



Nuclear-based science benefiting all Australians

Review of Current Health and Safety Arrangements at ANSTO Health

ANSTO Response

October 2011

Introduction

As a nuclear organisation, safety is fundamental to everything ANSTO does. We do not accept any standard less than zero-harm to people and for this reason we have strong management structures and a deep commitment to sharing responsibility for safety.

ANSTO is an important facility both locally and internationally. Each week ANSTO Health delivers 10,000 patient doses of potentially life saving nuclear medicines to over 250 partner hospitals and medical practices across Australia. These nuclear medicines are used to diagnose and treat a wide range of indications including heart disease, cancer and skeletal injuries. It is in ANSTO Health that these nuclear medicines are processed and made ready for distribution to Australian hospitals and medical practices. ANSTO's stringent safety regime is overseen by two independent safety regulators, ARPANSA and Comcare, with the Therapeutic Goods Administration having regulatory oversight of radiopharmaceutical production.

On 9 February 2011, our Minister, the Hon Kim Carr, Minister for Innovation, Industry, Science and Research announced that the Department of Innovation, Industry, Science and Research would be undertaking a Review of Current Health and Safety Arrangements at ANSTO Health. The Department formed an expert panel with former Secretary, Mr Mark Paterson AO at its head and sought technical input from the Australian Radiation Protection and Nuclear Safeguards Agency (ARPANSA).

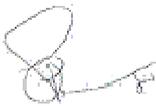
In the final report of the Review, released on 28 May 2011, the expert panel found that there was a considerable focus on health and safety at ANSTO Health and that there are robust systems in place to manage radiological safety. It also found that ANSTO Health meets both its statutory obligations and the even more stringent standards that ANSTO imposes upon itself.

The Panel also made 18 recommendations on improvements which ranged from training programs for managers to increasing public awareness in relation to radiological exposure. ANSTO welcomed the Review and its recommendations, as we welcome any opportunity to build on strong culture of continuous safety improvement. Recommendation 15 is directed to ARPANSA and Comcare. Recommendations 16 and 17 are directed to ARPANSA.

The ANSTO Board of Directors has carefully considered the recommendations made in the Panel's report. This document sets out ANSTO's response to the relevant recommendations.

I thank all members of the Review's Expert Panel for the Review which they led and the recommendations which constitute a constructive platform to continue ANSTO's safety journey. I also thank members of the ANSTO Board for their careful consideration of the Report's recommendations and management's submissions on translating these into practical and achievable continuous improvements of ANSTO's safe operations and safety culture.

ANSTO's safety improvement journey is a continuing one and I would like to thank our staff who have embraced a more robust safety culture and whose safety improvements are done to enhance our workplace and ultimately achieve benefits for all Australians.



Dr Adi Paterson

Chief Executive Officer

ANSTO's responses to the recommendations

Recommendation 1

<p>Recommendation</p>	<p>The panel recommends, as a means of further embedding the safety culture at ANSTO Health, that senior executives devolve some further operational implementation and responsibility for safety to line managers. While still maintaining some operational safety presence, the role of senior management would then be to examine any trends and take a more strategic oversighting role.</p>
<p>Status</p>	<p>Accepted Implemented</p>
<p>ANSTO response</p>	<p>Prior to the Review, ANSTO Health had identified the need to give line managers greater responsibility for safety. Measures underway at the time of the Review included:</p> <ul style="list-style-type: none"> • Development of a training program to enable first line supervisors and their managers to take on the key aspects of day to day implementation of the safety culture. • Changes in senior management reports to focus on trend analysis and higher level key performance indicators. • A fully operating OHS&E Committee with elected members and a draft constitution. The make-up ensures representation from all departments and that there is appropriate management representation. <p>Since the Review, ANSTO Health has implemented a number of changes in order to fully implement this Recommendation:</p> <ul style="list-style-type: none"> • All first line supervisors at ANSTO Health have completed training to improve understanding of their responsibilities and ensure that expectation setting and follow up are core to their role. This program is run by an external consulting firm and complements work already conducted by a consultant earlier in 2011. • Line managers have greater responsibility for safety. The outcome of line managers' Annual Performance Review is now clearly dependent on them demonstrating how they are maintaining and improving performance in relation to the extremely stringent safety standards and associated safety culture of a nuclear facility. • ANSTO Health OHSE Committee constitution has been ratified. • Review of safety trends is undertaken monthly by the senior management team at the divisional SOP meeting. This has led to the current focus on reducing and eliminating review of contamination events and the identification of engineering improvements required for the Quality Control area.

Recommendation 2

Recommendation	<p>The panel recommends ANSTO Health consider the value of introducing a program where management would spend some time working alongside experienced technicians to improve their practical understanding of production processes and the safety concerns raised by production technicians. The panel considers greater visibility and practical involvement of senior management would demonstrate a 'walk the talk' approach as well as openness in staff communication.</p>
Status	<p>Accepted Implemented</p>
ANSTO response	<p>Since the Review, ANSTO has introduced a program to ensure management spends time working alongside experienced technicians to improve their practical understanding of production processes and the safety concerns raised by production technicians.</p> <p>A pilot of this program was run in June 2011 in the Isotope Handling Bay with the final program currently being developed to ensure coverage of the full facility and all technical staff. Progress and learning will be reviewed monthly.</p>

Recommendation 3

<p>Recommendation</p>	<p>The panel recommends ANSTO Health continue to explore the reasons why incidents of radiological exposure are higher in the Quality Control (QC) laboratory and implement changes to practices, layout or equipment to lower exposure levels in the QC laboratory.</p>
<p>Status</p>	<p>Accepted Implemented with ongoing commitment to improvement</p>
<p>ANSTO response</p>	<p>Prior to the Review:</p> <ul style="list-style-type: none"> • ANSTO Health had tracked and analysed data from all contamination events for a number of months. This trending had identified ongoing minor and low significance contamination events in Quality Control (QC) laboratories where radiological sources are present as a basis for testing and clearance for shipment. • All contamination events, no matter how minor in nature, are stratified and analysed to determine the trends and associated root causes. The ANSTO action tracker and the ANSTO Health QMS ensure timely completion of all improvement actions identified. <p>Since the Review:</p> <ul style="list-style-type: none"> • ANSTO Health has implemented a number of changes to practices, layout and equipment to further reduce exposure levels in the QC laboratory. For example, a new testing regime has recently been implemented for Molybdenum-99 by using a more dilute QC sample to reduce dose. This is being tracked to determine if the projected improvement is achieved. • Safety equipment has been reviewed and practices modified to enable proactive identification of potential safety incidents. For example, ANSTO Health has reset the dosimeters so that workers are alerted to very low exposure levels. • The staff within the QC area, supported by the Health Physics team, have initiated a project to introduce greater automation in QC processes and methods. This will assist the team in completing routine tasks and progress towards the objective of zero contamination events. • Additional monitoring of the QC area has been initiated and the facility is checked at the start and completion of each day. Across the production facility an audit of monitoring stations has been completed. • A capital project has been initiated for additional monitoring positions and installation of hardware that will allow more definitive correlation between tasks, time and dose.

Recommendation 4

Recommendation	<p>The panel endorses ANSTO Health's commitment to the continuous improvement process and recommends that ANSTO Health ensures the committees contributing to the continuous improvement process continue to meet and take action so that continuous improvement is embedded in all processes at ANSTO Health, including an active role for the ANSTO Health OH&S Committee.</p>
Status	<p>Accepted Implemented</p>
ANSTO response	<p>Prior to the Review:</p> <ul style="list-style-type: none"> • Intermediate Upgrade Team had been established and through a process of consultation with staff had identified 89 improvement projects. The majority of these had been completed prior to the Review and the balance are on schedule to be completed this year. • ANSTO Health Radiation Safety Improvement Team was established in February 2011 and identified 5 projects to work on. • ANSTO Health OHS&E Committee was established. <p>Since the Review:</p> <ul style="list-style-type: none"> • The current Intermediate Upgrade Team has been designated as an ongoing continuous improvement team. • The Radiation Improvement Team will continue to operate with a remit of continuous improvement. The number of projects has been expanded to 7 and involves representatives from every work group in ANSTO Health. • As a result of staff suggestions and feedback, several pilot projects are underway for improvements to personal protective equipment. • The current progress of all teams is reviewed by the Occupational Health Safety & Environment (OHS&E) Committee. The OHS&E Committee has been charged with identification of new opportunities for future improvements.

Recommendation 5

Recommendation	<p>The panel recommends that ANSTO Health introduces a greater variety of feedback mechanisms to enhance staff's willingness to accept their role in the effectiveness of the continuous improvement process.</p>
Status	<p>Accepted Implemented</p>

ANSTO response	<p>Prior to the Review a variety of communications strategies were in place including:</p> <ul style="list-style-type: none"> • LED screens throughout the facility • Staff forums • Weekly staff meetings <p>Since the Review staff are openly encouraged to participate in a variety of feedback mechanisms including:</p> <ul style="list-style-type: none"> • Weekly all-staff forum which is also an open forum to encourage staff to ask questions and provide input into all areas of ANSTO Health. • Membership of the Radiation Safety Improvement Team. • Membership of the Occupational Health Safety and Environment Committee. • Regular departmental meetings. • A Suggestion Box has been reintroduced into the canteen area to allow for all forms of feedback. <p>All suggestions for improvement received through these feedback mechanisms are logged and accessible to all staff via an Improvement Register on the ANSTO Health intranet.</p> <p>ANSTO Health senior personnel engage with staff to determine which feedback methods are favoured in relation to continuous improvement. Improved incident report close-out procedures ensure staff involved receive specific feedback on investigations as well as any actions arising.</p>
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Recommendation 6

Recommendation	<p>The panel recommends management's commitment to a 'no blame' culture is reinforced by timely feedback. The feedback should be provided specifically to impacted staff members and then to all ANSTO Health employees on all incidents and broader safety concerns.</p>
Status	<p>Accepted Implemented</p>
ANSTO response	<p>Prior to the Review:</p> <ul style="list-style-type: none"> • Event report feedback was provided by Safety Environment and Radiation Assurance (SERA) to individuals who raised event reports. • Safety was (and remains) the first item at all ANSTO staff meetings, weekly meetings and through notices added to screens within the facility. <p>Since the Review:</p> <ul style="list-style-type: none"> • Monthly "Lessons Learnt" raised for all events in ANSTO Health and tabled at

	<p>the OHSE Committee meeting;</p> <ul style="list-style-type: none"> • Management's commitment to a 'no blame' culture is reinforced at every staff meeting and recognition and positive feedback is given to individuals who contributions to the overall improvement process, for example by raising event reports; • An incident close-out meeting is held with individuals who have raised personal concerns and feedback is provided. • The development program discussed in the response to Recommendation 1 provides coaching designed to improve the way feedback is delivered to groups and individuals and to ensure this feedback is timely. When appropriate, events which occur within a shift are addressed and discussed on the day of occurrence. If actions arise from an Event Report they are reviewed with the supervisors so that they can follow up and close the loop with the relevant teams and individuals. An important part of this daily activity is positive reinforcement and recognition of best practice for both teams and individuals observed by supervisors during shifts. • A business excellence program has been introduced to objectively improve process without blame for current deficiencies. This is in line with internationally recognised quality and excellence programs such as "Lean" and "Six Sigma".
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Recommendation 7

Recommendation	<p>The panel acknowledges the Peak Health Program has had major benefits in decreasing RSI injuries. However, the panel recommends ANSTO Health consider a wider range of strategies to address RSI occurring at ANSTO Health including engaging external assessments by occupational health and safety experts.</p>
Status	<p>Accepted Implemented</p>
ANSTO response	<p>Prior to the Review:</p> <ul style="list-style-type: none"> • Peak Health body conditioning program introduced with a 50% reduction in body stressing workers' compensation claims. • Independent engineering reviews were conducted of equipment as part of the Intermediate Safety Upgrade which lead to forty-one improvements related to reducing body stressing, repetitive strain injury (RSI) or improving body posture. Thirty-two recommendations have been completed and the remaining nine are in progress and on schedule. <p>Since the Review:</p> <ul style="list-style-type: none"> • The Peak Health program has been reviewed to develop and implement a full body conditioning program for all staff including a manual handling course

	<p>specifically suited to the challenges of remote handling with manipulators.</p> <ul style="list-style-type: none"> • ANSTO Health has been liaising with university ergonomics researchers to become involved in PhD studies who are identifying best practice manual handling to reduce body fatigue and reduce injury. • Staff rotation and production planning has been improved. • Risk assessment is being conducted to identify activities outside of normal operations that could impact negatively on staff.
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Recommendation 8

Recommendation	<p>The panel recommends ANSTO Health continue to focus on the safety upgrade continuous improvement project and, where possible, equipment redesign and replacement.</p>
Status	<p>Accepted Implementation underway.</p>
ANSTO response	<p>Prior to the Review:</p> <ul style="list-style-type: none"> • The Intermediate Safety Upgrade provided a focus for ANSTO Health on equipment redesign and replacement through feedback from staff on priority items. • The Radiation Safety Improvement team identified a number of projects that are focused on achieving this recommendation: <ul style="list-style-type: none"> ▪ Tracking contamination events to identify route cause. ▪ Additional radiation monitoring points within Building 23. ▪ ALARA audits • Process risk assessments facilitated by Systems Safety & Reliability engineers to identify process improvements. <p>Since the Review ANSTO Health equipment redesign and replacement is being addressed through the following capital plans:</p> <ul style="list-style-type: none"> • Waste handling & Waste Storage. A new facility located in the undercroft of the current building that will accommodate waste from the current production facility. Appropriate stratification and storage will improve the current situation by removing double handling that currently exists. The planned facility has capacity to allow longer decay before removal by waste operations that will also reduce the dose burden on staff. The capital programme is planned and funded. • Gentech Washing. The planned and funded installation of two new tunnel washers will remove a manual process of individually washing returned Gentech generator components. The location of this facility will also reduce the work flow distance and

	<p>therefore manual handling requirements.</p> <ul style="list-style-type: none"> • Isotope handling bay (IHB) automation and additional capacity for products. Current export of Mo-99 is managed through the IHB. This capital investment will result in additional hot cells being installed that are designed to align with export containers. This will reduce manual handling and dose to operators throughout this process. • QC automation. QC sampling requires small samples of active material. Targeted automation will be focused on reducing the number of process steps when QA staff handles material using shielding and forceps. The benefit will be a reduction in dose to QA staff and reduction in the risk of individual minor contaminations. • Standby equipment. An increased inventory of critical standby equipment has been identified to provide back up to the existing facilities. This will provide capacity to swap out equipment for service and maintenance within a planned process. This will reduce the potential risk of dose that could occur if equipment breaks within a production run and requires maintenance intervention. • Systems engineering initiatives to ensure pro-active maintenance of facilities, strategic spares and more frequent re-fits and upgrading are in train.
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Recommendation 9

Recommendation	<p>The panel acknowledges the work that ANSTO and ANSTO Health have already undertaken towards automating processes and redesigning the workflow of the facility. However the panel recommends ANSTO consider the benefits of purchasing additional capacity to provide a fallback when equipment breaks down at ANSTO Health.</p>
Status	<p>Accepted Implementation underway</p>
ANSTO response	<p>Prior to the Review, ANSTO Health and Facilities Management conducted a maintenance review to identify gaps and improvements.</p> <p>In addition to the capital improvements described under ANSTO's response to Recommendation 8, since the Review:</p> <ul style="list-style-type: none"> • ANSTO has begun a capital project which will provide a backup system if equipment breaks down at ANSTO Health within the Isotope Handling Bay and to add redundancy to key areas of the production facility. • A project to review Automated filling of the Gentech generator column has also been initiated. • A capital program of \$900,000 has been approved for stand-by equipment.

Recommendation 10 - 12

<p>Recommendation</p>	<p>Recommendation 10</p> <p>The panel recommends that ANSTO upgrades maintenance services to the radiopharmaceutical production facility.</p> <p>Recommendation 11</p> <p>The panel recommends that maintenance planning and action become part of the strategic focus on upgrading the facility, focusing on developing a short, medium and long-term maintenance strategy that incorporates recruitment and training of adequate staff for ANSTO Health's maintenance capability requirements.</p> <p>Recommendation 12</p> <p>The panel recommends that ANSTO Health develops a proactive plan in relation to maintenance staff recruitment and training in the short, medium and long term and report on this plan to the Board at regular intervals.</p>
<p>Status</p>	<p>Accepted Implementation underway</p>
<p>ANSTO response</p>	<p>Prior to the Review:</p> <ul style="list-style-type: none"> • ANSTO undertook a review of maintenance to identify gaps in current maintenance program and resource issues. • ANSTO created a Process Engineer role to have oversight of all ANSTO Health engineering projects and maintenance requirements. • Facilities Management began reviewing ongoing succession planning and maintenance requirements in ANSTO Health. • ANSTO Health was (and still is) compiling monthly reports on the status of critical equipment (process safety indicators). <p>Since the Review:</p> <ul style="list-style-type: none"> • A capital case has been approved to address a strategic approach to Standby Equipment and Critical Spares required for ANSTO Health. The submission was approved by ANSTO CEO, Dr Adi Paterson. • A position has been created for a standby equipment resource person. • All Facilities Management staff have been inducted to the Production Facility to allow flexibility of staffing. • Facilities Management are filling current vacancies. • Key performance indicators have been established and monitored as part of the 2012 goal setting process and these will be included within individual objectives. • Site wide Steering Team has been created to address maintenance and spares issues across site.

Recommendation 13

<p>Recommendation</p>	<p>The panel supports a more structured reporting system comprising three components:</p> <p>Incident reporting should be actively encouraged;</p> <p>The context of the incident report, report investigation and feedback to management and staff on the outcome should be provided in a timely manner; and</p> <p>Reports would clearly identify (a) performance against accepted ANSTO benchmarks and (b) where there had been a breach of regulatory limits/legislation.</p> <p>The panel acknowledges the first component of this system is becoming established at ANSTO Health. However, the panel considers the process of providing feedback to relevant staff and management could be improved and the implementation of the third component would assist in making reporting more meaningful and useful in the continuous improvement context.</p>
<p>Status</p>	<p>Accepted Implemented with a commitment to ongoing improvement</p>
<p>ANSTO response</p>	<p>Prior to the Review:</p> <ul style="list-style-type: none"> • ANSTO implemented an infra electronic reporting system which provides immediate notification to supervisor and manager of events. • ANSTO Health "zero tolerance" reporting program introduced resulting in a positive 102% increase in reporting from 2009/10 - 2010/11. • All ANSTO Health staff trained in event reporting and all ANSTO Health supervisors trained in investigation techniques. • Introduction of Event Severity matrix which identifies the level of investigation required for each event. <p>Since the Review:</p> <ul style="list-style-type: none"> • ANSTO Health monthly "Lessons Learnt" categorises each event. • SERA categorises each event report received against ANSTO matrix and identifies any regulatory reporting requirements. • SERA produces monthly OHS&E report that tracks performance against site targets set by ANSTO Executive.

Recommendation 14

Recommendation	The panel considers there is a case for ANSTO to increase its education of the general public about radiological exposure.
Status	Accepted Continuous implementation
ANSTO's response	In the last few years ANSTO has increased its education of the general public about radiological exposure. Included in this education component is a particular focus on ANSTO Health and the importance of the contribution it makes to Australia on a daily basis through the production of medical isotopes. A team within Strategic Communications and Government Affairs at ANSTO is dedicated to providing public information in an informative and innovative manner through the ANSTO website, seminars, publications, community tours, events and partnerships as well as via the national education curriculum. A significant broadening of this program would require additional resources.

Recommendation 15

Recommendation	The panel encourages the development of a formal agreement between Comcare and ARPANSA that clarifies organisational responsibilities for investigating and evaluating radiological incidents at ANSTO.
Status	ANSTO supports this recommendation.
ANSTO response	Where it can, ANSTO will encourage collaboration with ARPANSA and Comcare to develop clarified organisational responsibilities.

Recommendation 16

Recommendation	<p>The panel encourages ARPANSA to continue examining relevant legislation and regulations with a view to providing a more proportionate response to incidents that do not comply with the Act or licensing conditions. For all reports tabled in parliament, the panel encourages the inclusion of supporting documentation which provides commentary about the risk profile. The panel considers the inclusion of supporting documentation that provides commentary would assist in educating the general public on radiation safety.</p>
Status	<p>ANSTO supports this recommendation.</p>

Recommendation 17

Recommendation	<p>The panel encourages ARPANSA to continue to build a collaborative relationship with ANSTO Health to encourage disclosure of all incidents so as to reinforce the continuous improvement program at ANSTO Health.</p>
Status	<p>ANSTO supports this recommendation.</p>
ANSTO response	<p>Current quarterly reporting includes all events and near misses of a radiological nature. Recognising the differentiated roles, and the existing open communication with ARPANSA, ANSTO supports APRANSA having regular reviews of incident reports.</p>

Recommendation 18

<p>Recommendation</p>	<p>The panel recommends</p> <ul style="list-style-type: none"> • The membership of the Audit and Risk subcommittee should be reduced; • Greater emphasis should be placed on risk by this committee; • Directors with relevant specific expertise are invited to attend as required; • Meeting times are separated from Board meetings to allow a greater separation of duties; and • Audit and risk reports continue to be part of the agenda for every Board meeting.
<p>Status</p>	<p>Partially accepted Implemented</p>
<p>ANSTO's response</p>	<p>Since the Review, the ANSTO Board has revised the charter of the Audit and Risk Committee and also renamed the committee the Risk and Audit Committee, emphasising the importance of, and focus on, risk management. The updated charter of the Risk and Audit Committee is aligned with the Better Practice Guide for Public Sector Audit Committees that was released during August 2011. The charter provides for, amongst other things, at least three Committee members drawn from the Board and a specific focus on risk management, internal control and legal compliance.</p>