GOVERNMENT OF WESTERN AUSTRALIA

ChemCentre
EXPERT SOLUTIONS

Annual Report 2018–19

Welcome

This report aims to inform ChemCentre's clients, community and other stakeholders about our organisation, its strategic priorities, performance and governance for the 2018-19 financial year.

About this report

This annual report describes the performance and operation of the Chemistry Centre WA (ChemCentre) during 2018–19. The report has been prepared according to parliamentary reporting and legislative requirements and is arranged as follows:

Overview

Provides an overview of ChemCentre's work for the year, including an introduction to ChemCentre's vision, values and strategic directions, words from our Chair and Chief Executive Officer, information about our organisation, and highlights of 2018-19.

Our performance

Summarises our performance against agreed financial and service delivery targets, and how we help the Government achieve its goals. This section includes our financial statements and our performance against Key Performance Indicators.

Significant issues

Key issues for ChemCentre, including current and emerging trends and the approaches we intend to take to address these trends in the future.

Disclosure and compliance

Reports on governance, public accountability, financial management, information management, people management and equity and diversity.

Appendices

Additional information and data to supplement the report, including a list of acronyms used in the report.

Copies and feedback

This report is available online at
www.chemcentre.wa.gov.au/News-Events/Publications/Annual-Report

Hard copies may be viewed at the ChemCentre office or at the State Library of Western Australia, Perth Cultural Centre, Northbridge, WA.

Copies of this publication are available in alternative formats upon request.

Feedback on this report is encouraged and should be sent to **enquiries@chemcentre.wa.gov.au.**

Contents

Statement of Compliance

For year ended 30 June 2019

Hon. Dave Kelly MLA.
Minister for Water; Fisheries; Forestry; Innovation and ICT; Science.

In accordance with Section 63 of the *Financial Management Act 2006*, we hereby submit for your information and presentation to Parliament, the annual report of ChemCentre for the financial year ended 30 June 2019.

The annual report has been prepared in accordance with the provisions of the *Financial Management Act 2006*.

Denise Goldsworthy
Chair
ChemCentre Board
28 August 2019

David Blyth
Chair of Finance and Growth Committee
Member of Governing Board
28 August 2019

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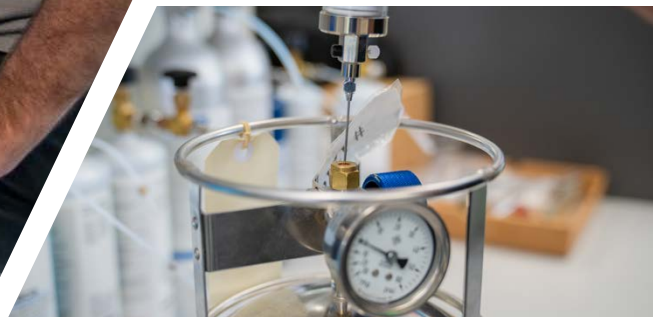
Overview



Overview

Vision, values and strategic direction

Our vision

ChemCentre is Western Australia's leading provider of specialised chemical and forensic science services.

Our mission

ChemCentre provides chemical and forensic science services for a safe and prosperous Western Australia.

Our Values

Integrity

We operate a sustainable business that strives to operate safely, ethically, sustainably and with integrity in all that we undertake.

Respect

We respect our clients, our staff and the responsibilities that we are charged with.

Technical Excellence

We advocate technical excellence and utilising excellent science to inform and improve everything that we do.

Innovation

Through method development and targeted, collaborative research and development we continually seek to improve our science for the benefit of our stakeholders.

Strategic direction

The community of Western Australia is the primary beneficiary of ChemCentre's services. Our major clients include the Government of Western Australia (directly and through client Departments), Government Trading Enterprises (GTEs), the public and industry. ChemCentre strives to achieve its mission of ensuring a safe and prosperous Western Australia by providing specialised services to a range of clients.

Our overarching strategic objectives are to:

- **Mitigate risks to government** associated with public health, public safety and the environment
- **Keep the State safe** during times of emergency and crisis
- **Support the State justice and policing systems**
- **Support the sustainable economic development** of the State
- **Support science capability** and engagement in the State
- **Develop our people, enhance organisational capability and financial sustainability**

Overview

At a Glance

Research and Innovation

Honey Bee Products

Water Sensitive Cities

Fight Food Waste

Worked with 5 Co operative Research Centres

Future Battery Industries

Contamination Assessment and Remediation of the Environment (CARE)

$2.5m Capital investment

24/7 HAZMAT emergency response

Attended 33 HAZMAT emergencies

100% emergency response time compliance

36 landfill site visits to classify HAZMAT waste

25,000 fibres in our database – helping to solve serious crime in WA

Assisted in **120 major and serious crime cases**

58 years Longest continuous NATA accreditation in Australia

410 compressed air samples analysed

Illicit drug seizures
8,000+ samples analysed
18,000 analytical results
7,000 court reports

Coronial toxicology
2,100+ cases
14,000+ samples analysed
33,000 results
2,000 reports

Traffic enforcement toxicology
10,000+ samples analysed
21,000+ analytical results
5,000 court reports

Racing chemistry
60,000 analyses performed

Expertise for **45 committees and advisory panels**

Scientific Services Division
43,000+ samples analysed
860,000 analytes reported

15 peer-reviewed papers

Outreach and education reached 10,000+ people

6 PhD and Honours students supported

55 conference presentations

16% social media followers


ChemCentre
EXPERT SOLUTIONS
T - EMERGENCY RESPONSE

From the Chair

I am pleased to report that this year has seen ChemCentre consolidate financial and performance agreements to ensure our on ongoing viability in the medium term.

ChemCentre's business model uses fee-for-service consulting work to help offset the cost to Government of delivering on our statutory obligations. ChemCentre's Emergency Response capability is just one of the many integrated services ChemCentre provides to Western Australia. It is a capability that arises from the scientific expertise embedded within the organisation; expertise that places ChemCentre at the forefront national and internationally in all aspects of analytical chemistry and forensic science.

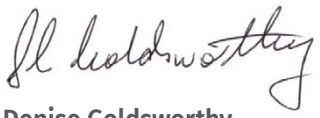
Our Strategic Asset Plan was refreshed through the State Budget with an additional $1.5m per annum to total $2.5m per year. We have invested these funds in new equipment and developed new analytical techniques and methodologies. We continue to build expertise and expand our range of services. For example, we have sought and achieved accreditation for PFAS testing, a group of persistent chemicals which have been used in firefighting foams and many other products. This has required considerable foundational work but will enable us to provide additional services in the future and should generate revenue in coming years.

This year, we have sought to diversify our research portfolio and have broadened our involvement in Cooperative Research Centres (CRCs) and other collaborations. We have also revised our Research and Innovation Strategy with the intention that this will create a pipeline of work in the future across a range of industries and types of chemical risks, bringing greater certainty to our revenue streams.

ChemCentre is able to provide expert scientific services to the people and government of Western Australia because we have outstanding people working in and for the agency. I would like to thank my fellow Board members and all ChemCentre staff for their ongoing service. This year we welcomed Kylie Whiteley to the Board and will soon farewell Lianne Cretney-Barnes. Lianne will have served on the ChemCentre Board from August 2007 until end of July 2019, much of it as Deputy Chair, making her the longest serving ChemCentre Board member. I thank her for her substantial contribution to the organisation.

I would also like to acknowledge Chief Executive Officer Peter McCafferty, who has done an outstanding job in bringing greater cohesion to the organisation, while also strengthening a number of key stakeholder relationships, expanding our research focus and working towards consolidating our business position over the past year.

I am confident that we go forward to 2019-20 in a solid position from which we can continue to serve the government and people of Western Australia.



Denise Goldsworthy
Chair, ChemCentre Board

From the CEO

This year ChemCentre reviewed its Research and Innovation Strategy. While maintaining our core role of providing world-class science to the Western Australian government, industry and public, we expanded our focus to have greater national impact.

We have strategically done this through our involvement in CRCs, which enables us to leverage our own expertise with that of other national and international organisations and attract research investment to WA. We are active participants in the CRC for Honey Bee Products (Honey CRC), the CRC for Contamination Assessment and Remediation of the Environment (CRC CARE), Future Battery Industries CRC (FBI CRC), CRC for Water Sensitive Cities (CRC WSC) and the Fight Food Waste CRC (CRC FFW). Other key collaborators in our Research and Innovation portfolio include the Minerals Research Institute of Western Australia (MRIWA), National Institute for Criminalistics and Criminology (NICC) (Belgium), many WA government departments, universities and industry. Our research also reaches beyond Australian borders and into the international arena, with research collaborations, conference presentations and involvement in international professional organisations. The capability and experience we garner through our research underscores and informs our day to day activities and the services we provide, to the benefit of WA.

This year we have increased our emphasis on stakeholder engagement. We have improved our transparency with larger clients to facilitate setting in place strengthened, longer-term contracts. Regular meetings with other government departments have led to further benefits, such as improved inter-agency working relationships with the Department of Water and Environmental Regulation (DWER) and Department of Fire and Emergency Services (DFES). Our collaboration with Racing and Wagering WA (RWWA) has led to us commissioning new instrumentation and analytical techniques.

Internally, we are working towards becoming an even more integrated and cohesive organisation. This year we have upgraded internal systems, are pursuing quality accreditation under ISO 9001 and have commenced a new project to integrate our two Laboratory Information Management Systems (LIMS).

We work hard to ensure we provide our staff with a safe and secure environment that encourages personal growth. We continue to demonstrate the benefits of a diverse workforce, as measured by a near 50:50 gender balance and other favourable measures of diversity across all levels of the organisation. We have built on our NATA accreditation and reconfirmed our commitment to workplace safety, evidenced by our continuing JASANZ accreditation. I thank all staff for their ongoing contributions to ChemCentre.

We are fortunate to work with the guidance of a highly skilled and dedicated Board, and I thank them for their ongoing support. This year Lianne Cretney-Barnes resigned her Board position after 12 years of service, during which time she made an outstanding contribution. Kylie Whiteley joined the Board this year, bringing valuable expertise in law and policing.

In all, 2018-19 has been a year of ensuring we remain a future-focused, technically competent organisation as we fulfil our role as WA's leading provider of chemical and forensic science services now and into the future.

Peter McCafferty
Chief Executive Officer

Who We Are

ChemCentre is a statutory authority within the Western Australian Government operating under the *Chemistry Centre (WA) Act 2007.* ChemCentre has a long and proud heritage protecting the State tracing its origins back to the gold rush in the 1890s.

Our primary purpose is to provide chemical services and expertise to mitigate chemistry related risks to the state, protect the community and support sustainable development.

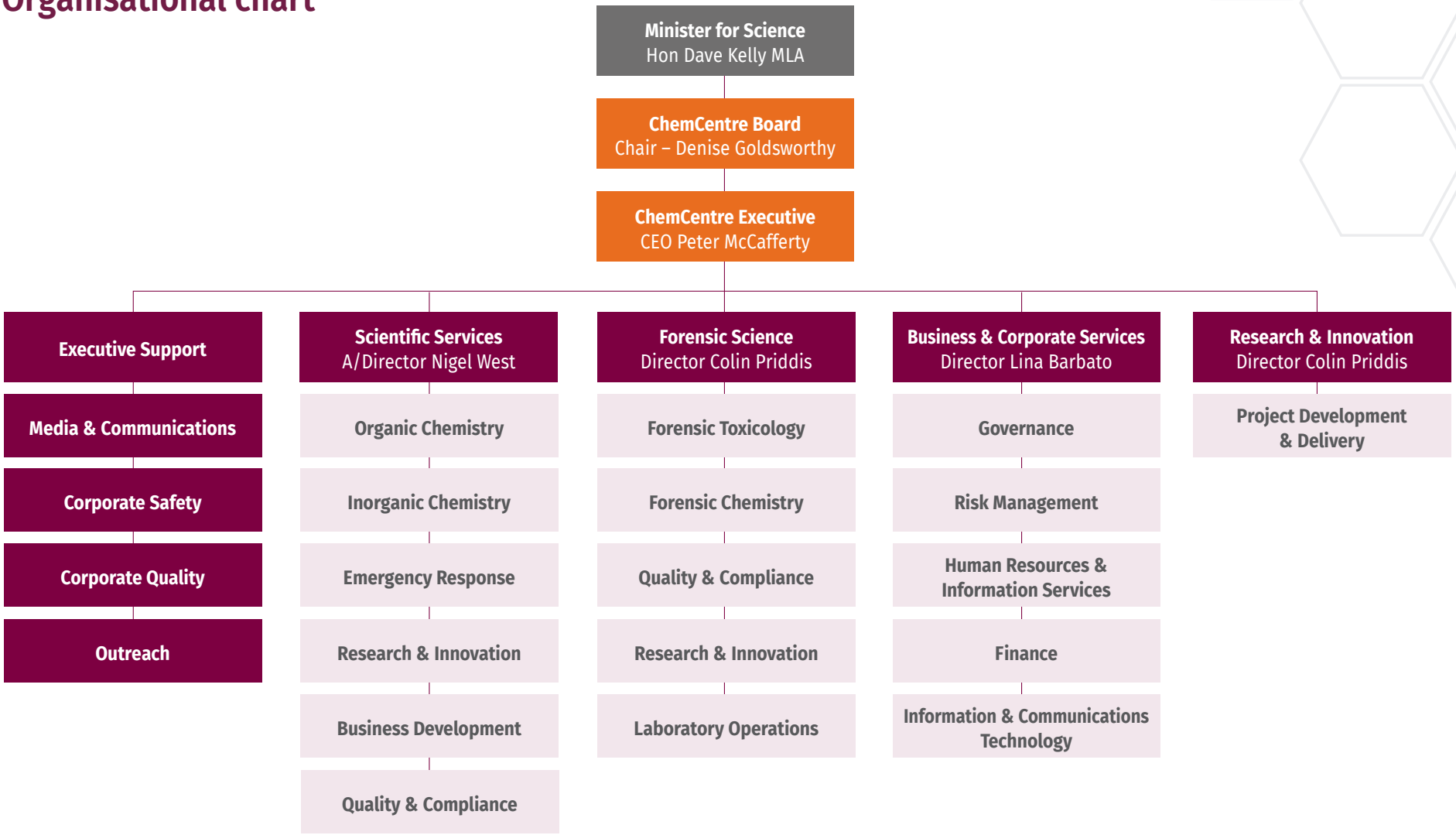
We work from analytical laboratories housed within the Chemistry and Resource Precinct at Curtin University, Bentley, and proudly rank many internationally-renowned chemists among our 145 staff

ChemCentre offers a unique combination of scientific excellence and applied scientific expertise:

- Internationally recognised expertise and experience in our specialist fields
- State of the art analytical equipment and methods
- National Association of Testing Authorities (NATA) accreditation across many of our specialist domains
- Applied research and innovation to identify and develop new methods to assess emerging risks
- Collaborative scientific networks at the state, national and international levels
- Assisting Western Australian businesses to maintain a market advantage through targeted chemistry-based science

Organisational Structure

Organisational chart



Legislative Framework

Enabling Legislation

ChemCentre was established as a statutory authority under the *Chemistry Centre (WA) Act 2007* on 1 August 2007.

Responsible Minister

The Hon. Dave Kelly, Minister for Water; Fisheries; Forestry; Innovation and ICT; Science.

Other Key Legislation Impacting on ChemCentre's Activities

In performing its functions, ChemCentre complies with the following relevant written laws:

- *Auditor General Act 2006*
- *Biosecurity Act 2015*
- *Biosecurity Regulations 2016*
- *Biosecurity Agricultural Management Act 2007*
- *Contaminated Sites Act 2003*
- *Coroners Act 1996*
- *Customs Act 1901*
- *Dangerous Goods and Safety Act 2004*
- *Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007*
- *Disability Services Act 1993*
- *Emergency Management Act 2005*
- *Emergency Management Regulations 2006*
- *Environmental Protection Act 1986*
- *Environmental Protection (Controlled Waste) Regulations 2004*
- *Equal Opportunity Act 1984*
- *Health (Miscellaneous Provisions) Act 1911*
- *Financial Management Act 2006*
- *Fluoridation of Public Water Supplies Act 1966*
- *Freedom of Information Act 1992*
- *Health Act 1911*
- *Industrial Hemp Act 2004*
- *Industrial Relations Act 1979*
- *Medicines and Poisons Act 2014*
- *Minimum Conditions of Employment Act 1993*
- *Misuse of Drugs Act 1981*
- *Occupational Safety and Health Act 1984*
- *Privacy Act 1988*
- *Public Sector Management Act 1994*
- *Radiation Safety Act 1975*
- *Radiation Safety (General Regulations) 1983*
- *Road Traffic Act 1974*
- *Road Traffic Legislation Amendment Act 2016*
- *Salaries and Allowances Act 1975*
- *State Records Act 2000*
- *State Supply Commission Act 1991*
- *State Trading Concerns Act 1916*
- *Statutory Corporations (Liability of Directors) Act 1996*
- *Workers' Compensation and Rehabilitation Act 1981*

Board

Board

Each member of the Board is appointed by the Minister for Science and selected for the relevant expertise that they bring. Appointments (or re-appointments) are for three-year terms, with a staggered rotation of Board membership.

During 2018-19, Dr Lianne Cretney-Barnes tendered her resignation from the Board after a long tenure. Her replacement is expected to be appointed early in 2019-20. Kylie Whiteley joined the Board on 30 June 2018.

Denise Goldsworthy (Chair)

(appointed April 2014)

Denise Goldsworthy, FTSE, FAIM, GAICD, is the founder of Alternate Futures Pty Ltd, a specialised consultancy established specifically to work at the interface between Australia's research organisations, tech-start-ups and industry. Denise previously worked as a senior executive for Rio Tinto, and before that spent 17 years with BHP Steel. Among Denise's honours is being named the 2010 Telstra Australian Business Woman of the Year.

Denise also has a portfolio of Independent Non-Executive Director roles, including Export Finance Insurance Commission; Chair of Minerals Research Institute of WA (MRIWA); Western Power; Leichhardt Industrials; a member of Council at Edith Cowan University; a member of the Cooperative Research Centres Advisory Committee (CRCAC) and Chair of Trustees for the Navy Clearance Diver Trust.

Board

Dr Lianne Cretney-Barnes (Deputy Chair)

(appointed August 2007)

Lianne Cretney-Barnes has held senior positions in both private and public sector organisations for over 20 years and has considerable experience in governance, leadership and strategy development. Lianne is also Deputy Chair for Racing and Wagering WA, Chair of the Integrity Assurance Committee and Chair of Australia's Southwest Regional Tourism Organisation.

Lianne has been recognised for her business development skills and commercial acumen, with awards for enterprise and market development including the Edith Cowan University Vice-Chancellor's Award for Enterprise in 2003. Lianne has a doctorate in Business Administration and is a Fellow of the Australian Institute of Company Directors and the Australian Institute of Management.

David Blyth

(appointed July 2014)

David Blyth is Director/ Principal of a consulting practice working with senior executives and boards on strategy development and execution, organisation design and executive talent management. He has more than 30 years' experience in business, industry associations (Chamber of Mines WA) and business schools. He was previously Executive Director of IFAP (a safety-based industry association), launched an Executive Master of Business Administration program for Curtin University, and was Program Director on Curtin's Executive Master of Business Administration.

David is known for his skills in guiding strategy development and the translation of the strategy into programs and initiatives, and for working with, and evaluating, executive teams. His doctoral research explored organisational barriers to transformational leadership. David has worked widely in Australia and on assignments in China, South Africa, Ghana, United States and United Kingdom.

Mark Thomas

(appointed November 2014)

Mark Thomas was appointed Group Manager Technology & Autonomy at Fortescue Metals Group Limited in April 2019. He has held senior positions at Fortescue including Group Manager Procurement & Information Services, Group Manager Infrastructure Services, Company Secretary, Group Manager Finance and Head of Finance & IT. Prior to Fortescue, Mark held senior finance and accounting positions with the Goldfields Australia Group and with a number of professional service providers.

With more than 20 years' experience in the mining and professional services industries, Mark has gained comprehensive experience in finance and accounting, governance and risk, information technology and business administration. He has a Bachelor of Commerce from the University of Western Australia, Graduate Diploma in Applied Corporate Governance, a Master of Business Administration and is a Certified Practising Accountant and a Fellow of Governance Institute of Australia.

Board

Dr Ian Harrison, Board Member

(appointed November 2017)

Ian is a research scientist with over 30 years' experience managing R&D programs and projects. Ian was Director of R&D for Alcoa's Global Refining system and previously held positions with CSIRO and Eastman Kodak.

Ian has held leadership positions with a range of industry and academic committees, including a Board role with the Parker Centre for Hydrometallurgy, and an Adjunct Professorship with RMIT University. He was also Chair or member of a number of industry advisory panels and Chair of the Alumina Technical Panel and AQW Inc. which are collaborative alumina industry groups. Ian has a PhD in photoelectrochemistry and an Honours Degree in Chemistry. In 2015 Ian was awarded the prestigious RK Murphy award by the Royal Australian Chemical Institute (RACI) for his contribution to industrial chemistry in Australia.

Tresslyn Walmsley, Board Member

(appointed November 2017)

Tresslyn Walmsley is the CEO of InterGrain, a leading national wheat and barley breeding business, where she manages research and commercial relationships. Tress began her career in the small WA wheatbelt town of Three Springs working for the Department of Agriculture Western Australia as an agronomist. She then moved to managing the TOPCROP program in WA. In 1999, Tress won the Telstra Young Business Woman for WA.

In 2000, Tress changed career focus, moving into intellectual property and commercialisation. Tress played a key role in the development of the National End Point Royalty system used in the grains industry across Australia. In 2015, Tress was named the WA Rural Woman of the Year.

Kylie Whiteley, Board Member

(appointed June 2018)

Kylie Whiteley has been a WA police officer for more than three decades, serving across most facets of policing, but predominantly as a detective. More recently she has held leadership roles with WA Police, previously as Commander within the Crime Portfolio and currently the Assistant Commissioner for the Operations Support Portfolio.

Kylie is a graduate of the Australian Institute of Police Management's Leadership in Counter Terrorism and Police Leadership Strategy Programs. She holds a Master in Leadership and Management from Charles Sturt University, a Graduate Certificate of Business (Leadership) and an Associate Degree in Social Science (Police Studies) from Edith Cowan University. She was awarded the Australian Police Medal in 2014 in recognition of her Services to Policing.

Executive

Senior Executive Officers

Peter McCafferty

Acting Chief Executive Officer

Peter McCafferty was appointed CEO in June 2017. Prior to this he was Director of the Scientific Services Division at ChemCentre. Before joining ChemCentre, Peter worked at WMC, Genalysis and Wesfarmers CSBP.

Peter has chemistry and business qualifications from Curtin University and is a graduate member of the Australian Institute of Company Directors. He has held positions with the Royal Australian Chemical Institute (RACI), Australian Water Association (AWA), Water Research Foundation (USA) and the Australian Institute of Management (WA). Peter is a recipient of the AWA's Don Montgomery Award and the RACI's Wilf Ewers Citation.

He has over 50 research publications, co-authored one book, and has represented ChemCentre at many state, national and international forums. In 2019 he was invited to join Curtin's Molecular and Life Sciences Advisory Board.

Nigel West

Director Scientific Services Division (Acting)

Nigel West is a graduate of Curtin University chemistry school, AIM Leadership programs and a graduate member of the Australian Institute of Company Directors. He has extensive experience in the public and private sectors, utilising a range of analytical chemistry techniques to solve problems for industry, government and the public. Nigel has a range of publications including determining the fate of drilling fluids in the North West shelf, identifying signature odours of sub-Antarctic seabirds and quantifying disinfection by-products from swimming pools. He has and continues to represent ChemCentre on State advisory committees.

Colin Priddis

Director Forensic Science Laboratory

Director Research and Development

Colin Priddis has over 35 years' experience as a forensic scientist, delivering services and expert opinion to clients, including WA Police, Office of the State Coroner, and Racing and Wagering WA. He has formal qualifications in chemistry, pharmacology and IT and memberships in professional societies related to management, forensic science and toxicology. Colin represents ChemCentre on numerous state and national committees related to Forensic Science, Australian Standards development, Emergency Response and Research & Innovation.

Lina Barbato

Director Business and Corporate Services

Lina Barbato joined the executive team as the Director Business and Corporate Services in February 2018. Lina brings extensive senior management, project management and governance experience spanning across a breadth of public sector agencies that includes undertaking major reforms over a 25-year career. Lina is a graduate member of the Australian Institute of Company Directors and holds Board Director memberships with Bentley and Community Districts Bendigo Bank and Advocare where she is Chair of the Audit and Risk Committee.

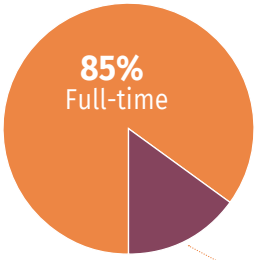
Staff Profile

Workforce profile 2018-19

145
employees
136 full time equivalent (FTE)

Supporting workforce flexibility (%)

Working arrangements:

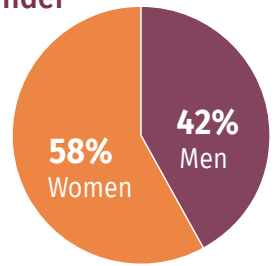


15% Part-time

Diversity groups

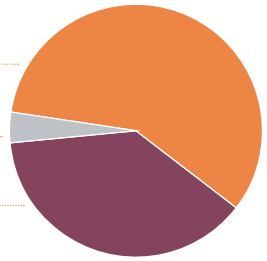
4% aged under 24
38% aged over 45
2% with a disability
24% People from culturally and linguistically diverse backgrounds

Gender



Age profile

25 to 44 years **58%**
24 years and under **4%**
45 and over **38%**



What We Do

Our work aligns with two broad, high level government goals:

- **Strong communities** – Safe communities and supported families
- **Future Jobs and Skills** – Grow and diversify the economy, create jobs and support skills development

ChemCentre delivers services and advice to support these goals is organised around two main areas: forensic science and scientific services, which incorporates emergency response. We also conduct research, education and outreach activities, and are supported by a business and corporate services division. Our work encompasses all the major industries in WA and provides essential chemical information and services in policing, justice, public health and safety, and environmental protection.

We are committed to sustainability, and our work contributes to the State's environmental and economic sustainability. We operate under the highest standards of procurement and governance.


SAMSUNG

Operations

Forensic Science

ChemCentre's forensic science laboratory provides analytical services in forensic toxicology, chemical criminalistics, drug analysis and racing chemistry.

The scientifically robust, legally defensible testing and expertise we provide to State and district coroners, the WA Police and other government agencies supports WA's coronial and justice systems. Our specialists examine a range of evidence, including blood and urine samples from coronial investigations into sudden or unexplained deaths, and oral fluids from roadside drug testing. We characterise trace evidence, such as explosives, accelerants, gunshot residues, paint, hair and fibres, for criminal investigations. Our proteomics capability – that is our ability to systematically identify and quantify the proteins of biological systems – makes us a national leader in forensic methodology and enhances our ability to provide information to the coroner, police, courts, and racing and sports agencies.

The citizen science project we undertook involving Lynwood High School came to an end in late 2018. The data collected has now been collated and is being used in our fibres database, which now contains around 25,000 fibre samples. These random fibre collections improve our understanding of the occurrence of fibres in a random population, enabling us to understand the likelihood and significance of finding a matching fibre found at a crime scene. The database is now being investigated at a national level for data sharing and utilisation. Our work has been published in peer-review literature and we are collaborating with the *National Institute for Criminalistics and Criminology Belgium* (NICC Belgium), holders of the only other similar database in the world.

We remain at the forefront of forensic drug analysis, and our ongoing work informs the work of WA Police and Health Department, including hospital emergency departments. Our general drug analysis enables us to inform national and state agencies on matters of illicit drug trends, and alert them to new psychoactive substances as they arise in the community. We are able to do this very effectively in part because our toxicology laboratory and our illicit drug laboratory are co-located, enabling us to rapidly transfer data on what is being seen on the streets to traffic toxicology, coronial toxicology and criminal toxicology.

We produce quarterly drug trend information, monthly tablet updates and a drug alert on the emergence of new psychoactive substances to inform law enforcement and health agencies about illicit drug chemistry, issues and trends occurring in WA.

Our project with Royal Perth Hospital – WA Illicit Substance Evaluation Study (WISE) – is ongoing. It involves comparing observed symptomology with the drugs identified through toxicological analysis to enable better treatment of emergency cases in the future. Our work has been presented, in broad terms, at conferences nationally. Other states are now setting up similar research projects with a view to establishing a nationwide early warning system.

This year, over 10,000 samples from traffic enforcement operations were submitted to us for toxicological analysis, resulting in more than 21,000 analytical results. These analyses correlate to the production of about 5000 court reports used in the enforcement of the Road Traffic Act.

Operations

We have implemented significant improvements in technology and methodology for detecting drugs of interest in the racing industry. Detection limits are now down to 1 ng/ml across a range of drugs classified under the rules of racing, including inorganics such as arsenic and cobalt and peptides such as dermorphins, growth hormones, toxins and EPO. Across the various racing codes approximately 60,000 analyses were performed on the thousands of samples submitted.

This year, we analysed over 8,000 samples from illicit drug seizures, which required more than 18,000 analysis results and correlated to the production of approximately 7,000 court reports used in the enforcement of the Misuse of Drugs Act. We finalised a project to streamline the analytical process and this has eliminated the existing drug analysis backlog and is preventing backlogs from recurring.

The forensic science laboratory continues to assist community and industry with matters of clandestine drug laboratory remediation.

The physical evidence team was involved in approximately 120 major and serious crime cases over the year. These involved a wide range of evidence types including accelerants, explosives, fibres, glass, gunshot residue, metals, paint, polymers and soils. One of these cases involved the final reporting of a multiple homicide investigation spanning more than 20 years.

With the replacement of our aged X-ray diffractometer (XRD) we are now revitalising our soil comparison and mineralogy capability. In addition to faster sample throughput, bringing the analysis time for samples down from 8 hours to 5 minutes, the new XRD will yield improved data quality and mineralogical interpretations, ultimately leading to more rapid investigative information and higher value evidentiary interpretations.

Our ability to work with large protein molecules through our proteomics capability has been enhanced this year by deploying new technology. This has enabled us to create validated methods for a number of peptides and proteins of concern in forensic toxicology. For example, our ability to detect insulin has been enhanced to the extent that we can now detect the type of insulin someone has used to an evidentiary standard. In coronial cases involving death from insulin, this can be crucial evidence that was not previously available.

Using our proteomics capability, we have methodology to enable us to identify common snake venoms, thus providing tools for forensic pathologists and coroners to use in coronial investigations. We will extend this methodology to other venoms and toxins, including bee venom and marine-based toxins. ChemCentre is the only forensic laboratory in Australia with this capability for such a range of peptides.

Operations

Scientific services

ChemCentre provides scientific services, analysis and advice of the chemistry associated with air, water, soil, biota (animal and plant tissues), mining, occupational health and safety, agriculture, petroleum, manufacturing and processing.

Our advice informs government and industry in their decisions in managing chemical risk. Our expertise contributes to WA's sustainable economic development while ensuring people and the environment are safeguarded against chemistry related risk.

We conduct fee-for-service consulting work which helps to offset the cost to government of ChemCentre delivering on its statutory obligations. Our fee-for-service work also enables our staff to maintain and enhance their skills and knowledge and routinely operate the equipment necessary to address the hazardous materials (HAZMAT) and suspected chemical, biological and radiological (CBR) threats across the state, and to meet other government requirements.

This year, we refreshed our instrument fleet with a range of instruments. This included gas chromatographs, LCMS/MS, ICPMS, ICPOES, a flow injection analyser and a range of devices to improve sample throughput.

We have developed new testing capabilities, including a honey authentication and certification process. We have also developed a medicinal cannabis testing capability, in response to changing federal legislation regarding the use of medicinal cannabis and industrial hemp.

Algal blooms can occur in the Swan and Canning Rivers, ChemCentre provides analytical services in water testing to government agencies charged with managing the rivers. We are developing capabilities to monitor for mycotoxins in the Swan River and to provide better data to DWER and DBCA.

ChemCentre also plays a role in air quality monitoring and contributed to dust monitoring projects with other government departments. Our work on providing enhanced ventilation has improved workforce safety in underground mining.

Our work with the Leaching Environmental Assessment Framework (LEAF) is ongoing. The technology, which ChemCentre and collaborators introduced to Australia, combines geotechnical modelling and |laboratory-based tests to help understand how industrial byproduct materials (e.g. from the resources and energy sectors) will behave in the environment in the long term. LEAF is now well established and accepted by the regulators and the mining industry. It is set to expand into the lithium industry and will likely become the default framework for conducting environmental assessments within the mining industry.

We have also developed a medicinal cannabis testing capability, in response to changing federal legislation regarding the use of medicinal cannabis and industrial hemp.


COTTON

Operations

Emergency Response

Emergency Response is a core function of ChemCentre and provides an essential service to Western Australia. We maintain an on-call capability 24-hours a day, every day of the year across WA.

At any time of day or night, emergency response staff and a mobile laboratory are on call to attend incidents involving hazardous materials (HAZMAT), including suspected chemical, biological or radiological (CBR) incidents. A regional aerial response capability is available with Department of Fire and Emergency Services (DFES) collaboration. The roster draws upon 23 expert ChemCentre staff, who also perform other essential scientific services and research within the organisation. Our Emergency Response capability is intricately bound within ChemCentre's broader instrumental, intellectual and asset capability.

In 2018-19, ChemCentre responded to 33 incidents, all of which were attended within the specified time and satisfactorily resolved. One of these incidents involved the use of the aerial response capability in collaboration with DFES. The aerial capability enabled us to attend and resolve this incident, which involved a drum of unknown chemical found on a beach near Denmark on the south coast of WA, much more quickly than it otherwise would have been.

Emergency Response is constantly evolving, both in terms of the types of incidents, the substances involved and the way we respond. This, along with our obligations under the OHS Act, makes it mandatory for us to continue to provide skills, professional development and training to staff on the frontline of dealing with incidents. We keep abreast of emerging trends and technology, and up to date with scientific developments. We are continuously improving to make sure that whenever an incident occurs, we can respond rapidly, appropriately and safely.

In addition to our work under the new DFES MOU, ChemCentre participates in the WA Joint Hazard Response Team (WA JHRT), which is an initiative of WA Police under the auspices of the Australia New Zealand Counter Terrorism Committee (ANZCTC) and ensures preparedness of WA first responders in the event of hazardous incidents. ChemCentre has a prominent role in the WA JHRT series.

ChemCentre assists in the delivery of training sessions following the attendance of two ChemCentre Chemists at the JHRT Course in Wallerawang, New South Wales, run by the Australia New Zealand Counter Terrorism Committee. Training sessions were held fortnightly at various locations within Perth and culminated in Exercise Neighbour.

ChemCentre participates in interagency expert panels dealing with HAZMAT, CBR and HAZMAT Emergency Advisory Team (HEAT). We provide advice and support to the State Emergency Management Committee (SEMC), government agencies, industry and the community to ensure an efficient emergency management capability for HAZMAT/CBRN emergencies in WA.

ChemCentre responded to 33 incidents, all of which were attended within the specified time and satisfactorily resolved.

Operations

ChemCentre is a member of the Chemical Warfare Agent Laboratory Network (CWALN) which brings together experts in chemical agent analysis with the aim of capability building, information sharing, education and training and quality assurance. This year ChemCentre delegates from Emergency Response and Forensic Science sections attended a two-day CWALN training session delivered by the Defence Scientific and Technical Group (DSTG) on safe laboratory handling of highly toxic chemical samples, analytical GCMS methods, and result interpretation.

The Australia-New Zealand Counter Terrorism Committee has established a National Expert Reach-Back Project Team to establish a national scientific 'reach-back' capability to supply host jurisdictions with a 24/7 'reach-back' service. The reach-back service involves expert chemists being available to provide on-call advice to first responders at an incident anywhere in Australia (i.e. responders can 'reach-back' to access expertise). ChemCentre Emergency Response is represented on this project team. The project team will provide training to selected ChemCentre staff on the ER roster. These staff will provide a 24/7 national reach-back service.

We keep abreast of emerging trends and technology, and up to date with scientific developments. We are continuously improving to make sure that whenever an incident occurs, we can respond rapidly, appropriately and safely.

Operations

Research and Innovation

This year, ChemCentre revised and updated its Research and Innovation Strategy. The strategy focuses our research and innovation efforts on applied and collaborative approaches to solve difficult problems for government and the State's industrial, mining, agricultural, environmental and forensic science sectors.

ChemCentre occupies a unique niche, in that we sit apart from private laboratories, which emphasise high-volume and low-price analysis, and also the tertiary sector, where the emphasis is generally on pure or leading-edge research. Our niche fits between these two positions and our R&D strategic directions are determined as part of, and consistent with, our broader overarching strategic objectives.

Our R&I strategy clearly articulates to our external and internal stakeholders how we intend to provide chemical and forensic science services for a safe and prosperous WA, concurrent with broadening our commercial objectives and supporting industry development in a way that contributes to the community and the State's economy.

In 2018-19 we continued our involvement with the Honey Industry and the Honey CRC (CRC Honey Bee Products) developing certification protocols for monofloral honey and working towards a prototype electronic tracking system. The traceability and authentication this provides is of great interest to the honey industry, which stands to gain from the increased value for certified WA monofloral honey. Certification gives consumers confidence that the contents inside a jar reflect what is stated on the label. This work holds promise for other areas of food authentication and traceability, and we will continue to work on the chemistry, methodology and protocols to achieve this.

Through collaboration, the research and innovation needs of the WA plantation and wild collected sandalwood industries have been identified. A program of research and innovation was established, co-funded by the state and industry and complemented by federal Fight Food Waste CRC funding. This research will focus on achieving accredited methodology that can underpin high rates of utilisation for all components of the harvest, as well as creating new products.

Research in seafood and aquaculture continued with industry and government initiatives supported by Fisheries Research and Development Corporation (FRDC) funding. ChemCentre is working with industry on three research programs aiming to solve issues related to aquaculture feed sources and anthelmintic drug administration for yellowtail kingfish.

ChemCentre undertook a pilot study investigating sources of dust in Port Hedland. A key knowledge gap for management of dust in Port Hedland is understanding the relative contributions of mine-originated iron ore dust and crustal-derived dust to the airshed of the townsite. We identified chemical and mineralogical analytical techniques that distinguish between marine aerosol, crustal soil and iron ore derived dust, and confirmed that constituents of dust collected by high volume air samplers could be apportioned using this analysis. Further utilisation of these techniques will enable the Pilbara Port Authority to better predict the impact of future iron ore (and other bulk mineral commodities) export expansions on the townsite. The project was completed in May 2019.

ChemCentre is currently assisting DWER in its investigations into ongoing odour and dust complaints to the south of Perth. Dust was collected from specific locations in the area through daily sampling by ChemCentre. To enable us to characterise these very small dust samples, we are using microanalytical methods that are more commonly used for forensic investigations.

Operations

We managed a project investigating air quality in underground mining. This project studied nDPM (nano diesel particulate matter) and its potential adverse impact on the health of underground miners. ChemCentre's role was to describe mine ventilation characteristics by studying tracer gas distribution behaviours. The project provided several useful outcomes and learnings for the mine site and the future application of the tracer gas methodologies.

Our work on mine pit lakes continued this year. WA has more than 2000 mine voids, many of which fill with water after mining is completed. However, there are gaps in understanding the geochemistry and environmental impact of the pit lakes that form. In this project ChemCentre is collecting 'real world data' from existing mine pit lakes and mine pit voids, to better inform and validate existing predictive geochemical models. The study will inform current practices for prediction of long-term environmental impact of pit lakes and assist both Government regulators and industry by providing more certainty for mine closure. This project is scheduled to be completed in 2020. Changes to site management may result.

Our work on Leaching Environmental Assessment (LEAF) tools continued this year. We worked with industry and government partners in creating and validating methodologies for evaluating the properties and environmental impact of utilising industrial by-products. These tools could potentially replace the long-term studies required for mine site closure, significantly improving the processes for regulators and industry. This and related studies have fostered the use of LEAF tools for assessing waste utilisation impacts in agronomy and other emerging industries.

Microplastics, defined as synthetic organic polymers smaller than 5mm, are now ubiquitous in marine environments, and are increasingly found in other water sources and even food. However, collecting and analysing microplastics is very challenging due to their variable size, shape, colour, and chemical composition. There are no standard methods for this analysis. As part of our internal R&I program, we are developing and testing a range of methods for separating and analysing microplastic including optical stereomicroscopy and fourier-transform infrared analysis. The methods will be used to assess microplastic-related risk to the WA community, and provide a foundation for additional research in this area.

We are working to create better methodologies for soil comparison used in forensic trace evidence. Historically, soil comparison work for criminal investigations has focused on mineralogy, which provides information about the inorganic nature of samples. Our research in the past year, in which we have worked with WA and international collaborators, has focused on understanding how we might use the organic component of soils to enhance the interpretations.

Our research into proteomics has been further extended this year. We have established international collaborations to develop a project investigating peptides in human hair and have done preliminary testing to inform the project on the analytical chemistry required for a successful testing capability. This project will use chemistry to identify a genetic profile from hair, which will then be compared to DNA profiles created with modern genetic sequencing. It is difficult to overstate the potential benefits of this science in situations where DNA evidence is scant, compromised, or where there are complex mixtures of DNA. Collaboration on this project will involve Murdoch University, Edith Cowan University, University of California and others.

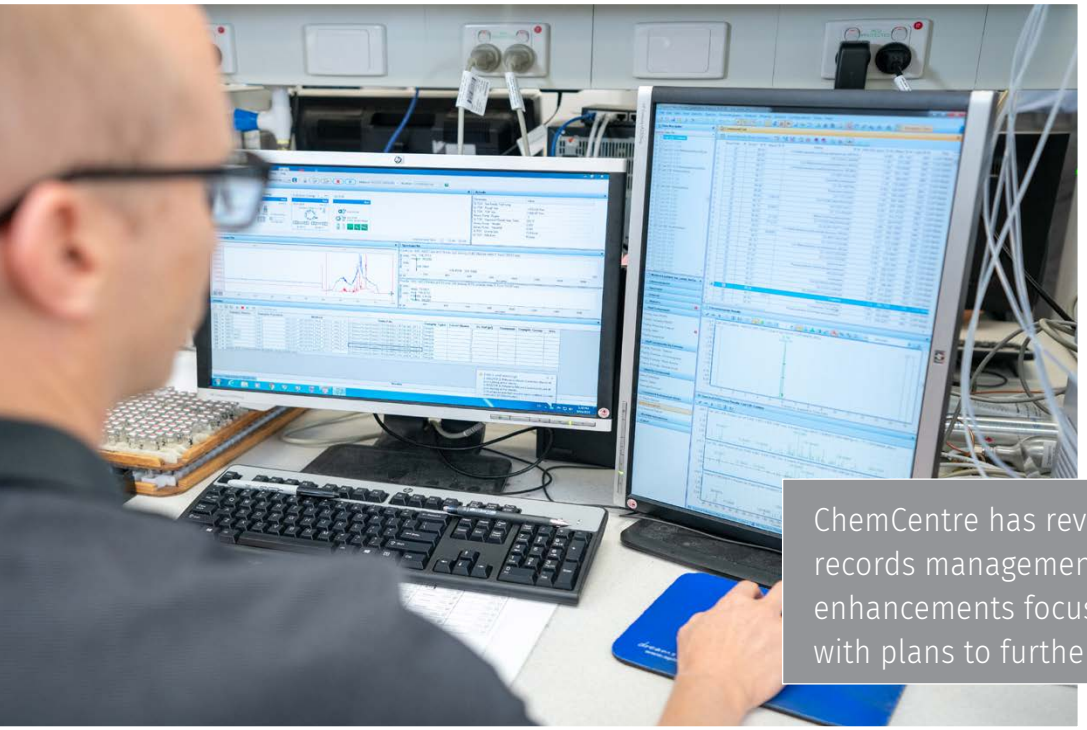
We conducted a project investigating air quality in underground mining. This project studied nDPM (nano diesel particulate matter) and its potential adverse impact on the health of underground miners.

Operations

Business and Corporate Services

ChemCentre's Business and Corporate Services Division operates on a service delivery model for the rest of the agency and our partners.

We provide human resources, finance, risk management, governance, project management, procurement and information, and communications technology (ICT) functions for the organisation. We undertake business reviews and support the other divisions to assess their workforce needs to achieve strategic objectives and meet future requirements. In the past year, the review of the Business and Corporate Services Division was completed and changes implemented.



ChemCentre has reviewed and upgraded its records management, with further enhancements focused on electronic workflows with plans to further minimise paper processes.

ChemCentre has reviewed and upgraded its records management, with further enhancements focused on electronic workflows with plans to further minimise paper processes. We developed and received approval for new plans for recordkeeping and disability access. Our performance development plan is being reviewed to provide a contemporary tool that supports managers and staff to achieve high performance standards and deliver development and training.

Our ICT functions reflect network and infrastructure services as well as software development and maintenance of ChemCentre's bespoke laboratory management information systems (LIMS). During the year the division has explored options to upgrade its LIMS with regular reporting to ChemCentre's ICT Committee and preparation of a comprehensive business case. We have also been migrating to a cloud environment and further enhancements to security will be featured with the roll out of multi-factor authentication in alignment with government ICT objectives.

We have rolled out a new application for managing policies and procedures, which provides a centralised location for these documents with tight version controls and tracking of review dates.

During the year a number of reports were reviewed for the corporate executive to assist with their oversight role. These include human resource snapshot reports, risk management treatment update reports and monitoring of policy and procedures review dates.

It was also timely to review our reportable key performance indicators (KPIs) to ensure relevancy and appropriateness. The amended KPIs were reviewed and approved by the Department of Treasury for adoption in the current reporting period.

Operations

Education and Outreach

ChemCentre delivers a range of outreach activities and broader community engagement under our enabling legislation, which requires us to 'promote and assist in the provision of chemistry-based education and training'.

We use traditional and social media to communicate with the public and are active across several platforms. We provide expertise to state, national and international working groups to support Western Australia, and an outreach and education program. This includes school visits, guest lecturing and tertiary student supervision. We also support and participate in science-related community events such as National Science Week, Perth Science Festival, WA Police Expo, the RACI Bayliss Youth Lecture Series and other science activities. We hold a biennial Open Day, with the next scheduled for late 2019.

We provide expertise to state, national and international working groups to support Western Australia, and an outreach and education program.

Operations

Performance Management Framework

Outcome Based Management Framework

Broad high level government goals are supported at agency level by more specific desired outcomes. Agencies deliver services to achieve these desired outcomes, contributing to the achievement of the higher level government goals. The relationship between the government goals, agency level desired outcomes and associated services is tabulated below.

ChemCentre's effort is divided approximately 26% to the delivery of statutory services for government and 74% to fee-for-services activities delivered to government and private sectors.

GOVERNMENT GOAL	DESIRED OUTCOME	SERVICES
STRONG COMMUNITIES **Safe communities and supported families**	**QUALITY SCIENTIFIC ADVICE** **Key Effectiveness Indicators:** Client satisfaction Proficiency rating for the accredited services	**SERVICE 1** **Commercial and scientific information and advice** **Key Efficiency Indicator:** Average cost of providing commercial scientific information and advice per applicable FTE
	QUALITY EMERGENCY RESPONSE **Key Effectiveness Indicators:** Average Mobilisation Time for emergency response incidents, Availability of Emergency Response workforce to meet agreed inter-agency requirements	**SERVICE 2** **Emergency response management** **Key Efficiency Indicator:** Average cost to maintain an emergency response capability per Western Australian
FUTURE JOBS AND SKILLS **Grow and diversify the economy, create jobs and support skills development**	**QUALITY RESEARCH AND DEVELOPMENT** **Key Effectiveness Indicators:** Client satisfaction Contribution to scientific forums	**SERVICE 3** **Research and development** **Key Efficiency Indicator:** Publications per R&D FTE

Operations

Changes to Outcome Based Management Framework

During 2018-19 changes were made to ChemCentre's Outcome Based Management Framework. Full details of the changes can be found in Key Performance Indicators section of this report on pages 84-91.

Shared Responsibilities with Other Agencies

ChemCentre's Emergency Response Service is largely delivered in support of the Department of Fire and Emergency Services.

ChemCentre also provides an extensive forensic science service to the WA Police and the Office of the State Coroner.

Operations

Service 1: Commercial and scientific information and advice

Desired Outcome 1: Quality scientific advice

Development and delivery of quality scientific information and advice, on a commercial basis, to government, industry and the community.

ChemCentre provides analysis and advice to industry, Government and the WA community through its fee-for-service consultancy work. We seek opportunities to extend our service range and to add value to existing WA industries, as is illustrated by the following examples which showcase a small portion of our work.

Operations

Medicinal Cannabis

ChemCentre provides analytical services to the medicinal cannabis industry in WA. Amendments made to the Narcotic Drugs Act in 2016 legalised the growing of cannabis for medicinal and scientific purposes throughout Australia. This legislative change created a pathway for cultivation, manufacture, prescribing and dispensing of medicinal cannabis products.

As with any pharmaceutical drug, medicinal cannabis needs to undergo testing to ensure that it is fit for human consumption and is delivered at the right potency to provide the indicated medical outcomes. The Therapeutic Goods Administration has jurisdiction over the safety of pharmaceutical products entering the market, resulting in the release of Therapeutic Goods Order No. 93 (Standard for Medicinal Cannabis). This order specifies the minimum quality requirements for medicinal cannabis products imported into, exported from and supplied in Australia.

The analysis requires:

- Macroscopic, microscopic and chromatographic identification of cannabis
- Determination of cannabinoid content
- Analysis for potential adulterants including
  - Mycotoxins
  - Foreign Matter
  - Heavy Metals
  - Pesticides

In addition to developing the capability to offer these tests, ChemCentre has also developed the capacity to undertake determination of the terpene content and screening for residual solvents. As a suite of tests, these provide cultivators, manufacturers, prescribers, patients and government with confidence that the medicinal cannabis product is safe.

By providing this service, ChemCentre:

- contributes to the safety of medicinal cannabis patients within WA and Australia as a whole and
- provides high quality results in a timely manner to cultivators and manufacturers in Western Australia.

It is through this assistance that a WA owned and operated company was the first to provide an Australian made product to the market. Several manufacturers are now based in WA and demand for this service is expected to continue as this market grows.

Operations

Dust Apportionment

ChemCentre has, through its involvement in several research projects, from a number of locations around the State, developed considerable expertise in dust deposition characterisation and source apportionment.

From March 2019 ChemCentre assisted DWER in the Cockburn Area Air Monitoring Plan. The project aimed to characterise dust samples collected from a number of sites in the Beeliar/Munster locality, and compare these to source samples from industrial and residential areas.

The project resulted in eight dust-collecting stations being installed in strategic locations across southern Cockburn, including five at residential properties. ChemCentre staff took daily samples, which were analysed to assess potential origin.

Some of the laboratory techniques used in the chemical and mineral characterisation of the dust samples included X-Ray Diffraction/ Scanning Electron Microscopy (XRD/SEM), total elemental composition and Inductively Coupled Plasma-Atomic Emission Spectroscopy, an ICP-Mass Spectrometry (ICP-AES) and (ICP-MS).

The analysis involved assessment of the samples and potential sources utilising elemental and mineralogical equipment in conjunction with Light Detection and Ranging (LIDAR) and photographic evidence.

The project resulted in eight dust-collecting stations being installed in strategic locations across southern Cockburn, including five at residential properties.

Operations

PFAS

Per- and poly-fluoroalkyl substances (PFAS) are manufactured fluorosurfactants which have been used in the manufacture of firefighting foams and many other products in Australia and around the world.

There are more than 3000 individual PFAS substances and the majority are heat resistant, have unique fat (lipid) and water repellent characteristics, hence they have been used in a myriad of applications. However, PFAS are also extremely persistent in the environment, are ubiquitous within our lifestyles and pose potentially adverse effects on the environment and human health due to their longevity and bio-accumulating properties. In 2009, the Stockholm Convention added PFOS to the list of Persistent Organic Pollutants (POPs). As a result; the Commonwealth, State and local authorities have taken a proactive approach by conducting ongoing environmental investigations.

In the interest of public health and safety, ChemCentre has developed NATA accredited capabilities to analyse for PFAS in water, soil and biota samples. We have also been asked to review and comment on a draft Intergovernmental Agreement on a National Framework for Responding to PFAS Contamination as well as inform intergovernmental committees. While regulatory frameworks continue to be fluid, ChemCentre will progressively update our analytical suite to meet customer needs.

In the interest of public health and safety, ChemCentre has developed NATA accredited capabilities to analyse for PFAS in water, soil and biota samples in water, soil and biota samples.

Operations

Service 2: Emergency Response Management

Desired Outcome 2: Quality emergency response

Specialist technical advice and support to government and industry in managing the risks arising from chemical-biological-radiological incidents.

ChemCentre provides a 24/7 emergency response capability and, also participates in a national 'reach-back' service (whereby expert chemists are available to provide on-call advice to first responders at an incident anywhere in Australia).

In 2018-19, ChemCentre responded to 33 incidents, all of which were attended in the specified time and satisfactorily resolved. One of these incidents involved the use of the aerial response capability. This incident, which involved a drum of unknown chemical found on a beach near Denmark on the south coast of WA, was attended and resolved much more quickly due to the aerial capability than it otherwise would have been.

Operations

Exercise Avalanche

This year ChemCentre participated in training exercises designed by DFES, in consultation with Federal and WA Police, to test our response to major incidents.

The staged exercises involved complex situations with actors playing roles as victims and members of the public. Participation in these exercises enables all emergency responders to test their abilities and communication systems in readiness for a real emergency. ChemCentre ER participated in Exercise Avalanche at Perth Airport on 20 September. This was a multi-agency response exercise involving a chemical attack on a plane carrying about 100 passengers. The exercise was staged on the runway at Perth Airport. The plane was evacuated and ChemCentre were tasked with identifying the chemical. ChemCentre ER were able to demonstrate our expertise and capability to identify contemporary highly toxic chemicals in emergency response situations, as well as the capability to provide chemical advice regarding safety, mitigation and remediation.

ER personnel also participated in the Observer Program of the ANZCTC CBR Capability Exercise (CAPEX2018) Exercise Tropical exposure held in Queensland. CAPEX2018 showcased the complete operational collaborative multi-agency national and international response to CBR incidents and investigations involving wide ranging capabilities and personnel participating in the event.

View the ER team in action during a training exercise.

Participation in these exercises enables all emergency responders to test their abilities and communication systems in readiness for a real emergency.

Operations

Service 3: Research and Development (R&D)

Desired Outcome 3: Quality research and development

Delivery of quality project-based developed knowledge, know-how and/or Intellectual Property relevant to State development, public health and safety, or the delivery of other services.

ChemCentre's research and development strategy, which was revised this year, focuses efforts on applied and collaborative approaches to solve difficult problems for Government and the State's industrial, mining, agricultural, environmental and forensic science sectors. We occupy a unique niche between private laboratories and the tertiary sector, but with links to both, and our R&D strategic directions are determined as part of, and consistent with, our broader overarching strategic objectives. We work on many projects designed to answer difficult and important questions for the WA community and to add value to existing and new industries, as is illustrated by the following examples.

Operations

Food Assurance for the Honey Industry

ChemCentre has developed expertise in honey analysis through its research and innovation work over the past seven years. Our honey research has been instrumental in the development of a certification and authentication process for WA monofloral honeys – that is, types of honey that are derived from the nectar of a single species of our unique flora, such as jarrah or marri.

Three major research projects, funded by State and federal agencies, related to food assurance for honey products are underway at ChemCentre.

The first of these projects 'Certifiable Compositional Chemistry that Promotes Sustainable Growth in Market Value for Iconic WA Honey Floral Brands' achieved significant milestones with the creation of NATA accredited methodology as well as progress into new types of analytical testing that will enhance honey traceability and assurance.

The second project 'Industry Standards Optimising Storage and Supply Volume of WA Mono-Floral Honey' has many facets. These include remote site management, an electronic traceability pilot, flowering prediction, bee nutrition and honey stability studies. Much has already been achieved, with the most recent effort focused on establishing a pilot electronic traceability system for honey exports.

Three major research projects, funded by State and federal agencies, related to food assurance for honey products are underway at ChemCentre.

The third project 'Certified Distributor Driven Outcomes that Drive Export Sustainability for the WA Honey Industry' has been completed.

These projects have enabled substantial value-adding to the WA honey industry and have far reaching benefits to the WA honey industry. WA has a reputation for producing 'clean and green' honey, and honey bees in WA are reported to be the healthiest in the world. Strict quarantine rules prevent the importation of raw honey into WA, but WA honey is widely exported. ChemCentre tests WA honey and provides export certificates for exporters as required by their overseas markets.

The techniques developed for this process are now being expanded and adapted for use in other industries.

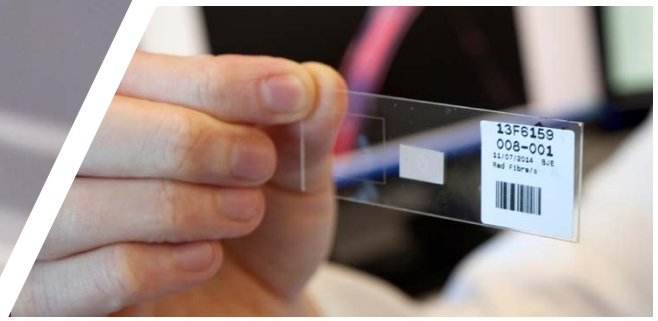
Proteomics extends to hair

Proteomics is the systematic identification and quantification of the proteins of a biological system – such as cell, tissue, organ or biological fluid. ChemCentre has established proteomics-based forensic methodologies, using high resolution mass-spectrometry to develop powerful screening and quantitative analyses.

We have used our proteomics capabilities to establish methodology for detecting and analysing performance enhancing peptides in racehorses, and for assessing large molecules of forensic interest, such as insulin in post-mortem coronial cases.

This year we established international collaborations to develop a project investigating peptides in human hair and have done preliminary testing to inform the project on the analytical chemistry required for a successful testing capability. This project will use chemistry to identify a genetic profile from hair, which will then be compared to DNA profiles created with modern genetic sequencing. It is difficult to overstate the potential benefits of this science in situations where DNA evidence is scant, compromised, or where there are complex mixtures of DNA.

Our Performance



Report on Operations

Financial Targets

Actual Results Versus Budget Targets

PROJECT	BUDGET ($'000) (1)	ACTUAL ($'000)	VARIATION ($'000) (2)
Total Cost of Service	26,450	27,979	(1,529) (a)
Net Cost of Service	7,698	9,182	(1,484) (b)
Total Equity	8,640	8,833	193 (c)
Net increase/(decrease) in cash held (sourced from Statement of Cash Flows)	140	(657)	(797) (d)
Approved salary expense level	13,309	13,445	(136) (e)

(1) As specified in the Budget Statements.
(2) Further explanations are contained in Note 9.10 "Explanatory statement" to the financial statements.
   a) The variation is primarily due to the timing of the original budget, being set prior to the confirmation and commencement of a number of research projects with significant external project funding managed by ChemCentre.
   b) The increase in Net Cost of Services mainly reflects fee for service revenue sensitive to market conditions not achieving projected revenue levels, some research projects not yet reaching revenue milestone stage and increased depreciation as a result of additional capital appropriation funding.
   c) The increase in Equity represents the additional capital appropriation received during the year partially offset by a higher than budgeted loss for the period.
   d) The decrease in cash held is mainly due to lower than expected revenues during the period.
   e) A business review undertaken during the year resulted in a severance payment and reduction of an FTE and related salary costs in the out-years.

Working Cash Targets

	AGREED LIMIT ($'000)	TARGET / ACTUAL ($'000) (1)	VARIATION ($'000) (2)
Agreed working cash limit (at Budget)	1,402	1,402	n/a
Agreed working cash limit (at Actuals)	1,544	1,104	440

(1) Cash held for services paid in advance is considered restricted and excluded from the working cash balance.
(2) The variation is mainly due to lower than expected fees for service receipts during the period.

Report on Operations

Summary of Key Performance Indicators

Actual performance compared to budget targets

KEY EFFECTIVENESS INDICATORS	2019 TARGET[1]	2019 ACTUAL	VARIATION[2]
Outcome 1: Quality Scientific Advice Client Satisfaction			
Client Satisfaction	80%	89%	9%
Proficiency Rating for the Accredited Services	95%	91%	-4%
Service 1: Commercial and Scientific Information and Advice			
Average Cost of Providing Commercial Scientific Information and Advice per Applicable FTE	$240,000	$228,000	-$12,000
Outcome 2: Quality Emergency Response			
Average Mobilisation Time for all Emergency Response Incidents Attended	20 minutes	16 minutes	4 minutes
Availability of Emergency Response Workforce to Meet Agreed Inter-Agency Requirements	100%	100%	-
Service 2: Emergency Response Management			
Average Cost to Maintain an Emergency Response Capability per Western Australian	$0.85	$0.82	-$0.03
Outcome 3: Quality Research and Development			
Client Satisfaction	80%	79%	-1%
Contribution to Scientific Forums	60	87	27
Service 3: Research and Development			
Publications per R&D FTE	4	5.93	1.93

(1) As specified in the Budget Statements.
(2) The table represents a summary of the 2018-19 ChemCentre Key Performance Indicators. For more detailed information see the Key Performance Indicators section of this report.

Auditor's Opinion

Auditor General

INDEPENDENT AUDITOR'S REPORT

To the Parliament of Western Australia

CHEMISTRY CENTRE (WA)

Report on the Financial Statements

Opinion
I have audited the financial statements of the Chemistry Centre (WA), which comprise the Statement of Financial Position as at 30 June 2019, the Statement of Comprehensive Income, Statement of Changes in Equity, Statement of Cash Flows for the year then ended, and Notes comprising a summary of significant accounting policies and other explanatory information.

In my opinion, the financial statements are based on proper accounts and present fairly, in all material respects, the operating results and cash flows of the Chemistry Centre (WA) for the year ended 30 June 2019 and the financial position at the end of that period. They are in accordance with Australian Accounting Standards, the *Financial Management Act 2006* and the Treasurer's Instructions.

Basis for Opinion
I conducted my audit in accordance with the Australian Auditing Standards. My responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of my report. I am independent of the Centre in accordance with the *Auditor General Act 2006* and the relevant ethical requirements of the Accounting Professional and Ethical Standards Board's APES 110 *Code of Ethics for Professional Accountants* (the Code) that are relevant to my audit of the financial statements. I have also fulfilled my other ethical responsibilities in accordance with the Code. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Responsibility of the Board for the Financial Statements
The Board is responsible for keeping proper accounts, and the preparation and fair presentation of the financial statements in accordance with Australian Accounting Standards, the *Financial Management Act 2006* and the Treasurer's Instructions, and for such internal control as the Board determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board is responsible for assessing the agency's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Western Australian Government has made policy or funding decisions affecting the continued existence of the Centre.

Auditor's Responsibility for the Audit of the Financial Statements
As required by the *Auditor General Act 2006*, my responsibility is to express an opinion on the financial statements. The objectives of my audit are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Australian Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with Australian Auditing Standards, I exercise professional judgment and maintain professional scepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the agency's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Board.
- Conclude on the appropriateness of the Board's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the agency's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with the Board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

Report on Controls

Opinion
I have undertaken a reasonable assurance engagement on the design and implementation of controls exercised by the Chemistry Centre (WA). The controls exercised by the Centre are those policies and procedures established by the Board to ensure that the receipt, expenditure and investment of money, the acquisition and disposal of property, and the incurring of liabilities have been in accordance with legislative provisions (the overall control objectives).

My opinion has been formed on the basis of the matters outlined in this report.

In my opinion, in all material respects, the controls exercised by the Chemistry Centre (WA) are sufficiently adequate to provide reasonable assurance that the receipt, expenditure and investment of money, the acquisition and disposal of property and the incurring of liabilities have been in accordance with legislative provisions during the year ended 30 June 2019.

The Board's Responsibilities
The Board is responsible for designing, implementing and maintaining controls to ensure that the receipt, expenditure and investment of money, the acquisition and disposal of property, and the incurring of liabilities are in accordance with the *Financial Management Act 2006*, the Treasurer's Instructions and other relevant written law.

Auditor General's Responsibilities
As required by the *Auditor General Act 2006*, my responsibility as an assurance practitioner is to express an opinion on the suitability of the design of the controls to achieve the overall control objectives and the implementation of the controls as designed. I conducted my engagement in accordance with Standard on Assurance Engagements ASAE 3150 *Assurance Engagements on Controls* issued by the Australian Auditing and Assurance Standards Board. That standard requires that I comply with relevant ethical requirements and plan and perform my procedures to obtain reasonable assurance about whether, in all material respects, the controls are suitably designed to achieve the overall control objectives and the controls, necessary to achieve the overall control objectives, were implemented as designed.

Auditor's Opinion

An assurance engagement to report on the design and implementation of controls involves performing procedures to obtain evidence about the suitability of the design of controls to achieve the overall control objectives and the implementation of those controls. The procedures selected depend on my judgement, including the assessment of the risks that controls are not suitably designed or implemented as designed. My procedures included testing the implementation of those controls that I consider necessary to achieve the overall control objectives.

I believe that the evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Limitations of Controls
Because of the inherent limitations of any internal control structure it is possible that, even if the controls are suitably designed and implemented as designed, once the controls are in operation, the overall control objectives may not be achieved so that fraud, error, or noncompliance with laws and regulations may occur and not be detected. Any projection of the outcome of the evaluation of the suitability of the design of controls to future periods is subject to the risk that the controls may become unsuitable because of changes in conditions.

Report on the Key Performance Indicators

Opinion
I have undertaken a reasonable assurance engagement on the key performance indicators of the Chemistry Centre (WA) for the year ended 30 June 2019. The key performance indicators are the key effectiveness indicators and the key efficiency indicators that provide performance information about achieving outcomes and delivering services.

In my opinion, in all material respects, the key performance indicators of the Chemistry Centre (WA) are relevant and appropriate to assist users to assess the Centre's performance and fairly represent indicated performance for the year ended 30 June 2019.

The Board's Responsibility for the Key Performance Indicators
The Board is responsible for the preparation and fair presentation of the key performance indicators in accordance with the *Financial Management Act 2006* and the Treasurer's Instructions and for such internal control as the Board determines necessary to enable the preparation of key performance indicators that are free from material misstatement, whether due to fraud or error.

In preparing the key performance indicators, the Board is responsible for identifying key performance indicators that are relevant and appropriate having regard to their purpose in accordance with Treasurer's Instruction 904 *Key Performance Indicators*.

Auditor General's Responsibility
As required by the *Auditor General Act 2006*, my responsibility as an assurance practitioner is to express an opinion on the key performance indicators. The objectives of my engagement are to obtain reasonable assurance about whether the key performance indicators are relevant and appropriate to assist users to assess the agency's performance and whether the key performance indicators are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion.

I conducted my engagement in accordance with Standard on Assurance Engagements ASAE 3000 *Assurance Engagements Other than Audits or Reviews of Historical Financial Information* issued by the Australian Auditing and Assurance Standards Board. That standard requires that I comply with relevant ethical requirements relating to assurance engagements.

An assurance engagement involves performing procedures to obtain evidence about the amounts and disclosures in the key performance indicators. It also involves evaluating the relevance and appropriateness of the key performance indicators against the criteria and guidance in Treasurer's Instruction 904 for measuring the extent of outcome achievement and the efficiency of service delivery. The procedures selected depend on my judgement, including the assessment of the risks of material misstatement of the key performance indicators. In making these risk assessments I obtain an understanding of internal control relevant to the engagement in order to design procedures that are appropriate in the circumstances.

I believe that the evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

My Independence and Quality Control Relating to the Reports on Controls and Key Performance Indicators
I have complied with the independence requirements of the *Auditor General Act 2006* and the relevant ethical requirements relating to assurance engagements. In accordance with ASQC 1 *Quality Control for Firms that Perform Audits and Reviews of Financial Reports and Other Financial Information, and Other Assurance Engagements*, the Office of the Auditor General maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Matters Relating to the Electronic Publication of the Audited Financial Statements and Key Performance Indicators
This auditor's report relates to the financial statements and key performance indicators of the Chemistry Centre (WA) for the year ended 30 June 2019 included on the Centre's website. The Centre's management is responsible for the integrity of the Centre's website. This audit does not provide assurance on the integrity of the Centre's website. The auditor's report refers only to the financial statements and key performance indicators described above. It does not provide an opinion on any other information which may have been hyperlinked to/from these financial statements or key performance indicators. If users of the financial statements and key performance indicators are concerned with the inherent risks arising from publication on a website, they are advised to refer to the hard copy of the audited financial statements and key performance indicators to confirm the information contained in this website version of the financial statements and key performance indicators.

DON CUNNINGHAME
ASSISTANT AUDITOR GENERAL FINANCIAL AUDIT
Delegate of the Auditor General for Western Australia
Perth, Western Australia
29 August 2019

7th Floor Albert Facey House 469 Wellington Street Perth MAIL TO: Perth BC PO Box 8489 Perth WA 6849 TEL: 08 6557 7500 FAX: 08 6557 7600

Financial Statements

Certification of Financial Statements

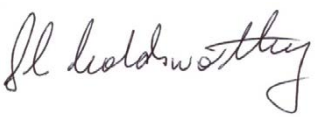
For the reporting period ended 30 June 2019

The accompanying financial statements of ChemCentre have been prepared in compliance with the provisions of the *Financial Management Act 2006* from proper accounts and records to present fairly the financial transactions for the reporting period ended 30 June 2019 and the financial position as at 30 June 2019.

At the date of signing we are not aware of any circumstances which would render the particulars included in the financial statements misleading or inaccurate.

Stefan Anicic
Chief Finance Officer
28 August 2019

Peter McCafferty
Chief Executive Officer
28 August 2019



Denise Goldsworthy
Chair
ChemCentre Board
Member of Governing Board
28 August 2019

David Blyth
Chair
Finance and Growth Committee
Member of Governing Board
28 August 2019

Financial Statements

Statement of Comprehensive Income For the year ended 30 June 2019

	Note	2019 $'000	2018 $'000
INCOME			
Revenue			
Provision of services	4.2	18,721	19,832
Interest revenue	4.3	66	57
Other revenue	4.4	10	673
Total income		**18,797**	**20,562**
COST OF SERVICES			
Expenses			
Employee benefits expense	3.1(a)	14,925	14,847
Supplies and services	3.2	1,570	1,794
Depreciation and amortisation expense	5.1,5.2	1,443	1,417
Accommodation expenses	3.2	5,663	5,682
Other expenditures	3.2	4,378	4,164
Total cost of services		27,979	27,904
Loss before income from State Government		(9,182)	(7,342)
Service appropriation	4.1	6,727	6,662
(Loss)/profit before income tax expense		(2,455)	(680)
Income tax expense	9.11	55	78
(Loss)/profit after income tax expense		(2,400)	(602)
Profit/(loss) for the period		(2,400)	(602)
Total comprehensive income for the period		(2,400)	(602)

See also Note 2.2 'Schedule of Income and Expense by Service'

The Statement of Comprehensive Income should be read in conjunction with the accompanying notes.

Financial Statements

Statement of Financial Position As at 30 June 2019

	Note	2019 $'000	2018 $'000
ASSETS			
Current assets			
Cash and cash equivalents	7.1	2,129	2,786
Prepayments	6.2	302	259
Receivables	6.1	2,264	2,519
Total current assets		4,695	5,564
Non-current assets			
Property, plant and equipment	5.1	5,898	4,714
Intangible assets	5.2	291	459
Sinking fund	6.2	2,700	2,379
Deferred tax asset	9.11	1,153	1,098
Total non-current assets		10,042	8,650
TOTAL ASSETS		14,742	14,214
LIABILITIES			
Current liabilities			
Payables	6.3	1,161	1,045
Provisions	3.1(b)	2,459	2,450
Other current liabilities	6.4	1,025	903
Total current liabilities		4,645	4,398

Financial Statements

Statement of Financial Position As at 30 June 2019

	Note	2019 $'000	2018 $'000
Non-current liabilities			
Provisions	3.1(b)	1,259	1,083
Total non-current liabilities		1,259	1083
TOTAL LIABILITIES		5,904	5,481
NET ASSETS		8,833	8,733
EQUITY			
Contributed equity	9.8	13,526	11,026
Accumulated surplus/(deficit)		(4,693)	(2,293)
TOTAL EQUITY		8,833	8,733

The Statement of Financial Position should be read in conjunction with the accompanying notes.

Financial Statements

Statement of Changes in Equity For the year ended 30 June 2019

	Note	Contributed equity	Accumulated Surplus/(deficit)	Total Equity
		$'000	$'000	$'000
Balance at 1 July 2017		**9,286**	**(1,691)**	**7,595**
Total Comprehensive Income for the year			(602)	**(602)**
Transactions with owners in their capacity as owners:				
Capital appropriation		1,740	-	**1,740**
Total		**1,740**	**(602)**	**1,138**
Balance at 30 June 2018		**11,026**	**(2,293)**	**8,733**
Balance at 1 July 2018	9.8	**11,026**	**(2,293)**	**8,733**
Total Comprehensive Income for the year			(2,400)	**(2,400)**
Transactions with owners in their capacity as owners:				
Capital appropriation		2,500	-	**2,500**
Total		**2,500**	(2,400)	**100**
Balance at 30 June 2019	9.8	**13,526**	**(4,693)**	**8,833**

The Statement of Changes in Equity should be read in conjunction with the accompanying notes.

Financial Statements

Statement of Cash Flows For the year ended 30 June 2019

	Note	2019 $'000	2018 $'000
CASH FLOWS FROM STATE GOVERNMENT			
Service and capital appropriations		9,227	8,962
Net cash provided by State Government		9,227	8,962
CASH FLOWS FROM OPERATING ACTIVITIES			
Receipts			
Provision of services		19,103	20,629
GST receipts on services		1,910	2,063
Payments			
Employee benefits		(14,684)	(14,596)
Accommodation		(5,735)	(5,834)
GST payments on purchases		(1,184)	(1,199)
GST payments to taxation authority		(649)	(825)
Other payments		(6,140)	(5,908)
Net cash (used in) operating activities	7.1.2	(7,379)	(5,670)
CASH FLOWS FROM INVESTING ACTIVITIES			
Purchase of non-current physical assets		(2,505)	(2,409)
Net cash (used) in investing activities		(2,505)	(2,409)
Net increase/(decrease) in cash and cash equivalents		(657)	883
Cash and cash equivalents at the beginning of period		2,786	1,903
CASH AND CASH EQUIVALENT ASSETS AT THE END OF PERIOD		2,129	2,786

The Statement of Cash Flows should be read in conjunction with the accompanying notes.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

1. Basic of preparation

ChemCentre is a WA Government entity and is controlled by the State of Western Australia, which is the ultimate parent. ChemCentre is a not-for-profit commercial organisation.

A description of the nature of its operations and its principal activities have been included in the 'Overview' which does not form part of these financial statements.

These annual financial statements were authorised for issue by the Accountable Authority of the agency on 28 August 2019.

Statement of compliance

These general purpose financial statements have been prepared in accordance with:

1. The *Financial Management Act 2006*
2. The Treasurer's Instructions
3. Australian Accounting Standards (AAS) including applicable interpretations.
4. Where appropriate, those AAS paragraphs applicable for not-for-profit entities have been applied.

The *Financial Management Act 2006* and the Treasurer's Instructions (the Instructions) take precedence over AAS. Several AAS are modified by the instructions to vary application, disclosure format and wording. Where modification is required and has had a material or significant financial effect upon the reported results, details of that modification and the resulting financial effect area disclosed in the notes to the financial statements.

Basic of preparation

These financial statements are presented in Australian dollars applying the accrual basis of accounting and using the historical cost convention. All values are rounded to the nearest thousand dollars. ($'000).

The financial statements are presented in Australian dollars and all values are rounded to the nearest thousand dollars ($'000).

Judgements and estimates

Judgements, estimates and assumptions are required to be made about financial information being presented. The significant judgements and estimates made in the preparation of these financial statements are disclosed in the notes where amounts affected by those judgements and/or estimates are disclosed. Estimates and associated assumptions are based on professional judgements derived from historical experience and various other factors that are believed to be reasonable under the circumstances.

Contributed equity

Australian Accounting Standard Board (AASB) Interpretation 1038 'Contribution by Owners Made to Wholly Owned Public Sector Entities' requires transfers, other than the result of a restructure of administrative arrangements, in the nature of equity contributions to be designated by the Government (the owner) as contributions by the owners (at the time of, or prior to transfer) before such transfers can be recognised as equity contributions. Capital contributions (appropriations) have been designated as contributions by owners by Treasury Instruction (TI) 955 'Contributions by Owners made to Wholly Owned Public Sector Entities' and have been credited directly to Contributed Equity.

The transfers of net assets to/from other agencies, other than as a result of a restructure of administrative arrangements, are designed as contributions by owners where the transfers are non-discretionary and non-reciprocal. Refer to Note 9.8 'Equity'.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

2. Agency Outputs

How the Agency Operates

This section includes information regarding the nature of funding the agency receives and how this funding is utilised to achieve the agency's objectives. This note also provides the distinction between controlled funding and administered funding:

	Note
Agency objectives	2.1
Schedule of Income and Expenses by Service	2.2

2.1 Agency objectives

Mission

To provide chemical and forensic science services for a safe and prosperous Western Australia.

Services

ChemCentre provides the following services:

Service 1: Commercial and Scientific Information and Advice

Service 2: Emergency Response Management

Service 3: Quality research and development

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

2.2 Schedule of income and expenses by service

	Service 1 Scientific Information and Advice		Service 2 Emergency Response Management		Service 3 Research and Development		Total	
	2019	2018	2019	2018	2019	2018	2019	2018
	$'000	$'000	$'000	$'000	$'000	$'000	$'000	$'000
COST OF SERVICES								
EXPENSES								
Employee benefits expense	12,674	12,421	1,066	1,137	1,185	1,289	14,925	14,847
Supplies and services	1,333	1,501	112	137	125	156	1,570	1,794
Depreciation and amortisation expense	1,225	1,185	103	109	115	123	1,443	1,417
Accommodation expenses	4,809	4,753	404	435	450	493	5,663	5,682
Other expenses	3,219	3,215	312	319	847	631	4,378	4,164
Total cost of services	23,259	23,075	1,998	2,137	2,722	2,692	27,979	27,904
Income								
Provision of services	17,476	18,607	-	-	1,245	1,225	18,721	19,832
Interest Revenue	66	57	-	-	-	-	66	57
Other Income	10	673	-	-	-	-	10	673
Total income other than income from State Government	17,552	19,337	-	-	1,245	1,225	18,797	20,562
NET COST OF SERVICES	(5,707)	(3,738)	(1,998)	(2,137)	(1,477)	(1,467)	(9,182)	(7,342)
INCOME FROM STATE GOVERNMENT								
Net Appropriation from State Government	3,252	3,058	1,998	2,137	1,477	1,467	6,727	6,662
Total income from State Government	3,252	3,058	1,998	2,137	1,477	1,467	6,727	6,662
Profit/(Loss) before income tax equivalents expense	(2,455)	(680)	-	-	-	-	(2,455)	(680)
Income tax equivalent benefit/(expense)	55	78	-	-	-	-	55	78
Profit/(Loss) for the period	(2,400)	(602)	-	-	-	-	(2,400)	(602)

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

Enhancements in Laboratory Information Management System data capture functions during the year have enabled an improved service cost allocation methodology. As a result, an immaterial change was made to the 2017-18 Service 3 Total Cost of Services, increasing $0.6m with an equivalent decrease in Service 1. The total remains as previously reported. Additionally, Provision of Services Income has been revised to reflect only non-Government funding with Appropriation funded activities now exclusively reported under Net Appropriation from State Government.

3. Use of our funding

Expenses incurred in the delivery of services

This section provides additional information about how ChemCentre's funding is applied and the accounting policies that are relevant for an understanding of the items recognised in the financial statements. The primary expenses incurred by the agency in achieving its objectives and the relevant notes are:

3.1(a) Employee benefits expenses

	2019 $'000	2018 $'000
Wages and salaries	11,951	11,861
Superannuation – defined contribution plans[(a)]	1,348	1,304
Long service leave	466	623
Annual Leave(b)	1,160	1,059
TOTAL LIABILITIES	14,925	14,847

(a) Defined contribution plans include West State Superannuation Scheme (WSS, Gold State Superannuation Scheme (GSS), Government Employee Superannuation Board Schemes (GESBs) and other eligible funds.

Wages and Salaries: Employee expenses include all costs related to employment including wages and salaries, fringe benefit tax, leave entitlements and Workcover premiums.

Termination benefits: Payable when employment is terminated before normal retirement date, or when an employee accepts an offer of benefits in exchange for the termination of employment. Termination benefits are recognised when ChemCentre is demonstrably committed to terminating the employment of current employees according to a detailed formal plan without possibility of withdrawal or providing termination benefits as a result of an offer made to encourage voluntary redundancy. Benefits falling due more than 12 months after the end of the reporting period are discounted to present value.

Superannuation: The amount recognised in profit or loss of the Statement of Comprehensive Income comprises employer contributions paid to the GSS (concurrent contributions), the WSS, the GESBs, or other superannuation funds. The employer contribution paid to the Government Employees Superannuation Board (GESB) in respect of the GSS is paid back into the Consolidated Account by the GESB.

GSS is a defined benefit scheme for the purpose of employees and whole-of-government reporting. It is however a defined contribution plan for ChemCentre purposes because the concurrent contributions (defined contributions) made by ChemCentre to GESB extinguishes ChemCentre's obligations to the related superannuation liability.

ChemCentre does not recognise any defined benefit liabilities because it has no legal or constructive obligation to pay future benefits relating to its employees. The Liabilities for the unfunded Pension Scheme and the unfunded GSS transfer benefits attributable to members who transferred from the Pension Scheme, are assumed by the Treasurer. All other GSS obligations are funded by concurrent contributions made by ChemCentre to the GESB.

The GESB and other fund providers administer public sector superannuation arrangements in Western Australian in accordance with legislative requirements. Eligibility criteria for membership in particular schemes for public sector employees vary according to commencement and implementation dates.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

3.1 (b) Employee benefits provisions

Provision is made for benefits accruing to employees in respect of wages and salaries, annual leave and long service leave for services rendered up to the reporting date and recorded as an expense during the period the service are delivered.

	2019 $'000	2018 $'000
Current		
Employee benefits provisions		
Annual leave[a] [c]	1,230	1,092
Long service leave[b] [c]	1,099	1,230
	2,329	2,322
Other provisions		
Employment on-costs[c]	130	128
Total current employee related provisions	2,459	2,450
Non-current		
Employee benefit provisions		
Long service leave[b] [c]	1,193	1,026
Other provisions		
Employment on-costs[c]	66	57
Total non-current employee related provisions	1,259	1,083
Total employee related provisions	3,718	3,533

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

	2019 $'000	2018 $'000
a) Annual leave liabilities have been classified as current as there is no unconditional right to defer settlement for at least 12 months after the end of the reporting period. Assessments indicate that actual settlement of the liabilities is expected to occur as follows:		
Within 12 months of the end of the reporting period	918	876
More than 12 months after the end of the reporting period	312	216
	1,230	1,092
b) Long service leave liabilities have been classified as current where there is no unconditional right to defer settlement for at least 12 months after balance sheet date. Assessments indicate that actual settlement of the liabilities is expected to occur as follows:		
Within 12 months of the end of the reporting period	442	628
More than 12 months after the end of the reporting period	1,850	1,628
	2,292	2,256

c) The settlement of annual and long service leave liabilities gives rise to the payment of employment on-costs including workers' compensation premiums and payroll tax. The provision is measured at the present value of expected future payments. Employment on-costs, including worker's compensation insurance, are not employee benefits and are recognised separately as liabilities and expenses when the employment to which they related has occurred. The related liability is included in 'Employment on-costs provision'.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

3.2 Other expenditures

	2019 $'000	2018 $'000
Supplies and services		
Communications	6	24
Consumables	1,483	1,692
Materials	19	3
Travel	62	75
	1,570	1,794
Accommodation expenses		
Property rent	4,357	4,338
Property outgoings	641	689
Repairs and maintenance	96	98
Utilities	569	557
	5,663	5,682
Other expenses		
Equipment repairs and maintenance	954	910
IT & Network Maintenance	95	135
Laboratory & Department of Mines and Petroleum Services	530	538
Postage, Printing and Stationery	183	182
Payments to Cooperative Research Centres	409	320
Motor Vehicle	37	50
Bad & Doubtful Debts	-	3
Payroll Tax	833	804
Consultant Fees	606	501
Staff training and miscellaneous staff expenses	96	104
Other minor Expenses	635	617
	4,378	4,164

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

Supplies and services
Supplies and services are recognised as an expense in the reporting period in which they are incurred.

Accommodation expenses
Operating lease payments are recognised on a straight-line basis over the lease term. Repairs and maintenance costs are recognised as expense as incurred. Utilities expenses are recognised as expense as incurred.

Other expenditures
Other expenditures generally represent the day-to-day running costs incurred in normal operations. Doubtful debt expense is recognised as the movement in the provision for doubtful expense. Please refer to note 6.1.1 Movement of the allowance for impairment of receivables.

4. Other funding sources

This section provides additional information about how ChemCentre obtains its funding and the relevant accounting policy notes that govern the recognition and measurement of this funding. The primary income received by ChemCentre and the relevant notes are:

	Notes	2019 $'000	2018 $'000
Income from State Government	4.1	6,727	6,662
Provision of services	4.2	18,721	19,832
Interest revenue	4.3	66	57
Other revenue	4.4	10	673

4.1 Income from State Government

Service appropriation received during the period[(a)(b)]			
Salaries and Allowance Act 1975		251	251
Community Service Obligations (CSO)		6,476	6,411
Total income from Government		6,727	6,662

a) Service Appropriations are recognised as revenues at fair value in the period in which ChemCentre gains control of the appropriated funds at the time those funds are deposited in the bank account.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

b) Where assets or services have been received free of charge or for nominal cost, ChemCentre recognises revenues equivalent to the fair value of the assets and/or the fair value of those services that can be reliably determined and which would have been purchased if not donated, and those fair values shall be recognised as assets or expenses, as applicable. The exception occurs where the contribution of assets or services are in the nature of contributions by owners, in which case ChemCentre makes the adjustment direct to equity.

4.2 Revenue from provision of service

	2019 $'000	2018 $'000
Private Sector	6,825	7,458
State Government Sector	11,896	12,374
	18,721	19,832

ChemCentre invoices clients on a fee for service basis for work performed. The clients are Organisations in the Private Sector and Western Australian State Government Agencies.

4.3 Interest revenue

Interest revenue	66	57
	66	57

4.4 Other revenue

Rent reimbursement[(a)]	-	664
Salary Packaging recoveries	10	9
	10	673

a) Relates to a once-off refund for rental charges following a resolution of the final construction cost of the premises involving the landlord Curtin University and the builder.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

5. Key Assets

Assets ChemCentre utilised for economic benefit or service potential

This section includes information regarding the key assets ChemCentre utilises to gain economic benefits or provide service potential. The section sets out both the key accounting policies and financial information about the performance of these assets:

	Notes	2019 $'000	2018 $'000
Property, plant and equipment	5.1	5,898	4,714
Intangibles	5.2	291	459
Total key assets		6,189	5,173

5.1 Property, plant and equipment

Reconciliations of the carrying amounts of property, plant, equipment and vehicles at the beginning and end of the reporting year are set out below.

	Plant and scientific equipment $'000	Office equipment $'000	Total $'000
2018			
Carrying amount 1 July 2017	3,588	275	3,863
Additions	1,786	141	1,927
Disposals	(1)	-	(1)
Depreciation	(965)	(110)	(1,075)
Carrying amount at end of year	4,408	306	4,714
2019			
Carrying amount 1 July 2018	4,408	306	4,714
Additions	2,194	126	2,320
Disposals	-	-	-
Depreciation	(997)	(139)	(1,136)
Carrying amount at end of year	5,605	293	5,898

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

Capitalisation/expensing of assets

Items of property, plant and equipment costing $400 or more are recognised as assets and the cost of utilising assets is expensed (depreciated) over their useful lives. Items of property, plant and equipment costing under $400 are capitalised only if they form part of a group of similar items which is significant in total. Otherwise they are expensed directly to the Statement of Comprehensive Income.

Initial recognition and measurement

All items of property, plant and equipment are initially recognised at cost.

For items of property, plant and equipment acquired at no cost or for nominal cost, cost is their fair value at the date of acquisition.

Subsequent measurement

After recognition as an asset, ChemCentre uses the cost model for all property, plant and equipment. All items of property, plant and equipment are carried at cost less accumulated depreciation and accumulated impairment losses, if any.

5.1.1 Depreciation and impairment

	2019	2018
	$'000	$'000
Plant, equipment and vehicles	997	965
Office equipment	139	110
Total depreciation for the period	1,136	1,075

Finite useful lives

All non-current assets that have a limited useful life are systematically depreciated over their estimated useful lives in a manner that reflects the consumption of their future economic benefits.

Depreciation on assets is calculated using the straight-line method, using rates which are reviewed annually. Estimated useful lives for each class of depreciable asset are:

Plant & scientific equipment	7-10 years
Office equipment	5 years

Impairment of assets

Property, plant and equipment, infrastructure and intangible assets are tested for any indication of impairment at the end of each reporting year. Where there is an indication of impairment, the recoverable amount is estimated. Where the recoverable amount is less than the carrying amount, the asset is considered impaired and is written down to the recoverable amount and an impairment loss is recognised in profit or loss. Unless an asset has been identified as a surplus asset, the recoverable amount is the higher of an asset's fair value less costs to sell and depreciated replacement cost.

The risk of impairment is generally limited to circumstances where an asset's depreciation is materially understated, where the replacement cost is falling or where there is a significant change in useful life. Each relevant class of assets is reviewed annually to verify that the accumulated depreciation/amortisation reflects the level of consumption or expiration of asset's future economic benefits and to evaluate any impairment risk from falling replacement costs.

The recoverable amount of assets identified as surplus assets is the higher of fair value less costs to sell and the present value of future cash flows expected to be derived from the asset. Surplus assets carried at fair value have no risk of material impairment where fair value is determined by reference to market-based evidence. Where fair value is determined by reference to depreciated replacement cost, surplus assets are at risk of impairment and the recoverable amount is measured. Surplus assets at cost are tested for indications of impairment at each reporting date.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

5.2 Intangible assets

Laboratory Information Management System software development

	2019 $'000	2018 $'000
At cost	3,409	3,281
Accumulated amortisation	(3,118)	(2,822)
Carrying amount at end of year	291	459
Reconciliation		
Computer software		
Opening carrying amount	459	607
Additions	158	194
Disposals	(19)	-
Amortisation expense	(307)	(342)
Carrying amount at end of year	291	459

Acquisitions of intangible assets costing $400 or more and internally generated intangible assets costing $50,000 or more are capitalised. The cost of utilising the assets is expensed (amortised) over their useful life. Costs incurred of less than $400 are immediately expensed directly to the Statement of Comprehensive Income.

All acquired and internally developed intangible assets are initially measured at cost. For assets acquired at no cost or for nominal cost, cost is their fair value at the date of acquisition.

The cost model is applied for subsequent measurement requiring the asset to be carried at cost less any accumulated amortisation and accumulated impairment losses.

Amortisation for intangible assets with finite useful lives is calculated for the period of the expected benefit (estimated useful life) on the straight-line basis using rates which are reviewed annually. All intangible assets controlled by ChemCentre have a finite useful life and zero residual value. The expected useful lives for each class of intangible asset are:

Software[(a)] 5 years

(a) Software is not integral to the operation of any related hardware.

Computer software

Software that is an integral part of the related hardware is treated as property, plant and equipment. Software that is not an integral part of the related hardware is treated as an intangible asset. Software costing less than $400 is expensed in the year of acquisition.

Research and development costs

Research costs are expensed as incurred. Development costs incurred for an individual project are carried forward when the future recoverability can reasonably be regarded as assured and the total project costs are likely to exceed $50,000. Other development costs are expensed as incurred.

5.2.1 Amortisation and impairment charge for the period

	2019 $'000	2018 $'000
Software	307	342
Total depreciation and amortisation	307	342

Impairment of intangible assets

Intangible assets with finite useful lives are tested for impairment annually or when an indication of impairment is identified.

The policy in connection with testing for impairment is outlined in note 5.1.1.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

6. Other assets and liabilities

This section sets out those assets and liabilities that arose from ChemCentre's controlled operations and includes other assets utilised for economic benefits and liabilities incurred during normal operations:

	Notes	2019	2018
		$'000	$'000
Receivables	6.1	2,264	2,519
Other assets	6.2	4,155	3,658
Payables	6.3	1,161	1,045
Other liabilities	6.4	1,025	903

6.1 Receivables

Current

Receivables trading		1,668	2,081
Allowance for impairment of receivables		(9)	(9)
Receivables sundry		379	288
GST income tax credits		226	159
Total current		2,264	2,519

ChemCentre does not hold any collateral or other credit enhancements as security for receivables.

Receivables are recognised at original invoice amount less any allowances for uncollectible amounts (i.e. impairment). The carrying amount of net trade receivables is equivalent to fair value as it is due for settlement within 30 days.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

6.1.1 Movement of the allowance for impairment of receivables

	2019 $'000	2018 $'000
Reconciliation of changes in the allowance for impairment of receivables:		
Balance at start of period	(9)	(13)
Amounts written off during the year	-	8
Amount recovered during the period	-	(4)
Balance at end of period	(9)	(9)

The collectability of receivables is reviewed on an ongoing basis and any receivables identified as uncollectable are write-off against the allowance account. The allowance for uncollectable amounts (doubtful debts) is raised when there is objective evidence that ChemCentre will not be able to collect the debts.

6.2 Other assets

Current		
Prepayment	302	259
	302	259
Non-current		
Sinking fund (Amount held by Curtin for future building and repairs and maintenance)	2,700	2,379
Deferred tax asset	1,153	1,098
	3,853	3,477

Other non-financial assets include prepayments which represent payments in advance of receipt of goods or services or that part of expenditure made in one accounting period covering a term extending beyond that period.
The Sinking Fund represents the accumulation of a $0.255m annual bond paid to the landlord i.e. Curtin to provide for required building maintenance as set out in the lease contract. It is refundable upon ChemCentre vacating the premises after offsetting the cost of any remediation to the premises required.
As a National Tax Equivalent Regime (NTER) registered Government organisation, ChemCentre applies all relevant taxation laws applicable to private business. Deferred tax assets represent mainly the accumulation of prior year losses available to be offset against future profits.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

	2019 $'000	2018 $'000
6.3 Payables		
Current		
Trade payables	230	383
GST payable	144	172
Accrued expenses	713	422
Accrued superannuation	74	68
	1,161	1,045
6.4 Other liabilities		
Current		
Revenue received in advance	1,025	903
	1,025	903

	Notes	2019 $'000	2018 $'000
7. Financing			
7.1 Cash and cash equivalents			
7.1.1 Reconciliation of cash			
Cash at the end of the financial year as shown in the Cash Flow Statement is reconciled to the related items in the Balance Sheet as follows:			
Cash held with Commonwealth Bank		2,128	2,785
Cash on hand		1	1
		2,129	2,786

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

7.1.2 Reconciliation of net cost of service to net cash flow provided by/(used in) operating activities

	Notes	2019 $'000	2018 $'000
Profit/(loss) after income tax equivalents		(2,400)	(602)
Non-cash items:			
Depreciation and amortisation expense	5.1	1,443	1,417
Provision for Doubtful Debts	3.3	-	(4)
Deferred Tax Asset	9.11	(55)	(78)
Loss on disposal of assets	3.3	19	1
Grants and subsidies from Government	4.1	(6,727)	(6,662)
Amounts credited to provision for income tax equivalents		-	-
(Increase)/decrease in assets:			
Current receivables		255	140
Sinking funds		(321)	(209)
Amounts receivable for services and prepayments		(43)	72
Increase/(decrease) in liabilities:			
Current payables		(148)	58
Accrued expenses		291	4
Employee benefits		185	205
Revenue in advance		122	(12)
Provision for tax		-	-
Net GST receipts/(payments)		(649)	(825)
Change in GST in receivables/payables		649	825
Net cash (used in) operating activities		(7,379)	(5,670)

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

7.2 Commitments

	2019 $'000	2018 $'000
Commitments in relation to leases contracted for at the end of the reporting period but not recognised in the financial statements are payable as follows:		
Within 1 year	5,164	5,167
Later than 1 year and not later than 5 years	20,593	20,620
Later than 5 years	26,628	31,765
	52,386	57,553

Included in non-cancellable operating leases are rent payments to Curtin for 10 years and 68 days, being the remaining term of the Lease. This amounts to $44.5 million for rent and management fee and $7.9 million for outgoings.

8. Risks and Contingencies

This note sets out the key risk management policies.

8.1 Financial risk management

Financial instruments held by ChemCentre are cash and cash equivalents, receivables and payables. ChemCentre has limited exposure to financial risks. ChemCentre's overall risk management program focuses on managing the risks identified below.

(a) Summary of risks and risk management

Credit risk

Credit risk arises when there is the possibility of ChemCentre's receivables defaulting on their contractual obligations resulting in financial loss to ChemCentre. ChemCentre measures credit risk on a fair value basis and monitors risk on a regular basis.

The maximum exposure to credit risk at balance sheet date in relation to each class of recognised financial assets is the gross carrying amount of those assets inclusive of any provisions for impairment. ChemCentre trades only with recognised, creditworthy third parties. ChemCentre has policies in place to ensure that sales of products and services are made to customers with an appropriate credit history. In addition, receivable balances are monitored on an ongoing basis with the result that ChemCentre's exposure to bad debts is minimal. There are no significant concentrations of credit risk.

Provision for impairment of financial assets is calculated based on objective evidence such as observable data indicating changes in client credit ratings. For financial assets that are either past due or impaired, refer to 6.1 'Receivables'.

Liquidity risk

ChemCentre is exposed to liquidity risk through its trading in the normal course of business. Liquidity risk arises when ChemCentre is unable to meet its financial obligations as they fall due.

ChemCentre has appropriate procedures to manage cash flows by monitoring forecast cash flows to ensure that sufficient funds are available to meet its commitments.

Market Risk

Market risk is the risk that changes in market prices such as foreign exchange rates and interest rates will affect ChemCentre's income or the value of its holdings of financial instruments. ChemCentre does not trade in foreign currency and is not materially exposed to other price risks (for example, equity securities or commodity prices changes). Hence, ChemCentre has no exposure to market risk.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

(b) Categories of financial instruments

The carrying amounts of each of the following categories of financial assets and financial liabilities at the end of the reporting period are:

	2019 $'000	2018 $'000
Financial assets		
Cash and cash equivalents	2,129	2,786
Sinking fund and receivables[a]	4,738	4,748
Total financial assets	6,867	7,534
Financial liabilities		
Financial liabilities measured at amortised cost[b]	1,017	873
Total financial liabilities	1,017	873

a) Total amount of receivables excludes GST recoverable from the ATO.

b) Total amount of financial liabilities excludes GST payable to the ATO.

8.2 Contingent assets and liabilities

Contingent assets and contingent liabilities are not recognised in the statement of financial position but are disclosed and, if quantifiable, are measured at nominal value.

ChemCentre does not have contingent assets and liabilities.

9. Other disclosures

This section includes additional material disclosures required by accounting standards or other pronouncements, for the understanding of this financial report.

	Notes
Future impact of Australian standards issued not yet operative	9.1
Key management personnel	9.2
Related party transactions	9.3
Related bodies	9.4
Affiliated bodies	9.5
Special purpose accounts	9.6
Remuneration of auditors	9.7
Equity	9.8
Supplementary financial information	9.9
Explanatory statement	9.10
Tax equivalent	9.11

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

9.1 Initial application of Australian Accounting Standards

AASB 9 Financial Instruments

AASB 9 *Financial Instruments* replaces AASB 139 Financial instruments: Recognition and Measurement for annual reporting periods beginning on or after 1 January 2018, bringing together all three aspects of accounting for financial instruments: classification and measurement; impairment; and hedge accounting.

ChemCentre applied AASB 9 prospectively, with an initial application date of 1 July 2018. The adoption of AASB 9 has resulted in changes in accounting policies, however assessment under the new standard has determined no adjustments to the amounts recognised in the financial statements were required.

The effect of adopting AASB 9 as at 1 July 2018 was as follows:

		Adjustments	1 July 2018 $'000
Assets			
Receivables		(a),(b)	-
Total Assets			-
Total adjustments on Equity			
Accumulated surplus/(deficit)		(a),(b)	-
Total financial liabilities			-

(a) Classification and measurement

Under AASB 9, financial assets are subsequently measured at amortised cost, fair value through other comprehensive income (fair value through OCI) or fair value through profit or loss (fair value through P/L). The classification is based on two criteria; ChemCentre's business model for managing the assets; and whether the assets' contractual cash flows represent 'solely payments of principal and interest' on the principal amount outstanding.

The assessment of ChemCentre's business model was made as of the date of initial application, 1 July 2018. The assessment of whether contractual cash flows on financial assets are solely comprised of principal and interest was made based on the facts and circumstances as at the initial recognition of the assets.

The classification and measurement requirements of AASB 9 did not have a significant impact to ChemCentre. The following are the changes in the classification of ChemCentre's financial assets:

- Trade receivables are held to collect contractual cash flows and give rise to cash flows representing solely payments of principal and interest. These are classified and measured as Financial assets at amortised cost beginning 1 July 2018.
- ChemCentre did not designate any financial assets as at fair value through P/L.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

(b) Impairment

The adoption of AASB 9 has changed ChemCentre's accounting for impairment losses for financial assets by replacing AASB 139's incurred loss approach with a forward-looking expected credit loss (ECL) approach. AASB 9 requires ChemCentre to recognise an allowance for ECLs for all financial assets not held at fair value through P/L.

In summary, upon the adoption of AASB 9, ChemCentre had the following required (or elected) reclassification as at 1 July 2018:

		AASB 9 category		
		Amortised cost	Fair value through OCI	Fair value through P/L
	($000)	($000)	($000)	($000)
AASB 139 category				
Receivables:				
Trade Receivables	2,360	2,360	-	-
Sinking Fund	2,378	2,378	-	-
	4,738	**4,738**	-	-

Set out below is the reconciliation of the ending impairment allowances in accordance with AASB 139 to the opening loss allowances determined in accordance with AASB 9:

	Impairment under AASB 139 as at 30 June 2018	Remeasurement	ECL under AASB 9 as at 30 June 2019
	($000)	($000)	($000)
Receivables under AASB 139 / Financial assets at amortised cost under AASB 9	9	-	9
	9	**-**	**9**

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

9.2 Key Management Personnel

ChemCentre has determined key management personnel to include cabinet ministers, board members, and senior officers of the agency. ChemCentre does not incur expenditures to compensate Ministers and those disclosures may be found in the *Annual Report on State Finances*.

The total fees, salaries, superannuation, non-monetary benefits and other benefits for Board of Directors of the agency for the reporting period are presented within the following bands:

Compensation band ($)	2019	2018
0 – 10,000[a]	1	4
10,001 – 20,000	4	3
20,001 – 30,000	1	1
30,001 – 40,000	1	1

	2019	2018
	$'000	$'000
Short-term employee benefits	121	131
Post-employment benefits	12	12
Other long-term benefits	-	-
Termination benefits	-	-
Total compensation of members of the accountable authority	133	143

(a) Two Board members were replaced part way through 2017-18.

The total fees, salaries, superannuation, non-monetary benefits and other benefits for senior officers of the agency for the reporting period are presented within the following bands:

Compensation band ($)	2019	2018
50,001 – 60,000[a]	-	1
120,001 – 130,000[b]	-	1
150,001 – 160,000	1	–
190,001 – 200,000	-	1
200,001 – 210,000	2	1
230,001 – 240,000	-	1
240,001 – 250,000	1	
330,001 – 340,000[c]	-	1

	2019	2018
	$'000	$'000
Short-term employee benefits	768	975
Post-employment benefits	89	101
Other long-term benefits	(52)	(135)
Termination benefits	-	210
Total compensation of senior officers	**805**	**1,151**

(a) New starter part way through 2017-18.

(b) Retirement of one key management personnel during 2017-18.

(c) Relates to a voluntary separation payment made to one key management personnel during 2017-18.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

9.3 Related party transactions

ChemCentre is a wholly owned public-sector entity that is controlled by of the State of Western Australia.

Related parties of the agency include:

- all cabinet ministers and their close family members, and their controlled or jointly controlled entities;
- all senior officers and their close family members, and their controlled or jointly controlled entities;
- other departments and statutory authorities, including related bodies, that are included in the whole of government consolidated financial statements (i.e. wholly owned public sector entities); and
- the Government Employees Superannuation Board (GESB).

Significant transactions with Government-related entities

In conducting its activities, the agency is required to transact with the State and entities related to the State. These transactions are generally based on the standard terms and conditions that apply to all agencies. Such transactions include:

- income from State Government (Note 4.1);
- equity contributions (Note 9.8);
- superannuation payments to GESB (Note 3.1(a));
- lease rentals payments to the Department of Finance (Government Office Accommodation and State Fleet);
- insurance payments to the Insurance Commission and Risk Cover fund;
- remuneration for services provided by the Auditor General (Note 9.7).

Material transactions with other related parties

Outside of normal citizen type transactions with the agency, there were no other related party transactions that involved key management personnel and/or their close family members and/or their controlled (or jointly controlled) entities.

9.4 Related bodies

There are no related bodies.

9.5 Affiliated bodies

There are no affiliated bodies.

9.6 Special purpose accounts

There are no special purpose accounts.

9.7 Remuneration of auditors

Remuneration paid or payable to the Auditor General in respect of the audit for the current financial year is as follows:

	2019 $'000	2018 $'000
Auditing the accounts, financial statements, controls, and key performance indicators	48	48

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

9.8 Equity

The Western Australian Government holds the equity interest in ChemCentre on behalf the community. Equity represents the residual interest in the net assets of ChemCentre.

	2019 $'000	2018 $'000
Contributed equity		
Balance at the start of the year	**11,026**	**9,286**
Contributions by owners		
Equity Contribution	2,500	1,740
Total contributions by owners	**13,526**	**11,026**
Balance at end of year	**13,526**	**11,026**
Retained earnings		
Balance at start of year	(2,293)	(1,691)
Result for the year	(2,400)	(602)
Balance at end of year	**(4,693)**	**(2,293)**
Total equity at end of year	8,833	8,733

9.9 Supplementary financial information

(a) Write-offs

During the financial year, nil was written off the agency's asset register under the authority of:

	2019 $'000	2018 $'000
The accountable authority	–	–
The Minister	–	–
	–	–

(b) Losses through theft, defaults and other causes

	2019 $'000	2018 $'000
Losses of public money and public and other property through theft or default	–	–
Amounts recovered	–	–
	–	–

(c) Gifts of public property

	2019 $'000	2018 $'000
Gifts of public property provided by the agency	–	
	–	–

9.10 Explanatory statement

All variance between estimates (original budget) and actual results for 2019, and between the actual results for 2019 and 2018 are shown on the following page. Narratives are provided for selected major variances which are generally greater than 5% and $558,000 for the Statement of Comprehensive Income and Cash flows, and 5% and $284,000 for the Statement of Financial Position.

Financial Statements

Statement of Comprehensive Income Variances For the year ended 30 June 2019

	Variance Note	Original Budget 2019	Actual 2019	Actual 2018	Variance between budget and actual	Variance between actual results for 2019 and 2018
		$,000's	$,000's	$,000's	$,000's	$,000's
INCOME						
Revenue						
Provision of Services	a	18,695	18,721	19,832	26	(1,111)
Interest Revenue		57	66	57	9	9
Other Revenue	b	-	10	673	10	(663)
Total Income		18,752	18,797	20,562	45	(1,765)
EXPENSES						
Expenses						
Employee benefits expense		14,729	14,925	14,847	196	78
Supplies and services		1,608	1,570	1,794	(38)	(224)
Depreciation and amortisation expense		1,455	1,443	1,417	(12)	26
Accommodation expenses		5,711	5,663	5,682	(48)	(19)
Other expenses	1	2,947	4,378	4,164	1,431	214
Total expenses		26,450	27,979	27,904	1,529	75
Loss before grants and subsidies from State Government		(7,698)	(9,182)	(7,342)	(1,484)	(1,840)
Service appropriation		6,727	6,727	6,662	-	65
Profit/(loss) before income tax expense		(971)	(2,455)	(680)	(1,484)	(1,775)
Income tax benefit/ (expense)		-	(55)	(78)	-	23
Profit/(loss) after income tax expense		(971)	(2,400)	(602)	(1,429)	(1,798)
Profit/(loss) for the period		(971)	(2,400)	(602)	(1,429)	(1,798)
Total comprehensive income for the period		(971)	(2,400)	(602)	(1,429)	(1,798)

Financial Statements

Statement of Financial Position Variances As at 30 June 2019

	Variance Note	Original Budget 2019	Actual 2019	Actual 2018	Variance between budget and actual	Variance between actual results for 2019 and 2018
ASSETS		$,000's	$,000's	$,000's	$,000's	$,000's
Current Assets						
Cash and cash equivalents		1,763	2,129	2,786	366	(657)
Prepayments		331	302	259	(29)	43
Receivables		2,545	2,264	2,519	(281)	(255)
Total Current Assets		4,639	4,695	5,564	66	(869)
Non-Current Assets						
Property, plant and equipment	2, c	4,594	5,898	4,714	1,304	1,184
Intangible assets		390	291	459	(99)	(168)
Sinking Fund	d	2,793	2,700	2,379	(93)	321
Deferred Tax Asset		1,020	1,153	1,098	133	55
Total Non-Current Assets		8,797	10,042	8,650	1,245	1,337
TOTAL ASSETS		13,436	14,737	14,214	1,301	523

Financial Statements

Statement of Financial Position Variances As at 30 June 2019

	Variance Note	Original Budget 2019	Actual 2019	Actual 2018	Variance between budget and actual	Variance between actual results for 2019 and 2018
LIABILITIES		$,000's	$,000's	$,000's	$,000's	$,000's
Current Liabilities						
Payables		315	1,161	1,045	(846)	116
Provisions		2,464	2,459	2,450	5	9
Other current liabilities		1,153	1,025	903	128	122
Total Current Liabilities		3,932	4,645	4,398	(713)	247
Non-Current Liabilities						
Provisions	3	864	1,259	1,083	(395)	176
Total Non-Current Liabilities		864	1,259	1,083	(395)	176
TOTAL LIABILITIES		4,796	5,904	5,481	(1,108)	423
NET ASSETS		8,640	8,833	8,733	(193)	100
EQUITY						
Contributed equity		12,026	13,526	11,026	1,500	2,500
Retained earnings		(3,386)	(4,693)	(2,293)	(1,287)	(2,400)
TOTAL EQUITY		8,640	8,833	8,733	193	100

Financial Statements

Statement of Financial Position Variances As at 30 June 2019

	Variance Note	Original Budget 2019	Actual 2019	Actual 2018	Variance between budget and actual	Variance between actual results for 2019 and 2018
		$,000's	$,000's	$,000's	$,000's	$,000's
CASH FLOWS FROM STATE GOVERNMENT						
Service and capital appropriations	4	7,727	9,227	8,962	1,500	265
Net cash provided by State Government		7,727	9,227	8,962	1,500	265
CASH FLOWS FROM OPERATING ACTIVITIES						
Receipts						
Provision of services	e	18,599	19,103	20,629	504	(1,526)
GST receipts on services		1,860	1,910	2,063	50	(153)
Payments						
Employee benefits		(14,573)	(14,684)	(14,596)	(111)	(88)
Accommodation		(5,977)	(5,735)	(5,834)	242	99
GST payments on purchases		(973)	(1,184)	(1,199)	(211)	15
GST payments to taxation authority		(887)	(649)	(825)	238	176
Other payments	5	(4,636)	(6,140)	(5,908)	(1,504)	(232)
Net cash used in operating activities		(6,587)	(7,379)	(5,670)	(792)	(1,709)
CASH FLOWS FROM INVESTING ACTIVITIES						
Purchase of non-current assets	6	(1,000)	(2,505)	(2,409)	(1,505)	(96)
Net cash used in investing activities		(1,000)	(2,505)	(2,409)	(1,505)	(96)
Net increase/(decrease) in cash and cash equivalents		140	(657)	883	(797)	(1,540)
Cash and cash equivalents at the beginning of period		1,623	2,786	1,903	1,163	883
CASH AND CASH EQUIVALENTS AT THE END OF PERIOD		1,763	2,129	2,786	366	(657)

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

Significant variances between estimate and actual results for the financial year

1. Other Expenses were $1.436 million higher than budget. This is primarily due to the timing of the original budget being prior to the confirmation and commencement of a number of research projects with significant external project funding managed by ChemCentre.
2. Property, plant and equipment was $1.304 million higher than budget due to an additional $1.5 million capital funding provided during the year for the purchase and replacement of aged instrumentation.
3. Non-current provisions were $0.395 million higher than budget primarily due to the original budget figure being based on the pre-NMI merger employee levels which were on average 15 FTE lower than in 2018-19.
4. Service and capital appropriations receipts increased by $1.5 million reflecting the additional capital appropriation provided for the replacement of aged instrumentation.
5. Cash payments for other expenses were higher than budget by $1.504m. This is due to the timing difference in the setting of the budget and commencement of significant R&D projects as described in the Other Expenses explanatory note.
6. The payment for the acquisition of non-current assets was higher than budget by $1.505 million mainly due to additional $1.5 million capital funding secured to replace the critical equipment, much of which is approaching end of life.

Significant variances between actual results for 2019 and 2018

a) Revenue from the provision of services decreased by $1.111 million mainly due to the cessation of lead contamination analysis at the new Perth Children's hospital ($0.697 million in 2017-18) and a decline in demand for commercial analysis work during the year.

b) Other revenue decreased by $0.663 million representing a once-off refund for rental charges received in 2017-18.

c) Property, plant and equipment increased by $1.184 million due to additional capital funding provided during the year for the purchase and replacement of aged instrumentation.

d) The Sinking fund balance increased by $0.321 million reflecting the annual payment of $0.255 million and $0.066 million interest earned on the fund.

e) Cash receipts from the provision of services decreased by $1.526 million mainly due to the cessation of lead contamination analysis at Perth Children's Hospital and a decline in demand for commercial analysis work during the year.

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

9.11 Taxation Equivalent

	2019 $'000	2018 $'000
(a) Income tax expense		
Current income tax	–	–
Deferred tax	(55)	(78)
Prior year under/(over) provision	–	–
Net current and deferred tax transferred to Income Statement	(55)	(78)
(b) Reconciliation of income tax expense		
Profit from continuing operations before income tax expense	(2,455)	(680)
Tax equivalent at the Australian tax rate of 30%	(737)	(204)
Tax effect of amounts which are not deductible /(taxable) in calculating taxable income:		
Tax loss not to be recognised	679	124
Unpaid superannuation (SGC)	–	–
Entertainment	3	2
Prior year over provision	–	–
	(55)	(78)
(c) Current tax liability		
Opening balance as at 1 July 2018	–	–
Prior year under/(over) provision	–	–
Closing balance as at 30 June 2019	–	–

Financial Statements

Notes to the financial statements For the year ended 30 June 2019

	30 June 2019	Income Tax (expense)/ benefit	30 June 2018
	$'000	$'000	$'000
(d) Deferred tax assets			
Provision for doubtful debts	1	(2)	3
Accrued expenses	37	2	35
Provision for employee entitlements	1,115	55	1,060
	1,153	55	1,098
Deferred tax liabilities			
Prepayment	–	–	–
	–	–	–
Net deferred tax balance	1,153	55	1,098

	2019		2018
	$'000		$'000
(e) Deferred tax assets not recognised			
Deferred tax assets have not been recognised in relation to the following matters:			
Non-refundable carry forward R&D tax offsets	703		703
Carried forward tax losses	1,542		1,339
	2,245		2,042

Key Performance Indicators

Certification of Key Performance Indicators

We hereby certify that the performance indicators are based on proper records, are relevant and appropriate for assisting users to assess ChemCentre's performance, and fairly represent the performance of ChemCentre for the year ended 30 June 2019.

Denise Goldsworthy
Chair
ChemCentre Board
Member of Governing Board
28 August 2019

David Blyth
Chair
Finance and Growth Committee
Member of Governing Board
28 August 2019

Peter McCafferty
Chief Executive Officer
ChemCentre
28 August 2019

Government Goal	Desired Outcome	Services
Strong Communities: Safe communities and supported families	Quality scientific advice	1) Commercial and Scientific Information and Advice
	Quality emergency response	2) Emergency Response Management
Future Jobs and Skills: Grow and diversify the economy, create jobs and support skills development	Quality research and development	3) Research and Development

Key Performance Indicators

Changes to the Outcomes Based Management Structure (OBM) in 2018/19

The agency amended its OBM structure in 2018-19 to ensure its KPIs remain relevant and appropriate as reported hereunder.

Modified Effectiveness Indicator

- **Average *mobilisation* time for emergency response incidents** – changed from resolution to mobilisation reflecting the time taken for ChemCentre to mobilise its emergency response team from the time of receiving a call for assistance. The change recognises the involvement of other lead parties on-site, the nature and complexity of an incident and its geographical location that may be distant to ChemCentre's sole operational site.

New Effectiveness Indicators

- **Availability of emergency response workforce to meet agreed inter-agency requirements –** measures ChemCentre's ability to achieve an effective emergency response outcome through the provision of an appropriately staffed 24/7 response team.
- **Contribution to scientific forums** – measures outcome achievement by measuring ChemCentre's contribution to knowledge, technical skills and/or Intellectual Property relevant to state development, public health and safety.

New Efficiency Indicators

- **Average cost of providing commercial scientific information and advice per applicable FTE** – allows users to assess the efficiency with which ChemCentre staff can provide scientific information and advice and provides an easy to understand and direct measure.
- **Average cost to maintain an emergency response capability per Western Australian** – ChemCentre provides a managed crisis and emergency response service for chemical, biological and radiological incidents. This indicator measures the service cost to each Western Australian and allows users to assess ChemCentre's ability to provide this essential service efficiently.
- **Publications per R&D FTE** – an efficiency indicator of ChemCentre's research productivity.

Discontinued Effectiveness Indicator

- **Aggregate value of ChemCentre components** – calculated as a ratio of external R&D funding to internal R&D spend. This measure relied on external contributions influenced by market conditions and was no longer considered to appropriately reflect ChemCentre's commitment to research and development that contributes to sustainable industry in the State.

Discontinued Efficiency Indicators

- **Average cost per chargeable hour – Commercial Scientific Information and Advice**
- **Average cost per chargeable hour – Research and Development**
- **Average cost per chargeable hour – Emergency Response Management**

Cost per chargeable hour is more in line with a purely commercial service where billable hours are a core measure of activity. However, the measure does not appropriately reflect a significant part of ChemCentre activity that is tied to Community Service Obligations. It is felt that the new efficiency indicators provide a better link to each service.

Effectiveness Indicators Retained

- **Client satisfaction (Commercial scientific information and advice clients)**
- **Client satisfaction (R&D clients)**
- **Proficiency rating for the accredited services**

Per our review, the above indicators continue to be relevant and appropriate and will be retained.

Where there has been a modification of an existing indicator, or the adoption of a new indicator, the 2017-18 comparative result and the 2018-19 target and result have been presented.

Key Performance Indicators

Key Effectiveness Indicators by Output

Desired Outcome: Quality Scientific Advice

Development and delivery of quality scientific information and advice, including commercial services, to government, industry and the community.

Key Effectiveness Indicators

	2015-16 Actual	2016-17 Actual	2017-18 Actual	2018-19 Actual	2018-19 Target
Client Satisfaction: *as determined by an annual survey of clients invited from all invoices sent out in the previous financial year above $2,000 in value. The survey covered 166 clients with 27.7% response rate (n=46).*	85%	84%	88%	89%	80%

The client satisfaction percentage is a relevant measure as it demonstrates the quality of ChemCentre's scientific information and advice through clients' responses to questions on quality, timeliness and overall satisfaction with ChemCentre's service. The actual client satisfaction for 2018-19 was taken at a 95% confidence level and a sampling error of ±12.32%.

Proficiency Rating for the Accredited Services: *this includes performance in qualitative and quantitative trials undertaken during the relevant year and is determined by the percentage of samples satisfactorily meeting the evaluation criteria of the proficiency trial provider.*	92%	92%	88%	91%	95%

The Proficiency rating is a relevant measure as it demonstrates the quality of testing undertaken by ChemCentre. As ChemCentre plays a critical role in supporting the State justice and policing systems, it requires that the results of testing are dependable and high quality.

Key Performance Indicators

Desired Outcome: Quality Emergency Response

Specialist technical advice and support to government and industry in managing the risks arising from unmanaged chemical-biological-radiological releases.

	2017-18 Actual	2018-19 Actual	2018-19 Target
Average Mobilisation Time for all Emergency Response Incidents Attended: as *extracted from the response team log book*	16.6 minutes	16 minutes	20 Minutes

The average mobilisation time is relevant because the quicker ChemCentre is able to mobilise to respond to a chemical-biological-radiological emergency, the lower the risk to the community.

	2017-18 Actual	2018-19 Actual	2018-19 Target
Availability of Emergency Response Workforce to Meet Agreed Inter-Agency Requirements: *as determined by the proportion of weekly staff rosters, which provide the required number of staff with the technical capability to meet all agreed inter-agency requirements.*	100%	100%	100%

The indicator reflects ChemCentre's performance in maintaining the required capacity to respond to ER incidents. ChemCentre's 24/7/365 coverage is met through rosters prepared on a weekly basis, instructed by an existing workforce management plan to accommodate technical capability requirements.

Key Performance Indicators

Desired Outcome: Quality Research and Development

Delivery of quality project-based developed knowledge, know-how and/or intellectual property relevant to state development, public health and safety, or delivery of ChemCentre's other services.

	2015-16 Actual	2016-17 Actual	2017-18 Actual	2018-19 Actual	2018-19 Target
Client Satisfaction: *as determined by an annual survey of clients invited from R&D projects conducted over the previous financial year. 14 responses were collected from 37 survey invitations.*	80%	81%	83%	79%	80%

The client satisfaction percentage is a relevant measure as it demonstrates the quality of ChemCentre's scientific information and advice through clients' responses to questions on quality, timeliness and overall satisfaction with ChemCentre's service. The actual client satisfaction for 2018-19 was taken at a 95% confidence level and a sampling error of ±20.94%.

	2017-18 Actual	2018-19 Actual	2018-19 Target
Contribution to Scientific Forums: *as determined by the number of recognised contributions from ChemCentre staff to presentations, publications, or technical forums.*	74	87	60

This indicator is relevant in measuring ChemCentre's contribution to knowledge, know-how and and/or Intellectual Property relevant to state development, public health and safety.

Key Performance Indicators

Notes

Desired Outcome 1: Quality Scientific Advice

Client Satisfaction: The client satisfaction of 89%, up 1% from the previous year and 9% above the target of 80% is a pleasing result. It demonstrates ChemCentre's ongoing commitment to providing quality and timely commercial solutions.

Proficiency Rating for the Accredited Services: The proficiency rating of 91% is up 3% from the previous year and 4% below the target. This is an improvement over the prior year and slightly below target but is still considered an acceptable result as ChemCentre continues to strive for higher quality results.

Desired Outcome 2: Emergency Response Management

Average Mobilisation Time for all Emergency Response Incidents Attended: The average mobilisation time of 16 minutes is 0.6 minutes faster than previous year and 4 minutes faster than the target. The result reflects the high level of capability of ChemCentre's emergency responders in minimising potential harm to the community through rapid mobilisation to HAZMAT incidents.

Availability of Emergency Response Workforce to Meet Agreed Inter-Agency Requirements: The result of 100% is in line with the prior year and target reflecting ChemCentre's commitment to the 24/7 365-day provision of an appropriately staffed emergency response team.

Desired Outcome 3: Quality Research and Development

Client Satisfaction: The client satisfaction of 79%, down 4% from the previous year and 1% below the target of 80%.

Contribution to Scientific Forums: The 86 contributions for the year is 13 higher than prior year and 27 higher than the target. This is due to a number of key research projects commenced in the prior year reaching development milestones and a slightly higher focus on internal method development during the year.

Key Performance Indicators

Key Efficiency Indicators by Service

Service 1: Commercial and Scientific Information and Advice

Development and delivery of quality scientific information and advice, including commercial services, to government, industry and the community.

	2017-18 Actual	2018-19 Actual	2018-19 Target
Average Cost of Providing Commercial Scientific Information and Advice per Applicable FTE: *calculated by dividing the total cost of the service by the number of FTEs*	$237,000	$228,000	$240,000

Service 2: Emergency Response Management

Specialist technical advice and support to government and industry in managing the risks arising from unmanaged chemical-biological-radiological releases.

	2017-18 Actual	2018-19 Actual	2018-19 Target
Average Cost to Maintain an Emergency Response Capability per Western Australian: *as determined by the total cost of maintaining the minimum Emergency Response capability required by Government, divided by the Western Australian population*	$0.82	$0.76	$0.85

Key Performance Indicators

Service 3: Quality Research and Development

Delivery of quality project-based developed knowledge, know-how and/or intellectual property relevant to state development, public health and safety, or delivery of ChemCentre's other services.

	2017-18 Actual	2018-19 Actual	2018-19 Target
Publications per R&D FTE: *as determined by the total number of publications during the financial year, divided by the average number of full-time equivalent employees allocated to R&D projects and internal research activity within the financial year.*	3.19	5.93	4

Notes

Service 1: Commercial and Scientific Information and Advice

Average Cost of Providing Commercial Scientific Information and Advice per Applicable FTE: The cost per applicable FTE is $9,000 and $12,000 below previous year and target respectively. The result reflects ChemCentre's commitment to maintaining effective control over spending in response to challenging trading conditions during the year.

Service 2: Emergency Response Management

Average Cost to Maintain an Emergency Response Capability per Western Australian: The cost of the service per Western Australian is $0.06 below previous year and $0.09 below target primarily due to salary savings achieved through an efficiency review of positions and levels.

Service 3: Quality Research and Development

Publications per R&D FTE: The number of publications per R&D FTE has increased by 2.74 over the previous year and 1.93 over the target. This is due to a number of key research projects commenced in the prior year reaching development milestones and a slightly higher focus on internal method development during the year.

Significant Issues and Trends

Significant Issues and Trends

ChemCentre provides essential services to the State and plays a critical role in the government's management of chemistry-related risks. Our business model facilitates us delivering these services to the State and also operating as a fee-for-service consultancy, helping to offset the cost to Government.

The baseline work we receive from, and do for, other government departments has not changed dramatically over the year; it continues to be an essential part of the service we provide to the people of WA. It is also a critical component of our income. Consistent with the Premier's Circular 2016-01, ChemCentre continues to encourage all WA government departments to use our service where applicable, as additional revenue defrays the cost of ChemCentre delivering its statutory responsibilities.

We continue to seek ways to improve our workflow and efficiency and have begun a functional review of our Scientific Services Division to ensure it responds appropriately to ChemCentre's legislated requirements.

We have also invested in developing new methodologies to further enhance our capabilities including new testing capabilities such as a honey authentication and certification process; and a medicinal cannabis testing capability. Again, this directly improves the services we provide to the government and people of WA.

The CT Scanner implemented in 2019 at PathWest is increasing the proportion of cases coming to ChemCentre that require urgent toxicology. This year we received over 2,100 coronial toxicology cases, encompassing more than 14,000 samples and 33,000 results. These analyses correlate to the production of around 2,000 reports that assist pathologists and coroners to determine cause of death under the Coroners Act. Twenty percent of these required an urgent (24hr) turnaround. A project is underway to streamline the analytical process.

This year we have worked on improving our Laboratory Information Management System (LIMS) and have a vision for an integrated single system with a higher degree of automation and security. Having more automation in the laboratories will further improve processes. We are also working towards more online data sharing with our key partners, which will improve the timeliness of test results.

We invested in new laboratory equipment and have refreshed the analytical component of our instrument fleet. We replaced two mass spectrometers with new instrumentation and put in a second high resolution LCMS, and updated our pyrolysis and infrared capabilities. We installed a new XRD (X-ray diffractometer) which will analyse samples far more efficiently, significantly reducing analysis time.

This level of reinvestment is absolutely critical to maintaining and growing our capability for new requirements for investigation and evidentiary purposes.

ChemCentre provides essential services to the State and plays a critical role in the government's management of chemistry-related risks.

Significant Issues and Trends

In the Science Statement, the Government identifies five areas in which the advancement and application of science can help WA broaden the economy and create a new generation of careers and employment opportunities. These areas are:

- Mining and Energy
- Medicine and Health
- Agriculture and Food
- Biodiversity and Marine Science
- Radio Astronomy

ChemCentre directly demonstrates scientific and commercial activities that facilitate, lead or collaborate in the first four of these five areas. ChemCentre, while a small agency, has a critical role in Western Australian science.

We continue to pursue revenue opportunities with government agencies and the private sector consistent with our mandate and strategic objectives, while working for the advancement and application of science in the State.

Changes in written law

There were no changes to written law that affected ChemCentre.

Disclosure and Compliance

Other Financial Disclosures

Ministerial Directives

No Ministerial directives were received during the financial year.

Other Financial Disclosures

Pricing policies of services provided

ChemCentre provides services back to government on a cost recovery basis applying the Costing and Pricing Government Guidelines published by the Department of Treasury. Charges are reviewed annually as part of the State budget process and ChemCentre has discretion over pricing for services to commercial clients.

Major Capital Works

No major capital projects were undertaken during the financial year.

Employment and Industrial Relations

ChemCentre's workforce at 30 June 2019 of 136 FTEs has remained consistent with the prior year, represented by over 58% women. A focus to support and develop women to progress to management tiers has resulted in some 27% in leadership and management tiers.

Flexible workplace arrangement continued to be made available to staff offering various options for staff to explore flexible work arrangements with their managers. This continues to be highly valued by the workforce. At 30 June some 21 staff or 15% of the workforce enjoyed modified hours compared to 11 or 8% the previous year.

During 2018-19, ChemCentre converted 20 existing contract staff to permanency in line with its future workforce and diversity planning with 31 employees remaining on fixed term contracts at 30 June compared to 44 the previous year.

Industrial Relations

All staff are employed under the *Public Sector Management Act 1994* and the *Public Service and Government Officers CSA General Agreement 2017.* During the year there were no industrial relations issues and no services to the public were disrupted.

Other Financial Disclosures

Work Force Planning and Staff Development

ChemCentre recognises that its employees are key to organisational success and continues to place high importance on developing its workforce.

Effective workforce planning continued to be a key focus area and a new Workforce and Diversity Plan for 2018-2021 was released. The Plan reflects our commitment to the development of a supportive and inclusive culture and will remain a central document to assist ChemCentre's workforce and diversity objectives, aligned with our Strategic Directions.

During 2018-19 ChemCentre, undertook two business reviews to examine current operations and business needs. One review was completed, and the findings implemented. The second review is in progress and will be addressed in the new financial year. Both reviews were managed in accordance with defined public sector processes.

ChemCentre's maintains a highly capable workforce and development opportunities continued to be provided in a range of science and corporate training areas.

Further, during 2018-19 ChemCentre also focused on mental health and wellbeing recognising the importance of maintaining a healthy workplace and the impact of mental health issues on employees. Training was provided to Managers to assist them identify and appropriately respond to an employee's mental health concerns.

A review of ChemCentre's performance management system is well progressed and expected to be implemented in late August 2019. This will include a suite of training programs for managers in providing constructive feedback and directing and developing employees and workshops to better understand the standards and industrial environment to effectively manage performance.

Training initiatives will also be reviewed as part of the new performance management system with improved data capture and tracking of development needs. More effective approaches to deliver training will be examined.

Further, as part of continuous improvement, a quarterly report was introduced during the year for the executive, capturing workforce data and human resource key performance indicators.

Credit Card – Authorised Use

A number of ChemCentre staff hold credit cards with staff reminded of their obligations under the policy and conditions of credit card use.

One staff inadvertently used the credit card in error for a minor personal expense. The matter was promptly raised by the officer and refunded with no disciplinary action taken.

	2018/2019 $ (Exc GST)
Aggregate amount of personal use expenditure for the reporting year	13
Aggregate amount of personal use expenditure settled by the due date (within 5 working days)	13
Aggregate amount of personal use expenditure settled after the period (after 5 working days)	-
Aggregate amount of personal use expenditure outstanding at balance date	-


1837/043

Governance Disclosures

Governance Disclosures

A strong focus continued to be maintained on achieving high standards in governance practices across the agency applying the Public Sector Commission's Good Governance Guide and Board Essentials. The Board has established advisory Committees to support it discharge its obligations represented by the Governance and Nominations Committee, Audit and Risk Committee and Finance and Growth Committee. During the year a review was undertaken of Board Committee structures that resulted in the Audit and Risk Committee expanding to also oversee financial management from 1 July 2019. The existing Finance and Growth Committee was reformed replacing Finance with Innovation and retitled as the Innovation and Growth Committee. This recognises essential research undertaken by ChemCentre and other innovation activity that contributes to sustainable industry in WA. It is expected that this new Committee structure will strengthen advice to the Board in meeting governance requirements and shaping future strategic directions.

A review of the complaints handling and continuous improvement system was also undertaken and a refresher was provided to all staff. This process was also audited as part of ISO 9001 accreditation.

The CEO performance agreement is developed annually in collaboration between the Board, Minister for Water; Fisheries; Forestry; Innovation and ICT; Science and the Public Sector Commissioner in accordance with the *Public Sector Management Act 1994* that incorporates key deliverables and governance requirements for the agency.

Risk Management

During the year the newly developed Risk Management Framework was systematically applied.

A comprehensive review of operational and strategic risks was undertaken through a facilitated workshop, attended by Board members and senior officers. Internal identification, reporting and monitoring of risks through to the executive and Board was also reviewed and improved. During the year ChemCentre also hosted presentations on areas of probity in procurement and fraud prevention attended by representatives across the public sector.

Contracts with Senior Officers

At the date of reporting, other than normal contracts of employment of service, no senior officer, or firms of which senior officers are members or entities in which senior officers have substantial interests, had any interests in existing or proposed contracts with ChemCentre.

Indemnity Insurance Premium

During 2018-19, ChemCentre continued to maintain Director's and Officers' Liability Insurance cover limited to $10 million at a cost of $5,533 including GST. This policy is placed with Riskcover, being the State Government insurer.

Workers' Compensation

During the year two workers compensation claims were lodged resulting in 3 days off work in total.

ChemCentre has policies and procedures that are compliant with *Workers' Compensation and Injury Management Act 1981* that outlines an injury management system directed at enabling injured employees to return to work as soon as medically appropriate. The system ensures that injury management is effectively managed to ensure that injured employees are appropriately supported and able to return to work as early as appropriate.

Governance Disclosures

Board and Committee Remuneration

S8 of the Chemistry Act (WA) 2007 the Chair and Board members are paid a remuneration as determined by the Minister on the recommendation of the Public Sector Commissioner. In addition, the Premier's Circular 2010/02-State Government Board and Committees sets the eligibility criteria for members to receive a fee.

The Board has approved three Board sub-committees that support the Board discharge its obligations. As members of the Committees are also members of the Board no remuneration was paid to members of Committees.

The table below reports the fee paid to each eligible Board members including those not receiving a fee.

Position	Name	Type of remuneration	Period of membership	Gross/actual remuneration 2018-19 financial year
Chair	Denise Goldsworthy	Annual fee	1 July 2018 to 30 June 2019	$35,399.60
Deputy Chair	Lianne Cretney-Barnes	Annual fee	1 July 2018 to 30 June 2019	$26,549.63
Member	David Blyth	Annual fee	1 July 2018 to 30 June 2019	$17,765.28
Member	Mark Thomas	Annual fee	1 July 2018 to 30 June 2019	$17,765.28
Member	Tresslyn Walmsley	Annual fee	1 July 2018 to 30 June 2019	$17,765.28
Member	Ian Harrison	Annual fee	1 July 2018 to 30 June 2019	$17,765.28
Member	Kylie Whiteley	Nil	1 July 2018 to 30 June 2019	Nil
TOTAL				**$142,968**

Other Legal Compliance

Expenditure on Advertising, Market Research, Polling and Direct Mail

In accordance with section 175ZE of the *Electoral Act 1907,* ChemCentre is required to report its expenditure in relation to advertising, market research, polling, direct mail and media advertising.

Expenditure during 2018/19 included advertising for job vacancies, social media monitoring and conducting surveys. Below is a statement of expenditure for the 2018/19 financial year.

Type	Organisation	2018/19 Expenditure ($)
Advertising agencies	AdCorp Australia Limited Initiative Media Australia Pty Ltd	399 130
Direct mail Organisations	Not Applicable	Nil
Market research organisations	Survey Monkey	295
Media advertising organisations	Not Applicable	Nil
Polling Organisations	Not Applicable	Nil

Information Management and Recordkeeping Plan

In March 2019, the State Records Commission approved ChemCentre's Recordkeeping Plan for the next five years in accordance with the *State Records Act 2000*. In approving the Plan, the Commission acknowledged ChemCentre's strong commitment to complying with the Act and meeting the requirements of the Plan for effective and efficient records management practices.

The Recordkeeping Plan is an essential business tool, which provides an accurate reflection of how recorded information is created, stored, managed and legally disposed of, across the agency.

During the year, ChemCentre undertook a comprehensive review of the records management system to meet current and future requirements. The review began with an upgrade of the electronic document management system (OurDocs) to improve overall functionality and controls of the system. Its key deliverables included improved document saving and searching functions, better management of permissions and version control, and a more intuitive design and navigation function. The upgrade went live in October 2018 and all employees received training.

Further system improvements were implemented with the release of a new module to provide a centralised repository of all policies, procedures, manuals, forms and controls over review dates.

In the coming year, ChemCentre will progress the development and release of electronic workflows which will replace a number of paper-based processes and this will realise further business improvements and reduced hard copy records storage.

During the year ongoing records refreshers were provided to staff as part of a program to raise understanding and awareness of the OurDocs upgrade. Further, a core group of records superusers and mentors were maintained to provide support and promptly resolve issue.

At 30 June some 91% of employees had completed the records awareness training.

Other Legal Compliance

Compliance with Public Sector Standards and Ethical Codes

In accordance with s31(1) of the Public Sector Management Act 1994, ChemCentre complies with public sector standards (in human resource management) and the WA Code of Ethics and ChemCentre's Code of Conduct.

Training in Accountable and Ethical Decision Making (AEDM) for new and existing employees continued to be provided during the year with 97% of staff having completed training at 30 June 2019.

Raising awareness of employee responsibilities in the area of ethics and public sector standards was provided through newsletters, training, induction sessions, communications at staff meetings and the intranet.

During the year all staff were provided with a refresher session on declaration and receiving of gifts, benefits and hospitality, as outlined in ChemCentre's policies, focusing on maintaining integrity and ensuring public trust.

Breach of Standard claims

Breach of Standard claims may be made for all Standards other than the Discipline Standard.

No claims were lodged against the Employment Standard in 2018–19.

Disability Access and Inclusion Plan Outcomes

ChemCentre has embraced its latest Disability Access and Inclusion Plan (DAIP) for 2018 to 2022, which was published in October 2018.

ChemCentre will continue strive to meet our plan and strategies to improve access and inclusion to people with disability.

The agency's website was recently reviewed and a new release is expected early in the new financial year that meets the web content accessibility guidelines with content provided in a concise manner and available in alternative formats.

The DAIP principles and outcomes are widely promoted to staff and reflected in the agency's inclusive culture and practices. Recruitment and work design is flexible to accommodate people with disability and the DAIP is included in the induction program. Accessibility to events organised by ChemCentre, consultation and services is designed to allow equal opportunities for all people.

Other Legal Compliance

Occupational Safety, Health and Injury Management

The Chief Executive Officer and senior officers have a legislated duty of care to provide a safe and healthy workplace and environment, and to ensure the safety and health of all employees, contractors and visitors as far as practical.

To support and demonstrate this commitment, ChemCentre's Occupational Safety and Health Management System (OSHMS) is structured to provide plans, actions and procedures that systematically manage health and safety in ChemCentre.

During the year, an ongoing program of safety awareness was communicated to staff that includes an intensive OSH induction and OSH managers' training.

The membership of the Occupational Safety and Health Committee includes the Chief Executive Officer, safety representatives nominated by employees and an executive appointed safety coordinator and management representative. The Committee implements a formal framework for communication, consultation and responding to safety issues in the organisation. The Committee meets monthly to discuss and resolve occupational issues, review hazard and incident reports and review progress against the OSHMS Plan.

ChemCentre has attained OSH accreditation through the JAS-ANZ accreditation in AS/NZS 4801:2001 - OHS Management System.

ChemCentre's OSHMS Plan is monitored internally and outcomes reported to the ChemCentre Board.

There were 2 workers' compensation claims lodged during 2018-19.

Annual performance for 2018-19 against the following targets:

Measure	Actual results		Target 2018-19	Comment on result
	2017-18[1]	2018-19[2]		
Number of fatalities	0	0	0	Target Achieved
Lost time injury and /or disease (LTI/D) incidence rate	0	1.43	Zero (0) or 10% reduction[3] (actual target can be stated)	Target not Achieved[1]
Lost time injury and / or disease severity rate	0	0	Zero (0) or 10% reduction[3] (actual target can be stated)	Target Achieved[4]
Percentage of injured workers returned to work: (i) Within 13 weeks (ii) Within 26 weeks	100%	100%	Greater than or equal to 80%	Target Achieved
Percentage of managers trained in occupational safety, health and injury management responsibilities	87%	87%	Greater than or equal to 80%	Target Achieved

1. This indicator examines a three-year trend and as such, the comparison base is to be two years prior to the current reporting year i.e. 2016-17 and 2017-18.
2. The current reporting year is 2018-19.
3. The reduction may be calculated over a three-year period.
4. During the year 2018-19, 2 workers compensation claims were lodged and each claim resulted in one day or more off work. Neither claim was considered severe.

Other Legal Compliance

Freedom of Information Statement

ChemCentre publishes a freedom of information (FOI) statement that also outlines how to lodge an FOI request on its website.

For the reporting year 2018-19, one freedom of information request was received and resolved.

Substantive Equality

The principles of the State government's Policy Framework on Substantive Equality (Public Sector Commissioner's Circular 2015-01) continued to be included and addressed in ChemCentre's Workforce and Diversity Plan and through our ongoing review of policies and procedures.

Government Building Training Policy

For the reporting period of 2018-19, no contracts were awarded within the scope of the Government Building Training Policy.

Appendices

Appendix 1: Publications and Presentations

Conference and Workshop Presentations

Beckett, N., Tidy, R., Douglas, B., Sumner, N. 2018. "Insulin related-deaths: analysis of insulin and synthetic analogues in coronial exhibits". ANZFSS 24th International Symposium on the Forensic Sciences. Perth, Western Australia.

Black, S. 2018. CRC CARE and MRIWA Project M478 Mine Pit Lakes Their Characterisation and Assessment for In Situ Metal Recovery Opportunities and Cost-Effective Environmental Management. CRC CARE & MRIWA M478 Project Industry Workshop. Perth, Western Australia.

Black, S. 2019. "Tools for Industry and Government Regulators". Chamber of Minerals and Energy WA "Waste Discussion – Opportunities and Innovation for the Minerals Sector". Perth Western Australia

Black, S. 2019. "LEAF Tool for Industry and Government. LEAF - New Tools for Assessment of Industrial By-products Re-use". MRIWA Tech Talk - Leaching Environmental Assessment Framework (LEAF) Tool Kit. Perth, Western Australia.

Brown, D. 2019. "Synthetic Cannabinoids Analysis in Biological Fluids. Routine (LC-QQQ) and the Non-Routine (LC-QTOF)". Agilent MS User Meeting. Perth Western Australia.

Brown, D. 2019. "Tracking down the unknown NPS and what's new on the West Coast". FACTA2019, Forensic and Clinical Toxicology Association. Adelaide, South Australia.

Dods, K.C. 2018. "WA Honey Industry - Transformation driven by industry led investment in collaborative Research and Development". WA Horticulture Updates. Perth, Western Australia.

Dods, K.C. 2019. "WA Honey Industry Research - A development pathway to industry sustainability". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

Dods, K.C. 2019. "Building an Industry Standard". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

Manning, R., **Dods, K.C.,** Milne, L**.** 2019. "2018-19 Mono-floral field sampling". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

Shaw, G., **Dods, K.C.,** Welch, M. 2019. "Electronic authentication - Building traceability in the WA honey industry supply chain". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

Milne, L., **Dods, K.C**., Manning, R., Mackey, C. 2019. "Palynological standards for monofloral Jarrah and Marri Honeys". BICWA WA Honey Research & Innovation Update, 25 May 2019. Perth, Western Australia.

Campbell, T., Fearns, P., **Dods, K.C.** 2019. "Advancing prediction of Marri honey flow using remote sensing and weather data". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

Jorritsma, J. Chandler, D., **Dods, K.C.** 2019. "Progress in measurement of honey pollen by DNA assay". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

Dods, K.C. 2019. "Consumer driven product development – the WA honey industry transformation". SAAA Annual Research Updates and CRC HBP Annual Research Report. Adelaide, South Australia.

Donovan, R., Crisp, H. 2018. "Clandestine Laboratories in Western Australia: A Retrospective Analysis". Proceedings of the 24th International Symposium of Forensic Science. Perth, Western Australia.

Appendix 1: Publications and Presentations

Donovan, R. 2018. "The Identification of Novel Byproducts Associated with the Dissolving Metal Reduction of Pseudoephedrine." Proceedings of the 24th International Symposium of Forensic Science. Perth, Western Australia.

Donovan, R. 2019. "History of Clan Labs in Western Australia-18 Years" NSW POLICE FETS Clandestine Laboratory Conference. Sydney, New South Wales.

Powell, R., Lunstroot, K., Wevers, G., **Collins, P., and Coumbaros, J**. 2018. "Chemical Criminalistics SAG Fibres Database Workshop". Perth, Western Australia.

Powell, R., Coumbaros, J., and Priddis, C. 2018. "Utilisation of a database-driven textile fibre comparison strategy for a Western Australian fibre population study". Proceedings of the Australia and New Zealand Forensic Science Society (ANZFSS) 24th International Symposium of Forensic Science. Perth, Western Australia.

Linge, K. 2018. "Mine Pit lake Study: Sampling. What, Why, How?". CRC CARE & MRIWA M478 Project Industry Workshop. Perth, Western Australia.

May, C. 2019. "Servicing the Growing Cannabis Industry". Agilent MS Users Meeting. Perth, Western Australia.

May, C., Tai, A., Wellington, E., La, L-V., Stephens, R., Dods, K. 2019. "Outcomes of the Short Term Storage Trials". 2019 WA Honey Research & Innovation Update. Perth, Western Australia.

Tai, A., May, C., Dods, K.C. 2019. "Quantification of prebiotic potential compounds in WA Monofloral Honey". 2019 WA Honey Research & Innovation Update. Perth, Western Australia.

Dods, K.C. 2018. "Quality in the WA honey industry". 2nd International Conference on Food analysis. Melbourne, Victoria

Morey, B., Mead, R., Speers, J., **Pitts, K., Coumbaros, J.,** Henry, D. 2018. "Organic Profiling of Western Australian Soils for Provenance Determination". AZNFSS 24th International Symposium. Perth, Western Australia.

Woods, B., **Pitts, K.**, Fitzpatrick, R., Strong, C. and Moore, L. 2018. "Soil forensics and archaeology: what lies beneath?". Panel Discussion. National Soils Conference, Soil Science Australia. Canberra, Australian Capital Territory.

Pitts, K. 2019. "The use of the Australian Synchrotron for the analysis of Physical Evidence". 5th WA Synchrotron Conference. Bentley, Western Australia.

Swinny, E. 2018. "ChemCentre CBRN HAZMAT". Department of Health CBRN Course, Fiona Stanley Hospital, Western Australia.

Gill, D., Davis, J., Hall, K., Chan, C., **Swinny, E., Palmer, J., Pearce, M., Downey, A., Soukos, K., Hanbury, M., Dods, K.C.,** Tan, F. 2018. "Air mobility – HAZMAT/ CBRN recon team". AFAC 18. Perth, Western Australia.

Appendix 1: Publications and Presentations

Conference Posters

Beckett, N., Douglas, B., Sumner, N. 2018. "Vitreous humour as an alternative matrix for the detection of 6-MAM in coronial casework". ANZFSS 24th International Symposium on the Forensic Sciences. Perth, Western Australia.

Beckett, N., Tidy, R., Douglas, B., Sumner, N. 2019. "Insulin related-deaths: analysis of insulin and synthetic analogues in coronial exhibits". 24th Lorne Proteomics Symposium. Lorne, Victoria.

Behrouzi, B., Oosthuizen, F. J., Keane, R.E. 2018. "An SLE Approach to the Extraction of Basic/Neutral Drugs from Post-mortem and Sobriety Blood Samples For Broad Screen Analysis by LC-QTOF". ANZFSS 24th International Symposium on the Forensic Sciences. Perth, Western Australia.

Brown, D., Krsta, D**., Sumner, N., Harrison, S., Donaldson, M**. 2018. "Avoiding Headspace - A Reliable Analysis of Alcohol in Whole Blood by Direct Injection". ANZFSS 24th International Symposium on the Forensic Sciences. Perth, Western Australia.

Brown, D., Douglas, B., Oosthuizen, F., Sumner, N. 2018. "NPS - The Western Australian Perspective Part 2: Toxicology". ANZFSS 24th International Symposium on the Forensic Sciences. Perth, Western Australia.

Davies, M. Bergmann, R., Coumbaros, J. 2018. "Tablet trends in Western Australia 2009 - 2017". ANZFSS 24th International Symposium on the Forensic Sciences. Perth, Western Australia.

Dawes, M., Brown, D.H., Oosthuizen, F.J., Ayliffe, W., Behrouzi, B. 2018. "Development and Validation of a SLE Method for Extraction of Common Drugs of Abuse from Workplace Urine Samples and Comparison to SPE Methodology". ANZFSS 24th International Symposium on the Forensic Sciences. Perth, Western Australia.

Dods, K.C., Liu, L., La, L.V., Stevens, R., De Boer, A., **Wellington, E., Afifi, N.E.,** Manning, R., Milne, L., Davis, R. 2019. "Using compositional chemistry to establish key honey attributes and build and industry standard". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

Manning, R. Milne, L. Davis, R**. Dods, K.** 2019. "Sampling program for Jarrah Marri and Powderbark honey from WA". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

Manning, R., Milne, L., **Dods, K.C.,** Davis, R. 2019. "A Palynological standards for monofloral Jarrah and Marri Honeys". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

Jorritsma, J., Chandler, D., Milne, L., **Dods, K.** 2019. "Using DNA to identify WA Honey variety - Potential of an intronic region of the single-copy nuclear gene topo6". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

Shaw,G., Stewart, R., Vickers, A., **Dods, K**., Welch, M. 2019. "Delivering industrial scale supply chain traceability for the WA honey industry". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

Campbell, T. Fearns, P. **Dods, K.C.** 2019. "Advancing prediction of Marri honey flow using remote sensing and weather data". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

Donovan, R., Crisp, H., Coumbaros, J. 2018. "Tryptamines and other Psychoactive Compounds Present in Samples from DMT Clandestine Laboratories in Western Australia". Proceedings of the 24th International Symposium of Forensic Science. Perth, Western Australia.

Appendix 1: Publications and Presentations

Downey, A., Kazemi, S., Hayter, B., Dods, K.C, Milne, L., Manning, R. 2019. "WA monofloral honey's distictive volatile fingerprint - A flavor influencer, indicator of bee health and identity profile". BICWA WA Honey Research & Innovation Update. Perth, Western Australia

May, C., Liu, L., Tai, A., Dods, K. 2019 "Determination of HMF, MGO & DHA in Honey". 2019 WA Honey Research & Innovation Update. Perth, Western Australia.

May, C., Tai, A., Wellington, E., La, L-V., Stephens, R., Dods, K. 2019. "Optimizing the storage of WA Mono-floral Marri Honey. Varying storage parameters to induce effect on key honey attributes". WA Honey Research & Innovation Update. Perth, Western Australia

McCafferty, P. 2019. "Establishing a Skill Training Framework for Laboratory Staff Success." Future Labs, Melbourne Australia

Kratz, M., Manning, R., Blache, D., **May, C.**, Milne, L., **Dods, K.C**., Dixon, K., Baer, B. 2019. "Essential amino acid composition of emerging bees fed different food sources". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

Kratz, M., Manning, R., Blache, D., **May, C.,** Milne, L., **Dods, K.C.,** Dixon, K., Baer, B. 2019. "The body composition of emerging bees fed different food sources - trial design and feildwork". BICWA WA Honey Research & Innovation Update. Perth, Western Australia.

McCabe, S., Kueppers, V., **Douglas, B**. 2018. "An Acute Furanyl Fentanyl Fatality: A Case Report with Postmortem Concentrations". ANZFSS 24th International Symposium on the Forensic Sciences. Perth, Western Australia.

McCabe, S., Douglas, B. 2018. "Determination of Opiates in Whole Blood by LC-MS-MS with Supported Liquid Extraction (SLE)". ANZFSS 24th International Symposium on the Forensic Sciences. Perth, Western Australia.

Oosthuizen, F.J., Dawes, M.M., Sakrajda, P., Brown, D.H., Douglas, B.J. 2018. The Identification and Quantification of 25C-NBOMe and 4-Fluoroamphetamine in the Blood Samples of 16 Patients Admitted to Hospital Following a Suspected Overdose. ANZFSS 24th International Symposium on the Forensic Sciences. Perth, Western Australia.

Oosthuizen, F.J., Sumner, N.A., Sakrajda, P., Brown, D.H., Douglas, B.J. 2018. "'What you buy is not always what you get' A case of Hyoscine poisoning." ANZFSS 24th International Symposium on the Forensic Sciences. Perth, Western Australia.

Pearce, M., Murdoch, J., Dods, K.C., Crisp, H., Milne, L., Manning, R. 2019. "Rapid diagnostic methodology - Raman and FTIR for honey identification". BICWA WA Honey Research & Innovation Update. Perth, Western Australia

Powell, R., Evans, B., and Pitts, K. 2018. "Revisiting the evaluation of a textile fibres transfer case with the aid of a microspectrophotometric database". Proceedings of the Australia and New Zealand Forensic Science Society (ANZFSS) 24th International Symposium of Forensic Science. Perth, Western Australia.

Sakrajda, P., Oosthuizen, F. J., Coumbaros, J., Douglas, B. 2018. "The prevalence of illicit drugs in Western Australian drivers: a 20-year retrospective analysis". ANZFSS 24th International Symposium on the Forensic Sciences. Perth, Western Australia.

Tai, Z X., May, C., Dods, K. 2019. "Quantification of prebiotic potential compounds in WA Monofloral Honey". WA Honey Research & Innovation Update. Perth, Western Australia.

Appendix 1: Publications and Presentations

Lectures

Bergmann, R., Crisp, H. 2018 "Experiences with Triacetone triperoxide (TATP) in WA". Clandestine Laboratory Training Course. Perth, Western Australia.

Brown, V. 2018. "Quality Management in the Laboratory". Curtin University's Masters of Analytical Chemistry Course. Bentley, Western Australia.

Brown, V. 2019. "High Resolution ICP-MS techniques for trace metal analysis of saline waters". Royal Australia Chemistry Institute Western Australia 'Chemaraderie' Monthly Meeting. Bentley, Western Australia.

Linge, K. 2019. "Research and Innovation at ChemCentre". National Measurement Institute. Port Melbourne, Victoria

Murdock, J. 2019 "Breaking Bad Down Under: Chemistry and Illicit Drug Investigations". Curtin University Chemistry Course. Bentley, Western Australia.

Palmer, J. 2018. "Chemical Suicides: How do we respond." How Do We Respond Series, Emergency Response, ChemCentre. Perth, Western Australia.

Palmer, J. 2018."JHART First Pass Detectors". Joint Hazardous Area Response Team training session. Midland, Western Australia.

Pitts, K. 2018 "Physical Evidence" WA Police Force, Forensic Training Unit, Crime Scene Course. Midland, Western Australia.

Pitts, K., Horsley, G., Powell, R., Collins, P., Dunsmore, R. 2018 "Physical Evidence Day" WA Police Force Forensic Field Operations. Perth, Western Australia.

Pitts, K. 2019. "Microscopy in Forensics". Murdoch University CHE103 Course. Murdoch, Western Australia.

Soukos, K., Pearce, M. 2018. "Detection of Gases Practical". HAZMAT Training, Department of Fire and Emergency Services Training Academy. Perth, Western Australia.

Soukos, K. 2018. "Emergency Response at ChemCentre". University of Western Australia, Chemistry Course. Crawley, Western Australia.

Swinny, E., Soukos, K., Martin, A. 2018. "ChemCentre Emergency Response". Special Equipment Tender Course, Department of Fire and Emergency Services. Perth, Western Australia.

Swinny, E., Palmer, J., Hall, K. 2019. "White Powder Incidents". How Do We Respond Series, Emergency Response, ChemCentre. Perth, Western Australia.

Swinny, E. 2019. "Mercury Incidents". How Do We Respond Series, Emergency Response, ChemCentre. Perth, Western Australia.

Swinny, E. 2019. "Selected HAZMAT Incidents". How Do We Respond Series, Emergency Response, ChemCentre. Perth, Western Australia.

Appendix 1: Publications and Presentations

Research Papers and Reports

Zahedi, A., Greay, T.L., Paparini, A., **Linge, K.L.**, Joll, C.A., Ryan, U.M. 2019. "Identification of eukaryotic microorganisms with 18S rRNA next-generation sequencin+B94:B100g in wastewater treatment plants, with a more targeted NGS approach required for Cryptosporidium detection". Water Research, 158: pp.301-312.

How, Z.T., **Linge, K.L.**, Busetti, F., Joll, C.A. 2018. "Formation of Odorous and Hazardous By-Products from the Chlorination of Amino Acids". Water Research, 146: pp.10-18.

Greay, T.L., Gofton, A.W., Zahedi, A., Paparini, **A., Linge**, K.L., Joll, C.A., Ryan, U.M. 2019. "Evaluation of 16S next-generation sequencing of hypervariable region 4 in wastewater samples: An unsuitable approach for bacterial enteric pathogen identification" Science of the Total Environment, 670: pp.1111-1124.

McCutcheon, D.S, **Raghavan, M.H.**, Soderstrom, S.S., **Oosthuizen, F.J., Douglas B.J.,** Fatovich, D.M. 2018. "An early warning system for emerging drugs of concern in the emergency department: Protocol for the Western Australian Illicit Substance Eveluation (WISE) study". Emergency Medicine Australasia DOI: 101111/1742-6723.13185

Anderson, G., Pathan, S., **Sharma, R.**, Hall, D., Easton, E. 2019. "Soil solution concentrations and aluminium species of an eastern wheatbelt acidic soil of WA treated with lime and gypsum." 2019 GRDC Research Updates.

Carter, R. A., **West, N.**, Heitz, A. and Joll, C. A. 2019. "An analytical method for the analysis of trihalomethanes in ambient air using solid phase microextraction gas chromatography mass spectrometry: An application to indoor swimming pool complexes". Indoor Air. Doi:10.1111/ina.12551, Wiley Online Library.

Carter R.A.A., Liew D.S., **West N.,** Heitz A., Joll C.A. 2019 "Simultaneous analysis of haloacetonitriles, haloacetamides and halonitromethanes in chlorinated waters by gas chromatography-mass spectrometry". Chemosphere 220, pp.314-323.

Appendix 1: Publications and Presentations

Book Chapters and Technical Reports

Black, S., Price, B., Allen, D. 2018. "Geochemical Characterisation of Marandoo Iron Ore Tailings". Report for Rio Tinto, WA, 34 pages.

Liu, Y., Allen, D., **Black, S., Linge, K., Rothnie, N**. 2019. "Total Suspended Particulate (TSP) Source Apportionment in Port Hedland: Phase One". Report for Pilbara Port Authority, WA. 175 pages.

Black, S., Mullins, B. 2019. "A Study of Nano Diesel Particulate Matter (nDPM) Behaviour and Physico-chemical Changes in Underground Hard Rock Mines of Western Australia". Report for Minerals Research Institute of Western Australia, WA. 148 pages.

DeTata, D. 2019. "Forensic Sciences | Arson Residues". In Worsfold, P., Poole, C., Townshend, A., Miró, M., (Eds.), *Encyclopedia of Analytical Science*, (3rd ed.). vol. 4 pp8-15, Elsevier

Sauzier, G., **Pitts, K**. 2019. "Forensic Sciences | Paints, Varnishes, and Lacquers". In Worsfold, P., Poole, C., Townshend, A., Miró, M., (Eds.), *Encyclopedia of Analytical Science*, (3rd ed.). vol. 4, pp 62–74, Elsevier.

Pitts, K. M., Lewis, S. W. 2019. "Forensic Sciences | Gunshot Residues". In Worsfold, P., Poole, C., Townshend, A., Miró, M., (Eds.), *Encyclopedia of Analytical Science*, (3rd ed.). vol. 4, pp 48–55, Elsevier. ISBN: 9780081019832.

Pitts, K.M., Lewis S.W., Newland, T. 2019. "Geochemistry | Soil and Mineralogical Analysis". In Worsfold, P., Poole, C., Townshend, A., Miró, M., (Eds.), *Encyclopedia of Analytical Science*, (3rd ed.). vol. 4, pp 292-301, Elsevier.

Sharma, R., Allen, D., **Black, S. and Price, B.** 2019. "Application of LEAF and Leach XS Tools to Agricultural Soils". Report for Department of Primary Industries and Regional Development, WA. 73 pages.

Sharma, R., Allen, D., **Black, S., Price, B., Rothnie, N**. 2018. "Validation and standardisation of sequential leaching test to better predict the impact of mining on ground water quality". Report for Minerals Research Institute of Western Australia, Report No. 432, Pages 231.

Appendix 2: Collaborations

Collaborations

ChemCentre collaborates across government, industry and the tertiary sectors, nationally and internationally, to support strategic R&I objectives.

PROJECT	COLLABORATORS	TIMING	FOCUS
Certifiable compositional chemistry that promotes sustainable growth in market value for iconic WA honey floral brands	Cooperative Research Centre for Honey Bee Products (Honey CRC); Bee Industry Council of WA (BICWA); WA Farmers Federation (WAFF); Department for Primary Industries and Regional Development (DPIRD); University of Western Australia (UWA); Department of Biodiversity, Conservation and Attractions (DBCA)	2016-2022	Sustainable industry
Industry standards optimising storage and supply volume of WA monofloral honey	CRC FFW; DPIRD; BICWA; WAFF	2017-2021	Sustainable industry
Certified distributor driven outcomes that drive export sustainability for the WA honey industry	CRC FFW; DPIRD; BICWA; WAFF	2017-2021	Sustainable industry
Certifiable chemistry promoting sustainable growth for WA sandalwood plantation products	CRC FFW; DPIRD; ASN; Buzz from Bees; Australian Natural Botanical	2018-2022	Sustainable industry
Insect protein for aquaculture feed	FRDC; UWA; Future Green Solutions	2018-2020	Sustainable industry
Mine Pit Lakes – Their Characterisation and Assessment for In-Situ Metal Recovery Opportunities and Cost-effective Environmental Management	MRIWA; CRC CARE; CSIRO; MBS Environmental; DMIRS; DWER; and mining companies from iron ore, gold and base metals commodities	2018-2020	Sustainable industry and environment
Establishing Leaching and Environmental Impact Assessment (LEAF) Tools in the Development of a WA Framework for By-Product RE-use and Classification	MRIWA; Alcoa; Iluka; Aroona Alliance (water Corporation); MBS Environmental; DWER; DMIRS	2016-2018	Sustainable industry
Validation and Standardisation of Sequential leaching Tests to Better Predict the Impact of Mining on Ground and Surface Water Quality – Phase 2	FMG; MBS Environmental	2015-2018	Sustainable industry and environment

Appendix 2: Collaborations

PROJECT	COLLABORATORS	TIMING	FOCUS
Eric Singleton Wetland Data Analysis	CRC for Water Sensitive Cities; DBCA; UWA	2018-2019	Sustainable industry and environment
WA Illicit Substance Evaluation Study (WISE)	Royal Perth Hospital	2016-2020	Forensics
Fibres Database	WA Police; NICC Belgium; interstate forensic science laboratories; Lynwood Senior High School	2009-2022	Forensics

Appendix 3: Acronyms

ANZCTC	Australia New Zealand Counter Terrorism Committee
AQW	Alumina Quality Workshop
BICWA	Bee Industry Council of WA
CBR	Chemical Biological Radiological
CRC	Cooperative Research Centre
CRC CARE	CRC for Contamination Assessment and Remediation of the Environment
CRC FBI	Future Battery Industries CRC
CRC FFW	Fight Food Waste CRC
CRC HBP	Honey Bee Products CRC
CRC WSC	Water Sensitive Cities CRC
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CWALN	Chemical Warfare Agent Laboratory Network
DBCA	Department of Biodiversity, Conservation and Attractions
DFES	Department of Fire and Emergency Services
DMIRS	Department of Mines, Industry Regulation and Safety
DPIRD	Department of Primary Industries and Rural Development
DSTG	Defence Scientific and Technical Group
DWER	Department of Water and Environmental Regulation
FMG	Fortescue Metals Group
FRDC	Fisheries Research and Development Corporation
HAZMAT	Hazardous Materials
HEAT	HAZMAT Emergency Advisory Team
ICPMS	Inductively Coupled Plasma Mass Spectrometry
ICPOES	Inductively Coupled Plasma Optical Emission Spectrometry
JASANZ	Joint Accreditation System of Australia and New Zealand
LCMS/MS	Liquid Chromatography Mass Spectrometry / Mass Spectrometry
LEAF	Leaching Environmental Assessment Framework
LIMS	Laboratory Information Management Systems
MRIWA	Minerals Research Institute of Western Australia
NATA	National Association of Testing Authorities
NICC Belgium	National Institute for Criminalistics and Criminology
PFAS	Per- and Poly-Fluoroalkyl Substances
RACI	Royal Australian Chemical Institute
RWWA	Racing and Wagering WA
UWA	University of Western Australia
WAFF	WA Farmers Federation
WA JHRT	WA Joint Hazard Response Team

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