



Amendment Notice 2

Licence Number L8675/2012/1

Licensee Millennium Minerals Limited

ACN 003 257 556

File Number: DER2014/002927

Premises Nullagine Gold Operation – Golden Eagle Project
Mining Tenements M46/186, M46/300, M46/267,
M46/432, M46/264, M46/436, M46/444, M46/265,
M46/138, M46/443, M46/266, M46/445, P46/1760,
M46/261, M46/446, M46/430, P46/1759, M46/262,
M46/272, M46/447, L46/45, M46/441, M46/3, M46/164,
L46/88, M46/64, M46/98, M46/302, M46/431, M46/282,
M46/273, M46/182, M46/199, M46/225, M46/277,
M46/146, M46/198, M46/276, M46/275, L46/105,
M46/274, M46/434, M46/433, M46/200, M46/163,
P46/1758, M46/129, P46/1757, L46/98, M46/47,
P46/1707, G46/2, L46/89, L46/90, L46/91, L46/92,
L46/115, L46/33, M46/50, M46/57, M46/166, M46/167,
M46/170, M46/187, M46/189, M46/192, M46/263,
M46/278, M46/279, M46/283, M46/303, M46/426,
M46/427, M46/428, M46/429, M46/442, M46/448,
P46/1670, P46/1671, P46/1672, P46/1673, P46/1674,
P46/1675, P46/1676, P46/1703, P46/1704, P46/1705,
P46/1706, P46/1761, P46/1804, P46/1823, P46/1824,
P46/1855, and P46/1856

NULLAGINE WA 6758

Date of Amendment 17/01/2019

Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* (EP Act) as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

Alana Kidd

Manager, Resource Industries

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

Definitions and interpretation

Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
AER	Annual Environment Report
Amendment Notice	refers to this document
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 33 Cloisters Square PERTH WA 6850 info@dwer.wa.gov.au
cfu/100 mL	colony-forming units per 100 millilitres
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this amendment
kL	kilolitres
Licensee	Millennium Minerals Limited
m ³	cubic metres
m ³ /day	cubic metres per day

Term	Definition
mbgl	metres below ground level
Mtpa	million tonnes per annum
Occupier	has the same meaning given to that term under the EP Act
Prescribed Premises	has the same meaning given to that term under the EP Act
Premises	refers to the premises to which this Amendment Notice applies, as specified at the front of this Amendment Notice
PDWSA	Public Drinking Water Source Area
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
TSF	Tailings Storage Facility
UDR	<i>Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA)</i>
WWTP	Wastewater Treatment Plant

Amendment Notice

This amendment is made pursuant to section 59 of the EP Act to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

This notice is limited only to an amendment to category 85 activities from the Existing Licence and Amendment Notice 1. No changes to the aspects of the Existing Licence relating to category 7 and 89 have been requested by Millennium Minerals Limited (Licensee).

The following guidance statements have informed the decision made on this amendment:

- *Guidance Statement: Regulatory Principles* (July 2015);
- *Guidance Statement: Setting Conditions* (October 2015);
- *Guidance Statement: Decision Making* (February 2017);
- *Guidance Statement: Risk Assessment* (February 2017); and
- *Guidance Statement: Environmental Siting* (November 2016).

Amendment description

On 19 July 2018, the Licensee submitted an application (MML, 2018a) to DWER to amend the Nullagine Gold Operation – Golden Eagle Project (Premises) Existing Licence and Amendment Notice 1 for L8675/2012/1.

The Licensee has applied for the following changes:

1. Addition of category 73, with a Premises capacity of 1,347,800 litres (L) or 1,347.8 cubic metres (m³);
2. Increase capacity of category 85 from 50 m³ per day (m³/day) to 80 m³/day; and
3. Construction of the Tailings Storage Facility (TSF) 2 Cell 1 lift.

On 13 December 2018, the Licensee submitted (MML, 2018b) a formal notification to DWER to remove the TSF2 Cell 1 Stage 1 raise from the amendment application.

Table 2 outlines the proposed design capacity changes to the Existing Licence.

Table 2: Proposed design capacity changes

Category	Current design capacity	Proposed design capacity	Description of proposed amendment
73	N/A	1,347.8 m ³ in aggregate	1,347.8 m ³ in aggregate being stored on the Premises, triggers category 73 under Schedule 1 of the <i>Environmental Protection Regulations 1987</i> (EP Regulations) (more than 1,000 m ³ in aggregate)
85	50 m ³ /day	80 m ³ /day	The Licensee has installed a new wastewater treatment plant (WWTP) at the Premises, which has a design capacity of 80 m ³ /day.

1. Addition of category 73

The Licensee has requested that category 73 be added to the Existing Licence as the Premises contains the following bulk storage of chemicals as detailed in Table 3 and at the locations shown in Figure 1:

Table 3: Bulk chemicals stored at the Premises

Location	Infrastructure	Capacity
Fuel farm	6 tanks x 110,000 L	660,000 L
Cyanide tanks	2 tanks x 165, 000 L	330,000 L
Bartons + Rivet fuel tank	2 tanks x 110,000 L	220,000 L
Caustic Tank		48,000 L
HCL Tank		44,800 L
Gas Cylinders	6 tanks x 7,500 L	45,000 L
Total		1,347,8000 L

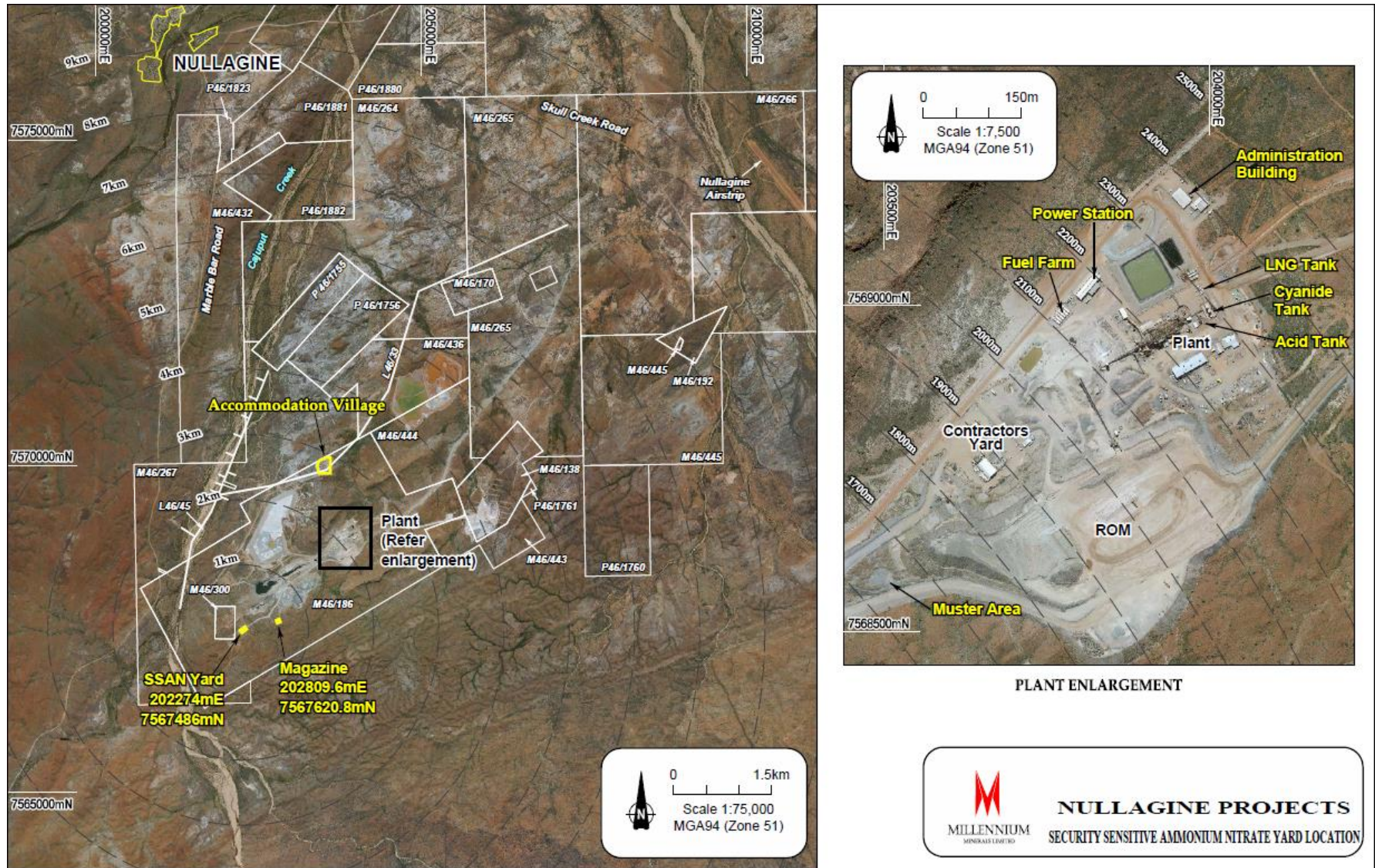


Figure 1: Location of the bulk storage of chemicals at the Premises

2. Increase in capacity of category 85

The Existing Licence allows for the treatment of 50 m³/day of sewage effluent from the onsite WWTP with the treated effluent disposed of into the rock ring of TSF1. The Licensee has installed (July 2017) a fully contained/semi buried biomax system (Figure 2), which has a capacity of 80,000 L per day. The WWTP is divided into five principal chambers:

- Anaerobic chamber - anaerobic treatment;
- Aerobic chamber - aerobic treatment;
- Clarification chamber - sludge settlement and removal;
- Disinfection chamber - contact time with chlorine; and
- Pumpout chamber - discharge to disposal system.



Figure 2: Biomax WWTP installed at the Premises

The water quality criteria is shown in Table 4 and Table 5 shows the monitoring results of the WWTP since it was installed in July 2017.

Table 4: WWTP water quality criteria (MML, 2018a and 2016-2017 AER)

Parameter	Biomax effluent quality	Guideline*
pH	6.5 – 8.5 pH units	
Biochemical Oxygen Demand	<20 mg/L	20-30 mg/L
Total Nitrogen	<20 mg/L	20-50 mg/L
Total Phosphorus	<10 mg/L	6-12 mg/L
Total Suspended Solids	<30 mg/L	25-40 mg/L
<i>E.coli</i>	<10 org/100mL	10 ⁵ – 10 ⁶ org/100mL

* NWQMS, 1997

Table 5: Monitoring results for the WWTP (2016-2017 AER)

Parameter	Unit	Date Sampled					
		17/07/17	26/07/17	14/08/17	21/08/17	11/09/17	27/09/17
pH	pH units	8.13	7.57	8.14	7.71	7.69	7.78
Biochemical Oxygen Demand	mg/L	26	60	10	49	55	20
Total Suspended Solids	mg/L	30	36	7	56	63	55
Total Nitrogen	mg/L	45.4	27	12.8	24.6	18.2	8
Total Phosphorus	mg/L	6.22	6.35	10.6	8.41	6.45	4.51
<i>E.coli</i> *	org/100 mL	390,000	360,000	24,000	3,100	51,000	630

*The commissioning of the new WWTP in July 2017 has correlated with a drop in *E.coli* from 1,800,000 cfu/100 mL (old WWTP) to 630 cfu/100 mL. Further discussions with the manufacturer to provide a tertiary treatment at the end of the clarification tanks is currently being investigated to further reduce the *E.coli* of the final effluent output (2016-2017 AER).

Other approvals

The Licensee has provided the following information relating to other approvals as outlined in Table 6.

Table 6: Relevant approvals

Legislation	Number	Approval
<i>Mining Act 1978</i>	Reg ID 68157	Millennium Minerals Limited Nullagine Gold Project Mine Closure Plan May 2017.
	Reg ID 58774	Nullagine Gold Project Mining Proposal Tailings Storage Facility 2 Mining Tenements M46/436, M46/265 & M 46/444.
	CPS 4976/4	Native Vegetation Clearing Permit.
<i>Rights in Water and Irrigation Act 1914</i>	GWL161702(9)	Groundwater licence - authorises the abstraction of 1,618,000 kilolitres (kL) for dewatering for mining purposes; dust suppression for earthworks and construction purposes; exploratory drilling operations; mineral ore processing and other mining purposes; and mining camp purposes.
	GWL178377(1)	Groundwater licence -authorises the abstraction of 100,000 kL for dust suppression for mining purposes.
	SWL176665(3)	Surface water licence- authorises the abstraction of 80,000 kL from Beaton's Creek dam for dust suppression for earthworks and construction purposes; and earthworks and construction purposes. The Licensee has stated that no water was abstracted under this licence during the reporting period (1 July 2016 – 30 June 2017).
<i>Dangerous Goods Safety Act 2004</i> and regulations	DCS021562	Dangerous Goods Site Licence.

Amendment history

Table 7 provides the amendment history for L8675/2012/1.

Table 7: Licence amendments

Instrument	Issued	Amendment
L8675/2012/1	24/12/2013	Licence amendment to allow discharge of treated effluent to TSF1.
L8675/2012/1	3/07/2014	Licence amendment to allow disposal of tyres on site.
L8675/2012/1	23/10/2014	Licence amendment to increase production capacity from 1.5 million tonnes per annum (Mtpa) to 2 Mtpa.
L8675/2012/1	27/08/2015	Licence amendment to add improvement conditions requiring a Corrective Action Plan to improve the groundwater monitoring and the development of groundwater limits. Update to licence under Departmental reform program.
L8675/2012/1	19/11/2015	Licence amendment to authorise TSF1 Stage 4 lift. Improvement conditions updated. Groundwater limits applied.
L8675/2012/1	14/03/2017	Amendment Notice 1 Licence amendment to authorise the operation of TSF2 with specific infrastructure requirements.
L8675/2012/1	17/01/2019	Amendment Notice 2 Licence amendment to include category 73 and increase the design capacity of category 85 from 50 to 80 m ³ /day.

Location and receptors

Table 8 lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 8: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Closest residential zoned premises (zoned residential Shire of East Pilbara Planning Scheme No. 4)	The residential area of Nullagine is approximately 7 km to the north-west of TSF2.

Table 9 lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 9: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
Public Drinking Water Source Area (PDWSA)	<p>The boundary of the Priority 1 PDWSA – Nullagine Water Reserve is located approximately 3.5 km north-west of TSF2.</p> <p>The boundary of the Priority 3 PDWSA – Nullagine Water Reserve is located approximately 4.5 km north-west of TSF2.</p>
Declared Rare Flora	There are no Declared Rare Flora at the Premises.
Priority Ecological Communities	The Priority 3(iii) Ecological Community of the Stony saline plains of the Mosquito Land System (PEC, 2017) is located within the Premises boundary, but approximately 5 km from TSF2.
<p>Groundwater and groundwater salinity</p> <p>Groundwater salinity (Total Dissolved Solids) at TSF2 is 7,000 – 14,000 mg/L which is considered saline (Salinity status classifications).</p> <p>The groundwater contours suggest that the groundwater beneath TSF2 is flowing towards the north of the facility, however the Mosquito Creek Formation has low permeability.</p>	Groundwater is approximately 20 - 25 metres below ground level (mbgl).
<i>Rights in Water and Irrigation Act 1914</i>	Nullagine Gold is located within the Proclaimed Pilbara Groundwater Area and Proclaimed Pilbara Surface Water Area.
<p>Watercourses</p> <p>Many of the creeks in the region are ephemeral watercourses which are typically dry.</p> <p>Surface water will follow the existing natural watercourses along the eastern and western sides of TSF2, away from the TSF2 area, releasing to the north into Cajuput Creek.</p>	<p>Cajuput Creek is located approximately 1.5 km downslope and to the west of TSF2.</p> <p>Nullagine River is located approximately 5.5 km north-west of TSF2.</p> <p>Five Mile Creek is located approximately 6 km east of TSF2.</p>

Decision – Inclusion of category 73

The Licensee holds a Dangerous Goods Site Licence (DGS021562), which was issued in accordance with the *Dangerous Goods Safety Act 2004* and regulations (MML, 2018c).

Category 73 with a design capacity of 1,347.8 m³ has been added to the Licence, in particular to new condition 1.3.14 which specifies design capacity limits for the Licence.

No specified conditions relating to the bulk storage of chemicals are to be applied to the Licence

as the Delegated Officer considers the general provisions of the EP Act, *Environmental Protection (Unauthorised Discharges) Regulations 2004*, *Dangerous Goods Safety Act 2004* and associated regulations sufficient in terms of regulatory controls.

Decision – Operation of WWTP

The new biomax WWTP was constructed in July 2017 and is operational. The Delegated Officer has determined that the key emissions associated with the operation of the WWTP is discharges to land from the rupture of pipes / overtopping, storage tank failure and irrigation. The Delegated Officer considers the risk associated with these emissions to be low based on the following (MML, 2018d):

- The WWTP is fitted with an alarm to warn of failure to the air blower and discharge pump.
- The plant has an in-built emergency storage of approximately two days to ensure that any problems can be rectified before overflow occurs.
- A flow meter is installed to record the volume of treated wastewater discharged to TSF1.
- The high density polyethylene pipeline from the WWTP to TSF1 runs along the ground and are easily identifiable. TSF1 is routinely inspected and any leakages from these pipelines would be picked up during these inspections.
- There are no human or environmental receptors in close proximity to the WWTP.
- Distance to groundwater is 20-25 mbgl.

The Existing Licence has fortnightly effluent monitoring requirements for the WWTP. The Licensee is required to continue the monitoring regime of condition 3.3.1 for the new WWTP.

The Delegated Officer has determined that, given the Existing Licence conditions an amendment to increase the design capacity for category 85 from 50 m³/day to 80 m³/day will not result in emissions which are unacceptable to public health or the environment.

Licensee's comments

The Licensee was provided with the draft Amendment Notice on 19 December 2018. No comments were received from the Licensee.

Other Amendments

During this amendment the following changes have also been made to the Licence:

- Registered office address on the Licence cover page has been updated.
- Addition of category 73.
- Increase in capacity for category 85 from 50 m³/day to 80 m³/day.
- All references to DER changed to DWER.
- Definitions updated for 'Acceptance Criteria'; 'Anniversary Date'; 'CEO' for the purposes of notification; and 'Landfill Definitions'; and inclusion of definition for 'µS/cm'.
- Conditions and Table numbers under "Premises operation" updated in line with Amendment Notice 1.
- Condition 1.3.2 updated to remove reference to "environmentally hazardous materials" and instead reference pipelines or sections of pipelines containing tailings and decant return water. As these pipelines include telemetry this has been included in this condition.
- Condition 1.3.3 has been updated to:
 - Remove reference to the disposal of tailings to TSF1 as this TSF has been capped;

- Remove reference to the disposal of treated effluent from the sewage treatment plant to TSF2 as Department of Health approval for this has not been received. Treated effluent will continue to be disposed of to the rock ring at TSF1;
 - Remove reference to the 1×10^{-9} metres per second (m/s) permeability requirement for the base of TSF2. The *TSF2 Cell 2 Construction Report* states that the “average permeability achieved across the Cell 2 floor was 3.5×10^{-8} m/s”.
 - Remove reference to Figures 1 and 2 and instead reference the location within Schedule 1.
- Conditions 1.3.8 and 1.3.10 (previously conditions 1.3.9 and 1.3.11) quantity limit for sewage updated.
 - Removal of previous conditions 1.3.16 and 1.3.17 as compliance documentation for TSF2 was received on 24 April 2017 (TSF2 Cell 1 Construction Report); 26 May 2017 (TSF Audit); 1 August 2017 (TSF2 Cell 1 further information); and 5 February 2018 (TSF2 Cell 2 Construction Report).
 - Inclusion of a new condition 1.3.14 for production and design capacity limits for category 5, 7 and 73.
 - Removal of previous condition 2.1.1.
 - Previous condition 2.2 for point source emissions to air now condition 2.1.
 - Table 3.3.1 updated for P1 to reference TSF1 as the TSF receiving the treated effluent from the WWTP.
 - Condition 4.2.2 updated to remove (a) as this is not applicable.
 - Inclusion of condition 4.2.3.
 - Removal of notification requirement for previous condition 1.3.16 from condition 4.3.1.
 - Inclusion of notification requirement to condition 4.3.1 for calibration under condition 3.1.4.

Amendment

1. The Registered office address on the cover page of the Existing Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

Unit 7, 140 Abernathy ~~10 Kings Park Road~~
BELMONT ~~WEST PERTH~~ WA **6104** ~~6005~~

2. Pages 1 and 2 of the Existing Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

Category number	Category description	Category production or design capacity	Approved premises production or design capacity
5	Processing or beneficiation of metallic or non-metallic ore: premises on which— (a) metallic or non-metallic ore is crushed, ground, milled or otherwise processed; (b) tailings from metallic or non-metallic ore are reprocessed; or (c) tailings or residue from metallic or non-metallic ore are discharged in a containment cell or dam.	50,000 tonnes or more per year	2,000,000 tonnes per Annual Period
7	Vat or in situ leaching of metal: premises on which metal is extracted from ore with a chemical solution.	5 000 tonnes or more per year	2,000,000 tonnes per Annual Period
73	<u>Bulk storage of chemicals</u>	<u>1,000 cubic metres in aggregate</u>	<u>1,347.8 cubic metres in aggregate</u>
85	Sewage facility: premises— (a) on which sewage is treated (excluding septic tanks); or (b) from which treated sewage is discharged onto land or into waters.	More than 20 but less than 100 cubic metres per day	50-80 cubic metres per day
89	Putrescible landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled “Landfill Waste Classification and Waste Definitions 1996” published by the Chief Executive Officer, as amended from time to time) is accepted for burial.	More than 20 but less than 5 000 tonnes per year	500 tonnes per Annual Period

3. Definitions of the Existing Licence and Amendment Notice 1 are amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

‘Acceptance Criteria’ has the meaning defined in ~~Landfill Waste Classification and Waste Definitions 1996 published by Chief Executive Officer and as amended from time to time;~~

‘Anniversary Date’ means 1 July ~~30 September~~ of each year;

‘averaging period’ means the time over which a limit ~~or target~~ is measured or a monitoring result is obtained;

‘CEO’ means Chief Executive Officer of the ~~Department of Environment Regulation;~~

‘CEO’ for the purposes of notification means:

~~Chief Executive Officer~~ **Director General**

Department **Administering** Division 3, Part V of the Environmental Protection Act 1986

Locked Bag 33 Cloisters Square

PERTH WA 6850

info@dwer.wa.gov.au;

'Landfill Definitions' means the document titled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer of the Department **of Water and Environmental Regulation** as amended from time to time;

'µS/cm' means micro Siemens per centimetre;

4. Condition 1.3.2 of the Existing Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

1.3.2 The Licensee shall ensure that all pipelines **or sections of pipelines** containing **tailings and decant return water** ~~environmentally hazardous materials~~ are either:

- (a) **equipped with telemetry; or**
- (b) *equipped with automatic cut-outs in the event of a pipe failure; or*
- (c) *provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.*

5. Condition 1.3.3 of Amendment Notice 1 is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

1.3.3 The Licensee shall ensure that tailings, decant water and treated effluent from the wastewater treatment plant are only discharged into containment cells and/or ponds with the relevant infrastructure requirements and at the locations specified in Table 1.3.1 and shown in the map in Schedule 1.

Table 1.3.1: Containment infrastructure

Containment point reference	Containment cell or dam number(s)	Material	Infrastructure requirements
C1	TSF1	Tailings and <u>Treated</u> effluent from the wastewater treatment plant	Stage 4 lift to RL 406.5 m at completion
C2	Process Pond	Tailings thickener overflow, decant return, process catchment water and bore water from production bores 6B and 6C	Lined with high density polyethylene liner with a permeability of at least $<10^{-9}$ <u>metres per second</u> m/s or equivalent
C3	TSF2	Tailings and treated effluent from the sewage treatment plant	Lift to RL 399.0 m at completion Permeability across the base of TSF meets 1×10^{-9} m/s or less Underdrainage system installed at the base of <u>TSF2</u> Cell 1 and Cell 2 draining to underdrainage collection sumps depicted in <u>the TSF2 maps in Schedule 1</u> Toe drain depicted in <u>the TSF2 maps in Schedule 1</u> Figure 1 and 2

6. Previous condition 1.3.9 (now condition 1.3.8) of the Existing Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

~~1.3.9~~ **1.3.8** The Licensee shall only accept waste onto the Premises if:

- (a) it is of a type listed in Table 1.3.~~34~~;
 (b) the quantity accepted is below any quantity limit listed in Table 1.3.~~34~~; and
 (c) it meets any specification listed in Table 1.3.~~34~~

Table 1.3.34: Waste acceptance			
Waste type	Waste Code	Quantity limit	Specification¹
Inert Waste Type 1	N/A	100 tonnes/year in total	None specified
Putrescible Waste	N/A		None specified
Clean Fill	N/A		None specified
Putrescible and Organic wastes			
Sewage	K130	<u>80</u> 50 m ³ /day	Accepted through sewer inflow(s) only
Vegetable and food processing liquid wastes	K200		
Waste from grease traps	K110		
Miscellaneous			
Inert Waste Type 2	T140	400 tonnes	Tyres only

Note 1: Additional requirements for the acceptance of controlled waste (including asbestos and tyres) are set out in the Environmental Protection (Controlled Waste) Regulations 2004.

7. Previous condition 1.3.11 (now condition 1.3.10) of the Existing Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

~~1.3.11~~ **1.3.10** The Licensee shall ensure that wastes accepted onto the Premises are only subjected to the processes set out in Table 1.3.~~45~~ and in accordance with any process limits described in that Table.

Table 1.3.45: Waste processing		
Waste type	Processes	Process limits¹
Inert Waste Type 1	Receipt, handling and disposal of waste by landfilling	<u>All waste types</u> Disposal of waste by landfilling shall only take place within the landfill areas shown on the Premises Map in Schedule 1. The separation distance between the base of the landfill and the highest groundwater level shall not be less than 2 m.
Inert Waste Type 2		
Putrescible Waste		
Clean Fill		
Sewage	Biological, physical and chemical treatment.	<u>80</u> 50 m ³ /day
Vegetable and food processing liquid wastes		
Waste from grease traps		

Note 1: Additional requirements for the acceptance and landfilling of controlled waste (including asbestos and tyres) are set out in the Environmental Protection (Controlled Waste) Regulations 2004.

Note 2: Requirements for landfilling tyres are set out in Part 6 of the Environmental Protection Regulations 1987.

8. Amendment Notice 1 is amended by the deletion of the following Condition 1.3.16:

1.3.16 The Licensee shall ensure that the infrastructure or equipment specified in Table 1.3.7 is designed in accordance with the requirements specified in Table 1.3.7.

Table 1.3.7: Infrastructure requirements	
Infrastructure	Requirements (design)
TSF2	<p>The TSF2 must:</p> <ul style="list-style-type: none"> (a) be no more than 109 hectares; (b) be no more than RL 399.0m; (c) include additional engineering works to the base to further reduce the hydraulic conductivity of regolith beneath the TSF footprint and to increase the uniformity of the hydraulic properties of these materials so that the permeability across the base meets 1×10^{-9} m/s or less; (d) include an underdrainage system, comprising a finger drain network at the base of each cell to assist with the recovery of water from the consolidation of the tailings and to reduce potential seepage loss; (e) include water return sumps installed at the lowest points and constructed using large diameter concrete pipes founded on a concrete base. The underdrainage system discharges any collected water into a water return sump as depicted in Figure 1 of Schedule 1; (f) include piezometers TSF2MB1S/D, TSF2MB2S/D, TSF2MB3S/D, TSF2MB4S/D, TSF2MB5S/D monitored prior, during and after beaching operations across TSF2; (g) include groundwater monitoring bores KCB07F, KCB12, KCB41 depicted in the map of monitoring locations in Schedule 1 with baseline monitoring conducted of the parameters listed in Table 3.4.1 locations during commissioning and before operation; (h) include two production bores KCB12 and KCB12B to act as an interception and pump back system should they be required to manage any potential seepage as depicted in the map of production bores in Schedule 1; (i) be designed to accommodate a 1 in 100 year 72 hour rainfall event; (j) be designed to have a freeboard of 500mm above storm water capacity elevation; and (k) include centrally located decant structures to recover the highest percentage of process water in each cell.
Pipelines (tailings and return water)	<p>Pipelines constructed of high density polyethylene</p> <p>Pipelines located within a bunded trench, with sufficient capacity to contain any spill for a period equal to the time between routine inspections</p> <p>Return water pipeline with a series of valves to allow water to be diverted into the tailings line for flushing purposes via junction points</p> <p>Flow meters positioned at the start and end of the tailings pipeline to monitor flows and pressure losses. In the event of pipeline failure, Shift Supervisor is to be notified and the pipeline shut down until repaired</p> <p>Spigots placed at approximately 18m centres around the TSF2 perimeter</p>

9. Amendment Notice 1 is amended by the deletion of the following Condition 1.3.17:

1.3.17 The Licensee shall operate TSF2 in accordance with the conditions of this Licence, following submission of the document required under condition 5.3.1.

10. The Licence is amended by the insertion of the following Condition 1.3.14:

1.3.14 The Licensee shall ensure the limits specified in Table 1.3.6 are not exceeded.

Table 1.3.6: Production or design capacity limits		
Category¹	Category Description¹	Premises production or design capacity limit
5	Processing or beneficiation of metallic or non-metallic ore	2,000,000 tonnes per Annual Period
7	Vat or in situ leaching of metal	2,000,000 tonnes per Annual Period
73	Bulk storage of chemicals	1,347.8 cubic metres in aggregate

Note 1: Environmental Protection Regulations 1987, Schedule 1.

11. The Licence is amended by the deletion of the Condition 2.1.1:

2.1.1 The Licensee shall record and investigate the exceedance of any descriptive or numerical limit specified in any part of section 2 of this Licence.

12. Condition 3.3.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

3.3.1 The Licensee shall undertake the monitoring specified in Table 3.3.1.

Table 3.3.1: Process monitoring				
Monitoring point reference	Process description	Parameter	Units	Frequency
<i>P1 being the pipe feeding the TSF1 from the wastewater-treatment plant</i>	Treated wastewater quality	<i>pH¹</i>	<i>pH units</i>	Fortnightly
		<i>Biochemical oxygen demand</i>	<i>mg/L</i>	
		<i>Total suspended solids</i>	<i>mg/L</i>	
		<i>Total nitrogen</i>	<i>mg/L</i>	
		<i>Total phosphorus</i>	<i>mg/L</i>	
		<i>E.coli</i>	<i>org/100mL</i>	
<i>P2 being the tailings reuse water</i>	Water recovered from the TSF2 for reuse onsite	<i>pH¹</i>	<i>pH units</i>	Quarterly
		<i>Electrical conductivity</i>	<i>µS/cm</i>	
		<i>Total dissolved solids</i>	<i>mg/L</i>	
		<i>Hardness</i>	<i>mg/L</i>	
		<i>Hydroxide</i>	<i>mg/L</i>	
		<i>Silicon dioxide</i>	<i>mg/L</i>	
		<i>Carbonate</i>	<i>mg/L</i>	
		<i>Bicarbonate</i>	<i>mg/L</i>	
		<i>Potassium</i>	<i>mg/L</i>	
		<i>Calcium</i>	<i>mg/L</i>	
		<i>Magnesium</i>	<i>mg/L</i>	
		<i>Chloride</i>	<i>mg/L</i>	
		<i>Sulfate</i>	<i>mg/L</i>	
		<i>Nitrate</i>	<i>mg/L</i>	
<i>Aluminium (dissolved)</i>	<i>mg/L</i>			

Table 3.3.1: Process monitoring				
Monitoring point reference	Process description	Parameter	Units	Frequency
		Arsenic	mg/L	
		Boron	mg/L	
		Barium	mg/L	
		Beryllium	mg/L	
		Mercury	mg/L	
		Molybdenum	mg/L	
		Lead (dissolved)	mg/L	
		Selenium	mg/L	
		Antimony	mg/L	
		Strontium	mg/L	
		Zinc (dissolved)	mg/L	
		Chromium (VI) (dissolved)	mg/L	
		Copper	mg/L	
		Iron (dissolved)	mg/L	
		Manganese	mg/L	
		Nickel	mg/L	
-	-	Volumes of tailings and treated effluent from the Wastewater Treatment Plant deposited into the TSFs	m ³	Continuous
-	-	Volumes of water recovered from the TSFs	m ³	Continuous
-	-	Phreatic surface levels within TSFs embankments	mAHD	Monthly
-	-	Volumes of seepage recovered	m ³	Continuous

Note 1: In-field non-NATA accredited analysis permitted.

13. Condition 4.2.2 of the Existing Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

4.2.2 The Licensee shall ensure that the Annual Environmental Report also contains:

- (a) ~~any relevant process, production or operational data recorded under Condition 3.1.3;~~
(a) an assessment of the information contained within the report against previous monitoring results and Licence limits; and
(b) an assessment of sewage treatment plant performance.

14. The Licence is amended by the insertion of the following Condition 4.2.3:

4.2.3 The Licensee shall submit the information in Table 4.2.2 to the CEO according to the specifications in that table.

Table 4.2.2: Non-annual reporting requirements				
Condition or table (if relevant)	Parameter	Reporting period	Reporting date (after end of the reporting period)	Format or form¹
-	Copies of original monitoring reports submitted to the Licensee by third parties	Not Applicable	Within 14 days of the CEOs request	As received by the Licensee from third parties

15. Condition 4.3.1 of Amendment Notice 1 is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

4.3.1 The Licensee shall ensure that the parameters listed in Table 4.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 4.3.1: Notification requirements			
Condition or table (if relevant)	Parameter	Notification requirement¹	Format or form²
-	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next usual working day. Part B: As soon as practicable	N1
-	Production ceasing for an unspecified period of time	As soon as practicable after the decision has been made	None Specified
-	Production recommencing	At least 28 days prior to production recommencing	None specified
1.3.16	The Licensee must submit to the CEO a document certified by a suitably qualified professional engineer which clearly details how TSF2 has been constructed to meet the infrastructure requirements of Condition 1.3.16 and identify any departures	Within 14 days from the date of this issued amendment	None specified
<u>3.1.4</u>	<u>Calibration report</u>	<u>As soon as practicable</u>	<u>None specified</u>

Note 1: Notification requirements in the licence shall not negate the requirement to comply with s72 of the Act

Note 2: Forms are in Schedule 2

16. Amendment Notice 1 is amended by the deletion of the Map of production bores.
17. Figure 1 and Figure 2 of Amendment Notice 1 are amended by being renamed under the heading Maps of TSF2 within Schedule 1.
18. Form N1 of the Existing Licence is replaced with the form shown in Attachment 1 of this Notice.

Attachment 1

Licence: L8675/2012/1
Form: N1

Licensee: Millennium Minerals Limited
Date of breach:

Notification of detection of the breach of a limit.

These pages outline the information that the operator must provide.
Units of measurement used in information supplied under Part A requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part A

Licence Number	
Name of operator	
Location of Premises	
Time and date of the detection	

Notification requirements for the breach of a limit	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Name	
Post	
Signature on behalf of Millennium Minerals Limited	
Date	

Appendix 1: Key documents

	Document title	In text ref	Availability
1	Construction Completion Report Golden Eagle Tailings Storage Facility Cell 2, Nullagine Gold Project (P06-17-RF, Rev. 1), prepared by MHA Geotechnical for Millennium Minerals Ltd, January 2018	TSF2 Cell 2 Construction Report	DWER records (A1607796)
2	Golden Eagle Project 2016 Calendar Year Tailings Storage Audit and Review (754-PERGE199135), prepared by Coffey Services Australia Pty Ltd for Millennium Minerals Limited, 3 March 2017	TSF Audit	DWER records (A1439489)
3	Golden Eagle Project TSF2 Cell 1 Construction Report, Construction of Starter Embankment to RL392.5m (MINEWPER00497AN-AC), prepared by Coffey Mining Pty Ltd for Millennium Minerals Ltd, 19 January 2017	TSF2 Cell 1 Construction Report	DWER records (A1416534)
4	Guidance Statement: Decision Making, Department of Environment Regulation, February 2017	Guidance Statement: Decision Making	accessed at www.dwer.wa.gov.au
5	Guidance Statement: Environmental Siting, Department of Environment Regulation, November 2016	Guidance Statement: Environmental Siting	
6	Guidance Statement: Regulatory principles, Department of Environment Regulation, July 2015	Guidance Statement: Regulatory principles	
7	Guidance Statement: Risk Assessment, Department of Environment Regulation, February 2017	Guidance Statement: Risk Assessment	
8	Guidance Statement: Setting Conditions, Department of Environment Regulation, October 2015	Guidance Statement: Setting Conditions	
9	Licence L8675/2012/1 – Nullagine Gold Operation – Golden Eagle Project, amended 19 November 2015	Existing Licence	
10	Licence L8675/2012/1 – Nullagine	Amendment	

	Document title	In text ref	Availability
	Gold Operation – Golden Eagle Project, amended 14 March 2017	Notice 1	
11	License Ammendment – MML, received from Ian Gale (Millennium), dated 18 July 2018	MML, 2018a	DWER records (A1704378)
12	National Water Quality Management Strategy, Australian Guidelines for Sewage Systems – Effluent Management, Agriculture and Resource Management Council of Australia and New Zealand and Australian and New Zealand Environment and Conservation Council, 1997	NWQMS, 1997	accessed at www.waterquality.gov.au
13	Nullagine Gold Project 2016 – 2017 Annual Environmental Report, Millennium Minerals Limited, January 2018	2016-2017 AER	DWER records (A1607446)
14	Priority Ecological Communities for Western Australia, Version 27, Species and Communities Branch, Department of Biodiversity, Conservation and Attractions, 30 June 2017	PEC, 2017	accessed at www.dpaw.wa.gov.au
15	RE: Applicant Notification – L8675/2012/1 – Application for an Amendment to Licence – Invoice Issued, received from Ian Gale (Millennium), 12 September 2018	MML, 2018d	DWER records (A1719246)
16	RE: Millennium Minerals Tailings Facility (TSF) 2 Cell 1 Construction Report – Ref DER2014/002927, received from Ian Gale (Millennium Minerals), dated 31 July 2017	TSF2 Cell 1 further information	DWER records (A1497013)
17	RE: MML – Dangerous Good Storage, received from Ian Gale (Millennium), dated 19 April 2018	MML, 2018c	DWER records (A1710043)
18	RE: Phonecall and TSF2 Design, received from Ian Gale (Millennium), dated 13 December 2018	MML, 2018b	DWER records (A1748672)
19	Understanding-salinity – Salinity status classifications, by total salt concentration table, Department of Water	Salinity status classification	accessed at http://www.water.wa.gov.au/water-topics/water-quality/managing-water-quality/understanding-salinity