Government of Western Australia
Department of Environment Regulation

Decision Document

Environmental Protection Act 1986, Part V

Proponent: Water Corporation

Licence: L8703/2012/1

Registered office: 629 Newcastle Street
LEEDERVILLE WA 6007

Premises address: Williams Wastewater Treatment Plant
Via Cemetary Road
WILLIAMS WA 6391
Being Lot 501 on Plan 66270

Issue date: Friday, 18 January 2013

Commencement date: Monday, 21 January 2013

Expiry date: Sunday, 20 January 2036

Decision

Based on the assessment detailed in this document the Department of Environment Regulation (DER), has decided to issue an amended licence. DER considers that in reaching this decision, it has taken into account all relevant considerations.

Decision Document prepared by: Caroline Conway-Physick
Licensing Officer

Decision Document authorised by: Caron Goodbourn
Delegated Officer

Contents

1 Purpose of this Document

This decision document explains how DER has assessed and determined the application and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986.* Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

2 Administrative summary

Administrative details		
Application type	Works Approval ☐ New Licence ☐ Licence amendment ☒ Works Approval amendment ☐	
Activities that cause the premises to become prescribed premises	**Category number(s)** 54 – Sewage facility	**Assessed design capacity** 150 cubic metres per day
Application verified Application fee paid	Date: N/A Date: N/A	
Works Approval has been complied with Compliance Certificate received	Yes☐ No☐ N/A☒ Yes☐ No☐ N/A☒	
Commercial-in-confidence claim	Yes☐ No☒	
Commercial-in-confidence claim outcome	N/A	
Is the proposal a Major Resource Project?	Yes☐ No☒	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*?	Yes☐ No☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Is the proposal subject to Ministerial Conditions?	Yes☐ No☒	Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the *Environmental Protection Act 1986*)?	Yes☐ No☒ Department of Water consulted Yes ☒ No ☐	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes☒ No☐ If Yes include details of which EPP(s) here: 'Environmental Protection (South West Agriculture Zone Wetlands) Policy 1998'		
Is the Premises subject to any EPP requirements? Yes☐ No☒ - Policy suspended The premises falls within an 'Environmental Protection (South West Agriculture Zone Wetlands)' area. The revocation of the related policy for this area was published in the Government Gazette on 20 November 2015.		

3 Executive summary of proposal and assessment

The Williams Wastewater Treatment Plant (WWTP) is owned and operated by Water Corporation and is located approximately 160 km south east of Perth, within Town Planning Scheme No. 2, 'public purpose' zoned area. The premises is also surrounded by 'Rural', 'Rural Residential' and 'Industrial' zoned land use.

The WWTP includes four oxidation ponds to ensure biochemical oxygen demand (BOD) reduction, pathogen removal and disinfection (chlorination); and a 13 ML storage pond. Two primary ponds, each with an approximate capacity of 1,940 m^3 connect in parallel and feed into the two secondary ponds which are connected in series. Each secondary pond has an approximate capacity of 1,794 m^3. This capacity is estimated to be sufficient until 2020. The WWTP does not have a screen to remove non-biodegradable wastes entering the treatment system. Rags and rubbish are collected by operators, stored in bins and disposed of at an appropriate landfill. Treated wastewater is then discharged from the premises via a chlorination dosing unit to the Shire storage pond ('Railway Dam').

The soil profile on this site consists of lateritic sandy gravel overlying variably laterised colluvial and residual clayey sand and sandy clay soils. These soils are typically underlain by highly weathered granite rock.

A desk top assessment of groundwater bore (Site Id. 20046841) approximately 742 m west of the premises boundary identifies depth to groundwater at approximately 8.53 mBGL. The groundwater forms part of the Peel Estuary, Murray River Catchment Basin. The Williams River is approximately 996 m north west of the premises boundary.

The closest sensitive residential receptor is approximately 554 m north west of the premises boundary ('rural residential' zoned area). The Town Planning Scheme No. 2 has a proposed 'Plant Odour Buffer Special Control Area' identified (minimum 300 m buffer currently).

The construction phase from the works is not expected to cause any potential emission issues from the installation of equipment at the premises and minor excavations from site construction. The primary emission expected during operation is odour.

This decision document is the result of an amendment sought by the Licensee to include a works upgrade to the premises for the inclusion of a copper dosing unit and aerators. The works upgrade is to run concurrently with the operation of the premises. The Licence has also been updated to latest version.

4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Interpretation	L1.1.1 – L1.1.4	**Construction and operation** Conditions 1.1.1 – 1.1.4 require that terminology used within the Licence is referenced to the appropriate definitions where applicable, and that any reference to a standard or guideline is to the most current version of that standard or guideline. Terminology has been updated to reflect the new format Licence. A works upgrade has been incorporated into the Licence amendment for the premises. Operation is subject to the general provisions of the *Environmental Protection Act 1986*. Category 54 activities fall under Schedule 1 Part 1 of the *Environmental Protection Regulation 1987* and is subject to Licence.	Genral provisions of the *Environmental Protection Act 1986*.
General conditions	L1.2.1-L1.2.8	**Construction and operation** Conditions 1- 5 of the old Licence have been removed as these conditons relate to the commissioning phase of the construction period for the new premises under the works approval. The premises has completed all works and has had a licence for full operation since 2012. Condition 1.2.1 is an administrative condition requiring that all pollution and monitoring equipment is maintained and operated as per the conditions of the new version Licence. Condition 1.2.2 includes an administrative condition for the management of waste spills outside of any containment infrastructure as defined within condition 1.3.1 and 1.3.3, and	Application supporting documentation. General provisions of the *Environmental Protection Act 1986*.

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		replaces condition 7 of the old version Licence. Condition 1.2.3, Table 1.2.1 has been included as an administrative condition which defines the supporting documentation relevant to the proposed works upgrade, as submitted by the Licensee. Condition 1.2.4, Table 1.2.2 and condition 1.2.5 defines the specifications for the design and construction of the premises upgrade. Condition 1.2.6 requires the Licensee to list and report any departures that may be undertaken during the course of the works upgrade to the premises. Condition 1.2.7 requires the Licensee to submit a compliance document on completion of the works upgrade of the premises, and prior to the operation of the new equipment. Condition 1.2.8 defines the detail required within the compliance document.	
Premises operation	L1.3.1-L1.3.6	**Construction and operation** Condition 1.3.1 replaces condition 9 of the old Licence version. Condition 1.3.2 is an administrative condition which defines the appropriate approach to be taken in the event of waste received to the premises that is not permissible, as defined within condition 1.3.1, 'Waste acceptance'. Condition 1.3.3 , Table 1.3.2 'Waste processing' defines the process requirements for sewage waste received. Condition 1.3.3 replaces condition 11 of the old Licence version.	General provisions of the *Environmental Protection Act 1986.* Application supporting documentation. *Environmental*

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		Condition 1.3.4, Table 1.3.3, defines the storage and treatment requirements for waste material within the containment infrastructure stated in the table. The table incorporates the upgrades to the premises for the liquid chlorine dosing unit and the two aerators. Condition 1.3.5 defines the management of the wastewater treatment vessels at the premises. A definition has been placed within section 1 of the Licence. This condition replaces condition 6 of the old version Licence. Condition 1.3.6 includes an administrative condition defining the necessary minimum security measures required for the premises.	*Protection (Controlled Waste) Regulations 2004* *Environmental Protection (Unauthorised Discharges) Regulations, 2004.*
Emissions general	L2.1.1	**Construction and operation** Condition 2.1.1 requires the recording and investigation of any exceedences of any descriptive or numerical limit as defined within Section 2 of the amended Licence.	N/A
Emissions to land including monitoring	L2.2.1 L3.2.1	**Operation** Conditions 2.2.1 and 3.2.1 replaces condition 10 of the old Licence version. An administrative change has been incorporated into condition 2.2.1 with the stipulation of the emission point reference number in accordance with Water Corporation references. Condition 3.2.1 'Monitoring of emissions to land' replaces conditions 14 and 19 of the old Licence version.	Application supporting documentation
Odour	-	**Construction and operation** <u>Emission Description</u> *Emission:* Odour from the plant as the result of the wastewater treatment process. *Impact:* Interference with the health, welfare, convenience, comfort or amenity of sensitive	General provisions of the *Environmental Protection Act 1986*.

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		residential receptors. Depth to groundwater at approximately 8.53 mBGL. The groundwater forms part of the Peel Estuary, Murray River Catchment Basin. The Williams River is approximately 996 m north west of the premises boundary. *Controls:* The premises has a buffer of approximately 300 m around the premises boundary with a proposed Plant Odour Buffer Special Control Area' identified within the Town Planning Scheme No. 2 amendment' (minimum 300 m buffer currently). The closest sensitive receptor is approximately 554 m west of the premises. The premises is also surrounded by 'Rural', 'Rural Residential' and 'Industrial' zoned land use. <u>Risk Assessment</u> *Consequence:* Insignificant *Likelihood*: Possible *Risk Rating:* Low <u>Regulatory Controls</u> The premises odour risk is considered low risk and is sufficiently addressed under section 49 of the *Environmental Protection Act 1986, Environmental Protection (Unauthorised Discharges) Regulations 2004* and the general provisions of the *Environmental Protection Act 1986*. No additional conditions have been considered for the prescribed premises Licence through this amendment process. Condition 8 of the old Licence version has been removed from the Licence. <u>Residual Risk</u> *Consequence*: Insignificant	Odour Assessment Standards for Management and Enforcement Actions Policy, 2010.

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		Likelihood: Possible *Residual Risk Rating:* Low	
Monitoring general	L3.1.1-L3.1.4	**Operation** Condition 3.1.1 requires the sampling and preservation of all specified monitoring required within section 3 to be undertaken in accordance with the relevant Australian/ New Zealand standard specified. Condition 3.1.1 (a) replaces condition 3 and 15, and 3.1.1(d) replaces condition 4 and 16 respectively of the old Licence version. Condition 3.1.2 includes an administrative condition which defines the monitoring frequencies identified within the Licence. Conditions 3.1.3 and 3.1.4 are administrative changes that require the Licensee to ensure that all monitoring equipment is calibrated appropriately and where that is not possible bring this to the attention of the CEO.	N/A
Monitoring of inputs and outputs	L3.3.1	**Operation** <u>Emission Description</u> *Emission:* Discharge of liquid chlorine. *Impact:* Interference with the health, welfare, convenience, comfort or amenity of sensitive residential receptors or impacts from pollution or environmental harm to land or groundwater via irrigation of treated wastewater. *Controls:* The proponent stores low volumes of liquid chlorine at the premises within an enclosed, bunded hardstand area. The chlorine dosing unit has been calibrated to ensure that dosing occurs between 0.2-2mg/L. The premises has a buffer of approximately 300 m around the premises boundary with a proposed Plant Odour Buffer Special Control Area' identified within the Town Planning Scheme No. 2 amendment '(minimum 300 m buffer currently).	N/A

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Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		The closest sensitive receptor is approximately 554 m west of the premises. The premises is surrounded by 'Rural', 'Rural Residential' and 'Industrial' zoned land use. Risk Assessment *Consequence:* Insignificant *Likelihood*: Possible *Risk Rating:* Low Regulatory Controls The premises odour risk is considered low risk and is sufficiently addressed under section 49 of the *Environmental Protection Act 1986* during operation of the premises. Condition 8 of the old Licence version has been removed from the Licence. Condition 3.3.1 requires monitoring of the dosing of chlorine at the premises to assist in ensuring residual chlorine passed discharged to the Shire storage pond is sufficiently diminished over time. Residual Risk *Consequence*: Insignificant *Likelihood:* Possible *Residual Risk Rating:* Low Condition 3.3.1 requires the monitoring of all waste inputs and outputs from the premises. Condition 3.3.1 replaces condition 13 of the old Licence version.	

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Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Improvements	L4.1.1	**Construction and operation** Emission Description *Emission:* Discharge of copper onto land via irrigation (reuse of treated wastewater) and perculation to groundwater (breach of pond intregrity liner/ irrigation). *Impact:* Impacts from pollution or environmental harm to land or groundwater via irrigation of treated wastewater or breach of pond liner intregity resulting in elevated copper levels in the environment, and negative impacts of copper on aquatic ecosystems. *Controls:* The MSDS supplied by the proponent for Copper ethanolamine chelate complex identifies low toxicity as opposed to copper-sulphate, which is more commonly using in copper dosing units used to treat algae. The liquid dosing unit is a bunded, fully enclosed, self-contained unit which will house up to 1,000 L at any given time. The bunded enclosed unit is able to contain up to 110% of its volume in the event of any spill occurring. The maximum liquid copper dose proposed for the WWTP is 1 mg/L, with an annual contaminant load of 3.05 kg/ha expected. Risk Assessment *Consequence:* Minor *Likelihood*: Possible *Risk Rating:* Moderate Regulatory Controls Improvement conditions 'IR1' has been included requiring the determination of current pond liner integrity and design for the storage pond (pond 4) at the premises, and 'IR2' for remedial action requirements in the event that liner integrity at pond 4 is found to be compromised/ insufficient. The improvement conditions ('IR1/ IR2') will supply, currently unknown, additional	Application supporting documentation General provisions of the *Environmental Protection Act 1986.* *Contaminated Sites Series guidelines, Assessment levels for soil, sediment and water*

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Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		information on the design of storage pond 4 , groundwater directional flow and the potential risk of contamination of groundwater as a result of a breach of clay liner integrity. Groundwater within the area is approximately 8.53 mBGL. Impacts from contaminant loading to land (via irrigation) has not been risk assessed by the proponent against any relevant guidance or standards to determine potential environmental risk. Consultation with Department of Water identified no further requirements however recommended that a monitoring programme be implemented to be able to assess any potential impact to the environment from the proposed upgrade. Additional monitoring of parameters has been incorporated within condition 3.2.1 of the Licence. The groundwater forms part of the Peel Estuary, Murray River Catchment Basin. The Williams River is approximately 996 m north west of the premises boundary. According to Department of Water (Waterways and wetland, Perth-Peel regional water plan background paper, September 2009, pg. 12), “The Peel Inlet-Harvey estuarine system has significant ecological, recreational, commercial and scientific values. The estuary supports the largest professional and recreational estuarine fishery in the state.” In addition, it is considered that this system is under considerable stress from human activity. <u>Residual Risk</u> *Consequence*: Insignificant *Likelihood:* Possible *Residual Risk Rating:* Low	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Information	L5.1.1-L5.1.3 L5.2.1-L5.2.3 L5.3.1	**Operation** Conditions 5.1.1 is an administrative condition within all new Licence versions which requires how the recording and reporting of all processes and activities undertaken during operation should be reported recorded and stored. Condition 5.1.2 relating to the compilation and submission of an Annual Audit Compliance report replaces condition 21 of the old Licence version. Condition 5.1.3 regarding a complaints management system replaces condition 20(c) of the old Licence version. Condition 5.2.1 'Reporting' replaces conditions 18, 20(a) and 20(d) of the old Licence version. Condition 5.2.2 replaces conditions 20(b) and 20(e) of the old Licence version. Condition 5.2.3 is an administrative condition which also incorporates condition 17 of the old Licence version. Condition 5.3.1 'Notification requirements' replaces condition 12 of the old Licence version.	N/A
Licence Duration	N/A	The duration of the Licence has been extended through this amendment process in accordance with DER guidance statement, 'Licence duration, May 2015'. The current Licence expiry date (20 January 2018) has been extended to 20 January 2036.	N/A

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
16/03/2016	Application referred to interested parties listed	Referred to Department of Health (DoH), Clemencia Rodriquez. DoH requested, via email on 17/3/2016, the MSDS for the Copper ethanolamine chelate complex. MSDS forwarded through to DoH. DoH confirmed via a letter received on 31/3/2016 that they have no objection to the proposal. A copy of the letter has been forwarded through to Water Corporation (Danielle Berry, 31/3/2016).	Proponent is to note that DoH require: • Compliance with the ANZECC Guidelines (2000) trigger value for copper; and • Upgrade of the Williams Recycling Scheme Process Control Table to reflect upgrade.
16/03/2016		Referred to Department of Water (DoW). Response received from Catherine Taylor, 29/3/2016. Recommendation of "the monitoring program conditions be of sufficient rigour to characterise any impacts of the new water treatment process to the receiving environment".	The amended Licence proposes the additional inclusion of monitoring parameters at the premises for chlorine and copper. Annual assessment of monitoring data may require the additional installation and operation of groundwater monitoring bores at the premises, for ongoing assessment of any potential impacts to groundwater should monitoring parameters be found to be operating at elevated levels.
31/03/2016	Proponent sent a copy of draft instrument	Response received from Danielle Berry, via email, on 21/04/2016. Comments included: 1) Remove Septage waste K210 and Grease waste K110. The pond system has not been designed to accept septage and/or grease waste. 2) Please remove row 1 – 'Inlet works'; there are no grit removal or screening	Changes to the draft document, in response to each comment received, include: 1) K210 and K110 removed. 2) Row 1 removed.

Date	Event	Comments received/Notes	How comments were taken into consideration
		facilities at the plant. 3) The requirement to maintain a depth of 1.5m and freeboard of 0.5m in both the primary and secondary ponds will result in ongoing non-compliances and should be removed. The table below shows the design parameters for the ponds. The freeboard for the primary ponds is between 0.48 – 0.51m; and for the secondary ponds is 0.4 – 0.5m. The design depth of the primary ponds is 1.44m. The ponds have been, and will continue to be visually monitored for any substantial decrease in freeboard and action taken to prevent overtopping or overflow. 4) Emission point reference S7012977 Change to S7013082. 5) "Monitoring point reference Sampling point from Effluent Pressure Main Discharge Chamber (SP Williams WWTP 2 Post Chlorination)". 6) REMOVE formal requirement to monitor and report the liquid chlorine concentration from the Chlorination facility. The chlorination facility is monitored frequently for operational control and adjusted as necessary. There are no environmental implications unless the discharge is to a waterway and the chlorine concentration is high. The likelihood of this is minimal. There are no other licences in the region that include this requirement. The rationale for monitoring chlorine concentrations is: Condition 3.3.1 requires monitoring of	3) Details have been updated to the new information provided w.r.t pond depth and freeboard ability for each of the ponds, as defined in the table provided by the Licensee. 4) Changed as defined. 5) Changed as defined. 6) The inclusion of any additional parameters (copper) into the facility operation requires monitoring for potential risks from emissions. Treated wastewater will be discharged from the premises for reuse by the Shire, post chlorination and copper dosing treatment. Monitoring for chlorine and copper has been incorporated into the Licence through condition 3.2.1 and 3.3.1. Condition 3.3.1 requires the monitoring of liquid chlorine dosing (e.g.: 0.2-2 mg/L) not residual chlorine which

Date	Event	Comments received/Notes	How comments were taken into consideration
		the dosing of chlorine at the premises to assist in ensuring residual chlorine passed discharged to the Shire storage pond is sufficiently diminished over time. Monitoring of the dosage at the chlorination unit will provide no indication of residual chlorine discharged to the storage pond and/or the storage tank. When the Shire irrigates over the summer months the wastewater used from the storage tank is sampled for E Coli and chlorine residual. The Shire contacts the Corporation if the results are out of spec and investigations/modifications are made.	can only be effectively monitored at the Shire ponds, which is outside of the prescribed premises boundary.
		7) IR1 Remove – groundwater directional flow and depth would only need to be completed if groundwater monitoring bores were to be installed (see rationale below for not installing bores). IR2 – Retain IR3 Remove – The low risk to environment (groundwater) from wastewater contaminants (including copper) does not justify expenditure on monitoring bore infrastructure and sampling, because: 1) Copper is dosed in low concentrations. Copper dosage is to prevent or minimise blooms of cyanobacteria that can cause skin irritation and more significant problems at very high concentrations. A copper chelate product is dosed at the inlet to pond 2 at a concentration of 0.5mg/L	7) 'IR1' removed; 'IR2' retained, adapted and renumbered as 'IR1'; 'IR3' removed with a consideration stated within the decision document, page 14, in relation to Department of Water recommendations. Inclusion of a new 'IR2', dependent on the outcome of the renumbered 'IR1'. Total and filtered copper has been included within Table 3.2.1 of the Licence.

Date	Event	Comments received/Notes	How comments were taken into consideration
		(the effective Cu2+ concentration is around 0.2mg/L). The Australian drinking water guideline (ADWG) health limit for copper is 2mg/L. The short and long-term ANZECC trigger values for irrigation are 5mg/L and 0.2mg/L respectively. These have been developed to minimise the build-up of contaminants in surface soils during the period of irrigation, and hence prevent direct toxicity of contaminants to standing crops. 2) Most copper is retained within the treatment ponds. Sampling and analysis for copper is undertaken at the discharge from the WWTP, both pre and post chlorination for total and filtered copper concentrations, with results monitored closely (suggest that this could be added to sample requirements in Table 3.2.1). The results from the post chlorination sample point are shown in the table below and demonstrate that the majority of copper that is dosed is retained within the WWTP ponds. Data for similar plants with copper dosing facilities (e.g. Exmouth, Carnarvon) point to the same conclusion; these can be provided if required.	
	Revised draft sent to proponent for comment	Comments received from Danielle Berry via email on 16 May 2016 on two additional areas of the Licence conditions:	

Date	Event	Comments received/Notes	How comments were taken into consideration
		1) Query if it's valid to require monitoring of kg/ha/year for nutrients. The Corporation supplies wastewater to the Shire for irrigation of their facilities in line with Department of Health approvals. The irrigation site(s) are not prescribed premises and probably shouldn't be included in licence conditions? 2) Chlorine dosing concentrations are not measured at the chlorination facility at the Williams WWTP and the unit would have to be calculated by the weight of the tanks converted to mg/L. We believe there is no value in doing this for the sole purpose of reporting. The total and residual chlorine levels are monitored on a monthly basis at the final effluent sample point and this is more appropriate than requiring reporting of the dose rate that can and does change based on the chlorine demand.	1) Amended to reflect kg/year. 2) No change. Dosing rates are expected to be within standard dosing requirements as defined by Deprtment of Health and Australian Standards. DER requires that this as the premises discharges chlorinated wastewater to land. Calculated levels would be acceptable for reporting purposes.

6 Risk Assessment

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 1: Emissions Risk Matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High