

DRAFT REPORT

REVIEW INTO SAFETY BENEFITS OF INTRODUCING DRUG AND ALCOHOL TESTING FOR SAFETY SENSITIVE PERSONNEL IN THE AVIATION SECTOR.

A REVIEW UNDERTAKEN BY THE DEPARTMENT OF TRANSPORT AND REGIONAL SERVICES (DOTARS) AND THE CIVIL AVIATION SAFETY AUTHORITY (CASA)

FOR PUBLIC COMMENT PRIOR TO FINALISATION OF REPORT

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Introduction

On 18 March 2004, the Australian Transport Safety Bureau (ATSB) publicly released its accident report on a fatal accident that occurred at Hamilton Island in September 2002¹. A finding of this report was that the possible adverse effects on pilot performance of fatigue, recent cannabis use and post-alcohol impairment could not be discounted.

In this report, the ATSB made a number of recommendations, relating to the Civil Aviation Safety Authority (CASA) and the Department of Transport and Regional Services jointly establishing the safety benefits of the introduction of a drug and alcohol testing programme to the Australian aviation industry for safety sensitive personnel. It was stated that, wherever possible, this programme should harmonise with existing and evolving national and international regulations. The Deputy Prime Minister and Minister for Transport and Regional Services, the Hon John Anderson MP, announced on 18 March 2004 that he supported the ATSB recommendations and asked CASA and the Department to jointly develop terms of reference and review this issue.

The review aims to comprehensively examine the safety benefits of introducing a drug and alcohol testing programme for the Australian aviation industry.

The terms of reference that were agreed listed five primary non-exclusive issues that should be addressed in considering the broad safety case for drug and alcohol testing. These issues were:

- The need to define safety-sensitive personnel;
- Who would administer the testing process (CASA or industry);
- Whether testing should be part of a company's safety management system;
- Whether testing would be on a random, or a regular, basis;
- Alternative and/or supplementary programmes that are used for alcohol and drug management (eg mentoring, and differentiating between a regime for alcohol management which might need to be different to other drug management); and
- The costs involved with establishing programmes (including education campaigns) and the ongoing testing regimes.

Background to Issue

Major accidents involving drug and alcohol usage have driven proposals internationally to implement testing programmes, together with related safety measures eg rehabilitation, return to work initiatives, peer support programmes. The *United States* has been at the forefront, prompted by drug-related accidents (collision of Amtrak and Conrail trains in January 1987 and a commuter plane crash in January 1988) and alcohol-related events (pilot of a major US air carrier flying while intoxicated in March 1990 and the Exxon Valdez oil spill in 1989).

The United States military had acted even earlier on testing, responding to concerns about drug use amongst its forces in Vietnam but most notably in the aftermath of a fatal plane crash aboard

¹ Australian Transport Safety Bureau (ATSB) Aviation Safety Investigation Report 200204328, Hamilton Island Aerodrome. [<http://www.atsb.gov.au/aviation/pdf/200204328.pdf>]

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the aircraft carrier Nimitz in May 1981 in which traces of marihuana were found in the bodies of six of the fourteen dead personnel.

The US Federal Aviation Administration (FAA) began a Drug Abatement Program in 1988 to assist industry in developing and implementing substance testing programmes. Companies were responsible for all aspects of the testing programmes, including associated costs and an active inspection programme to monitor industry compliance with the regulations commenced in 1990. Final regulations were issued for drug testing in 1988, and for alcohol testing in 1995.

Over 30,000 positive tests were reported between 1990 and 2003 under the US testing regime² of which the majority were as a result of pre-employment testing (21,000). Of the other testing types, random testing has tended to identify the most positives among those actually working in safety sensitive positions, whilst reasonable suspicion testing has been the next most productive.

Other nations, like the *United Kingdom*, have been spurred to take action by accidents (fatal accident involving a light aircraft crash in 1991). A consultation paper was issued in 1996 setting out various options for the introduction of a blood alcohol limit for aviation personnel, but it was media exposure of substance abuse (Channel 4 broadcast, 12 October 2000, documenting alcohol use by British Airways flight crew) that ultimately led to legislative action (*Railways and Transport Safety Act 2003*) and facilitated 'on suspicion testing by British police. However, yet another recent incident of a pilot being caught drunk pre-departure (Pakistan International Airlines, Boeing 747 pilot, February 2005) has resulted in calls by the Conservative Party for the introduction of random testing³.

In some nations, mandating testing regimes has been considered but proved elusive because of existing legislative constraints, as in *New Zealand*. However, the NZ Employment Court has recently endorsed the legality of Air New Zealand to random test safety-sensitive personnel, if not employees generally.

More broadly, other nations have ensured that their police forces have at least the power to test and take matters before the courts if appropriate. Examples of recent international aviation experience with substance abuse includes such instances in the *Netherlands, Finland, Sweden, Norway and Germany*.

High profile incidents involving substance use have occurred in Australia and New Zealand, most notably the accident that killed nine people on the Franz Josef Glacier in 1993. However, *Australia* does not yet have legislated testing procedures in place for aviation safety-sensitive personnel, including flight crew. Australian police have no authority to detain or test pilots suspected of substance abuse. Indeed, the very existence of substance abuse, and therefore the need for testing or any response, is still disputed by some elements of the community.

But the facts are that substance abuse occurs in aviation, across national borders and job descriptions, that people have died in substantial numbers where evidence of inappropriate

² Drug Testing Results by Safety Sensitive Occupation reported to the US Federal Aviation Administration by the Aviation Industry (pursuant to 14 CFR Part 121, Appendix I).

³ The UK Shadow Secretary of State for Transport, Mr Tim Yeo, stated "we think compulsory random breath testing for pilots should be introduced", according to *The Scotsman* newspaper on 8 February 2005.

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substance use was confirmed; and all manner of aviation options – from microlights to Boeing 747s – have been placed at risk or worse.

In short, aviation personnel are no different from the rest of the community in their experiences with substance abuse, and so it is appropriate to consider appropriate safety responses – specifically testing - employed internationally in aviation, and in other vocations and industries to achieve better safety outcomes.

Alcohol and Drug Use within the Aviation Sector

Drug and alcohol abuse are estimated to generate enormous economic and social costs internationally. Whilst figures vary considerably, published estimates include well over \$140 billion in annual losses in the United States⁴ across all industry sectors; approximately \$20 billion per annum in Canada⁵; and \$10 billion per annum in Australia⁶. Given such an impact, it is not surprising that serious consideration has been given to preventative and remedial measures.

As early as 1991, it was estimated that the direct cost to Australian industry as a result of sickness and death due to drug and alcohol abuse was \$3.7 billion per annum⁷. At about the same time, the International Labor Organisation (ILO) estimated that 20-25 per cent of all industrial accidents were a result of drug and alcohol abuse; that some 62 per cent of such abusers were in full time employment, which equated to about 300,000 workers in an Australian context; and that 3-15 per cent of fatal industrial accidents were related to such substance abuse⁸.

As a broad guide, the International Civil Aviation Organization (ICAO) has sought to encourage the harmonization of drug and alcohol prevention and testing programmes in the aviation sector. A working paper⁹ jointly proposed by the Kingdom of the Netherlands and the United States in 2001 aimed to set in motion actions by the ICAO Council to develop provisions to achieve consistency among the substance testing programmes of ICAO Contracting States and enforcement by Contracting States on the abuse of alcohol and drugs by certain safety-sensitive personnel. ICAO defines 'safety-sensitive employees' as 'persons who might endanger aviation safety if they perform their duties and functions improperly'¹⁰.

Whilst testing and related initiatives are well established in the United States and increasingly internationally, there is no testing regime in Australia for aviation. Whilst some companies

⁴The Economic Costs of Drug Abuse in the United States 1992 - 1998

http://www.whitehousedrugpolicy.gov/publications/pdf/economic_costs98.pdf

⁵Keith Martin – Canadian House of Commons - Private Members Business – Canadian Contraventions Act amendment bill - http://cannabislink.ca/gov/1mart_c344.html

⁶Paper presented to the National Campaign Against Drug Abuse Conference April 1991 by Pat Carr, on the Building Trades Group of Unions Drug and Alcohol Committee Safety and Rehabilitation Program
http://www.btgda.org.au/NCADA_paper.pdf

⁷Collins DJ, Lapsley HM, Estimating the economic costs of drug abuse in Australia, National Campaign Against Drug Abuse, Monograph No 15, Department of Community Services and Health, 1991.

⁸WorkCover NSW, Drugs, Alcohol and the Workplace. A guide to developing a workplace drug and alcohol policy, 1995.

⁹A33-WP/67 Harmonization of Drug and Alcohol Prevention and Testing Programmes

¹⁰International Civil Aviation Organization. Manual on prevention of problematic use of substances in the aviation workplace. Doc.9654-AN/945, 1995.

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within aviation and other unrelated industries have nevertheless initiated or are planning to commence their own programmes, there is no testing regime in place comparable to, for example, road users.

Part 67 of the *Civil Aviation Safety Regulations 1998* (CASR) specifies that an applicant for a medical certificate, i.e. a pilot or air traffic controller, must not “engage in any problematic use of substances (within the meaning given by section 1.1 of Annex 1, *Personnel Licensing*, to the Chicago Convention¹¹)”, and if an applicant for a medical certificate has a history of “problematic use of substances”, he or she has abstained from such use, has no safety-relevant medical problems associated with that use, and is undertaking or has completed a course of therapy for that use. Regulation 256 of the *Civil Aviation Regulations 1988* (CAR) proscribes the use of drugs and alcohol by aircraft crew and air traffic controllers while on duty and for eight hours before duty, and precludes them from carrying out duties while affected by drugs or alcohol.

Despite these legal requirements, implementation is not straightforward. It assumes that applicants for medical certificates (at this time, currently only pilots and air traffic controllers) answer medical questionnaires truthfully in all cases, when there is in fact evidence to the contrary documented in accident reports. The regulations specify no maximum permissible blood alcohol concentration (BAC), so there is no clear limit on which to base a decision not to report for duty, or to respond to if someone does. And finally, there is no legislative basis for CASA to test aviation personnel in its capacity as the safety regulator or the ATSB to do it as part of a transport safety investigation. The Australian State, Territory or Commonwealth police force do not have the power to at least test pilots in a manner comparable to road users.

There is no scientific basis for assuming that drug and alcohol usage within the aviation sector, whether in Australia or elsewhere, is any lower than in the wider community. Whilst the argument is sometimes made that by virtue of education and responsibility, lower usage is to be expected, studies have demonstrated that a higher education is not an indicator of lower usage and indeed, the reverse may be the case.¹²

Alcoholism and drug usage in industry is often undiscovered, unrecognised and unreported. Aviation is no different and it has been estimated that alcohol abuse and dependence affects approximately 5-8% of all pilots, similar to the proportions in other professional occupations such as law and medicine.¹³ Maintenance personnel, flight attendants and management are similarly affected.

In the United States, the Federal Aviation Administration (FAA) implemented a cooperative, mutually supportive programme involving pilots and their management that allowed affected

¹¹ “Problematic use of substances” is defined in Annex 1 of the Chicago Convention as the use of one or more psychoactive substances by aviation personnel in a way that:

- a) constitutes a direct hazard to the user or endangers the lives, health or welfare of others; and/or
- b) causes or worsens an occupational, social, mental or physical problem or disorder.

¹² Snyder, Q. & Shaw, W., ‘Chemical Free Aviation Workplaces’, Corporate Aviation Safety Seminar, Flight Safety Foundation/National Business Aviation Association Inc – April 2004.

¹³ Snyder, Q. & Shaw, W., ‘Chemical Free Aviation Workplaces’, Corporate Aviation Safety Seminar, Flight Safety Foundation/National Business Aviation Association Inc – April 2004.

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pilots to seek treatment and rehabilitation, leading to early FAA medical certification. Known as Human Intervention Motivation Study (HIMS), more than **4,000** pilots have been treated under this program for alcohol/drug abuse and dependence since its introduction in the early 1970s¹⁴. The initial HIMS study calculated a 9:1 return on investment for airlines instituting a program of alcohol treatment¹⁵ and some US airlines have estimated a 16:1 return on investment. The overall long term abstinence rate achieved exceeds 89 per cent, by far the best result for any industry.

The FAA has a special issuance process that is required for an alcoholic pilot to become recertified and, in 2002 alone, issued 1,415 special issuances for alcoholism and another 79 for illicit drug dependence¹⁶. Clearly there is a problem and it affects many personnel, and not just pilots. It needs to be quantified and constructively addressed to improve aviation safety; to rehabilitate as many affected personnel as possible; and testing is an important tool in this process.

Testing – Why and For What Substances

Safety is the key issue. Aviation operations present a potential risk to public safety if not undertaken in a safe manner. Alcohol and drug use pose a real challenge to ensuring such operational safety. The Australian Transport Safety Bureau (ATSB) Aviation Safety Investigation Report 200204328 into the fatal accident at Hamilton Island notes that key areas of human performance to do with cognitive functioning and psychomotor skill are generally impaired following the use of substances such as alcohol and illicit drugs¹⁷. The use of such substances can thus compromise the ability of people to safely undertake their tasks, with clear negative implications for other aviation personnel and passengers depending on the integrity of their work.

Drug and alcohol testing has been implemented most extensively in the United States, which is also the largest single aviation market in the world, and has focussed on alcohol and five illegal drugs – cocaine, amphetamines, marijuana, phencyclidine or PCP (Angel Dust) and opiates/narcotics. The effects of recreational drugs on aircrew – specifically including cocaine, amphetamine, cannabinoids and ecstasy- in a European context, as examined in the Netherlands as part of the Fit-to-Fly Program, point to adverse impacts on their ability to perform their duties safely¹⁸.

In the United States more than seven million employees in safety-sensitive roles in the transportation sector alone are covered by drug and alcohol testing programmes¹⁹. The latest American Management Association (AMA) research shows that 62% of all employees at AMA

¹⁴ *Ibid.* 20

¹⁵ *Ibid.* 29

¹⁶ Borrillo, Donato J., 'The HIMS Program – Tools for Recovery From Alcoholism', The Federal Air Surgeon's Medical Bulletin, Spring 2003 [<http://www.cami.jccbi.gov/aam-400a/FASMB/FAS200301/HIMS.htm>].

¹⁷ ATSB, op cit., 35. Note particularly that report's footnotes 18-24 inclusive regarding studies examining performance impairment.

¹⁸ Simons, M. & Witte, J.J. (2003). Recreational drugs and aircrew.

¹⁹ James E Hall, Alcohol and Other Drug Use in Commercial Transportation. Author was Chairman of the US National Transportation Safety Board. See <http://www.druglibrary.org/schaffer/misc/driving/s1p1.htm>

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member and client companies are subject to drug and alcohol testing²⁰. Even school children are subject to testing in the United States. In the United Kingdom, the coverage is lower but it has been estimated to have already reached one in eight of all employees and 53% of transport industry organisations are conducting some form of alcohol and drug testing²¹. In Australia, which is at an earlier stage in implementing testing, a diverse and growing range of companies are implementing their own responses, including testing.

The more difficult aspect is in differentiating between personnel who have used these substances and those who can be demonstrated to be 'under the influence', or impaired, when on duty. However, it needs to be stated these particular drugs are illegal not only in the United States but also in Australia; that international laws and regulations prohibit the use of psychoactive drugs prior to and during flying duties; and that logic strongly suggests that their use is inconsistent with the proper performance of safety-sensitive tasks.

Furthermore, as noted in the ATSB report, scientific evidence suggests that people are generally unable to accurately determine their level of impairment due to alcohol, and that the same is probably due of illicit drugs. Furthermore, 'hangovers' can produce undesirable effects many hours after the last drink, even when the alcohol itself has been eliminated from a person's body²². There is the additional risk of the 'cocktail effect', involving combinations of alcohol and illicit, prescription or 'over the counter' (OTC) drugs.

Indeed, the use or misuse of prescription and non-prescription drugs is a distinct danger in itself.²³ For most treatments for conditions, which are not disqualifying for flying duties for example, aviation safety issues have never been assessed. Some drugs have also been described as 'aeromedical orphans', where the effects on aviation safety are unknown. This particularly applies to recently developed treatments for depressive illness, smoking, benign prostate hyperplasia, erectile dysfunction, diabetes mellitus and malaria prophylaxis.

Where medication is being taken for conditions that are potentially incapacitating, or indeed disqualifying from flying duties, but pilots are not reporting their use, there is yet another issue as to the adequacy and integrity of existing screening measures²⁴.

Drug and alcohol testing offers a number of safety benefits. Most importantly, it offers a mechanism to measure, manage, prevent and recover from the use of these substances. A testing regime provides an opportunity to quantify an issue that to date relies on anecdotal evidence in

²⁰ American Management Association 2004 Workplace Testing Survey :Medical Testing. AMA membership and client companies are largely drawn from the top five per cent of US businesses in terms of annual sales and total employees, who together employ one quarter of the US workforce.

[http://www.amanet.org/research/pdfs/Medical_testing_04.pdf]

²¹ Independent Inquiry into Drug Testing at Work, Drug testing in the workplace. The report of the Independent Inquiry into Drug Testing at Work, Joseph Rowntree Foundation, NEF & Drugscope, May 2004. pp 35-40.

[<http://www.jrf.org.uk/bookshop/eBooks/185935212X.pdf>]

²² Alcohol and Flying. A Deadly Combination. Pilot safety brochure. FAA Civil Aerospace Medical Institute. 2001. <http://www.cami.jccbi.gov/aam-400a/Brochures/400alcohol.html>

²³ Simons, M. & Krol, J.R. (2003). Prescription and non-prescription drugs use in aircrew.

²⁴ Canfield, Dennis V., Flemig, Jo, Hordinsky, Jerry & Veronneau, Stephen (1994). Unreported Medications Used in Incapacitating Medical Conditions Found in Fatal Civil Aviation Accidents.

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an Australian context. It also provides a tool, together with self-referral, for dealing with usage by individuals, and applying a range of responses including exclusion from safety-sensitive roles and remedial action focussing on return to duty through Employee Assistance Programmes (EAPs) eg HIMS. Without a testing programme, substance abuse continues to exist and is more likely to be undiscovered, unrecognised and unreported.

Testing Options - random vs regular; when, where and numbers tested

The key objective is risk management within the aviation sector. Internationally, there is extensive evidence of various testing regimes in place in nations such as the USA, the Netherlands and UK from which selective implementation should be considered in an Australian context.

A broad range of views were received with regards to available testing options.. Supporters of testing argued that it is imperative that any drug and alcohol testing regime include both random and regular options. The types of testing that could be conducted are: pre-employment, for reasonable cause, post incident or accident, periodic, post treatment or follow up and random. On the other hand, opponents of drug testing tended to focus more on the specific problems relating to random drug testing and civil rights issues. These submissions raised questions about the validity of random drug testing due to the fact that there is a significant possibility of false positives or negatives.

It is essential that any testing process that is undertaken will be required to meet Australian and International standards, which set the procedures for the collection, detection and quantification of drugs in urine and incorporate a strict chain of custody. A positive initial test result would need to be confirmed using gas chromatography/mass spectrometry (GC/MS) methods to determine whether a drug was present, and the amount found. If the GC/MS determines that a lower level of the drug was found than the cut-off, a negative result would be returned.

Opponents of drug testing further opposed the possible introduction of random testing on a range of grounds including privacy and stated that the introduction of random testing may undermine existing procedures. The case for individual rights should not outweigh the rights of the travelling public to the provision of drug and alcohol-free transportation. This does not mean, however, that the institution of random or other testing should be undertaken without regard to individual rights and personal protections against abuse.

One of the primary benefits of random testing is that it has a pro-active deterrent effect on the decision to ingest performance impairing substances. The submissions provided and information available strongly suggest that a flexible mix of testing including pre-employment, random, on suspicion/reasonable cause, post incident or accident and post treatment is appropriate.

Furthermore, the type of testing needs to be complemented by consideration of when testing occurs; where it occurs; and how many people are tested at any time or in any given time frame.. When is important, because safety-sensitive personnel need to be tested, as a prophylactic measure, at least as frequently, at the commencement of duties rather than during or at the

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conclusion of a shift. A rate should be specified and it is suggested that least half of random testing should occur before the individual commences safety-sensitive duties. Where is also important, especially with regard to flight crew, so that testing does not predictably occur at a hub port and not at regional centres.

The integrity of the testing process needs to be closely addressed from various other standpoints. The chain of custody needs to be transparent and trusted and the United States presents a robust model. A related issue is the production and use of products to defraud or 'beat' testing. Some 400 products are marketed on the Internet and in drug-culture magazines with the objective of producing drug-free results. Pennsylvania (1997) and New Jersey (2002) have pioneered legislation to combat these attempts to evade drug detection²⁵.

Finally, the rate of testing needs to be considered for random testing. In the United States, figures of 25% of people in safety sensitive positions will be tested at least once annually for drugs and 10% for alcohol testing have been applied. In the early stages of testing, higher levels are suggested, as was the case in the United States, with provision for the rate to decrease in line with incidence of inappropriate usage. Low incidence could lead to lower testing rates and costs, so that testing was seen as a flexible response.

There are a variety of testing approaches that can be considered in an Australian context.

Statistical evidence from US data demonstrates that pre-employment testing is effective in excluding people with identified illicit drug usage from employment in safety sensitive roles. In the period 1990 – 2002 this type of testing produced 20,827 positive results for drug use among persons seeking to enter employment in the US aviation industry and consequently prevented a large number of persons from doing so²⁶. This has led to smaller fields of applicants for some positions, offset by the view that the calibre of applicants has improved. This effect has been noted not only in transport but in other industries using this form of testing eg Fletcher Challenge Forests in New Zealand²⁷. Pre-employment testing is one of the two most widely implemented forms of testing for safety-sensitive roles in the US aviation industry, together with random testing, and historically generates the most positive test results for illicit drug use.

Random testing has an implied deterrent role to usage by virtue not only of being random and occurring without warning but also because statistical data confirms that it is the most likely form of on the job testing to reveal drug and alcohol usage.²⁸ In the United States it is regarded as the key to the deterrence aspect of drug and alcohol programmes. In the period 1990 – 2002, random testing produced 10,310 positive results for illicit drug use – more than all other testing options combined for persons employed in safety-sensitive roles. However, it was far less effective in respect of alcohol testing, where reasonable cause testing delivered more positive results.

²⁵ Philadelphia Inquirer, 7 August 2002. <http://www.philly.com/mld/inquirer/news/local/3815200.htm?1c>

²⁶ Drug Testing Results by Type of Test Reported to the Federal Aviation Administration by the Aviation Industry (Pursuant to 14 CFR Part 121, Appendix I) Calendar Years 1990 – 2002.

²⁷ Evening Post, 4 November 1997. <http://www.nzdf.org.nz/update/messages/99.htm>

²⁸ Federal Aviation Administration (FAA) 2003 Drug and Alcohol Testing Statistics.

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Post incident/accident testing is also a key tool in correctly understanding and addressing the contributing factors in accidents and incidents. It helps ensure that no factors are overlooked and that systemic responses make the best use of resources. Testing currently occurs in Australia to a limited extent, where fatalities occur, but this limits its value. A more comprehensive response would be to also allow for drug and alcohol testing of surviving crew members and other personnel involved in an Immediately Reportable Matter²⁹, and for such powers to be accessible to the safety investigator, regulator and law enforcement agencies (police) as appropriate.

Reasonable cause testing provides for calculated interventions where observed behaviour suggests that a problem may exist. It has the advantage of addressing/stopping poor performance, as well as linking to a treatment programme if required to assist the affected individual recover. Reasonable cause testing was demonstrated to be particularly effective in confirming alcohol usage above mandated levels in the US, with positive test results appearing in over 35 per cent of tests carried out 1995 – 2002. It was also the second most likely testing means to identify illicit drug use among safety-sensitive personnel³⁰.

Post treatment testing options monitor the success of such interventions – return to duty and follow up testing – are also an option. They are inextricably tied to employee assistance programmes and add a degree of rigour to monitoring the effectiveness of rehabilitation programmes. US testing data consistently shows a modest flow of positive tests, reflecting the effectiveness of EAP initiatives like HIMS but emphasising that there are relapses into substance abuse that need to be identified and managed appropriately.

Periodic testing has been discontinued in the US due to its poor record in achieving positive tests. Indeed, it is debatable as to whether any regular or irregular testing providing forewarning to tested parties is of value in detecting substance abuse. The one obvious exception is where employees have the opportunity to self test and make informed decisions about whether to commence duty in a safety-sensitive role.

Thus, testing in its various forms offers opportunities to exclude, identify, feed into treatment programmes and monitor affected personnel as well as avoid unsafe behaviour. It is a key component within a wider, comprehensive drug and alcohol policy.

It is also essential that a robust chain of custody for specimens is implemented, to provide confidence in test results, and that measures are taken to restrict the use of substances and techniques that might be used to adulterate specimens.

Testing Whom - The need to define safety-sensitive personnel

Safety rather than testing *per se* is the prime focus of this report and there appears to be no compelling argument to mandate the testing of all employees. However, a clear definition of ‘safety-sensitive’ aviation employees and a testing regime encompassing those functions is required. Accordingly, ‘safety-sensitive’ positions have been defined to include all those categories covered by the US regulatory regime, and further widened to include air traffic

²⁹ Defined as being a serious transport safety matter that covers occurrences such as accidents involving death, serious injury, destruction or serious damage to vehicles or property or when an accident nearly occurred.

³⁰ Ibid.

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controllers, airport rescue and fire fighting personnel, and all other airside personnel, including ground refuellers and baggage handlers.

This closely parallels one submission which listed the following aviation groups as the minimum defined safety critical population: flight crew, flight attendants, flight instructors, dispatchers, maintenance personnel, aviation screeners, ground security coordinators, operations controllers, ramp personnel³¹, load controllers, drivers and front-line/operational staff in freight terminals, catering centres and airports.

These personnel perform duties that impact on the safety of many other people – passengers, flight crew, airside personnel, people on other aircraft and people on the ground. Companies that have drug and alcohol policies have approached this issue in various ways. Some companies do not specifically define safety sensitive personnel but make a decision as to which personnel could, if impaired by drugs or alcohol, endanger other persons.

Some companies randomly test a percentage of all of their employees every year. These decisions were made on the basis of equity and as a practical way to address the difficulty in precisely determining employee groups and individuals who may be considered as ‘safety critical’.

The transport sector, as with the petrochemical and explosives industries, can be differentiated from most other industry sectors by the scale of damage that can occur when a workplace accident happens. Further, the visibility of office worker absences due to an employee being impaired by a substance is much lower than for a transport sector worker – a plane cannot operate without aircrew, a bus route will not be completed without a driver. There is thus, at the same time as facing an increased accident risk, higher pressure for transport employees to attend work while in an impaired³² condition (Institute of Medicine, 1994)³². In Australia, all transport modes, except aviation, are subject to certain degrees of alcohol and drug testing.

Who would administer the testing process (CASA, industry or other)

A view expressed across the submissions received was that the testing process would be best administered by industry, under regulatory oversight from CASA, with CASA’s role being setting aviation safety policy and regulating how and when tests will be carried out. Some operators have voluntarily implemented their own Drug and Alcohol Programmes and feel that for the implementation of a drug and alcohol testing regime to be completely successful it would best be implemented voluntarily by industry and owned by individual organisations.

Most submissions suggested that from a logistical point of view it would not be practical or feasible for a drug and alcohol regime to be implemented and administered by the regulatory authority. The resources required, both human and financial, would be substantial and more

³¹ Aircraft ramp accidents are estimated to cost US airlines over US\$3 billion per annum and 20 – 30 per cent of all air carrier accidents in the United States. Robert Matthews, Ramp accidents and incidents constitute a significant safety issue, ICAO Journal, Number 3, 2004, pp4-6.

³² Normand, J., Lempert, R., & O’Brien, C. (editors), Under the Influence? Drugs and the American Work Force, Institute of Medicine, National Academy Press, 1994. ISBN 0-309-04885-0.

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efficient if dispersed across the industry. However, regulation and monitoring of the testing regime would by necessity be undertaken by CASA.

However, some of the submissions also identified a regulatory gap in the alcohol testing of pilots *per se*, as compared with other transport modes e.g. motorists. The absence of drug and alcohol testing in private aviation, and appropriate penalties for inappropriate use, is an anomaly at odds with community standards with private aviation issues warranting closer inspection by Commonwealth and State authorities separately, to achieve a consistent safety outcome. It is suggested that 'driver's licence' standards would be a logical testing standard for private aviation and that the police forces would be the appropriate testing bodies.

In the United Kingdom, the *Railways and Transport Safety Act 2003* identifies a number of aviation functions covered by its provisions which include the power to administer preliminary breath tests, impairment tests and drug tests where a police constable reasonably suspects that a person has committed an offence by performing an aviation function at a time when their ability to perform the function is impaired because of drink or drugs³³.

British Airways (BA) separately implemented drug and alcohol testing in 2004 for all UK-based staff. BA staff can be tested if they are suspected of being under the influence while on duty or if drugs or alcohol could have been the cause of a workplace accident; randomly tested in the first six months of employment; and randomly tested after returning to work after drug or alcohol rehabilitation³⁴.

Air New Zealand has similarly sought to apply drug and alcohol testing to its workforce but its proposal was challenged in court by trade unions. New Zealand's Employment Court found that it was reasonable to test in safety-sensitive areas but not to random test beyond those limitations. The result allows Air New Zealand to random test workers in safety-sensitive areas; pre-employment testing and reasonable suspicion testing³⁵.

In 1999, the Netherlands implemented legislation (*Wet Luchtvaart, 1999*) prohibiting pilots, cabin attendants and air traffic controllers from performing their duties under the influence of alcohol. Violation of this Act is a penal offence; the regulations apply to all national and foreign personnel engaged in air traffic and air traffic control in the Amsterdam Flight Information Region (FIR) and on Dutch territory; and enforcement is the responsibility of the Public Prosecutor and the Aviation Police. The Aviation Police commenced random testing by breath analysis in 2000³⁶. Legislation regarding medication and drug use in aviation in the Netherlands was incorporated in the new Dutch Aviation Act (*Wet Luchtvaart, 2001*), which prohibits performance of duties whilst under the influence of a substance. Work is proceeding to enable rapid testing for drugs other than alcohol.

³³ A person is deemed to have committed an offence if they perform an aviation function at a time when the proportion of alcohol in their breath, blood or urine exceeds prescribed limits. See <http://www.hmsa.gov.uk/acts/acts2003/30020-f.htm>

³⁴ "PA"NEWS, 1 August 2004. See <http://news.scotsman.com/latest.cfm?id=3281144>

³⁵ The New Zealand Herald, 14 April 2004. See <http://www.nzherald.co.nz/index.cfm?ObjectID=3560483>

³⁶ Alcohol and Aircrew: the need for prevention. Netherlands Organisation for Applied Scientific Research, 2003.

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Whether testing should be part of a company's safety management system

Testing should be part of a company's safety management system, developed in accordance with guidelines laid down by CASA. A testing regime on its own is a simplistic solution to a complex issue. Testing should be complemented by alcohol and drug education initiatives, employee assistance programmes, rehabilitation and return to duty programmes, peer support initiatives, and receive fair treatment and review. Whilst this report is about the safety benefits of introducing testing, testing is one aspect of a comprehensive response to inappropriate drug and alcohol use. Considering it as a 'stand alone' option or worse still, as an alternative to other possible responses, is contrary to optimising safety outcomes.

Companies that have instituted a testing regime responded that testing should definitely be part of a safety management system. Unions felt that it is an aviation employer's responsibility to ensure a safe working environment for all workers and the general public by identifying hazards that can lead to impairment, assessing the risks associated with all aspects of their operations and the taking of appropriate measures to control them in association with the workforce and their representatives. Unions also felt that employers should also support employees who have a problem associated with alcohol and other drugs and should also recognise employees' privacy.

With respect to employees, unions believe that employees are responsible for recognising that alcohol, drugs and work do not mix and that affected employees can affect safety and work performance. Employees should participate in and abide by an agreed and appropriate alcohol and other drugs program.

There was strong support for the consideration of a broad alcohol and other drugs program for all personnel rather than consider only drug testing regimes. Such a broad program would include a clearly articulated alcohol and other drugs policy that encompasses education, mentoring and other assistance programmes. This approach would ensure that issues of workplace culture that may contribute to alcohol and other drug-related harm can be broadly addressed and will also prevent any sense of targeting individual staff. The fundamental aspects that must be included in the design of such a program are fairness, privacy, informed consent, education and clear policies.

Each organisation's drug and alcohol testing system should be tailored to its particular operations within a regulatory framework, otherwise there are likely to be significant resultant operational difficulties as well as large and unnecessary costs as operators attempt to comply with regulations that are incompatible with their operation.

Alternative and/or supplementary programmes that are used for alcohol and drug management (eg mentoring, and differentiating between a regime for alcohol management which might need to be different to other drug management)

There is widespread support for a drug and alcohol policy within the aviation industry that includes an adequate educational component, is non-punitive and supportive, has rehabilitation as a key component and provides a safe and productive working environment.

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The HIMS initiative pioneered in the United States has already been cited as an excellent example of constructive intervention. Evaluations conducted on the Building Trades Group apprentice drug and alcohol education programmes in Australia also found very positive results. One evaluation conducted in South Australia found the program had a long-term impact on apprentices' attitudes and beliefs regarding work-related alcohol use. More importantly, post training levels of work-related alcohol use were significantly lower than pre-training levels for 25% of participants³⁷. Programmes should include a variety of strategies, including:

- Drug and alcohol education and awareness
- Drug and alcohol testing
- Clearly stated rules and sanctions (policy)
- Staff and media announcements
- Emphasis on health and safety
- Counselling and rehabilitation
- Reintegration into the team

The costs involved with establishing programmes (including education campaigns) and the ongoing testing regimes

Drug and alcohol testing has become a widely accepted business cost in the United States, where the cost of addressing the issue has been counterbalanced by perceived dividends arising from the safety and efficiency gains achieved. A representative of the Air Transport Association, the largest and oldest airline trade association in the United States, commented that the cost issue was not a deciding factor whilst the Regional Aviation Association of America commented that smaller companies were able to lower their testing costs by forming consortia for testing purposes i.e. a group approach. The cost of individual tests will vary according to volume, scope of testing and competition. In an environment where testing is on the increase, it is reasonable to expect that unit costs will fall in real terms over time. Alcohol and drug testing programmes are becoming increasingly widespread, and the impetus is coming strongly from industry. For example, major airlines in New Zealand and in the United Kingdom have pushed ahead with their own initiatives in advance of government action.

Most of the submissions received referred to the costs involved with establishing a programme but avoided detailed analysis. Unions raised concerns about ensuring that the costs associated with proper testing procedures are not open to abuse and that adopting the highest standards are extremely expensive. Unions see this as a concern as they perceive that there may be pressure to lessen the standards. They also articulated the concern that money available for education and other measures may be reduced as the cost of testing increases.

It is generally accepted that any drug testing programme will comply with Australian and International standards. A/NZS 4308-2001 sets the procedures for the collection, detection and quantification of drugs in urine and incorporates a strict chain of custody. It should be noted that there is no Australian Standard for collection, detection and quantification of drugs in saliva, hair

³⁷ Pidd, K, 2004, 'The impact of workplace support and workplace identity on training transfer: an Australian case study', International Journal of Training and Development.

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or sweat. Only laboratories authorised and accredited with the National Association of Testing Authorities and A/NZS 4308-2001 should be used to test specimens for drugs and medico-legal requirements/standards must be met.

Interestingly, companies that have instituted programmes stated that while there are costs involved, when these costs are compared with the costs of an accident or even a serious incident, the costs of a drug and alcohol policy are minimal. These companies and related industry associations advised that in the overall scheme of things, the costs are not an issue at all as they are soon outweighed by the benefits. Benefits for such organisations included lowering of insurance premiums, improved productivity, reduced personnel costs, and greater patronage by organisations attracted to their business due to the fact of public knowledge of their drug and alcohol policy and safer operations.

In 1987, a three year study of the costs of employing workers that tested positive for various illicit drugs in pre-employment tests was commenced by the United States Postal Service (USPS). The employees that tested positive were monitored over this period against a control sample of new employees that had tested negative. At the end of the study, it was found that employees who tested positive were:

- 2.44 times more likely to be formally disciplined;
- 66% higher overall in absenteeism rate than those who tested negative;
- 3.42 times more likely to file alcohol or drug-related medical claims;
- 1.88 times more likely to file higher amounts of medical claims; and
- Almost 70% involuntarily discharged in less than 2 ½ years.

Turnover costs were calculated using testing, separation, training, productivity loss, accidents, uniform allowance and unemployment compensation. The study estimated that if the USPS screened out the approximately 9% of positive test result applicants (i.e. 5,543 positive tests in an annual intake of 61,588 new postal employees), then the total long term savings would be US\$52,750,000 for each years intake of new employees³⁸ over their tenure with the USPS.

Does Testing Work?

Yes. Testing confirms the existence or otherwise of drug and alcohol use; provides one basis for excluding, treating and rehabilitating affected individuals; can be correlated to reducing levels in accidents and personal injuries, particularly in a US context; complements non-testing initiatives such as education, training and employee assistance programmes; and acts as a deterrent to alcohol and drug use.

The Southern Pacific Railroad in the United States published an analysis of the positive safety outcomes it had achieved as a consequence of proceeding with a testing program³⁹. Train accidents have dropped from 22.2 accidents per 1 million train miles to 2.2 accidents per 1 million train miles over the period 1983 to 1988. This is a dramatic reduction in the rate of accidents reflecting the similar reduction in the rate of positive test results returned over the same time period - 22.9% in 1984 to 5.8% in 1987.

³⁸ Norman, J., Salyards, S. & Mahoney, J. (1990). An evaluation of preemployment drug testing. *Journal of Applied Psychology*, 75(6).

³⁹ Taggart, Robert W. (1989). Results of the Drug Testing Program at Southern Pacific Railroad. National Institute on Drug Abuse Research Monograph 91, pp 97-108.

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The US FAA drug and alcohol testing results indicate that not only is substance abuse measurably low in the transport sector but that it appears to be reducing. The random drug test positive rate fell again in 2003 to the lowest rate in nine years. Whilst this is an encouraging trend, it is counterbalanced by issues with regard to testing per se (eg. timing – start of shift vs end; rate – is it too low; where – hub centres vs work locations; an active ‘test-beating’ industry) and greater community awareness through wide media coverage of many of those events that do occur. There is ample statistical evidence from the United States quantifying the many thousands of persons who have been the subject of intervention as a result of positive drug and alcohol tests in the aviation industry. The FAA run HIMS program referred to earlier is one example that clearly highlights the scale of the problem and the successful response. Yet ongoing positive tests and media coverage confirm that there is a persistent problem that testing is confirming among safety-sensitive aviation personnel in the US.

In an Australian context, all State and Territory police conduct random breath testing (RBT) of motor vehicle drivers. Analysis of the effects of RBT demonstrated that it has had immediate, substantial and permanent impacts⁴⁰ in all States except Tasmania (the latter showing a substantial initial impact only within three months of its introduction). As early as 1990, the New South Wales RBT programme was estimated to cost \$3.5 million in 1990 Australian dollars; save at least 200 lives annually; and generate savings to the community of at least \$140 million⁴¹.

Victoria introduced random roadside drug testing in December 2004 and two of the first sixteen motorists reportedly tested positive to cannabis. The Victorian initiative tests for illegal drugs and is intended to enable police to conduct saliva tests for cannabis and methamphetamines. While these early test results have been the subject of extensive debate and challenge, the testing initiative itself does indicate that efforts are proceeding to develop a more extensive testing regime to detect and address substance abuse. New South Wales is expected to follow Victoria’s lead, with a similar twelve month trial without prosecution scheduled to commence in March 2005.

The NSW State Rail Authority has broadened its initial ‘on suspicion’ blood alcohol content testing for safety-sensitive personnel to include random drug and alcohol testing. Other agencies and private companies are separately considering the introduction of, or have implemented, drug and alcohol testing, together with related training, education and return to duty initiatives.

Testing in the maritime sector is governed by the *Navigation Act 1912* and applies to ships’ crews. New measures are anticipated that will provide the power to test on suspicion and allow for various types of testing including breath tests, mouth swabs, blood and urine sampling. Specific testing requirements would be described in Marine Orders (which are similar to Civil Aviation Orders).

⁴⁰ Henstridge J., Homel R., Mackay P., The Long Term Effects of Random Breath Testing In Four Australian States: A Time Series Analysis. 1997.

⁴¹ Homel, Ross J., Random breath testing the Australian way: a model for the United States?, Alcohol Health and Research World, Winter 1990.

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Personnel who consume alcohol and/or drugs and attempt to undertake safety-sensitive duties must be prevented from doing so or denied the opportunity to do so again. Testing, education, training and rehabilitation/return to duty programmes all contribute to this goal.

A Way Forward

Inappropriate drug and alcohol use is a substantial challenge that warrants a comprehensive response. Testing is a key component of such a response. The aviation sector, particularly its safety-sensitive functions, is not demonstrably different nor immune to the risks that inappropriate drug and alcohol usage poses to the community at large. Drug and alcohol testing in its various forms can demonstrate a range of useful impacts – quantifying usage; deterring usage; as a basis for removing substance abusers from safety-sensitive roles; assessing impact on accidents and incidents; identifying personnel who use these substances; monitoring personnel on return to duty from rehabilitation programmes and contributing to comprehensive, company-driven drug and alcohol policies.

Introduction by regulation of a minimum standard for drug and alcohol testing, for safety-sensitive roles in the aviation sector, to be managed as appropriate by industry and law enforcement agencies and reported on to the regulator is the key step. Industry is already pushing ahead, in Australia and abroad, to introduce testing and it is appropriate that Government support those endeavours by establishing a testing regime incorporating minimum standards against which results can be monitored and acted upon as required; and to encourage a broader response to drug and alcohol use and abuse, including the formalisation of such initiatives in safety management systems.

Consideration should be given to incorporating drug and alcohol management programs in CASR Part 119 - for operators requiring an Air Operator Certificate. Further consideration should also be given to a more generic scheme for operators who would be operating under an Operator Certificate and also for a random testing regime for general aviation and private operations. There is also merit in amending the *Transport Safety Investigation Act 2003* to allow for medical examinations and alcohol and other drug testing to occur following an accident or incident.

In combination with testing, there needs to be a commitment to education of industry personnel as to the risks of inappropriate drug and alcohol use, as well as treatment options, rehabilitation measures and re-certification processes. Education is a shared responsibility. This is a shared role for CASA, for the specialist health agencies and for industry.

But most importantly, it falls to industry – managers, safety-sensitive personnel and others – to demonstrate commitment to effective and comprehensive policies and strategies at industry and company levels. This is where the safety benefits will be maximised and other positives like productivity benefits will have real impact.

Consequently, it is intended to hold a meeting with interested parties in late June 2005 to discuss the preliminary findings and broad direction of this draft report. Building on submissions received in 2004 and research undertaken by the DOTARS/CASA review team, this scoping

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session will aim to refine the direction of the review prior to the review team submitting a final report to the Minister four weeks after the closing date for public comments on the draft report.

Comments from interested parties are now sought on this draft report. **Deadline for receipt of such comments is 1 August 2005.** Earlier provision would be appreciated where possible to facilitate their consideration in the report to the Minister.

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