# An Australian pathway through Pine Gap to the nuclear ban treaty [[1]](#footnote-1)\*

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[Footnoted version, updated 8 August.]

Having failed to prevent the adoption of the nuclear ban by 122-1 at the United Nations in July 2017, the Australian government has shifted ground on its opposition to the treaty as it moves towards entry into force. In a remarkable display of arrogance and intellectual over-reach the government now asserts that, even if Australia wanted to join the [Treaty on the Prohibition of Nuclear Weapons](http://www.icanw.org/treaty-on-the-prohibition-of-nuclear-weapons/) is simply incompatible with the continuation of the U.S. alliance. We are, the government says, already in too deep to pull out.

On May 31st, 2018, Richard Sadlier, a DFAT assistant secretary t[old a Senate estimates hearing](https://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p%3Bquery%3DId%3A%22committees/estimate/ea758764-18a7-4e60-a9e8-d10828349242/0002%22;src1=sm1) that joining the treaty would be ‘impossible’, because the nuclear elements of activities at the ‘joint facilities’ are now too densely interwoven with the non-nuclear elements that they cannot be separated.[[2]](#endnote-1)

The joint facilities – a.k.a. Australia-located elements of the U.S. globally distributed systems of nuclear command, control and intelligence – are, Sadlier, argued, made up of ‘many separate interlocking structures, understandings, agreements and joint activities and facilities’ that are ‘incompatible’ with the treaty’, and that it is ‘impossible, not practical, for Australia to restrict roles under the alliance to non-nuclear missions.’

Sadlier did not feel a need to burden senators with any factual details about the undoubtedly complex situation at Pine Gap, North West Cape, or the numerous other ADF bases to which U.S. forces have access and which may have some activities that support U.S. nuclear planning and operations. No doubt, half a century of Australian nuclear cooperation with the United States will make analyzing and weighing the significance of the full range of nuclear-related activities at Australian bases a major research task. And as with many international treaties, [lawyers are going to argue](https://www.icrc.org/en/document/view-icrc-interpretation-treaty-prohibition-nuclear-weapons) about ‘how much assistance is too much’ under the TPNW.[[3]](#endnote-2)

[Pine Gap](https://arena.org.au/our-poisoned-heart-by-richard-tanter/) is the obvious test case.

Pine Gap is a [US-constructed and US–paid-for intelligence facility](https://nautilus.org/briefing-books/australian-defence-facilities/pine-gap/the-pine-gap-project/) outside Alice Springs operated by the US National Reconnaissance Office. More than 800 Australians and US men and women staff the facility, including units from all four branches of the US military.[[4]](#endnote-3)

A careful examination of precisely what Pine Gap does shows there is a viable pathway in the most important of its nuclear-related activities for Australia to become compliant with the TPNW without necessarily disrupting its alliance with the United States.

The US has for some time built technological alternatives to relying solely on Pine Gap for its most important nuclear-related operations.

Pine Gap’s multiple and complex intelligence activities can be very roughly characterised as providing ‘big ears’ and ‘big infrared eyes’. There are three distinct major space-related surveillance systems installed at Pine Gap, one of which has a critical role in US nuclear command, control and intelligence.

This is the Relay Ground Station (RGS) in Pine Gap’s western compound. [The four main antennas of the RGS](http://nautilus.org/wp-content/uploads/2016/02/PG-Antenna-systems-18-February.pdf) provide linkage to [US early warning satellites](https://nsarchive2.gwu.edu/NSAEBB/NSAEBB235/20130108.html) which are together known in US military jargon as Overhead Persistent Infra-Red or OPIR, consisting of older [Defense Support Program (DSP) satellites and the successor Space-Based Infra Red System (SBIRS](https://www.amazon.com/Americas-Space-Sentinels-Satellites-National/dp/0700610960)) satellites.[[5]](#endnote-4) The infrared OPIR sensors detect the heat bloom of intercontinental and submarine-launched nuclear ballistic missiles launched against the US. Data from these sensors is downlinked to Pine Gap and sent automatically in real time to the system’s Mission Control Station at Buckley Air Force Base (AFB) in Colorado, US Strategic Command and the White House, as early warning of nuclear attack.[[6]](#endnote-5)

In the US, the same data stream flows on to the US Air Force’s Space Command, providing missile launch locations and anticipated trajectories for combined US and Japanese missile-defence systems. Today, these missile defence systems depend on ‘cueing’ from Pine Gap to have any chance of finding their targets in flight in space.

Each of these two functions of the Relay Ground Station – early warning, and missile defence – might be seen as defensive, and therefore stabilising. However, such a claim is misleading. Missile defence, when it is possessed by only one of two nuclear-armed enemies, is anything but defensive and stabilising. China correctly points out that US–Japanese missile defence, should it work as advertised, promises to make China’s ‘minimum means of retaliation’ deterrence force vulnerable to an attack by America’s 6000 or so nuclear weapons. This has led China to modernise its current 250 to 300 nuclear weapons in a classic action-reaction armament cycle.

Critically for compliance with the TPNW, the infrared satellites that provide early warning of an attack are also essential for US nuclear war fighting. The same technology that detects the heat blooms of missile launches also indicates which known adversary nuclear missile sites are empty following firing, and which remain capable of firing. This is critical data for rapidly compiling the list of locations to target for a US retaliatory strike – so-called ‘re-targeting’.[[7]](#endnote-6) The base’s role in nuclear targeting undoubtedly contradicts the TPNW’s prohibition on assistance in the use or threat of use of nuclear weapons.

To comply with the TPNW, an Australian government would have to provide assurances that the Relay Ground Station’s OPIR systems could not and would not be used for nuclear planning or operations. The politically critical question is how this could be achieved without threatening US national security interests.

One approach to compliance could be for the Australian government to request, and the United States to accept, verifiable binding legal, organisational and technical limits on specific categories of the operations of the RGS – i.e. separating the defensive functions from nuclear war-fighting. Achieving agreement to [such verification](https://www.tandfonline.com/doi/abs/10.1080/14781158.2018.1467392) from the United States would be very difficult at any time, and highly implausible at present.[[8]](#endnote-7)

An alternative approach would be for an Australian government to require the closure of the Relay Ground Station and the removal of its systems from Pine Gap, leaving the rest of the base and its principal signals intelligence functions – and acknowledged US national security concerns – unaffected. This could occur over an agreed period of time - say, for argument’s sake, five years.

This is technically and strategically achievable without closing Pine Gap as a whole, and without throwing the alliance into crisis, for two good reasons.

Firstly, the OPIR Relay Ground Station is quite different in physical, personnel and technological character from the much larger signals intelligence part of the facility. The RGS is physically small and distinct, and is operated automatically and remotely by the Mission Control Station at Buckley AFB in Colorado. There are only a very small number of staff on site at the RGS - essentially for maintenance. Pine Gap does not process or retain any of the data downlinked from the satellites – it flows automatically to Buckley AFB by optical fibre and satellite communication.[[9]](#endnote-8)

Secondly, for decades the US has been [acutely aware](https://www.amazon.com/Americas-Space-Sentinels-Satellites-National/dp/0700610960) of the physical vulnerability of critical nuclear command and control facilities like Pine Gap to enemy attack, and has therefore built technological redundancy into the OPIR system. All of Pine Gap’s OPIR satellites have [satellite-satellite crosslinks and communications links](https://www.tandfonline.com/doi/abs/10.1080/10357718.2018.1452897) to US relay satellites. These enable the crucial warning data to be transmitted from one to another and then downlinked to the Mission Control Station on US soil without ever relying on the Pine Gap RGS.

In addition, US OPIR satellites themselves can and do downlink directly to dispersed mobile ground terminals in the US, as well as to US combat commands in around the world, such as South Korea. The RGS at Pine Gap – which is highly vulnerable to attack - provides redundant backup to both the cross-links and the mobile stations systems but is not in itself essential to the OPIR system’s survival.

By deterring a surprise first strike, reliable early warning of nuclear attack is a key element of nuclear deterrence. Even with the RGS closed, all the data critical for US early warning would still flow from the OPIR satellites to the Mission Control Station.

The Pine Gap Relay Ground Station could be closed, with appropriate notice of intent, without genuine disadvantage to US national security.[[10]](#endnote-9) Tis would provide a technically and strategically feasible pathway past the most important obstacle posed by Pine Gap to Australia becoming compliant with the TPNW.

Of course, there are other activities both at Pine Gap (‘big ears’ or signals intelligence) and at other bases that do or could assist US nuclear weapons use. Some of these may turn out to be more obdurate to reform, and pose more difficult political decisions.

Yet while further research into the full range of these potentially prohibited activities is necessary, the RGS constitutes the principal and most direct form of assistance to [US nuclear war fighting](https://www.amazon.com/Americas-Space-Sentinels-Satellites-National/dp/0700610960). An Australian government that was acting in good faith would be taking a huge step towards compliance with the prohibition on assistance to fighting a nuclear war by giving notice the US that the RGS is to be closed.

The government’s claim that Australian assistance to US nuclear weapons planning and operations is inseparable from non-nuclear alliance cooperation is incorrect, disingenuous, and arrogant in this most important and egregious case.

1. \* Richard Tanter is a Senior Research Associate at the Nautilus Institute and teaches the University of Melbourne. He is a former president of ICAN Australia. This article appeared first in [*Pearls & Irritations*](https://www.johnmenadue.com/richard-tanter-an-australian-pathway-through-pine-gap-to-the-nuclear-ban-treaty/) on August 5th, and the [*Alice Springs News*](https://www.alicespringsnews.com.au/2019/08/06/an-australian-pathway-through-pine-gap-to-the-nuclear-ban-treaty/) August 6th. My thanks to the editors of both. I am grateful to my ICAN colleagues Gem Romuld and Sue Wareham for close reading of drafts. This footnoted version is available [here](http://nautilus.org/network/associates/richard-tanter/publications/). A shorter and edited version of this article appears in [*Choosing Humanity: Why Australia must join the Treaty on the Prohibition of Nuclear Weapons*](https://icanw.org.au/wp-content/uploads/Choosing-Humanity-ICAN-Report.pdf), ICAN Australia, July 2019, pp. 22-24. [↑](#footnote-ref-1)
2. Statement by DFAT Assistant Secretary Richard Sadleir, [Senate, Foreign Affairs, Defence and Trade Legislation Committee, Parliament of Australia, Estimates Hearing, (31 May 2018)](https://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p%3Bquery%3DId%3A%22committees/estimate/ea758764-18a7-4e60-a9e8-d10828349242/0002%22;src1=sm1), page 215. See also the follow-up answer supplied by Senator Marise Payne, Minister for Foreign Affairs, Question on notice no. 11. Portfolio question number: 11. 2018-19 Budget estimates, Foreign Affairs, Defence and Trade Committee, Foreign Affairs and Trade Portfolio, File name: FADT Q0011\_Answered 2018\_07\_13. [↑](#endnote-ref-1)
3. See the useful discussion in International Committee of the Red Cross, [*ICRC Briefing Note: The prohibition to assist, encourage or induce prohibited activities under the Treaty on the Prohibition of Nuclear Weapons*](https://www.icrc.org/en/document/view-icrc-interpretation-treaty-prohibition-nuclear-weapons), in [*View of the ICRC on interpretation of the Treaty on the Prohibition on Nuclear Weapons*](https://www.icrc.org/en/document/view-icrc-interpretation-treaty-prohibition-nuclear-weapons.), 24 April 2019. [↑](#endnote-ref-2)
4. For a brief introduction to Pine Gap today see Richard Tanter, Richard Tanter, ‘[Our poisoned heart: the transformation of Pine Gap](https://arena.org.au/our-poisoned-heart-by-richard-tanter/)’, *Arena Magazine*, No. 144, October 2016. For further detail see the ongoing collection of Nautilus Institute research papers and other commentary by Desmond Ball, Bill Robinson and Richard Tanter collected as [The Pine Gap Project](https://nautilus.org/briefing-books/australian-defence-facilities/pine-gap/the-pine-gap-project/). [↑](#endnote-ref-3)
5. The classic accounts of these satellites and their ground systems at Nurrungar, and later Pine Gap, are Desmond Ball, *A Base for Debate: The US Satellite Station at Nurrungar*, Sydney, London and Boston: Allen and Unwin, 1987; Jeffrey T. Richelson, *America’s Space Sentinels: DSP Satellites and National Security*, (University Press of Kansas, 1999); and Jeffrey T. Richelson (ed.), ‘[Space-Based Early Warning: From MIDAS to DSP to SBIRS](https://nsarchive2.gwu.edu/NSAEBB/NSAEBB235/20130108.html)’, *National Security Archive Electronic Briefing Book No. 235*, updated edition 8 January 2013; and Desmond Ball, ‘The strategic essence’, Australian Journal of International Affairs, 55, no. 2 (2001): 235-248. On the RGS antennas see Desmond Ball, Bill Robinson and Richard Tanter, [*The Antennas of Pine Gap*](http://nautilus.org/wp-content/uploads/2016/02/PG-Antenna-systems-18-February.pdf)*,* Nautilus Institute Special Report, 22 February 2016, pp. 52-60. [↑](#endnote-ref-4)
6. Jeffrey T. Richelson, America’s Space Sentinels; and Jeffrey T. Richelson (ed.), ‘Space-Based Early Warning: From MIDAS to DSP to SBIRS’. [↑](#endnote-ref-5)
7. Desmond Ball discussed the early nuclear war-fighting roles of the DSP system in *A Base for Debate*, pp. 67-84. Former Defence Minister Kim Beazley dismissed Ball’s claims as ‘simply incorrect’. For a detailed and still relevant refutation of Beazley’s claims see Richelson, *America’s Space Sentinels*, p.142. [↑](#endnote-ref-6)
8. For an important exploration of a comprehensive range of verification questions relevant to the TPNW see Tamara Patton, ‘An international monitoring system for verification to support both the treaty on the prohibition of nuclear weapons and the nonproliferation treaty’, *Global Change, Peace & Security*, Vol. 30, No. 2, (2018) pp. 187-207. [↑](#endnote-ref-7)
9. For a brief but important discussion of the DSP and SBIRS satellite crosslinks and their strategic implications for Australia from a different perspective see David Schaefer’s discussion in​ ‘Intelligence cooperation and new trends in space​ ​technology: do the ties still bind? ​’, *Australian Journal of International Affairs*, ​Vol.​72​, No. ​4, ​pp. ​364-370. See also Ball, *A Base for Debate*; Richelson, *America’s Space Sentinels*; and Richelson, ‘Space-Based Early Warning: From MIDAS to DSP to SBIRS’; and Richard Tanter, [*The “Joint Facilities” revisited – Desmond Ball, democratic debate on security, and the human interest*](http://nautilus.org/wp-content/uploads/2012/12/The-_Joint-Facilities_-revisited-1000-8-December-2012-2.pdf), Special Report, Nautilus Institute for Security and Sustainability, 12 December 2012, an abridged earlier version appeared as ‘American bases in Australia revisited’ in Brendan Taylor, Nicholas Farrelly and Sheryn Lee (eds.) *Insurgent Intellectual: Essays in honour of Professor Desmond Ball*, (ISEAS, December 2012). [↑](#endnote-ref-8)
10. More than a decade ago a senior Australian naval officer came to the same conclusion: ‘The facility is little more than a relay station that is known by the Americans as a "bent pipe". This means that the data comes in from a satellite and is relayed automatically to the United States. No processing of missile launch data is done at Pine Gap. Moreover, the satellite feed goes to other ground stations, and also hops from satellite to satellite back to the United States. This level of redundancy means that Washington could close the SBIRS missile detection system at Pine Gap with no detriment to its NMD program.’ Commander Tom Mueller, RAN, [*The Royal Australian Navy and Theatre Ballistic Missile Defence*](http://www.navy.gov.au/sites/default/files/documents/Working_Paper_12.pdf), Sea Power Centre Australia, Working Paper No. 12, March 2003, p. 16. [↑](#endnote-ref-9)