



Earth Resources Regulation

Annual
Statistical
Report
FY 2021–22

VICTORIA
State
Government

Jobs,
Precincts
and Regions

Acknowledgement of Traditional Owners

The Victorian Government proudly acknowledges Traditional Owners as Victoria's first peoples and pays its respects to their Elders past and present.

We recognise the intrinsic connection of the first peoples to their Country for countless generations and their inherent obligation to maintain and strengthen their distinct cultural rights and responsibilities to care for their Country.

We value Traditional Owners' role in the management of land, water and biodiversity and acknowledge the ongoing contribution this makes to our earth resources.

We have distinct legislative obligations to Traditional Owner groups that are paramount in our responsibilities in managing Victoria's resources.

We support the need for genuine and lasting partnerships with Aboriginal people and communities to understand culture and connections to Country in the way we plan for and regulate our earth resources.

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For more information, see the Earth Resources Regulation website www.earthresources.vic.gov.au/earth-resources-regulation

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Introduction

Earth Resources Regulation, within the Department of Jobs, Precincts and Regions (DJPR), is responsible for the regulation of minerals, extractive industries (quarries), petroleum, geothermal and carbon storage activities in Victoria and offshore Victorian waters, and for offshore pipelines in Victorian waters¹. We are committed to being an effective regulator.

Earth Resources Regulation's role includes:

- granting rights to access resources
- assessing works and setting controls for the extraction of resources
- assessing site rehabilitation liabilities and setting bonds
- overseeing site rehabilitation activities
- conducting compliance operations to ensure that authority holders fulfil their regulatory obligations
- engaging with communities and stakeholders
- collecting regulatory fees and royalties

Earth Resources Regulation administers the following Acts:

- *Mineral Resources (Sustainable Development) Act 1990* (MRSDA) (mineral exploration mining and quarrying)
- *Petroleum Act 1998* (petroleum exploration and development onshore)
- *Offshore Petroleum and Greenhouse Gas Storage Act 2010* (OPGGSA) (petroleum exploration and development, greenhouse gas storage and pipelines in Victorian offshore waters)
- *Geothermal Energy Resources Act 2005* (geothermal energy exploration and development)
- *Greenhouse Gas Geological Sequestration Act 2008* (greenhouse gas storage onshore)
- *Extractive Industries (Lysterfield) Act 1986*
- *Nuclear Activities (Prohibitions) Act 1983*
- *Underseas Mineral Resources Act 1963*
- *Mines (Aluminium Agreement) Act 1961*

¹ Victorian waters are within three nautical miles of the coastline.

KEY OBSERVATIONS AND STATISTICS

The Earth Resources Regulation 2021-22 Statistical Report presents a compilation of data as reported by tenement holders to Earth Resources Regulation. All production and expenditure figures are certified by tenement holders. The industry data in the report is derived from about 96.5 per cent of mineral industry and 79.3 per cent of extractive industries annual returns. Detailed breakdowns of annual returns submission rates are shown in Table 7.2.1.

Extractive industries operations

- Stone production increased 4.7 per cent from 66.78 million tonnes to 69.91 million tonnes (*Table 2.1.1*)
- Value of sales increased 4.0 per cent from \$1,112.39 million to \$1,156.90 million (*Table 2.1.1*)
- New extractive industries work authorities granted increased from 3 to 15 (*Table 2.2.1*)

Minerals exploration and mining operations

- Mineral exploration expenditure increased 12.1 per cent from \$198.3 million to \$222.2 million (*Table 3.1.1*)
 - Mineral sand exploration expenditure increased 110.4 per cent from \$16.4 million to \$34.5 million (*Table 3.1.2*)
- Mining expenditure decreased 3.5 per cent from \$831.7 million to \$802.4 million (*Table 3.1.1*)
 - Gold mining expenditure increased 6.6 per cent from \$401.2 million to \$427.5 million (*Table 3.1.4*)
- Gold production decreased 13.2 per cent from 722,239 ounces to 627,011 ounces (*Table 3.2.1*)
- Licence applications submitted increased by 9.4 per cent from 127 to 139 (*Table 3.3.2*)

Petroleum

- Gas production increased 16.3 per cent from 8.17 petajoules to 9.50 petajoules of energy (*Table 4.1.1*)

Royalties and regulatory fees

- Royalties payable decreased 3.2 per cent from \$147.0 million to \$142.3 million (*Table 5.1.1*)
 - Gold royalties accounted for 30.1 per cent of total royalties payable (\$42.8 million out of \$142.3 million) (*Table 5.1.1*)
- Revenue from regulatory fees was \$6.7 million (*Table 5.2.1*)

Rehabilitation bonds

- Total value of rehabilitation bonds held under the MRSDA was approximately \$824.5 million (*Table 6.1.1*)

Extractive industries

Quarries predominantly produce hard rock, clay, sand and gravel, which are mostly used for constructing houses, public infrastructure and private sector developments.

2.1 EXTRACTIVE INDUSTRIES PRODUCTION

As at 30 June 2022, there were 847 quarries holding current extractive industries work authorities under the MRSDA. As at 11 Dec 2022, a total of 439 quarries reported production in FY2021-22. The production volume increased from 66.78 million tonnes to 69.91 million tonnes and the value of sales increased from \$1,112.39 million to \$1,156.90 million.

Table 2.1.1 Production and value of sales by financial year

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Current quarries at EOFY	888	888	881	873	860	848	847
Quarries recorded production	543	548	554	546	527	489	439
Production (million tonnes)	54.10	58.10	61.20	62.92	64.65	66.78	69.91
Value of sales (\$million)	\$801.04	\$854.82	\$989.30	\$1,021.49	\$1,075.90	\$1,112.39	\$1,156.90

Note: Some historical data has been adjusted to accommodate amendments to annual returns by tenement holders and annual returns received after the publication of the previous year's report.

Figure 2.1.1 Production and value of sales by financial year



Table 2.1.2 Extractive industries production and value of sales by product type over five financial years

Product group	Product type groups	2017-18		2018-19		2019-20		2020-21		2021-22	
		Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Value of sales (\$ million)
Clay products	Brick	0.99	\$3.02	0.94	\$2.71	0.93	\$2.59	0.91	\$2.54	1.08	\$2.18
	Stoneware Pottery	0.001	\$0.04	0.004	\$0.05	0.001	\$0.02	0.001	\$0.01	0.001	\$0.02
	Tile/Pipe	0.02	\$0.08	0.00	\$0.00	0.00	\$0.00	0.00	\$0.00	0.00	\$0.00
Total clay products		1.01	\$3.14	0.94	\$2.75	0.93	\$2.60	0.91	\$2.55	1.08	\$2.20
Limestone products	Agriculture	0.65	\$17.46	0.62	\$16.25	0.63	\$17.49	0.85	\$24.26	0.77	\$21.36
	Cement	0.08	\$1.70	0.04	\$0.89	0.06	\$1.03	0.07	\$1.25	0.03	\$0.81
	Lime	0.08	\$1.57	0.07	\$1.28	0.09	\$1.63	0.20	\$3.30	0.37	\$5.82
Total limestone products		0.80	\$20.73	0.73	\$18.42	0.78	\$20.15	1.13	\$28.81	1.17	\$27.99
Miscellaneous	Dimension Stone	0.01	\$0.25	0.0005	\$0.12	0.01	\$0.29	0.24	\$1.11	0.08	\$1.38
	Soil	0.05	\$0.60	0.05	\$0.59	0.03	\$0.11	0.15	\$1.06	0.18	\$1.13
	Unspecified	5.31	\$61.58	2.88	\$31.56	4.66	\$70.96	6.49	\$104.41	0.22	\$4.01
Total miscellaneous		5.36	\$62.43	2.92	\$32.27	4.70	\$71.36	6.87	\$106.58	0.48	\$6.52
Multi-size products	Fill	3.92	\$38.97	3.79	\$37.95	4.85	\$46.42	4.18	\$43.65	6.91	\$62.39
	Road Base	6.09	\$104.25	7.62	\$122.04	5.49	\$91.16	4.36	\$79.30	7.15	\$139.36
	Road Sub-Base	11.97	\$144.31	12.91	\$159.15	13.17	\$177.11	12.15	\$165.42	17.52	\$242.10
Total multi size products		21.98	\$287.53	24.31	\$319.14	23.51	\$314.68	20.69	\$288.37	31.58	\$443.85
Sand products	Concrete Sand	7.20	\$132.49	9.25	\$151.73	8.76	\$153.84	9.65	\$151.62	11.76	\$173.51
	Fine Sand	2.50	\$39.67	1.61	\$19.33	3.01	\$43.49	2.32	\$35.12	1.77	\$28.37
	Foundry Sand	0.003	\$0.04	0.86	\$19.11	0.002	\$0.10	0.57	\$13.35	0.08	\$7.25
	Industrial Filters	0.02	\$0.12	0.02	\$0.20	0.00	\$0.00	0.05	\$0.82	0.05	\$3.18
Total sand products		9.72	\$172.33	11.74	\$190.37	11.77	\$197.42	12.59	\$200.92	13.66	\$212.31
Single-size products	Aggregate	22.27	\$441.86	21.36	\$427.62	22.90	\$467.94	24.48	\$483.63	21.76	\$461.85
	Armour	0.07	\$1.30	0.92	\$30.90	0.06	\$1.76	0.11	\$1.53	0.18	\$2.18
Total single size products		22.33	\$443.15	22.28	\$458.53	22.97	\$469.69	24.59	\$485.16	21.94	\$464.03
FINANCIAL YEAR TOTAL		61.20	\$989.30	62.92	\$1,021.49	64.65	\$1,075.90	66.78	\$1,112.39	69.91	\$1,156.90

Note: Some historical data has been adjusted to accommodate amendments to annual returns by tenement holders and annual returns received after the publication of the previous year's report.

Table 2.1.3 Extractive industries production and value of sales by rock type over five financial years

Rock type	Rock type groups	2017-18		2018-19		2019-20		2020-21		2021-22	
		Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Value of sales (\$ million)
Hard rock	Basalt new	20.21	\$318.29	21.61	\$351.07	21.53	\$364.34	22.68	\$384.29	23.87	\$391.61
	Basalt old	3.12	\$63.72	3.85	\$82.08	4.38	\$80.31	2.86	\$60.22	4.00	\$83.01
	Dolerite	0.02	\$0.23	0.001	\$0.01	0.00	\$0.00	0.35	\$6.68	0.00	\$0.00
	Gneiss	0.01	\$0.01	0.01	\$0.00	0.08	\$1.92	0.004	\$0.00	0.001	\$0.00
	Granite	5.37	\$123.00	5.35	\$117.65	7.06	\$138.83	7.38	\$138.80	6.65	\$133.97
	Hornfels	5.23	\$85.85	5.22	\$86.87	5.27	\$89.60	5.58	\$111.36	7.26	\$141.05
	Quartzite	0.03	\$0.64	0.03	\$0.75	0.01	\$0.60	0.04	\$1.06	0.08	\$1.51
	Rhyodacite	1.79	\$43.64	1.52	\$33.52	1.54	\$35.53	1.73	\$39.99	2.16	\$51.31
	Schist	0.27	\$5.86	0.48	\$9.31	0.43	\$8.32	0.19	\$4.54	0.43	\$9.71
	Slate	0.04	\$1.25	0.04	\$1.17	0.04	\$1.36	0.23	\$1.46	0.06	\$0.95
	Trachyte	0.04	\$0.80	0.03	\$0.70	0.03	\$0.51	0.02	\$0.54	0.03	\$0.64
Total hard rock		36.14	\$643.28	38.14	\$683.14	40.38	\$721.32	41.08	\$748.93	44.55	\$813.76
Soft rock	Clay and clay shale	1.48	\$3.90	1.20	\$3.49	1.47	\$5.33	1.30	\$3.28	2.74	\$4.35
	Limestone	1.80	\$28.62	1.99	\$29.08	1.98	\$31.35	2.27	\$38.48	2.02	\$35.86
	Sand and gravel	16.92	\$253.93	16.70	\$248.96	15.75	\$257.70	17.11	\$262.13	16.48	\$247.36
	Scoria	1.15	\$18.07	0.76	\$12.97	0.94	\$15.39	1.12	\$18.78	0.95	\$18.38
	Sedimentary*	3.09	\$36.13	3.76	\$39.75	3.51	\$39.28	3.57	\$37.45	2.75	\$33.76
	Soil	0.05	\$0.60	0.05	\$0.62	0.06	\$0.11	0.15	\$1.08	0.18	\$1.13
	Tuff	0.58	\$4.79	0.32	\$3.48	0.56	\$5.41	0.20	\$2.26	0.24	\$2.31
Total soft rock		25.07	\$346.02	24.77	\$338.35	24.27	\$354.58	25.71	\$363.46	25.36	\$343.14
FINANCIAL YEAR TOTAL		61.20	\$989.30	62.92	\$1,021.49	64.65	\$1,075.90	66.78	\$1,112.39	69.91	\$1,156.90

Note: Some historical data has been adjusted to accommodate amendments to annual returns by tenement holders and annual returns received after the publication of the previous year's report.

*Sedimentary (usually rippable rocks, including sandstone, shale, siltstone, chert, mudstone, claystone).

2.2 EXTRACTIVE INDUSTRIES WORK AUTHORITIES

Table 2.2.1 Extractive industries work authorities granted by financial year

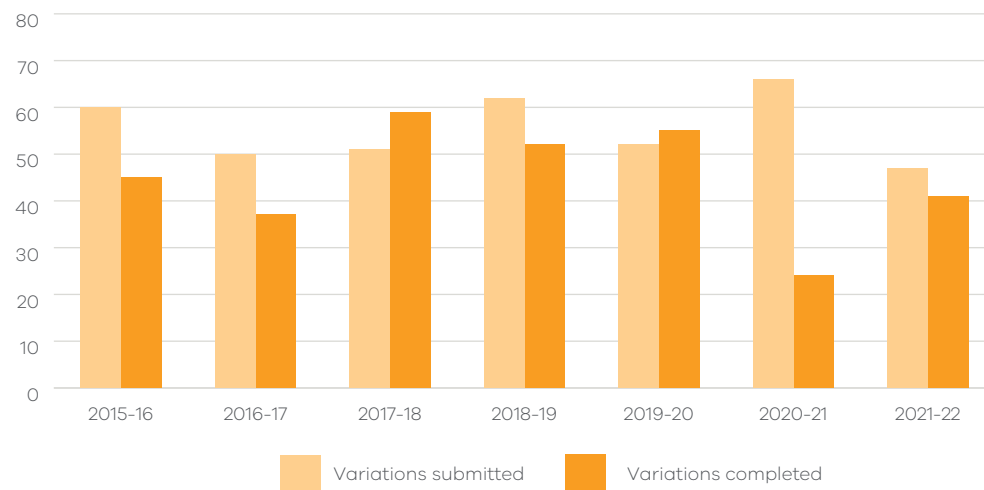
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Work authorities granted	15	10	13	11	4	3	15
Resource estimate* (tonnes)	-	-	-	-	-	-	56.1M

*Resource estimate: The total estimated resource available for extraction from the granted work authorities. The data was provided by the tenement holder. Resource estimate data is not available prior to FY2021-22.

Table 2.2.2 Extractive industries work authority variations by financial year

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
WA variations submitted	60	50	51	62	52	66	47
WA variations completed	45	37	59	52	55	24	41

Figure 2.2.2 Extractive industries work authority variations by financial year



2.3 EXTRACTIVE WORK PLANS AND ADMINISTRATIVE UPDATES BY NOTIFICATION

Work plans and codes of practices submitted and approved by financial year:

- An initial work plan (WP) is the primary document describing the permitted activities to be undertaken on a work authority.
- A work plan variation (WPV) is submitted by a licence holder when they want to change the scope of work in an existing work plan.
- Code of practice (eligible to operate under the Code of Practice for Small Quarries).

Table 2.3.1 Extractive industries work plans, work plan variations and codes of practice applications submitted

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Initial work plan	19	15	6	10	7	6	8
Work plan variation	11	22	10	11	21	12	13
Code of practice	1	2	8	7	5	5	3
TOTAL SUBMITTED	31	39	24	28	33	23	24

Table 2.3.2 Extractive industries work plans, work plan variations and codes of practice applications approved

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Initial work plan	17	4	11	9	6	5	5
Work plan variation	2	12	9	6	14	14	5
Code of practice	1	0	8	3	3	1	3
TOTAL APPROVED	20	16	28	18	23	20	13

Table 2.3.3 Extractive industries work plans, work plan variations and codes of practice applications withdrawn/refused

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Initial work plan	1	3	4	7	4	2	7
Work plan variation	0	0	2	2	4	4	6
Code of practice	0	2	1	1	0	0	5
TOTAL WITHDRAWN/REFUSED	1	5	7	10	8	6	18

Statutory endorsement indicates that Earth Resources Regulation has assessed and endorsed the work plan or work plan variation as having met the requirements under the MRSDA.

Table 2.3.4 Extractive industries work plans and work plan variations statutory endorsements

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Initial work plan	9	5	7	4	9	6	4
Work plan variation	3	1	2	8	12	7	6
TOTAL ENDORSED	23	14	12	12	21	13	10

Administrative updates by notification are minor changes to the existing work plan with no significant increase in risk arising from the new or changing work. Administrative updates do not require statutory endorsement (no further planning permission required). The administrative updates by notification process was introduced at the end of FY2017-18.

Table 2.3.5 Extractive industries administrative updates by notifications received and acknowledged

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Received	-	-	3	14	30	12	26
Acknowledged	-	-	2	14	17	10	12

Minerals

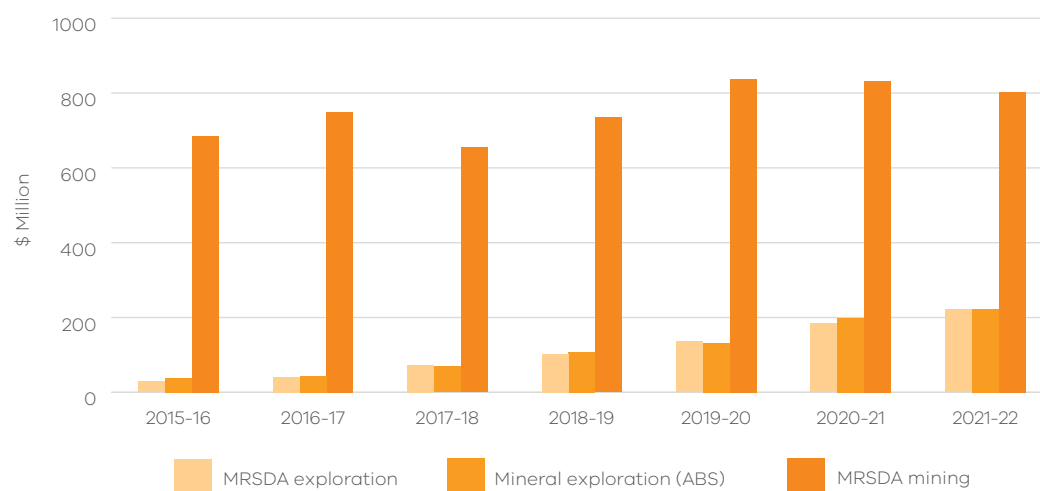
3.1 MINERAL EXPLORATION AND MINING EXPENDITURE

Table 3.1.1 Expenditure on mineral exploration and mining development (\$ million)

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Mineral exploration (ABS seasonally adjusted data) ¹	\$28.9	\$40.5	\$73.3	\$102.2	\$135.7	\$183.7	\$222.2
MRSDA exploration ²	\$38.5	\$44.2	\$69.0	\$107.3	\$132.2	\$198.3	\$222.2
MRSDA mining ³	\$685.8	\$749.1	\$654.6	\$734.5	\$837.1	\$831.7	\$802.4

Source: [Figures collated from annual activity reports required under the MRSDA and ABS](https://www.abs.gov.au/statistics/industry/mining/mineral-and-petroleum-exploration-australia/latest-release#data-download) (https://www.abs.gov.au/statistics/industry/mining/mineral-and-petroleum-exploration-australia/latest-release#data-download).

Figure 3.1.1 Expenditure on mineral exploration and mining



- 1 The ABS reports quarterly on private mineral exploration expenditure for all Australian states and the Northern Territory. Victorian mineral exploration and mining expenditure is also reported in accordance with the requirements of the MRSDA. The ABS exploration expenditure statistics can vary significantly from expenditure reported under the MRSDA. The difference between these two exploration expenditure data sets is mainly due to the difference in methodologies for data collection and the inclusion of the exploration expenditure on mining licences in the MRSDA figure. The ABS statistics are a valid basis for comparison of Victorian expenditure with other states and territories. However, the MRSDA figures provide greater detail.
- 2 The mineral exploration expenditure figures covers exploration and retention licences with expenditure reporting period that ends within the financial year any specified exploration expenditure on mining and prospecting licences.
- 3 The mineral mining expenditure figure covers all expenditure on mining and prospecting licences (including capital and operating expenses), less any specified exploration expenditure on mining and prospecting licences.

Table 3.1.2 Mineral exploration expenditure by commodity and financial year (\$ million)

Exploration expenditure is allocated to the primary nominated mineral commodity on the licence in accordance with the MRSDA.

Year	Gold	Mineral sands	Coal	Other*	Total
2015-16	\$16.9	\$6.6	\$0.4	\$14.6	\$38.5
2016-17	\$26.1	\$5.2	\$0.5	\$12.5	\$44.2
2017-18	\$44.3	\$8.2	\$0.5	\$16.1	\$69.0
2018-19	\$57.3	\$24.2	\$7.1	\$18.8	\$107.3
2019-20	\$81.8	\$23.7	\$6.0	\$20.7	\$132.2
2020-21	\$149.3	\$16.4	\$6.9	\$25.7	\$198.3
2021-22	\$141.7	\$34.5	\$7.2	\$38.8	\$222.2

*Other includes cases where there is more than one primary mineral.

Figure 3.1.2 Mineral exploration expenditure by commodity and financial year (\$ million)

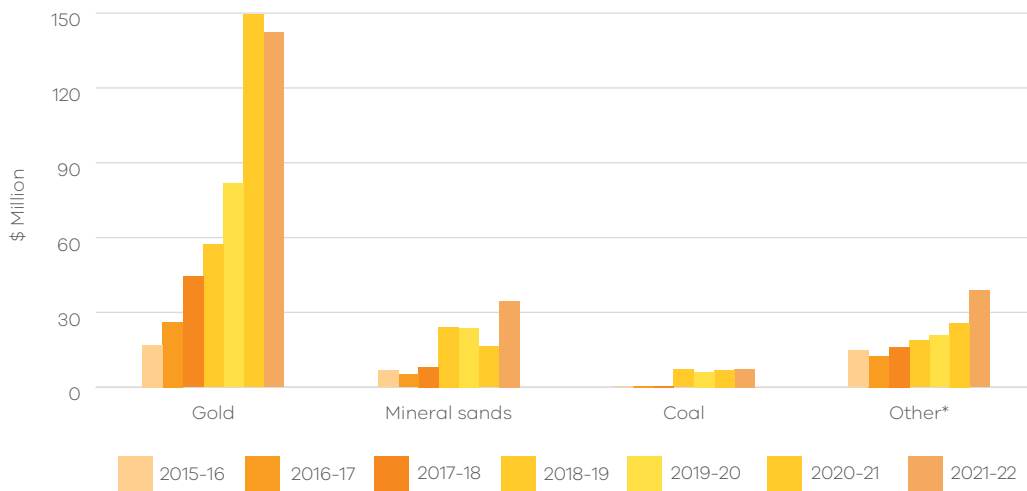


Table 3.1.3 Mineral exploration expenditure by licence type and financial year (\$ million)

Year	Exploration licence	Mining licence	Prospecting licence	Retention licence	Total
2015-16	\$15.4	\$19.8	\$0.1	\$3.3	\$38.5
2016-17	\$17.0	\$24.5	\$0.1	\$2.7	\$44.2
2017-18	\$21.8	\$42.4	\$0.1	\$4.7	\$69.0
2018-19	\$43.1	\$41.4	\$0.1	\$22.7	\$107.3
2019-20	\$46.2	\$56.2	\$0.1	\$29.6	\$132.2
2020-21	\$45.7	\$97.2	\$0.1	\$55.3	\$198.3
2021-22	\$62.3	\$97.5	\$0.2	\$62.1	\$222.2

Figure 3.1.3 Mineral exploration expenditure by licence type financial year (\$ million)

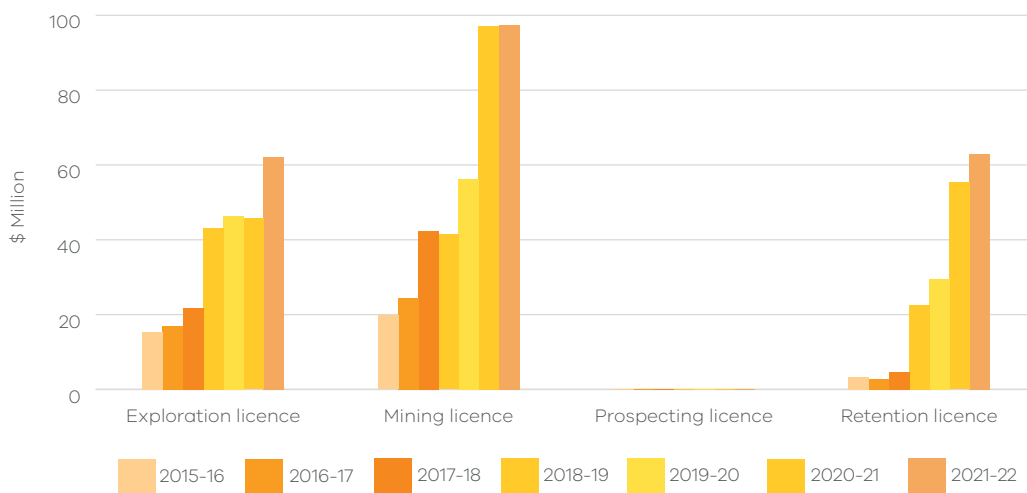


Table 3.1.4 Mining expenditure by commodity and financial year (\$ million)

Mining expenditure is allocated to the primary nominated mineral commodity on the licence in accordance with the MRSDA.

Year	Gold	Mineral sands	Coal	Other*	Total
2015-16	\$280.2	\$21.8	\$339.4	\$44.4	\$685.8
2016-17	\$260.0	\$15.2	\$431.2	\$42.7	\$749.1
2017-18	\$238.2	\$12.6	\$359.1	\$44.8	\$654.6
2018-19	\$316.4	\$14.6	\$329.3	\$74.2	\$734.5
2019-20	\$422.5	\$12.4	\$362.2	\$40.0	\$837.1
2020-21	\$401.2	\$13.2	\$361.9	\$55.3	\$831.7
2021-22	\$427.5	\$15.6	\$303.7	\$55.7	\$802.4

*Other includes cases where there is more than one primary mineral.

Figure 3.1.4 Mining expenditure by commodity and financial year (\$ million)

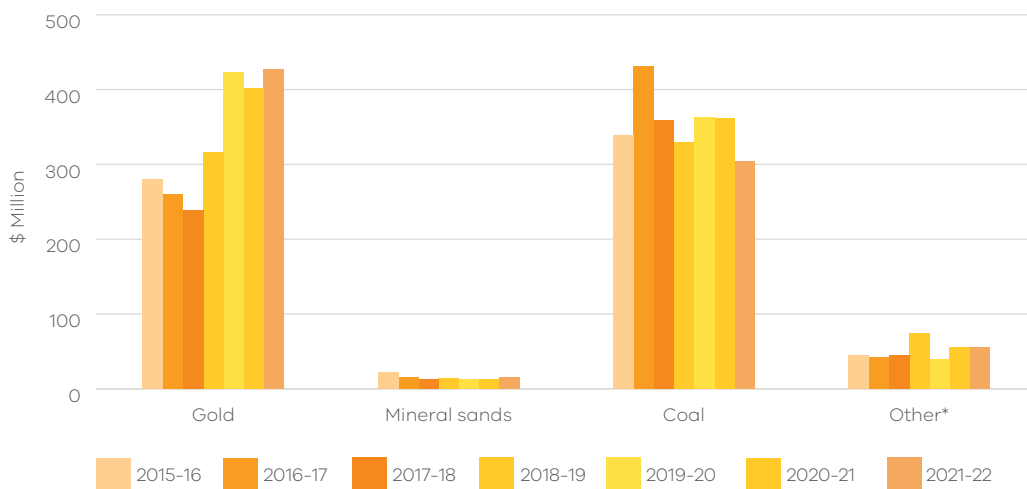


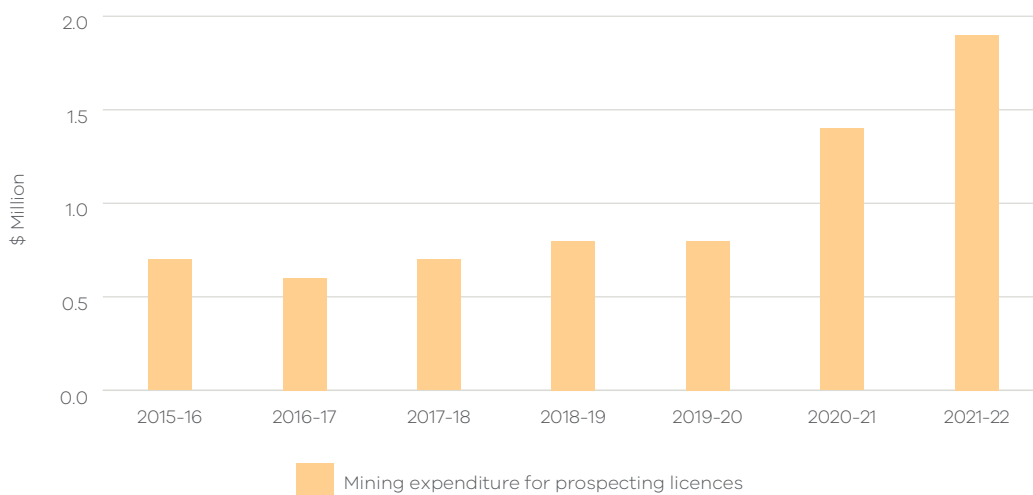
Table 3.1.5 Mining expenditure by licence types and financial year (\$ million)

Year	Mining licence	Prospecting licence	Total
2015-16	\$685.1	\$0.7	\$685.8
2016-17	\$748.4	\$0.6	\$749.1
2017-18	\$653.9	\$0.7	\$654.6
2018-19	\$733.7	\$0.8	\$734.5
2019-20	\$836.4	\$0.8	\$837.1
2020-21	\$830.3	\$1.4	\$831.7
2021-22	\$800.6	\$1.9	\$802.4

Figure 3.1.5 Mining expenditure for mining licences by financial year (\$ million)



Figure 3.1.6 Mining expenditure for prospecting licences by financial year (\$ million)



3.2 MINERAL PRODUCTION

Table 3.2.1 Mineral production by financial year

FY	Gold* (ounce)	Silver* (ounce)	Antimony (tonne)	Zircon (tonne)	Rutile (tonne)	Ilmenite (tonne)	Coal (tonnes)	Gypsum (tonne)	Kaolin and clay (tonne)	Peat (tonne)	Quartz (tonne)
2015-16	256,697	6,899	3,769	52,026	90,318	57,763	59,740,649	504,244	202,229	3,025	18,200
2016-17	312,835	4,116	17,975	45,597	73,812	44,944	56,095,491	453,067	192,150	3,207	1
2017-18	364,294	0	2,570	27,515	48,381	24,390	45,061,567	637,018	171,932	4,840	8
2018-19	567,501	1,931	2,016	0	0	0	42,255,570	474,084	114,050	6,050	0
2019-20	790,054	7,481	3,141	0	0	0	40,372,215	533,066	154,812	3,146	3,495
2020-21	722,239	7,689	3,551	0	0	0	42,263,209	679,741	172,983	3,993	9,829
2021-22	627,011	41,445	2,896	0	0	0	39,126,368	836,249	167,133	5,275	9,894

*Gold and silver reported in troy ounces.

Note: Some historical data has been adjusted to accommodate amendments to annual returns by tenement holders and annual returns received after the publication of the previous year's report.

Table 3.2.2 Mineral production value by financial year (\$ million)

Year	Gold	Silver	Antimony	Mineral sands ¹	Industrial minerals ²	Coal ³	Others*	Total
2015-16	\$412.5	\$0.1	\$30.1	\$176.0	\$10.0	N/A	\$0.4	\$629.6
2016-17	\$519.8	\$0.1	\$33.6	\$188.5	\$8.0	N/A	\$0.1	\$750.2
2017-18	\$613.5	\$0.0	\$28.2	\$172.6	\$11.7	N/A	\$0.2	\$827.0
2018-19	\$1,015.5	\$0.04	\$21.2	\$0.0	\$10.3	N/A	\$0.0	\$1,093.7
2019-20	\$1,843.0	\$0.2	\$24.8	\$0.0	\$10.3	N/A	\$0.2	\$1,924.5
2020-21	\$1,781.5	\$0.3	\$36.7	\$0.0	\$13.6	N/A	\$0.3	\$1,878.2
2021-22	\$1,592.5	\$1.3	\$58.2	\$0.0	\$15.5	N/A	\$0.8	\$1,669.5

1. Mineral sands (zircon, rutile, ilmenite).

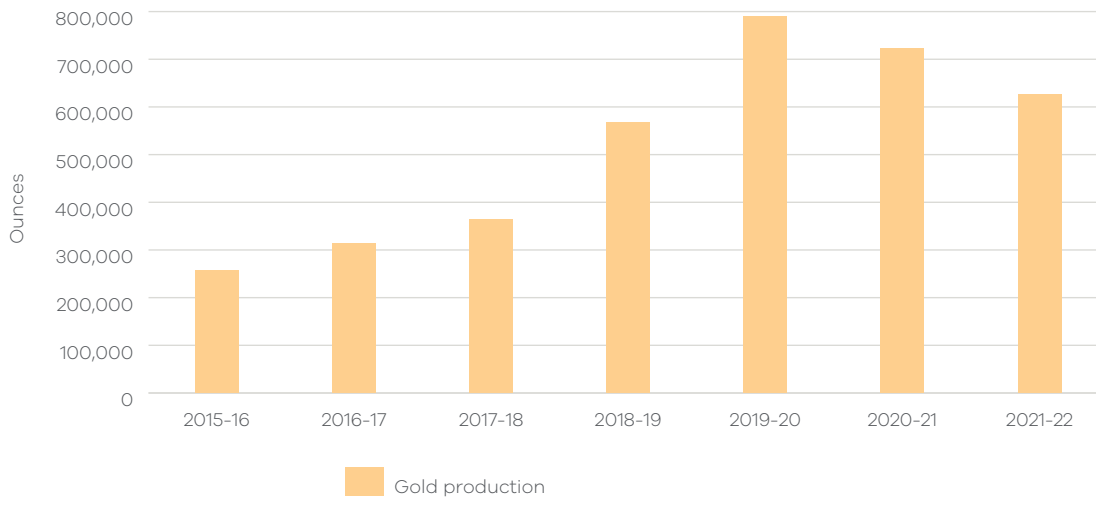
2. Industrial minerals (feldspar, gypsum, kaolin and fine clay).

3. Unit value is assigned to coal for the purposes of determining its production value. Coal is almost entirely used for electricity production and is largely an internal transfer within mining/generation entities. As such, there is no available market price for coal.

* Others (includes peat, quartz and tailings,).

Note: Some historical data has been adjusted to accommodate amendments to annual returns by tenement holders and annual returns received since last publication of this report.

Figure 3.2.1 Gold production (ounces) by financial year



3.3 MINERAL TENEMENTS

Table 3.3.1 Number of current licences at the end of each financial year

Licence type	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Exploration licence	211	180	200	212	217	291	357
Mining licence	170	162	156	145	141	139	131
Prospecting licence	51	54	59	55	60	66	57
Retention licence	11	15	20	21	27	30	32
TOTAL	443	411	435	433	445	526	577

Figure 3.3.1 Number of current licences at the end of each financial year

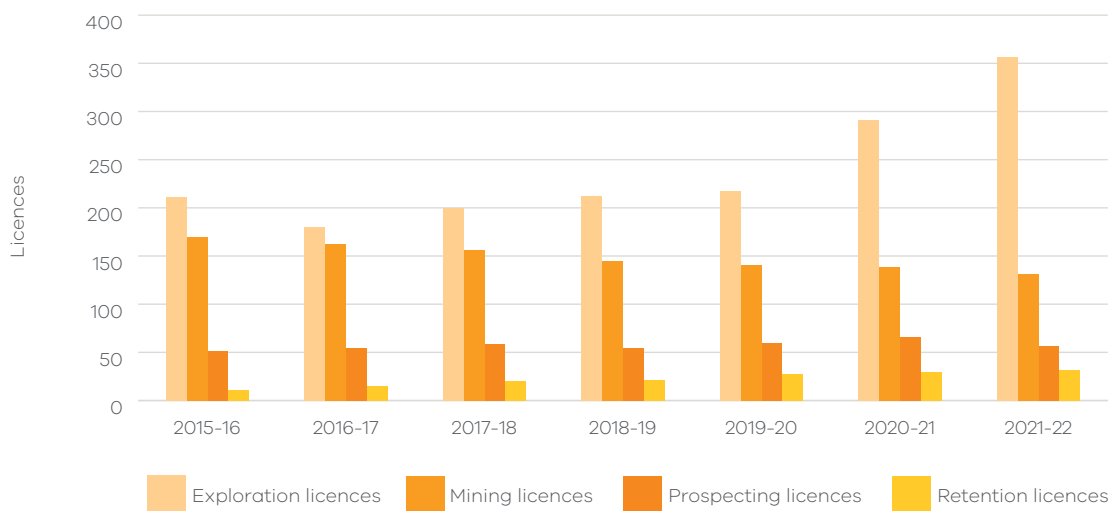


Table 3.3.2 Number of licence applications submitted by financial year

Licence type	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Exploration licence	32	38	72	67	138	111	126
Mining licence	3	1	2	1	1	1	3
Prospecting licence	14	18	17	14	7	10	8
Retention licence	7	3	7	6	14	5	2
TOTAL	56	60	98	88	160	127	139

Figure 3.3.2 Number of licence applications submitted by financial year

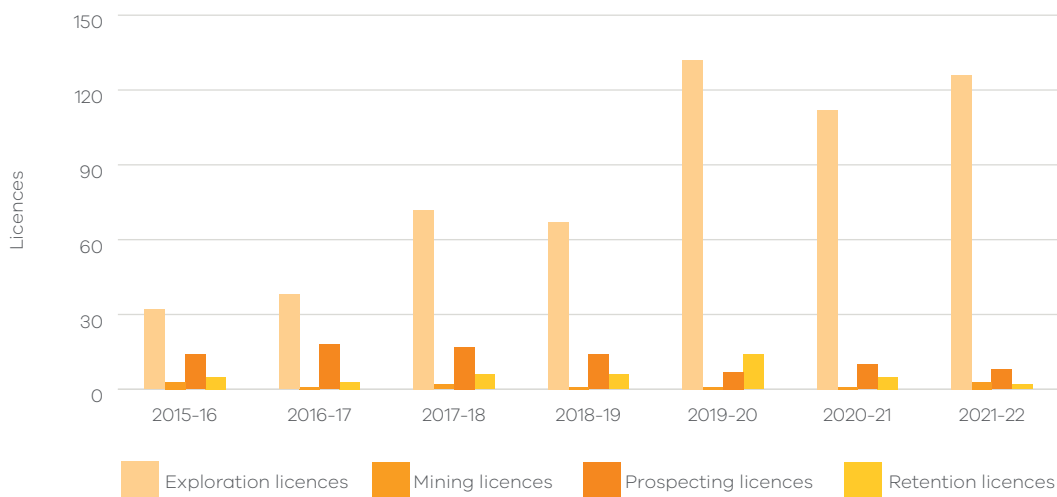


Table 3.3.3 Licence applications granted by financial year

Licence type	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Exploration licence	17	21	63	36	25	89	77
Mining licence	2	0	3	1	2	0	0
Prospecting licence	12	11	12	14	14	9	4
Retention licence	3	4	7	1	6	3	2
TOTAL	34	36	85	52	47	101	83

Figure 3.3.3 Number of licence applications granted by financial year

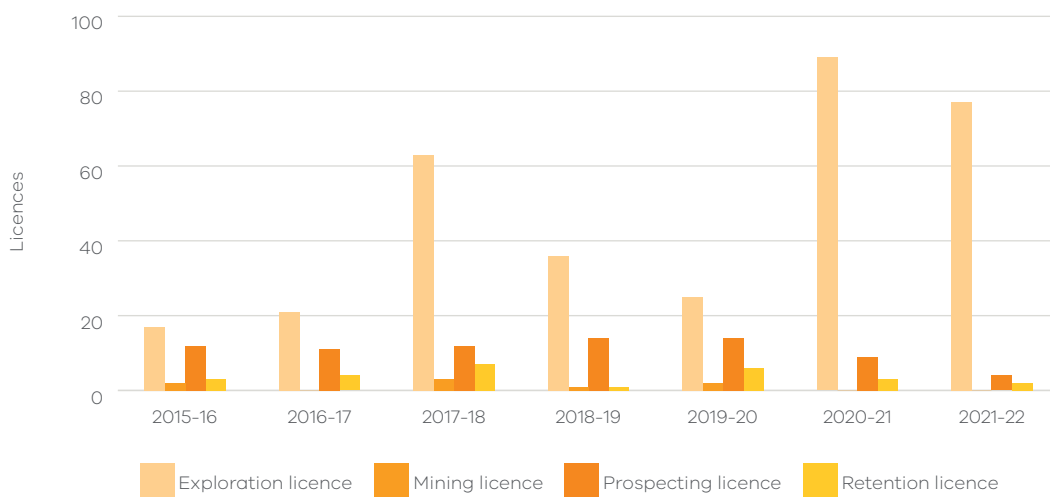


Table 3.3.4 Licences renewed by financial year

Licence Type	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Exploration licence	13	17	29	19	11	15	6
Mining licence	10	15	26	22	9	4	5
Retention licence	-	-	-	-	1	2	1
TOTAL	23	32	55	41	21	21	12

Figure 3.3.4 Number of licence applications renewed by financial year

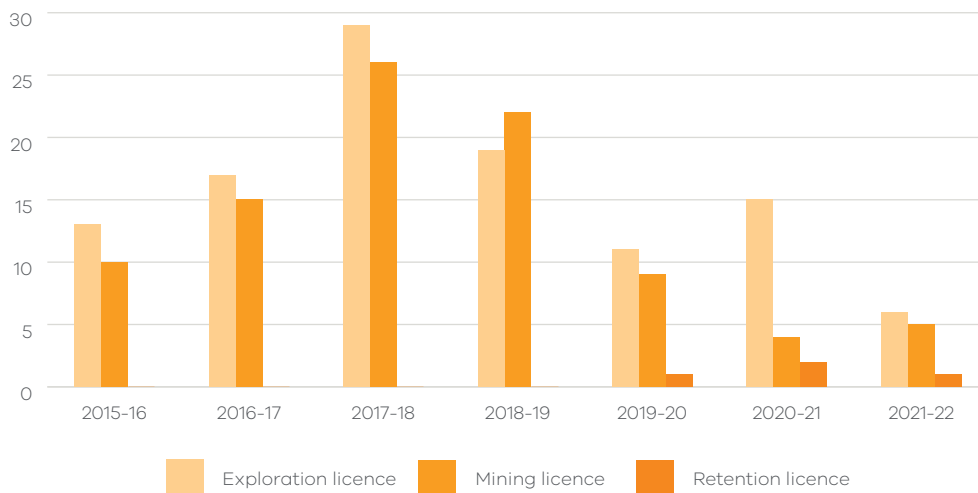


Table 3.3.5 Licence variations submitted by financial year

Licence type	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Exploration licence	205	173	124	191	211	187	171
Mining licence	49	44	48	63	28	17	22
Prospecting licence	2	13	3	14	8	5	9
Retention licence	3	2	5	7	9	4	6
TOTAL	259	232	180	275	256	213	208

Figure 3.3.5 Number of licence variations submitted by financial year

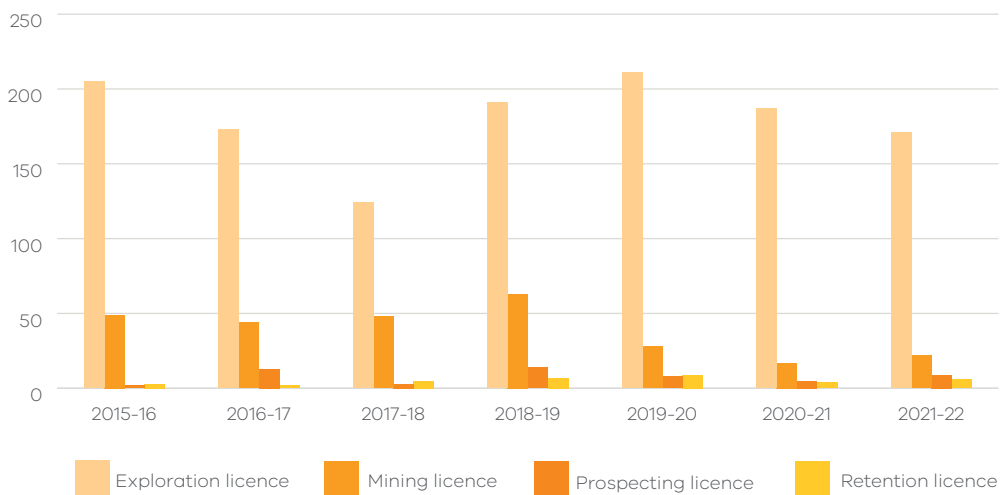
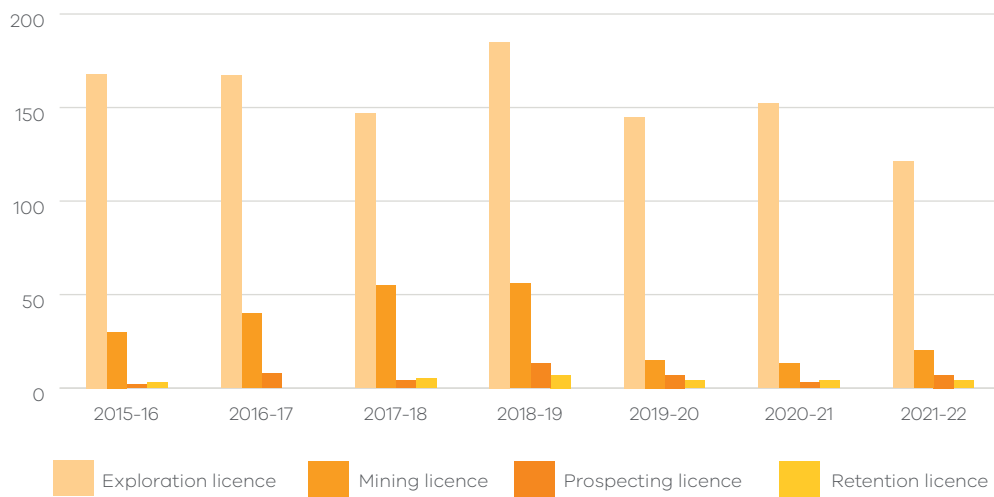


Table 3.3.6 Licence variations completed by financial year

Licence type	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Exploration licence	168	167	147	185	145	152	121
Mining licence	30	40	55	56	15	13	20
Prospecting licence	2	8	4	13	7	3	7
Retention licence	3	0	5	7	4	4	4
TOTAL	203	215	211	261	171	172	152

Figure 3.3.6 Number of licence variations completed by financial year



3.4 MINERAL WORK PLANS, CODES OF PRACTICE AND ADMINISTRATIVE UPDATES BY NOTIFICATION

Work plans and codes of practices submitted and approved by financial year:

- An initial work plan (WP) is the primary document describing the permitted activities to be undertaken on a licence.
- A work plan variation (WPV) is submitted by a licence holder when they want to change the scope of work in an existing work plan.
- Code of practice (eligible to operate under the *Code of Practice for low impact exploration or low risk mines*).

Table 3.4.1 Mineral work plans, work plan variations and codes of practice applications submitted

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Initial work plan	13	7	14	11	8	9	13
Work plan variation	7	13	16	11	14	3	4
Code of practice	6	7	4	10	3	4	6
TOTAL SUBMITTED	26	27	34	32	25	16	23

Table 3.4.2 Mineral work plans, work plan variations and codes of practice applications approved

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Initial work plan	9	3	4	6	7	3	10
Work plan variation	3	1	11	14	7	4	2
Code of practice	5	5	3	2	5	4	5
TOTAL APPROVED	17	9	18	22	19	11	17

Table 3.4.3 Mineral work plans, work plan variations and codes of practice applications withdrawn/refused

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Initial work plan	1	4	2	1	2	2	12
Work plan variation	0	1	7	2	4	1	0
Code of practice	0	0	0	0	0	0	1
TOTAL WITHDRAWN/REFUSED	1	5	9	3	6	3	13

Statutory endorsement indicates that Earth Resources Regulation has assessed and endorsed the work plan or work plan variation as having met the requirements under the MRSDA.

Table 3.4.4 Mineral work plans and work plan variations statutory endorsements

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Initial work plan	4	1	0	1	1	2	0
Work plan variation	4	0	1	4	3	1	0
TOTAL ENDORSED	8	1	1	5	4	3	0

Administrative updates by notification are minor changes to the existing work plan with no significant increase in risk arising from the new or changing work. Administrative updates do not require statutory endorsement (no further planning permission required). The administrative updates by notification process was introduced at the end of FY2017-18.

Table 3.4.5 Mineral administrative updates by notifications received and acknowledged

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Received	-	-	2	11	10	7	12
Acknowledged	-	-	2	8	9	7	7

Petroleum, geothermal, offshore pipelines and greenhouse gas

Exploration, within Victoria's jurisdiction, for petroleum occurred in the offshore parts of the Otway and Gippsland geological basins. Production activity occurred in the Otway Basin.

Offshore activities occur within three nautical miles of the coast, according to Victorian legislation. Waters further than three nautical miles are covered by Commonwealth legislation and reported separately by Commonwealth Government agencies.

Hydraulic fracturing is banned under Victorian legislation.

4.1 GAS PRODUCTION AND STORAGE

Gas production located offshore within Victoria's three nautical mile zone.

Table 4.1.1 Gas production by financial years

Year	Condensate (barrels)	Gas production (MMscf [*])	Gas production (petajoules [^])	CO2 production. (tonnes)	Comments
2015-16	3.7	0	0	32,991	Ex-wellhead figures
2016-17	201,972	19,598	21.26	34,937	Ex-wellhead figures
2017-18	134,178	13,118	13.91	33,643	Ex-wellhead figures
2018-19	146,186	14,523	15.40	32,293	Ex-wellhead figures
2019-20	99,094	9,069	9.83	31,029	Ex-wellhead figures
2020-21	122,569	7,534	8.17	27,149	Ex-wellhead figures
2021-22	167,353	8,759	9.50	27,003	Ex-wellhead figures

* MMscf = million standard cubic feet.

[^] Convert Gas MMscf to petajoules using online sales gas converter: <https://www.convert-me.com/en/convert/energy/mscfigas.html>.

Table 4.1.2 Underground gas storage by financial years

Year	Condensate (barrels)	Gas storage (MMscf ^{**})	Gas storage (petajoules [^])	Gas injection (MMscf)	Comments
2015-16	1,967	16,881	18.31	9,970	Storage
2016-17	587	9,668	10.49	13,952	Storage
2017-18	465	11,670	12.38	13,745	Storage
2018-19	1,220	13,100	13.89	12,514	Storage
2019-20	944	15,959	17.31	12,231	Storage
2020-21	283	16,144	17.51	10,201	Storage
2021-22	311	12,470	13.52	16,216	Storage

**MMscf = million standard cubic feet.

[^] Convert Gas MMscf to petajoules using online sales gas converter: <https://www.convert-me.com/en/convert/energy/mscfigas.html>.

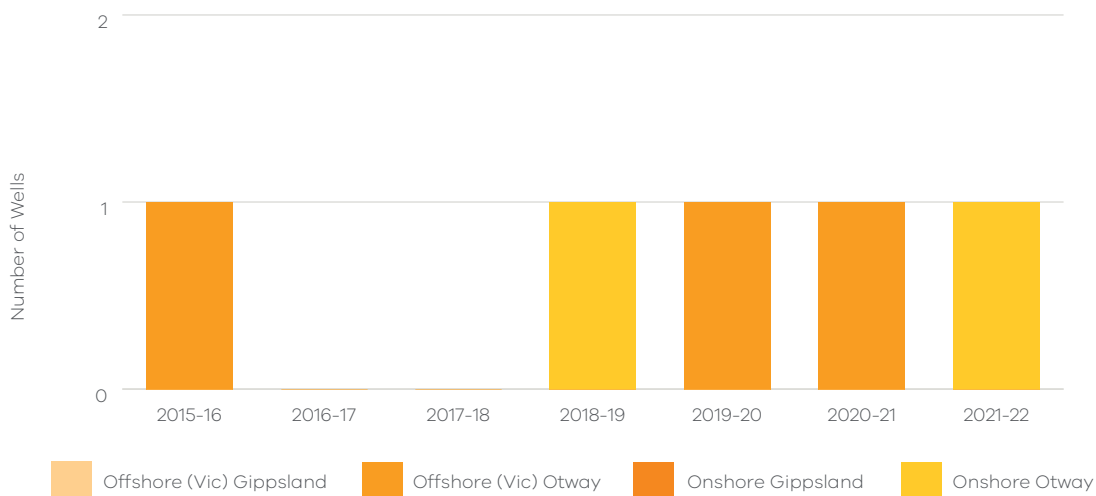
4.2 DRILLING

Exploration, appraisal and production wells

Table 4.2.1 Number of wells drilled in Victoria by financial year

Year	Offshore (Vic) Gippsland	Offshore (Vic) Otway	Onshore Gippsland	Onshore Otway	Total wells
2015-16	0	1	0	0	1
2016-17	0	0	0	0	0
2017-18	0	0	0	0	0
2018-19	0	0	0	1	1
2019-20	0	1	0	0	1
2020-21	0	1	0	0	1
2021-22	0	0	0	1	1

Figure 4.2.1 Number of wells drilled by financial year



4.3 PETROLEUM, OFFSHORE PIPELINES, GEOTHERMAL AND GREENHOUSE GAS LICENCES

Table 4.3.1 Overview of onshore petroleum tenements as at 30 June 2022

Onshore petroleum licences and permits	No. of licences and permits
Onshore petroleum production licence	11
Onshore petroleum exploration permit	10
Onshore petroleum special drilling authorisation	2
Onshore petroleum retention lease	1
TOTAL	24

Table 4.3.2 Overview of offshore (Victorian waters) petroleum tenements as at 30 June 2022

Offshore petroleum licences and permits	No. of licences and permits
Offshore petroleum exploration permit	5
Offshore petroleum production licence	2
Offshore petroleum retention lease	1
Offshore petroleum access authority	1
TOTAL	9

Table 4.3.3 Offshore pipeline licences as at 30 June 2022

Offshore pipeline licences	No. of licences
Offshore pipeline licence	14

Table 4.3.4 Geothermal exploration permits as at 30 June 2022

Geothermal energy permits	No. of permits
Geothermal exploration permit	1

Table 4.3.5 Offshore greenhouse gas assessment permits as at 30 June 2022

Greenhouse gas storage permits	No. of permits
Offshore greenhouse gas assessment permit	1

Table 4.3.6 Non-MRSDA licence variations submitted by financial year

Licence type	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Geothermal exploration permit	2	1	2	0	0	0	0
Offshore greenhouse gas assessment permit	0	0	0	1	1	0	0
Offshore petroleum access authority	0	0	0	2	2	0	0
Offshore petroleum exploration permit	3	0	2	6	2	10	1
Offshore petroleum production licence	0	0	0	2	2	0	0
Offshore petroleum retention lease	0	1	1	1	0	0	0
Offshore pipeline licence	0	9	16	5	3	1	3
Onshore petroleum exploration permit	23	5	30	9	5	4	19
Onshore petroleum production licence	3	0	16	17	9	0	0
Onshore petroleum retention lease	0	0	4	0	1	0	2
Onshore petroleum special drilling authorisation	0	0	0	1	2	2	0
TOTAL	31	16	71	44	27	17	25

Table 4.3.7 Non-MRSDA licence variations completed by financial year

Licence type	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Geothermal exploration permit	0	0	2	1	0	0	0
Offshore greenhouse gas assessment permit	0	0	0	0	1	1	0
Offshore petroleum access authority	0	0	0	1	3	0	0
Offshore petroleum exploration permit	0	2	1	2	3	12	0
Offshore petroleum production licence	0	0	0	1	3	0	0
Offshore petroleum retention lease	0	0	2	0	2	0	0
Offshore pipeline licence	0	3	22	3	6	2	0
Onshore petroleum exploration permit	17	7	15	17	10	2	21
Onshore petroleum production licence	2	0	9	7	18	8	1
Onshore petroleum retention lease	0	1	4	0	1	0	2
Onshore petroleum special drilling authorisation	0	0	0	1	2	2	0
TOTAL	19	13	55	33	49	27	24

Revenue

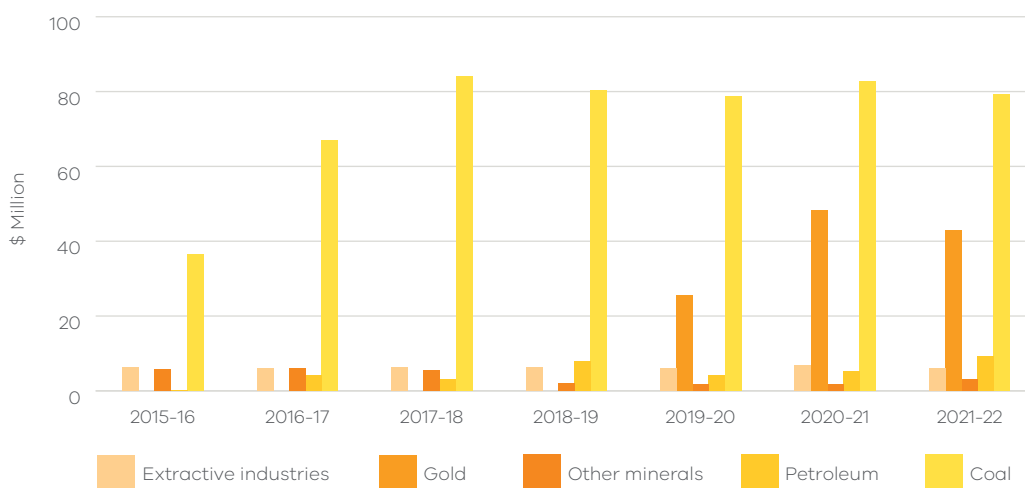
5.1 ROYALTIES PAYABLE

Table 5.1.1 Royalties payable by financial year (\$ million)

Year	Extractive industries (\$ million)	Gold* (\$ million)	Other minerals (\$ million)	Petroleum (\$ million)	Coal (\$ million)	Total (\$ million)
2015-16	\$6.2	N/A	\$5.7	\$0.1	\$36.6	47.7
2016-17	\$5.9	N/A	\$6.1	\$4.2	\$66.9	83.1
2017-18	\$6.2	N/A	\$5.6	\$3.2	\$84.0	99.1
2018-19	\$6.2	N/A	\$1.9	\$7.9	\$80.4	96.1
2019-20	\$5.9	\$25.4	\$1.7	\$4.1	\$78.7	115.8
2020-21	\$6.9	\$48.2	\$1.8	\$5.3	\$82.8	145.0
2021-22	\$7.8	\$42.8	\$3.2	\$9.2	\$79.2	142.3

*From 1 January 2020, gold produced under a mining licence in Victoria is subject to a royalty. The royalty only applies to gold produced in a financial year in excess of 2,500 ounces.

Figure 5.1.1 Royalties payable by financial year (\$ million)

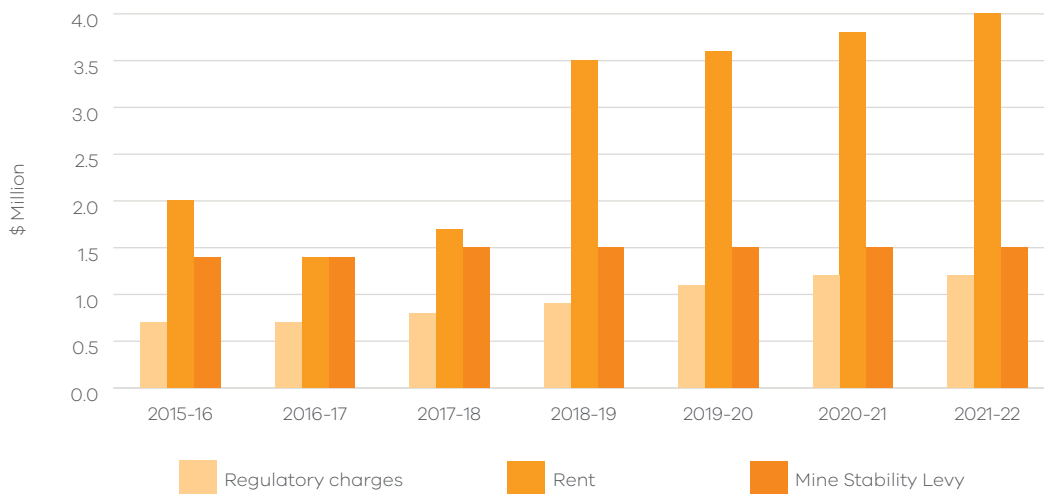


5.2 REGULATORY FEES

Table 5.2.1 Regulatory fees by financial year (\$ million)

Year	Regulatory charges (\$ million)	Rent (\$ million)	Mine Stability Levy (\$ million)	Total (\$ million)
2015-16	\$0.7	\$2.0	\$1.4	\$4.1
2016-17	\$0.7	\$1.4	\$1.4	\$3.5
2017-18	\$0.8	\$2.8	\$1.5	\$5.1
2018-19	\$0.9	\$3.5	\$1.5	\$5.9
2019-20	\$1.1	\$3.6	\$1.5	\$6.2
2020-21	\$1.2	\$3.8	\$1.5	\$6.5
2021-22	\$1.2	\$4.0	\$1.5	\$6.7

Figure 5.2.1 Regulatory fees by financial year (\$ million)



Rehabilitation bonds

6.1 BONDS HELD

The total monetary value of the rehabilitation bonds held by the State under the MRSDA in 2021-22 was \$824.5 million as at 30 June 2022. Up to date bonds held by the State can be found on the Earth Resources Regulation website:

<https://earthresources.vic.gov.au/community-and-land-use/rehabilitation>.

Table 6.1 Value of rehabilitation bonds by tenement type and by financial year (\$ million)

Year	Extractive industries (\$ million)	Mining licences (\$ million)	Exploration licences (\$ million)	Prospecting licences (\$ million)	Retention licences (\$ million)	Total (\$ million)
2015-16	\$88.6	\$239.6	\$2.0	\$0.2	\$0.1	\$330.5
2016-17	\$91.7	\$380.5	\$2.0	\$0.2	\$0.1	\$474.5
2017-18	\$92.2	\$717.7	\$2.0	\$0.2	\$0.1	\$812.2
2018-19	\$91.9	\$717.7	\$2.6	\$0.2	\$0.4	\$812.7
2019-20	\$93.0	\$717.9	\$2.7	\$0.2	\$0.4	\$814.1
2020-21	\$92.9	\$717.8	\$3.0	\$0.4	\$0.4	\$814.4
2021-22	\$100.8	\$719.7	\$3.1	\$0.5	\$0.5	\$824.5

Figure 6.1.1 Extractive industries and mining rehabilitation bonds held at the end of financial year (\$ million)

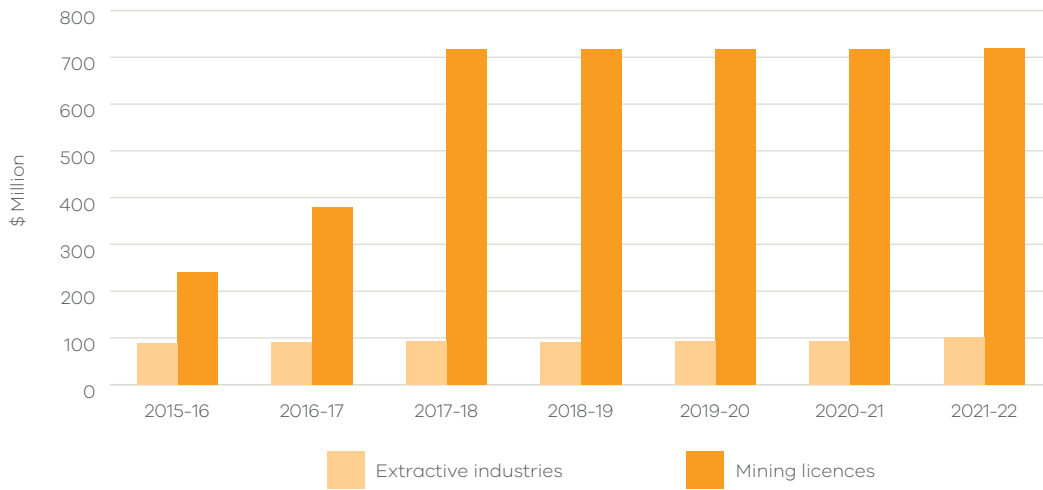
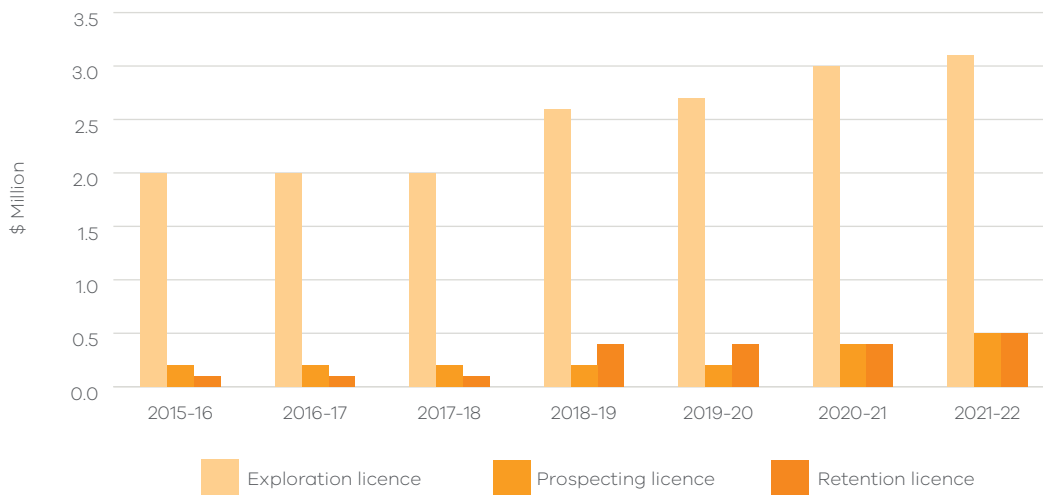


Figure 6.1.2 Exploration, prospecting and retention licence rehabilitation bonds held at the end of financial year (\$ million)



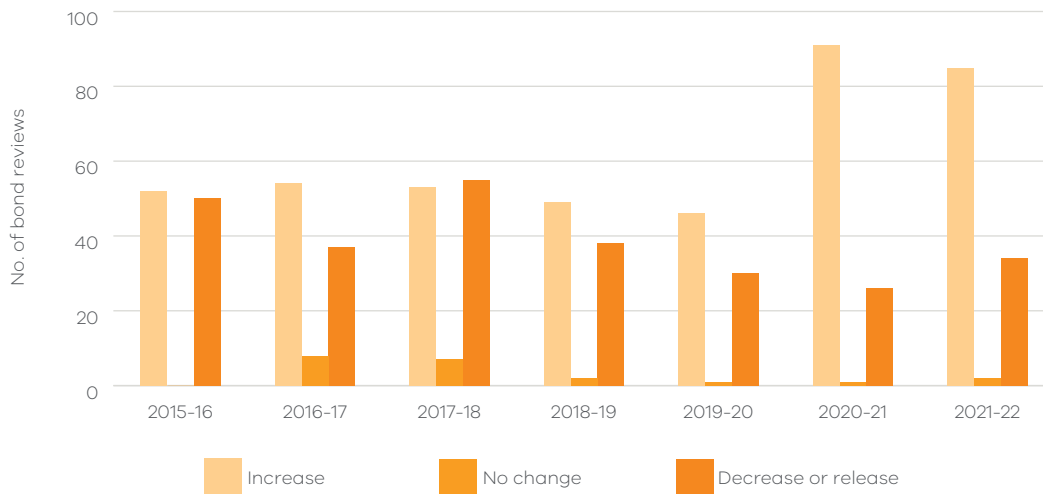
6.2 BOND REVIEWS

Table 6.2.1 Rehabilitation bond reviews by financial year

Year	Result of review – increase of initial bond	Result of review – no change	Result of review – partial or full release	Number of bonds reviewed
2015-16	53	0	50	102
2016-17	54	8	37	99
2017-18	53	7	55	115
2018-19	49	2	38	89
2019-20	46	1	30	77
2020-21	91	1	26	118
2021-22	85	2	34	121

The bond review numbers differ slightly from previous reports due to the undertaking of a data cleansing and re-alignment exercise for historical bond review records.

Figure 6.2.1 Outcome of bond reviews by financial year



Compliance

7.1 COMPLIANCE ACTIVITIES

Earth Resources Regulation undertakes a compliance program to ensure that tenement holders comply with their obligations. Monitoring, compliance and enforcement activities under the MRSDA are summarised in the table below. Inspector field activities were limited to responding to critical incidents and key preventative measures during the period of COVID-19 restrictions.

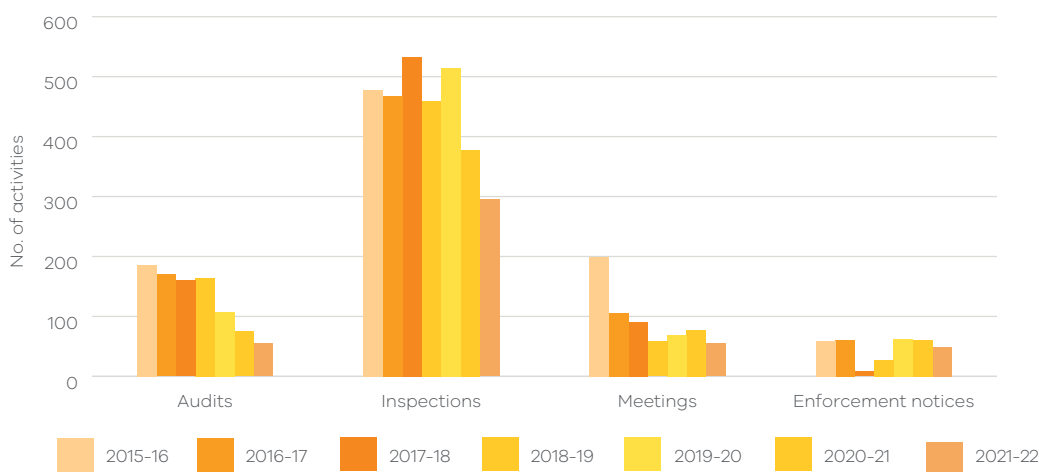
Table 7.1.1 Compliance activities by financial year

Activities	Audits	Inspections [^]	Meetings	Enforcement notices [*]	Total
2015-16	186	478	199	59	922
2016-17	170	468	106	61	805
2017-18	160	533	91	8	792
2018-19	164	460	58	27	709
2019-20	108	515	69	62	754
2020-21	75	378	77	61	591
2021-22	55	295	55	49	454

[^]Inspections include site closures and site visits.

^{*}MRSDA s110 and s110a Notices issued.

Figure 7.1.1 Compliance activities by financial year



7.2 INDUSTRY ANNUAL RETURNS SUBMISSION RATE

Tenement holders are obliged to submit an annual report on their activities by the due date even if no work has been undertaken in the financial year. The information submitted is used to monitor industry activities, specify regulatory fees and royalties, and inform management of Victoria's earth resources sector by understanding the state of the industry and aiding further investment and jobs.

Table 7.2.1 MRSDA tenements FY2021-22 annual report submission rate as at 11 December 2022

Tenement type	% annual returns received by due date or with extensions*	% annual returns received late	% total annual returns received	% annual returns outstanding
Extractive industries	56.8%	22.5%	79.3%	20.7%
Mining licences	82.3%	12.3%	94.6%	5.4%
Prospecting licences	85.6%	6.8%	92.4%	7.6%
Exploration licences	93.4%	5.7%	99.1%	0.9%
Retention licences	93.3%	6.7%	100.0%	0.0%

*Due dates: extractive industries 31 July 2022; mining and prospecting 28 July 2022; exploration and retention dates varied during the year. (Note: annual returns submitted includes regulator approved extensions.)

Annual returns submitted by tenement type:

Tenement type	Annual returns
Extractive industries	- Annual return extractive industries
Extractive industries	- Royalty return
Mining licences	- Expenditure and activity
Mining licences	- Production and royalty
Prospecting licences	- Expenditure and activity
Prospecting licences	- Production and royalty
Exploration licences	- Expenditure and activity
Retention licences	- Expenditure and activity

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