaired or in use for dust suppression activities. c. *Water carts:* *i. At least one water cart must be maintained filled and accessible for operational readiness at all times.* *ii. Must be inspected daily to ensure all mechanical, braking and spray systems are in working order.*	The Delegated Officer accepts the requested change noting one operational water cart should be sufficient in managing the risk of fire on the premises in combination with other available fire management and prevention equipment on the premises (subject to the applicant's current review of the Fire and Emergency Management Plan).
11.	Condition 14 (Treated wastewater contaminant criteria)	The initial comment was for this condition to be deleted. However, DWER has retained and amended it. The new wording means that treated wastewater from the decontamination activities cannot be used, treated or disposed off elsewhere on-site or off-site unless it meets the specified criteria (i.e., it cannot be transferred to ponds on-site or to another site unless it meets the criteria). The condition does not impact the ability to accept liquid wastes or to reuse treated wastewater within the decontamination process.	The Delegated Officer notes this comment and refers to the reasoning for keeping this condition in item 13 of the first draft consultation table above.
Decision Report			
13.	Section 2.4.3 - Hydrogen Sulphide and BTEX decontamination	DWER request - Applicant to confirm if there are any additional decontamination processes required for Hydrogen Sulphide and BTEX (benzene, toluene, ethylbenzene and xylene). The decontamination of hydrogen sulphide and other sulphides, such as ferric sulphide, and BTEX occurs via mobilisation of these contaminants during the degreasing or washing stages. For sulphides, these are treated via controlled aqueous oxidation using the hydrogen peroxide noted in Section 2.4.1 of the decision report or via reagents such as potassium permanganate and converted to non-reactive sulphates. The degreasing or washing step for BTEX introduces a surfactant to mitigate vapour generation and subsequent treatment managed on-site in accordance with Licence L8332/2009/3 or removed off-site to a facility authorised to accept the waste.	This contaminant decontamination information has been included in the Decision Report.

<table>
<tr><td></td><td colspan="3">Revised draft consultation</td></tr>
<tr><td></td><td>Condition</td><td>Summary of applicant’s comment</td><td>Department’s response</td></tr>
<tr><td>14.</td><td>Section 2.4.7 - Secondary contaminant monitoring and decontamination</td><td>DWER request – Applicant to provide more detail on the frequencies and procedures for proposed “periodic gamma and mercury vapour monitoring around decontamination zones and waste storage area.” The periodic monitoring around decontamination zones and waste storage areas is carried out in accordance with the table below.
<table>
<tr><th>Monitoring Area/Type</th><th>Instrument</th><th>Contaminants</th><th>Frequency</th></tr>
<tr><td>Decontamination Zones</td><td>Mercury vapour and NORM meter</td><td>Mercury Vapour Survey, NORM</td><td>Daily, where applicable</td></tr>
<tr><td>NORM Storage</td><td>Mercury vapour and NORM meter</td><td>Mercury Vapour Survey, NORM</td><td>Weekly</td></tr>
<tr><td>Personal Radiation Dosimeters</td><td>OSL Badges</td><td>Cumulative dose rates per quarter, calculated per year</td><td>Worn by Radiation Workers Daily</td></tr>
</table></td><td>This proposed monitoring information has been included in the Decision Report.</td></tr>
</table>