

# **Decision Report**

# **Review of Existing Premises**

Division 3, Part V Environmental Protection Act 1986

Applicant:	Fortescue Metals Group Ltd		
ACN:	002 594 872		
Licence Number:	L8194/2007/3		
File Number:	DER2013/001082		
Premises:	Anderson Point Materials Handling Facility		
	Part of Lot 1497 on Plan 404497, Part of Lot 370 on Plan 35619, Part of Lot 556 on Plan 60836, Part of Lot 321 on Plan 74344 and Lot 322 on Plan 74344 within coordinates as defined in Appendix 1		
	WEDGEFIELD WA 6721		
Date of report:	Wednesday, 7 December 2016		
Status of Report	Final		

#### **Table of Contents**

Defin	nition	is of	f terms and acronymsiv
1.	Purpose and Scope of Assessment1		
2.	Background1		
3.	Overview of the Premises		
	3.1	Infra	astructure2
	3.2	Exc	luded Infrastructure6
4.	Legi	slat	ive Context6
	4.1	Part	IV of the EP Act7
	4.1	.1	Background7
	4.1	.2	Report of the EPA Bulletin 11738
	4.1	.3	Ministerial Statement No. 6909
	4.1	.4	Report of the EPA Bulletin 12869
	4.1	.5	Ministerial Statement No. 77110
	4.1	.6	Ministerial Statement No. 85910
	4.2	Con	taminated Sites11
	4.3	Dep	artment of Water11
	4.4	Plar	nning11
	4.5	Othe	er Relevant Approvals11
	4.5	.1	Department of State Development
	4.5	.2	Department of Mines and Petroleum11
	4.6	Port	Hedland Dust Management Taskforce11
	4.6	.1	Management Plan11
	4.6	.2	Health Risk Assessment (HRA)12
	4.7	Арр	licable Regulations, Standards and Guidelines12
5.	Part	V o	f the EP Act13
	5.1	.1	Works Approvals
	5.1	.2	Registrations14
	5.1	.3	Licence Amendments14
	5.1	.4	Clearing15
	5.1	.5	Compliance
	5.1	.6	Annual Audit Compliance Reports15
	5.1	.7	Modelling and monitoring data16
6.	Consultation16		
7.	Loca	atior	n and Siting16
	7.1 Siting Context		
7.2 Sensitive Land Uses			sitive Land Uses17

	7.3 Specified Ecosystems18			
	7.4 Groundwater and water sources			19
	7.5	Soil	Туре	20
	7.6	Mete	eorology	20
	7.6	.1	Regional climatic aspects	20
	7.6	.2	Rainfall and temperature	20
	7.6	.3	Wind direction and strength	20
8.	Risk	Ass	sessment	22
	8.2	Risk	Criteria	26
	8.3	Risk	Treatment	27
	8.4	Risk	Assessment - Discharge to land, groundwater and marine waters	28
	8.4	.1	General Hazard Characterisation and Impact	28
	8.4	.2	Criteria for Assessment	28
	8.4	.3	Licence Holder's controls	28
	8.4	.4	Consequence	31
	8.4	.5	Likelihood of consequence	31
	8.4	.6	Overall rating	31
	8.5	Sum	nmary of Risk Assessment and Acceptability	32
9.	Dete	ermiı	ned Regulatory Controls	33
	9.1	Sum	nmary of Controls	33
	9.2	Infra	astructure and Equipment controls	33
	9.2	.1	Treatment and discharge of potentially hydrocarbon contaminated water	33
	9.2	.2	Discharge of uncontaminated stormwater	34
	9.2	.3	Spill control infrastructure	34
	9.3	Spe	cified actions	34
	9.3	.1	Spill control actions	34
	9.4	Limi	ts	34
	9.4	.1	Discharge to land	34
	9.5	Mon	itoring Requirements	35
	9.5	.1	Discharges to land monitoring	35
10.	Sett	ing (	Conditions	35
11.	Applicant's Comments on Risk Assessment35			
12.	. Conclusion			
Арре	endix	(1: F	Premises coordinates	
Appe	endix	( <b>2</b> :	Key Documents and References	
Appe	endix ditior	( 3: S	Summary of Applicant's Comments on Risk Assessment and Drat	it
Atta	chme	ent 1	: Revised Licence L8194/2007/3	

# Definitions of terms and acronyms

Term	Definition	
AACR	Annual Audit Compliance Report	
AER	Annual Environmental Report	
Annual period	The inclusive period from 1 January until 31 December in that year	
Anderson Point	Anderson Point Materials Handling Facility	
AP5	Anderson Point Berth 5	
AS 1940-2004	Australian Standard 1940-2004: The storage and handling of flammable and combustible liquids	
AS1692-2006	Australian Standard 1692-2006 (R2016): Steel tanks for flammable and combustible liquids	
Assigned noise level	Noise level not to be exceeded at receiving premises, defined by Part 2, Division 1 of the Noise Regulations	
ASS	Acid Sulfate Soils	
ВОМ	Bureau of Meteorology	
ВРРН	Benthic Primary Producer Habitat	
внрвіо	BHP Billiton Iron Ore Pty Ltd	
Category	As used in Schedule 1 of the Environmental Protection Regulations 1987	
Decision Report	This document	
DER	The Department of Environment Regulation	
DMMA	Dredge Material Management Areas	
DoH	The Department of Health	
DSD	The Department of State Development	
EIP	Environmental Improvement Plan	
EP Act	The Environmental Protection Act 1986	
EP Regulations	The Environmental Protection Regulations 1987	
EPA	Environmental Protection Authority	
Existing Licence	The licence issued under Part V, Division 3 of the EP Act and in force	

	prior to the commencement of, and during completion of, this review	
FMG	Fortescue Metals Group Ltd	
HRA	The Port Hedland Air Quality Health Risk Assessment for Particulate Matter published by the Department of Health dated January 2016)	
ICMS	Incidents and Complaints Management System	
kL	kilolitre	
km	kilometre	
Licence Holder	Fortescue Metals Group Ltd (FMG)	
Management Plan	The Port Hedland Air Quality and Noise Management Plan published by the Department of State Development dated March 2010	
μg/m <sup>3</sup>	Micrograms per cubic metre	
mbgl	Metres below ground level	
mg/L	Milligrams per litre	
ML/d	Megalitres per day	
MS	Ministerial Statement	
Mtpa	Million tonnes per annum	
NEPM	National Environment Protection (Ambient Air Quality) Measure	
Noise Regulations	The Environmental Protection (Noise) Regulations 1997	
OEPA	The Office of the EPA	
OWS	Oily Water Separator	
PDWSA	Public Drinking Water Source Area	
PHIC	Port Hedland Industries Council	
РМ	Particulate Matter	
PM <sub>2.5</sub>	Particulate matter that is smaller than 2.5 microns ( $\mu$ m) in diameter	
PM <sub>10</sub>	Particulate matter that is smaller than 10 microns ( $\mu$ m) in diameter	
PPA	Pilbara Ports Authority	
Prescribed Premises	is defined in the EP Act to mean premises prescribed for the purposes of Part V $\ensuremath{V}$	
the Premises	Anderson Point Materials Handling Facility	

the Review	This licence review	
Registration	An instrument issued under Part V, Division 3 of the EP Act in relation to Categories of Prescribed Premises listed in Part 2 of Schedule 1 of the EP Regulations.	
Revised Licence	The amended licence issued under Part V, Division 3 of the EP Act following the finalisation of this review	
RIWI Act	The Rights in Water Irrigation Act 1914	
the Taskforce	The Port Hedland Dust Management Taskforce	
TDS	Total Dissolved Solids	
TRH	Total Recoverable Hydrocarbons	
TUL	Train Unloading Facility	

# 1. Purpose and Scope of Assessment

This licence Review was initiated by the Department of Environment Regulation (DER), with the agreement of Fortescue Metals Group Ltd (Licence Holder), as part of a wider review of Category 58 premises within the Port Hedland port. The purpose of this review is to apply a risk-based assessment approach which is consistent with DER's Regulatory Framework and to apply a coordinated regulatory approach following the release of the Department of Health (DoH) Port Hedland Air Quality Health Risk Assessment for Particulate Matter, January 2016 (HRA).

This assessment has considered the activities and infrastructure at the Anderson Point Materials Handling Facility (the Premises) which fall within the definition of Prescribed Premises Categories 58 and 70 in Schedule 1 to the *Environmental Protection Regulations 1987* (EP Regulations).

The Premises also includes a desalination plant designed for a maximum inflow of approximately 12 megalitres per day (ML/d) of seawater and a maximum waste discharge of 8 ML/d of saline water. The salinity of the brine discharged from the desalination plant is approximately 60,000 milligrams per litre (mg/L) total dissolved solids (TDS). The desalination plant has not been considered in this assessment (see section 3.2 - Excluded Infrastructure).

The Dredge Material Management Areas (DMMA) are also situated on the western and eastern sides of the Premises (referred to in Figure 1 as Settlement ponds). These are for the management of dredge material and were approved and conditioned under Ministerial Statements issued under Part IV of the Environmental Protection Act 1986 (EP Act). These ponds are not considered to meet the definition of a Prescribed Premises and are not within the Premises boundary. Therefore the settlement ponds have not been considered further as part of this Review.

The Revised Licence (L8194/2007/3) is set out in Attachment 1.

# 2. Background

The Licence Holder holds the Existing Licence L8194/2007/3 under the EP Act for the Premises. Iron ore handled and exported from the Premises is received from a number of iron ore mines (Solomon, Christmas Creek and Cloudbreak) in the east Pilbara region of Western Australia.

A Works Approval (W5749/2014/1) has been issued to the Licence Holder for the receipt and handling of ore from an additional mine, referred to as the North Star project. To date DER has not received an application from the Licence Holder to incorporate these activities into the Existing Licence.

Previously ore from the Nullagine Iron Ore Project (a joint venture between the Licence Holder and BC Iron Nullagine Pty Ltd) was also transported to shared facilities at the Premises prior to shipping. The Nullagine Iron Ore Project was suspended in January 2016 with the final shipment occurring in early March 2016.

The Existing Licence relates only to the activities undertaken at the port, specifically those Prescribed Premises categories listed in Table 1. Category 12 was added to the Existing Licence through an Amendment Notice in June 2016 to allow the Licence Holder to undertake the rescreening of ballast from the stacker rail lines in the stockyard.

**Table 1: Prescribed Premises Categories** 

Classification of Premises	Description	Approved Premises Production or Design Capacity
Category 58	Bulk material loading or unloading: premises on which clinker, coal, ore, ore concentrate or any other bulk granular material (other than salt) is loaded onto or unloaded from vessels by an open materials loading system	175,000,000 tonnes per Annual Period
Category 70	Screening, etc. of material: premises on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated	45,000 tonnes per Annual Period

# 3. Overview of the Premises

#### 3.1 Infrastructure

The Premises infrastructure, as it relates to Category 12 and 58 activities, including activities outside the scope of this Review but within the Premises, is detailed in Table 2 with reference to Figures 1 and 2.

#### Table 2: The Premises infrastructure

Categ	Category 70: Screening, etc. of material		
A mobile screening plant is utilised on-site to screen ballast underlying stackers in the Premises stockyard, as a result of spilt ore making the stacker rail foundation unstable.			
The assessed total throughput of the screening plant is 45,000 tonnes and the rescreening program is anticipated to operate for a 10 week period (FMG UID-63691, 12 October 2016).			
No.	Infrastructure Plan reference		
1	Mobile screening plant N/A		
Categ	ory 58: Bulk material loading or unloading		
The Premises receives iron ore via train from three Pilbara mine sites (Cloudbreak, Christmas Creek and Solomon). Three rotary car dumpers (train unloaders) unload ore from the trains and ore is then conveyed to the stockyard and placed into stockpiles by three stackers. The stockyard has a maximum capacity of 9.7 million tonnes with a total of eight rows (six live rows and two bulk-out rows).			
At the Premises, blending of the raw products takes place at the stockyard through horizontal stacking methods. Ore is then removed from the stockpiles by a reclaimer and transferred to the wharves via conveyor. Three ship loaders operate across the five berths (AP $1 - 5$ ) to load the ore product onto ships for export.			
No.	o. Infrastructure Figure reference		
2	3 x Train unloaders Figure 1: TU601, TU602, TU603		
3	3 x Stackers Figure 1: SK701/CV923, SK702/CV936, SK704/CV937		
4	3 x Reclaimers Figure 1: RC701/CV920,		

		RC702/CV928, RC703/CV938		
5	Stockpiles	Figure 1: B1 – B6, C1 – C6, D1 - D6, E1 – E6 and F1 – F6		
6	Inload Conveyors	Figure 1: CV901, CV903, CV905, CV906, CV908, CV911, CV912, CV916, CV968		
7	Outload Conveyors	Figure 1: CV913, CV914, CV917, CV944, CV915, CV921, CV922, CV927, CV932, CV945, CV948, CV950, CV953		
8	Transfer Stations	Figure 1: TS901, TS902, TS903, TS904, TS905, TS906, TS908, TS914, TS917, TS944, TS945, TS954, TS968,		
9	Shuttle conveyors	Figure 1: SH913, SH914, SH917		
10	Sample stations	Figure 1: SS 903, SS 944, SS 945		
11	Surge bin	Figure 1: BN950		
12	3 x Ship loaders	Figure 1: SL701/CV925, SL702/CV926, SL703/CV935		
13	5 x Berths	Figure 1: AP1, AP2, AP3, AP4, AP5		
14	Maintenance workshop	Figure 1: Maintenance workshop		
15	Wash bay	Figure 1: Light vehicle wash bay		
16	Stormwater discharge points and associated sedimentation ponds.	Figure 2: W1, W2 and W3		
17	Oily water separators (OWS)	Figure 2: OWS		
18	Process water tanks for OWS 1 and 2	Figure 2: L1		
19	OWS 3 for Train Unloader 3 Silt Trap discharge	Figure 2: L2		
Other	Other infrastructure			
No.	Infrastructure	Plan reference		
20	Desalination plant	Figure 1		
21	Desalination plant emission point	Figure 1: Desalination plant discharge		
22	Fuel farm (1 x 52,400 LL tank)	Figure 1: Fuel farm		



Figure 1: Site Plan of the Premises



Figure 2: Stormwater discharge and emissions to land locations

### 3.2 Excluded Infrastructure

The Licence Holder operates a desalination plant which was constructed in 2011 under works approval W4979/2011/1. The plant provides supplementary water supply for operations at the premises.

The plant has a maximum throughput of 12 ML/d which equates to approximately 4.4 gigalitres (GL) per year, and maximum waste discharge of 8 ML/d which equates to 2.92 GL per year. The average water supply is 2.5-3 ML/d or 0.91 to 1.1 GL per year.

The production or design capacity threshold for Prescribed Premises category 54A (Sch.1 Part 1 - Water desalination plant) is 10GL or more per year and the Prescribed Premises Category 85B (Sch.1 Part 2 - Water desalination plant) threshold is 0.5GL or more per year (provided waste water is discharged to land or waters (other than marine waters)). The discharge from the desalination plant is directed to the Dredge Material Management Areas (DMMA), which is regulated under Ministerial Statement 859 granted under Part IV of the EP Act. The DMMA's contain dredge material from previous dredge campaigns.

Key Finding: The Delegated Officer has not considered the desalination plant in the revised licence and has determined based on the relevant facts that:

- the occupier may apply under r.5B of the EP Regulations for the prescribed premises category 85B to be registered; or
- the occupier may apply under s.59B of the EP Act or to amend the Licence (L8194/2007/3) to include the prescribed premises category 85B.

Noting the above, given the presence of Ministerial Statements which regulate emissions from the DMMA, additional regulatory controls issued under Part V of the EP Act will unlikely to be required.

# 4. Legislative Context

Approvals and underlying tenure associated with the Premises which are held by the Licence Holder, subsidiaries and related companies are outlined in Table 3.

Legislation	Number	Holder	Approval
Environment Protection and Biodiversity Conservation Act 1999	Referral number 2004/1562	Fortescue Metals Group Ltd	Construction of the port rail infrastructure determined not to be a controlled action.
(Cth)	Referral number 2010/5513		Approval of additional rail infrastructure, including rail loop at the Premises.
	Referral number 2012/6314		Construction of additional rail infrastructure determined not to be a controlled action.
Part IV of the EP Act (WA)	Statement Number 000690	Fortescue Metals Group Ltd	Construction of a port at Anderson Point in Port Hedland, which includes shipping facilities, reclaimed areas for iron ore handling infrastructure, stockpiles and ancillary facilities and a connecting north-south railway.
	Statement Number		Dredging of not more than 3,500,000 cubic metres off Anderson Point, for a

#### Table 3. Approvals and tenure

	000771		third ship berth; disposal of dredge spoil on preexisting and previously approved land at Anderson Point; and extension of the approved open-pile wharf.
Part V of the EP Act (WA)	W4283/2006/1	Fortescue Metals Group Ltd	Construction of the Anderson Point Materials Handling Facility.
	W4392/2007/1		Construction of a wastewater treatment plant with a maximum throughput of 33,000 L/day to cater for construction workforce (no longer in use).
	W4814/2010/1		Upgrade of port infrastructure to increase throughput capacity from 45Mtpa to 120Mtpa
	W5284/2012/1		Changes to the discharge point from the desalination plant
	W4979/2011/1		Construction of a temporary desalination plant
	W5643/2014/1		Expansion of the existing port operations and an increase in throughput capacity from 120 Mtpa to 175Mtpa.
	W5749/2014/1		Construction of the North Star Stage 1 Export Facility.
	R1963/2007/1		Category 85 Wastewater treatment plant
	L8194/2007/3		The Existing Licence
Railway and Port (Pilbara Infrastructure) Agreement Act 2004	N/A	The Pilbara Infrastructure Pty Ltd and Fortescue Metals Group Ltd	State Agreement
Rights in Water and Irrigation Act 1914	GWL1639999(6)	Fortescue Metals Group Ltd	Groundwater abstraction licence

### 4.1 Part IV of the EP Act

#### 4.1.1 Background

The Pilbara Iron Ore and Infrastructure Project was referred to the Environmental Protection Authority (EPA) in December 2003. The project was assessed in two stages:

- Stage A The proposed port at Anderson Point and 345 kilometre (km) of railway to associated mine sites in the East Pilbara; and
- Stage B The development of proposed mining and an additional 160km of rail.

The rail and port aspects of the project (Stage A) were assessed by the EPA (EPA Bulletin 1173) through a Public Environmental Review process which considered the construction of:

- Approximately 345km of railway from Anderson Point to Mindy Mindy;
- The materials handling facility at Anderson Point;

- A single wharf (Berth 1) and parking berth (Berth 2);
- Infrastructure such as power, water, roads and sewerage; and
- Support infrastructure such has site offices, workshops and maintenance facilities.

Ministerial Statement 690 granting approval for the project (subject to conditions) was signed by the Minister on 3 October 2005.

Stage B of the project was assessed separately and is not discussed further in this Decision Report as the assessed activities do not form part of the Premises.

The EPA also assessed a proposal to upgrade the port facility including additional dredging, dredge spoil disposal, construction of Berth 3 and extension of the wharf alongside Berths 2 and 3. The EPA's report (EPA Bulletin 1286, 2008) informed the Minister's decision to approve the proposal subject to the conditions contained within Ministerial Statement 771.

The Licence Holder submitted a referral to the EPA in August 2010 for the expansion of the materials handling facility from 45 Mtpa to 120 Mtpa. This included the onshore components of the expansion including construction works for an additional wharf and additional ore handling facilities. The OEPA notified the Licence Holder on 20 September 2010 that the referral was not assessed and the proposal would be managed by Part V of the Act.

The Port Hedland Port Authority (now the Pilbara Port Authority/PPA) referred a proposal to the EPA for dredging of an area of South-West Creek to allow for the construction of a number of additional berths. Ministerial Statement 859 was issued in relation to this proposal.

#### 4.1.2 Report of the EPA Bulletin 1173

In its assessment of the Stage A proposal, the EPA undertook a detailed evaluation of the following factors:

- (a) terrestrial biodiversity;
- (b) benthic primary producer habitat (BPPH) mangroves;
- (c) surface water hydrology;
- (d) dust;
- (e) noise; and
- (f) marine and sediment quality.

Relevant to this review, the EPA's assessment:

- considered the disturbance of 300ha of supratidal and intertidal habitats for the construction of the port facilities, including the clearing of core closed-canopy mangrove habitat.
- noted that the sub-tidal marine communities in the harbour were tolerant of the natural levels of turbidity and that the inner harbour did not support any significant seagrass or coral reef. In addition, increases in turbidity were not expected to impact on turtles or dolphins.
- considered that the risk of indirect impacts to mangrove communities from dust deposition was low.
- noted that the greatest potential for the port operations to generate dust emissions was from rail car dumpers; ore conveyors; stockpiles, ship loading and vehicle traffic.
- reviewed modelling from Environ which indicated that the operation of the Premises could contribute to an increase of approximately 6 per cent in maximum 24-hour

average concentrations of particulates ( $PM_{10}$  and  $PM_{2.5}$ ) at the Port Hedland townsite.

- noted that the modelling indicated potential increases in maximum 24-hour average particulate concentrations at Wedgefield of between 2.3 8.8 per cent.
- acknowledged that, while FMG's individual contribution to dust impacts in Port Hedland would be relatively small, the cumulative impacts of all operations were predicted to result in an increase in the annual exceedances of dust concentrations.
- noted that dust would be subject to regulation through Part V of the EP Act licence conditions.
- noted that the Assigned Noise Levels, as prescribed by the *Environmental Protection* (*Noise*) *Regulations 1997* (Noise Regulations), were regularly exceeded in the Port Hedland area as a result of existing operations.
- considered that, because the noise levels in Port Hedland were already so far above the Assigned Noise Levels, that efforts by FMG to reduce noise emitted from their infrastructure would make no measureable difference to the overall noise level. Therefore, the EPA concluded that it would be reasonable to allow FMG to reduce noise levels over a period of time.

#### 4.1.3 Ministerial Statement No. 690

MS 690 was first issued in October 2005 and related to Stage A of the Pilbara Iron Ore and Infrastructure Project. Subsequent changes to MS 690 which have relevance to this Review are listed below:

- In August 2008 two additional train unloaders were approved (three in total).
- In February 2014 Berth AP5 was added to MS 690 and a previous reference to an authorised export tonnage of 45Mtpa was removed. In removing the reference to export tonnage, the amended Ministerial Statement states that relevant environmental matters, such as noise and dust, can be managed under Part V of the EP Act.

Despite the above, MS 690 retains conditions relating to dust and noise as detailed below:

- 17-1 The proponent shall monitor and control dust associated with construction and operation of the port in accordance with a Dust Management Plan prepared to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.
- 18-1 The proponent shall not conduct port or rail operations other than in accordance with an Operations Noise Management Plan prepared to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

The current versions of these plans received approval from the Office of the Environmental Protection Authority (**OEPA**) on 29 July 2011.

#### 4.1.4 Report of the EPA Bulletin 1286

The EPA assessed a proposal by the Licence Holder to expand the port with a third berth (AP3), including dredging of the berth, extension of the wharf and land based disposal of the dredge spoil. This proposal did not include an increase in the throughput of the port which, at the time, was authorised at 45Mtpa.

In its assessment the EPA undertook a detailed evaluation of the following factors:

(a) coral and mangrove health;

- (b) rehabilitation;
- (c) noise;
- (d) introduced marine organisms; and
- (e) dust.

Relevant to this review, the EPA's assessment:

- Noted that seepage from the existing DMMAs onto tidal flats had caused the death of a small number of mangroves, probably as a result of increased waterlogging and salinity, but otherwise mangrove numbers and health remained unchanged;
- Noted that pile-driving from wharf construction could have noise impacts on nearby residential receptors;
- Considered noise monitoring undertaken during the construction of facilities approved under MS 690 which showed no exceedances of the Assigned Noise Levels in the Noise Regulations;
- Noted that MS 690 required a Dust Management Plan and that construction of the additional berths would be covered by that plan.

#### 4.1.5 Ministerial Statement No. 771

MS 771 was issued in August 2008 for the dredging and construction of a third ship berth, including the disposal of dredge spoil. MS 771 contains conditions:

- Limiting the total core closed-canopy mangroves directly or indirectly adversely affected within the port project area (including affects from Stage A) to less than 14.8 hectares;
- Requiring dust to be monitored and controlled in accordance with the Dust Management Plan already required under MS 690;
- Requiring construction noise to comply with Regulation 13 of the Noise Regulations.
- Requiring the proponent to incorporate monitoring and management of the new DMMA into the Dredging and Reclamation Monitoring and Management Plan required by MS 690.

A change to MS 771 was made in November 2008 to increase the dredge volumes, area and disposal area.

#### 4.1.6 Ministerial Statement No. 859

MS 859 relates to a proposal to dredge an area of South West Creek for new berth pockets, turning circles and shipping channels. Some of the berth pockets are used by the Licence Holder as part of the operation of the Premises however the proponent for this project was the Port Hedland Port Authority (now the Pilbara Ports Authority/PPA).

Relevant to this review, conditions of MS 859 relate to the monitoring and management of mangrove health and requirements to limit direct or indirect impacts upon BPPH. MS 859 also requires the proponent to manage water quality of water discharged from DMMAs.

These DMMAs are located on either side of the Premises boundary and do not form part of the Premises however the Licence Holder discharges saline effluent from the desalination plant within the Premises into the DMMAs on the eastern side of the Premises (shown in MS 859 as DMMA B and DMMA B South).

Key Finding: The Delegated Officer has reviewed the relevant EPA reports and Ministerial Statements and finds that:

- Despite comments in EPA Bulletin 1173 and MS 690 that noise and dust emissions will be regulated under Part V of the EP Act, the primary instrument for the regulation of noise and dust emissions from the Premises is MS 690;
- 2. The OEPA has approved dust and noise management plans which are the primary mechanisms for the regulation of these emissions from the Premises; and
- 3. Water quality of discharges from the DMMAs, including any contribution from the Licence Holder's desalination plant discharges, are managed under MS 771 and MS 859.

As a result, the Delegated Officer has determined that controls in relation to dust, noise and discharges form the desalination plant will not be considered further as part of this Review.

#### 4.2 Contaminated Sites

The Premises is not classified as contaminated under the Contaminated Sites Act 2003.

#### 4.3 Department of Water

The Licence Holder holds a Groundwater Licence (GWL) under the *Rights in Water Irrigation Act 1914* (RIWI Act). GWL1639999(6) allows the abstraction of water from a borefield located adjacent to the rail line.

#### 4.4 Planning

The Premises is located within an area designated under the Town of Port Hedland: Town Planning Scheme No. 5 as "Other purpose: Port Facilities".

#### 4.5 Other Relevant Approvals

#### 4.5.1 Department of State Development

The Premises is operated under the *Railway and Port (Pilbara Infrastructure) Agreement Act 2004* which is administered by the Department of State Development (DSD).

This agreement requires the State to provide an area of the Port Hedland Port as a lease under the *Port Authorities Act 1999* for the port facilities and additional port infrastructure.

#### 4.5.2 Department of Mines and Petroleum

The Department of Mines and Petroleum (DMP) regulates the Premises under the *Mines* Safety & Inspection Act 1994.

#### 4.6 Port Hedland Dust Management Taskforce

#### 4.6.1 Management Plan

The State Government established the Port Hedland Dust Management Taskforce (the Taskforce) in May 2009 to review existing reports and develop an integrated dust

management plan for Port Hedland. The Taskforce is coordinated by DSD and includes a range of industry and government members including DER.

The Taskforce issued the *Port Hedland Air Quality and Noise Management Plan,* DSD, March 2010 (Management Plan) to manage planning conflicts between industrial growth and adjacent residential areas. The Management Plan was adopted by the Government. Relevant to this Decision Report, the Management Plan recommended:

- adoption of an interim guideline measure for air quality of PM<sub>10</sub> of 70µg/m<sup>3</sup> (24 hour average) with 10 exceedances per year at Taplin Street (residential street in Port Hedland); and
- the establishment of a State Environmental Policy for Port Hedland to monitor and manage noise using the Noise Regulations regulation 17 exemptions where appropriate. This included the development of a cumulative noise model, defining the noise sensitive zones, clarifying planning measures and clarifying building standards.

The Port Hedland Industries Council (PHIC) was established in parallel to the Taskforce to facilitate whole-of-industry cooperation with the target guideline specifically and the Management Plan generally and to develop an integrated approach to air quality and noise management.

#### 4.6.2 Health Risk Assessment (HRA)

The DoH recently released the Port Hedland Air Quality Health Risk Assessment for Particulate Matter dated January 2016 (HRA). The report provides the final health risk assessment for Port Hedland.

The HRA found that  $PM_{10}$  concentrations above the current interim guidance of 24-hour average of  $70\mu g/m^3 PM_{10}$  (+10 exceedances) are associated with potential adverse health impacts. It therefore recommended continuing to implement the interim guidance for residential areas of Port Hedland.

The HRA also stated that the interim guideline can be applied to South Hedland and Wedgefield but it may also be possible to achieve the National Environment Protection (Ambient Air Quality) Measure (NEPM) in South Hedland if the source of local exceedances can be identified and managed.

Acknowledging the cumulative nature of dust impacts in Port Hedland, the HRA identified that effective dust management needs to address all controllable sources including local sources such as the spoil-bank.

The HRA recommended a coordinated approach involving industry and government and highlighted the benefits of employing a long-term planning strategy to establish appropriate buffer zones and to ultimately move residential areas away from dust impacts in the proximity of the port.

The HRA notes that it should not be the only source of information guiding decisions and must be combined with other studies including the noise model, the air quality model and the source apportionment model. There have been other models including cumulative air quality impacts undertaken by PHIC to date. DER does not have access to the analysis of the data for the models undertaken by PHIC and, at the time of this assessment, the analysis of this data has not been considered by DER.

### 4.7 Applicable Regulations, Standards and Guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

DER's Guidance Statements which inform the assessment in line with this legislation are as

follows:

- Guidance Statement: *Regulatory principles* (July 2015);
- Guidance Statement: Licensing and works approvals process (September 2015);
- Guidance Statement: Setting Conditions (October 2015);
- Guidance Statement: Land Use Planning (October 2015); and
- Guidance Statement: *Licence duration* (November 2014).

Other key documents used in this assessment are documented in Appendix 2.

# 5. Part V of the EP Act

#### 5.1.1 Works Approvals

Since December 2006, seven works approvals have been issued to the Licence Holder under section 54(3)(a) of the EP Act for activities at the Premises. Summarised below are the details of the most recent issued works approvals (past three years).

#### W5643/2014/1

Works approval W5643/2014/1 was issued on 15 May 2014 for the expansion of the existing port operations and an increase in throughput capacity from 120 Mtpa to 175Mtpa.

The increase in capacity was assessed as occurring in three stages (1, 2A and 2B). The stages are characterised as follows:

- Stage 1 Increase to 155Mtpa throughput achieved through efficiency measures;
- Stage 2A Increase to 175Mtpa partly achieved through extension of South West Creek Wharf to allow for a fifth berth (AP5) and upgrades to associated conveyors.
- Stage 2B Increase to 175Mtpa partly achieved through an additional in-load circuit (conveyors, transfer station, stacker and two additional stockpile rows).

A compliance report for Stage 1 was received on 29 May 2011 and the Stage 2A compliance report was received on 6 March 2015.

The Licence Holder advised DER in a letter dated 30 December 2014 that Stage A alone would be sufficient to operate at the 175Mtpa capacity and that a review of the Stage 2B was being undertaken. To date, the Stage 2B in-load infrastructure has not been constructed.

The Delegated Officer notes that the expiry date of W5643/2014/1 is 18 May 2017.

#### W5749/2014/1

Works approval W5749/2014/1 was issued on 19 February 2015 for the construction of the North Star Stage 1 Export Facility.

This addition was required to accommodate the trucking of approximately 2Mtpa of maghematite ore from the North Star deposit. This proposal involved the dumping of ore by sidetipping trucks, collection by front end loaders and stockpiling by either a mobile telestacker or front end loaders. An existing reclaimer was proposed to be used to reclaim the ore for ship loading.

As part of these proposed changes, a truck re-fuelling bay was proposed to be constructed. This refueling bay was proposed to utilise the existing 110kL fuel tank which was already in use as part of the AP5 development project. The application states that this tank is selfbunded and compliant with AS1940 (The Storage and Handling of Flammable and Combustible Liquids) and AS1692 (Steel Tanks for Flammable and Combustible Liquids).

Compliance documentation has not yet been received by DER. Available aerial imagery indicates that construction of the stockyard access road, discussed in the Works Approval application, may have commenced. Following construction of the works authorised under the works approval and prior to commissioning the Works Approval holder must submit the compliance documentation.

#### 5.1.2 Registrations

One registration (R1963/2007/1) related to the Premises is recorded in DER's system. This registration is for a category 85 sewage facility and relates to the wastewater treatment system authorised through works approval W4392/2007/1.

During a site visit on 19 July 2016, DER officers were advised by representatives of the Licence Holder that this wastewater treatment facility is no longer in use and wastewater is removed from site by a contractor.

#### 5.1.3 Licence Amendments

From the date the licence was originally issued on 23 April 2004, the licence has been amended five times with amended licences issued on 11 August 2011, 14 March 2013, 29 May 2014, 11 June 2015 and 7 July 2016.

The licence has been renewed twice on 14 April 2011 and 17 April 2014.

The most recent amendment to the Existing Licence L8194/2007/3 was on 7 July 2016 via an Amendment Notice. The amendment included the following:

- Inclusion of Category 12 (with an approved premises production or design capacity of 63,000 tonnes per Annual Period) for the use of a mobile screening plant onsite (rescreening project); and
- Inclusion of an emission point to surface water for the sample laboratory silt trap which will discharge via an overflow pipe into South West Creek. This emission point was also included in the quarterly monitoring requirement for total recoverable hydrocarbons with a limit of 15mg/L.

In a letter dated 12 October 2016, the Licence Holder advised DER that the scope of the rescreening project had changed. The letter outlined the following changes from the original amendment application:

- Ballast screened for stacker 701 only (previously 701, 702 and 704);
- Total throughput reduced from 63,000 tonnes to 45,000 tonnes;
- Program duration reduced from 15 to 10 weeks; and
- Hourly throughput may exceed the 50 tonnes per hour limit specified in the Amendment Notice.

The key emissions and risks associated with the operation of the mobile screening plant are noise and dust. As discussed in section 4.1, these matters are regulated under Part IV of the EP Act and therefore conditions will not be included in the Revised Licence.

#### **Environmental Improvement Plan**

Condition 4.1.1 of the Existing Licence requires the Licence Holder to implement an Environmental Improvement Plan (EIP) detailing dust control initiatives to be implemented onsite. The dust control initiatives included sealing primary trafficable areas, using chemical dust suppressant on secondary trafficable areas, installing a real time air quality management

system linked to Port operations, upgrading priority belt scrapers and dust hood covers, installing belt wash stations on priority conveyors, automating stockyard water cannons, upgrading priority transfer stations to prevent spillage and engaging additional clean up crews to capture spilt ore under conveyors. The Licence Holder submitted the *Herb Elliott Port Environmental Improvement Plan* (EIP FY16) on 13 May 2015.

On 2 May 2016 the Licence Holder submitted the *Anderson Point Materials Handling Facility* – *Environmental Improvement Plan* (EIP FY17) which replaces the previous version.

As discussed in section 4.1, dust emissions are regulated under Part IV of the EP Act and therefore conditions will not be included in the Revised Licence.

#### 5.1.4 Clearing

Clearing associated with the Premises has been assessed and approved through Part IV of the EP Act and as such does not require a clearing permit under Part V of the EP Act.

#### 5.1.5 Compliance

A summary of recent inspections, including dates and findings, is provided below:

- 26 March 2013 Two potential non-compliances noted in relation to spilt ore on the wharf and a failure to clean out a wash bay sump.
- 29 April 2014. No non-compliances identified.
- 16 October 2014. No non-compliances identified.

Previous inspections have also been undertaken on 16 June 2008, 13 January 2010 and 22 June 2012.

The Licence Holder were issued with a formal Letter of Warning on 16 December 2013 for an alleged contravention of the conditions of Works Approval W4814/2010/1. This related to the commissioning of infrastructure prior to the submission of a compliance document.

DER's ICMS is the system used to record complaints received and non-compliances requiring investigation. A review of ICMS indicates that there have not been any complaints received in relation to the Premises.

#### 5.1.6 Annual Audit Compliance Reports

A requirement of the current licence is the submission of an Annual Audit Compliance Report (AACR) by 31 March each year. A review of the previous three AACRs has been undertaken and reported non-compliances are detailed below.

#### 2015 AACR

The 2015 AACR covered the reporting period from 1 January to 31 December 2015. In the AACR the Licence Holder declared compliance with all conditions of the licence. DER notified the Licence Holder by letter dated 19 April 2016 that the AER and AACR were compliant.

#### 2014 AACR

The 2014 AACR covered the reporting period from 1 January to 31 December 2014. In the AACR the Licence Holder declared non-compliance with condition 4 due to gaps in dust monitoring data. The Licence Holder stated that data for BAM-1 (Wedgefield), BAM-2 and E-BAM-1 was unavailable on a number of occasions and provided reasons such as scheduled maintenance, telemetry communication errors and power outages due to cyclone events.

The Licence Holder undertook a number of initiatives to improve data availability from the dust monitoring network including data logger and modem upgrades, and installing a battery back-

up supply at BAM-1 (Wedgefield). The licence was renewed on 24 April 2014 and a footnote added to the ambient environmental air quality monitoring table to allow up to 5% data loss.

#### 2013 AACR

The 2013 AACR covered the reporting period from 1 January to 31 December 2013. In the AACR the Licence Holder declared non-compliance with condition 4 for the following:

- (1) Dust Deposition Gauge 2 (DD02) was not monitored in March as it was damaged.
- (2) Dust Deposition Gauge 1-6 (DD01-DD06) were not monitored in June as samples were lost in transit.
- (3) Dust Deposition Gauge 5 (DD05) was not monitored in July and September as it was found to be damaged on both occasions.
- (4) BAM-1 (Wedgefield), BAM-2 and E-BAM-1 were not monitored for PM<sub>10</sub> at a sample frequency of every 10 minutes on approximately 23,000 (out of a possible 157,680) occasions during the reporting period. Various reasons were provided such as scheduled maintenance, telemetry communications errors, power outages and damaged equipment due to weather events.

The Licence Holder stated that all broken sample bottles were replaced for sampling.

#### 5.1.7 Modelling and monitoring data

#### Stormwater and washdown water discharges

Conditions 2.3.2 and 2.5.2 of the Existing Licence set a limit for Total Recoverable Hydrocarbons (TRH) concentrations within stormwater discharges from the Premises of 15mg/L. Conditions 3.3.1 and 3.5.1 require the Licence Holder to monitor point source emissions to surface water and land for TRH.

Sampling of discharge points W1 and W2 for TRH has been intermittent as sampling can only be undertaken when the discharge points are flowing (generally only after rainfall events). For the 2015 reporting year, the Licence Holder reported (AER & AACR 2015) that these discharge points were only sampled once each with TRH concentrations below detectable levels (0.10mg/L) in both samples. Similar results are reported for the 2014 reporting year (AER & AACR 2014), with samples returning results of TRH below detection.

The 2014 AER & AACR reports that sampling of L1 and L2 discharge points also returned below detectable levels of TRH. In the 2015 reporting year, two minor increases of TRH are noted (3.13mg/L at L2 in Quarter 2 and 0.47mg/L at L2 in Quarter 4) however both of these are well below the limit of 15mg/L.

# 6. Consultation

DER referred the draft licence and Decision Report on 31 October 2016 to the Licence Holder. Licence Holder response to the documents was received on 23 November 2016.

# 7. Location and Siting

#### 7.1 Siting Context

The Premises is located on the south side of the Port Hedland Harbour at Anderson Point, within the Town of Port Hedland in Western Australia. The port of Port Hedland is the world's largest volume port for bulk materials export, with the main commodity passing through the port being iron ore.

The existing port operations in Port Hedland are listed in Table 8.

In addition to port operations, a number of other industrial activities are undertaken in Port Hedland including a variety of light and service industries at the Wedgefield Industrial Estate.

Operator	Bulk Granular Material	Scale of operation	
ВНРВЮ	Iron ore	Allocated capacity 270Mtpa Four berths at Nelson Point Four berths at Finucane Island	
FMG	Iron ore	Allocated capacity 175Mtpa Five berths at Anderson Point	
PPA – Utah Point	Iron ore, Manganese ore, Chromite ore	Allocated capacity 21.35Mtpa Single berth at Utah Point	
PPA - Eastern Operations	Copper concentrate	Throughput approximately 500,000 tonnes per annum Two berths in Port Hedland (berth 1 and 2)	
Dampier Salt	Salt	Allocated capacity 75,000 tonnes per day Single berth (berth 3) leased from PPA	
Roy Hill	Iron ore	Allocated capacity 55Mtpa Two berths at South West Creek	

Table 8: Port of Port Hedland operators (Category 58 and 58A premises)

# 7.2 Sensitive Land Uses

The distances to residential and sensitive receptors are detailed in Table 9.

The Town Council of Port Hedland reported a permanent population of 4,590 people in 2012/13 and has a larger population of fly-in-fly-out workforce (DoH 2016). The closest residential area to the Premises is the West End, shown in Figure 3.

Table 9: Receptors and distance from prescribed activity

Sensitive Land Uses	Distance from Prescribed Activity
The Esplanade Hotel	1.32km to the north of the Anderson Point berths
(zoned town centre – retail/business in Town of Port Hedland Planning Scheme No. 5)	
Port Hedland Visitors Centre	1.47km to the north of the Anderson Point berths
(zoned town centre – retail/business in Town of Port Hedland Planning Scheme No.5)	
Closest residential zoned premises	1.750km to the north of the Anderson Point berths
(zoned residential in Town of Port Hedland	

Planning Scheme No. 5)	
Taplin Street (zoned residential in Town of Port Hedland Planning Scheme No. 5)	3.1km to the north-east of the Anderson Point berths
South Hedland (zoned residential and community: education in Town of Port Hedland Planning Scheme No. 5)	4.5km to the south-east of the Anderson Point train loadout.
Other Relevant Land Uses	Distance from Prescribed Activity
Wedgefield Industrial Estate (zoned industry – industrial zone in Town of Port Hedland Planning Scheme No. 5)	2.5km to the south-east of the Anderson Point stockyard



Figure 3: Aerial image of the Anderson Point berths and stockyard

# 7.3 Specified Ecosystems

The distances (within a 30km radius) from the Premises to specified ecosystems are shown in

Table 10.

#### Table 10: Specified ecosystems

Specified ecosystems	Distance from Prescribed Premises
Port Hedland harbour – marine ecosystem	Within and directly adjacent to the premises boundary
Public Drinking Water Source Area (PDWSA)	The Premises is not located within a PDWSA
RAMSAR wetland	No RAMSAR wetlands are located within a 30km radius of the Premises
Geomorphic Wetlands	No geomorphic wetlands are located within a 30km radius of the Premises
Parks and Wildlife tenure	No Parks and Wildlife managed lands are located within a 30km radius of the Premises
Threatened Ecological Communities and Priority Ecological Communities	There are no threatened ecological communities and priority ecological communities within a 30km radius of the Premises
Declared Rare flora	There are no declared rare flora species recorded within a 30km radius of the Premises
Other relevant ecosystem values	Distance from Prescribed Premises
Mangrove community (high value ecosystem) <sup>#</sup>	There are six species of mangroves found in the Port Hedland Harbour. The occurrence of mangrove communities within the Premises are considered to be consistent with distribution patterns observed in similar environments in the Pilbara region. The intertidal mangrove communities provide habitat to a wide range of bird and bat species and marine invertebrates
Waterbodies	The ephemeral South West Creek passes through the operations and discharges to the west of Anderson Point, whilst South Creek, which is located outside of the operations, discharges to the east of Anderson Point

\*Department of Environment, 2006

<sup>#</sup>EPA, 2001

#### 7.4 Groundwater and water sources

The distances to groundwater and water sources is shown in Table 11.

#### Table 11: Groundwater and water sources

Groundwater and water	Distance from Premises	Environmental Value

sources		
Groundwater and groundwater salinity	The hydrogeology around the premises is characterised by shallow aquifers within surficial sediments.	Groundwater salinity (total dissolved solids) is 1,000- 3,000mg/L which is considered brackish.
	During construction of thetrain unloading facilities the Licence Holder observed groundwater at approximately 1-2 metres below ground level (mbgl).	Water used in the operation of the Premises is sourced from both groundwater and the desalination plant at the Premises
	The nearest bore is 1.3km from the train unloading facilities (based on available GIS dataset – WIN Groundwater Sites)	
RIWI Act	The Premises is located in a RIWI Act Pilbara Groundwater Area	N/A

### 7.5 Soil Type

The Premises is located on coastal plains mainly beyond marine flooding influence. The main soils are pedal calcareous earths with some associated highly calcareous earths (Northcote et al. 1960-1968).

The area surrounding Anderson Point is dominated by tidal mudflats. The marine habitat in the Port Hedland harbour has already been extensively modified and comprises of bare sandy silty sediments, which create a turbid environment from the large tidal movements in the harbour creek system.

#### 7.6 Meteorology

#### 7.6.1 Regional climatic aspects

Port Hedland is located in a semi-arid environment. The Port Hedland region has a dominant north-westerly wind direction during the summer months and south-easterly during the winter months. Spring also shows high north-westerly dominance.

#### 7.6.2 Rainfall and temperature

The Bureau of Meteorology provides the mean rainfall and maximum temperature for Port Hedland (data from 1942 to 2016 and 1948 to 2016 respectively). The Port Hedland region is hot to warm all year round with rainfall predominantly over December to July (Figure 4).

#### 7.6.3 Wind direction and strength

DER's Air Quality Branch has analysed five minute averaged wind speed and direction data for Taplin Street, for the period spanning 25 January 2012 to 24 December 2014. Taplin Street is located approximately 3.5km north east of the BHP Billiton Iron Ore ship loading area. The following wind rose (Figure 5) provides the annual wind direction and strength for this period at Taplin Street.



#### Figure 4: Mean temperature and rainfall Port Hedland





#### Frequency of counts by wind direction (%)

\*90% valid data for the 2012-14 period.

# 8. Risk Assessment

#### 8.1 Emissions, pathway, receptor identification

Identification of key potential emissions, pathways, receptors and impacts are set out in Table 12 below. Table 12 also identifies which potential emissions and impacts will be progressed to a full risk assessment. Some potential emissions/impacts may not receive a full risk assessment if a potential receptor or pathway cannot be identified or if assessment of the emission would result in regulatory duplication.

#### Table 12: Identification of key emissions

			Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Continued to detailed risk assessment ?	Reasoning
Source	Ore unloading, stockpiling, processing, transport and ship loading	Ore train unloading. Ore stockpiling by stackers. Reclaiming of ore by bucket wheel reclaimer.	Dust	Esplanade and Pier Hotels in Port Hedland town centre Residences in Port Hedland Wedgefield Industrial Estate (zoned industry)	Air/wind dispersion	Impact on health – potentially includes allergic reactions and respiratory problems Impact on amenity – visible dust leaving the Premises and dust fallout onto cars and homes	No	Currently managed under Part IV of the EP Act (refer to section 4.1)

			Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Continued to detailed risk assessment ?	Reasoning
Ore screening at screening plant. Ore transport via conveyors within stockyard area and overland to ship loading area. Ship loading via rail mounted ship loader at berths.	Ore screening at screening plant. Ore transport via conveyors within stockyard area and overland to ship loading	Noise	Esplanade and Pier Hotels in Port Hedland town centre Residences in Port Hedland Wedgefield Industrial Estate (zoned industry)	Air	Impact on amenity	No	Currently managed under Part IV of the EP Act (refer to section 4.1)	
	area. Ship loading via rail mounted ship loader at berths.	Waste and wastewater to marine waters – Spills of ore or hydrocarbons Discharge of wash down water or contaminated stormwater via specified stormwater discharge points.	BPPH Marine ecosystem Habitat	Spills directly to land Infiltration through soils to groundwater Overland or subsurface flow towards creek lines or marine waters	Land and groundwater contamination. Reduction in ecosystem health and water quality	Yes - Refer to sections 8.4	N/A	
				Marine ecosystem	Spills directly to marine waters Runoff directly to marine waters	Reduction in ecosystem health and water quality	Yes - Refer to sections 8.4	N/A

		Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Continued to detailed risk assessment ?	Reasoning
	Re-screening of ballast	Dust	Esplanade and Pier Hotels in Port Hedland town centre Residences in Port Hedland Wedgefield Industrial Estate (zoned industry)	Air/wind dispersion	Impact on health – potentially includes allergic reactions and respiratory problems Impact on amenity – visible dust leaving the Premises and dust fallout onto cars and homes	No	Currently managed under Part IV of the EP Act (refer to section 4.1)
Screening plant		Waste and wastewater to marine waters – Spills of ore or hydrocarbons Discharge of wash down water or contaminated stormwater via specified stormwater discharge points.	BPPH Marine ecosystem Habitat	Spills directly to land Infiltration through soils to groundwater Overland or subsurface flow towards creek lines or marine waters	Land and groundwater contamination. Reduction in ecosystem health and water quality	Yes - Refer to sections 8.4	N/A
Associated workshop and maintenance area		Waste and wastewater to marine waters – Spills of ore or hydrocarbons Discharge of wash down water or	BPPH Marine ecosystem Habitat	Spills directly to land Infiltration through soils to groundwater	Land and groundwater contamination. Reduction in ecosystem health and water quality	Yes - Refer to sections 8.4	N/A

		Potential Emissions	Potential Receptors	Potential Pathway	Potential Impacts	Continued to detailed risk assessment ?	Reasoning
		contaminated stormwater via specified stormwater discharge points.		Overland or subsurface flow towards creek lines or marine waters			
Unsealed trafficable areas		Dust	Esplanade and Pier Hotels in Port Hedland town centre Residences in Port Hedland Wedgefield Industrial Estate (zoned industry)	Air/wind dispersion	Impact on health – potentially includes allergic reactions and respiratory problems Impact on amenity – visible dust leaving the Premises and dust fallout onto cars and homes	No	Currently managed under Part IV of the EP Act (refer to section 4.1)
Desalination Plant	Reverse Osmosis desalination of sea water	Saline discharge to land (DMMA)	BPPH Marine ecosystem Habitat	Discharge to settlement areas with potential to subsequently discharge to South Creek	Reduction in ecosystem health and water quality	No	Discharge to DMMA which is currently managed under Part IV of the EP Act (refer to section 4.1)

# 8.2 Risk Criteria

During the assessment the risk criteria in Table 13 below will be applied to determine a risk rating set out in section 8.7.

#### Table 13: Risk Criteria

	Consequence				
Likelihood	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

Likelihood		Consequence						
The following o used to determ the risk / oppor	The following criteria has been used to determine the likelihood of the risk / opportunity occurring.		The following criteria has been used to determine the consequences of a risk occurring:					
			Public Health	Ecosystem/ Environmental				
Almost Certain	The event is expected to occur in most circumstances	Severe	<ul> <li>Loss of life</li> <li>Exposure to hazard with permanent prolonged adverse health effects expected to large population</li> <li>Health criteria is significantly exceeded</li> </ul>	<ul> <li>Irreversible impact to significant high value or sensitive ecosystem expected</li> <li>Irreversible and significant impact on a wide scale</li> <li>Total loss of a threatened species expected</li> <li>Ecosystem criteria is significantly exceeded</li> </ul>				
Likely	The event will probably occur in most circumstances	Major	<ul> <li>Exposure to hazard with permanent prolonged adverse health effects expected to small population</li> <li>Significant impact to amenity for extended periods expected to large population</li> <li>Health criteria is exceeded</li> </ul>	<ul> <li>Long-term impact to significant high value or sensitive ecosystem expected</li> <li>Long-term impact on a wide scale</li> <li>Adverse impact to a listed species expected</li> <li>Ecosystem criteria is exceeded</li> </ul>				
Possible	The event could occur at some time	Moderate	<ul> <li>Exposure to hazard with short- term adverse health effects expected requiring treatment</li> <li>Impact to amenity expected for short periods to large population</li> <li>Health criteria is at risk of not being met</li> </ul>	<ul> <li>Minor and short-term impact to high value or sensitive ecosystem expected</li> <li>Off-site impacts at a local scale</li> <li>Ecosystem criteria is at risk of not being met</li> </ul>				
Unlikely	The event is unlikely to occur	Minor	<ul> <li>Exposure to hazard with short- term adverse health effects expected</li> <li>Impact to amenity expected for short periods to small population</li> <li>Health criteria are likely to be met</li> </ul>	<ul> <li>Moderate to minor impact to ecosystem component (physical, chemical or biological)</li> <li>Minor off-site impacts at a local scale</li> <li>Ecosystem criteria are likely to be met</li> </ul>				
Rare	The event may only occur in exceptional circumstances	Insignificant	<ul> <li>No detectable impacts to health</li> <li>No detectable impacts to amenity</li> <li>Health criteria met</li> </ul>	<ul> <li>None or insignificant impact to ecosystem component (physical, chemical or biological) expected with no effect on ecosystem function</li> <li>Ecosystem criteria met</li> </ul>				

### 8.3 Risk Treatment

DER will treat risks in accordance with the Risk Treatment Matrix in Table 14 below:

Risk Rating	Acceptability	Treatment
Extreme	Unacceptable.	Risks will not be tolerated. DER will refuse proposals.
High	Acceptable subject to primary and secondary controls.	Risks will be subject to multiple regulatory controls including primary and secondary controls. This will include both outcome-based and management conditions.
Moderate	Acceptable, generally subject to primary controls.	Risks will be subject to regulatory controls with a preference for outcome-based conditions where practical and appropriate.
Low	Acceptable, generally not requiring controls beyond the proponents controls.	Risks are acceptable and will generally not be subject to regulatory controls.

#### Table 14: Risk Treatment

# 8.4 Risk Assessment - Discharge to land, groundwater and marine waters

#### 8.4.1 General Hazard Characterisation and Impact

Contaminants may enter the marine environment or impact BPPH through contaminated stormwater and wash down water discharges, spills directly to land and surface water or by infiltration of soluble contaminants to groundwater. The contaminants may be from iron ore or hydrocarbons from infrastructure, machinery and transport activities on the Premises. Iron ore is not soluble so will be present as suspended solids only.

The Premises has four dedicated stormwater discharge points, each with associated sedimentation ponds/silt traps. These are shown in Figure 2 as:

- L2 Stormwater discharge point with associated silt trap capturing runoff from the train unloading area.
- W1 Stormwater discharge point with associated sedimentation basin fed from stockyard stormwater drains.
- W2 Stormwater discharge point with associated silt trap capturing runoff from Australia Island laydown area.
- W3 Stormwater/ washdown water discharge point with associated sediment pond capturing runoff from the laboratory/ sample station area.

The discharge point shown as L3 in Figure 2 discharges effluent from the desalination plant. As discussed in section 4.1, this discharge is effectively managed under Part IV of the EP Act and will not be considered further through this Review.

Discharge point L1 in Figure 2 relates to a discharge of treated water into process water tanks for OWS 1 and 2. According to DER's report on the findings of the October 2014 site inspection, all contaminated waters generated from the washdown bays, train unloader and fuel farm are treated through the OWS network. The process water tanks collect treated water from the OWSs and store it for use in dust suppression. Hydrocarbon wastes are collected and removed from site by a contractor.

Monitoring data summarised in section 5.1.6 indicates that TRH levels in discharges from the Premises are consistently low and generally below detection levels.

Discharges containing hydrocarbons can impact receiving water quality and disrupt the ecology of marine waters and creeks. Discharges with high sediment loads (possibly as a result of spilt ore or soil picked up by runoff) can also cause sedimentation, potentially impacting the surrounding mangrove community. Hydrocarbon discharges may also result in the contamination of land and impacts upon aquatic ecosystems.

#### 8.4.2 Criteria for Assessment

The ship loading infrastructure which forms part of the Premises is located within the Port Hedland harbour, which has been characterised as requiring moderate ecological protection (Department of Environment, 2006) and the mangrove community in the Port Hedland harbour is a high value ecosystem (EPA 2001).

#### 8.4.3 Licence Holder's controls

The Licence Holder operates the Premises in accordance with the following management plans.

• Surface Water Management Plan, 2014;

- Mangrove Protection Management Plan, 2011; and
- Chemical and Hydrocarbon Management Plan, (Revision 2) 2014.

The Licence Holder's stormwater, wash-down and process water controls are identified in Table 15.

#### Table 15: Licence Holder's controls for stormwater, wash-down and process water

Controls for stormwater, wash-down and process water				
Infrastructure	Description			
Stormwater discharge locations	Stormwater collected at the Premises is directed to settlement ponds to minimise sediment loads prior to discharge at the following locations:			
	Sedimentation basin discharging into South West Creek (W1)			
	Australia Island silt trap discharged via spillway into South Creek (W2)			
	<ul> <li>Sample laboratory silt trap discharged via overflow pipe into South West Creek (W3)</li> </ul>			
Process Water Tanks for OWS 1 and 2	Water from the vehicle washdown bays, workshop, train unloader, fuel farm and refueling bays is passed through an oily water separator and temporarily stored in tanks (L1) prior to use in dust suppression.			
Train Unloader 3 Silt Trap	Excess wash-down and dust suppression water from the train unloader areas is collected in a silt trap (L2) prior to being discharged to the rail loop.			
Desalination plant	Desalination plant wastewaters are discharged to a DMMA (regulated through MS) which may occasionally overflow into South Creek.			

The Licence Holder's controls for chemical and hydrocarbon storage are shown in Table 16.

#### Table 16: Licence Holder's controls for ore and hydrocarbon spills

Controls for chemical and hydrocarbon storage				
Controls	Description			
Required actions	• Chemicals and hydrocarbons will be stored in a manner consistent with AS 1940-2004, utilising specially designed facilities, including any necessary bunding. Hydrocarbons and chemicals are to be stored only at designated areas;			
	<ul> <li>Ensure a current Material Safety Data Sheets for chemicals stored is maintained near all storage areas, in a clearly identified file;</li> </ul>			
	<ul> <li>Class 3 chemicals and hydrocarbons shall be separated from boundaries, ignition sources, (including cigarettes) protected places and accumulations of combustible materials by the distances indicated in AS 1940-2004;</li> </ul>			
	<ul> <li>Ensure that safe access to and egress from the storage vessels is maintained at all times;</li> </ul>			
	<ul> <li>Storage facilities containing greater than 10 kL of chemicals or hydrocarbons shall be located on open land;</li> </ul>			
	<ul> <li>Storage facilities should be secured from public access;</li> </ul>			

<ul> <li>Bunding at the Main Tank Farm at Anderson Point will have a capacity of 22 ML;</li> </ul>
<ul> <li>Bunding at the Truck Loading Facility will have a capacity of 1 ML;</li> </ul>
<ul> <li>In other instances, storage shall utilise bunding capable of storing 110% of the volume of the largest vessel, or 10% of the total volume;</li> </ul>
<ul> <li>Any drainage valves within storage bunds should be kept closed at all times, unless being used to drain the bund into an appropriate vessel for treatment or disposal;</li> </ul>
<ul> <li>Bunding shall be inspected following all rainfall events and if necessary during major rainfall events where safety permits;</li> </ul>
<ul> <li>Spill cleanup within bunded areas shall utilise only materials that are compatible with the oil/water separators;</li> </ul>
<ul> <li>Any potential flow of a spill shall be prevented from draining to a protected place or watercourse via drainage management;</li> </ul>
<ul> <li>Water collected at the facility shall be managed according to the relevant section in this management plan. For other chemicals, or where there is the potential for contamination of water, liaise with the Environment Superintendent to determine an appropriate testing and disposal approach;</li> </ul>
<ul> <li>Storage tanks shall not be overfilled;</li> </ul>
<ul> <li>Tank vents and fittings shall be inspected at least annually, or on arrival on site for temporary storage vessels;</li> </ul>
<ul> <li>Tanks shall only be used to store the chemicals for which they are labelled.</li> </ul>

The Licence Holder's controls for ore and hydrocarbon spills are shown in Table 17.

#### Table 17: Licence Holder's controls for ore and hydrocarbon spills

Controls for ore spillages				
Management controls	Description			
Minimise spillage	The conveyor along the wharf to the ship loaders is over marine waters. Risk of spillage to the harbour is minimised by:			
	<ul> <li>Ore being maintained at a moisture content that prevents dispersion into the air</li> </ul>			
	Sides of the conveyor are concave to prevent spillage			
Ore clean up	Street sweepers operate on a regular basis removing spilt ore from roads and hardstands around the ore handling infrastructure			
Controls for chemica	Controls for chemical and hydrocarbon spills			
Controls	Description			
Required actions	Maintain spill trailers for spills during transport			
	Spill clean up within bunded areas shall only use materials compatible			

<ul> <li>with the relevant oily water separator</li> <li>Prevent significant spills from reaching surface or ground water systems and the drainage network</li> <li>For spills that cannot be managed with the use of spill kits, ensure that the spill response checklist is completed to ensure that the spill has been effectively managed or that the Emergency Response Procedure is implemented as required</li> <li>Bulk spills of hydrocarbons and chemicals shall be managed according to the site Emergency Response Procedure</li> <li>Appropriate spill equipment shall be located in close proximity to where chemicals and hydrocarbons are being used</li> <li>Ensure that spill kits and trailers are regularly audited and following use, and are replenished as necessary</li> <li>Any contaminated soils or sediments should be removed for treatment within an approved hydrocarbon bioremediation facility</li> </ul>			
<ul> <li>Prevent significant spills from reaching surface or ground water systems and the drainage network</li> <li>For spills that cannot be managed with the use of spill kits, ensure that the spill response checklist is completed to ensure that the spill has been effectively managed or that the Emergency Response Procedure is implemented as required</li> <li>Bulk spills of hydrocarbons and chemicals shall be managed according to the site Emergency Response Procedure</li> <li>Appropriate spill equipment shall be located in close proximity to where chemicals and hydrocarbons are being used</li> <li>Ensure that spill kits and trailers are regularly audited and following use, and are replenished as necessary</li> <li>Any contaminated soils or sediments should be removed for treatment within an approved hydrocarbon bioremediation facility</li> </ul>			with the relevant oily water separator
<ul> <li>For spills that cannot be managed with the use of spill kits, ensure that the spill response checklist is completed to ensure that the spill has been effectively managed or that the Emergency Response Procedure is implemented as required</li> <li>Bulk spills of hydrocarbons and chemicals shall be managed according to the site Emergency Response Procedure</li> <li>Appropriate spill equipment shall be located in close proximity to where chemicals and hydrocarbons are being used</li> <li>Ensure that spill kits and trailers are regularly audited and following use, and are replenished as necessary</li> <li>Any contaminated soils or sediments should be removed for treatment within an approved hydrocarbon bioremediation facility</li> </ul>		•	Prevent significant spills from reaching surface or ground water systems and the drainage network
<ul> <li>Bulk spills of hydrocarbons and chemicals shall be managed according to the site Emergency Response Procedure</li> <li>Appropriate spill equipment shall be located in close proximity to where chemicals and hydrocarbons are being used</li> <li>Ensure that spill kits and trailers are regularly audited and following use, and are replenished as necessary</li> <li>Any contaminated soils or sediments should be removed for treatment within an approved hydrocarbon bioremediation facility</li> </ul>		•	For spills that cannot be managed with the use of spill kits, ensure that the spill response checklist is completed to ensure that the spill has been effectively managed or that the Emergency Response Procedure is implemented as required
<ul> <li>Appropriate spill equipment shall be located in close proximity to where chemicals and hydrocarbons are being used</li> <li>Ensure that spill kits and trailers are regularly audited and following use, and are replenished as necessary</li> <li>Any contaminated soils or sediments should be removed for treatment within an approved hydrocarbon bioremediation facility</li> </ul>		•	Bulk spills of hydrocarbons and chemicals shall be managed according to the site Emergency Response Procedure
<ul> <li>Ensure that spill kits and trailers are regularly audited and following use, and are replenished as necessary</li> <li>Any contaminated soils or sediments should be removed for treatment within an approved hydrocarbon bioremediation facility</li> </ul>		•	Appropriate spill equipment shall be located in close proximity to where chemicals and hydrocarbons are being used
<ul> <li>Any contaminated soils or sediments should be removed for treatment within an approved hydrocarbon bioremediation facility</li> </ul>		•	Ensure that spill kits and trailers are regularly audited and following use, and are replenished as necessary
		•	Any contaminated soils or sediments should be removed for treatment within an approved hydrocarbon bioremediation facility

#### 8.4.4 Consequence

Based upon the relevant factors discussed in this report, the Delegated Officer has determined that discharges of contaminated stormwater, wash down water or direct spills to land or surface waters may result in minor and short-term impacts to sensitive ecosystems. Therefore, the Delegated Officer considers the consequence to be *moderate*.

#### 8.4.5 Likelihood of consequence

Based upon the relevant factors discussed within this report, the Delegated Officer has determined that it is unlikely that the discharge of contaminated stormwater, wash down water or direct spills will cause an impact to sensitive ecosystems. Therefore, the Delegated Officer considers the consequence to be **unlikely**.

#### 8.4.6 Overall rating

The Delegated Officer has compared the consequence and likelihood ratings described above through the Risk Matrix (Table 13) and determined that the overall rating for the risk of discharges of contaminated stormwater, wash down water or direct spills causing an impact to sensitive receptors during operation is *Moderate*.

# 8.5 Summary of Risk Assessment and Acceptability

The risk items identified in section 8 including the application of risk criteria and the acceptability with treatment are summarised in Table 17 below.

#### Table 17: Risk rating of emissions

	Emission		Pathway and	Proponent	Impact	Risk Rating	Acceptability with
	Туре	Source	Neceptor				(conditions on instrument
1.	Waste and wastewater to land, groundwater and marine waters	Spills of ore or hydrocarbons and discharge of wash down water or contaminated stormwater from infrastructure and runoff within the Premises	Direct spills and discharges points to land or marine waters Infiltration through soil to groundwater Overland or subsurface flow towards creek lines or marine waters	Infrastructure, specified actions and monitoring	Land and groundwater contamination. Reduction in ecosystem health and water quality	Moderate consequence Unlikely <b>Moderate risk</b>	Acceptable subject to Licence Holder controls conditioned

# 9. Determined Regulatory Controls

#### 9.1 Summary of Controls

A summary of the regulatory controls determined by the risk rating of emissions in section 8.7 is summarised in Table 18.

#### Table 18: Regulatory controls



#### 9.2 Infrastructure and Equipment controls

#### 9.2.1 Treatment and discharge of potentially hydrocarbon contaminated water

The following environmental controls, infrastructure and equipment should be maintained and operated onsite for stormwater and wash water management:

- Hardstands and drains around areas storing or using hydrocarbons which are likely to enter washdown water or stormwater (i.e. the workshop, vehicle washdown bays, train unloader facilities, refueling areas, fuel storage tanks etc.) must be installed and maintained so that potentially contaminated water is directed into an OWS.
- OWS and associated sump infrastructure must be maintained and operated to effectively treat potentially contaminated water so that TRH concentrations in treated water are below the limit of 15mg/L.
- Treated water within the process water tanks to be used for dust suppression purposes must have a TRH concentration of less than or equal to 15 mg/L (tested monthly via a grab sample).

**Note:** Infrastructure and Equipment controls are derived from those currently undertaken by the Licence Holder.

**Grounds:** Monitoring for TRH is required to confirm that water has been effectively treated by the OWS prior to use in dust suppression.

#### 9.2.2 Discharge of uncontaminated stormwater

Stormwater (other than potentially contaminated stormwater captured within the areas described in section 9.2.1) must be temporarily contained within a sedimentation basin or silt trap to allow for the settling of suspended sediment prior to being discharged from the locations listed in Table 19.

Emission point	Description	Source including abatement
W1	Sedimentation basin discharging into South West Creek	Stormwater
W2	Australia Island silt trap discharged via spillway into South Creek	Stormwater
W3	Sample laboratory silt trap discharged via overflow pipe into South West Creek	Stormwater
L2	Silt trap discharge from train unloading area	Stormwater

Table 19: Emission	points to	surface	water
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**Note:** Infrastructure and Equipment controls are derived from those currently undertaken by the Licence Holder.

**Grounds:** As there is a direct discharge to the marine environment, the discharge points listed in Table 19 and the description of control (sedimentation basin or silt trap) will be retained on the Revised Licence. Monitoring of discharges is not required as this water should not have come in to contact with hydrocarbons and should have been retained in sedimentation basins or silt traps to remove the majority of suspended sediments prior to discharge.

#### 9.2.3 Spill control infrastructure

The following environmental controls, infrastructure and equipment should be maintained and operated onsite for spill management:

- conveyor skirts have sufficient distance from the product to belt edge to minimize spillage;
- spill kits available and utilised where needed.

#### 9.3 Specified actions

#### 9.3.1 Spill control actions

The following action should be undertaken for spill management;

• Spilled ore is cleaned up after every ship loading event.

#### 9.4 Limits

#### 9.4.1 Discharge to land

Wastewater discharges from OWS shall not contain a greater than 15 mg/L TRH. Post treatment wastewater is directed to process water tanks for use in dust suppression.

The Environmental Protection (Unauthorised Discharge) Regulations 2004 (UDR) outlines a number of materials including petrol, diesel or other hydrocarbons that if discharged into the environment causes an offence. Should hydrocarbons be released into the environment it may be considered an offence. Should the hydrocarbons be considered to be from the treated wastewater (post oily water separator treatment) and requirements of the licence are met, a defence to the offence provision in the UDR is available.

#### 9.5 Monitoring Requirements

#### 9.5.1 Discharges to land monitoring

The treated wastewater stored within the process water tanks following treatment in an OWS shall be monitored for TRH in mg/L.

Samples shall be analysed by a NATA accredited laboratory.

# **10. Setting Conditions**

The conditions in the Revised Licence have been determined in accordance with DER's Guidance Statement: *Setting Conditions* (October 2015). The grounds for the applied conditions is shown in Table 20.

DER's Guidance Statement: *Licence Duration* (November 2014) has been applied and the Revised Licence expires in 13 years from date of issue.

Table 20: Grounds for applied conditions

Condition Ref	Grounds		
Environmental Compliance	Environmental compliance is a valid, risk-based condition		
Condition 1	to ensure appropriate linkage between the licence and		
	the EP Act		
Notification of Material Change	These conditions are valid, risk-based and enable		
Conditions 2, 3 and 4	flexibility in operations		
Infrastructure and Equipment	These conditions are valid, risk-based and contain		
Conditions 5 and 6	appropriate controls (see section 9.2 of this Decision		
	Report)		
Wash water Monitoring and Limits	These conditions are valid, risk-based and contain		
Conditions 7, 8, 9 and 10	appropriate controls (see section 9.2 of this Decision		
	Report)		
Emissions	This condition is valid, risk-based and consistent with the		
Condition 11	EP Act		
Information	These conditions are valid and are necessary		
Conditions 12, 13, 14, 15, 16, 17 and 18	administration and reporting requirements to ensure		
	compliance		

DER notes that it may review the appropriateness and adequacy of controls at any time, and that following a review, DER may initiate amendments to the licence under the EP Act.

# 11. Applicant's Comments on Risk Assessment

The applicant was provided with the draft decision report and draft Revised Licence on 31 October 2016.

# 12. Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this Decision Report (summarised in Appendix 2). This assessment was also informed by a site visit by DER officers on 19 July 2016.

Based on this assessment, it has been determined that the Revised Licence will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

#### Agnes Tay Director Strategy and Reform

delegated Officer under section 20 of the Environmental Protection Act 1986

# Appendix 1: Premises coordinates

Point	Easting	Northing
1	663755.4703	7749805.97
2	664039.5832	7750912.963
3	664039.7716	7750913.698
4	664039.2861	7750913.267
5	664037.5358	7750915.057
6	663884.678	7751071.354
7	663851.7799	7751071.399
8	663829.4115	7751041.582
9	663828.3979	7751040.231
10	663814.7289	7751050.508
11	663784.6116	7751073.152
12	663784.069	7751073.661
13	664246.2404	7751696.36
14	664293.2603	7751761.03
15	664354.9803	7751716.67
16	665206.6503	7751110.64
17	665262.4903	7751070.31
18	665243.4404	7751041.94
19	664302.9804	7751707.97
20	664281.6203	7751635.27
21	664313.3705	7751627.361
22	664310.2746	7751603.339
23	664330.252	7751564.663

24	664311.5346	7751490.448
25	664284.9731	7751394.848
26	664238.8856	7751363.926
27	664205.4797	7751246.493
28	664189.7303	7750943.82
29	664122.4404	7750932.69
30	663747.8603	7749495.2
31	663416.2803	7747690.02
32	663381.7503	7747499.99
33	663252.9616	7746805.601
34	663136.2716	7746875.129
35	663102.1845	7746690.535
36	663164.0174	7746580.324
37	663112.5934	7746353.076
38	662982.6375	7746376.951
39	662808.7196	7746425.635
40	662857.5403	7746617.77
41	662933.7504	7746602.43
42	663024.6691	7746943.684
43	662953.8126	7747001.317
44	662786.4282	7747158.631
45	662729.0871	7747201.973
46	662679.6994	7747487.69
47	663128.2181	7749890.306
48	663180.1003	7749929.26

MGA Zone 50

# Appendix 2: Key Documents and References

	Document Title	In text ref	Availability
1	ANZECC & ARMCANZ, 2000. Australian and New Zealand guidelines for fresh and marine water quality. Volume 1, The guidelines. National Water Quality Management Strategy Paper No 4, Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand.	ANZECC & ARMCANZ, 2000	Accessed at https://www.environment.gov.au/
2	BOM, 2016. <i>Climate statistics for</i> <i>Australian locations.</i> Bureau of Meteorology. Accessed 25 May 2016	BOM 2016	Extracted from www.bom.gov.au
3	DEC, 2013, <i>Compliance Inspection</i> <i>Checklist &amp; Report – 26 March</i> <i>2013</i> . Department of Environment Conservation.	DEC 2013	DER records (hardcopy)
4	DER, 2014, <i>Compliance Inspection</i> <i>Report – 29 April 2014.</i> Department of Environment Regulation.	DER April 2014	DER records (hardcopy)
5	DER, 2014, <i>Compliance Inspection</i> <i>Checklist &amp; Report – 16 October</i> <i>2014</i> Department of Environment Regulation.	DER October 2014	DER records (A831929)
6	DER, 2015, <i>Guidance Statement:</i> <i>Regulatory principles</i> . Department of Environment Regulation.	DER July 2015	https://www.der.wa.gov.au/our- work/regulatory-reform
7	DER, 2015, <i>Guidance Statement:</i> Licensing and works approvals processes. Department of Environment Regulation.	DER September 2015	
8	DER, 2015, <i>Guidance Statement:</i> Setting conditions. Department of Environment Regulation.	DER October 2015	
9	DER, 2014, <i>Guidance Statement:</i> <i>Licence duration</i> . Department of Environment Regulation.	DER November 2014	
10	DER, 2016, Amendment Notice -	DER 2016	www.der.wa.gov.au

	Document Title	In text ref	Availability
	Notice of Amendment to Licence L8194/2007/3, 7 July 2016. Department of Environment Regulation.		
11	DoE, 2006. Pilbara Coastal Water Quality Consultation Outcomes: Environmental Values and Environmental Quality Objectives March 2006, Department of Environment.	DoE 2006	Accessed at http://edit.epa.wa.gov.au/EPADocLib/pilbar acoastalwaterquality_Marine%20Report%2 01.pdf
12	DoH, 2016, Port Hedland Air Quality Health Risk Assessment for Particulate Matter January 2016. Department of Health.	DoH 2016	Accessed at
			http://ww2.health.wa.gov.au/~/media/Files/ Corporate/general%20documents/Environm ental%20health/Port%20Hedland%20Healt h%20Assessment.ashx
13	DSD, 2010, Port Hedland Air Quality	Management	Accessed at
	March 2010. Department of State Development.	Plan	http://www.dsd.wa.gov.au/docs/default- source/default-document- library/ph_air_quality_noise_management_ plan_0310?sfvrsn=8
14	EPA, 2001, Guidance Statement for the protection of tropical arid zone mangroves along the Pilbara coastline, No. 1. Environmental Protection Authority.	EPA 2001	Accessed at http://www.epa.wa.gov.au/epadoclib/1011_ gs1.pdf
15	EPA, 2005, Pilbara Iron Ore and	Bulletin 1173	Accessed at
	Infrastructure Project: Port and North-South Railway (Stage A), Fortescue Metals Group Limited, Report of EPA Bulletin 1173. Environmental Protection Authority.		http://epa.wa.gov.au/EPADocLib/2685_Bull etin1286.pdf
16	EPA, 2008, Port Facility Upgrade Anderson Point, Port Hedland Dredging and wharf construction- third berth, Report of EPA Bulletin 1286. Environmental Protection Authority.	Bulletin 1286	Accessed at http://www.epa.wa.gov.au/EIA/EPAReports/ Pages/2685_PortFacilityUpgrade- AndersonPointPortHedIan.aspx
17	FMG, 2011, <i>Dust Environmental</i> <i>Management Plan (P-PL-EN-0010),</i> <i>18 May 2011.</i> Fortescue Metals Group Ltd.	FMG May 2011a	Accessed at http://fmgl.com.au/community/environment/ environment-library
18	FMG, 2011, <i>Mangrove Protection</i> <i>Management Plan (P-PL-EN-0012),</i> <i>18 May 2011.</i> Fortescue Metals Group Ltd.	FMG May 2011b	Accessed at http://fmgl.com.au/community/environment/ environment-library

	Document Title	In text ref	Availability
19	FMG, 2011, Chemical and Hydrocarbon Management Plan, 2011. Chemical and Hydrocarbon Management Plan (45-PL-EN-0011), 16 June 2011. Fortescue Metals Group Ltd.	FMG June 2011c	Accessed at http://fmgl.com.au/community/environment/ environment-library
20	FMG, 2014, Annual Environmental Monitoring Report – 2013 45-RP- EN-1012, 31 March 2014 and Annual Audit Compliance Report L8194/2007/2. Fortescue Metals Group Ltd.	FMG 2014a	DER records (A742168)
21	FMG, 2014, <i>Surface Water</i> <i>Management Plan (100-PL-EN- 1015), December 2014.</i> Fortescue Metals Group Ltd.	FMG 2014b	Accessed at http://fmgl.com.au/community/environment/ environment-library
22	FMG, 2015, Annual Environmental Monitoring Report – 2014 100-RP- EN-9613, 31 March 2015 and Annual Audit Compliance Report L8194/2007/2. Fortescue Metals Group Ltd.	FMG 2015a	DER records (zA82326)
23	FMG, 2015, EIP FY16. Herb Elliott Port Environmental Improvement Plan P-PL-EN-0024, Revision 2, 13 May 2015. Fortescue Metals Group Ltd.	FMG 2015b	DER records
24	FMG, 2016, Annual Environmental Monitoring Report – 2015 100-RP- EN-9628, 28 March 2016 –Annual Audit Compliance Report L8194/2007/3. Fortescue Metals Group Ltd.	FMG 2016a	DER records (A1075248)
25	FMG, 2016, EIP FY17. Anderson Point Materials Handling Facility – Environmental Improvement Plan FY17 P-PL-EN-0026 Rev0, 30 April 2016. Fortescue Metals Group Ltd.	FMG 2016b	DER records
26	FMG, 2016, <i>RE: Anderson Point</i> <i>Materials Handling Facility</i> <i>(L8194/2007/3) Amendment Notice,</i> <i>Category 58 -</i> 12 October 2016. Fortescue Metals Group Ltd,	FMG 2016c	DER records (A1178774)
27	Ministerial Statement No. 690	MS 690	Accessed at
28	Ministerial Statement No. 771	MS 771	http://www.epa.wa.gov.au/peia/approvalstat

	Document Title	In text ref	Availability
29	Ministerial Statement No. 859	MS 859	ements/Pages/default.aspx?a=Y&ind=7
30	Northcote,K.H. with Beckmann,G.G., Bettenay,E., Churchward,H.M., Van Dijk,D.C., Dimmock,G.M., Hubble,G.D., Isbell,R.F., McArthur,W.M., Murtha,G.G., Nicolls K.D., Paton,T.R., Thompson,C.H., Webb,A.A. and Wright,M.J. (1960- 1968). Atlas of Australian Soils, Sheets 1 to 10. With explanatory data (CSIRO Aust. and Melbourne University Press: Melbourne).	Northcote et al. 1960- 1968	DER internal systems

# Appendix 3: Summary of Applicant's Comments on Risk Assessment and Draft Conditions

The following comments wer	e received from the L	icence Holder on 2	22 November 2016
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Condition	Licence Holder Comments	DER response
Condition 7: Wastewater Monitoring and Limits	The Licensee requested rewording of Monitoring results to be reported. Suggested amendment	Noted and amended. Format of the condition has also been amended so that it is presented in a clear and easily understand manner.
	Monitoring to be undertaken as the Licensee does not wish to undertake monthly reporting to the DER. The Licensee also noted that the existing licence requires annual reporting.	
Condition 7: Wastewater Monitoring and Limits	The Licensee commented that the risk assessment does not indicate an increased risk of hydrocarbon emissions on or to the environment with respect to requiring monthly monitoring of TRH within treated wastewater.	Noted and accepted. The monitoring frequency has been amended to quarterly.
	Suggested amendment The Licensee requested the monitoring period as listed in Condition 7, Table 1, Column 3 be quarterly, as per the existing monitoring frequency.	

Condition Licence Holder Comments		DER response	
Condition 7: Wastewater Monitoring and Limits	The Licensee noted that the information provided in Condition 7, Table 1, Column 2, excludes monitoring for other surface water discharges (W1, W2) which are referred to in Schedule 1, Tables 3 and 6.	Noted. The Delegated officer has considered that based on the risk assessment and on understanding that there is minimal to no sources hydrocarbon monitoring at other emission points for TRH is not required. The Delegated Officer has determined that the primary source of hydrocarbon is from the OWS which collected wastewater from the fuel farm, wash down facility and train unloading facility. As such, a condition has only been applied to the monitoring of treated water at the process water tanks to determine if	
		the OWS facility is working to remove hydrocarbons to below the indicated TRH limits. The Delegated Officer also notes that	
		there are offences detailed in the Environmental Protection (Unauthorised Discharge) Regulation 2004 for the discharge of certain material into the environment.	
Condition 7: Wastewater Monitoring and Limits	The Licensee requested Table 1, Column 2, clarified to specify the named discharge point location of L1.	Noted and updated.	
Condition 14: Information – Compliance Reporting dates	The Licensee requested a change to the wording of the condition. The <i>Licence Holder</i> must submit to the <i>CEO</i> within 91 days after the <i>Anniversary Date</i> , a <i>Compliance</i> <i>Report</i> indicating the extent to which the <i>Licence Holder</i> has complied with the <i>Conditions</i> in this Licence for the <i>Annual Period</i> . The request was made to allow the	Noted and amended.	
	Licensee to streamline current reporting for other licences which are due on 31 March.		
Definitions and Interpretation - Material Change	The Licensee queried the wording of part (c) whereby <i>excluded changes</i> had not been specified within the licence and wording was to be replaced with <i>non-material-change</i> .	Noted and amended.	
Schedule 2, Table 3: Infrastructure and Equipment	The Licensee confirmed that there was a singular tank of 52,400L capacity within the Premises.	Noted and amended.	
Schedule 3, Table 6: Infrastructure Controls table (Point 1.)	The Licensee confirmed that the stockyard and causeway conveyors do not have silt traps.	Noted and operation details column amended.	
Schedule 3, Table	W2 removed The Licensee noted	Noted. Reference to the spillway into	

Condition	Licence Holder Comments	DER response
6: Infrastructure Controls table (Point 1.)	that the W2 – Australia Island silt trap discharged via spillway into South Creek is outside the proposed revised premises boundary.	South Creek has been removed. The discharge point (W3) has remained on the premises figure and within the Licence.
Schedule 3, Table 6: Infrastructure Controls table (Point 2.)	The Licensee advised that TUL1 has a concrete containment area and OWS. TUL2 and 3 have their own discharge point (of L2).	Noted and information added.
Schedule 3, Table 6: Infrastructure Controls table (Points 2, 3, and 4)	The Licensee requested that the reference to concrete permeability be removed from the Description column and that concrete used around infrastructure was poured meeting relevant Australian Standards.	Noted and amended to include a comment
Schedule 3, Table 6: Infrastructure Controls table (Point 4)	The Licensee indicated that the 'fuel farm tank is self-bunded and that an apron around the fuel tank is designed to capture minor refueling spills'.	Noted. Reference to the fuel farm has been removed as this is considered to be a secondary activity at the Premises (below threshold of Category 73)
		The Delegated Officer notes that there are Dangerous Good requirements (administered by the Department of Mines and Petroleum) for the storage of hydrocarbons and other chemicals. In addition to Delegated Officer notes that provisions of the EP Act apply in the event of an incident or spill.
Schedule 3, Table 6: Infrastructure Controls table (Point 5 <i>now</i> <i>deleted</i> )	The Licensee indicated that 'there is no containment bunds around the conveyor transfer stations. The only discharge is infrequent iron ore spills which don't need to be sent to an OWS.'	Noted and deleted.
Schedule 3, Table 6: Infrastructure Controls table (Point 6 <i>now</i> <i>deleted</i> )	The Licensee noted that only 'Utah Point Road overhead conveyors are covered (CV901, CV905 and CV906)'.	Noted. The Delegated Officer has removed the row in its entirety. This is due to conveyor covers as a control to aid storm water management does not exist for the majority of conveyors across the site.
Schedule 3, Table 6: Infrastructure Controls table (Point 8)	The Licensee requested confirmation on where the Description information on the 15% surge capacity specification.	Noted and replaced with information on the conveyor having enclosed transfer points.
Schedule 3, Table 6: Infrastructure Controls table (Point 10 – Berth Clean up	The Licensee requested that the proposed Operation details, be removed.	Noted. The Delegated Officer has amended this control to ensure that it reflects the current practice, addresses the risk as is valid and enforceable.
		The Delegated Officer has derived the control from <i>FMG</i> , <i>Environmental Improvement Plan</i> , <i>Herb Elliot Port</i> , <i>13 May 2015 – P-PL-EN-0024</i> (Action 1.1, and Action 1.4, p.30) and based on the

Condition	Licence Holder Comments	DER response
		Delegated Officers understanding of the current operational practices in place at the Premises for the management of ore spills and clean-up.

# Attachment 1: Revised Licence L8194/2007/3