

# Environment Protection Licence



Licence - 12208

Licence Details	
Number:	12208
Anniversary Date:	01-July

Licensee
SYDNEY TRAINS
PO BOX K349
HAYMARKET NSW 1238

Premises
SYDNEY TRAINS
PO BOX K349
HAYMARKET NSW 1238

Scheduled Activity
Railway Systems Activities

Fee Based Activity	Scale
Railway systems activities	Any annual capacity

Region
Metropolitan Infrastructure
Level 13, 10 Valentine Ave
PARRAMATTA NSW 2150
Phone: (02) 9995 5000
Fax: (02) 9995 6900
PO Box 668 PARRAMATTA
NSW 2124

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## Information about this licence

### Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

### Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

### Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

### Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

### Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

### Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

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The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

### Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

### Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

### This licence is issued to:

SYDNEY TRAINS
PO BOX K349
HAYMARKET NSW 1238

subject to the conditions which follow.

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## 1 Administrative Conditions

### A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Railway Systems Activities	Railway systems activities	Any annual capacity

A1.2

Except as expressly provided by another condition of this licence, this licence authorises railway systems activities on the rail network except for the following:

1. the construction of new track in the metropolitan area greater than 1 kilometre in length, including associated ancillary works; and
2. the construction of new track in any other area greater than 5 kilometres in length, including associated ancillary works.

### A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
SYDNEY TRAINS
PO BOX K349
HAYMARKET
NSW 1238
SEE CONDITION A2.2 FOR FULL DESCRIPTION OF THE LICENSED PREMISES

A2.2 The premises comprises the Sydney Trains (RailCorp) network and is defined in the following rail network diagram at which railway systems activities are carried out:

- Prior to 12:01am on 7 June 2015: Rail Network Diagram Version 1.10 issued 22 February 2015.
- After 12:01am on 7 June 2015: Rail Network Diagram Version 1:11 issued 7 June 2015.
- Includes the land on the embankment of the Parramatta River (vested in Roads and Maritime Services) which is adjacent to the Sandown railway siding, as shown on drawing 8662\_1 dated 19 September 2014

Note: The premises diagram is contained in EPA file EF13/3482.

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## A3 Information supplied to the EPA

- A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

## 2 Discharges to Air and Water and Applications to Land

### P1 Location of monitoring/discharge points and areas

- P1.1 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

## 3 Limit Conditions

### L1 Pollution of waters

- L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

### L2 Noise limits

Note: It is an objective of this licence to progressively reduce noise impacts from railway systems activities to the noise level goals of 65 dB(A) $L_{eq}$ , (day and evening time from 7am to 10pm), 60 dB(A) $L_{eq}$ , (night time from 10pm to 7am) and 85 dB(A) (24 hour) max pass-by noise, at one metre from the facade of affected residential receivers.

#### L2.1 Locomotive approvals

The licensee must obtain approval from the EPA prior to permitting operation on the licensed premises of:

- 1. a of type of locomotive, whether new or existing, that is not included in Condition E2; or
- 2. a locomotive that has been substantially modified since it was last used on the licensed premises.

A new class of locomotive of previously approved type may be brought onto the rail network without further approval provided that it is consistent with type and EPA is notified at least 7 days in advance. Condition E6 will then be updated at the next opportunity.

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**Note:** *EPA approval for a new locomotive type will be granted on the basis of compliance with the locomotive noise limits in Conditions L2.5, L2.6 and L2.7, and will require submission of noise test results from a representative number of locomotives from that type.*

**L2.2** Locomotive types not included in Condition E2 must not operate on the licensed premises.

**L2.3** Conditions L2.1 and L2.2 do not apply to the operation of a locomotive solely for the purposes of conducting noise or other tests that are required for the locomotive's approval by the EPA, the licensee or any person concerned with the design, manufacture, supply or acquisition of the locomotive, provided that:

- a) operation of the locomotive is not undertaken for commercial purposes, gain, or to offset any losses; and
- b) more than ten pass-bys in a 24 hour period do not occur within 200m of any one particular noise sensitive receiver in the course of the testing.

**L2.4** An application for the approval of a locomotive as required by Condition L2.1 must be made in the form of a licence variation application in accordance with s.58 of the *Protection of the Environment Operations Act 1997* and accompanied by data of type testing of the locomotive.

**Note:** *Type testing of the locomotive must be in accordance with Condition L2.8.*

## **L2.5 General noise limits for locomotive approvals**

Operating Condition	Speed & Location of Measurement	Noise Limit (microphone 1.5m above ground level)
Idle with compressor radiator fans and air conditioning operating at maximum load occurring at idle	Stationary 15 metre contour	70 dB(A) Max
All other throttle settings under self load with compressor radiator fans and air conditioning operating	Stationary 15 metre contour	87 dB(A) Max 95 dB Linear Max
All service conditions	As per Australian Standard AS2377-2002 (Acoustics – Methods for the measurement of railbound vehicle noise) except as otherwise approved by the EPA	87 dB(A) Max 95 dB Linear Max

## **L2.6 Limits for tonality**

All external noise must be non-tonal. For the purpose of this condition, external noise is non-tonal if the sound pressure level in each unweighted (linear) one-third octave band does not exceed the level of the adjacent bands on both sides by:

- a) 5 dB if the centre frequency of the band containing the tone is above 400 Hz; and
- b) 8 dB if the centre frequency of the band containing the tone is between 160 and 400 Hz, inclusively; and
- c) 15 dB if the centre frequency of the band containing the tone is below 160 Hz.

## **L2.7 Limits for low frequency noise**



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All external noise must not exhibit an undue low-frequency component. To comply with this requirement, linear noise levels must not exceed the A-weighted noise levels by more than 15 dB.

## L2.8 Locomotive noise emission test methods

Application for approval as required by Condition L2.1 must be supported by type testing of the locomotive using procedures that are consistent with the requirements of Australian Standard AS2377-2002 (Acoustics – Methods for the measurement of railbound vehicle noise) except as otherwise approved by the EPA. The type testing must provide all necessary measurement parameters for demonstrating compliance with the locomotive noise limits in Conditions L2.5, L2.6 and L2.7.

Information supplied to the EPA as part of the application for approval must fulfil the requirements of Section 11 of AS2377-2002 for reporting.

**Note:** The measurement parameters required in Conditions L2.5, L2.6 and L2.7 differ in some cases from those identified in AS2377 2002. The test procedures, measurement equipment and environmental conditions applied in supporting the application to the EPA for approval are to yield all parameters identified in Conditions L2.5, L2.6 and L2.7 but are otherwise to be applied in a manner that is consistent with the requirements of AS2377-2002. The 15 metre contour specified in Condition L2.5 is to be represented by the 12 measurement points shown in AS2377-2002, Figure 1.

**L2.9** The licensee must submit data obtained by type testing of the locomotive required by Condition L2.8 in a format specified by the EPA.

**Note:** *The format required by Condition L2.9 must include a written report on the results of the testing and an electronic version of the test results in a spreadsheet form nominated by the EPA.*

## L2.10 Approval of locomotives not meeting all EPA limits

The EPA may approve locomotives that do not comply with all limits prescribed by Conditions L2.5, L2.6 and L2.7, if the application for approval demonstrates, to the satisfaction of the EPA, that:

- a) the noise emission performance of the locomotive is consistent with current best practice;
- b) all measures for minimising the extent of any non-compliance have been investigated and those that are identified as reasonable and feasible have been implemented; and
- c) none of the non-compliances will result in significant environmental impacts.

**L2.11** An EPA approval for locomotives under this condition is to be taken as an approval for operation of those locomotives on the premises, notwithstanding the requirements of Conditions L2.1, L2.5, L2.6 and L2.7.

## 4 Operating Conditions

### O1 Activities must be carried out in a competent manner

**O1.1** Licensed activities must be carried out in a competent manner.

This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

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## O2 Maintenance of plant and equipment

- O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
- a) must be maintained in a proper and efficient condition; and
  - b) must be operated in a proper and efficient manner.

## O3 Dust

- O3.1 Dust generating activities on the premises must be managed to minimise the generation of dust and prevent it going offsite so far as reasonably practicable.

## O4 Waste management

- O4.1 The licensee must assess, classify and manage any waste generated at the premises in accordance with the Waste Classification Guidelines Part 1: Classifying Waste, April 2008 prior to dispatching the waste offsite.
- O4.2 The licensee must not cause, permit or allow any waste generated:
- (a) outside the premises to be received at the premises, except for recycled materials from Sydney Trains' recycling facility (EPL7515) or materials that meet the EPA's Resource Recovery Exemptions for engineered fill purposes.
  - (b) at the premises to be disposed at the premises, except as permitted in Condition 04.3.
- O4.3 Excavated material suitable for re-use within the premises, may be transported from one part of the premises or the Sydney Trains recycling facility to another part by road in accordance with Condition 04.4.
- O4.4 The licensee must ensure that:
- (a) the body of any vehicle or trailer, used to transport waste or excavation spoil from the premises, is covered before leaving the premises to minimise any spill or escape of any dust, waste, or spoil from the vehicle or trailer; and
  - (b) mud, splatter, dust and other material likely to fall from or be cast off the wheels, underside or body of any vehicle, trailer or motorised plant leaving the premises, is removed to the greatest extent practicable before the vehicle, trailer or motorised plant leaves the premises; and
  - (c) road surfaces subject to the tracking of material by vehicles leaving the premises are effectively cleaned at the end of each work day.

## O5 Other operating conditions

### Railway maintenance and construction activities

Note: *The objective of this condition is to minimise noise impacts from railway maintenance and construction activities, recognising that operational and safety factors constrain when these activities can be carried out on the NSW Rail Network. These factors include avoiding disruptions during peak periods for passenger services and ensuring that programmed track closures facilitate the efficient completion of*

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*maintenance activities. Night time and weekend work will be required for some activities.*

- O5.1 So far as is reasonably practicable and where to do so would not adversely affect Sydney Trains' ability to provide safe and reliable rail services or a safe working environment, maintenance or construction activities must be undertaken:
- a) between the hours of 7:00am and 6:00pm Monday to Friday;
  - b) between the hours of 8:00am and 1:00pm Saturday; and
  - c) not on Sundays or public holidays.
- O5.2 Where maintenance or construction activities are undertaken outside of the hours specified in Condition O5.1, noise impacts must be managed in accordance with those provisions of the *Interim Construction Noise Guideline* (DECCW, 2009) which require the licensee to:
- a) identify noise sensitive receivers that may be affected;
  - b) identify hours for the proposed activities;
  - c) identify noise impacts at noise sensitive receivers;
  - d) select and apply reasonable and feasible work practices to minimise noise impacts; and
  - e) notify noise sensitive receivers identified by paragraph a) of this condition no less than 5 days before undertaking activities outside the hours specified in Condition O5.1.
- O5.3 When requested by an authorised officer of the EPA, the licensee must provide the following information regarding any proposed maintenance activities on the premises:
- a) dates and times of the proposed maintenance activity;
  - b) location of the proposed maintenance activity;
  - c) type(s) of work to be performed in conducting the proposed maintenance activity;
  - d) plant and equipment to be used; and
  - e) contact name and telephone number of a person who will be on site during the activity and who is authorised by the licensee to take action, including the cessation of the activity or any part of it, if so directed by the EPA. A contact person must be contactable 24 hours a day via the supplied telephone number(s) during the whole of the period that the activity takes place outside normal business hours.

## **Railway construction activities**

- O5.4 With regard to construction activities any high noise impact generating works must only be undertaken:
- a) between the hours of 8:00am and 10:00pm Monday to Friday;
  - b) between the hours of 8:00am and 6:00pm Saturdays and Sundays; and
  - c) where the high noise impact generating works are likely to impact the same noise sensitive receivers, in blocks of no more than 3 hours, with at least a 1 hour respite between each block of work.
- O5.5 When requested by an authorised officer of the EPA, the licensee must provide written reasons that demonstrate that construction activities undertaken outside of the hours specified in Condition O5.1 comply with that condition.
- O5.6 With regard to construction activities and the notification required by Condition O5.2e), the notification must be made not less than 5 days and not more than 14 days before those activities are to be undertaken.
- a) The notification must be:
    - i) by letterbox drop; and
    - ii) detailed on the project website where one exists.

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b) The notification required by this condition must:

- i) clearly outline the reason that the work is required to be undertaken outside the hours specified in Condition O5.1;
- ii) include a diagram that clearly identifies the location of the proposed works in relation to nearby cross streets and local landmarks;
- iii) include details of relevant time restrictions that apply to the proposed works;
- iv) clearly outline, in plain English, the location, nature, scope and duration of the proposed works;
- v) detail the expected noise impact of the works on noise sensitive receivers;
- vi) clearly state how complaints may be made and additional information obtained; and
- vii) include the number of the telephone complaints line required by this licence, an after hours contact phone number specific to the works, and the project website address where applicable.

## Emergency works

O5.7 Conditions O5.1 to O5.6 do not apply to emergency works.

## Blasting

O5.8 All blasting activities are prohibited unless approved under another condition of this licence.

## Erosion and sediment control

O5.9 The licensee must, before undertaking any maintenance or construction activities, implement and maintain erosion and sediment control measures to prevent pollution of waters in accordance with Landcom's *Soils and Construction: Managing Urban Stormwater 2004* – 'the Blue Book'.

## 5 Monitoring and Recording Conditions

### M1 Monitoring records

- M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.
- M1.2 All records required to be kept by this licence must be:
- a) in a legible form, or in a form that can readily be reduced to a legible form;
  - b) kept for at least 4 years after the monitoring or event to which they relate took place; and
  - c) produced in a legible form to any authorised officer of the EPA who asks to see them.
- M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
- a) the date(s) on which the sample was taken;
  - b) the time(s) at which the sample was collected;
  - c) the point at which the sample was taken; and
  - d) the name of the person who collected the sample.

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## M2 Recording of pollution complaints

- M2.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.
- M2.2 The record must include details of the following:
- a) the date and time of the complaint;
  - b) the method by which the complaint was made;
  - c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
  - d) the nature of the complaint;
  - e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
  - f) if no action was taken by the licensee, the reasons why no action was taken.
- M2.3 The record of a complaint must be kept for at least 4 years after the complaint was made.
- M2.4 The record must be produced to any authorised officer of the EPA who asks to see them.

## M3 Telephone complaints line

- M3.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.
- M3.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.
- M3.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

## 6 Reporting Conditions

### R1 Annual return documents

#### What documents must an Annual Return contain?

- R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
- a) a Statement of Compliance; and
  - b) a Monitoring and Complaints Summary.
- At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

#### Period covered by Annual Return

- R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

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**Note:** The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

- R1.3 Where this licence is transferred from the licensee to a new licensee:
- a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
  - b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

**Note:** An application to transfer a licence must be made in the approved form for this purpose.

- R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
- a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
  - b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

## **Deadline for Annual Return**

- R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

## **Licensee must retain copy of Annual Return**

- R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

## **Certifying of Statement of Compliance and signing of Monitoring and Complaints Summary**

- R1.7 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
- a) the licence holder; or
  - b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

## **R2 Notification of environmental harm**

- R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.
- R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

**Note:** The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

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## **R3 Written report**

- R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
- a) where this licence applies to premises, an event has occurred at the premises; or
  - b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
- and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.
- R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.
- R3.3 The request may require a report which includes any or all of the following information:
- a) the cause, time and duration of the event;
  - b) the type, volume and concentration of every pollutant discharged as a result of the event;
  - c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
  - d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
  - e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
  - f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
  - g) any other relevant matters.
- R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

## **R4 Other reporting conditions**

- R4.1 The licensee must provide a monthly report to the EPA listing all construction projects being undertaken on the premises.
- R4.2 The report referred to in condition R4.1 must be provided on the fifteenth business day of each month or the next business day.

## **7 General Conditions**

### **G1 Copy of licence kept at the premises or plant**

- G1.1 A copy of this licence must be kept at the premises to which the licence applies.



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- G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.
- G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.
- G1.4 For the purpose of Condition G1.1 the premises is defined as the principal office of the licensee.
- G1.5 For the purpose of G1.3 “available for inspection” includes inspection via electronic means.

## 8 Pollution Studies and Reduction Programs

### U1 Mitigation of wheel squeal

#### U1.1 Angle of Attack Monitoring and Reporting Program

Wheel squeal can be a major source of noise pollution along some sections of the RailCorp network. Wheel squeal is a high pitched noise generated by friction between train wheels and the track and caused by (i) axle misalignment (angle-of-attack) on rolling stock and/or (ii) track conditions.

PRP U1.1 aims to reduce the incidence of wheel squeal through angle-of-attack monitoring to identify rolling stock that have the potential to cause wheel squeal. This monitoring data will be made available to rolling stock operators so that the angle-of-attack anomalies that have the potential to cause wheel squeal can be addressed. The licensee is also required to provide feedback to the EPA on actions that rolling stock operators have taken to address the identified anomalies.

The licensee is required to comply with PRP U1.1 below by completing each described action in the program within the set timeframe.

#### U1.1(a)

##### Action

The licensee will implement and maintain a program which will:

- monitor the angle-of-attack on rolling stock accessing the licensee’s network and passing the Beecroft monitoring location; and
- record and store data obtained from angle-of-attack monitoring.

**Timeframe:** Ongoing

#### U1.1(b)

##### Action

The licensee will submit to the EPA for approval a comprehensive reporting procedure for advising rolling stock operators and the EPA of the results of angle of attack monitoring from U1.1 (a) and which provides the licensee and the EPA with the results of actions taken by the rolling stock operators in response to that data.

The procedure will require the licensee to:



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1. provide monthly reports to rolling stock operators on data collected which highlights angle-of-attack anomalies;
2. obtain quarterly reports from rolling stock operators on actions taken to correct the identified anomalies; and
3. provide the EPA with quarterly reports which includes:
  - monitoring data showing the identified angle-of-attack anomalies, and
  - the information received (from the preceding quarter) from rolling stock operators on remedial actions taken to rectify misaligned axles on rolling stock.

**Timeframe:** Three months from inclusion of the PRP on the licence (i.e. on or before 6 October 2012).

## U1.1(c)

### Action

The licensee will implement the EPA approved reporting procedure from U1.1(b).

**Timeframe:** Three weeks after EPA approval

## U2 Investigation of the Causes of Wheel Squeal in the Waverton and Wollstonecraft Area

- U2.1 The level of community concern around noise associated with the Sydney Trains passenger fleet on the Sydney Metropolitan Network in the Waverton and Wollstonecraft area has increased over time. Wheel rail interaction is resulting in wheel squeal and flanging due to the tight radius curves at Waverton and Wollstonecraft. The curves, which carry passenger trains only, are some of the tightest radius curves on the NSW network.

Curve squeal is the very loud, tonal noise emitted by the wheels of some rail vehicles negotiating tight radius curves. Flanging noise occurs when there is contact between the wheel flange and the gauge face of the rail.

The purpose of PRP U2 is for the licensee to undertake a program of investigative works to identify the occurrence and cause of curve noise in the Waverton and Wollstonecraft area to allow consideration and application of appropriate mitigation measures.

The licensee is required to comply with PRP U2 outlined in U2.1 below by completing each described action within the set timeframe.

### U2.2 Action 2.0 A

The licensee will undertake or engage an appropriately qualified contractor to undertake the following investigations regarding the occurrence of curve noise from wheel-rail interaction in the Waverton and Wollstonecraft area:

- a. Assessment of the track in the Waverton and Wollstonecraft area including rail profile, gauge face condition and alignment and comparison of how these activities meet the requirements of the engineering standards set by the Transport for NSW Asset Standards Authority;
- b. Conduct a detailed noise study to assess the contributing factors of curve noise in the area and potential mitigation options. The study must be undertaken over a suitable period to allow collection of a statistically significant data set. The study must:

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- i. identify the track locations from which noise is generated;
  - ii. identify the specific rail components from which noise is generated such as the top of the high or low rail or the gauge corner of the high or low rail and the type of noise generated for each;
  - iii. investigate potential differences in the noise profile of various train types that pass through the area;
  - iv. identify the conditions and variables that can affect rail noise in the area;
- c. Determine the most appropriate locations for noise mitigation options and type of mitigation such as gauge face lubrication, top-of-rail-friction modification and rail profiling.

## Timeframe

The licensee must provide the EPA with a scope of works for review for the investigations required under Action 2.0 A by 31 December 2015 to allow monitoring to commence in the first quarter of 2016.

The licensee must provide the EPA with a report summarising the findings of the investigations required under Action 2.0 A by 30 June 2016.

## 9 Special Conditions

### E1 Completed pollution studies and reduction programs

E1.1 The following pollution studies and reduction programs have been completed by the licensee

PRP Title	Description	Completion Date
1. Noise management on the five priority lines	Help mitigate noise level on five priority lines: <ul style="list-style-type: none"> <li>• Inner West (Lidcombe Junction to Redfern)</li> <li>• North Strathfield to Hornsby</li> <li>• Auburn and Merrylands to Penrith</li> <li>• Erskineville Junction to Waterfall</li> <li>• North Shore</li> </ul>	March 2002
2. Monitoring and reporting for noise management on the five priority lines	To report to EPA the progress of the implementation of PRP 1 above.	July 2006
3. Whole of network strategies	To review the noise mitigation measures undertaken in PRP 1 above and develop network wide strategies.	December 2003

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4. Angle of attack monitoring	Help manage locomotive noise from the NSW rail network by undertaking angle of attack monitoring to identify locomotives or wagons having the potential to cause wheel squeal. Monitoring data was made available to freight operators so that locomotives having anomalies with the potential to cause wheel squeal were able to be identified and appropriately actioned.	20 May 2010
5. Top of rail friction modifier applicators	To refine top of rail friction modifier applicator technology and implement refinements at specified locations.	21 February 2012
6. Audit of the noise performance of locomotives	Help manage locomotive noise from the NSW rail network by monitoring the noise performance of locomotives on the metropolitan rail network and providing noise monitoring data to locomotive operators and the EPA.	21 May 2010
7. Audit of the air performance of locomotives	Help manage exhaust emissions from the NSW rail network by monitoring the exhaust emission performance of XPT passenger locomotives and investigating options for undertaking exhaust emission monitoring on the remainder of RailCorp's passenger locomotive fleet.	7 September 2010
8. Review of safety related procedures that cause a noise nuisance	Help manage noise associated with safety related practices, including horn testing and sounding horns coming in and out of tunnels and road crossings. As a result of this PRP RailCorp removed the requirement to sound a train horn when leaving a station.	19 October 2010

## E2 Locomotives approved for operation on the licensee's premises

E2.1 The following locomotives are approved for operation on the licensee's premises

Class	Approval Path	Approval Date
BK	EPA SDA1 Type approved	16 November 2012
1100	EPA Class approved	13 March 2012
SCT	EPA GT 46 C-ACe Type approved	17 April 2008
LDP	EPA GT 46 C-ACe Type approved	17 April 2008
TT	EPA GT 46 C-ACe Type approved	17 April 2008
TT1	EPA GT 46 C-ACe Type approved	17 April 2008
WH	EPA GT 46 C-ACe Type approved	17 April 2008
GWA	EPA GT 46 C-ACe Type approved	17 April 2008
92	EPA C43aci & 44aci Type approved	12 August 2009

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93	EPA C43aci & 44aci Type approved	12 August 2009
6000	EPA C43aci & 44aci Type approved	12 August 2009
XRN	EPA C43aci & 44aci Type approved	12 August 2009
GWU	EPA C43aci & 44aci Type approved	12 August 2009
CEY	EPA C43aci & 44aci Type approved	12 August 2009
CF	EPA C43aci & 44aci Type approved	12 August 2009
14	EPA Class approved	19 January 2007
Hunter rail car	EPA Class approved	15 August 2006
RL	EPA Class approved	30 November 2007
VL	EPA Class approved	14 April 2008
XR-2/XRB	EPA Class approved	2006
90	Approved under previous legislation	1994
NR	Approved under previous legislation	1996
82	Approved under previous legislation	1994
81	Approved under previous legislation	1982
BL	Approved under previous legislation	1982
G	Approved under previous legislation	1982
Endeavour Car	Approved under previous legislation	1993
Xplorer	Approved under previous legislation	1993
18	Introduced prior to approval processes	Not applicable
22	Introduced prior to approval processes	Not applicable
31	Introduced prior to approval processes	Not applicable
35	Introduced prior to approval processes	Not applicable
42	Introduced prior to approval processes	Not applicable
421	Introduced prior to approval processes	Not applicable
423/1502	Introduced prior to approval processes	Not applicable
43	Introduced prior to approval processes	Not applicable
44	Introduced prior to approval processes	Not applicable
44s	Introduced prior to approval processes	Not applicable
442	Introduced prior to approval processes	Not applicable
442s	Introduced prior to approval processes	Not applicable
45	Introduced prior to approval processes	Not applicable
45s	Introduced prior to approval processes	Not applicable
47	Introduced prior to approval processes	Not applicable
48	Introduced prior to approval processes	Not applicable
48s	Introduced prior to approval processes	Not applicable
422	Introduced prior to approval processes	Not applicable

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49	Introduced prior to approval processes	Not applicable
73	Introduced prior to approval processes	Not applicable
80	Introduced prior to approval processes	Not applicable
80s	Introduced prior to approval processes	Not applicable
600	Introduced prior to approval processes	Not applicable
830	Introduced prior to approval processes	Not applicable
900	Introduced prior to approval processes	Not applicable
930	Introduced prior to approval processes	Not applicable
ALF	Introduced prior to approval processes	Not applicable
AN	Introduced prior to approval processes	Not applicable
B	Introduced prior to approval processes	Not applicable
C	Introduced prior to approval processes	Not applicable
CLF	Introduced prior to approval processes	Not applicable
CLP	Introduced prior to approval processes	Not applicable
D	Introduced prior to approval processes	Not applicable
DC	Introduced prior to approval processes	Not applicable
DL	Introduced prior to approval processes	Not applicable
EL	Introduced prior to approval processes	Not applicable
FL	Introduced prior to approval processes	Not applicable
GL	Introduced prior to approval processes	Not applicable
GM(1-11)	Introduced prior to approval processes	Not applicable
GM(12-47)	Introduced prior to approval processes	Not applicable
HL	Introduced prior to approval processes	Not applicable
JL	Introduced prior to approval processes	Not applicable
KL	Introduced prior to approval processes	Not applicable
MM	Introduced prior to approval processes	Not applicable
PL	Introduced prior to approval processes	Not applicable
LQ	Introduced prior to approval processes	Not applicable
LZ	Introduced prior to approval processes	Not applicable
S	Introduced prior to approval processes	Not applicable
L	Introduced prior to approval processes	Not applicable
K	Introduced prior to approval processes	Not applicable
T	Introduced prior to approval processes	Not applicable
X	Introduced prior to approval processes	Not applicable
XP (XPT)	Introduced prior to approval processes	Not applicable
3200	EPA Class Approved	28 June 2013
BRM	EPA Class Approved	12 July 2013

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CFCLA CM	EPA Class Approved	22 January 2014
1200	EPA Class Approved	22 May 2014
FIE	C43/44aci	12 August 2009
5000	C43/44aci	20 January 2006
5020	C43/44aci	12 August 2009
6020	C43/44aci	12 August 2009
AC	C43/44aci	12 August 2009
ACA	C43/44aci	12 August 2009
SSR	GT46C-ACE	17 Apr 2008
N Class	JT22HC-2 - introduced prior to approval process	Not applicable
Cs	GT26C - introduced prior to approval process	Not applicable
CRL	C43/44aci	12 Aug 2009
CSR	SDA1	14 Aug 2012
CFCLA CM	MP33C	22 Jan 2014
Any other MP33C type	MP33C	1 Sept 2014
PB	2GS16B-AU	7 Jan 2015
CS	Windhoff DB690	22 Aug 2002
ACB	EPA C43aci & 44aci Type approved	12 August 2009
MRL	EPA C43aci & 44aci Type approved	12 August 2009

## E3 Special Dictionary

### E3.1 Railway System Licence Dictionary

In this licence, unless the contrary is indicated, the terms below have the following meanings:

Term	Definition
Ancillary works	Has the same meaning as in Clause 33 of Schedule 1 of the Act.
Construction activities	Means erection or installation of new track and ancillary works.
Emergency works	Means unforeseen works: a) to avoid the loss of life or damage to property or to prevent environmental harm; or b) to restore safe and reliable railway passenger and freight services or to prevent imminent interruption to those services.
High noise impact generating works	Means: a) rail regulating and tamping, jack hammering, grinding, line drilling, pile driving, rock hammering, rock breaking, saw cutting, sheet piling, vibratory rolling; or b) any other activities where those activities in either (a) or (b) above generate offensive noise (as defined in the Dictionary to the Protection of the Environment Operations Act 1997) at noise sensitive receivers, because of their impulsive, intermittent, low frequency or tonal characteristics.

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Locomotive	A powered vehicle primarily intended for hauling freight and/or passenger rolling stock or a rail vehicle comprising part of a diesel-multiple unit, but does not include: <ul style="list-style-type: none"> <li>• a vehicle used for maintenance of track or other infrastructure; or</li> <li>• a vehicle used or intended to be used solely for heritage purposes.</li> </ul>
Maintenance activities	Means repair, upgrading or alteration of existing track and ancillary works on the licensed premises.
Metropolitan area	Has the same meaning as defined in Clause 50 of Schedule 1 of the Act.
Noise sensitive receivers	Means buildings used as residence, hospital, school, child care centre, places of public worship and nursing homes.
Railway systems activities	Has the same meaning as in Clause 33 of Schedule 1 of the Act.
Rolling Stock	Has the same meaning as in Part 3 of Schedule 1 of the Act.
Substantially modified	The major upgrading, replacement, restructuring or reconfiguration of one or more of the principal noise-emitting components of a locomotive, including where applicable: <ul style="list-style-type: none"> <li>• the combustion engine;</li> <li>• the engine exhaust system;</li> <li>• the traction system, including traction motors and gearboxes;</li> <li>• the electrical supply system, including alternators, invertors and control equipment;</li> <li>• cooling systems; and</li> <li>• the dynamic braking system;</li> </ul> but does not include routine maintenance of the locomotive.

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## Dictionary

### General Dictionary

<b>3DGM [in relation to a concentration limit]</b>	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
<b>Act</b>	Means the Protection of the Environment Operations Act 1997
<b>activity</b>	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
<b>actual load</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>AM</b>	Together with a number, means an ambient air monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
<b>AMG</b>	Australian Map Grid
<b>anniversary date</b>	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
<b>annual return</b>	Is defined in R1.1
<b>Approved Methods Publication</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>assessable pollutants</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>BOD</b>	Means biochemical oxygen demand
<b>CEM</b>	Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
<b>COD</b>	Means chemical oxygen demand
<b>composite sample</b>	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
<b>cond.</b>	Means conductivity
<b>environment</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>environment protection legislation</b>	Has the same meaning as in the Protection of the Environment Administration Act 1991
<b>EPA</b>	Means Environment Protection Authority of New South Wales.
<b>fee-based activity classification</b>	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
<b>general solid waste (non-putrescible)</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997



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<b>flow weighted composite sample</b>	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
<b>general solid waste (putrescible)</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>grab sample</b>	Means a single sample taken at a point at a single time
<b>hazardous waste</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>licensee</b>	Means the licence holder described at the front of this licence
<b>load calculation protocol</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>local authority</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>material harm</b>	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
<b>MBAS</b>	Means methylene blue active substances
<b>Minister</b>	Means the Minister administering the Protection of the Environment Operations Act 1997
<b>mobile plant</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>motor vehicle</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>O&amp;G</b>	Means oil and grease
<b>percentile [in relation to a concentration limit of a sample]</b>	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
<b>plant</b>	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
<b>pollution of waters [or water pollution]</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>premises</b>	Means the premises described in condition A2.1
<b>public authority</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>regional office</b>	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
<b>reporting period</b>	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
<b>restricted solid waste</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>scheduled activity</b>	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
<b>special waste</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>TM</b>	Together with a number, means a test method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .

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TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste

Mr David Featherston

Environment Protection Authority

(By Delegation)

Date of this edition: 17-December-2004

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## End Notes

- 1 Licence fee period changed by notice 1043177 on 17-Dec-2004.
- 2 Licence varied by notice 1044735, issued on 21-Apr-2005, which came into effect on 22-Apr-2005.
- 3 Licence varied by notice 1048848, issued on 27-Jun-2005, which came into effect on 27-Jun-2005.
- 4 Licence varied by notice 1058748, issued on 28-Aug-2006, which came into effect on 28-Aug-2006.
- 5 Licence varied by notice 1077085, issued on 22-Aug-2007, which came into effect on 22-Aug-2007.
- 6 Licence varied by notice 1082393, issued on 12-Feb-2008, which came into effect on 12-Feb-2008.
- 7 Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
- 8 Licence varied by notice 1507145 issued on 06-Jul-2012
- 9 Licence varied by notice 1510586 issued on 21-Mar-2013
- 10 Licence varied by notice 1514864 issued on 13-Jun-2013
- 11 Licence fee period changed by notice 1515160 on 24-Jun-2013
- 12 Licence transferred through application 1515298 approved on 30-Jun-2013 , which came into effect on 01-Jul-2013
- 13 Licence varied by notice 1517239 issued on 29-Oct-2013
- 14 Licence varied by notice 1519322 issued on 10-Jan-2014
- 15 Licence varied by notice 1519943 issued on 10-Feb-2014
- 16 Licence format updated on 26-Feb-2014
- 17 Licence varied by notice 1522517 issued on 04-Jun-2014
- 18 Licence varied by notice 1524149 issued on 15-Aug-2014
- 19 Licence varied by notice 1525455 issued on 08-Oct-2014
- 20 Licence varied by notice 1526648 issued on 26-Nov-2014
- 21 Licence varied by notice 1528187 issued on 11-Feb-2015
- 22 Licence varied by notice 1529616 issued on 02-Apr-2015
- 23 Licence varied by notice 1530626 issued on 21-May-2015

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24 Licence varied by notice 1535588 issued on 13-Nov-2015