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1 Introduction

Towards 2020 strategy for Resources Safety

The Resources Safety Division administers occupational safety and health legislation for mining and petroleum operations, and the licensing regime and safety legislation for dangerous goods, including regulation of the State's major hazard facilities (MHFs). The regulator is committed to working with industry and workers to help reduce the number and severity of serious accidents and incidents, and provide support for positive workplace cultural change.

Released in May 2017 as the first of a series of high-level, three-year rolling strategies, Towards 2020 describes the goals that underpin the regulator's vision of a safe and health resources sector. The focus is on world-leading regulation, smarter systems and a well-informed industry.

Towards 2020 provides an overview of the Division's commitments so industry can better understand why focus areas are targeted, and the desired outcomes, measures and achievements. It also provides a clear framework describing how regulatory resources are deployed. The live, online resource is easily accessible and updated as emerging issues and trends are identified.

What is in this report?

This report outlines Resources Safety's key initiatives and programs implemented or active in 2016-17 to achieve the Towards 2020 vision of a safe and healthy resources sector. The initiatives and programs vary from educational seminars, guidance materials and the provision of specialist information to stakeholders to targeted compliance inspections and legislative enforcement.

The report summarises the divisional resources applied, regulatory outputs and achievements in support of the regulator's goals. In a departure from previous annual reports, the focus is on outcomes as well as outputs, with the ultimate measures of success being reductions in the number and incidence rates of serious accidents and incidents in the Western Australian resources sector. A case study of incidents involving hazardous manual tasks and musculoskeletal disorders shows how regulatory activities might be reflected in industry outcomes.

Since 2010, funding to help maintain many safety regulatory services and acquire additional resources is obtained through cost recovery from the relevant industry sectors. The financial statements for levy monies are detailed in this report.

Towards 2020

Regulatory strategy for Resources Safety

A safe and healthy resources sector







Working towards outcomes



What are our goals for WA workers and dangerous goods users?

Ongoing reductions in incidents, injuries and fatalities



What difference are we making?

- Greater levels of compliance
- Fewer incidents
- Increased safety awareness
- Better use of safety management tools



- Approvals
- Enforcement
- Education
- Developing internal capacity



How are we using our resources?

- Workforce
- Funding
- Systems
- Knowledge

2 Regulator achievements

The summaries presented here highlight some of Resources Safety's achievements in 2016-17.

Many of the regulator's initiatives and programs are collaborative efforts that benefit from input and feedback provided by industry, industry associations and the Mining Industry Advisory Committee (MIAC).

Effective regulation

In March 2016, Deloitte Consulting undertook an independent assessment to determine whether the Resources Safety Division's Mines Safety Branch was appropriately resourced and structurally organised to regulate safety in the State's minerals sector. Deloitte found the regulator to be collegiate. focused on helping industry and improving safety performance, and more cost-effective than other safety jurisdictions in Australia.



Released in January 2017, the full report, including the then-Department of Mines and Petroleum's response, is available on the Department's website.

2016 Mines Safety Branch resourcing and funding independent assessment report recommendations and responses

Supporting mental health

Mental health was a major focus of awareness issues in 2016-17. The foundations for further action in 2017-18 were also laid during the year with resources secured for key programs and research

- Improved workplace mental health and wellbeing in the resources sector was established as a Towards 2020 commitment and specific activities to confront the issue were defined.
- The Mental Health Strategies Working Group was formed under the auspices of the Mining Industry Advisory Committee (MIAC) in response to the Legislative Assembly Education and Health Standing Committee's final report on the impact of fly-in, fly-out (FIFO) work practices on mental health. The group met six times during the year.
- A FIFO Mental Health Research Steering Committee was established to investigate recommendations, 4, 12, 18, 19, and 26 of the Education and Health Standing committee's final

- report. The Mental Health Commissioner has shown support for the Steering Committee by committing funding for the research over the next two years.
- Two positions were created to specifically tackle mental health and wellbeing. Their roles include developing mental health strategies and guidance material.
- Following release of the psychosocial harm audit tool and guide in February 2016, information from 126 companies involved in mining operations and 17 operators of petroleum and major hazard facilities was collected over a ten-month period. The objective was to establish a baseline against which to measure progress in mental health risk management in Western Australia's resources sector. The audits identified consultation with the workforce on mental health and wellbeing strategies as an area requiring additional focus for most sites.
- The joint Mines Safety Bulletin No. 139 and Petroleum Safety Bulletin No. 01/2017 was released to raise awareness of mental health in the resources sector. The bulletin highlights workplace hazards that may impact on mental health and what measures can be taken to manage the potential for psychosocial harm.



The final report of the Legislative Assembly Education and Health Standing Committee is available on the State Parliament's website.

Inquiry into mental health impacts of FIFO work arrangements

See page 8 of Resources Safety Matters, vol. 5 no. 1, MIAC update and Talking about mental health and wellbeing

The report summarising psychosocial harm audit information collected from mining operations, and petroleum and major hazard facilities from February to October 2016 is available on the Department's website.

Baseline results for psychosocial harm audits of mining operations, and petroleum and major hazard facilities - report

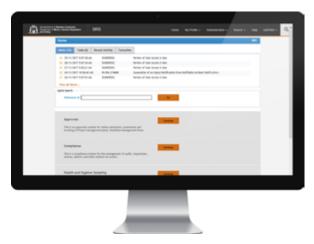
See also Mines Safety Bulletin No. 139 and Petroleum Safety Bulletin No. 01/2017 Suicide awareness for the Western Australian resources sector

Online system continues to deliver

During 2016-17, the Safety Regulation System (SRS) continued to be refined and enhanced. There were system enhancements and new modules brought online to ensure SRS meets the needs of inspectorate staff and external users.

Mines Safety

- Upgrade to project management and radiation management plans allowing for improved tracking and management of task and internal processing, which should result in a faster turnaround of approvals.
- Site visit record now issued electronically to industry on completion of an inspection, improving the quality and timeliness.
- Health and Hygiene (CONTAM replacement) system developed that consolidates all health and hygiene information in one system including ability for industry to submit atmospheric, biological and noise dosimetry sampling results online or via bulk upload.
- Ability for inspectors to carry out audits, inspections, site visit records, notices, other matters and defects via mobile device in an offline capacity.



Safety Regulation System (SRS)

Petroleum Safety

• Introduction of a workflow engine to enable improved management of safety cases and diving safety management systems



Further information on the Safety Regulation System is available on the Department's website.

Safety Regulation System (SRS)

See page 6 of Resources Safety Matters, vol. 5 no. 1, Going online in the Safety Regulation System



Hazard register helps industry achieve safety outcomes

The Department has developed a register containing the findings from investigations into fatal mining accidents in Western Australia. It aims to assist industry in preventing similar incidents by raising awareness of the circumstances and hazards associated with fatal incidents, as well as identifying precautions or preventative measures that could avert an incident.

The first release of the hazard register in January 2017 presented the findings from the Department's investigations into 64 fatal mining accidents in the Western Australian mining industry over the period January 2000 to December 2015. The register is updated annually.

Industry feedback has been positive, and the register has even been translated into Turkish by an international operator.



Further information on the hazard register is available on the Department's website.

How are hazards identified?

Hazard awareness videos tackle pressing concerns

Three additions to the *Know Your Hazards* awareness video series were debuted during the Department's 2016 Mines Safety Roadshow. With a theme of *Pressing concerns*, the videos explain how getting crushed by, caught between or trapped within can harm the human body. They also highlight the personal costs to Western Australian miners and families through stories told by those who have personally been affected by such incidents.



Between November 2016 and June 2017, the videos were **viewed 3,476 times** and **downloaded 647 times**.



Further information on the video series is available on the Department's website.

Hazard awareness videos

See page 24 of Resources Safety Matters, vol. 5 no. 1, Pressing concerns at the 2016 Mines Safety Roadshow





Taking up the baton for safety and health awards

In March 2017, the Department took on responsibility for the Safety and Health Innovation Awards from the Chamber of Minerals and Energy WA. The rebadged Safety and Health Resources Sector Awards recognise individuals, teams and companies that have developed a new or original solution to specific safety and health problems in the workplace.

The awards aim to promote safety and health innovation across the Western Australian resources sector to encourage continuous improvement in health and safety.



Further information on the awards is available on the Department's website.

Safety and Health Resources Sector Awards

See page 10 of Resources Safety Matters, vol. 5 no. 2, Judging underway for Safety and Health Resources Sector Awards

Research strategy for nano diesel particulate matter

In 2016-17, MIAC's Nano Diesel Particulate Matter Working Group considered funding proposals for two research projects:

- A Study of Nano Diesel Particulate Matter Behaviour
- Physico-chemical Changes in Underground Hard Rock Mines of Western Australia.

The research projects are being funded jointly by the Minerals Research Institute of Western Australia (MRIWA) and the Department.

Curtin University and the ChemCentre are conducting the research, and the Anglo Gold Ashanti Sunrise Dam mining operation has been nominated as the participating site.



See page page 8 of Resources Safety Matters, vol. 5 no. 1, MIAC update

See also page 36 of Resources Safety Matters, vol. 5 no. 2, Nano diesel particulate matter research underway

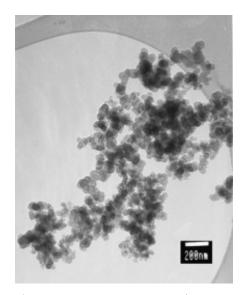


Image of nano diesel particulate matter (note scale bar)



Some of the measuring equipment that will be used in the research

Focus on human and organisational factors

Human and organisational factors is the term given to all elements within a workplace that have an influence on the people who work there, such as workers and their equipment, work procedures or the environment. These factors affect human reliability and performance, contributing to how effectively and safely a worker is able to do their job. How well these factors are managed will influence the likelihood of human failure.

To increase the focus on these factors, the Department has developed the "top 11" human and organisational factors for the Western Australian resources sector. In May 2017, the Department also hosted two human and organisational factor forums – one in Perth, targeting the mining industry, and another in Karratha, targeting the petroleum industry.

The Perth event attracted more than 200 people, the most attendees to date for a single-theme event hosted by Resources Safety.



Further information on the top 11 factors is available on the Department's website.

Human and organisational factors

See page 30 of Resources Safety Matters, vol. 5 no. 2, Forums highlight importance of human and organisational factors



From left: Director Mine Safety Performance NSW Department of Industry's Resources and Energy Tony Linnane, Practice Leader Health and Human Factors NSW Department of Industry's Resources and Energy Kylie Newton, Executive Director Resources Safety Simon Ridge, HSEE Manager Fortescue Metals Group Jodi Goodall, State Mining Engineer Andrew Chaplyn, Founder and Registered Psychologist The Kiel Centre Ronny Lardner and Manager Human Factors Woodside Energy Martin Anderson at the 2017 Human and Organisational Factors Forum

Promoting dangerous goods safety in remote communities

A dangerous goods safety workshop aimed at children in Aboriginal communities has been developed for presentation by dangerous goods officers during visits to remote locations.

The program has a focus on early intervention and developing an understanding of the hazards arising from dangerous goods within the community. The aim was to create something that is relevant and age appropriate for students in the community, particularly those interested in VET courses and a career in the mining industry.

The workshop includes hands-on activities, demonstrations and educational videos about common dangerous goods that can be found in the community, such as pool chemicals, petrol, gas cylinders and common aerosols. It also raises awareness of the role dangerous goods officers play in the Western Australian community in regulating the storage, handling, transport and security of some of these everyday items.



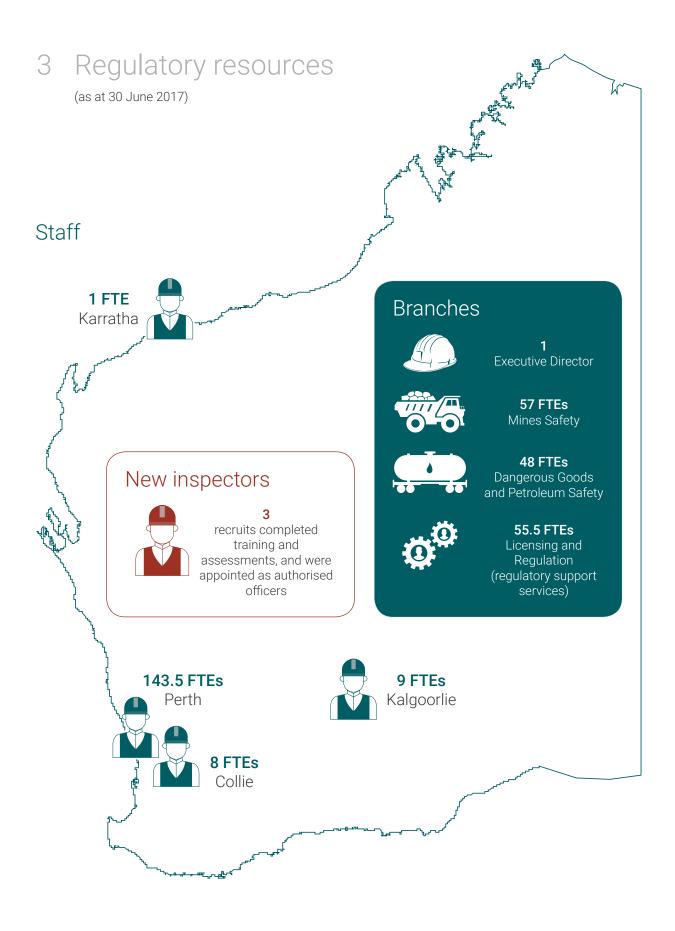
Further information on the workshops and key messages is available on the Department's website.

Remote Aboriginal students hear about dangerous goods safety

Are you transporting petrol, LP gas or pool chemicals to your community?



Dangerous Goods Officer Alex Blackman speaking to students at the Yandeyarra Remote Community School in the Pilbara.



Systems

Safety Regulation System (SRS)

An integrated online system for internal and external users that delivers useful information and streamlines compliance to improve safety and health outcomes.



Petreps

An internal database used to record and process employment and injury information reported by petroleum facilities.

HAZMAN

An internal database used to manage and issue dangerous goods licences not yet embedded in SRS.

DMIRS Submissions

DMIRS Submissions provides a single point of entry that allows users to upload large files associated with their submission.

4 Regulator outputs

Mines safety



1,849 site inspections conducted



530 improvement notices issued



111 prohibition notices issued



146 site audits conducted



formal contacts with safety and health representatives by an inspector during an inspection



2,373notifiable incidents received and processed



15 major investigations conducted



technical assessments and reviews conducted



217 certificates of competency issued



25 safety alerts released



16 publications produced



94 seminars, roadshows, presentations or expos presented



Petroleum safety



48

safety cases and safety management systems assessed



44

site audits completed or reviewed



2

major investigations conducted



4

seminars, roadshows, presentations or expos presented









Dangerous goods safety (including MHF)



620

site inspections conducted

20

MHF audits conducted



complaints and incidents investigated

MHF investigation conducted



technical assessments and reviews conducted



MHF safety report assessments conducted



safety alerts released



publications produced





5 Industry outcomes

National targets

The Australian Work Health and Safety Strategy 2012–2022 was launched by Safe Work Australia in October 2012. There are three specific targets to be achieved by 2022.



20 percent or greater reduction in the number of worker fatalities due to injury

30 percent or greater reduction in the incidence

rate of workers' compensation claims where the worker has been off work for one or more working weeks

30 percent or greater reduction in the incidence rate of workers' compensation claims for musculoskeletal disorders where the worker has been off work for one or more working weeks.

Western Australia's safety performance

The fatality data for Western Australia's resources sector is presented as the number of fatalities and fatal incidence rate (injuries per 1,000 employees).

Because the number of fatalities can vary considerably from year to year, Safe Work Australia is measuring progress towards the national target for worker fatalities due to injury using a three-year rolling average. This guards against an unusually low number of fatalities in 2022 meeting the target by chance rather than by sustained improvement.

The Western Australian fatality data for mining and exploration is also presented as a three-year rolling average for the number of fatalities. To account for changes in total workforce, the same reduction target is shown for the three-year rolling average fatal incidence rate.

Safe Work Australia's targets for injuries, including musculoskeletal disorders, relate to compensation claims. Serious claims are defined as those where the worker has been off work for one or more working weeks. This differs from the definition used for reporting serious mining and exploration injuries to Resources Safety. However, for consistency, injury reports for mining and exploration fitting the Safe Work Australia definition have been extracted and the same targets applied to injury incidence rates.

The injury reporting requirements for petroleum facilities do not allow a similar data treatment.

Note: Safe Work Australia presents the national data in calendar years, with the targets applying from 2012 to 2022. The safety performance data for mining and exploration in Western Australia is reported for financial years and hence the Safe Work Australia targets are applied from 2011-12 to 2022-23.



Further information on the Australian Work Health and Safety Strategy 2012-2022 is available on Safe Work Australia's website.

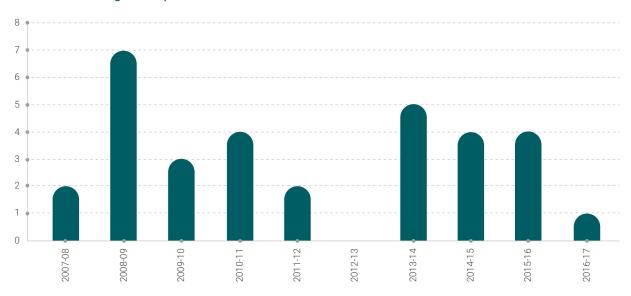
Australian Work Health and Safety Strategy 2012-2022

Measuring progress towards targets

Mining and exploration

Fatalities

Number of mining and exploration fatalities



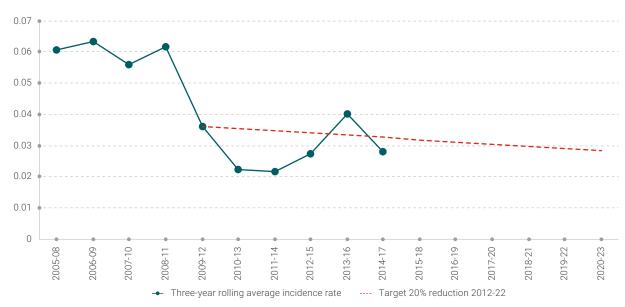
Number of mining and exploration fatalities three-year rolling average



Mining and exploration fatalities per 1,000 employees (incidence rate)



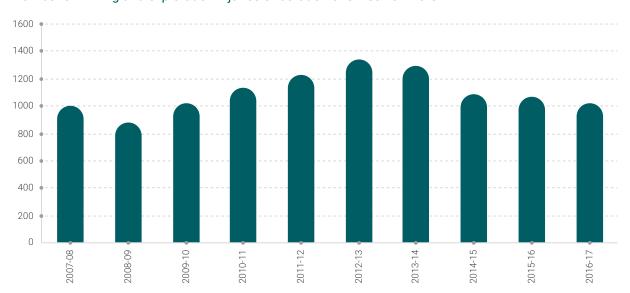
Mining and exploration fatalities per 1,000 employees three-year rolling average



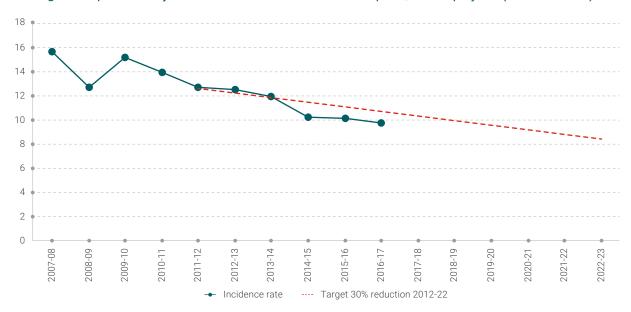


Injuries

Number of mining and exploration injuries of duration one week or more



Mining and exploration injuries of duration one week or more per 1,000 employees (incidence rate)





Case study: Preventing musculoskeletal injuries

In 2016-17, the effectiveness of the regulator's strategy to address hazardous manual tasks in the minerals sector was reviewed by analysing data over an 11-year period.

Four significant regulatory activities were undertaken between 2008-09 and 2010-11.

- Contracting an ergonomist to help better understand hazardous manual tasks and their contribution to musculoskeletal disorders, and undertake a scoping study with industry representatives
- 2. Release of information sheets aimed at raising awareness, and promoting participative ergonomics approach and appropriate risk assessments; reporting encouraged

- Development and trialling of training packages to provide workplaces with the information to run a workshop on how to reduce the risk of musculoskeletal disorders from performing manual tasks
- 4. Release of the training packages during Mines Safety Roadshows

The review highlighted the positive outcomes from the regulatory strategy as well as work done by industry.

Since the implementation of these initiatives, the total number of musculoskeletal injuries, as well as the incidence rate, has reduced over time.

Musculoskeletal incidence rate (duration one week or more)





Further information on the hazardous manual tasks is available on the Department's website.

Guidance about hazardous manual tasks

See Resources Safety Matters, vol. 5 no. 1, Hazardous manual tasks – Are we doing enough to reduce injuries?



Petroleum operations

Fatalities

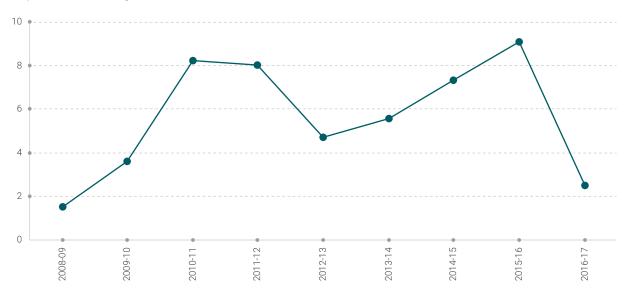


Injuries

Number of reported serious injuries



Reported serious injuries incidence rate

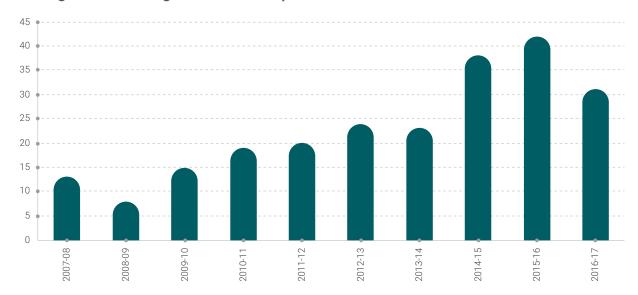


Dangerous goods

Explosives – number of reportable situations and incidents

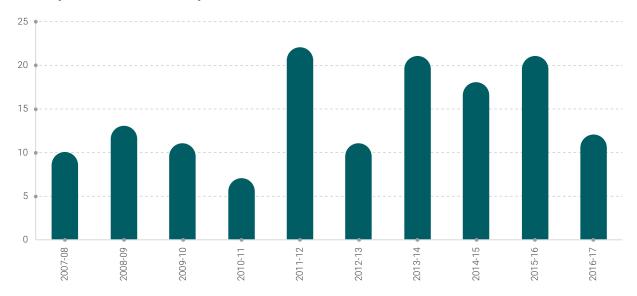


Storage and handling – number of reportable situations and incidents





Transport – number of reportable situations and incidents



Major hazard facilities - number of reportable situations and incidents





6 Financial statements for levies

Significant investment and growth within the mining and petroleum sectors over the past decade has required a proportionate response by Government. In order to maintain an appropriate level of safety regulatory service and implement the safety reform strategy for Resources Safety, funding is obtained through cost recovery from the relevant industry sectors.

Full cost recovery in the dangerous goods sector is achieved through the collection of major hazard facility fees and user fees for State explosives reserves. Various other fees charged to the sector represent only partial cost recovery.

Cost recovery for the mining industry came into effect in May 2010 through a levy imposed under the *Mines Safety and Inspection Act 1994* and the Mines Safety and Inspection Levy Regulations 2010. For the petroleum industry, it came into effect in January 2012 through levies imposed under the *Petroleum and Geothermal Energy Safety Levies Act 2011* and associated regulations.

The financial statements detail Resources Safety's levy revenues and expenses for the 2016-17 financial year. They provide a high-level description where levy monies were allocated to achieve the Department's vision of a safe and healthy resources sector.

Mining safety and health

Auditing of revenue and expenditure

A Special Purpose Account holds monies collected through the Mines Safety and Inspection Levy. The monies in this account can only be used for the purpose of paying costs associated with administering and enforcing laws enshrined in the *Mines Safety and Inspection Act 1994*. Compliance with this and all other statutory and policy requirements applicable to Government funds is subject to an annual audit by the Office of the Auditor General.

Income and expenditure statement

Table 2.1 indicates income and expenditure against the Mines Safety and Inspection Levy. Full year expenditure figures are reported for the years 1 July 2011 to 30 June 2017.

Table 2.1 Income and expenditure 2011 to 2017

	2011-12 actual \$000	2012-13 actual \$000	2013-14 actual \$000	2014-15 actual \$000	2015-16 actual \$000	2016-17 actual \$000	2017-18 budget \$000
Opening balance	2,013	11,352	10,459	7,865	1,779	(4,098)	(7,408)
EXPENSES							
Salaries and superannuation	14,346	14,353	15,168	15,702	16,321	15,353	16,768
Training and development	39	316	556	319	308	202	207
Supplies and services	4,621	4,484	4,930	4,653	7,055	5,711	5,835
Office accommodation	660	824	979	1,749	1,583	1,628	1,661
Depreciation	419	209	210	98	101	99	102
Other expenses	43	151	55	21	167	52	53
Corporate costs	4,651	4,799	5,317	6,677	5,502	5,851	5,899
	24,779	25,136	27,215	29,219	31,037	28,896	30,525
INCOME							
Funds raised by levy	34,118	24,243	24,621	23,133	25,160	25,586	32,000
Balance for the period	9,339	(893)	(2,594)	(6,086)	(5,877)	(3,310)	1,475
Accumulated balance	11,352	10,459	7,865	1,779	(4,098)	(7,408)	(5,933)

Notes to income and expenditure statement

Total costs were \$1.6 M less than budget. Salary savings arose through resignations, delayed staff recruitment programs and Attraction Retention Incentive (ARI) reductions. Information and Communication Technology (ICT) expenditure was also less than expected.

Revenue was \$3.6 M below budget due to assessed hours, as defined under Mines Safety and Inspection Levy Regulations 2010 being significantly less than budgeted.

Petroleum and geothermal energy safety and health

Auditing of revenue and expenditure

A Special Purpose Account holds monies collected through the petroleum and geothermal energy safety levies. The monies in this account can only be used for the purposes of administering and enforcing laws enshrined in the *Petroleum and Geothermal Energy Safety Levies Act 2011*. Compliance with this and all other statutory and policy requirements applicable to Government funds is subject to an annual audit by the Office of the Auditor General.

Income and expenditure statement

Table 2.2 indicates income and expenditure against the Petroleum and Geothermal Energy Safety Levies. Full year expenditure figures are reported for the years 1 July 2012 to 30 June 2017.

Table 2.2 Income and expenditure 2012 to 2017

	2012-13 actual	2013-14 actual	2014-15 actual	2015-16 actual	2016-17 actual	2017-18 budget
	\$000	\$000	\$000	\$000	\$000	\$000
Opening balance	425	1,216	1,065	917	744	(219)
EXPENSES						
Salaries and superannuation	2,892	3,229	2,776	2,689	2,708	2,770
Training and development	178	134	105	77	64	153
Supplies and services	727	330	318	596	879	860
Office accommodation	71	168	339	350	323	324
Depreciation	5	3	0	0	0	0
Other expenses	1	0	0	3	1	1
Corporate costs	1,052	963	1,272	1,050	1,087	1,045
	4,926	4,827	4,810	4,765	5,062	5,153
INCOME						
Funds raised by levy	5,717	4,676	4,662	4,592	4,099	5,589
Balance for the period	791	(151)	(148)	(173)	(963)	436
Accumulated balance	1,216	1,065	917	744	(219)	217



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