



The corporatisation of Pine Gap

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Summary

The Joint Defence Facility Pine Gap, located just outside the town of Alice Springs in Central Australia and managed by the U.S. National Reconnaissance Office (NRO), is one of the largest U.S. technical intelligence collection facilities in the world. The corporate presence at Pine Gap has expanded substantially in terms of both the number of companies involved and the total number of civilian contract personnel, and has changed significantly in functional terms, since the 1990s. It includes some of the major US aerospace and defence companies, such as Raytheon, Boeing, Northrop Grumman and General Dynamics, as well as major computer companies, such as IBM and Hewlett-Packard. It also includes an increasing number of 'pure play' companies, who focus almost entirely on contracts from the National Reconnaissance Office, Central Intelligence Agency (CIA) and National Security Agency (NSA), such as Scitor Corporation, SAIC and Leidos. In addition to the supply of equipment (such as satellite dishes/radomes and computers) and the provision of specialised technical services (such as satellite control and antenna alignment), these companies are now also engaged in a wide variety of management, operations and maintenance roles. While the base is nominally a 'joint' United States-Australian facility, virtually all of the major companies involved are U.S. corporations or their Australian branches – further emphasizing the already heavily asymmetrical character of the 'jointness' of Pine Gap. Moreover, corporations are not necessarily the best or most objective interpreters of US-Australian security and intelligence priorities or Australia's national interests.

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Summary	1
Authors	1
Glossary	3
Introduction.....	5
Beginnings.....	7
Taxing issues	9
Contemporary corporate activities	13
Boeing Contractors Inc.....	13
Raytheon	15
Northrop Grumman.....	23
General Dynamics	26
IBM.....	28
TASC, Inc.....	29
Scitor Corporation.....	30
E&M Technologies, Inc.....	30
SAIC	31
Leidos	32
AECOM Technology Corporation.....	32
Security companies.....	35
Some implications.....	35

Glossary

AECOM	AECOM Technology Corporation
AFB	Air Force Base
ALP	Australian Labor Party
ARC	Archive/Retrieval/Catalogue
ATOM	AusTralian Operations and Maintenance
C	a computer programming language
CI poly	Counter-Intelligence polygraph
CIA	Central Intelligence Agency
CM	Configuration Management
COMSAT	communications satellite; COMSAT Corporation
COTR	Contracting Officer Technical Representative
COTS	Commercial off the shelf
DDN	DataDirect Networks
DEC	Digital Equipment Corporation
DoD	Department of Defense
DSP	Defense Support Program
EHS	Environmental Health & Safety
ERP	enterprise resource planning
ETL	Extract, Transform, Load
FISINT	Foreign Instrumentation Signals Intelligence)
FORSAT	Foreign Satellite
HP	Hewlett-Packard
HVAC	heating, ventilation, and air conditioning
IA	Information Assurance'
IAVA	Information Assurance Vulnerability Alerts
IDMS	Integrated Data Management System
IDS	Intrusion Detection Systems
INFOSEC	information security
IT	information technology
JDFPG	Joint Defence Facility Pine Gap
JDSRF	Joint Defence Space Research Facility (Pine Gap)
LAN	Local Area Network
LINUX	an open source computer operating system
LM	Lockheed Martin
MAN	Metropolitan Area Network
MHS	Menwith Hill Station
MOS	Mission Operations Solution
MS	Microsoft
NEC	National Electrical Code
NG	Northrop Grumman
NRO	National Reconnaissance Office
NSA	National Security Agency
O&M	Operations and Maintenance
OPIR	Overhead Persistent Infrared
OPSEC	operational security
PC	Personal computer
PM	Program Manager
REVIT	Revit building information modeling software
RF	Radio Frequency

RGS	Relay Ground Station
RHEL	Red Hat Enterprise Linux
RPC	remote procedure call
SA	Systems Administrator
SAIC	Science Applications International Corporation
SAN	Storage Area Network
SAP	Systems, Applications and Products
SATCOM	Satellite Communications
SBIRS	Space-Based Infrared System
SCA	Service Cryptological Agency
SIGINT	Signals Intelligence
SQL	Structured Query Language
TSPV	Top Secret Positive Vetting
TS/SCI	Top Secret / Sensitive Compartmented Information
UNIX	A family of computer operating systems
UPS	Uninterruptible Power Supply
USG	United States Government
VESDA	Very Early Smoke Detection Apparatus
VMS	a computer operating system
WAN	Wide Area network
WSS	White Sand Security

Introduction

The Joint Defence Facility Pine Gap, located just outside the town of Alice Springs in Central Australia and managed by the U.S. National Reconnaissance Office (NRO), is one of the largest U.S. technical intelligence collection facilities in the world. The 60 hectare operations area of Pine Gap today houses three distinct functions and operational systems. Its original and still principal purpose is to serve as the ground control station for geosynchronous signals intelligence (SIGINT) satellites developed by the U.S. Central Intelligence Agency (CIA); it probably remains the CIA's most important technical intelligence collection station in the world. There are now 38 satellite dishes/radomes at Pine Gap. Most are still concerned with the core function of controlling geosynchronous SIGINT satellites and processing and analysing the intercepted intelligence.

Secondly, since late 1999 Pine Gap has hosted a Relay Ground Station (RGS), which relays data from U.S. missile launch detection/early warning satellites/Overhead Persistent Infrared (OPIR) – formerly the Defense Support Program (DSP) but now including the Space-Based Infrared System (SBIRS) – to both U.S. and Australian HQs and command centres. Six of the satellite terminals at Pine Gap (four in radomes and two unshielded) belong to the RGS. Another three radomes are probably associated with the U.S. Missile Defense Agency's Space Tracking and Surveillance System (STSS).

Finally, Pine Gap appears to have acquired a FORNSAT/COMSAT (foreign satellite/ communications satellite) interception function in the early 2000s. This was probably presaged with the arrival of Service Cryptological Agency (SCA) elements at the end of the 1990s. Two 23-metre dishes suitable for COMSAT SIGINT Development (Sigdev) were installed inside 30-metre radomes in 1999-2000. A Torus multi-beam antenna was installed at Pine Gap in 2008.¹

The corporate presence at Pine Gap has expanded substantially in terms of both the number of companies involved and the total number of civilian contract personnel, and has changed significantly in functional terms, since the 1990s. 70 per cent of the

¹ Desmond Ball, Duncan Campbell, Bill Robinson and Richard Tanter, *Expanded Communications Satellite Surveillance and Intelligence Activities utilising Multi-beam Antenna Systems*, Nautilus Institute for Security and Sustainability, (NAPSNet Special Report, 28 May 2015), at <http://nautilus.org/napsnet/napsnet-special-reports/expanded-communications-satellite-surveillance-and-intelligence-activities-utilising-multi-beam-antenna-systems>.

Pine Gap facility's approximately 800 personnel have been U.S. and Australian citizens employed by private companies since at least 2008 (Table 1).² However the numbers of Australian staff, either government and contractor, had declined by 2015. In 2008 29 per cent of Pine Gap personnel were employees of US contractors while 41 per cent were employees of Australian companies (presumably including sub-contractors to US contractors). In that year 18 per cent of the personnel at the facility were US Government employees, and only 12 per cent were Australian Government staff.

Seven years later in 2015, while the overall proportion of contract staff remained at 70% of approximately 800 staff, the balance of U.S. and Australian staff had shifted in both the government and corporate groups, with the proportion of Australian government and corporate employees declining to just 10% and 40% respectively.

Table 1. Pine Gap personnel (approx.) 2008 - 2015

Year	Total number	Australian government employees	U.S. government employees	Australian contractors	U.S. contractors
2008	800	12%	18%	41%	29%
2015	800	10%	20%	40%	30%

Sources: 'Joint Defence Facility Pine Gap', *Hansard (House of Representatives)*, 14 May 2008, p. 5030; and information provided by the Australian Department of Defence, 18 June 2015.

Contractors at Pine Gap include some of the major US aerospace and defence companies, such as Raytheon, Boeing, Northrop Grumman and General Dynamics, as well as major computer companies, such as IBM and Hewlett-Packard. It also includes an increasing number of 'pure play' companies, who focus almost entirely on contracts from the National Reconnaissance Office, Central Intelligence Agency and National Security Agency (NSA), such as Scitor Corporation, SAIC and Leidos.³ In addition to the supply of equipment (such as satellite dishes/radomes and computers) and the provision of specialised technical services (such as satellite control and antenna

² 'Joint Defence Facility Pine Gap', *Hansard (House of Representatives)*, 14 May 2008, p. 5030; and information provided by the Australian Department of Defence, 18 June 2015.

³ Tim Shorrock, *Spies for Hire: The Secret World of Intelligence Outsourcing*, (Simon & Schuster, New York, 2008), pp. 264-265.

alignment), these companies are now also engaged in a wide variety of management, operations and maintenance roles.

The corporatisation of Pine Gap parallels the wider trend in the U.S. military and government as a whole to outsource many tasks previously considered 'inherently governmental', to be performed only by government employees. In many respects the role of corporate contractors today at Pine Gap exemplifies Patrick Keefe's judgement that in recent years 'the relationship between U.S. intelligence and the private sector had grown so symbiotic that it was often impossible to disentangle the two.'⁴

Beginnings

According to a press release issued by the Minister for Defence on 11 December 1966, the prime contractor for what was initially styled the Joint Defence Space Research Facility (JDSRF) was Collins Radio Company of Dallas, Texas.⁵

Collins Radio had been established in 1930 to produce radio equipment for the amateur market and by the end of the Second World War had emerged as a developer and manufacturer of a wide range of high-performance communications equipment. In the 1950s Collins developed dish antenna for the United States Naval Research Laboratory and by the early 1960s had established significant research and development capability in space communications. In 1960 Collins was responsible for transmission of the first photograph via satellite (a picture of President Dwight Eisenhower) and supplied the communications systems used in Project Mercury, the first US human space flight program. When Apollo 11 landed on the Moon in Jul 1969, it was Collins equipment that provided the live broadcast of Neil Armstrong and Edwin Aldrin's first steps on the lunar surface.⁶

Collins Radio opened an office in Melbourne, Australia, in 1958 and shortly thereafter established an Australian subsidiary Collins Radio Company (Australasia) Pty

⁴ Patrick Keefe, 'Privatized spying: the emerging intelligence industry', in Loch K. Johnson and Josiah Meigs (eds.), *The Oxford Handbook of National Security Intelligence*, New York: OUP, 2010, p. 297.

⁵ 'Joint U.S.-Australian Defence Space Research', *Defence and Services Newsletter*, (Australian News and Information Bureau), January 1967; 'Space Defence Research Centre for Alice Springs', *Canberra Times*, 12 December 1966, p. 1; 'Multimillion Space Station for the Alice', *The Australian*, 12 December 1966, p. 1; and Des Ball, *Pine Gap: Australia and the US Geostationary Signals Intelligence Satellite Program*, (Allen & Unwin, Sydney, 1988), p. 59.

⁶ 'Rockwell Collins celebrates 80 years in the aircraft electronics business', *Professional Pilot*, December 2012, http://www.propilotmag.com/archives/2012/December%2012/A3_Rockwell_p2.html and 'Contractors and subcontractors supporting Project Mercury', <http://history.nasa.gov/SP-4001/app9.htm>.

Ltd. Collins quickly won major contracts in Australia including installation of electronic equipment at the National Aeronautics and Space Administration deep space tracking station at Island Lagoon near Woomera in South Australia, the supply of computer-controlled transmitters for Radio Australia's high frequency transmitter station on the Cox Peninsular near Darwin and would be selected by for the construction and fit out of the Overseas Telecommunications Commission's Earth Satellite Station at Moree, New South Wales, to provide Australia's link with the first INTELSAT geostationary communications satellite positioned over the Pacific Ocean.⁷

Collins opened an office in Alice Springs in early 1967, but despite the company's considerable expertise in space communications, its involvement with the Pine Gap project never extended beyond supervision of the initial construction activity and subsequent management of the support services (such as air conditioning) at the station. Collins Radio's Australian subsidiary would not be admitted to the inner, most secret, signals intelligence operations of the facility. According to P. L. Kealy, an Australian computer operator who worked at Pine Gap from November 1970 to February 1975, 'COLLINS RADIO personnel all work on the OUTSIDE perimeter of the Base, with only a handful of exceptions.... They are not cleared to Top Secret classification'.⁸

In October 1978, the Minister for Defence, Mr D. J. Killen, stated that the prime contractors at Pine Gap were IBM, TRW Systems Inc., and E-Systems Inc.⁹ IBM had provided most of the computers at Pine Gap. TRW Systems, headquartered in Redondo Beach in Los Angeles, was responsible for the development and production of the Rhyolite geostationary SIGINT satellites controlled from the Pine Gap station, and TRW personnel programmed and operated some of the computers at the station. E-Systems Inc was responsible for the management and operation of the computer room.¹⁰

The computer equipment at Pine Gap in the 1970s and 1980s was supplied mainly by IBM. The initial computer was an IBM 360-44 mainframe, but this was soon replaced by an IBM 370-155 OS, which 'was being used under a unique type of set-up, and hooked up to many other computers'. Other IBM computers at Pine Gap in the late

⁷ "A Brief History of the Collins Radio Company in Australia", <http://www.angelfire.com/de/vk3kcm/>.

⁸ P. L. Kealy, 'Re E-Systems: Conditions of Employment Etc.', 12 December 1974, pp. 1-2.

⁹ 'Defence-related Facilities: Foreign Involvement', *Hansard (House of Representatives)*, 10 October 1978, p. 1663.

¹⁰ Ball, *op. cit.* pp. 59-60.

1970s included an IBM System 32 and an IBM 1800. There was also a Digital Equipment Corporation (DEC) VAX-11/780 computer used for signal processing and decipherment, a Hewlett-Packard (HP) HP-200, and a Sigma II computer, used to sort the numerous channels being monitored simultaneously by the SIGINT satellites. Two Univac machines were used to encrypt signals for transmission to TRW at Redondo Beach and the CIA HQ in Langley, Virginia.¹¹

In 1975, the US Government awarded Boeing Constructors Inc the prime contract for site management, operations and maintenance.¹² However, both E-Systems and TRW Systems remained as prime contractors for management of the computer room and satellite control operations, although E-Systems was acquired by Raytheon in 1995. In 2002, Raytheon and TRW Systems were still listed, along with Boeing Constructors and Compaq Australia, as the principal contractor companies at Pine Gap.¹³

Compaq Australia, a wholly-owned subsidiary of Compaq Computer Corporation in the US, was responsible for provision of the first-generation desk-top personal computers (PCs) installed throughout the facility in the 1990s. By the late 1990s, service engineers were maintaining Digital Equipment Corp (DEC), Compaq and Hewlett-Packard computers at the station.¹⁴

Compaq Computer Corporation was taken over by Hewlett-Packard in 2002, and HP evidently took over the primary contract for maintenance of the computer systems at the station. According to the HP Site Manager at Pine Gap from April 2004 to January 2009, the HP unit had several Service Delivery Teams: Hardware, Software, Network (N/W), Management Information System (MIS), Administration and Operations Manager.¹⁵

Taxing issues

The presence of foreign contractors engaged in highly secret intelligence activities at Pine Gap quickly posed challenges for the Australian Government. One of

¹¹ *Ibid*, pp. 67-71.

¹² Ry Crozier, 'Boeing Australia Eyes Secret Satellite Facility Re-entry', *itNews*, 27 February 2012, at <http://www.itnews.com.au/News/291780,boeing-australia-eyes-secret-satellite-facility-re-entry.aspx>.

¹³ 'Defence: Pine Gap', *Hansard (House of Representatives)*, 28 May 2002, p. 2555.

¹⁴ Gary Boland, *LinkedIn*, at <https://au.linkedin.com/pub/gary-boland/5b/aaa/943>.

¹⁵ Chris Packham, *LinkedIn*, at <https://au.linkedin.com/pub/chris-packham/3/769/482>.

the more vexing was taxation. As early as January 1969, the three United States contractors at Pine Gap – TRW, E-Systems and Collins Radio – employed a total of about 140 United States citizens at the Facility.¹⁶

In accordance with Australian taxation law and Article 9 of the Australian – United States Joint Defence Space Research Facility Agreement, US contractor employees were not taxed in Australia so long as their income was subject to tax in the United States. However, under US law, a contractor employee who was outside the United States for a total of 510 days or more in any 18 month period could claim reimbursement of taxation for that period, an entitlement that could be claimed after the employee had left Australia and indeed the employment of their company. In order to keep their employees liable to US taxation (and thus exempt from more onerous Australian taxation), the three US contractor companies routinely returned their employees to the US after about 15 months in Australia. The staff would remain in the United States for a sufficient period to prevent them from acquiring the 510 days' tax exemption qualifying period, whereupon they could return to Australia but more often were replaced. The difference in the rates of taxation in the two countries was such that the cost of subsidising contractor wages to restore their net income after Australian taxation was considered "unacceptable."

Although the US companies observed the letter of the bilateral agreement by ensuring that employees could not obtain retrospective taxation refunds, the operational inconvenience was considerable. Lobbied by the CIA, the Australian Defence Department took up the issue with the Australian Tax Office in January 1970, arguing that: "As it is usually key personnel who are required to remain in Australia for long periods, the present arrangement is severely detrimental to the work of the Facility and a cause of concern to our United States partners as well as to ourselves. The United States authorities find it a costly and cumbersome method of honouring their obligations."

¹⁶ The following account of early taxation issues relating to Pine Gap is derived from declassified Department of Defence files A1946, 1969/1767 Parts 1-3, and Australian Taxation Office (then styled the Commissioner of Taxation) files A7074, M352/6/2 PART 9, *National Archives of Australia*.

The Defence Department proposed that resort could be made to provisions in the Income Tax Act that provided for foreign contractors to be exempt from Australian tax when it was assessed that their employment was necessary to assist the development of Australian industry. However while these provisions could be stretched to cover defence activities, there was still “the hurdle of the Secretary of the Department of Trade and Industry having to certify assistance to ‘the development of Australian industry’ when the Secretary cannot be told for security reasons what the JDSRF is doing”. After lengthy interdepartmental discussions and consultation with a senior CIA lawyer John Morrison it was eventually agreed that the Department of Trade and Industry would be furnished with a very broad description of the type of work foreign contractor employees were engaged on at Pine Gap and, in the absence of any further information or assessment, the Department would certify that their activities would lead to the acquisition of knowledge and skill by Australian contractors or employees.

The Tax Office was suspicious that American contractor employees were seeking to avoid income tax in both countries or at least minimise their tax at the expense of Australian Government revenue. Morrison assured the Australians that “there was no question of the US agency engaged in the JDSRF project or the contractor employees seeking to obtain a completely tax-free existence for the employees involved”. The Defence Department submitted the details of four TRW employees to the Taxation office and the Department of Trade and Industry as the basis for a general ruling on the status of US contractor employees.

The accompanying now declassified documentation provides rare early duty statements of personnel employed by the principal contractor in at Pine Gap. All four were engineers. Robert Chaves was identified as TRW’s “senior system controller” at with responsibilities as “principal controller and monitor of electronic and computer data acquisition systems for [the] space research programme”. Equipped with a Bachelor of Science degree in electrical engineering and selected graduate courses, Chaves had three years’ experience in the “current research program” before arriving in Australia in September 1969. Warren Shogan was the “deputy senior system controller”. Unlike Chaves, Shogan was not a university graduate but had seven years’

experience in the aerospace industry. James Harrison was described as a “electromechanical maintenance specialist” with responsibility for maintaining the “highly sophisticated electronic equipment and hydraulic servo systems used in a space research program”. Harrison had a diploma in electrical engineering and fourteen years in the aerospace industry. Howard Mouatt was an “electronic maintenance specialist” with thirty-three years’ experience in radio broadcasting and duties including repair, calibration and test of electronic data acquisition system equipment.

In answer to a question about TRW’s contribution to Australian industry, the Department of Trade and Industry was told that “by introducing new and advanced scientific technology, the firm will make a significant contribution to the development of Australian electronics and possible future space industry. By working in a research team with highly trained and skilled professional personnel, Australians at the station will gain experience in electronic design, fabrication and maintenance techniques.” However Defence was obliged to admit that “the electronic equipment at the facility has been specially produced and brought in from the United States, and there has been little opportunity to introduce Australian equipment. “ Moreover it would be many years before significant numbers of Australians would be employed in the technical operations of the Pine Gap facility. However the exemption of US contractors from Australian tax liability was confirmed enabling TRW and other contractor personnel to be sent to Alice Springs for long-term postings while enjoying very favourable tax treatment in the United States.

Nearly half a century later these arrangements remain essentially unchanged with US contractor employees exempt from Australian taxation and instead enjoying more favourable taxation arrangements in the United States.¹⁷ More broadly the early US-Australian exchanges on taxation for US contractors at Pine Gap also set a pattern in which national security and secrecy would shroud the exemption of US contractors from aspects of Australian law and industrial relations practice.

¹⁷ Pine Gap Joint Defence Facility, *Hansard (House of Representatives)*, 13 May 2003, p. 10973.

Contemporary corporate activities

David Rosenberg, who worked in the Operations Room as an ELINT Analyst for the NSA from 1990 to 2008, has written about the contractors as follows:

Contractors have always played a key role at Pine Gap, and over the past forty years have helped with the mission in Operations and overall maintenance. Raytheon, the primary contractor inside the secure building, is tasked with manning positions within Operations, and its operators are referred to as 'rack jocks' because each operator sits in front of a tall rack of equipment, monitoring data and alerting Operations to anything new that might indicate an impending event. Raytheon also manages the computer network, equipment maintenance and the Engineering division. In times past, Boeing Australia administered the contract for grounds maintenance, housing and the motor pool, but Raytheon obtained this contract in 2004-05, making it by far the largest contractor at Pine Gap.¹⁸

Boeing Contractors Inc

Boeing Constructors Inc is based in Texas, but maintains offices in Crystal City in Arlington, Virginia, and at 15059 Conference Center Drive in Chantilly, Virginia, just across Lee Road from the National Reconnaissance Office (NRO). It also maintains an office at 8 Whittaker Street in Alice Springs (Tel: 08 8951 2480).

The company maintained the prime contract for management, operations and maintenance of the station for 30 years, from 1975 to 2005. It provided the Site Manager, who was supported by an Executive Secretary with respect to administrative and secretarial matters. (One Executive Secretary served for nearly seven years, from October 1994 to June 2001).¹⁹ There were about 250 Boeing civilian employees at the station in 2004, engaged in a multitude of disparate tasks.²⁰

The largest unit involved 'maintenance and construction services'. A Maintenance Superintendent who worked for Boeing at Pine Gap from March 2002 to September 2004, for example, says that he 'managed a multi-disciplined workforce of 80 tradespeople to provide maintenance and construction services across the facility and approximately 1,200 residential homes located in Alice Springs township'.²¹

¹⁸ David Rosenberg, *Inside Pine Gap: The Spy Who Came in From the Desert*, (Hardie Grant Books, Melbourne, 2011), pp. 40-41.

¹⁹ Nova Warne, *Bark.com*, at <https://www.bark.com/s/nova.warne/>.

²⁰ Crozier, *op.cit.*

²¹ Christopher Wagner, *Bayt.com*, at <http://people.bayt.com/christopher-wagner/>.

With respect to construction activities, Boeing sub-contracted to Bardavcol Pty Ltd, a major South Australian civil engineering and construction company, for engineering assistance with the construction of four radomes at Pine Gap in 1998-2000.²² (These were the first two DSP/SBIRS antennas/radomes and two 23-metre dishes with 30.5-metre radomes believed to be used for FORNSAT/COMSAT interception).

Boeing's contract included responsibility for maintenance of the power supply at the facility, for which it employed Power House Maintenance Technicians.²³ In 2001, the company advertised for tenders for the supply of a 'new digital control system' and a diesel generator for the station. The sub-contract involved 'installation and testing of new digital control system and new 2000 kW diesel generator set to work in synchronization with twelve existing diesel generator sets operating in two buildings'. The advertisement noted that the 'existing power system supports critical 24 hour operation that shall remain on line during new construction', that 'tasks will include demolition of existing control system from existing building, designated "Utilities Building"', and 'installation of new central control system in existing building, designated "Powerhouse"'. It also noted that the 'digital control system will interface with 2400 volt switchgear and auxiliary systems', and that it involved 'installation of new inter-connecting duct-banks between two buildings'. The project was expected to commence in January 2002 and to be completed by April 2003; the estimated project value was \$1.5 million.²⁴

The company employed an Environmental and Quality Advisor, who 'managed approval of environment issues on all tasks carried on the 4000 acre site'; met 'with chief of facility on environmental issues'; 'reported to management meetings on

²² James Crisera, *LinkedIn*, at <https://au.linkedin.com/pub/james-crisera/a8/472/a32>.

²³ Brad Martin, *LinkedIn*, at <https://au.linkedin.com/pub/brad-martin/56/465/805>.

²⁴ 'Boeing Plans to Install 2000kW Diesel Generator at Pine Gap Defence Facility, NT', *EWN Publishing*, 20 August 2001, at <http://www.erisk.net/erisk7/article/359518/boeing-plans-to-install-2000kw-diesel-generator-at-pine-gap-defence/>; and Cordell Construction Projects, 'Joint Defence Facility - Pine Gap', at <http://www.cordellconnect.com.au/public/project/ProjectDetails.aspx?uid=523593>.

environmental improvements and issues; and 'liaised with government officials on projects and potential environmental impact'.²⁵

Boeing Constructors was involved in a legal case in 2003, when an Australian maintenance electrician employed by the company, who had worked at Pine Gap since 1994, refused to undergo high-level US security checks to 'upgrade his security level from Yellow Badge to the Top Secret Positive Vetting [TSPV] level'.²⁶

Raytheon

Raytheon, a major US aerospace company, is headquartered in Waltham, Massachusetts, but shares a building with Boeing at 15059 Conference Center Drive in Chantilly, Virginia, about 100 metres from the National Reconnaissance Office (NRO). Its involvement at Pine Gap began in the 1990s, initially through the acquisition of smaller companies already engaged at the facility. In 1995, it acquired E-Systems and became responsible for management and operation of the computer room.

Raytheon also acquired HRB-Singer Company, which produced specialised signals processing equipment for the NSA and which maintained personnel at Pine Gap around the early 1990s. For example, HRB-Singer employed engineers in the Site Systems Engineering (SSE) Laboratory, who worked on 'the Telemetry Analysis Sub-System (TASS), a large FISINT processing system, performing enhancements, upgrades, and problem troubleshooting, resolution and configuration control'.²⁷

In the late 1990s and at least through the early 2000s, Raytheon employed at Pine Gap a Senior Software Engineer responsible for maintaining a Personnel Database. The incumbent from June 1997 to October 2001 has said that he 'saved time and money for customer by successfully replacing three databases with one unified MS SQL Server database', that he 'solved complex issues of integrating updateable snapshots from multiple Oracle 8i databases into a primary MS SQL Server database', and that he 'implemented client-server architectures using SOCKETs, RPCs and X-windows on Open VMS, Digital UNIX (Tru64), and Sun Solaris'. He also 'pinpointed and corrected [a] major

²⁵ Terry Carter, 'Resume', at <http://www.qualitymag.com/ext/resources/QUAL/Home/Files/PDFs/Terry%20Carter%20resume%2016-02-2009.pdf>.

²⁶ 'Pine Gap Security Inquiry Continues', *ABC News*, 14 July 2003, at <http://www.abc.net.au/news/2003-07-14/pine-gap-security-inquiry-continues/1447914>

²⁷ Kurt Hassler, *LinkedIn*, at <https://www.linkedin.com/pub/kurt-hassler/13/349/245>.

ongoing error between systems by debugging software running in a real-time operational environment on Digital UNIX (Tru64) and Open VMS', the 'successful resolution' of which earned him the 'Gold Coin Award' for Operations and Maintenance support at the facility.²⁸

In August 2005, Raytheon replaced Boeing Constructors as the prime site management, operations and maintenance contractor at Pine Gap. Some of the Boeing employees moved to Raytheon 'when the contract changed hands'.²⁹ According to one account, Boeing's contract expired in 2004 and the US Government invited tenders for a new contract. Boeing 'tendered for the job but was unsuccessful, and instead the contract went to Raytheon Australia Pty Ltd'. However, 'Boeing worked closely with Raytheon and ensured that all its employees were offered comparable employment with Raytheon when the new contract commenced'.³⁰

Something of the breadth of Raytheon's site management contract was illustrated in May 2006, nine months after the award, when the company advertised jobs in 13 fields. It said that 'opportunities based in Alice Springs at the Joint Defence Facility Pine Gap are available in the following areas: Electrician; Refrigeration Mechanic; Plumber; Operations System Technician; Utilities Maintenance Technician; Utilities Shift Operator; Transport Specialist; Project Manager; Service Person; Trade Assistant; Scheduler/Planner; Estimator; [and] Electrical Engineer'. Applicants had to be Australian citizens 'and be willing to undergo a personal security check'.³¹ Similarly, in August 2011, it advertised jobs in 'Mechanical and Electrical Trades; Refrigeration Trades; Logistics Specialists; IT Manager; Site Security; Computer Engineers (multi disciplines); Engineers (Mechanical and Electrical); Project Managers; Environmental Health & Safety (EHS); and Quality Assurance'. It said that applicants 'must be able to obtain and maintain a US Department of Defence or an Australian Defence Security Clearance'.³²

²⁸ Eyon Land, 'Work Experience', *Indeed resume*, at <http://www.indeed.com/r/Eyon-Land/95fdb0104108b177?sp=0>.

²⁹ Crozier, *op.cit.*

³⁰ 'Another Way Round the Amcor Decision', *International Law Office*, at <http://www.internationallawoffice.com/Newsletters/Detail.aspx?r=11434>.

³¹ Raytheon, 'Our People: Vital for Mission Assurance', *Centralian Advocate*, 12 May 2006, p. 48.

³² Raytheon, 'Enjoyed the Regatta?', *Centralian Advocate*, 19 August 2011, p. 22.

Raytheon has established a distinct organisational structure for management of its Pine Gap operations, called ATOM [AusTralian Operations and Maintenance]. The key features of ATOM were described in a Raytheon advertisement for the position of ATOM Deputy Program Manager, located at Pine Gap, in November 2011. It stated that:

The ATOM Deputy Program Manager [at Pine Gap] will report directly to the Director, Raytheon Australian Operations and is responsible for cost and schedule performance of the program.

The Deputy PM is responsible for detailed management of cost, schedule, subcontractors and system performance for a multi-million dollar, remote facility. The Deputy PM provides oversight and management of the subcontractor that provides operations and maintenance of Site utilities, Support Services, (including, custodial, medical, dining, transportation, and housing management), logistics, and procurement. The Deputy PM oversees construction and task order work and manages the Integrated Data Management System (IPDS) and task order approval process, and all planning and maintenance planning.

The Deputy PM is the primary interface to the Government Contracting Officer Technical Representative (COTR).

U.S. Citizenship and an active TS/SCI security clearance with CI Poly Required.³³

A requirement for the position was 'at least 12 years experience with facilities maintenance, engineering, and project management or equivalent industry experience'. A 'desired skill' was 'experience with Computerized Maintenance Management Systems, such as SAP'.³⁴ SAP [Systems, Applications and Products] is a German company which produces market-leading enterprise resource planning (ERP) software for enterprise-wide management. The SAP ERP software is used extensively at the facility.

Management of the facility was divided into several functional areas. In 2008-10, these were categorised as 'Facilities Management, Operations, Housing Services, Medical Services, [and] Supply Chain Management'.³⁵

Raytheon is responsible for supporting UNIX/LINUX computer systems at Pine Gap. For example, a recent advertisement stated that 'Raytheon is currently seeking a UNIX/LINUX Systems Administrator to provide technical infrastructure support to

³³ Raytheon, 'ATOM Deputy Program Manager - KP - Alice Springs, AS09', *Getting Hired*, at <http://www.gettinghired.com/JobDetails.aspx?id=873986&pnl=>.

³⁴ *Ibid.*

³⁵ Anthony Marceddo, *LinkedIn*, at <https://au.linkedin.com/pub/anthony-marceddo/26/421/7a4>.

Systems Maintenance and Engineering teams that are responsible for sustaining the functionality and capabilities of existing systems, and the integration of new systems into an Operational Baseline'. It noted that: 'This position requires predominately UNIX/LINUX systems administration skills to support a computing environment comprised of a variety of SAN [Storage Area Network], server and workstation platforms. The SA will be required to support installation and configuration activities, as well as some routine maintenance and urgent troubleshooting efforts within this heterogeneous environment'. The 'required skills' included 'advanced knowledge of Red Hat Enterprise Linux [RHEL] Operating Systems', as well as 'functional knowledge of Microsoft Windows, Tru 64 UNIX, and VMS operating systems' and 'familiarity with current COTS computer hardware – particularly HP, IBM and Oracle'.³⁶

The ATOM program employs a Quality Assurance Manager at Pine Gap. A recent advertisement for such a position noted that 'JDFPG is a self sufficient facility near Alice Springs Australia generating power, water supply from on-site bores, waste disposal, food services, temporary quarters, maintenance activities, transportation to and from Alice Springs with a working population of approximately 900 persons'. It stated that 'quality engineering is applicable to the operations of JDFPG inclusive of base operations, and in-town offices and warehouse, managing over 400 residences'. It also stated that the Quality Assurance Manager would 'ensure the effective development, application and maintenance of the ATOM Program Quality Management System'.³⁷

Raytheon is also involved in the provision of 'Information Assurance' (IA) at Pine Gap. In May 2015, it advertised for a Senior Information Assurance Technologist 'to perform System Administration and Information Assurance tasks on UNIX / Linux systems'. The principal task was to provide 'Information Assurance Vulnerability Alerts (IAVA) tracking, reporting, and implementation', as well as 'support on IA compliance testing of new integrations'. The position required 'a minimum of four years of experience in Unix or Linux Systems Administration working with customers in technical operations or engineering', 'a minimum of 3 years specific IA experience', and

³⁶ Raytheon, 'UNIX/LINUX Systems Administrator', at <http://jobs.raytheon.com/australia/jobs/unixlinux-systems-administrator-job-alice-springs-northern-territory-1-5202879>.

³⁷ Raytheon Company, 'Quality Assurance Manager – Alice Springs, AS09', *Getting Hired*, at <http://www.gettinghired.com/JobDetails.aspx?id=939127&pnl>.

'experience with storage products from Oracle/Sun/STK, EMC, IBM, NetApp, and/or DDN'.³⁸

It also has a Contracts Administrator, responsible for the administration of commercial and project related contracts, including 'sourcing and engaging sub-contractors and suppliers for the facility'. The first Raytheon incumbent moved over from Boeing after 6 years due to the service contract with USG being awarded to Raytheon in 2005. He 'was responsible for providing commercial and contractual guidance pertinent to any formal on-site contracts or agreements entered into by Raytheon Australia Pty Ltd aligned to JDFPG'. He 'was intricately involved in the implementation of a new Integrated Data Management System (SAP) from a purchasing and contracts perspective and this system was adopted in 2005'.³⁹

Raytheon employs an Inventory Management Coordinator to provide efficient logistic supply chain management. The incumbent from December 2009 to September 2011 has said that he 'identified critical items and [set up] a daily reporting system for critical items', and that these processes used SAP ERP software. He also reckoned that the 'accountable assets' at Pine Gap were 'valued at \$240 million'.⁴⁰

Raytheon also employs a Program Cost, Schedule and Control Analyst at the facility. According to the current analyst, who has held this position since July 2012, the principal job is to 'track all AUD/USD program costs to provide detailed financial analysis and insure cost objectives of the program are met'.⁴¹

Raytheon also employs 'data specialists' at Pine Gap responsible for maintaining data-bases and developing ETL [Extract, Transform, Load] programs for 'problem recording and problem resolution'. These specialists have 'experience in ETL data

³⁸ Raytheon, 'Sr Information Assurance Technologist, Raytheon, Alice Springs NT', *Indeed Resume*, at http://au.indeed.com/viewjob?jk=8e23e020a89ca711&q=ibm+unix&from=ifa&utm_source=publisher&utm_medium=cpc&utm_campaign=newifa&pub=5044492982851340.

³⁹ Kelvin Ryan, *LinkedIn*, at <https://au.linkedin.com/pub/kelvin-ryan/24/32/875>.

⁴⁰ Clifford Perera, 'Career Portfolio', *Beyond*, at <http://www.beyond.com/F72B28DF-A9F6-4808-9943-BCDD02836DC1>.

⁴¹ Kevin Patrick Coyle, *LinkedIn*, at <https://au.linkedin.com/pub/kevin-patrick-coyle/a/761/923>.

management, data warehousing and data mart development', and, in particular, with ETL tools, such as IBM DataStage, Informatica and Ab Initio.⁴²

Raytheon's roles at Pine Gap clearly involve direct mission support as well as management and maintenance activities. For example, a Systems Engineer who worked for Raytheon at Pine Gap from September 2007 to July 2008 has described his position as a 'signal processing sub-systems engineer, responsible for all aspects of assigned systems from subsystem installation to decommissioning'. He 'monitored performance, trouble-shot and resolved outages of high-priority systems'.⁴³

Raytheon also employs Systems Maintenance Engineers at Pine Gap, who 'provide maintenance support to real-time signal processing and command & control systems at a 24/7 facility'. The required skills for this position include a 'strong background in digital signals processing or communications theory', 'familiarity with current COTS computer hardware – particularly HP & IBM', familiarity 'with Red Hat Enterprise Linux and functional knowledge of MS Windows and Tru64 UNIX operating systems'.⁴⁴

More specifically, Raytheon engineers have been involved in processing telemetry intercepted by the SIGINT satellites. It had, in the early 1990s, taken over from HRB-Singer the hardware and software engineering support for the Telemetry Analysis Sub-System (TASS), a large FISINT processing system at Pine Gap.⁴⁵ In 2010, a Raytheon engineer 'led the execution of Telemetry detection on various foreign instrumentation signals intelligence (FISINT) signals' at Pine Gap. He has stated that he 'employed technical proficiencies in operating state-of-the-art signal detection software while performing 12-hour rotations shifts', that he 'sustained constant communication with local and national consumers by collecting, processing, and tipping off high interest signals', that he 'successfully obtained and completed training in satellite system operations and orbitology, performing signal acquisition, processing and reporting', and

⁴² Raytheon, 'Senior Database / ETL Developer (IBM DataStage) Job', *ClearanceJobs.com*, at <https://www.clearancejobs.com/jobs/?Ntx=mode+matchany&Ntk=IMain&N=3224+3013&Ntt=Senior+Database+%2F+ETL+Developer+%28IBM+DataStage%29+Job>.

⁴³ Stan Christen, *LinkedIn*, at <https://www.linkedin.com/pub/stan-christen/5a/8b5/a02>.

⁴⁴ Raytheon, 'Sr Systems Engineer I', at <http://jobs.raytheon.com/australia/jobs/sr-systems-engineer-i-job-alice-springs-northern-territory-1-5202899>.

⁴⁵ Kurt Hassler, *LinkedIn*, at <https://www.linkedin.com/pub/kurt-hassler/13/349/245>.

that he handled ‘time sensitive and highly stressful situations requiring immediate reporting and dissemination’.⁴⁶

Raytheon has also become a major contractor at Menwith Hill, near Harrogate, North Yorkshire, and some of its projects evidently involve activities conducted cooperatively at Pine Gap and Menwith Hill. In 2010-11, the Mission Operations Solution (MOS) program of Raytheon’s Intelligence and Information Systems, which then had 825 employees, had 200 of them at Pine Gap and Menwith Hill.⁴⁷

In May 2015, Raytheon began advertising for engineers for the Phoenix project. The advertisements stated that ‘the PHOENIX contract’ would provide ‘work in Northern Virginia, the West Coast and Overseas locations’, i.e., Menwith Hill and Pine Gap; that ‘the PHOENIX contract provides system engineering, system integration, and configuration management services in a classified environment’; and that ‘candidates will possess strong technical qualifications and an active TS/SCI clearance’. They also stated that the positions ‘can be worked in our facilities in Harrogate, UK or Alice Springs, Australia’.⁴⁸

In June 2013, Raytheon advertised for a SAP Support Analyst to be located with a team at Raytheon’s offices in Aurora in Colorado, co-located with the NRO’s Aerospace Data Facility-Colorado at Buckley Air Force Base, which was ‘tasked with remotely maintaining the SAP Integrated Data Management System for the contract at the Joint Defense Facility Pine Gap’. The advertisement noted that ‘the time difference is 13.5 hours, requiring the working hours in Colorado to be from 1600-2430 Sunday through Thursday’, that SAP is used ‘to run and maintain the facility’, and that applicants ‘must have the ability to work remotely with a wide variety of site personnel, including other IT staff, Finance personnel, site leadership team, and USG customer’.⁴⁹

Raytheon is also involved in an IT program at Pine Gap called Comm Patriot. In November 2011, it advertised for a PC Client Server Analyst. The advertisement stated

⁴⁶ Michael DeHay, ‘Resume’, *Indeed Resume*, at <http://www.indeed.com/r/Michael-DeHay/2e3977d2ce23a228?sp=0>.

⁴⁷ Jaime Strauch, *LinkedIn*, at <https://www.linkedin.com/pub/jaime-strauch/95/723/269>.

⁴⁸ Raytheon Company, ‘Phoenix’, at <http://jobs.raytheon.com/australia/jobs/bring-your-talents-to-the-raytheon-system-engineering-and-integration-team-job-alice-springs-northern-territory-1-5266101>.

⁴⁹ ‘SAP Support Analyst’, Jobs, *RSSING.com*, 29 June 2013, at http://roboreous34.rssing.com/channel-17987048/all_p75.html.

that 'the Windows Systems Administrator (PC/Client Server Analyst II) will support the Comm Patriot program, an enterprise Information Technology program in Alice Springs, Australia', and that 'the successful applicant will perform Windows systems administration tasks on multiple variants of Windows OS'. The basic qualifications required included 'experience installing and maintaining Windows 2000 Server operating systems', 'experience building Compaq servers', and 'experience installing and maintaining MS Vista operating system'.⁵⁰

Raytheon maintains the Site Systems Engineering (SSE) Laboratory at Pine Gap. This comprises four activities: Scientists engaged in innovative research; development activities; engineering maintenance; and technical problem-solving. 'Multi-disciplined engineers' who work in the Lab must have 'familiarity with current COTS computer hardware – particularly HP and IBM', 'working knowledge of Red Hat Enterprise Linux', 'functional knowledge of MS Windows, Tru64 UNIX, and VMS operating systems', and 'good understanding of SAN technologies'.⁵¹

Raytheon's contract at Pine Gap even includes management of a large cafeteria, located outside the Top Secret perimeter. In October 2011, the company advertised for a Head Chef and several kitchen hands. The advertisement noted that successful applicants 'must be able to obtain and retain an Australian Defence Security Clearance'.⁵² Adam Findlay, who stood as the Australian Labor Party (ALP) candidate in a Northern Territory by-election in Araluen in October 2010, was a chef employed at Pine Gap by Raytheon at that time.⁵³ He was still working as a chef there in August 2012, when he again stood for the seat.⁵⁴ The menu is reportedly tailored to 'American tastes', with 'burgers, hot dogs, doughnuts, pork ribs, French fries and milk shakes'. A

⁵⁰ Raytheon, 'PC/Client Server Analyst II – Alice Springs, AS09', *GettingHired*, at <http://www.gettinghired.com/JobDetails.aspx?id=873994&pnl>.

⁵¹ Raytheon Company, 'Sr Multi-Disciplined Eng II – Alice Springs, AS09', at <http://www.gettinghired.com/JobDetails.aspx?id=691486&pnl>; and Raytheon Company, 'Sr Multi-Disciplined Eng II – Alice Springs, AS09', *GettingHired*, at <http://www.gettinghired.com/JobDetails.aspx?id=712956&pnl>.

⁵² Raytheon Australia, 'Leaders in Innovation', *Centralian Advocate*, 14 October 2011, p. 58.

⁵³ Erwin Chlanda, 'Findlay: Listen First, Talk Later', *Alice Springs News*, 23 September 2010, at <http://www.alicespringsnews.com.au/1734.html>.

⁵⁴ 'Northern Territory Votes', *ABC News*, 31 August 2012, at <http://www.abc.net.au/elections/nt/2012/guide/aral.htm>.

Member of Parliament who visited the cafeteria said that ‘you’d really have to watch your cholesterol levels’.⁵⁵

Raytheon’s site management contract at Pine Gap came up for renewal in 2012. In February, Boeing announced that it was ‘currently submitting a tender response to the US Government for contract renewal’ at the facility, in anticipation of which it called for ‘expressions of interest’ for a range of operational and maintenance positions, including an IT Manager.⁵⁶ However, Raytheon retained the contract.

There is evidently considerable dissatisfaction among Raytheon’s MOS employees at Pine Gap. A Systems Engineer currently employed at the facility has said that, while ‘the technologies are fun to support’, there is ‘horrible communication from management to the employees’, that ‘management treats the employees as expendable’, and that those interested in an engineering career should avoid the place because ‘your skills will erode’. Another current employee has said that ‘the program I joined is basically a maintenance-only contract that requires little actual skill in my field of expertise’. He also said that ‘morale is low’ because of ‘the way [Raytheon produced] the bid and won the current contract’. Another said that the place has ‘fantastic technologies’ and ‘amazing impact on the world’, but that ‘Raytheon management doesn’t communicate very well to employees about their vision for the organization’, and that the facility is ‘very understaffed’. A former employee at Pine Gap has stated with respect to the Phoenix program that ‘if you enjoy the challenge of rebooting a computer or running power point presentations then this job is for you’.⁵⁷

Northrop Grumman

Northrop Grumman Corporation acquired TRW in 2002. It retained TRW’s plant in Redondo Beach in Los Angeles, used for the development and production of the geosynchronous SIGINT satellites, now also called Northrop Grumman Space Park. It has also acquired a large building adjacent to the Air Force Space and Missiles Systems Center at Los Angeles Air Force Base in El Segundo, where a complex of selected

⁵⁵ Philip Dorling, ‘Desert Secrets’, *Sydney Morning Herald*, 21 July 2013, at <http://www.smh.com.au/technology/technology-news/desert-secrets-20130720-2qb5c.html>.

⁵⁶ Crozier, *op. cit.*

⁵⁷ ‘Raytheon Mission Operations and Services Reviews’, at <http://www.glassdoor.com.au/Reviews/Raytheon-Mission-Operations-and-Services-Reviews-E444555.htm>.

aerospace corporations and Air Force space-related agencies effectively forms the West Coast branch of the NRO.

Northrop Grumman's principal responsibility at Pine Gap, inherited from TRW, remains operating the satellites controlled from the station.⁵⁸ A Senior Satellite Systems Analyst who worked for Northrop Grumman at Redondo Beach, Pine Gap and Buckley, Colorado, from September 2001 to November 2004, has described his position as follows:

Responsible for the control of an advanced and complex electronics system in both a pre-launch and real-time operational environment. Other duties include participation in the design and verification phases of system development; development of flight hardware/software; development of test bed procedures for actual flight/test hardware and software in a laboratory environment; monitoring and analyzing telemetry/ simulation test data; identifying possible contingency/anomalous situations and taking the necessary preventative/corrective actions; mission planning functions; implementing experiments; developing operational procedures/documentation; and special testing at customer request. Position requires a good working knowledge of electronics, orbit mechanics, computer technology, and a complete understanding of Control Theory and Ground Station operations.⁵⁹

A System Controller who worked for Northrop Grumman at Pine Gap from July 2010 to January 2013 has said that he 'supported 24/7 operations of multiple systems as a console operator', and that he 'analyzed and responded to real-time data'.⁶⁰

Since at least 2010 and probably sometime before that, Northrop Grumman's role in the control of the geosynchronous SIGINT satellites has been code-named Atlantis. In May 2015, for example, Northrop Grumman Aerospace Systems advertised for an Operations Support Engineer for Payloads Operations and Maintenance at Pine Gap, as part of the Atlantis program. The principal duties of the position were: 'Serve as a cross-site specialist for payload system operation and performance; monitor system and subsystem performance and capabilities on a continuing basis; investigate all

⁵⁸ Dorling, 'Desert Secrets', *op.cit.*

⁵⁹ 'CV: Senior Satellite Systems Engineer', *Space Careers*, at http://www.space-careers.com/agency/cvview_18265.html.

⁶⁰ John Duncan, *LinkedIn*, at <https://au.linkedin.com/pub/john-duncan/5b/bb2/51>.

indications of anomalous system performance'.⁶¹ In addition to Pine Gap, the Atlantis program also involves Northrop Grumman facilities at Space Park in Redondo Beach and at Menwith Hill, Harrogate.

The Northrop Grumman Atlantis program at Pine Gap consists of some 55-60 personnel, comprised of an Operations Crew Department with 15-20 personnel, an Operations Support Team with 14, a Hardware Engineering Team with 16, and a Software Engineering Team with ten personnel. The Manager of the Atlantis program is based at Pine Gap (A-Site), while the Deputy Manager is located at Menwith Hill. The Manager is 'responsible for leading the team in Australia and collaborating with the Deputy Program Manager, who is responsible for operations in England'. The position involves 'occasional' travel to Space Park and Menwith Hill.⁶²

Although the Atlantis program at Menwith Hill is organisationally subordinate to the Atlantis Program Manager at Pine Gap, it may be larger than the Pine Gap activity. For example, the Hardware Engineering Team at Menwith Hill has about 20 members, or 25 per cent more than the team at Pine Gap.⁶³

The position of Operations Support Manager in the Atlantis program at Pine Gap was advertised by Northrop Grumman in May 2015. It stated that 'the Operations Support Manager is both a member of the NG management team and a technical contributor. The primary responsibility is to manage a team of 13 operations support engineers in a 24x7 real-time operational environment covering a broad spectrum of tasks including, but not limited to, monitoring and analyzing system and sub-system level performance as well as responding to and recovering from system anomalies'.⁶⁴

The Hardware Engineering Team is primarily concerned with maintenance of the dishes and other antennas used for controlling and receiving the down-links from the geosynchronous SIGINT satellites. Advertisements for positions in the team

⁶¹ Northrop Grumman, 'Operations Support Engineer 4 – Payloads O&M (Alice Springs, AU)', *Jobs Online Athens*, at <http://job-search.onlineathens.com/jobs/operations-support-engineer-4-payloads-o-m-alice-springs-au-international-posting-x-77745341-d>.

⁶² Northrop Grumman, 'Dir Programs 1 – Manager, Atlantis Program & A-Site', *engineeringjobs.com*, at http://www.reneeringjobs.com/jobs/1553251_Dir-Programs-1-Manager-Atlantis-Program-A-Site-In?utm_campaign=jobseekerau&utm_medium=organic&utm_source=jobseekerau.

⁶³ Northrop Grumman, 'Harrogate – Hardware Manager 5', *experteer.co.uk*, at <http://www.experteer.co.uk/vacancies/job-as/hardware-manager-5-1974149>.

⁶⁴ Northrop Grumman, 'Manager Operations Support Engineering 2 (Alice Springs, Australia) Job', *engineeringjobs.com*, at http://www.reneeringjobs.com/jobs/1558609_Manager-Operations-Support-Engineering-2-Alice-Springs-Australia-In.

invariably state that candidates must possess the ‘ability to work on elevated structures at heights of ~100 feet’.⁶⁵ Advertisements for RF Hardware Engineers in the team have stated that ‘the principal duties of the position will include working as part of a team to maintain various vintages of RF systems by performing routine maintenance on RF equipment’.⁶⁶

The Software Engineering Team maintains all the software used in the Atlantis program. According to Northrop Grumman job advertisements, members of the team are experienced with VMS and Linux operating systems, Fortran, C, Java and Perl scripting, and Cisco network equipment.⁶⁷

Northrop Grumman has sub-contracted part of the Atlantis program to Lockheed Martin (LM), at least with respect to operations at Menwith Hill. Keith Freeman, who has served since April 2010 as the ‘Capture Manager for LM portion of the Atlantis contract as a subcontract under NGAS [Northrop Grumman Aerospace Systems]’, the LM Atlantis Program Manager and the Deputy H-Site [Harrogate] Manager, has ‘oversight of the entire Atlantis scope at site’ and is ‘responsible for LM \$50M contract and 66 employees’. (From April 2008 until he moved to the Atlantis program in April 2010, Freeman was Program Manager of the LM Runway program, the ground terminals for the Chalet/Vortex and subsequent Advanced Orion satellites at Menwith Hill.)⁶⁸

Northrop Grumman also maintains personnel in the Engineering Laboratory at Pine Gap as part of the Atlantis program. For example, it advertised on 8 May 2015 for an Engineering Lab Specialist to work in the Lab.⁶⁹

General Dynamics

Both General Dynamics SATCOM and General Dynamics Information Technology have been involved in the provision of equipment and support services at Pine Gap.

⁶⁵ Northrop Grumman, ‘Digital Engineer Hardware 2 (Alice Springs, Australia)’, at https://ngc.taleo.net/careersection/ngc_pro/jobdetail.ftl?job=585627.

⁶⁶ Northrop Grumman, ‘RF Hardware Engineer 2 (Alice Springs, Australia) Job’, *engineeringjobs.com*, at http://www.reengineeringjobs.com/jobs/1541759_Rf-Hardware-Engineer-2-Alice-Springs-Australia-in.

⁶⁷ Northrop Grumman, ‘Mgr Software Engineering 2 Alice Springs’, *Jobzella*, at <http://www.jobzella.com/job/open-external/b4d384350ec93991454a52957eb8eb97>.

⁶⁸ Keith Freeman, *LinkedIn*, at <https://www.linkedin.com/pub/keith-freeman/14/869/11a>.

⁶⁹ Northrop Grumman, ‘Engineering Lab Specialist – Engineer System Modeling Simul 4 (Alice Springs, Australia)’, *Cleared Jobs Net*, at <http://clearedjobs.net/view-job/176716/northrop-grumman/engineering-lab-specialist-engineer-sys-modeling-simul-4--alice>.

In the case of General Dynamics SATCOM, it provided a Model 700-70TCK Torus multi-beam antenna system, installed at Pine Gap in 2008. This measures 24.1 metres wide by 7 metres high, and is curved spherically in its horizontal plane and parabolically in its vertical plane; it is able to monitor 35 satellites and hundreds of satellite channels (and perhaps as many as 1,000) simultaneously.⁷⁰

General Dynamics SATCOM also employed an on-site project manager at Pine Gap in 2011-12. The project was apparently a sub-contract from Lockheed Martin.⁷¹

The company also installed equipment at Pine Gap around 2012-13. A shipping container containing 'tools of trade returning to USA after installation completion', was moved by train from Alice Springs to Adelaide, then shipped via Singapore to Long Beach in Los Angeles for collection, with a scheduled arrival date of 29 November 2013.⁷²

General Dynamics Information Technology is primarily concerned with the provision of IT services for both management and operational purposes. In May 2015, for example, it advertised for a Configuration Management (CM) Analyst, whose job was to 'provide configuration management support to assigned projects', and to 'analyze complex engineering change proposals to determine the effect on the overall system'.⁷³

In April 2015, General Dynamics Information Technology advertised for a Security Control Assessor, whose principal task was to provide 'Information Assurance'. The position required 'knowledge of information technology concepts used in the evaluation of security performance and integrity of state-of-the-art applications, communications systems, hardware, software, satellite control systems, and information processing systems'.⁷⁴

⁷⁰ General Dynamics, 'Model 700-70TCK Torus Multiple Band Antenna', at http://www.gdsatcom.com/Antennas/Data_Sheets/655-0037C_7M_Torus.pdf; and Ball et al, *Expanded Communications Satellite Surveillance*, *op.cit.*

⁷¹ Paul Pope, *LinkedIn*, at <https://www.linkedin.com/pub/paul-pope/3a/129/1ba>.

⁷² 'U.S. Ocean Freight Imports Data', *Fonroid*, at <http://fonroid.com/canonical.jsp?id=39309889&year=2013&consignee=general-crating-inc>.

⁷³ General Dynamics Information Technology, 'CM Analyst', at http://www.gdcareers.com/gdchq_jobs/main.cfm?pg=search&view=detail&recnum=44&totalrecs=2962&start=1&pagestart=1.

⁷⁴ General Dynamics Information Technology, 'Security Control Assessor III TS/SCI w/Polygraph Required in Alice Springs, AUS', at http://www.resumeware.net/gdns_rw/gdns_web/job_detail.cfm?key=201664&referred_id=158.

The company has also advertised for a Principal Analyst Information Security to work at Pine Gap. The tasks of the analyst are to 'perform Computer Security Incident Response activities', 'monitor and analyze Intrusion Detection Systems (IDS) to identify security issues for remediation', 'recognize potential, successful, and unsuccessful intrusion attempts and compromises through reviews and analyses of relevant event detail and summary information', 'evaluate firewall change requests and assess organizational risk', 'communicate alerts to agencies regarding intrusions and compromises to their network infrastructure, applications and operating systems', and 'assist with implementation of counter-measures or mitigating controls'.⁷⁵

It has also advertised for an Information Assurance Engineer to work at the facility. The position required knowledge of and experience with 'networks, computer components, system protocols, and COTS technology', as well as 'system methodologies, including: client/server, web hosting, web content servers, policy servers, directory servers, firewalls, WAN, MAN, LAN, switches, and routers'; it involved 'configuring and supporting, at a minimum, Windows, Linux, Unix, Mac OS', as well as 'VMware, Xen, Hyper V and other virtualization platforms'.⁷⁶

The company also employs Information Systems Technicians to 'analyze, administer and maintain telecommunications systems'. These technicians 'evaluate, analyze, administer and maintain voice, data and wireless communications systems'. They 'must possess appropriate current DoD Information Assurance (IA) Certification'.⁷⁷

IBM

IBM lost its near-monopoly on computers at Pine Gap in the 1990s, overtaken by Hewlett-Packard, Compaq and DEC, but IBM equipment is still used extensively throughout the facility. Most of the PCs are either HP or IBM models.

⁷⁵ General Dynamics Information Technology, 'Principal Analyst, Info Security in Alice Springs, AUS', at http://www.resumeware.net/gdns_rw/gdns_web/job_detail.cfm?key=202051&referred_id=158.

⁷⁶ General Dynamics Information Technology, 'Information Assurance Engineer III TS/SCI w/Polygraph Clearance', at http://www.glassdoor.com.au/job-listing/information-assurance-engineer-iii-ts-sci-w-polygraph-clearance-JV_IC2219298_K00,63_IE18661.htm?jl=1458580085&paoIdKey=MA==.

⁷⁷ General Dynamics Information Technology, 'Info Systems Tech - TS/SCI Rqd in Alice Springs, AUS', *ResumeWare*. at http://www.resumeware.net/gdns_web/job_detail.cfm?key=1958038&referred_id=158.

IBM has also been involved in other particular programs at Pine Gap. Around 2005, for example, IBM Federal Group employed a Senior SAP Basis Administrator and SAP Security specialist in a joint Raytheon-IBM project at Pine Gap. The specialist 'installed and configured SAP Enterprise ERP (4.7) on HP G4 Intel servers, using RHEL [Red Hat Enterprise Linux] 3.0, Oracle 9i and SAN'.⁷⁸

TASC, Inc

TASC, Inc. (formerly known as The Analytic Sciences Corporation, Inc.) is headquartered at 4805 Stonecroft Boulevard in Chantilly, Virginia, about 500 metres from the NRO, in the same area as Raytheon, Boeing and Scitor are located.⁷⁹ It states on its Web-site that it 'provides enterprise systems engineering, mission-enabling architectures and value-based solutions for the national security and public safety markets'.⁸⁰

TASC has been involved in 'major facility recapitalization projects' at Pine Gap since at least 2013, when it advertised on several occasions for 'facilities engineers' to work at the station. One advertisement in early 2013 stated that TASC provides 'engineering and technical/management support, services and products in the area of facilities operations, maintenance and engineering' at Pine Gap, and that 'the successful candidate will directly support the site Facilities Manager and other government and contractor technical personnel on a daily basis to define and execute facilities-related projects and studies in support of major facility recapitalization projects and [other] duties as assigned'. 'More specifically', it said, 'projects will include but not be limited to installation of new site UPS system, chiller plant expansion, cooling tower replacement, separation of industrial and waste water, replacement of industrial sized water softener plant, replacement of disinfection system, replacement of temporary quarters buildings, and construction of fuel unloading/storage facilities'. It also said that the position provides 'guidance to the on-site Contracting Officer's Technical Representative (COTR)

⁷⁸ Chris Struck, *LinkedIn*, at <https://www.linkedin.com/in/chrisstruck>.

⁷⁹ 'The private intelligence boom has turned the Washington-area counties of Loudon, Fairfax, and Howard, where most of the contractors set up shop, into three of the wealthiest jurisdictions in the United States.' Keefe, *op.cit.* pp. 299-300.

⁸⁰ 'TASC', at <http://www.tasc.com/about-us>.

for the site's O&M Contract'. The position required a 'signed commitment for length of tour commencing on or about 1 June 2013 through 31 March 2015'.⁸¹

Scitor Corporation

Scitor Corporation is an exemplary 'pure play' company, which works mainly for 'the US Air Force in aerospace communications and satellite support services' and CIA's Directorate of Science and Technology.⁸² Its HQ is located in Herndon in northern Virginia, just north of Chantilly, but it also has a building at 14672 Lee Road in Chantilly, directly across the road from the NRO.

Scitor has also been involved 'in support of major facility recapitalization projects' at Pine Gap. An advertisement for a Facilities Engineer/Project Manager at Pine Gap in early 2014 stated that the successful candidate would 'work within the Intelligence Community to provide engineering and management support, services and products in the areas of facilities operations, maintenance and engineering'; that 'the candidate will directly support the site Facilities Manager and other Government and contractor technical personnel, on a daily basis, to define and execute mechanical, electrical and/or civil facilities projects and studies, in support of major facility recapitalization projects'; that the candidate would work 'to ensure that significant facility issues, which may arise for recapitalization requirements and systems acquisitions, placing demands on Power, Space and Cooling capabilities are identified and managed to meet current and future mission needs'; and that the candidate would provide 'guidance to on-site Contracting Officer's Technical Representative (COTR) for the site's Operations & Maintenance (O&M) contract'.⁸³

E&M Technologies, Inc

E&M Technologies, Inc. (E&M Tech), headquartered in Washington, D.C., also provides facilities engineering and management support at Pine Gap. For example, an advertisement for an Electrical Engineer to work at Pine Gap in July 2014 stated that E&M Tech provides 'facilities management, operations and maintenance, site and space use planning, facilities and project engineering, and emergency management for a

⁸¹ TASC, Inc., 'Facilities Engineer – Alice Springs, Australia', *LinkedIn*, at <https://www.linkedin.com/jobs2/view/4710248>.

⁸² Shorrock, *op.cit.*, pp. 141-143.

⁸³ Scitor Corporation, 'Facilities Engineer/Project Manager, Scitor Corporation – Alice Springs, Australia', *LinkedIn*, at <https://au.linkedin.com/jobs2/view/11612998>.

secure agency within the Department of Defense (DoD) at a joint operated facility in Australia'. It said that the 'Electrical Engineer will be responsible for the management, oversight and planning for engineering design, procurement, and construction or modifications to the installation that affect the performance of critical mission systems'.⁸⁴

In January 2015, E&M Tech advertised for a Mechanical Engineer to work at Pine Gap. The advertisement stated that the 'engineer will develop/design solutions for a variety of technical problems of moderate to extreme scope and complexity across the mechanical engineering discipline', and that 'familiarity with REVIT 2014 and AutoCAD 2014 [was] desirable'. The responsibility covers both HVAC [heating, ventilation, and air conditioning] facilities and the 'data center'.⁸⁵

SAIC

SAIC [Science Applications International Corporation], headquartered at 1710 SAIC Drive in McLean, Virginia, is one of the oldest and now probably the largest of the 'pure play' companies. 'With 43,000 employees and \$8 billion in annual revenue, SAIC is larger than the Departments of Labor, Energy, and Housing and Development combined.'⁸⁶ For many years, its 'biggest customer' was the NSA.⁸⁷

In early 2013, SAIC advertised that it had 'a job opening for an Information Technology Services Lead'. The advertisement stated that 'the IT Services Lead will organize the activities and personnel associated with providing technical services to the customer by identifying, prioritizing, and confirming resolution of reported problems with network and computing systems', and that 'the IT Services Lead will ensure that all phases of support, including installation, upgrades, and configuration issues are properly coordinated, tracked, monitored and resolved'. The position required

⁸⁴ E&M Technologies, Inc., 'Electrical Engineer', *TSSkills*, at <http://www.tsskills.com/job/electrical-engineer>.

⁸⁵ E&M Technologies, Inc., 'Mechanical Engineer', *TSSkills*, at <http://www.tsskills.com/job/mechanical-engineer-0>.

⁸⁶ Keefe, *op.cit.*, p.300.

⁸⁷ Donald L. Barlett and James B. Steele, 'Washington's \$8 Billion Shadow', *Vanity Fair*, March 2007, at <http://www.vanityfair.com/news/2007/03/spyagency200703>.

‘experience implementing INFOSEC policies and procedures’, as well as ‘two or more years experience administering SAP ERP solutions’.⁸⁸

Leidos

Leidos is an off-shoot of SAIC, but it is more involved than its parent company in intelligence and national security business. It is headquartered in Reston, Virginia, about 10 km north of the NRO HQ, but it also has an office at 14668 Lee Road in Chantilly, across the road from the NRO.

Leidos advertised for a Support Analyst to work at Pine Gap in December 2013. The advertisement stated that ‘Leidos is staffing positions supporting a US Government Agency in cooperation with the Australian Defense Forces’, and that ‘the Support Analyst will provide IT system support services and help desk services as directed across a large installation consisting of multiple facilities’. A ‘basic qualification required’ was ‘experience administering Red Hat Enterprise Linux’.⁸⁹

In March 2014, Leidos advertised the position of SAP Senior Analyst, which it also called Software Systems Architect, at Pine Gap. It stated that ‘Leidos has a career opportunity for a SAP Senior Analyst supporting a US Government Agency in cooperation with the Australian Defense Forces’, and that ‘the SAP Senior Analyst will work between Chantilly, VA and Alice Springs, AU to perform analysis, design, solution development, integration, testing, and deployment of solutions that integrate SAP capabilities on a closed network with other business systems, improving overall operational efficiencies’.⁹⁰

AECOM Technology Corporation

AECOM Technology Corporation, headquartered in Los Angeles, provides infrastructure construction, engineering design and project management services to both government and industry. In April-May 2014, it took over several tasks at Pine Gap

⁸⁸ SAIC, ‘Information Technology Services Lead, SAIC – Alice Springs, NT’, *Cleared Jobs Net*, at https://clearedjobs.net/print_job/93347/print.

⁸⁹ Leidos, ‘Support Analyst Job, Leidos, Alice Springs’, *Climber.com*, at <http://jobs.climber.com/jobs/Transportation-Logistics/Alice-Springs-/Support-Analyst-Job/51167043#top>.

⁹⁰ Leidos, ‘Software Systems Architect Job’, *Jobs, RSSING.com*, at http://reddleman49.rssing.com/chan-22498738/all_p1725.html.

previously performed by Raytheon, particularly those relating to environmental, health and safety (EHS) matters. These are administered under its FOSTERS program.

In May 2015, AECOM advertised for an Environmental, Health and Safety Officer 'on our Fosters project in Australia'. It said that 'the EHS Officer is a multi-faceted position skilled in the art and science of construction safety, environmental design specifications, electrical safety and EHS project-related tasks for facility upgrades or modification'.⁹¹

AECOM also advertised in May for an Electrical Inspector/Code Compliance Manager to work at Pine Gap as part of its FOSTERS EHS program. The advertisement stated that 'the selected candidate will be required to perform electrical inspections on all electrical installations and electrical works carried out within the JDFPG facility to ensure conformance to the National Electrical Code (NEC) and relevant JDFPG policy and procedures'; that 'the Electrical Inspector is the independent public safety advocate with no stake in a particular project other than to ensure that the end result is a safe installation that complies with all of the applicable JDFPG/NEC requirements'; and that the Inspector 'has the overall responsibility of the JDFPG electrical program including development, implementation, training and mentoring'. The minimum requirements for the position included, in addition to 'a TS/SCI w/poly' clearance, an 'ability to influence all JDFPG employees to follow safety policies'.⁹²

AECOM now also employs the nurses who work in its two medical clinics, one at Pine Gap and one 'in town', which 'provide medical services for the Joint Defence Facility Pine Gap (JDFPG) employees and their eligible dependents'. The incumbent Nurse Supervisor has held that position since December 2001, when she was employed by Boeing. She transferred to Raytheon in February 2005, and then to AECOM in April-May 2014.⁹³

On 17 January 2015, AECOM advertised the Nurse Supervisor position. The advertisement stated that 'the Joint Defense Facility Pine Gap provides medical care for all American employees and their eligible dependents', that the Supervisor was

⁹¹ AECOM, 'Environmental Health & Safety Officer in Australia', *AUS.jobs*, at <http://aus.jobs/australia-aus/environmental-health-safety-officer/6387C862F79E44EA974BFC4785367916/job/>.

⁹² AECOM, 'Electrical Inspector (NEC)', at <http://aecom.jobs/administration-jobs/new-jobs/feed/xml>.

⁹³ Sulochana Middleton, 'Sulochana Middleton's Experience', *Bayt.com*, at <http://people.bayt.com/sulochana-middleton-22214734/>.

expected to work at both clinics. It also noted that the Supervisor served as the Medical Emergency Response Coordinator, responsible for maintaining an up-to-date Pandemic Plan, ensuring that nursing staff are ‘appropriately educated in emergency response as required for their position’, and providing ‘input to the JDFPG Safety and Emergency Management Committee as required’.⁹⁴

AECOM employs a Security Specialist at Pine Gap who is responsible for ‘[execution of] internal security controls’ at the facility. According to the incumbent specialist, he ‘develops, implements and administers an Operational Security program, security education, procedures and physical controls to ensure compliance with government and company regulations/requirements on large and/or complex programs’, and ‘performs Physical Security duties and responsibilities within JDFPG to ensure compliance with company and government regulations/requirements’. This person transferred from Raytheon to AECOM in 2014; he had held same job for Raytheon since 2012.⁹⁵

In May 2015, AECOM advertised for a Facility Architect ‘on our Fosters contract in Alice Springs’. It said that ‘the selected candidate will lead new design efforts for building improvements and building expansion’, and that ‘the selected candidate will direct architectural designers and coordinate designs with site engineers’.⁹⁶

AECOM also organises the Defence Work Experience Program at Pine Gap, which involves work experience for selected senior College students in Alice Springs. The students are given ‘an introduction to trade work’, and learn ‘the importance of skills such as communication and being part of a team’.⁹⁷

⁹⁴ ‘AECOM Jobs: Australia, Nurse Supervisor’, Jobs, *RSSING.com*, at http://lead-smelting28.rssing.com/chan-14965878/all_p751.html.

⁹⁵ R. Gonzales, ‘Resume’, *Indeed Resume*, at <http://www.indeed.com/r/R-Gonzales/48c6e1f02c7279ce?sp=0>.

⁹⁶ AECOM, ‘Facility Architect in Australia’, at <http://aus.jobs/australia-aus/facility-architect/8A3583D9C7FF44368DB467192FAD066D/job/>.

⁹⁷ Centralian Senior College, ‘College Update’, 7 April 2015, at http://centralianseniorcollege.com.au/files/pdfs/Term_1_Week_10.pdf.

Security companies

Around 1998, Wormald Fire Systems installed fire suppression systems produced by American Fire Company and a VESDA [Very Early Smoke Detection Apparatus] System 'to American standards' at Pine Gap.⁹⁸

White Sand Security (WSS) Inc., headquartered in McLean, Virginia, provides physical security systems and consulting services at Pine Gap. The company specialises in designing and installing physical security systems, including advanced technical surveillance systems, for US government intelligence agencies and their facilities. It employs only US citizens, and all of its service personnel are 'cleared to the TS/SCI level [with Polygraph]'.⁹⁹

Some implications

The corporate sector is now thoroughly involved in a wide variety of management, operational and maintenance roles at Pine Gap, including some which are central to the facility's core operations. While the base is nominally a 'joint' United States-Australian facility, virtually all of the major companies involved are U.S. corporations or their Australian branches – highlighting the heavily asymmetrical character of the 'jointness' involved in all aspects of Pine Gap.¹⁰⁰

Moreover, corporations are not necessarily the best or most objective interpreters of US-Australian security and intelligence priorities or Australia's national interests. The companies are primarily interested in securing contracts and making profits. Their employees at Pine Gap are mainly concerned with enhancing their technical skills, gaining promotions and obtaining higher salaries – substantially higher than those paid to government employees carrying out the same functions.¹⁰¹ The result is, as one observer of the wider picture of the 'symbiotic' relationship between the U.S. intelligence community and the private sector put it,

⁹⁸ Eoin McStay, *LinkedIn*, at <https://au.linkedin.com/pub/eoin-mcstay/76/835/978>.

⁹⁹ White Sand Security, 'Our Customers and Projects', at http://whitesandsecurity.net/customers_projects.php.

¹⁰⁰ Richard Tanter, 'The US military presence in Australia: asymmetrical alliance cooperation and its alternatives', *The Asia-Pacific Journal*, Vol. 11, Issue 45, No. 1, 11 November 2013, at <http://japanfocus.org/-Richard-Tanter/4025/article.html>.

¹⁰¹ According to the head of personnel for the U.S. intelligence community, in 2008 agencies 'spend about \$125,000 a year for a government employee, compared with about \$207,000 for a contract worker.' Greg Miller, '27% of U.S. spy work is outsourced', *Los Angeles Times*, 28 August 2008, at <http://articles.latimes.com/2008/aug/28/nation/na-cia28>

'However patriotic they might be, ...there is a subtle but fundamental misalignment between [contractors'] priorities and incentives and those of their clients in America's intelligence community.'¹⁰²

Advocates of the outsourcing of U.S. intelligence work maintain that two key requirements of contemporary intelligence are 'flexibility' and a capacity to 'surge' operations in response to a changing environment:

'... intelligence contractors ensure the necessary organizational flexibility that is pivotal in an unpredictable world, where the intelligence community must be able to increase or decrease its resource base at very short notice.'¹⁰³

In support of the need for such a surge capacity, advocates often point to the post-9/11 environment. Yet, a decade and a half later, elevated contractor numbers show no sign of diminishing.

Moreover, the companies involved at Pine Gap have poor operational security (OPSEC) standards. Many of their job advertisements have evidently escaped scrutiny by the official agencies. Their employees, being civilian workers on relatively short term contracts, rather than intelligence officials, have no alternative but to seek further work by describing their jobs on social media and highlight their skills on *LinkedIn*.¹⁰⁴

The companies also tolerate behaviour which would not be acceptable in the case of the CIA and NSA personnel at the station. Rosenberg has reported, for example, that in the early 2000s, 'one contractor' was forced to leave Alice Springs because of 'unacceptable behaviour' in a bar in the town. However, 'he survived this incident, managed to retain his security clearance, and continues a successful career with the same contractor at another overseas posting'.¹⁰⁵

Where almost three-quarters of the personnel at Pine Gap are employees of private U.S. corporations and their sub-contractors, and fewer than one in ten were Australian government employees, the question of whether this facility, which the Australian government maintains operates with its 'full knowledge and consent', does

¹⁰² Keefe, *op.cit.* p. 297.

¹⁰³ Morten Hansen, 'Intelligence Contracting: On the Motivations, Interests, and Capabilities of Core Personnel Contractors in the US Intelligence Community', *Intelligence and National Security*, 29:1, p. 78.

¹⁰⁴ Some contractors, including former intelligence agency employees, appear all too ready to disclose their work at sensitive intelligence facilities. Philip Dorling, 'Spies blow their cover through the internet', *The Age*, 26 December 2012, at <http://www.theage.com.au/technology/technology-news/spies-blow-their-cover-through-the-internet-20121225-2bvaf.html>

¹⁰⁵ Rosenberg, *op.cit.*, p. 135.

so in the national interests of both governments, or indeed, the wider human interest, needs closer assessment.¹⁰⁶

¹⁰⁶ Joint Defence Facility Pine Gap: Full Knowledge and Concurrence, *Hansard (House of Representatives)*, 26 June 2013, p. 7071; and Richard Tanter, *The 'Joint Facilities' revisited – Desmond Ball, democratic debate on security, and the human interest*, Special Report, Nautilus Institute for Security and Sustainability, 12 December 2012, at <http://nautilus.org/wp-content/uploads/2012/12/The-Joint-Facilities-revisited-1000-8-December-2012-2.pdf>.