

Decision Report

Application for Works Approval

Part V Division 3 of the Environmental Protection Act 1986

Works Approval Number W6827/2023/1

Applicant Kalgoorlie Consolidated Gold Mines Pty Ltd

ACN 009 377 619

File number DER2023/000350

Premises Mt Charlotte Mine

Part of mining tenements M26/60, M26/61, M26/131, M26/261, M26/353, M26/383 and M26/744, Kalgoorlie WA

6430.

As defined by the premises map attached to the issued works approval in Schedule 1 and the coordinates in Schedule 2 of

the works approval.

Date of report 2 November 2023

Decision Works approval granted

A/Manager, Resources Industries REGULATORY SERVICES

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

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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 and operation of the premises. As a result of this assessment, works approval W6827/2023/1 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 25 May 2023, Kalgoorlie Consolidated Gold Mines Pty Ltd (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 in relation to Category 6 activities at the Mt Charlotte operations which are located within 2 kilometres (km) to the City of Kalgoorlie-Boulder approximately 600 km east of Perth, Western Australia (WA).

Recently the water volume at Mt Charlotte Underground mine has increased, due to increased underground drilling activity (exploration), and the suspended solids load has proportionally increased, to the point that settlement of solids is required prior to the water re-entering the existing saline water reticulation circuit. Due to insufficient space and safety considerations, settlement underground is not a viable option.

Water management at Mt Charlotte is regulated through ground water licence GWL63555. Water is currently pumped from Mt Charlotte underground mine by means of an underground pump, and travels north and then east through an existing bunded pipeline corridor to enter a larger regional saline reticulation circuit along Yarri Rd.

The applicant is proposing to undertake the following works which triggers regulation under Part V of the *Environmental Protection Act 1987* (EP Act):

- Change the pipeline route to a more direct west-east route (southern route presented in Figure
 1) with lower elevation changes (which decreases pumping head), utilising a historic pipeline
 corridor. This pipeline route connects Mt Charlotte with an existing operational pipeline corridor
 along Yarri Road (east of Mt Charlotte). If the proposed refurbishment of the old pipeline route
 is not feasible, the existing northern route (Figure 1) will be utilised.
- Using existing old or active bunded pipeline routes that form part of an existing regional saline
 reticulation circuit, to house a new pipeline. The pipeline is to transfer the high suspended
 solids water from the Mt Charlotte underground mine to the Union Club Pit at Mt Percy (a mine
 site in care and maintenance). The discharge point into the Union Club Pit is to be located on
 the southern end.
- Allow the suspended solids to settle out in the Union Club Pit and pump clarified water from the northern end of the pit to an existing regional saline reticulation circuit at Gravity Dam (HDPE lined) which will blend with incoming borefield saline water and then be transported to the Fimiston processing plant.

Figure 1 outlines the pipeline routes and discharge points.

The premises relates to the category and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6827/2023/1. 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 W6827/2023/1.

For the purpose of this assessment the Department has taken upon a conservative approach for conditions within the Works Approval in respect to the impacts of potential emissions during construction and time limited operations activities that may affect nearby residences of Williamstown. It is understood that the applicant has completed a buy back scheme for Williamstown and as of 10 July 2023 approximately 80% of the residences have sold their property to the applicant and will be demolished.

Under section 20 subsection 5c Part III Division 1 of the *Mining Act 1978* written consent is required if works occur on land situated within 100 m of any land that is occupied where a substantial building is erected. The applicant is aware of the requirement and will obtain written consent from any residences that remain. The applicant has informed the department that if consent is not provided, the applicant will continue to use the existing northern pipeline route presented in Figure 1.

2.2.1 Discharge to Union Club Pit

The dewatering discharge rate is expected to be in the range 400,000 m³/year to 800,000 m³/year, with a maximum system capacity of 2,000,000 m³/year. As dewatering flows into the Union Club Pit are planned to be pumped out at the same rate into the saline water circuit, it is anticipated that the level of the pit lake will not fluctuate significantly from its current level. The applicant has committed to manage the Union Club Pit to prevent the pit lake rising by more than 5 m (from the current elevation of 307 m Australian Height Datum (AHD) to a maximum elevation of 312 mAHD) and potentially affecting the stability of the pit walls. The applicant has stated in the application that this recommendation was endorsed by the Department of Mines, Industry Regulation and Safety (DMIRS) geotechnical review when considering the application for a Mining Proposal. The Mining Proposal was approved on 19 October 2022. Also see DMIRS comments in section 4 of this report.

The applicant has stated that the Union Club Pit acts as a groundwater sink. The depth to groundwater is currently 340 mAHD and the current pit lake elevation is 307 mAHD, therefore the pit lake therefore functions as a groundwater sink, with groundwater flowing from the local groundwater system into the lake. At the maximum elevation of the pit lake of 312 mAHD the pit will continue to act as a groundwater sink.

2.2.2 Gravity Dam

Gravity Dam is a High Density Poly Ethylene (HDPE) lined balancing dam within the existing regional saline reticulation circuit, with a nominal capacity of 16,000 m³. The dam dimensions are 54 m x 54 m with an approximate depth of 3 m. The dam is located at a high point in the landscape and provides a suitable point for reintroduction of the clarified Mt Charlotte saline dewater into the regional saline reticulation circuit. The regional saline reticulation circuit supplies saline water (from a saline borefield through a bunded pipeline corridor to the Gravity Dam at Mt Percy) for use at the Fimiston mill processing circuit. Gravity Dam is not considered a discharge point to the environment as it is HDPE lined.

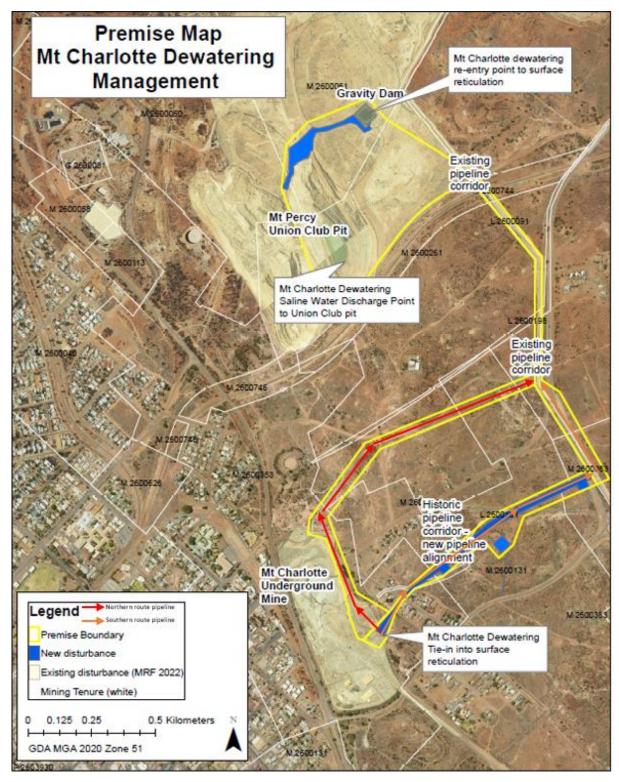


Figure 1: Pipeline route and discharge points

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 / operation which have been considered in this decision report (Table 1). 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			
Construction						
Dust	Earthworks and the installation of pipeline	Air / windborne pathway	None proposed			
Noise	Earthworks and the installation of pipeline	Air / windborne pathway	The Applicant has initiated a buyback scheme from the residential receptors in Williamstown and			
			The Applicant will also maintain a 100 m distance from the receptor and the pipeline route as required by the <i>Mining Act 1978</i> unless consent is given by the occupier. If consent is not given, then the existing northern pipeline route will be used instead of constructing the proposed southern pipeline route.			
Operation						
Noise	Water management infrastructure	Air / windborne pathway	 Minimal noise emissions are expected during operation of the proposed southern pipeline. Operation is to be compliant to the <i>Environmental Protection (Noise) Regulations 1997.</i> The pump for the system is located 			
			underground, making the system almost silent.			
Hypersaline water	Pipeline leaks	Direct discharge to land	Regular inspections of pipelines occur for leak detection.			
		iailu	Pipelines are to be located within bunded areas, which together with connected scour pits provide adequate containment in the			

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Emission	Sources	Potential pathways	Proposed controls
			event of pipeline failure.
			Leaks are identified using leak detection systems connected to the Distributed Control System (DCS) which is continuously monitored.
	Overtopping of Gravity Dam		Dam levels are controlled through the DCS with alarms and interlocks in place.
			A freeboard of 300 mm from the top of the dam embankment is maintained by the DCS.
			Should the dam experience total failure, there is an emergency catchment in the form of an overflow channel.
			Location downhill which can accommodate the full volume of the dam.
	Seepage through base of Gravity Dam	Seepage through soils	HDPE lined.
Hypersaline water with high suspended solids	Overtopping of Union Club Pit	Direct discharge to land	Water level in the Union Club Pit will be monitored by a telemetric water level meter to ensure water levels to not exceed 312 m AHD (approximately 920mbgl) which is within 5 m of the current water level within the pit.
	Seepage through base and walls of Union Club Pit	Seepage through soils	Union Club Pit is a groundwater sink. Pit lake level will be maintained below groundwater level at 312 mAHD or below.
			Groundwater level is approximately 340 mAHD or 950 meters below ground level.

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 Figure 2 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 (Williamstown)	The closest residential premises are located approximately 3 m from the proposed southern pipeline route detailed in Figure 1.
	The closest residential premises from Mt Charlotte

	underground mine is approximately 100 m to the east.		
	The closest residential premises from Union Club Pit is approximately 700 m southwest.		
	Distance from prescribed activity		
Environmental receptors	Distance from prescribed activity		
Environmental receptors Underlying groundwater (hypersaline)	Distance from prescribed activity Approximately 950 mbgl and 100,000 mg/L TDS.		



Figure 2: 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 3.

Works approval W6827/2023/1 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 i.e. Category 6 activities. 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							2 ()	
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls/comments
Construction	Construction							
	Dust		Residence close to pipeline (3 m).	Refer to Section 3.1.1	C = Slight L = Unlikely Low	Y	N/A	Providing the limited construction timeline and the small scope of construction for the pipeline bunding, scour pits and pipeline, dust disturbances to the receptors are unlikely and will be short term.
Construction of pipelines and earthworks to construct pipeline bunding and scour pits	Noise	Air / windborne pathway causing impacts to health and amenity			C = Minor L = Possible Medium Risk	Y	N/A	The applicant will obtain written approval from all residence located within 100 m of the pipeline construction as required by the <i>Mining Act 1978</i> . Due to the short construction timeframe and scope the disturbance to the residences is deemed to be minor. If written approval from the residences is not received the applicant will used the existing northern pipeline (Figure 1).
	Hydrocarbons	Spills or leaks impacting native vegetation	Native Vegetation		C = Slight L = Unlikely Low Risk	Y	N/A	N/A
Operation (including time-limited-operation	ns operations)							
	Noise	Air / windborne pathway causing impacts to health and amenity	Residences close to pipeline (closest 3 m)	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y	Condition 1	Minimal noise emissions are expected during operation of the pipelinesAn underground pump for the system will be installed underground reducing the noise generated from the system. This will be conditioned within the works approval.
Operation of pipelines transferring hypersaline water (pumps etc.)	Spills /leaks of hypersaline water	Direct discharge to land resulting in impacts to soil structure and vegetation health	Native vegetation		C = Minor L = Unlikely Medium Risk	Y	Condition 1 Condition 6	N/A
	Hydrocarbons	Spills or leaks impacting native vegetation	Native Vegetation		C = Slight L = Unlikely Low Risk	Y	N/A	N/A
Discharge of hypersaline and high TSS water from Mt Charlotte underground mine into Union Club Pit (at Mt Percy mine)	saline and high TSS otte underground mine (at Mt Percy mine) Hypersaline water with high suspended solids Over cause	Seepage through base and walls of pit resulting in groundwater mounding causing impacts to vegetation health at ground surface Seepage through base and walls of pit causing changes in groundwater chemistry	Groundwater and Native vegetation	Refer to Section 3.1.1	C = Moderate L = Rare Medium Risk	Y	Condition 6	As dewatering flows into the Union Club Pit are planned to be pumped out at the same rate into the saline water circuit, it is anticipated that the level of the pit lake will not fluctuate significantly from its current level. The applicant has committed to managing the Union Club Pit to prevent the pit lake rising by more than 5 m (from the current elevation of 307 m Australian
		Overtopping of Unio	Overtopping of Union Club Pit causing impacts to vegetation health	Native vegetation		C = Moderate L = Rare Medium Risk	Y	Condition 6 Condition 7

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Risk events	Risk rating ¹	Applicant controls	Conditions ² of works	Justification for additional				
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	sufficient?	approval	regulatory controls/comments
								sink, with groundwater flowing from the local groundwater system into the pit. At the maximum elevation of the pit lake of 312 mAHD the pit will continue to act as a groundwater sink. The applicant's control to maintain a freeboard of maximum 312 mAHD has been conditioned on the works approval. No additional regulatory controls are required.
Pumping of hypersaline water (decanted from Union Club Pit to the existing Gravity Dam (HDPE lined).	Hypersaline water	Overtopping of Gravity Dam causing impacts to vegetation health / soil	Native vegetation	Refer to Section 3.1.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 6	N/A

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

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IR-T13 Decision report template (short) v3.0 (May 2021)

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

4. Consultation

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

Table 4: Consultation summary

Consultation method	Comments received	Department response	
Application advertised on the department's website on 31 July 2023	None received	N/A	
City of Kalgoorlie- Boulder advised of proposal on 27 July 2023	None received	N/A	
DMIRS advised of proposal 27 July 2023	DMIRS replied on 31 July 2023 to confirm that the proposed activities provided to the Department appears to be consistent with activities assessed under <i>Mining Act 1978</i> .	N/A	
Residents of Georgetown advised of proposal and letters sent 31 July 2023	None received	N/A	
Applicant was provided with draft documents on 28 September 2023	See Appendix 1: Summary of applicant's comments on risk assessment and draft conditions	See Appendix 1: Summary of applicant's comments on risk assessment and draft conditions	

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 Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
- 2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
- 3. DWER 2020, Guideline: Risk Assessments, Perth, Western Australia.

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

Condition	Summary of applicant's comment	Department's response
Decision Report (Section 3.1.1)	Request to add reference to the <i>Mining Act 1978</i> to as the reason for the 100m distance requirement from occupied dwellings.	Noted and amended.
6	Applicant requests to add a note at the bottom of the table to mention that they will conduct an inspection as soon as practicable.	Added a note at the bottom of the infrastructure and equipment requirements table to include: "If circumstances at the scheduled time of inspection are identified as immediately hazardous to personnel the inspection should be undertaken as soon as practicable and the reason(s) recorded."
	Applicant has proposed to increase timeframes between inspection of the dewatering pipelines and Gravity Dam from every 12 hours to every 48 hours.	Changed pipeline inspection requirements from 12 hourly to every 48 hours. No significant change to risk due to the existing DCS leak detect and pipeline bunding.
	Applicant has proposed to undertake monthly inspections of Union Club Pit instead of a 12 hourly requirement. Applicant has mentioned that there is next to no risk of overtopping of the pit as it would take approximately 3 years of continuous running with no outputs of water for use for Union Club Pit to overflow.	Amended to monthly monitoring due to the next to no risk of overtopping of pit.
7	Applicant has requested that a different parameter is used to measure water flow quantity from Mt Charlotte Underground Mine to Union Club Pit. Applicant has proposed a monthly water balance to show water pumped in vs water pumped out of the Union Club Pit.	Condition 7 monitoring parameter requirements for the Union Club Pit has been amended to "volume of water discharged into Union Club Pit and volume of water pumped out of Union Club Pit to Gravity Dam.
	Applicant has queried Gravity Dam listed as an emission and discharge point within the Works Approval. Applicant has mentioned that the pit is HDPE lined and there is no discharge into the environment and is connected to the existing saline water network for KCGM operations.	Added as an emission point in error. As Gravity Dam is not considered a discharge point to the environment due to HDPE liner. Removed the monitoring requirements at Gravity Dam within condition 7. Gravity Dam has also been removed as a authorised discharge point from condition 5.
	Applicant has requested to remove the requirements to monitor flow rate at Gravity Dam as the volume flow rate will not monitor the dam from overflowing.	

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Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY					
Application type					
Works approval	\boxtimes				
Date application received		25/5/23			
Applicant and Premises details					
Applicant name/s (full legal name	/s)	Kalgoorlie Consolidated Gold Mines Pty Ltd			
Premises name					
Premises location		Parts of M26/60, M26/61, M26/131, M26/261 M26/383 and M26/353 (shape file provided in RFI; LO verified that premises all within listed tenements)			
Local Government Authority		City of Kalgoorlie Boulder			
Application documents					
HPCM file reference number:		Zip file DWERDT783620; expanded in DER2023/000350			
Key application documents (additional to application form):		 1 - Tenure and company relational details 1C - Letter of authority 2A - Premises map showing boundary 3A -Commissioning plan 3B - Proposed activities 5 - Other approvals 6A - Emissions and discharges 7 - siting and location 8 - risk assessment and supporting docs 			
Scope of application/assessme	nt				
Summary of proposed activities or changes to existing operations.		 Construction of new pipelines for mine dewater in 2 stages: From Mt Charlotte underground into the reticulated saline water circuit saline network (reused in mine and processing plant) From the saline water circuit to Union Pit, for settling before returning to the saline water circuit via the gravity dam (existing) And time limited operation of these pipelines. 			

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Proposed production or design capacity
Category 6: Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore.	

Legislative context and other approvals						
Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes □ No ⊠	Referral decision No: Managed under Part V Assessed under Part IV				
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes □ No ⊠	Ministerial statement No: EPA Report No:				
Has the proposal been referred and/or assessed under the EPBC Act?	Yes □ No ⊠	Reference No:				
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ⊠ No □	Mining lease / tenement ⊠ Expiry: earliest is M26/20 - 25/7/26				
Has the applicant obtained all relevant planning approvals?	Yes □ No □ N/A ⊠	If N/A explain why? Mining tenure				
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes □ No ⊠	'Minor clearing within rehabilitation is approved under DMIRS Mining Proposal RegID 110768 (less than 10ha/tenement/yr)' This works approval will not assess or				
		authorise clearing.				
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes □ No ⊠	Application reference No: N/A Licence/permit No: N/A				
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ⊠ No □	Application reference No: Licence/permit No: GWL63553 – soon to be amalgamated into GWL63555.				
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ⊠ No □	Name: Goldfields groundwater area Type: Proclaimed Groundwater Area Has Regulatory Services (Water) been consulted? Yes □ No ☒ N/A □ No expected impact				
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes □ No ⊠					

Is the Premises subject to any other Acts or subsidiary regulations (e.g. Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx)	Yes ⊠ No □	Mining Act 1978
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes ⊠ No □	Environmental Protection (Goldfields Residential Areas) (Sulfur Dioxide) Policy Order (No. 2) 2003 – not relevant
Is the Premises subject to any EPP requirements?	Yes □ No ⊠	
Is the Premises a known or suspected contaminated site under the Contaminated Sites Act 2003?	Yes ⊠ No □	Possibly contaminated – investigation required: CS 3722 (13/09/2010) CS 3720 (13/09/2010) (only a tiny corner intersects the premises boundary)