



## Application for Works Approval

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

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<b>Works Approval Number</b>	W6090/2017/1
<b>Applicant</b>	BMT Australia Pty Ltd
<b>ACN</b>	614 363 647
<b>File number</b>	DER2017/001541
<b>Premises</b>	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 premises maps attached to the issued works approval
<b>Date of report</b>	31/07/2023
<b>Proposed Decision</b>	Works approval granted

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## 1. Decision summary

This amendment report documents the assessment of potential risks to the environment and public health from emissions and discharges during the installation and operation of a new mercury stabilization plant at the premises. In addition, an administrative change to extend the expiry date of the works approval is made. Other aspects of the works approval remain unchanged. As a result of this assessment, works approval W6090/2017/1 has been granted.

This amendment report documents the amendments made pursuant to section 59 and 59(B) of the Environmental Protection Act 1986 (EP Act).

The decision report for the original works approval will remain on the department's website for future reference and will act as a record of the department's decision making.

## 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

Works Approval W6090/2017/1 is held by BMT Australia Pty Ltd (Works Approval Holder) for the Kwinana Mercury Treatment Plant (the Premises), located at Lot 101 Donaldson Road, Kwinana Beach, Western Australia.

The Premises relates to the categories: Category 39: chemical or oil recycling; and Category 61A: solid waste facility for the production capacities under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which have been assessed and defined in existing Works Approval W6090/2017/1.

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 W6090/2017/1.

On 15 February 2023, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to:

- undertake installation works relating to the installation of a new containerised Mobile Mercury Stabilisation Unit (MMSU);
- undertake an assessment of the changes to risk profile for the treatment of mercury within the proposed new MMSU;
- remove the currently approved mercury stabilisation method and infrastructure from the works approval; and
- an amendment to extend the duration of the expiry date of the works approval.

## 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 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

**Table 1: Proposed applicant controls**

Emission	Sources	Potential pathways	Proposed controls (from application)
<b>Construction</b>			
Noise	Delivery and placement of containerised Mobile Mercury Stabilisation Unit (MMSU) on hardcourt area	Air / windborne pathway	<p>Premises located within the Kwinana Industrial Area;</p> <p>No controls are considered necessary for noise at the construction stage as the works include the delivery of a self-contained MMSU in the form of a sea container;</p> <p>The self-contained unit will be moved prior to batch processing onto the apron surrounding the processing building (location A see Figure 1). Following completion of processing which will be undertaken in a series of batches, it will be relocated to original Location B where it will be stored when not in use.</p>
<b>Operation</b>			
Elemental Mercury (liquid and vapour form)	Vehicular accident during transport between processing building and MMSU	Air / windborne pathway	<p>Vehicular activity in and around the BMT premises is limited the scheduled deliveries;</p> <p>Waste is offloaded from vehicles using a forklift on a different site of the building to prevent offsite vehicles accessing the area near the processing area Location A;</p> <p>Operation of the MMSU will occur during daylight hours only;</p> <p>Vehicular access restricted to operating area where MMSU will be used to undertake batch processing (location A);</p> <p>Waste deliveries and receivals area occurs in a distinct warehouse area;</p> <p>Elemental mercury to be stored and transported between the processing building and the MMSU within an United Nations (UN) approved fully sealed mercury storage container;</p> <p>Transport of the UN approved mercury storage</p>

Emission	Sources	Potential pathways	Proposed controls (from application)
			<p>container to occur using a forklift. The container is welded to a steel pallet to provide stability during transport (no risk of container dislodging from forklift).</p> <p>UN approved mercury container size is 80L (1.1 tonnes) with a maximum weight holding capacity of 1.3 tonnes limiting the amount of potential spill volume.</p> <p>Container wall minimum thickness is 3mm</p> <p>Transport will occur immediately prior to batch processing</p> <p>The UN approved mercury storage container has a blind flange connection allows secure seal of liquid mercury during transport and storage</p>
<p>Elemental mercury (liquid and vapour form)</p> <p>Mercury sulphide (cinnabar)</p>	<p>Movement of shipping container between Locations A and B</p>	<p>Spillage or leakage from MMSU containerised unit</p>	<p>No elemental mercury or mercury sulphide will be stored or retained in the MMSU whilst in storage</p> <p>The MMSU will be cleaned and emptied of mercury and mercury sulphide after use.</p> <p>The MMSU will be stored when not in use in a clean state</p>
<p>Elemental mercury (liquid and vapour form)</p>	<p>Transfer of elemental mercury from UN approved mercury storage container and to MMSU</p>	<p>Air / windborne pathway</p>	<p>The mercury stabilisation unit is housed within a 40-foot mobile sea container;</p> <p>The floor of the MMSU is fully sealed and banded;</p> <p>All handling of mercury to occur within the MMSU;</p> <p>The sea container will be barricaded during operations to ensure access to the area is restricted;</p> <p>The UN approved mercury storage container will be placed on the floor of the banded area and will remain in this position until all liquid mercury in the vessel has been retrieved</p> <p>Once placed within the MMSU, the ~18kg blind flange to be manually removed by the operator using the forklift, and immediately replaced with a needle valve flange that allows the approved mercury storage container to be emptied, through a dedicated line directly into the processing equipment.</p> <p>The blind flange and needle flange will be flanged to a sealed receptacle to ensure no vapour emissions when not in use.</p> <p>The operator that changes the blind flange with the needle flange will be equipped with personal air monitoring to verify that no</p>

Emission	Sources	Potential pathways	Proposed controls (from application)
			<p>mercury vapour escapes during the exchange of blind flange to needle flange (the possible exposure pathway).</p> <p>The UN approved mercury storage container weighs 100kg will not be removed from the MMSU until it has been completely drained of liquid mercury and the needle flange replaced with the blind flange.</p> <p>There will be mercury spill kits located within the bunded area; and</p> <p>The sea container will be operated at all times with the doors open to allow safe access of containers and personal to the MMSU. When non-operational, the doors will be closed.</p>
Elemental mercury (liquid and vapour form)	Stabilisation of mercury	N/A no pathway	<p>Occurs within a hermetically sealed part of the MMSU under a nitrogen atmosphere with continuous nitrogen blanketing of all seals to safely avoid oxygen entering the process;</p> <p>Zero emissions when operating;</p> <p>Off gases generated through evacuation of air as feed tank and mixer are filled;</p> <p>Off gases to be filtered with activated carbon filtration unit;</p> <p>Semi-automated process where sulphur is heated and mercury is dosed into the reactor/mixing tank over a fixed time period to ensure stoichiometric binding with sulphur;</p> <p>Continuous temperature monitoring during stabilization; and</p> <p>The process is considered complete when 100% of the elemental mercury is stabilised with elemental sulphur through a process of mixing under high temperature.</p>
Mercury sulphide (cinnabar)  Elemental mercury (liquid and vapour form)	Discharge/spillage between the mercury stabilisation mixer and the UN approved mercury waste containment drum	Air / windborne pathway for particulates  Spilt material Infiltration through soil to groundwater dispersing to nearby surface water resources	<p>Sulphur handling of mercury sulphide drumming processes are connected to vacuum suction to ensure the full removal of entrained dust. Stoichiometric reaction of mercury with Sulphur ensures no liquid mercury remains after the batch process and all vapour generated in the process is removed via an activated carbon filtration system,</p> <p>Once stabilisation of elemental mercury is complete the stabilized mercury will be emptied from the mixer into a steel drum approved by the UN to contain mercury wastes (mobile handling drum);</p> <p>One UN approved mercury waste drum will be used per batc;</p>

Emission	Sources	Potential pathways	Proposed controls (from application)
			<p>The drums will be sealed and taken from the MMSU to designated storage area inside the warehouse prior to offsite disposal;</p> <p>Storage in accordance dangerous good requirements in the warehouse below placard quantities; and</p> <p>Live air emissions monitoring will occur to ensure no fugitive emissions</p>
<p>Mercury sulphide (cinnabar)</p> <p>Elemental mercury (liquid and vapour form)</p>	<p>Cleaning of MMSU infrastructure</p>	<p>Air / windborne pathway</p>	<p>Batches of mercury, feed tank, mixing chamber and mobile handling container are attached to a suction system via a pump with an activated carbon filter to remove any mercury vapour or mercury sulphone particulates that remain within the processing equipment; and</p> <p>The filter media is reprocessed through the facility for removal of mercury and the mercury free residue disposed of at a licensed landfill via a licensed controlled waste carrier.</p>
<p>Elemental mercury (liquid and vapour form)</p>	<p>Fire</p>	<p>Air / windborne pathway</p>	<p>Process to be monitored and controlled via Programmable Logic Controller (PLC) and cameras;</p> <p>Fire extinguishers will be located at each entrance of the sea container;</p> <p>Several fire extinguishers to be located within the sea container in the area of the processing equipment;</p> <p>Smoke detectors will be installed within the MMSU; and</p> <p>A Hazard and Operability (HAZOP) Plan is currently being developed for the MMSU and this will be used to inform a Hazards Identification (HazID) plan for processing that covers a range of risk scenarios.</p>





**Figure 1: Mobile mercury stabilisation unit location A when in use; and B is the storage location when not in use.**

### 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 2 and 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 2: Sensitive human and environmental receptors and distance from prescribed activity)**

Human receptors	Distance from prescribed activity
Residential premises (Medina)	approximately 2 km southeast
Ovals, sporting facilities and other recreational facilities including Chalk Hill Lookout	1.8km southeast
Medina Primary School	2.5km southeast



Wombat Willow Child Care Centre	2.5km southeast
<b>Environmental receptors</b>	<b>Distance from prescribed activity</b>
Geomorphic Wetlands	<ul style="list-style-type: none"> <li>Resource enhancement category Sumpland approximately 1.1km southeast of the Premises</li> <li>Resource enhancement category Dampland approximately 2km northeast from the Premises</li> <li>Resource enhancement category Sumpland approximately 2.3km southeast of the Premises</li> </ul>
Bush Forever: Regional open space or proposed regional open space	800m southeast of the Premises
<i>State Environmental (Cockburn Sound) Policy 2015</i> boundary	<ul style="list-style-type: none"> <li>Premises is located inside policy boundary</li> <li>Cockburn Sound 1.8km east north-east of Premises</li> </ul>
Groundwater	<p>The Perth Groundwater Atlas indicates that depth to groundwater at the site is likely to be 6.0m below ground level (or 1.0 mAHD, with ground level being at 7.0 mAHD). The base of the aquifer is estimated to be 32m below ground level (or -25.0 mAHD).</p> <p>There are a number of bores (&gt;30) located within 1km of Premises (based on available GIS dataset –WIN Groundwater Sites). Most of these bores are located towards the south and southwest of the Premises and a large proportion are listed as having been installed as project bores for observation/ monitoring purposes. Three bores (150m northwest, 375m southeast and 875m east-southeast) of the Premises are listed as being installed for 'irrigation' purposes; however, all three are listed as having no current owners and unknown current status.</p> <p>Water is not used for potable use and is considered unsuitable for garden bore usage.</p> <p>According to the Perth Groundwater Atlas, the groundwater varies in quality from 500 mg/L – 1 000mg/L Total Dissolved Solids (TDS).</p>

## 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 Works approval W6090/2017/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises. 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 application.

**Table 3: Risk assessment of potential emissions and discharges from the premises during construction, and operation**

Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
<b>Construction</b>								
Delivery and placement of containerised Mobile Mercury Stabilisation Unit (MMSU) on hardcourt area	Noise	Air / windborne pathway causing impacts to health and amenity	Sensitive residential receptors > 1.8km south east of premises	Refer to Section 3.1.1	C = Slight L = Rare <b>Low Risk</b>	Y	N/A	Installation works are of a short duration  EP Noise Regulations will apply
<b>Operation including time-limited-operations operations</b>								
Transport and placement of MMSU from storage Location B to in use Location A	Noise	Air / windborne pathway causing impacts to health and amenity.	Sensitive residential receptors > 1.8km south east of premises	Refer to Section 3.1.1	C = Slight L = Rare <b>Low Risk</b>	Y	N/A	EP Noise Regulations will apply
	Elemental mercury: liquid and vapour form	Spillage of material from containerised unit to ground	Discharge to ground and infiltration to groundwater  Shallow groundwater (6m below ground level)	Refer to Section 3.1.1	C = Minor L = Rare <b>Low Risk</b>	Y	Applicant control included in Condition 9 Table 2:  <ul style="list-style-type: none"> <li>Operation to occur only when MMSU is located in position A within the bunded process building apron which is able to contain incidental run off</li> <li>Area A to be cordoned off from vehicular and pedestrian traffic during operation of MMSU</li> </ul>	The Delegated Officer considers occupier controls are suitable form inclusion as conditions to ensure a low risk operating environment occurs
	Mercury sulphide	Air / windborne pathway causing impacts to health and amenity	Sensitive residential receptors > 1.8km south east of premises	Refer to Section 3.1.1	C = Minor L = Rare <b>Low Risk</b>	Y		

Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Vehicular accident transporting elemental mercury between processing building and MMSU	Elemental mercury liquid and vapour form	Air / windborne pathway causing impacts to health and amenity	Sensitive residential receptors > 1.8km south east of premises	Refer to Section 3.1.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	Applicant control included in Condition 9 Table 2: <ul style="list-style-type: none"> <li>Transportation to occur via UN approved container only</li> <li>Mercury transport container to be welded to pallet</li> <li>Area cordoned off from pedestrian and vehicular traffic during transfer between process building and MMSU</li> <li>Spill kit located on the apron adjacent to Location A and inside MMSU container</li> </ul>	The Delegated Officer considers occupier controls are suitable for inclusion conditions to ensure discharge of elemental mercury does not occur.
Vehicular accident transporting elemental mercury between processing building and MMSU		Spillage of material from containerised unit to ground	Discharge to ground and infiltration to groundwater Shallow groundwater (6m below ground level)	Refer to Section 3.1.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y		
Transfer of elemental mercury from UN approved mercury storage container and to MMSU	Elemental mercury liquid and vapour form	Air / windborne pathway causing impacts to health and amenity	Sensitive residential receptors > 1.8km south east of premises	Refer to Section 3.1.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	Applicant control included in Condition 9 Table 2: <ul style="list-style-type: none"> <li>Transfer of elemental mercury into stabilisation unit via a blind flange from the UN approved mercury container via exchange with needle flange that forms part of the hermetically sealed mercury stabilisation processing equipment.</li> <li>Via suction</li> <li>Mercury to be drawn into the feed chamber and any mercury vapours are contained within the process and are filtered through an activated carbon system-</li> </ul>	

Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Stabilisation of mercury	Elemental mercury liquid and vapour form	Air / windborne pathway causing impacts to health and amenity	Sensitive residential receptors > 1.8km south east of premises	Refer to Section 3.1.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	<p>Applicant control included in Condition 9 Table 2:</p> <ul style="list-style-type: none"> <li>Air monitoring to occur within the MMSU during operation to ensure on mercury vapour present;</li> <li>Off gases generated within the processing equipment feeder tank and mixer and mixer to be monitored and vented through a carbon filter</li> <li>Stabilisation undertaken in a hermetically sealed nitrogen atmosphere.</li> <li>No direct handling of mercury</li> <li>Temperature continuously controlled</li> <li>Mercury dosed into mixer over a fixed time period with intensive mixing</li> </ul> <p>Condition 12 Table 4:</p> <ul style="list-style-type: none"> <li>Updated to include reference of waste processing within the MMSU</li> </ul>	The Delegated Officer considers occupier controls are suitable for inclusion conditions to ensure discharge of elemental mercury does not occur.
Transfer of mercury sulphide to drum container and transport to storage shed pending off site disposal	Mercury sulphide	Spillage of material from mixer to ground to ground	<p>Discharge to ground and infiltration to groundwater</p> <p>Shallow groundwater (6m below ground level)</p>	Refer to Section 3.1.1	C = Minor L = Unlikely <b>Medium Risk</b>	Y	<p>Applicant control included in Condition 9 Table 2:</p> <ul style="list-style-type: none"> <li>Stabilised mercury sulphide will be transferred into a steel drum approved for containment of mercury containing wastes immediately after;</li> </ul>	The Delegated Officer considers occupier controls are suitable for inclusion conditions to ensure discharge of elemental mercury does not occur.

Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Fire	Elemental mercury liquid and vapour form	Air / windborne pathway causing impacts to health and amenity	Sensitive residential receptors > 1.8km south east of premises	Refer to Section 3.1.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	Licence condition 4 is updated to require a revised Emergency Response Plan to be submitted to DWER by 31 December 2023. The wording of the condition has been amended to include reference to hazard identification planning; hazard analysis planning and hazard operations planning for consistency with application documents and industry terminology.	The Delegated Officer considers occupier controls are suitable for inclusion conditions to ensure discharge of elemental mercury does not occur.
	Fire water run off	Discharge to ground and infiltration to groundwater  Shallow groundwater (6m below ground level)	Discharge to ground and infiltration to groundwater  Shallow groundwater (6m below ground level)	Refer to Section 3.1.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y		

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. Decision

The Delegated Officer has determined to allow an amendment to extend the duration of the expiry date of the works approval. DWER notes that there have been changes to ownership of BMT Australia Pty Ltd following construction delays. The new owners of BMT Australia Pty Ltd have preferred to incorporate the use of established technology for mercury stabilisation through the purchase of a containerised unit designed specifically for this purpose. The previously approved stabilisation technology and conditions for the construction of such, will be removed from works approval and the extension to duration granted to allow this amendment to the premises infrastructure to be implemented.

The Delegated Officer has determined the application to undertake the installation and time limited operation of a new containerized MMSU is acceptable subject to the Works Approval Holder Controls. The changes as proposed will not result in material changes to the overall risk profile of the site however should the Works Approval Holder Controls not be adhered to, the risks associated with inappropriate handling of elemental mercury and mercury containing waste are increased. On this basis the Delegated Officer considers the Works Approval Holder Control suitable for inclusion as conditions in the amended Works Approval.

## 5. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

**Table 4: Consultation**

Consultation method	Comments received	Department response
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal on 12 April 2023 via email with invitation to comment	DMIRS replied on 21 April 2023 stating that they had no objection to the proposal and that the proposed changes to the premises appeared to align with relevant Australian standards and the requirements of Dangerous Goods Safety (Storage and Handling on Non-explosives) Regulations 2007. DMIRS suggested risks for the site be reviewed to accommodate new infrastructure.	Consideration of there to be no impediments to the current proposal from a mercury and mercury waste handling perspective.  DWER has requested the Works Approval holder provide a revised emergency management plan by 31 <sup>st</sup> December 2023 as part of the current amendment.
City of Kwinana advised of proposal on 29 May 2023 via email with invitation to comment	No comments received in response to this letter.	DWER Officer contacted City of Kwinana on 4 July 2023 to confirm no input.
Kwinana Industries Council (KIC) contacted DWER prior to submission of the application form on 12 December 2022 to advise of their support for the proposal for a mobile containerised mercury stabilisation unit	KIC provided in principle support for a site capable of processing mercury contaminated waste into a stable form was desirable rather than mercury contaminated wastes going directly to Class IV landfill.	Comments noted.



## 5.1 Licence Holder comments on draft decision

The Works Approval Holder was provided a draft Amendment Report and draft Works Approval on 5 July 2023.

## 6. 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.

### 6.1 Summary of amendment

The below table provides a summary of the proposed amendments and will act as a record of implemented changes. All proposed changes have been incorporated into the revised works approval as part of the amendment process.

Condition no.	Proposed amendments
N/A	Amended to expiry day on front page of Works Approval from 7/11/2023 to 7/11/2024
Conditions 1 and 2 Table 12	Table 12 row 3 column 2 part (d ) removed as it references the old mercury stabilisation unit which is replaced by the new mobile mercury stabilisation unit which is includes in row 12 (columns 1,2 and 3).
Condition 4	Requires a revised Emergency Response Plan to be submitted to DWER by 31 December 2023. The requirement for hazard identification, hazard analysis and hazard operations planning for each risk event identified at the premises
Condition 9 Table 2	Process Building: Row 5 column 2- removal of wording stating stabilisation is to occur inside Process building  HVAC System: Row 7 Column 1- removal of wording stating stabilisation is to occur inside Process building  Activated Carbon Filtration System: Row 8 Column 2- removal of wording stating stabilisation is to occur inside Process building  Mobile Mercury Stabilisation Unit: Row 10 Column 1- addition of word mobile Row 10 Column 2- removal of wording requiring the unit to be operated within the Process Building and to be connected to the Process vacuum system. New infrastructure operating requirements included Row 10 column 3 – new map referenced in Figure 3
Definitions	Definition for MMSU included
Schedule 1 premises maps	Figure 3 included to show the storage location of the MMSU when not in use and the location of the MMSU when in operation

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

Condition	Summary of applicant's comment	Department's response
Condition 9 Table 2 Mobile Mercury Stabilisation Unit	Bullet point 5: the mercury container is not attached to the forklift. Consider re-writing as 'transfer to occur within UN approved mercury storage container via forklift'	Wording amended to correct inaccuracy to: <ul style="list-style-type: none"> <li>transfer to occur within UN approved mercury storage container which is welded to a steel pallet and transported by forklift</li> </ul>
Condition 9 Table 2 Mobile Mercury Stabilisation Unit	Bullet point 8: Needle flange assembly is not interlocking with the blind flange. Once the UN mercury storage container has been placed inside the MMSU the blind flange is changed out for the needle valve flanged assembly which connects the mercury vessel to the process.	Wording amended to correct inaccuracy to: Transfer of elemental mercury from the process building to the MMSU shall only occur within an approved UN container with replacement of the blind flange with the needle flange The elemental mercury is then drawn from the UN approved mercury storage container via vacuum
Schedule 2 Table 12 Infrastructure and Equipment	Point (i) Heating and cooling system is not contained within the reactor. The process temperatures in the mixer are maintained and controlled via thermal oil heating unit and chiller unit	Wording amended to correct inaccuracy to: (i) Heating and cooling system in the mixer are maintained and controlled via thermal oil heating unit and chiller unit
Decision Report :Table 3  Transfer of elemental mercury from UN approved mercury storage container and to MMSU	<p><u>Bullet point 1:</u> a. Typographical error : <i>Transfer of elemeta mercury</i> re-write 'transfer of elemental mercury' b. Needle flange assembly is not interlocking with the blind flange. Blind flange is changed out for the needle valve flanged assembly which connects the UN mercury storage vessel to the process.</p> <p><u>Bullet point 2:</u> Mercury is not transferred from the UN mercury storage container to the process under a 'nitrogen saturated sealed atmosphere'. Suggest this is removed.</p> <p><u>Bullet point 4:</u> Mercury vapour to be released into the feed chamber'. Consider re-writing 'when mercury is removed from the UN approved mercury storage container all vapours are contained within the process and are filtered through an activated carbon system'.</p>	Typographical errors and inaccuracies changed as suggested.,

Condition	Summary of applicant's comment	Department's response
Amendment Report :Table 3 Stabilisation of Mercury	<u>Bullet point 1:</u> 'Air monitoring to occur in the unsealed portion of the stabilisation unit....' Consider re-writing as 'air monitoring will occur inside the MMSU to ensure no mercury vapour is present'	
Amendment Report Table 1 Elemental Mercury (liquid and vapour form), Mercury Sulfide (cinnabar)	<u>Paragraph 1:</u> Change MMS to MMSU	Change made
Amendment Report Table 1 Mercury Sulfide (cinnabar) Elemental Mercury (liquid and vapour form),	<u>Paragraph 1:</u> Consider re-write: Sulphur handling and mercury sulphide drumming process are connected to vacuum suction to ensure the full removal of entrained dust. Stoichiometric reaction of mercury with Sulphur ensures no liquid mercury remains after the batch process and all vapour generated in the process is removed via an activated carbon filtration system,	Change made
Amendment Report Table 3 Stabilisation of Mercury	<u>Bullet point 2:</u> Remove the term reactor – as this is the mixer.	Change made
N/A	Change the word reactor to mixer throughout remainder of report.	Changes made