



Australian Government

Department of Foreign Affairs and Trade



AUSTRALIAN SAFEGUARDS AND NON-PROLIFERATION OFFICE REGULATORY PERFORMANCE FRAMEWORK SELF-ASSESSMENT REPORT 2018 - 2019

February 2020

STATEMENT

This performance report for the Australian Safeguards and Non-Proliferation Office (ASNO) is prepared for the Government's Regulatory Performance Framework (RPF) and covers financial year 2018-19.

OVERVIEW OF ASNO'S REGULATORY FUNCTIONS

ASNO is an independent federal regulatory authority that covers all states and territories. Its principal focus is on international and domestic action to prevent the proliferation of nuclear and chemical weapons. ASNO resides within the Department of Foreign Affairs and Trade (DFAT).

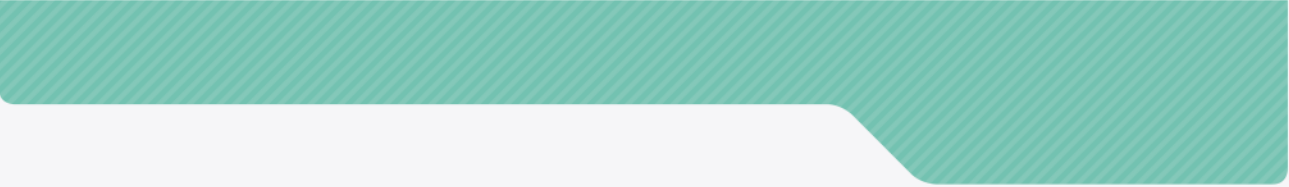
The *Non-Proliferation Legislation Amendment Act 2003* formally consolidated the offices of the national authority for safeguards, the national authority for the Chemical Weapons Convention (CWC) and the national authority for the Comprehensive Nuclear-Test-Ban Treaty (CTBT) under a common title, named the Australian Safeguards and Non-Proliferation Office (ASNO). The legislation also combined the titles of each of the directors of the three national authorities to be the Director General ASNO.

The *Nuclear Non-Proliferation (Safeguards) Act 1987* (Safeguards Act) gives effect to Australia's nuclear safeguards obligations under the following international treaties:

- the Treaty on the Non-Proliferation of Nuclear Weapons
- Australia's Comprehensive Safeguards Agreement and Additional Protocol with the International Atomic Energy Agency (IAEA)
- nuclear cooperation agreements (NCAs) concerning exports of uranium and cooperation in peaceful uses of nuclear energy; there are currently 25 NCAs in force covering 43 countries
- the Amended Convention on the Physical Protection of Nuclear Material
- the International Convention for the Suppression of Acts of Nuclear Terrorism.

The Safeguard Act forms the legislative basis for ASNO's nuclear domestic regulatory functions to ensure Australia complies with the above treaty commitments. To meet these international obligations ASNO maintains a permit system for possession and transport of nuclear material and associated items in Australia. The system requires permit holders to report on their nuclear holdings annually to ASNO. This reporting provides the basis for Australia's annual reporting to the IAEA of nuclear material, associated material, equipment and technology and facilities. Verification of permit holder reporting is undertaken through inspections. This can include ASNO inspections or outreach visits, or official IAEA inspections during which ASNO acts as a facilitator between the permit holder and the IAEA inspectors.

The *Chemical Weapons (Prohibition) Act 1994* (CWP Act) and Regulation 5J of the Customs (Prohibited Imports) Regulations 1956 form the basis for ASNO's chemical regulatory activities across Australia to fulfil Australia's obligations under the CWC. The CWC prohibits the development, production, acquisition, stockpiling, retention, transfer and use of chemical weapons. The basis of this verification regime is declaration by States



Parties of facilities and activities dealing with particular chemicals, and on confirmation of compliance through on-site inspections. ASNO is the focal point in Australia for liaison between domestic CWC stakeholders such as declared chemical facilities, the Organisation for the Prohibition of Chemical Weapons (OPCW), and the national authorities of other States Parties.

ASNO gathers information from the chemical industry, traders, universities and research institutions through a system of permits and notifications to compile declarations that Australia must submit to the OPCW. Under the CWP Act, ASNO has the right to conduct compliance inspections of relevant facilities in Australia, but only exercises such powers in exceptional circumstances. However, ASNO conducts outreach activities, including site visits, to promote compliance, prepare industry for OPCW inspections and check the accuracy of information provided by industry.

ASNO also administers the *Comprehensive Nuclear-Test Ban Treaty Act 1998* (CTBT Act) and the *South Pacific Nuclear Free Zone Treaty Act 1986* to implement Australia's treaty commitments. Neither Act establishes any system of routine regulation. Substantial elements of the CTBT Act will come into effect only when the CTBT enters into force. Through the application of specialist knowledge to complex policy problems and proposals in technical areas, including treaty verification and compliance, ASNO works to strengthen the operation and effectiveness of current and future non-proliferation regimes. It is the application of strong arms control and verification regimes that allow Australian industries to use dual-use chemical or nuclear materials or technologies in a supported environment, without fear they are inadvertently contributing to a program of concern.

This report provides a summary and analysis of the information ASNO collected during 2018-19 reporting period and describes its ongoing reform effort.

PERFORMANCE UNDER THE COMMONWEALTH KEY PERFORMANCE INDICATORS AND ASNO METRICS

KPI 1: Regulators do not unnecessarily impede the efficient operation of regulated entities.

Metric 1: Timely processing of permit applications and approvals.

ASNO processes permit applications and approvals required under the permits in a prompt and professional manner so that the efficient operation of the regulated entities is not unnecessarily impeded. There are several different permits and approvals ASNO processes with different timeframe benchmarks, including:

- nuclear permits to possess and transport nuclear material (21 days)¹
- approvals for the transfer of uranium ore concentrate (UOC) internationally (7 days)
- facility permits for CWC-Scheduled chemicals (21 days)
- and import permits for CWC-Scheduled chemicals (7 days).

The timeframe benchmarks for approvals correspond to the number of days an application needs to be submitted to ASNO before an activity occurs. These timeframes are required to ensure ASNO is able to meet its onward reporting obligations to the IAEA, OPCW or international counterparts. ASNO encourages permit holders to submit their applications as early as practical, in case any unforeseen complications occur. However, when needed, ASNO works with regulated entities and other federal regulators to expedite matters to facilitate their operations as much as possible, while still ensuring Australia meets its international obligations.

The diverse nature of the organisations applying for nuclear or chemical permits makes it difficult to compare approval times from one reporting period to the next, as some permit applications will require complex analysis. ASNO will not compromise its regulatory requirements in order for 100 per cent of approvals to meet the timeframe benchmark.

During the reporting period, ASNO approved **31** nuclear permits to possess and transport nuclear material (6 new permits and 25 variations to permits).² The average time to approve/renew a permit was **21** days, and **84 per cent** were completed within 21 days of obtaining all the required information. The processing of two permits took considerably longer: one required complex analysis, the other permit because of an administrative error. Neither of these delays unduly affected the regulated entity. Excluding these

Processing of permits and approvals July 2018 – June 2019

Number of nuclear permit applications processed ⁽¹⁾

31

¹ Nuclear material is any source material or special fissionable material as defined in Article XX of the IAEA Statute. In practice, this means uranium, Average number of calendar days

20.7 days

² All nuclear permits are gazetted

Per cent of permits issued within 21 days of final application	84%
Number of chemical import permit applications processed ⁽²⁾	66
Average number of calendar days	5.3 days
Per cent of import permits issued within 7 days of final application	80%
Number of chemical facility permit applications processed ⁽³⁾	2
Average number of calendar days	3 days
Per cent of facility permits issued within 21 days of final application	100%
Number of approved applications to transport UOC internationally	73
Average number of days	2.3
Per cent of approvals issued within 7 days of final application	95%

- (1) Includes granting new permits and permit variations. It does not include three permits that expired (and not renewed) and one permit that was revoked (without prejudice) during the reporting period.
- (2) Includes new, renewed and varied permits. In the 2017-18, this included 10 new and varied permits and only noted the renewal of about 50 permits.
- (3) This does not include regulated chemical facilities that do not need a facility permits but are required to notify ASNO of the production of certain chemicals. The OPCW may nominate to inspect such a facility.

outliers, the average approval time was **10** days, which compares favourably to last year's average approval time of **13** days.

ASNO also processed **66** permits to import CWC-Scheduled chemicals, including new, renewed and variation permits. (In the previous reports, there were 10 new import permits and approximately 50 renewed import permits not included in the metrics.) These chemical import permits took an average **5** days to complete, with **80 per cent** completed within seven calendar days. This is a slight improvement from the previous reporting period where **70 per cent** were within the benchmark timeframe.

ASNO also completed **two** chemical facility permits, **100 per cent** of which were within the 21 day benchmark. While this is an improvement on last year, the number of permit applications is very low and highly dependent on the type of facility.

During the reporting period, ASNO made **73** approvals of uranium ore concentrate (UOC) shipments. This includes re-approvals when the exporting permit holder amended the shipping information prior to the shipment leaving Australia. The average approval time was **2.3** days and **95 per cent** of the approvals were provided within seven calendar days.

ASNO has established a streamlined UOC approval process, including agreeing an annual prior assurances for UOC exports to Canada, the USA, Europe (the majority of UOC shipments) rather than on a shipment-by-shipment basis.

ASNO can now output the UOC export approval data required for this report directly from the new nuclear database (see text box). It is a long-term goal to address all quantitative KPI metrics in this report using data generated by our database.

Redevelopment of ASNO's Nuclear and Chemical Databases

The redevelopment of ASNO's nuclear database and associated permit holder web-portal has enabled ASNO to clarify the reporting requirements of each permit holder and eliminate unnecessary regulatory administration. The nuclear database became operational at the end of June 2018, and in-field testing and further development and refinement continued during this reporting period. Future development of the database could include incorporating a compliance register and an improved capability for advanced interrogations of the database, including the output of all quantitative metrics required for this document.

The new secure web-portal is a simple and user-friendly method for nuclear permit holders to seek approvals to ship UOC internationally, complete post shipment reporting, update inventory changes and complete their annual reporting requirements. ASNO has also actively engaged with permit holders as they transitioned from using forms and spreadsheets, to fulfilling their regulatory reporting obligations through the web-portal where permit holders can manage their own inventory. Permit holder are required to provide less information to ASNO because of streamlined processes and improved data matching capabilities.

ASNO staff remain available to support permit holders via emails, phone calls or face-to-face meetings to assist permit holders with the nuclear web-portal, or answer other safeguards or security related questions.

In 2014, the chemical database and web-portal was ASNO's first web-platform. Unfortunately, the platform has become unstable and its function continues to degrade. While DFAT's Information Management and Technology Division (IMD) and ASNO staff continue to support chemical permit holders with the current system, its future is untenable. ASNO and IMD have started the process of building a new chemical database and web-portal that will allow greater oversight of industry compliance in the near term. ASNO and the IMD will use all lessons learnt from the current chemical database, and the recent development of the nuclear database, in order to produce a more effective chemical database in the near future.

KPI 2: Communication with regulated entities is clear, targeted and effective.

Metric 2: Regulations and permit conditions are reviewed for clarity and suitability.

ASNO has developed, in consultation with permit holders, a number of template permits and compliance codes tailored to various user-types, which are set out in the table below. This table is now available on the ASNO website and includes links to template permits and compliance codes for each permit class.³ ASNO's website also includes forms and contact details for prospective permit holders.

This is the result of a four-year long permit review process that streamlined the reporting and security requirements using a risk-informed approach, informed by the IAEA guidance, making it clearer and more targeted. ASNO worked closely with industry and other regulators during the process, such as the South Australia Uranium Transport Group, to ensure the permits were fit for purpose and establish best practices across all states and federal regulatory agencies.

The permit review process provided structure that was built into the nuclear web-portal (see text box) rolled out to existing permit holders. Permit Holder feedback on the nuclear web-portal has been very positive.

The permits:

- set out the fundamental conditions for nuclear material and associated items, in relation to safeguards accounting for inventory, applying appropriate security, reporting to ASNO, and providing access for ASNO or IAEA inspections.

The compliance codes:

- are integral to and have the same regulatory status as permits;
- provide the implementation details to support the conditions in permits; and
- are consistent with internationally accepted standards of nuclear safeguards and security.

Nuclear material quantity limits and authorised uses specified in template permits are indicative only and are subject to variation based on the planned use of nuclear material. Some permits specify special conditions, usually set out in Appendix A of the permit of each permit class.

ASNO is still revising the permit templates for establishing a UOC concentration plant and decommissioning a UOC concentration plant – activities that occur very infrequently. ASNO will review the requirement for all permit classes every five years to ensure they remain up to date.

³ <https://dfat.gov.au/international-relations/security/asno/Pages/template-permits-and-compliance-codes.aspx>

Nuclear Permit Classifications

Class	Name	User-Type
<i>Radiography Series - Industrial Radiography (depleted uranium shielding)</i>		
R1	Radiographers Low Quantity	Radiography holding less than 500 kg of depleted uranium shielding
R2	Radiographers Significant Quantity	Radiography holding between 500-5000 kg of depleted uranium shielding
<i>Locations Outside Facilities (LOF) Series - Non-Fuel cycle education, research, training, calibration and storage</i>		
L1	LOF Low Quantity	Less than 10 kg source material and Less than 1 g special fissionable material
L2	LOF Moderate Quantity	Less than 500 kg source material and Less than 5 g special fissionable material
L3	LOF Significant Quantity	Less than 5000 kg source material and Less than 10 g special fissionable material
<i>Uranium Series - Production, transport, analysis and export of uranium ore concentrates (UOC)</i>		
U1	UOC Concentration Plant	Production of UOC at concentration plants
U2	UOC Transport by Road/Rail	Transport UOC from mine to Australian port.
U3	UOC Transport by Sea	Transport UOC from Australian port to overseas destination
U4	UOC at Stevedores/Ports	Handling of UOC at ports and by stevedores
U5	UOC Broker/Trader	Transport and export of UOC from mine gate to overseas destination
U6	UOC Laboratory	Analysis of UOC samples
U7	Establish UOC plant	Establish a UOC concentration plant (Under Development)
U8	Decommission UOC plant	Decommission a UOC concentration plant (Under Development)
<i>Transport Series</i>		
T1	Transport General	Transport of nuclear material by road, sea or air
T2	Transport Air	Transport of nuclear material by air
P1	Patent Attorney	Patent attorney services for patents potentially containing associated technology.
P2	Storage	Storage and archiving of associated technology
<i>Special Series</i>		
S1	Research Reactor	Operation of a research reactor, use and storage of Category II nuclear material, associated equipment and technology.

KPI 3: Actions undertaken by regulators are proportionate to the regulatory risk being managed.

Metric 3: *Implement risk informed regulatory program.*

The OPCW and IAEA have robust systems that enable them to provide risk-based and objective assurances that states are meeting their chemical/nuclear peaceful-use obligations. These systems consider factors such as significant quantities – the approximate amount of material before the possible manufacture of a nuclear explosive device cannot be excluded, and detection time – the maximum time that may elapse between the diversion of a given amount of nuclear material and the detection of that diversion by safeguards activities. ASNO is able to leverage off the IAEA and OPCW's well tested and established methods to implement regulations that are proportionate to the risk posed by the material or technology. While ASNO's activities are proportionate to the risks being managed, in the broader context Australia holds very little nuclear or chemical material or technologies that are of very high safeguards significance.

For example, the CWC has identified four categories of chemicals relevant to the Convention: Schedule 1, Schedule 2, Schedule 3 and Discrete Organic Chemicals. Schedule 1 chemicals are of the highest concern as they can either be used as chemical weapons themselves, or used in the production of chemical weapons, and they have no, or very limited use outside chemical warfare. Facilities that hold Schedule 1 chemicals are termed Schedule 1 Facilities and have the highest reporting requirements and are inspected more frequently due to the higher risk associated with the chemicals they hold. Schedule 2 chemicals can also be used as chemical weapons, or manufactured into chemical weapons, but they also have some legitimate application outside chemical warfare in small quantities. Schedule 3 chemicals can be used as toxic chemical weapons, or used in the manufacture of chemical weapons, but have legitimate large-scale industrial use. Schedule 3 Facilities have the lowest reporting requirements and likelihood of inspection. Facilities that produce Discrete Organic Chemicals can also be inspected as they could be used to produce chemical weapons.

Similarly, depleted uranium is a dense, inert, malleable material that makes excellent shielding in industrial radiography. Industrial radiographers are unlikely to hold other nuclear material or technologies. By itself, depleted uranium cannot produce a nuclear explosion, and significant modification, with highly regulated technologies, would be required to modify the material to make it useable. Given depleted uranium's low safeguards significance, the permit class developed for radiographers (class R1 and R2) is less burdensome and the permit holder is not required to develop formal written nuclear material accounting and control procedures. However, radiographers using depleted uranium shielding are required to hold a nuclear permit and update their inventory to ASNO annually, among other things.

Some essential activities involve more proliferation sensitive material or technology, such as the production of medical isotopes at Australian Nuclear Science and Technology Organisation (ANSTO), which can require additional, sometimes innovative, safeguard and security measures. In order for the IAEA to maintain a comprehensive assessment of Australia's safeguards compliance, the IAEA must be able to measure uranium content in solid waste from molybdenum-99 (Mo-99) radiopharmaceutical production. To do this, the IAEA, with support from ASNO and ANSTO, is constructing a prototype detector using an active well coincidence counter (AWCC) that measures uranium content by counting multiple neutrons in coincidence through induced fission from a small neutron source in the detection system. The IAEA successfully tested a detector prototype at ANSTO in late 2018 and its installation will enable the IAEA to obtain the information they require without unduly impeding ANSTO's production of medical isotopes.

KPI 4: Compliance and monitoring approaches are streamlined and coordinated.

Metric 4: Establish streamlined compliance assessment and inspection processes.

An important part of ASNO's role is coordinating and streamlining compliance and monitoring approaches between the international regulators – the IAEA and OPCW – and Australia's nuclear and regulated chemical facilities. It is a requirement of ASNOs regulated facilities that they allow an IAEA or OPCW inspection if called. It is also ASNO's responsibility to ensure regulated facilities are prepared if an inspection is called. ASNO also keeps the regulated facility informed through outreach activities of their requirements during an inspection. Once an inspection is called, ASNO acts as the conduit between the IAEA or OPCW inspectors and the regulated facility, both during the inspection, and for any follow-up activity, if required. ASNO's annual report provides details of all IAEA and OPCW inspections.⁴

During the current reporting period, ASNO's role in coordinating and streamlining inspections was highlighted in the management of the IAEA's physical inventory verification (PIV) inspections of Commonwealth Scientific and Industrial Research Organisation (CSIRO) inventory. As part of ASNO's permit review process and in consultation with CSIRO, the five permits held by individual CSIRO business units were combined into a single new permit and set of requirements. The new permit better facilitates centralised management of nuclear safeguards and security compliance across the whole of CSIRO. These changes were included in Australia's annual declaration to the IAEA last year.

The IAEA informed ASNO at the beginning of the reporting period that they would conduct a PIV inspection to verify CSIRO's updated inventory. While updating the inventory and in preparation for the inspection, ASNO worked closely with CSIRO to organise and accurately characterise CSIRO's inventory. Shortly before the IAEA inspection, ASNO conducted an independent ASNO inspection to confirm CSIRO's readiness. Consequently, the IAEA PIV inspection went smoothly and another PIV inspection at CSIRO is unlikely for another four years. However, CSIRO will continue to report to ASNO every year, and the IAEA maintains the right to conduct a short notice inspection at CSIRO at any time, as it can do to any Australian nuclear permit holder.

ASNO Inspections, Visits and Desktop Reviews, July 2018– June 2019

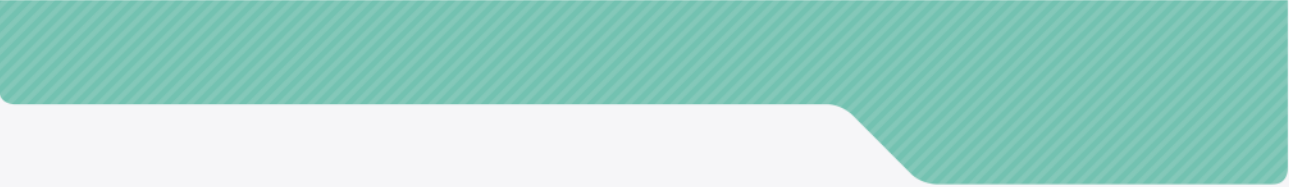
ASNO nuclear inspections	12	13 days
IAEA nuclear inspections/visits (ASNO facilitator) ⁽¹⁾	13	12 days
Nuclear desktop reviews ⁽²⁾	7	39 days
ASNO chemical outreach visits	1	2 days
OPCW chemical inspections (ASNO facilitator)	1	2 days

(1) The IAEA conduct several different types of inspections, sometimes conducting more than one in a day, depending on the type of inspection and location. See ASNOs annual report for more information.

(2) Reviews done at ASNO offices - examples include review of security plans and permit holder reports

Part of the OPCW risk management strategies is random short notice inspections designed to provide an accurate snapshot of the level of compliance in a country with minimal resources or disturbance to the industry. Since 1997, the OPCW has conducted 57 Article VI routine inspections at declared chemical plants

⁴ <https://dfat.gov.au/international-relations/security/asno/Pages/annual-reports.aspx>



and a Department of Defence protective purposes laboratory in Australia in accordance with the provisions of the CWC. The number of inspections called each year has varied from zero to five, with an average of 2.5 inspections a year.

During the reporting period, ASNO facilitated one routine OPCW inspection of a declared 'Other Chemical Production Facility' (OCPF) in Victoria, from 7 to 8 March 2019, as noted in the table above. The inspection proceeded smoothly and received excellent support and cooperation from government and industry. The OPCW inspection team verified Australia's declarations, including the absence of any undeclared CWC-Schedule 1 chemical production, in accordance with the inspection mandate.

KPI 5: Regulators are open and transparent in their dealings with regulated entities.

Metric 5: Outreach activities conducted to communicate regulatory requirements to stakeholders and receive feedback.

ASNO employs a range of approaches to communicate regulatory requirements to permit holders, regulated facilities and other stakeholders, as well as receive feedback on ASNO's performance. A key outreach opportunity is during on-site inspections, discussed in KPI-4. Other outreach opportunities include:

Generalised permit holder outreach at industry events and conferences are an effective way of reaching a number of similar regulated entities, as well as entities that may require regulating in the future. This included:

- The Australasian Institute of Mining and Metallurgy (AusIMM) Conference
- Uranium Council
- Conduct lectures and course material on safeguards at university courses (UNSW and ANU), as well as Regional Training Courses at ANSTO
- ASNO produces an annual newsletter for its permit holders to keep them up to date in developments in the OPCW space

Individualised permit holder outreach missions can focus on the particular requirements of a permit holder or activity they are undertaking. This can take several forms:

- Face to face training provided to new permit holders with multiple security requirements
- Face to face meetings with major permit holders (such as uranium producers and ANSTO)
- Various email and telephone interactions with all chemical and nuclear permit holders,

Three-way discussions with other regulators and permit holders are an efficient means of holding a detailed exchange with well-established stakeholders. During the reporting period, this has included teleconferences and face-to-face engagements:

- Discussion with the uranium mines, ASNO and Department of Industry Innovation and Science (DIIS) regarding developments on processing uranium exports
- Discussions with ARPANSA and ANSTO, on various issues, including:
 - Integrated Regulatory Review Service (radiation safety and security)
 - Spent fuel management
 - Periodic Safety and Security Review

Public outreach is undertaken to communicate and provide information to current or potential regulated entities, as well as the general public, including:

- ASNO's annual report, which is produced in hard copy and posted to major permit holders, and is also publicly available on ASNO's website⁵
- ASNO website⁶
- ASNO's group phone and email.

⁵ <http://dfat.gov.au/international-relations/security/asno/Pages/annual-reports.aspx>

⁶ <http://dfat.gov.au/international-relations/security/asno/Pages/australian-safeguards-and-non-proliferation-office-asno.aspx>

KPI 6: Regulators actively contribute to the continuous improvement of regulatory frameworks.

Metric 6a: *Number of meetings attended to influence international policy.*

ASNO actively engages with multilateral organisations and national regulators from other countries, participating in **26** nuclear-related and **five** chemical-related meetings, to promote high safeguards and security standards, and plays an active role in shaping the policies and standards that apply globally in relation to non-proliferation, safeguards, security, monitoring and verification. Strong arms control and verification regimes for chemical and nuclear weapons are required to not only curb the proliferation of chemical and nuclear weapons, but to allow industries that use dual-use chemical or nuclear materials or technologies to do so in a supported environment, without fear they are inadvertently contributing to a program of concern.

ASNO has influence on multinational regimes that have been operating for a long time, such as:

- Chemical
 - 23rd Conference of the State Parties to the CWC
 - CWC 4th Review Conference
 - Australia Group
 - Seventeenth Regional Meeting of CWC National Authorities in Asia
 - Role of Implementing Legislation on the CWC in addressing threats arising from non-State actors
- IAEA
 - General Conference
 - Standing Advisory Group on Safeguards Implementation
- Security
 - Convention on the Physical Protection of Nuclear Material
 - Nuclear Security Guidance Committee
 - Nuclear Security Contact Group
 - Global Initiative to Combat Nuclear Terrorism (GICNT) Panda Warrior Exercise – Beijing
 - Global Dialog for Nuclear Security, Paris
- Non Proliferation and Nuclear Policy
 - 2019 Treaty on the Non-Proliferation of Nuclear Weapons Preparatory Committee NPT, New York
 - International Framework for Nuclear Energy Cooperation
 - Global Partnership, Paris
 - 2019 Carnegie International Nuclear Policy Conference
 - 15th Asia Senior-Level Talks on Non-Proliferation - Tokyo

ASNO continues to support the Comprehensive Nuclear-Test Ban Treaty Organization's (CTBTO) detailed preparatory work that will allow the CTBT verification regime to be operational when the Treaty enters into force. ASNO was a lead participant at a CTBT technical Working Group B that deals with the examination of verification issues that monitor all States Parties' compliance with the Treaty Provision – principally, not conducting a nuclear explosion for any purpose. The CTBTO's verification tools include the International Monitoring System (IMS) – or global “alarm system”. In August 2018 testing and certification of Australia's final IMS facility – an infrasound monitoring station at Davis Station, Australian Antarctic Territory – was completed by experts from the CTBTO. Australia's 21 IMS facilities contribute to the CTBTO's ability to provide prompt and scientifically sound data for verifying the occurrence of nuclear explosions, serving as a strong deterrent to nuclear weapons testing and nuclear weapons development. ASNO also played a leading role at **three** meetings planning and running On-Site Inspection exercise, that will provide CTBTO the capability to inspect the location of a suspected nuclear test, once the Treaty comes into force.

ASNO also contributes to the international discussion on the next generation of regimes that will further advance non-proliferation and disarmament. Of particular note, in the reporting period ASNO made meaningful contributions at **four** multinational meetings on the International Partnership for Nuclear Disarmament Verification (IPNDV). IPNDV is an ongoing initiative that includes more than 25 countries with and without nuclear weapons. Together, the partners are identifying challenges associated with nuclear disarmament verification and developing potential procedures and technologies to address those challenges.

Metric 6b: *Engagement with other regulators to explore opportunities for regulatory efficiencies.*

During the reporting period, ASNO continued to work with other domestic regulators and industry groups to explore opportunities for regulatory efficiency. Of particular note, the UOC Transport Working Group aimed to establish best practices for the transport of UOC in South Australia and better streamline regulatory practices across all states and federal agencies. The group comprises representatives from industry (uranium producers and transporters and port facilities) as well as state and federal government representatives (such as the South Australian Environment Protection Authority and state and regional first responders). The meetings were highly valued by all participants and enabled the regulatory requirements on industry to be both best practise and integrated seamlessly by the various regulators.

Other opportunities to explore efficiencies with domestic regulators included participation in:

- an Emergency Exercise, 'Hail Caesium', run by ARPANSA and the Department of Health and involving multiple government agencies, designed to test arrangements in response to various radiological accident scenarios,
- the Conference on Protective Security in Government, and
- the IAEA's Integrated Regulatory Review Service mission to support ARPANSA's ongoing implementation of international best practice for nuclear and radiation safety and security.

Internationally, ASNO has worked closely with the IAEA and IAEA Member States to enhance the effectiveness of nuclear safeguards. Nuclear safeguards have evolved substantially over several decades, reflecting changes in both nuclear technology, and advances in monitoring and control. ASNO has been working with Australian research and development leaders, such as CSIRO and UNSW, to bring advances in robotics and distributed digital ledgers (blockchain) to the IAEA's safeguards toolkit which promise to make the application of safeguards more efficient in the future. ASNO has also helped to deliver capacity building and training for the IAEA and regionally, ranging from working with the USA and IAEA on nuclear safeguards training in Timor-Leste, to assisting the IAEA to improve its safeguards approaches for laser enrichment technologies.

ASNO's experts have helped to deliver capacity building and training at the IAEA and regionally. The Asia-Pacific Safeguards Network (APSN) launched in 2009 with a major commitment from Australia, continues to support best practice nuclear safeguards implementation in the region. The diversity of training activities involving ASNO experts ranged from nuclear safeguards training in Timor-Leste to advising the IAEA on laser enrichment of uranium. And, ASNO experts are currently chairing the IAEA Director General's Standing Advisory Group on Safeguards Implementation and the IAEA's Nuclear Security Guidance Committee.

ASNO representatives were also key participants at specialists meetings with regulatory authorities of like-minded nations to discuss common approaches to regulating and tracking obligated nuclear material. These meetings assist with Australian industry by ensuring that any nuclear material (exported UOC or an imported radiography camera) remains accountable under the bilateral nuclear cooperation agreements including:

- Concluding the Australia-United Kingdom Nuclear Cooperation Agreement
- Bilateral meetings with counterparts from Japan, ROK, China, United States, Euratom and Canada

- Nuclear Cooperation Authorities Group meeting.