



LICENCE

Environmental Protection Act 1986, Part V

LICENCE NUMBER: L8437/2010/3

FILE NUMBER: 2012/000069

LICENSEE AND OCCUPIER OF PREMISES

BHP Billiton Nickel West Pty Ltd
City Square 125 St. Georges Terrace
PERTH WA 6000

ACN: 004 184 598

NAME AND LOCATION OF PREMISES

1. Kwinana Nickel Refinery
Lot 5 on Plan 19088 Patterson Road
KWINANA BEACH WA 6167
(as depicted in Attachment 2)
2. Baldivis Facility
Lot 820 on Plan 77252 Millar Road
BALDIVIS WA 6171
(as depicted in Attachment 2)

PRESCRIBED PREMISES CATEGORY

Schedule 1 of the *Environmental Protection Regulations 1987*

CATEGORY	DESCRIPTION	CAPACITY
31	Chemical manufacturing	2701 tonnes of hydrogen sulfide gas per annum
34	Oil or gas refining	5840 tonnes of hydrogen gas per annum
44	Metal smelting or refining	75,000 tonnes of nickel metal per annum
67	Fuel burning	7,500 kilograms per hour

CONDITIONS OF LICENCE

Subject to the conditions of licence set out in the attached pages.

Date signed: 30 October 2015

Lauren Trott

Officer delegated under section 20
of the *Environmental Protection Act 1986*

ISSUE DATE: FRIDAY, 30 OCTOBER 2015

COMMENCEMENT DATE: SATURDAY, 31 OCTOBER 2015

EXPIRY DATE: MONDAY, 30 OCTOBER 2017



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DEFINITIONS

In these conditions of licence, unless inconsistent with the text or subject matter:

“Biannually” with respect to monitoring means twice per calendar year separated by at least four months;

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

‘CEO’ for the purpose of correspondence means;

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

“EPP” means the *Environmental Protection (Kwinana) (Atmospheric Waste) Policy 1999*;

“g/s” means grams per second;

“Hydrogen Sulfide Vent Flare” means the emission point at location ‘17’ as depicted in Attachment 3;

“Metals Building Baghouses ” means baghouses 3T-10, 3T-156, 3T-306 and 3T-308;

“m/min” means metres per minute;

“m³/s” in relation to a gaseous discharge, means cubic metres per second at exit temperature and pressure;

“NATA” means the National Association of Testing Authorities and “NATA accredited” means the submission of a sample to a laboratory which is NATA accredited for the analysis specified;

“Normal Operating Conditions” means any operation of a particular process excluding start-up, shut-down and upset conditions, in relation to stack sampling or monitoring;

“Pressure Swing Absorption Flare” means the emission point at location ‘23’ in Attachment 3;

“Step Change” means a dust detection probe in a Metals Building Baghouse has an output of 25 per cent or greater;

“STP, dry” means standard temperature and pressure (0°Celsius and 101.325 kilopascals respectively), dry;

“Tail Gas Scrubber” means the emission point at location ‘14’ as depicted in Attachment 3;

“USEPA” means Unites States (of America) Environmental Protection Agency;

‘USEPA Method 2’ means the promulgated Test Method 2 – Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube);



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'USEPA Method 4' means the promulgated Test Method 4 – Determination of Moisture Content in Stack Gases;

'USEPA Method 5' means the promulgated Test Method 5 - Determination of Particulate Matter Emissions from Stationary Sources;

'USEPA Method 17' means the promulgated Test Method 17- Determination of Particulate Matter Emissions from Stationary Sources;

'USEPA Method 29' means the promulgated Test Method 29 – Determination of Metals Emissions from Stationary Sources;

"Usual Business Day" means the days Monday to Friday inclusive, excluding public holidays;

"%" means percentage; and

"% v/v" means volume of gas being reported per total volume of gas being analysed expressed as a percentage.

GENERAL CONDITIONS

CALIBRATION

1. The licensee shall have all monitoring equipment referred to in any condition of this licence calibrated in accordance with the manufacturer's specifications, requirements of this licence or an appropriate Australian or International (ISO) Standard.
2. The licensee shall, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO as soon as practicable accompanied with a report comprising details of any modifications to the methods.

EMISSION TO AIR

POINT SOURCE STACK MONITORING

- 3(a). The licensee shall implement a manual stack monitoring program for the locations specified in column 5 of Table 1 for the parameters specified in column 1 of Table 1 at the frequency specified in column 2 of Table 1, using the sampling method specified in column 3 of Table 1 and in the units specified in column 4 of Table 1, during Normal Operating Conditions.



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Table 1 – Point source air emission monitoring program for Kwinana Nickel Refinery

Column 1 Parameter to be Monitored	Column 2 Frequency	Column 3 Monitoring Method	Column 4 Units	Column 5 Location (as depicted in Attachment 3)
Velocity	Biannually	USEPA Method 2	m/min	Pre-oxidation Stack 2; Sinter furnaces Stacks 1, 2 and 3; Baghouses 3T-10, 3T-156, 3T-306 & 3T-308; and Mixed Sulfides packaging shed.
Volumetric flow rate			m ³ /s (STP, dry)	
Isokinetic rate			%	
Stack moisture content		USEPA Method 4	%	
Total Suspended Particulate matter		USEPA Method 5 or USEPA Method 17	mg/m ³ (STP, dry) and g/s*	
Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, phosphorus, selenium silver, thallium and zinc	USEPA Method 29			

- 3(b). The licensee shall ensure that sampling required under condition 3(a) of this licence is undertaken in accordance with Australian Standard AS/NZS4323.1-1995 *Stationary Source Emissions Method 1: Selection of sampling positions*.
- 3(c). The licensee shall ensure that all stack monitoring required by condition 3(a) and 3(b) of this licence is conducted by companies and laboratories with current NATA accreditation for the methods and analyses specified.
- 3(d). The licensee shall record process operating parameters and production rates associated with the monitoring locations in column 5 of Table 1 during stack monitoring in accordance with condition 3(a) of this licence.

METALS BUILDING BAGHOUSES

4. The licensee shall operate and maintain dust detection probes in the Metals Building Baghouses.



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5. The licensee shall undertake the following actions as soon as practicable upon becoming aware of a Step Change event in a Metals Building Baghouse:
 - i. investigate the cause of the Step Change event as soon as practicable; and
 - ii. if a bag failure has resulted in the Step Change event, replace affected bag(s) within 24 hours.
6. The licensee shall maintain a log or database of all baghouse Step Change events that includes but is not necessarily limited to:
 - i. the date and time of the Step Change event;
 - ii. the cause of the Step Change event;
 - iii. the maximum dust detection probe output;
 - iv. the action taken in response to the Step Change event including whether the response complied with condition 5 of this licence.

TAIL GAS SCRUBBER – CONTINUOUS MONITORING

- 7(a). The licensee shall continuously monitor the 1-minute average ammonia concentrations from the Tail Gas Scrubber and maintain a log or database of data of the concentrations, recorded as 30-minutes averages and in the units of % v/v referenced to STP, dry.
- 7(b). The licensee shall ensure that the continuous monitor referred to in condition 7(a) of this licence is operated to achieve at least 90% availability on a monthly basis and 95% on an annual basis when the emission source is operational.

TAIL GAS SCRUBBER – EMISSION LIMIT

8. Subject to condition 9, the licensee shall ensure that ammonia emissions do not exceed an ammonia gas emission limit of 0.75 % v/v, as monitored in accordance with condition 7(a) of this licence.
9. Pursuant to condition 8, the licensee is exempt from the emission limit specified in condition 8 of licence during events listed in column 1 of Table 2 if the actions in column 2 of Table 2 are undertaken.

Table 2 – Actions to be taken for exemption to Tail Gas Scrubber ammonia concentration emission limit.

Column 1	Column 2
Exemption Event	Exemption Action
Continuous monitor calibration correlation through manual stack sampling.	The licensee has notified the CEO in writing at least 7 days prior to the commencement of the continuous monitor calibration curve correlation.
At any time continuous monitoring in accordance with condition 7(a) of this licence indicates an exceedance of the emission limit specified in condition 8 of this licence.	The licensee has ceased feed to the leach plant within 60 minutes of the start of any event which exceeds the emission limit specified in condition 8 of this licence, unless ammonia concentrations have already decreased below the emission limit.
The Tail Gas Scrubber has shutdown.	The licensee has ceased feed to the leach plant prior to the Tail Gas Scrubber shutdown and does not recommence feed until the Tail Gas Scrubber is operational.

10. The licensee shall not recommence feed to the leach plant until the cause of the emission limit exceedance as specified in condition 8 of this licence, has been rectified.



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11. The licensee shall maintain a log or database of any exceedances of the emission limit as specified in condition 8 of this licence including:
- (i) the date and time of the exceedance;
 - (ii) the cause of the exceedance;
 - (iii) the extent of the exceedance;
 - (iv) the corrective action taken to rectify the cause of the exceedance and actions to prevent a recurrence.

AMBIENT MONITORING OF HYDROGEN SULFIDE

12. The licensee shall operate and maintain hydrogen sulfide monitors around the hydrogen sulfide plant that will cause alarms to sound in the central control room should the ambient hydrogen sulfide level exceed 10 ppm.
13. The licensee shall maintain a log or database of events where the hydrogen sulfide concentration monitored in accordance with condition 12 of this licence exceeds 10 ppm and this record shall include:
- (i) the date and time of the exceedance;
 - (ii) the duration of the exceedance in minutes;
 - (iii) the maximum concentration of hydrogen sulfide during the exceedance;
 - (iv) cause of the exceedance; and
 - (v) the corrective action taken to rectify the cause of the exceedance and actions to prevent a recurrence.

WASTE GAS FLARES

- 14(a). The licensee shall shutdown the process which generates waste gas combusted in the hydrogen sulfide vent flare if the flare is extinguished and is unable to be relit within 15 minutes.
- 14(b). The licensee shall not recommence the process referred to in condition 14(a) of this licence until the cause of the hydrogen sulfide vent flare extinguishment has been rectified.
- 15(a). The licensee shall cease the importation of gas which is processed in the pressure swing absorption unit if the Pressure Swing Absorption Flare is extinguished and is unable to be relit within 20 minutes.
- 15(b). The licensee shall not recommence the importation of gas referred to in condition 15(a) of this licence until the cause of the Pressure Swing Absorption Flare extinguishment has been rectified.
16. The licensee shall maintain a log or database of flare events specified in conditions 14(a) or 15(a) of this licence and this record shall include:
- (i) the date and time of the event;
 - (ii) the duration of the event;
 - (iii) the cause of the event; and
 - (iv) the corrective action taken to rectify the cause of the event and actions to prevent a recurrence.

WASTE MINIMISATION / REMOVAL / STORAGE

TAILINGS DISPOSAL

17. The licensee shall not dispose of solid waste tailings residue at the premises.



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REPORTING CONDITIONS

LIMIT EXCEEDANCES

- 18(a). The licensee shall notify the CEO before 5pm on the next Usual Business Day after becoming aware of any confirmed measurement which indicates an exceedance of the ammonia emission limit specified in condition 8 of this licence that is not covered by an exemption specified in condition 9 of this licence.
- 18(b). The licensee shall follow the notification referred to in condition 18(a) of this licence with a written report to the CEO within five (5) working days of receiving the confirmed measurement and shall include, but not be limited to:
- (i) the date and time of the exceedance;
 - (ii) production rates at the time of exceedance;
 - (iii) root cause of the exceedance;
 - (iv) an estimate of the period over which the limit was or is likely to be exceeded;
 - (v) an indication of known or potential environmental impacts;
 - (vi) corrective action taken or planned to mitigate adverse environmental consequences resulting from the exceedance; and
 - (vii) the corrective action taken to rectify the cause of the exceedance and actions to prevent a recurrence.

ANNUAL ENVIRONMENTAL REPORT

19. The licensee shall provide to the CEO, **by 31 December in each year**, an Annual Environmental Report containing data collected **during the 12 month period beginning 1 November the previous year and ending on 31 October the following year**. The report shall contain but not be limited to:
- (i) production throughputs of the refinery during the reporting period;
 - (ii) results and particulars of stack monitoring in accordance with conditions 3(a), 3(b), 3(c) and 3(d) of this licence;
 - (iii) a summary of baghouse Step Change events recorded in accordance with condition 6 of this licence;
 - (iv) a time series graphical representation of continuous Tail Gas Scrubber ammonia concentration monitoring data obtained in accordance with condition 7(a) of this licence and reported in % v/v as 30 minute averages;
 - (v) a tabulated summary of continuous Tail Gas Scrubber availability on a monthly and annual basis in accordance with condition 7(b) of this licence;
 - (vi) a summary of emission limit exceedances recorded in accordance with condition 11 of this licence;
 - (vii) a summary of ambient hydrogen sulfide exceedances recorded in accordance with condition 13 of this licence; and
 - (viii) a summary of waste gas flare extinguishment events recorded in accordance with condition 16 of this licence.
20. The licensee shall by **31 December** in each year, provide to the CEO an Annual Audit Compliance Report in the form in Attachment 1 to this licence, signed and certified in the manner required by Section C of the form, indicating the extent to which the licensee has complied with the conditions of this licence, and any previous licence issued under Part V of the *Environmental Protection Act 1986* for the premises, **during the period beginning 1 November the previous year and ending on 31 October in that year**.



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ENVIRONMENTAL PROTECTION (KWINANA) (ATMOSPHERIC WASTE) POLICY 1992 IMPLEMENTATION CONDITIONS

SULFUR DIOXIDE EMISSION LIMITS – PLANT

21. The licensee shall control the discharge of sulfur dioxide from the industrial sources listed in the Relevant Determination and located within the boundary of the licensed premises to ensure that the quantities of sulfur dioxide discharged comply with the relevant determination.

MONITORING REQUIREMENTS OF THE EPP

22. If the licensee operates process equipment on the premises with a fuel other than natural gas, the licensee shall establish and maintain a constant emissions monitoring system to monitor the discharge of waste gases from each of the sources listed in the relevant determination and located within the boundary of the licensed premises.
23. The emissions monitoring system shall measure or otherwise estimate using approved procedures the following quantities for each specified source:
- (i) mass emission rate of sulfur dioxide in g/s;
 - (ii) total volume emission rate of waste gases in m³/s; and
 - (iii) density of the waste gases in g/m³.

AMBIENT SULFUR DIOXIDE MONITORING

24. The licensee shall cause to be undertaken a program to monitor the ambient concentration of sulfur dioxide at the following sites, as outlined in section 7.2 of EPA Bulletin 644 "Development of an Environmental Protection Policy for Air Quality at Kwinana" or otherwise as determined by the Chief Executive Officer.

Table 3: Ambient Monitoring Stations

Site	Location
4	Western Power gas pumping station, Abercrombie Road, Kwinana
5	BP pumping station, Miguel Road, Cockburn
8	Tindal Avenue, Beeliar

****See note after condition 32****

25. Prior to the commissioning of ambient sulfur dioxide monitoring and data acquisition equipment the licensee shall obtain approval from the CEO for its use and the relevant procedures to be followed.
26. The licensee shall ensure that the approved monitoring equipment is operated and calibrated in accordance with approved procedures and is maintained so as to provide reliable data.



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METEOROLOGICAL MONITORING

27. The licensee shall obtain meteorological data from a meteorological monitoring system comprised of approved instruments and data acquisition equipment, at each location at which sulfur dioxide concentrations are being monitored. The following meteorological parameters shall be monitored at each location:
- (i) wind speed;
 - (ii) wind direction; and
 - (iii) air temperature.
28. The following additional meteorological parameters shall be monitored at an approved site:
- (i) wind direction standard deviation;
 - (ii) differential air temperature;
 - (iii) relative humidity or a related parameter;
 - (iv) barometric pressure;
 - (v) nett radiation; and
 - (vi) rainfall.
29. The meteorological monitoring system shall be maintained so as to provide reliable data.

REPORTING OF METEOROLOGICAL AND AMBIENT SULFUR DIOXIDE MONITORING DATA

30. The licensee shall provide to the CEO data from each of the meteorological and sulfur dioxide monitoring stations at which monitoring is occurring in accordance with conditions 22 and 24, 25 and 26:
- (i) The meteorological data shall be provided as a time series listing on an approved computer-readable medium or via telemetry and in a format approved by the CEO.
 - (ii) The sulfur dioxide data shall be summarised in the form of one calendar month tables, one for each monitoring station, and shall contain for each day in the one month period the following:
 - daily average;
 - maximum one-hour average, which may span midnight; and
 - percentage data recovery for the day.
 - (iii) The sulfur dioxide data from each monitoring station shall be provided as time-series records of the recorded sulfur dioxide data on an approved computer-readable medium or via telemetry and in a format approved by the CEO.
 - (iv) The meteorological and sulfur dioxide monitoring data shall be provided to the CEO no later than 14 days after the last day of the period to which the data relates or within such longer period of time as is approved by the CEO.
31. If the ambient sulfur dioxide concentration measured at any of the monitoring sites at which monitoring is occurring in accordance with conditions 21 to 26 exceeds the standard or limit for that site, for any of the averaging periods as established by the EPP, then the licensee shall advise the CEO that this has occurred within two Usual Business Days. Further, the licensee shall provide in writing within five Usual Business Days in the format approved in accordance with condition 21 a listing of sulfur dioxide emissions from each source listed in the relevant determination and located within the boundary of the licensed premises for the period which includes and extends one hour either side of the period in which the exceedance occurred.



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32. As and when requested by the CEO the licensee shall provide in written form within five Usual Business Days of that request data from the meteorological and sulfur dioxide monitoring systems. The requested data shall be provided as a time-series listing of the data in an approved format and shall cover the period requested by the CEO.

Note on conditions 21 – 32

Without limiting the licensee's responsibility and obligation to fulfil all of the requirements for monitoring and reporting specified in conditions 21 – 32, the Chief Executive Officer will, if so requested by the licensee, approve the monitoring and reporting functions being performed on behalf of the licensee by a nominated agent, as part of a cooperative arrangement between industries. Notwithstanding this, advice on exceedances of the standard or limit together with sulfur dioxide emissions during those exceedances as required by conditions 27 to 29 must be provided directly by the licensee.

Condition 21 requires that a total of three ambient sulfur dioxide monitoring stations are maintained in the relevant portion of the environment, pursuant to Clause 11(1)(b) of the EPP. Two of the monitoring stations are permanently located at sites 4 and 5. The third monitoring station shall be relocated in accordance with condition 21. A period of one month is allowed for relocation of the monitoring station.

FUGITIVE EMISSIONS

33. The licensee shall operate the sprinkler system in accordance with the BHP Billiton Nickel West Site - Baldivis Evaporation Cells, Sprinkler Evaporation Management Plan, Document Number NKW-PRO-PRO-0053 Version 1.0 23 October 2014.
34. The sprinkler system installed on the evaporation ponds shall be operated in manner which does not result in impacts beyond the boundary of the Baldivis Facility, as defined in Attachment 2.

ATTACHMENT 1 – ANNUAL AUDIT COMPLIANCE REPORT

LICENCE NUMBER: L8437/2010/3

FILE NUMBER: 2012/000069

SECTION A

LICENCE DETAILS

Licence Number:	Licence File Number:
Company Name:	ABN:
Trading as:	
Reporting period: _____ to _____	

STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS

1. Were all conditions of the Licence complied with within the reporting period? (please tick the appropriate box)

Yes ☐ Please proceed to Section C

No ☐ Please proceed to Section B

Each page must be initialled by the person(s) who signs Section C of this Annual Audit Compliance Report (AACR).

Initial:

ATTACHMENT 1 – ANNUAL AUDIT COMPLIANCE REPORT

LICENCE NUMBER: L8437/2010/3

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SECTION B

DETAILS OF NON-COMPLIANCE WITH LICENCE CONDITION.

Please use a separate page for each Licence condition that was not complied with.

a) Licence condition not complied with:	
b) Date(s) when the non compliance occurred, if applicable:	
c) Was this non compliance reported to DER?:	
☐ Yes ☐ Reported to DER verbally Date _____ ☐ Reported to DER in writing Date _____	☐ No
d) Has DER taken, or finalised any action in relation to the non compliance?:	
e) Summary of particulars of the non compliance, and what was the environmental impact:	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram):	
g) Cause of non compliance:	
h) Action taken, or that will be taken to mitigate any adverse effects of the non compliance:	
i) Action taken or that will be taken to prevent recurrence of the non compliance:	

Each page must be initialled by the person(s) who signs Section C of this AACR

Initial:

ATTACHMENT 1 – ANNUAL AUDIT COMPLIANCE REPORT

LICENCE NUMBER: L8437/2010/3

FILE NUMBER: 2012/000069

SECTION C

SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report (AACR) may only be signed by a person(s) with legal authority to sign it. The ways in which the AACR must be signed and certified, and the people who may sign the statement, are set out below.

Please tick the box next to the category that describes how this AACR is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the licence holder is		The Annual Audit Compliance Report must be signed and certified:
An individual	☐ ☐	by the individual licence holder, or by a person approved in writing by the Chief Executive Officer of the Department of Environment Regulation to sign on the licensee's behalf.
A firm or other unincorporated company	☐ ☐	by the principal executive officer of the licensee; or by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A corporation	☐ ☐ ☐ ☐ ☐ ☐	by affixing the common seal of the licensee in accordance with the <i>Corporations Act 2001</i> ; or by two directors of the licensee; or by a director and a company secretary of the licensee, or if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or by the principal executive officer of the licensee; or by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A public authority (other than a local government)	☐ ☐	by the principal executive officer of the licensee; or by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
a local government	☐ ☐	by the chief executive officer of the licensee; or by affixing the seal of the local government.

It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of \$50,000 for an individual or body corporate.

I/We declare that the information in this annual audit compliance report is correct and not false or misleading in a material particular.

SIGNATURE: _____

SIGNATURE: _____

NAME:
(printed) _____

NAME:
(printed) _____

POSITION: _____

POSITION: _____

DATE: ____/____/____

DATE: ____/____/____

SEAL (if signing under seal)

ATTACHMENT 2 – PLAN OF PREMISES

LICENCE NUMBER: L8437/2010/3

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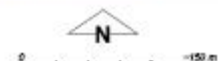
Kwinana Nickel Refinery Lot 5 on Plan 19088 Patterson Road, Kwinana Beach WA 6167



LEGEND

Part of the Kwinana Area
Central 20m Orthomosaic -
Landgate 2007

□ Cadastre



Scale 1:6030
(Approximate when reproduced at Letter)

Geocentric Datum Australia 1994

Note: the data in this map have not been
projected. This may result in geometric
distortion or measurement inaccuracies.

Prepared by: dhrm
Prepared for:
Date: 22/09/2010 2:13:04 PM

Information derived from this map should be
confirmed with the data custodian acknowledged
by the agency acronym in the legend.



Department of
Environment and Conservation

Our environment. our future
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ATTACHMENT 2 – NAME AND LOCATION OF PREMISES

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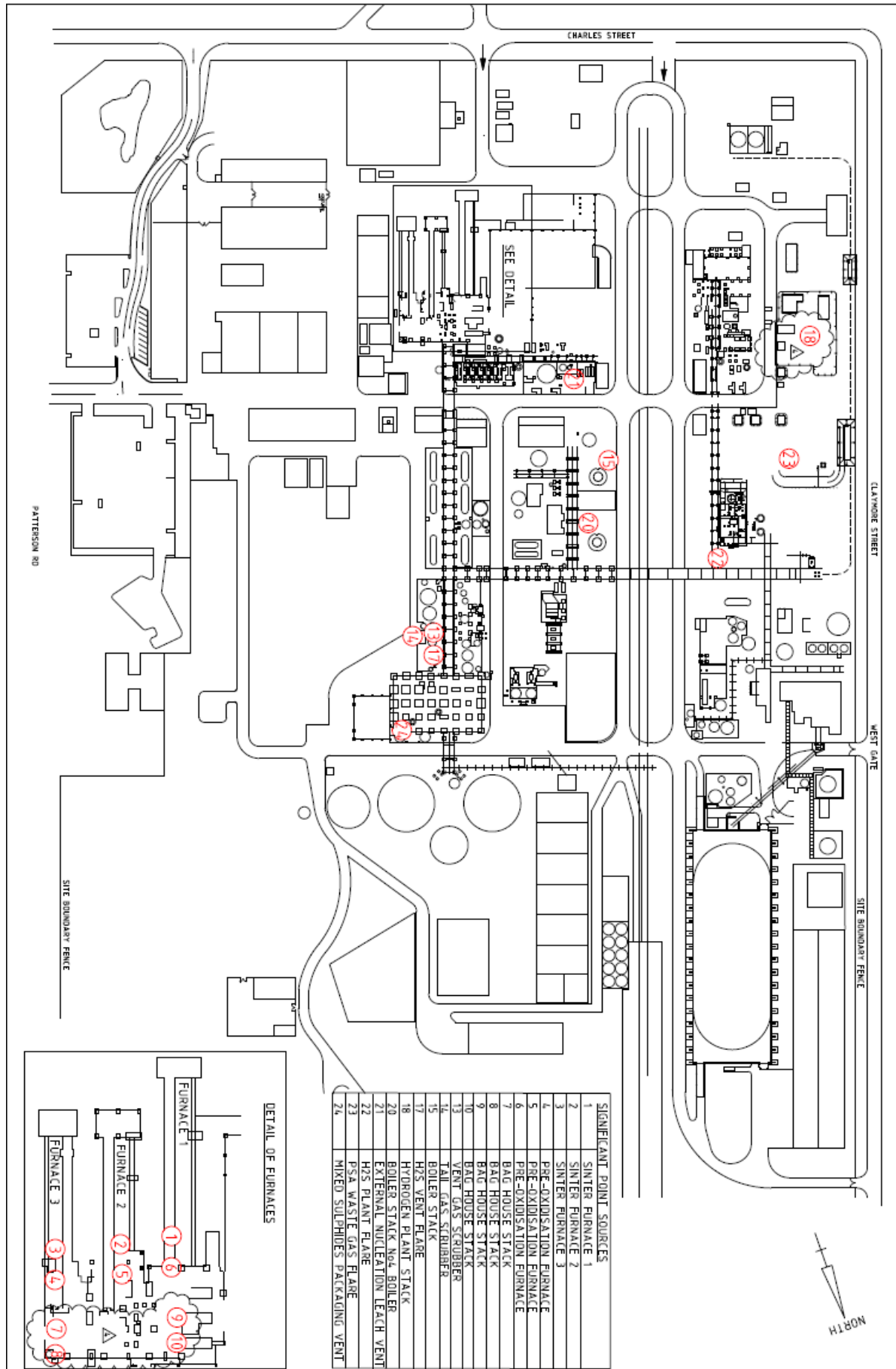
**Baldivis Facility
Lot 820 on Plan 77252 Millar Rd, Baldivis WA 6171**



ATTACHMENT 3 – MONITORING LOCATIONS

LICENCE NUMBER: L8437/2010/3

FILE NUMBER: 2012/000069





Environmental Protection Act 1986, Part V

Licence: L8437/2010/3

Expiry date: Monday, 30 October 2017

Decision Document authorised by: Lauren Trott
Delegated Officer



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1 Purpose of this Document

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



2 Administrative summary

Administrative details		
Application type	Works Approval ☐ New Licence ☒ Licence amendment ☐ Works Approval amendment ☐	
Activities that cause the premises to become prescribed premises	Category number(s)	Assessed design capacity
	31	2701 tonnes of hydrogen sulfide gas per annum
	34	5840 tonnes of hydrogen gas per annum
	44	75,000 tonnes of nickel metal per annum
	67	7,500 kilograms per hour
Application verified	Date: 21 August 2015	
Application fee paid	Date: 08 September 2015	
Works Approval has been complied with	Yes ☐ No ☐ N/A ☒	
Compliance Certificate received	Yes ☐ No ☐ N/A ☒	
Commercial-in-confidence claim	Yes ☐ No ☒	
Commercial-in-confidence claim outcome		
Is the proposal a Major Resource Project?	Yes ☐ No ☒	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the <i>Environmental Protection Act 1986</i> ?	Yes ☐ No ☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Is the proposal subject to Ministerial Conditions?	Yes ☒ No ☐	Ministerial statement No: 377 EPA Report No: Ass# 903/ Bull#: 767
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the <i>Environmental Protection Act 1986</i>)?	Yes ☐ No ☒ Department of Water consulted Yes ☐ No ☐	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes ☒ No ☐ <i>Environmental Protection (Kwinana) (Atmospheric Wastes) Policy 1999</i>		
Is the Premises subject to any EPP requirements? Yes ☒ No ☐ Subject to SO2 and Particulates emissions and monitoring.		



3 Executive summary of proposal and assessment

BHP Billiton Nickel West Pty Ltd (Nickel West) owns and operates the Kwinana Nickel Refinery and Baldvis Facility (NKW) located approximately 35km South of Perth CBD, Western Australia. NKW processes nickel matte from Nickel West Kalgoorlie Smelter (NKS).

Operations commenced in 1970. The operation comprises:

- Refinery, Associated Plant (including hydrogen plant, hydrogen Sulphide plant, ammonium Sulphide plant, water treatment plant, boilers, storages), workshops and administration;
- Baldvis Facility (evaporation ponds and decommissioned Tailings Facilities).

In 2014 NKW produced approximately 63,739 tonnes of nickel briquette. Briquette product is trucked to Fremantle port to be sold on the London Metal Exchange (LME) or direct to customers. The 'Sheritt' refining process is used to produce nickel briquettes containing about 99.9% nickel.

The main emissions from the premises are to air, as heavy metals and as Ammonia, NO_x, SO₂ and CO. The main sources are via bag house filters in the metals building, the Pre-Oxidation Furnace, the Sinter Furnace, Boilers 3 and 4, the Hydrogen Plant Stack, PSA Waste Gas Flare, the Tail Gas Scrubber, the Vent Gas Scrubber, the H₂S Vent Gas Flare and the H₂S Plant Flare.

Wastewater is treated on site and then pumped to the Baldvis Facility where it is evaporated.

This Decision Document has been prepared for the licence reissue. The licence conditions have not been converted to the current licence format as further review is required. The review process will occur in the next 2 years and as such only superfluous conditions have been removed. This Decision Document explains these changes.



4 Decision table

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

DECISION TABLE			
Licence section	Condition number L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
General conditions	-	Conditions 1 and 2 have been retained in this licence.	L8437/2010/2
Environmental Improvement Conditions		Previous conditions 3, 4 and 5 have been removed as the Licensee has complied with these improvement conditions (reports were submitted in 2011 and 2012).	L8437/2010/2
Emission To Air	L7 - L11	Previous conditions 11 and 12 (and also Condition 26, Reporting of the target exceedances) have been removed as they were related to emission targets for the Tail Gas Scrubber, whereas there is also a limit on the licence. The target conditions have been removed as the limit sufficiently regulates these activities. <u>Emission Description</u> <i>Emission:</i> Ammonia emissions from the Tail Gas Scrubber <i>Impact:</i> Modelling results that were assessed during the works approval, granted on 9 November 2012, indicated that sensitive receptors are unlikely to be impacted by ammonia emissions. After construction and operation of the Tail Gas Scrubber DER has not received any complaints regarding Ammonia emissions from the refinery. <i>Controls:</i> The ammonia emissions are monitored via a CEMS and if emissions are approaching the limit the potential cause is investigated and resolved. Licensee conducts regular inspections and maintenance of the Tail Gas Scrubber to ensure its correct operation. <u>Risk Assessment</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Unlikely	L8437/2010/2 W5255/2012/1



DECISION TABLE			
Licence section	Condition number L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<i>Risk Rating: Moderate</i> <u>Regulatory Controls</u> The Licence includes continuous monitoring and reporting conditions. The limit in the licence is sufficient to ensure no unreasonable impact on sensitive receptors. <u>Residual Risk</u> <i>Consequence: Minor</i> <i>Likelihood: Unlikely</i> <i>Risk Rating: Moderate</i> Licensee requested to amend the step change reporting condition to only report the step change events that were caused by a bag failure. As there was insufficient information to assess the consequences of this change this request has not been fulfilled. This condition will be assessed further in the future licence review proposed to occur in the next 2 years.	
Ambient Monitoring of Hydrogen Sulfide	L12 and L13	Licensee requested to amend the alarm level of the ambient Hydrogen Sulfide monitors to align with the operations limit for site alarm of 20ppm. Currently the licence states 10ppm. As the requested amendment is not supported with sufficient supporting information to allow for an environmental risk assessment of this change, this amendment request has not been progressed. This condition will be reassessed in the future licence review proposed to occur in the next 2 years.	
Waste Gas Flare		Licensee requested amendment to previous condition 20 which is in relation to the importation of gas. The Licensee no longer imports hydrogen on a regular basis, however the activity is still required rare occasions. Given that the importation of hydrogen can occur and these licence conditions do not interfere with ongoing operation of the premises, the conditions have not been removed, rather they have been identified as requiring review during the future licence review.	
Waste Minimisation/		Previous conditions 25(a) and 25(b) were regulating bunding requirements for dangerous goods. Licensee holds a dangerous goods licence that relates to the	General Provisions of the



DECISION TABLE			
Licence section	Condition number L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Removal / Storage		management of dangerous goods. Any discharge of chemicals are adequately regulated by general provisions of the Act or the <i>Environmental Protection (Unauthorised discharges) Regulations 2004</i> . Therefore these conditions have not been transferred to this licence reissue.	Act <i>Environmental Protection (Unauthorised discharges) Regulations 2004</i>
Fugitive emissions		Previous Licence condition 42 was included in the licence to require the Licensee to install a new sprinkler system at the Baldivis Facility. This sprinkler system has been installed and as such this condition is now superfluous and has been removed. Conditions 22 and 23 have not been retained in the new licence. <u>Emission Description</u> <i>Emission:</i> Fugitive dust emissions from stockpiles <i>Impact:</i> Nuisance impact on neighboring industrial properties (immediately adjacent). Unlikely to have any impact on residents as the nearest residents are 1.8km to the South of the refinery and about 700m to the South of the Baldivis Facility. <i>Controls:</i> The proponent uses dust management strategies including potable water sprinklers to ensure no dust will leave the site. <u>Risk Assessment</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Moderate <u>Regulatory Controls</u> Dust emissions are adequately regulated by the general provisions of the Act and as such no specific dust conditions will be included in the licence. <u>Residual Risk</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Unlikely	Guidance Statement Setting Conditions (October 2015) General Provisions of the Act <i>Environmental Protection (Unauthorised discharges) Regulations 2004</i>



DECISION TABLE			
Licence section	Condition number L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<i>Risk Rating: Moderate</i> <u>Emission Description</u> <i>Emission:</i> Odour emissions from the refinery or the Baldivis facility. <i>Impact:</i> Nuisance impact on neighboring industrial properties (immediately adjacent). Unlikely to have any impact on residents as the nearest residents are 1.8km to the South of the refinery and about 700m to the South of the Baldivis Facility. <i>Controls:</i> None specified <u>Risk Assessment</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Moderate <u>Regulatory Controls</u> Odour emissions are adequately regulated by the general provisions of the Act and as such no specific odour conditions will be included in the licence. <u>Residual Risk</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Moderate	
Licence Duration		As the licence has been issued in the old format, the licence duration is for 2 years.	



5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
14/09/2015	Application advertised in West Australian (or other relevant newspaper)	No comments received	NA
13/10/2015	Proponent sent a copy of draft instrument	16/10/2015	Comments partially granted.



6 Risk Assessment

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

Table 1: Emissions Risk Matrix

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