Government of Western Australia
Department of Environment Regulation

Amendment Notice #2

Licensee	Pilbara Manganese Pty Ltd
ACN	074 106 577
Licence Number	L6131/1990/13
File Number:	DER2013/001337
Premises	Woodie Woodie Manganese Project Mining tenements: G45/332, G45/333, G45/334, G45/335, G45/336, G45/37-40, G46/4-5, L46/29, M45/107, M45/429-433, M45/517, M45/600-602, M45/637-641, M45/1218, M46/92-93, M46/108, M46/137, M46/150, M46/161-162, M46/383 and M46/384 MARBLE BAR WA 6760
Date of amendment	31 March 2017

Amendment

The Chief Executive Officer (CEO) of the Department of Environment Regulation (DER) has amended the above licence in accordance with section 59 of the *Environmental Protection Act 1986* 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 and follows.

Date signed: 30 March 2017

Alana Kidd

Manager Licensing – Resource Industries

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

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (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 for Category 5 to include the Homestead Tailings Storage Facility (TSF) and its groundwater monitoring bores. No changes to the aspects of the original licence relating to Categories 6, 54, 73 or 89 have been requested by the Licensee.

The following DER 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

This is a Licensee initiated amendment to include the Homestead In-Pit Tailings Storage Facility (TSF) and its groundwater monitoring bores that were approved via works approval W5821/2015/1. Compliance documentation has been received on 25 January 2017. Modifications to Condition 1.3.2, Table 1.3.1 for Containment infrastructure and Condition 3.6.1, Table 3.6.3 Ambient groundwater monitoring are required to incorporate the Homestead TSF and its monitoring bores.

During this amendment, DER has also included additional parameters for mine dewatering discharge as per internal specialist advice (titled *Woodie Woodie manganese project – management of the in-pit TSF and groundwater quality*, 25 March 2015) that was provided during the works approval assessment of the Topvar dewatering discharge point and Homestead Creek TSF. Condition 3.2.1, Table 3.2.1 and Condition 3.6.1, Table 3.6.1 for monitoring of emissions to surface water and ambient surface water quality respectively have been updated to include chloride, sulfate, sodium, potassium, cobalt, iron, nickel, selenium, mercury, chromium(VI) and total chromium to fully assess the potential impacts of discharging dewatering effluent to rivers near the mine site.

A detailed assessment of ore and gangue minerals at the Woodie Woodie mine site (Jones et al., 2013) indicated that these materials are particularly enriched in lead, arsenic, copper, molybdenum and zinc. As a result of this, there is a risk that one or more of these elements may also have elevated concentrations in groundwater due to leaching from these materials.

Other approvals

The Licensee has provided the following information relating to other approvals as outlined in Table 1.

Table 1: Relevant approvals

Legislation	Number	Approval
Mining Act 1978	REGISTRATION ID: 53459	Approval given by the Department of Mines and Petroleum on 4 March 2015 for Mining Proposal to commence development and operation of the Homestead TSF project in accordance with tenement conditions on M45/432 and M45/638.

Location, environmental siting and potential receptors

Table 2 below lists the relevant sensitive land uses in the vicinity of the prescribed premises which may be receptors relevant to the proposed amendment.

Table 2: Receptors and distance from prescribed premises

Residential and sensitive premises	Distance from Prescribed Premises
Port Hedland	400km north west
Warrawagine Homestead	180 km north
Gooda Binya and Pipunya Aboriginal Communities	160 km west north west
Irrungadji and Five Mile Aboriginal communities	120 km west south west
Nullagine	100km west
Telfer Gold Mine	100 km east
Nifty Copper Mine	50 km east

Table 3 below lists the relevant environmental receptors in the vicinity of the prescribed premises which may be receptors relevant to the proposed amendment.

Table 3: Environmental receptors and distance from prescribed premises

Environmental receptors	Distance from Prescribed Premises
Pilbara Groundwater Management Area	Covers entire Pilbara region
Pilbara Surface Water Area	Covers entire Pilbara region
Nullagine Water Reserve (P3)	120 km West
Lepidium catapycnon (DRF, Vulnerable)	105 km south-south-west
Threatened ecological community	None recorded within 50 km
Priority 3 ecological community – 'Rudall River riparian vegetation associated with creek lines and watercourses	50 km east
Priority 3 ecological community – 'Stony saline clay plains of the Mosquito Land System	50 km east
Oakover River	8 km west
Minor tributaries, including Stony, Brumby and Muddautherra Creeks (ephemeral creek lines)	Flow through the site

Three Priority flora species, have been recorded within the Woodie tenements: *Aristida jerichoensis var. subspinulifera* (P1), *Lepidium amelum* (P1) and *Goodenia sp.* East Pilbara (A.A. Mitchell PRP 727) (P3). A fourth priority species, *Euphorbia clementii* (P2) was not found during the field surveys, but is recorded as having been found within the Woodie Woodie.

The Pilbara Olive Python, Northern Quoll and Orange Leaf Nose Bat have the potential to be found within the tenements. Night calls of the Orange Leaf Nose Bat have been recorded and one deceased Pilbara Olive Python and Northern Quoll have historically been identified.

Risk assessment

Table 4 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to human health or the environment, requiring regulatory controls.

Table 4: Risk assessment for proposed amendments during operation

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		**Potential Emissions**	**Potential Receptors**	**Potential Pathway**	**Potential Adverse Impacts**				
Cat 5 *Processing or beneficiation of metallic or non-metallic ore*	*Operation of tailings storage facility infrastructure*	***Waste:*** *Tailings disposal*	*Groundwater with beneficial use*	*Seepage of leachate*	*Adverse impacts to the health and survival of stock drinking the groundwater*	***Slight*** *as the tailings does not contain process chemicals, it is not acid generating and enrichment in minor elements is expected to be slight and only onsite impacts would be expected.* *There is potential for chromium VI due to the reaction of manganese oxides with other ferromagnesian minerals in the tailings.*	***Unlikely*** *as the standing water level is:* *HPTSFMB01 92.92mbgl* *HPTSFMB02 92.59mbgl* *HPTSFMB03 88.07mbgl* *Baseline groundwater quality monitoring was conducted on 17 January 2017*	***Low***	*The Delegated Officer considers that the quality of tailings and the distance to groundwater should not result in groundwater contamination. The Licensee also has management controls in place in that they will conduct quarterly groundwater quality monitoring and compare this to baseline monitoring. This includes chromium VI.* *Condition 3.6.1, Table 3.6.3 ambient groundwater monitoring of HPTSFMB01, HPTSFMB02, HPTSFMB03* *The Delegated Officer considers that impacts from seepage will be* ***slight*** *as the TSF is located onsite (so offsite impacts are not expected) and impacts would be expected to be minimal, and the likelihood of occurrence is* ***unlikely****. The risk rating for seepage is therefore* ***low****.*
			Vegetation adjacent to TSF pipelines	*Pipeline leaks resulting in direct discharge*	*Soil contamination inhibiting vegetation growth and survival*	***Slight*** *as the tailings does not contain process chemicals and only onsite*	***Unlikel****y as the tailings delivery and return water pipelines to and from the*	***Low***	*The Delegated Officer considers that the quality of tailings should not result in significant contamination. The Licensee also has management controls in*

						impacts would be expected	*TSF are located in a previously constructed pipeline corridor. The pipelines are bunded to prevent spillage of tailings or return water into the surrounding environment. Scour pumps are located along the pipeline corridor to capture any spillage form the tailings delivery/return water pipelines.*		*place in that they will conduct routine inspections of the pipelines during use and they will be regularly maintained.* *Condition 1.3.1 requires that pipelines containing environmentally hazardous materials are equipped with a telemetry system and pressure sensors to allow the detection of leaks and failures or equipped with automatic cut-outs in the event of a pipe failure or provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.* *The Delegated Officer considers that impacts from pipeline leaks will be **slight** as the pipelines are located onsite (so offsite impacts are not expected) and impacts would be expected to be minimal, and the likelihood of occurrence is **unlikely**. The risk rating for pipeline ruptures is therefore **low**.*
			Vegetation adjacent to TSF pipelines	*Overtopping of TSF resulting in direct discharge*	*Soil contamination inhibiting vegetation growth and survival*	***Slight** as the tailings does not contain chemicals and only onsite impacts would be expected*	***Unlikely** as the Homestead TSF is bunded so will only receive incident rainfall It will only be partially full so will have*	***Low***	*The Delegated Officer considers that the quality of tailings should not result in significant contamination. The Licensee also has management controls in place in that the Homestead TSF is bunded to prevent stormwater ingress and will only be partially full.*

							significant freeboard.		*Condition 1.3.2, Table 1.3.1 A minimum total freeboard of 820 mm from the top of the pit crest is maintained at all times.* *Condition 1.3.3 requires the Licensee to minimize the supernatant pond on the TSFs as far as practicable.* *Condition 1.3.4 requires the Licensee to conduct an annual water balance for each TSF.* *Condition 1.3.5 requires daily visual inspections to confirm that the appropriate freeboard is maintained.* *The Delegated Officer considers that impacts from overtopping will be **slight** as the TSF is located onsite (so offsite impacts are not expected) and impacts would be expected to be minimal, and the likelihood of occurrence is **unlikely**. The risk rating for overtopping is therefore **low**.*

Decision

The Delegated Officer has determined that the key emissions associated with the inclusion of the Homestead TSF is potential seepage to groundwater, pipeline leaks and overtopping.

The Delegated Officer considers that the risks associated with these emissions are low due to distances to sensitive receptors and the Licensee's controls. The Homestead TSF and groundwater quality monitoring bores have been incorporated into the licence. Other current licence conditions apply.

The amendment is granted based on the addition of these conditions and current relevant conditions.

Conditions 1.3.1 - 1.3.5 currently on the Licence capture operational management measures relating to the TSFs. Conditions 1.3.2 and 3.6.1 have been updated to include the Homestead TSF and ambient groundwater monitoring of the Homestead TSF bores.

Condition 3.2.1, Table 3.2.1 and Condition 3.6.1, Table 3.6.1 for monitoring of emissions to surface water and ambient surface water quality respectively have been updated to include chloride, sulfate, sodium, potassium, cobalt, iron, nickel, selenium, mercury, chromium(VI) and total chromium.

During this amendment the definitions have been updated in line with recent administrative changes implemented within DER.

Amendment History

Table 5 provides the amendment history for L6131/1990/13.

Table 5: Licence amendments

Instrument	Issued	Amendment
L6131/1990/12	29/3/2012	Licence amended for tyre disposal, bioremediation facility management, changes annual period and update monitoring sites.
L6131/1990/13	30/04/2015	Licence amended for premises operation, monitoring requirements and improvement program conditions.
L6131/1990/13	26/11/2015	Licence amended to include a new sampling point at the sewage facilty, new dewatering discharge points, modifications to the improvement conditions and removal of targets.
L6131/1990/13	25/02/2016	Licence amended to add tenements, include the Greensnake landfill and remove improvement conditions for the bioremediation facility.
L6131/1990/13	30/06/2016	Licence amended as mine in Care & Maintenance. Reduction of tailings inspections from daily to weekly and converting back to the use of Telfer's weather stations.
L6131/1990/13	22/12/2016	Amendment Notice 1: Licence amended via an amendment notice to update the notification period required from 90 days to 21 days for operations recommencing after care and maintenance.
L6131/1990/13	31/03/2017	Amendment Notice 2: Licence amended to include the Homestead TSF and groundwater monitoring bores.

Licence Holder's Comments

The Licensee was provided with the draft Amendment Notice on 22 March 2017. There were no comments received from the Licensee to be considered by the Delegated Officer in Appendix 2.

Amendment

1. The licence is amended with the inclusion of the following definitions in bold text and shown in underline below for section 1.1.2:

   'Anniversary Date' means 30 September of each year;

2. 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 for section 1.1.2:

   'annual period' means ~~the inclusive period from~~ **a 12 month period commencing** 1 October until 30 September in the following year;

   ~~**'CEO'** for the purpose of correspondence means;~~

   ~~Chief Executive Officer~~
   ~~Department Administering the *Environmental Protection Act 1986*~~
   ~~Locked Bag 33~~
   ~~CLOISTERS SQUARE WA 6850~~
   ~~Email: info@der.wa.gov.au~~

   'CEO' for the purposes of notification means:

   Chief Executive Officer
   Department Div.3 Pt.V EP Act
   Locked Bag 33 Cloisters Square
   Perth WA 6850
   info@der.wa.gov.au

   'Annual Audit Compliance Report' means a report in a format approved by the CEO as presented by the Licensee or as specified by the CEO from time to time and published on the Department's website;

   'Department' means the department established under s.35 of the Public Sector Management Act 1994 and designated as responsible for the administration of Division 3 Part V of the Environmental Protection Act 1986;

3. Condition 1.3.2, Table 1.3.1 is amended by the insertion of the bold text shown in underline below:

   1.3.2 The Licensee shall ensure that waste materials are only stored/treated within vessels or compounds provided with the infrastructure detailed in Table 1.3.1.

Table 1.3.1: Containment infrastructure		
Containment point reference	**Material**	**Specification**
Demon Pit TSF (DePTSF)	Tailings	A minimum total freeboard of 820 mm from the top of the pit crest is maintained at all times
Dartmoor Pit TSF (DaPTSF)		
Malta Pit TSF (MPTSF)		
Area 1 Pit TSF (A1PTSF)		
Homestead TSF		

Process Water Pond	TSF return water and mine dewater	A minimum total freeboard of 500 mm or a 1 in 100 year/72 hour storm event (whichever is greater) from the top of the embankment is maintained at all times. Methods of operation minimise the likelihood of erosions of the embankment by wave action.
Bioremediation Facility	Hydrocarbon contaminated waste	Base and bunding clay lined. Stormwater runoff diverted so as not to flow onto the treatment facility.

4. Condition 3.2.1, Table 3.2.1 is amended by the insertion of the bold text shown in underline below:

3.2.1 The Licensee shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.

Table 3.2.1: Monitoring of point source emissions to surface water

Emission point reference	Parameter	Units	Frequency
W1	Volume (cumulative)	m^3	Continuous
W2 W3 W4 W5 W6 W7 W8 W9 W10 W11 W12	pH[2]	-	Monthly
	Total Dissolved Solids	mg/L	
	Nitrate and Nitrite Nitrogen	mg/L	
	Total Kjeldahl Nitrogen	mg/L	
	Total Nitrogen	mg/L	
	Filterable Reactive Phosphorus	mg/L	
	Total Phosphorus	mg/L	
	Sodium	mg/L	
	Magnesium	mg/L	
	Zinc[1]	mg/L	
	Lead[1]	mg/L	
	Cadmium[1]	mg/L	
	Manganese	mg/L	
	Chloride	**mg/L**	
	Sulfate	**mg/L**	
	Sodium	**mg/L**	
	Potassium	**mg/L**	
	Cobalt	**mg/L**	
	Iron	**mg/L**	
	Nickel	**mg/L**	
	Selenium	**mg/L**	
	Mercury	**mg/L**	
	Chromium (VI)	**mg/L**	
	Total Chromium	**mg/L**	

5. Condition 3.6.1, Tables 3.6.1 and 3.6.3 are amended by the insertion of the bold text shown in underline below:

3.6.1 The Licensee shall undertake the monitoring in Tables 3.6.1, 3.6.2, 3.6.3 and 3.6.4 according to the specifications in those tables.

Table 3.6.1: Monitoring of ambient surface water quality				
Monitoring point reference and location	**Parameter**	**Units**	**Averaging period**	**Frequency**
Downstream sites: Muddauthera Creek (MMS) Warri Warri (WWMS) Brumby Creek (BMS)	pH[2]	-	Spot sample	Monthly
	Total Dissolved Solids	mg/L		
	Total Suspended Solids			
	Nitrate and Nitrite Nitrogen			
	Total Kjeldahl Nitrogen			
	Total Nitrogen			
	Filterable Reactive Phosphorus			
	Total Phosphorus			
	Sodium			
	Magnesium			
	Zinc[1]			
	Lead[1]			
	Cadmium[1]			
	Manganese			
	Chloride			
	Sulfate			
	Sodium			
	Potassium			
	Cobalt			
	Iron			
	Nickel			
	Selenium			
	Mercury			
	Chromium (VI)			
	Total Chromium			
Background site: Lower Carawine Gorge Pool (CG1) Tooma Stockyard (TS) Tooncoonaragee Pool (TC1) Oakover Crossing (OC)	pH[2]	-	Spot sample	Monthly (when accessible)
	Total Dissolved Solids	mg/L		
	Total Suspended Solids			
	Nitrate and Nitrite Nitrogen			
	Total Kjeldahl Nitrogen			
	Total Nitrogen			
	Filterable Reactive Phosphorus			
	Total Phosphorus			
	Sodium			
	Magnesium			
	Zinc[1]			
	Lead[1]			
	Cadmium[1]			
	Manganese			
	Chloride			
	Sulfate			
	Sodium			
	Potassium			
	Cobalt			
	Iron			
	Nickel			
	Selenium			
	Mercury			
	Chromium (VI)			
	Total Chromium			
	Chlorophyll-a	µg/L		
	Phaeophytin			

Table 3.6.3: Monitoring of ambient groundwater quality				
Monitoring point reference and location	**Parameter**	**Units**	**Averaging period**	**Frequency**
Demon Pit TSF DEMB01 DEMB02 DEMB04 TSF2 TDMB1 Dartmoor TSF DAPTSFMB01 DAPTSFMB02 Malta TSF MPTSF01 **Homestead TSF** **HPTSFMB01** **HPTSFMB02** **HPTSFMB03**	Standing water level	mbgl	Spot sample	Quarterly
	pH[1]	-		
	Total Dissolved Solids	mg/L		
	Total Nitrogen	mg/L		
	Arsenic	mg/L		
	Copper	mg/L		
	Molybdenum	mg/L		
	Selenium	mg/L		
	Uranium	mg/L		
	Hexavalent Chromium	mg/L		

6. Condition 4.1.2 is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

~~4.1.2 The Licensee shall complete an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the conditions of the Licence, and any previous licence issued under Part V of the Act for the Premises for the previous annual period.~~

4.1.2 The Licensee must submit to the CEO within 90 days after the Anniversary Date, an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the Conditions in this Licence for the Annual Period.

7. Condition 4.2.1 is amended by the insertion of the bold text shown in underline below:

4.2.1 The Licensee shall submit to the CEO an Annual Environmental Report by 30 November each year. The report shall contain the information listed in Table 4.2.1 in the format or form specified in that table.

Table 4.2.1: Annual Environmental Report		
Condition or table (if relevant)	**Parameter**	**Format or form[1]**
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
1.3.4	Water balance	None specified
Table 2.2.2	Monitoring of point source emissions to surface water results – Total Suspended Solids (Limit)	WR1
Table 2.3.2	Total Recoverable Hydrocarbon	LR1
	Loading of Total Nitrogen and Total Phosphorus	LR2
Table 3.2.1	Monitoring of point source emissions to surface water results – pH, Total Dissolved Solids, Nitrate and Nitrite Nitrogen, Total Kjeldahl, Total Nitrogen, Filterable Reactive Phosphorus, Total Phosphorus, Sodium, Magnesium, Zinc, Lead, Cadmium ~~and~~ Manganese,	WR2

	Chloride, Sulfate, Sodium, Potassium, Cobalt, Iron, Nickel, Selenium, Mercury, Chromium (VI) and Total Chromium	
Table 3.3.1	Monitoring of emissions to land	LR1
Table 3.4.1	Volume (cumulative) recycled for on-site irrigation	LR3
Table 3.4.1	Inert Waste Type 1, Inert Waste Type 2, Putrescible Waste and Clean Fill	None specified
Table 3.5.1	Process Monitoring: volume of tailings deposited and volume of water recovered.	None specified
Table 3.6.1	Downstream sites: pH, Total Suspended Solids, Total Dissolved Solids, Nitrate and Nitrite Nitrogen, Total Kjeldahl, Total Nitrogen, Filterable Reactive Phosphorus, Total Phosphorus, Sodium, Magnesium, Zinc, Lead, Cadmium, Manganese, **Chloride, Sulfate, Sodium, Potassium, Cobalt, Iron, Nickel, Selenium, Mercury, Chromium (VI) and Total Chromium**	WR3
	Background sites: pH, Total Suspended Solids, Total Dissolved Solids, Nitrate and Nitrite Nitrogen, Total Kjeldahl, Total Nitrogen, Filterable Reactive Phosphorus, Total Phosphorus, Sodium, Magnesium, Zinc, Lead, Cadmium, Manganese, **Chloride, Sulfate, Sodium, Potassium, Cobalt, Iron, Nickel, Selenium, Mercury, Chromium (VI), Total Chromium**, Chlorophyll-a and Phaeophytin	WR4
Table 3.6.2	Sediment - Chlorophyll-a and Phaeophytin	WR5
Table 3.6.3	Groundwater: Standing water level, pH, Total Dissolved Solids, Total Nitrogen, Arsenic, Molybdenum, Selenium, Uranium, Hexavalent Chromium	GR1
Table 3.6.4	Average foliage, health score and general environmental description	None specified
	Identical photographs of foliage density and shadow areas beneath trees	Photographs
Table 3.6.5	Management actions EA1 and EA2	None specified
4.1.2	Compliance	Annual Audit Compliance Report (AACR)
4.1.3	Complaints summary	None specified

7. Form WR3 is amended by the insertion of the bold text shown in underline below:

Form WR3: Monitoring of surface water					
Emission point	**Parameter**	**Result**	**Averaging period**	**Method**	**Sample date & times**
Downstream sites MMS, WWMS and BMS	pH		Spot sample		
	Total Dissolved Solids	mg/L			
	Total Suspended Solids	mg/L			
	Nitrate and Nitrite Nitrogen	mg/L			
	Total Kjeldahl	mg/L			
	Total Nitrogen	mg/L			
	Filterable Reactive Phosphorus	mg/L			
	Total Phosphorus	mg/L			

	Sodium	mg/L			
	Magnesium	mg/L			
	Zinc	mg/L			
	Lead	mg/L			
	Cadmium	mg/L			
	Manganese	mg/L			
	Chloride	**mg/L**			
	Sulfate	**mg/L**			
	Sodium	**mg/L**			
	Potassium	**mg/L**			
	Cobalt	**mg/L**			
	Iron	**mg/L**			
	Nickel	**mg/L**			
	Selenium	**mg/L**			
	Mercury	**mg/L**			
	Chromium (VI)	**mg/L**			
	Total Chromium	**mg/L**			

8. Form WR4 is amended by the insertion of the bold text shown in underline below:

Form WR4: Monitoring of surface water					
Emission point	**Parameter**	**Result**	**Averaging period**	**Method**	**Sample date & times**
Background sites CG1 TS TC1 OC	pH		Spot sample		
	Total Dissolved Solids	mg/L			
	Total Suspended Solids	mg/L			
	Nitrate and Nitrite Nitrogen	mg/L			
	Total Kjeldahl	mg/L			
	Total Nitrogen	mg/L			
	Filterable Reactive Phosphorus	mg/L			
	Total Phosphorus	mg/L			
	Sodium	mg/L			
	Magnesium	mg/L			
	Zinc[1]	mg/L			
	Lead[1]	mg/L			
	Cadmium[1]	mg/L			
	Manganese[1]	mg/L			
	Chloride	**mg/L**			

	Sulfate	**mg/L**			
	Sodium	**mg/L**			
	Potassium	**mg/L**			
	Cobalt	**mg/L**			
	Iron	**mg/L**			
	Nickel	**mg/L**			
	Selenium	**mg/L**			
	Mercury	**mg/L**			
	Chromium (VI)	**mg/L**			
	Total Chromium	**mg/L**			
	Chlorophyll-a	mg/L			
	Phaeophytin	mg/L			

9. Form GR1 is amended by the insertion of the bold text shown in underline below:

Emission point	**Parameter**	**Result**	**Averaging period**	**Method**	**Sample date & times**
Demon Pit TSF DEMB01 DEMB02 DEMB04 **TSF2** TDMB1 **Dartmoor** DAPTSFMB01 and DAPTSFMB02 **Malta** MPTSF01 **Homestead TSF** **HPTSFMB01** **HPTSFMB02** **HPTSFMB03**	Standing water level	mbgl	Spot Sample		
	pH	**pH units**			
	Total Dissolved Solids	mg/L			
	Total Nitrogen	mg/L			
	Arsenic	mg/L			
	Copper	mg/L			
	Molybdenum	mg/L			
	Selenium	mg/L			
	Uranium	mg/L			
	Hexavalent Chromium	mg/L			

Appendix 1: Key Documents

	Document Title	In text ref	Availability
1	Licence L6131/1990/13 – Woodie Woodie Manganese Project	L6131/1990/13	accessed at http://www.der.wa.gov.au
2	Works Approval W5821/2015/1 - Woodie Woodie Manganese Project	W5821/2015/1	accessed at http://www.der.wa.gov.au
3	DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	*Guidance Statement: Regulatory principles*	accessed at http://www.der.wa.gov.au
4	DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.	*Guidance Statement: Setting conditions*	
5	DER, February 2017. *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth.	*Guidance Statement: Risk Assessments*	
6	DER, February 2017. *Guidance Statement: Decision Making*. Department of Environment Regulation, Perth.	*Guidance Statement: Decision Making*	
7	DER, November 2016. *Guidance Statement: Environmental Siting*. Department of Environment Regulation, Perth.	*Guidance Statement: Environmental Siting*	
8	Woodie Woodie manganese project – management of the in-pit TSF and groundwater quality, 25 March 2015	Woodie Woodie manganese project – management of the in-pit TSF and groundwater quality, 25 March 2015	accessed upon request

References

Jones, S., McNaughton, N.J. and Grguric, B., 2013. Structural controls and timing of fault hosted manganese at Woodie Woodie, East Pilbara, Western Australia. *Ore Geology Reviews*, **50**, 52-82.

Appendix 2: Summary of Licence Holder comments

The Licensee was provided with the draft Amendment Notice on 22 March 2017 for review and comment. The Licensee responded on 24 March 2017 with no comments.

Comments received	DER consideration of risk
Waiver form provided	N/A