# SCREENING LIMITS POLICY

## Background relating to prohibited substances

1. The ARR include provisions dealing with what are termed prohibited substances. The definition of what is a prohibited substance is deliberately framed to cast an extremely wide net. This has been done so as to give effect to a policy which is colloquially described as *"zero tolerance"* or drug-free racing. The three definitional provisions are as follows:

**AR.1. "Prohibited Substance"** means a substance declared by these Rules to be a prohibited substance, or which falls within any of the groups of substances declared by these Rules to be prohibited substances unless it is specifically excepted.

***AR.178B.*** *The following substances are declared as prohibited substances:*

*(1) Substances capable at any time of causing either directly or indirectly an action or effect, or both an action and effect, within one or more of the following mammalian body systems:*

*the nervous system*
*the cardiovascular system*
*the respiratory system*
*the digestive system*
*the musculo-skeletal system*
*the endocrine system*
*the urinary system*
*the reproductive system*
*the blood system*
*the immune system*

*(2) Substances falling within, but not limited to, the following categories:*

*acidifying agents*
*adrenergic blocking agents*
*adrenergic stimulants*
*agents affecting calcium and bone metabolism*
*alcohols*
*alkalinising agents*
*anabolic agents*
*anaesthetic agents*
*analgesics*
*antiangina agents*
*antianxiety agents*
*antiarrhythmic agents*
*anticholinergic agents*
*anticoagulants*
*anticonvulsants*

*antidepressants*
*antiemetics*
*antifibrinolytic agents*
*antihistamines*
*antihypertensive agents*
*anti-inflammatory agents*
*antinauseants*
*antineoplastic agents*
*antipsychotic agents*
*antipyretics*
*antirheumatoid agents*
*antispasmodic agents*
*antithrombotic agents*
*antitussive agents*
*blood coagulants*
*bronchodilators*
*bronchospasm relaxants*
*buffering agents*
*central nervous system stimulants*
*cholinergic agents*
*corticosteroids*
*depressants*
*diuretics*
*erectile dysfunction agents*
*fibrinolytic agents*
*haematopoietic agents*
*haemostatic agents*
*hormones (including trophic hormones) and their synthetic counterparts*
*hypnotics*
*hypoglycaemic agents*
*hypolipidaemic agents*
*immunomodifiers*
*masking agents*
*muscle relaxants*
*narcotic analgesics*
*neuromuscular agents*
*plasma volume expanders*
*respiratory stimulants*
*sedatives*
*stimulants*
*sympathomimetic amines*
*tranquillisers*
*vasodilators*
*vasopressor agents*
*vitamins administered by injection*

*(3) Metabolites, artifacts and isomers of the prohibited substances prescribed by subrules (1) and (2) of this rule.*

***AR 178C.*** *(1) The following prohibited substances when present at or below the concentrations respectively set out are excepted from the provisions of AR.178B:*

*(a)* *Alkalinising agents, when evidenced by total carbon dioxide ($TCO_2$) at a concentration of 36.0 millimoles per litre in plasma.*

*(b)* *Arsenic at a mass concentration of 0.30 milligrams per litre in urine.*

*(c)* *Dimethyl sulphoxide at a mass concentration of 15 milligrams per litre in urine or 1.0 milligrams per litre in plasma.*

*(d)* *In male horses other than geldings, 5α-estrane-3β, 17α-diol in urine (including both the free substance and that liberated from its conjugates) at a mass concentration equal to or less than that of 5(10) estrene-3β, 17α-diol in urine (including both the free substance and that liberated from its conjugates).*

*(e)* *Salicylic acid at a mass concentration of 750 milligrams per litre in urine or 6.5 milligrams per litre in plasma.*

*(f)* *Hydrocortisone at a mass concentration of 1.00 milligrams per litre in urine.*

*(g)* *Testosterone (including both free testosterone and testosterone liberated from its conjugates):*

*(i)* *in geldings: at a mass concentration of 20 micrograms per litre in urine;*

*(ii)* *in fillies and mares: at a mass concentration of 55 micrograms per litre in urine.*

*(iii)* *in fillies and mares that have been notified as pregnant pursuant to the requirements of AR.64E(2): at any concentration.*

*(h)* *3-Methoxytyramine (including both free 3-methoxytyramine and 3-methoxytyramine liberated from its conjugates) at a mass concentration of 4.0 milligrams per litre in urine.*

*(j)* *Boldenone in male horses other than geldings, (including both free boldenone and boldenone liberated from its conjugates) at a mass concentration of 15 micrograms per litre in urine .*

*(k)* *Theobromine at a mass concentration of 2.00 milligrams per litre in urine.*

*(2) The following substances are excepted from the provisions of AR.178B:-*

*antimicrobials (antibiotics) and other anti-infective agents but not including procaine penicillin*
*antiparasitics approved and registered for use in horses*
*ranitidine*
*omeprazole*
*ambroxol*
*bromhexine*
*dembrexine*
*registered vaccines against infectious agents*
*orally administered glucosamine*
*orally administered chondroitin sulphate*
*altrenogest when administered to fillies and mares.*

2. There are then a number of provisions dealing with the consequences of a prohibited substance being detected in a sample taken from a horse:

- AR.177 (which provides that any horse that has been brought to a racecourse and a prohibited substance is detected in any sample taken from it prior to or following its running in any race must be disqualified from any race in which it started on that day).

- AR.177A (which provides that when a horse is brought to a racecourse or recognised training track to engage in either an official trial, a jump-out, or other test for the purpose of obtaining a permit to start in a race, and a prohibited substance is detected in any sample taken from it prior to or following such engagement, the trainer and any other person who was in charge of the horse at any relevant time may be penalised).

- AR.178 (which provides that when any horse that has been brought to a racecourse for the purpose of engaging in a race and a prohibited substance is detected in any sample taken from it prior to or following its running in any race, the trainer and any other person who was in charge of such horse at any relevant time may be penalised).

3. Importantly each of these rules prohibits the detectable **presence** of these substances. The rules are deliberately not framed in terms of the substance's impact on performance or health or otherwise. This is consistent with the policy of zero tolerance.

4. The role of the official racing laboratories in analysing samples taken from horses is provided for in AR.178D as follows:

***AR.178D.*** *(1) Samples taken from horses in pursuance of the powers conferred on the stewards by AR.8(j) shall be analysed by only an official racing laboratory.*

*(2) Upon the detection by an official racing laboratory of a prohibited substance in a sample taken from a horse such laboratory shall -*

*(a) notify its finding to the stewards, who shall thereupon notify the trainer of the horse of such finding; and*

*(b) nominate another official racing laboratory and refer to it the reserve portion of the same sample and, except in the case of a blood sample, the control of the same sample, together with advice as to the identity of the prohibited substance detected.*

*(3) In the event of the other official racing laboratory detecting the same prohibited substance, or metabolites, isomers or artefacts of the same prohibited substance, in the referred reserve portion of the sample and not in the referred portion of control the certified findings of both official racing laboratories shall be prima facie evidence that a prohibited substance has been detected in that sample for the purposes of these rules.*

5. In a practical sense zero tolerance testing by racing laboratories is not testing down to zero molecules, which no analytical chemist can yet accomplish, but rather testing to the "Limit of Detection" (LOD) of the best available technology and analytical methods used.

**Thresholds**

6. In that small number of cases where prohibited substances are substances that are naturally present in horses, either due to being endogenous to horses or naturally occurring in feedstuffs or in the environment, the ARR includes thresholds - see AR.178C(1). When the concentration at which one of these substances is present in a sample is at or below the threshold then the sample is not a positive sample.

7. Screening Limits are not thresholds.

**Increased sensitivity of analysis**

8. Sensitivity of analysis is the term which the industry has given to the capacity of the racing analytical laboratories to detect the presence of a prohibited substance in a sample. Over time, new technologies and research and development means that analytical equipment and methods improve, resulting in increased sensitivity of analysis (i.e. enhanced LODs). Increased sensitivity of analysis means that a substance present in a sample at a certain concentration which was not able to be detected in 2001, may be able to be detected using the analytical equipment and methods available in 2011.

9. In the case of illicit performance-modifying substances which have no legitimate role or accepted therapeutic use, increased sensitivity of analysis is an unambiguously good thing. It is the raison d'être of the racing analytical laboratories to harness the full capabilities of modern science to detect the presence of such substances at any level.

10. However, as a matter of policy the Australian Racing Board does not believe it is necessary to employ the same sensitivity of analysis for therapeutic substances, which do have a legitimate place in our industry including for welfare reasons.

11. It is for this reason, as well as the desire for objectivity and transparency, that the concept of screening limits for certain therapeutic substances has been developed.

**Screening limits**

12. De facto, in-house "*screening limits*" have been employed within a number of racing laboratories for several years. These laboratories have used internal protocols in an attempt to maintain LODs for therapeutic substances at constant levels. For example, with current technology a racing chemist could easily find traces of phenylbutazone or its metabolites for 14 days or more after administration. However as a matter of practice laboratories would only call a sample positive to phenylbutazone if the concentration present in the sample is at or above a level that would have been detectable say 15 years ago.

13. In these circumstances the Australian Racing Board has approved the development of formal screening limits for certain therapeutic substances (SLs). These SLs set out the concentration of the particular substance above which the racing laboratory will call the sample positive.

14. The SL is the urine or plasma concentration adopted for the screening of a specified therapeutic prohibited substance; it is derived from administration studies followed by a risk analysis consisting of two components: a risk assessment (evaluation of the effect of the substance and factors related to its control) and a risk management (decision step for harmonisation). SLs are harmonised detection limits agreed following input by international consensus and are conveyed by instruction from racing authorities to their laboratories. The SLs are simply the detection limits to be used by the laboratories when screening for certain therapeutic substances as instructed by the authorities; they are not international thresholds. When the screening procedure indicates the SL has been exceeded, all that is required is qualitative confirmatory analysis (usually by mass spectrometry) to confirm the presence or absence of the prohibited substance. Quantification is not required.

**Screening limits do not affect liability**

15. The implementation of screening limit testing of racing is not intended and does not operate to mean that for the purpose of the Rules of Racing the therapeutic substance only becomes a prohibited substance if and when the screening limit is exceeded.

16. It shall not be a defence to any charge under AR.177, AR.177A or AR.178 that the result of any initial screening test should have been below the screening limit for the therapeutic substance in question.

**END.**