



SOUTH AUSTRALIA **MINERAL RESOURCES** **REGULATION REPORT**

2020—21 July to June



energymining.sa.gov.au



Glenshera sand/glass mine, Mt Compass

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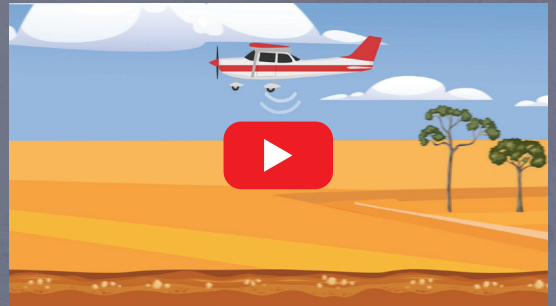
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VIDEO SERIES

EXPLORATION AND MINING

DEM has produced seven short videos that provide simple, clear and transparent explanations about aspects of exploration and mining and address common community concerns.

What is mineral exploration?



How are mining projects assessed?



Land access for exploration



Engaging with stakeholders



Compliance and enforcement



Quarries and private mines



Biosecurity



www.energymining.sa.gov.au/minerals/communities_and_land_access

HIGHLIGHTS 2020–21



146

New exploration and mining tenement applications assessed



109

Exploration and mining programs approved



490

Exploration and mining inspections



81

Exploration and mining compliance reports assessed



1169

Opal tenement inspections



50

Stakeholder online meetings for the mining regulations consultation



\$15.6 million

Annual rent and fees directly fund regulatory services



\$237 million

Mineral royalties collected

SUMMARY

The Department for Energy and Mining is the state government agency responsible for the administration, management and regulation of South Australia's mineral resources. Legislation governs access to land and the regulation of exploration and production activities for mineral and quarrying resources in South Australia, as well as environmental management of the industry.

This mineral resource regulation report for the period 1 July 2020 to 30 June 2021 summarises the regulatory performance of the state's mineral exploration, mining and quarrying industries. It provides indicators of how companies are meeting their obligations to mitigate and manage risks and regulatory activities.

Mining operations

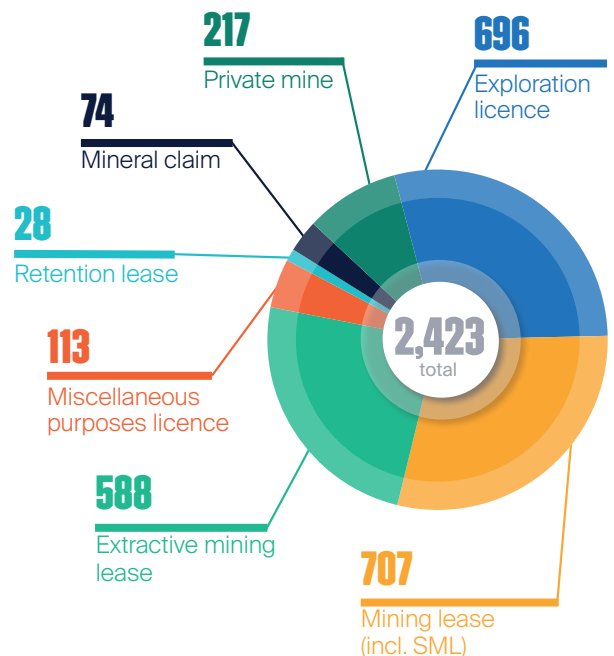
In South Australia on 30 June 2021, there were 2,206 exploration licences, mineral leases and claims, and 217 private mines registered with DEM. The mining leases equate to 533 mining operations which can consist of multiple leases. Of these, 385 were producing operations that submitted a royalty return to DEM in the past three years.

Ranging from the massive Olympic Dam Mine to the smallest quarry, in 2020–21 these operations have:

- spent \$91.8 million in exploration expenditure
- produced \$7.1 billion of mineral and extractive ore
- exported \$5.3 billion of mineral and extractive ore
- paid \$237 million in royalties

Mining tenements

Exploration and mineral tenements, claims and private mines, 30 June 2021

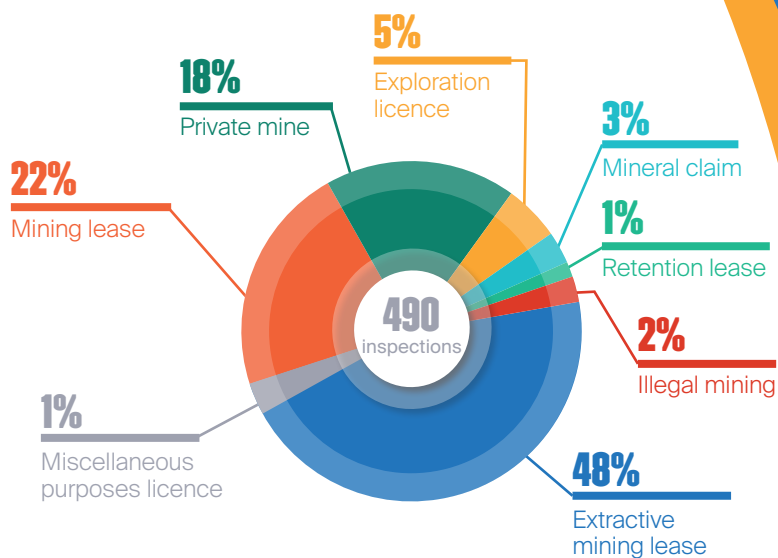


Exploration and mining program assessments

DEM approved a total of 63 exploration-related programs in 2020–21, reviewed 1,070 reports and completed 68 mining assessments, the largest volumes being for programs for environment protection and rehabilitation (PEPRs) for extractive minerals (24) and minerals (26).

Field inspections

Inspection by tenement type 2020–21

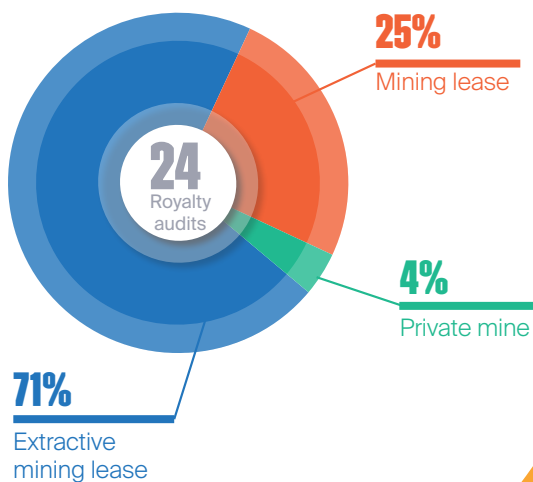


Opal mining

In 2020–21 there were 486 active prospecting permits across the Coober Pedy, Andamooka and Mintabie precious stones fields. Revenue from opal mining fees totalled \$174,426 and 1,169 opal field inspections were carried out.

Resource royalties

Royalty audits completed, 2020–21



COMPLAINTS AND INCIDENTS

The most common complaint types for mining were:



Dust – 31



Noise – 12



Drag out – 6

The most common incident types for mining were:



Dust – 3



Spills – 2



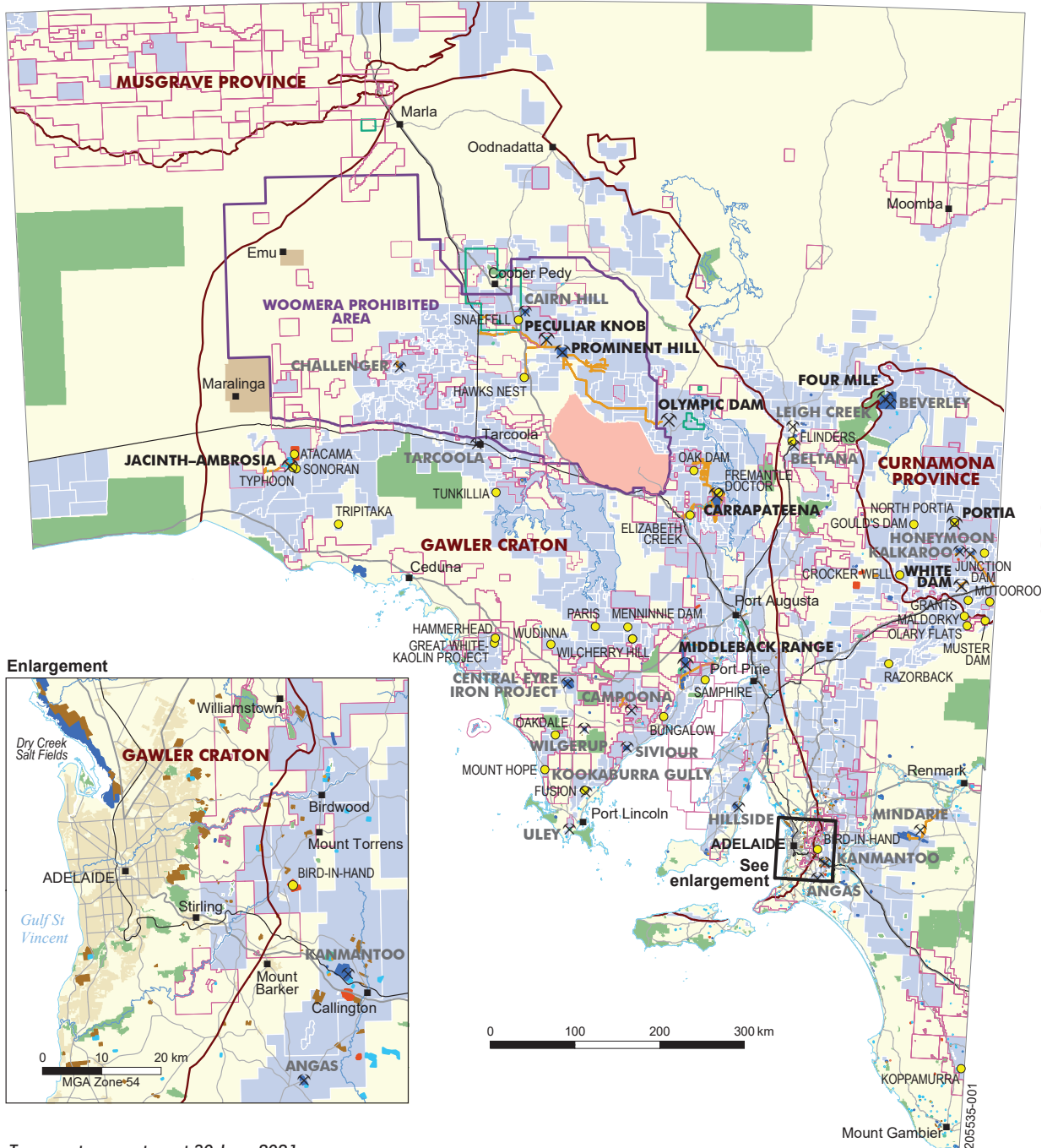
WHS – 2

MINING ACT AND REGULATION

The updated *Mining Act 1971*, the *Opal Mining Act 1995* and the *Mines and Works Inspection Act 1920* commenced on 1 January 2021. The mining regulations were revised in 2020. See the case study on page 14 for further detail.

MINERAL TENEMENTS AND MAJOR MINES

30 JUNE 2021



Tenements current as at 30 June 2021

Mineral tenements

- Exploration licence application (ELA)
- Exploration licence (EL)
- Extractive mining lease (EML)
- Mineral claim (MC)
- Mining lease (ML)
- Miscellaneous purposes licence (MPL)
- Private mine (PM)
- Retention lease (RL)

Major mines

- Operating mine
- Approved mine or mine in care and maintenance
- Mining project

Topographic features

- Locality
- Highway
- Secondary road
- Railway
- Major lake

No mineral access

- Defence Continuous Use Zone
- National Parks and Reserves
- Former test site
- Woomera Prohibited Area (WPA)
- Precious Stones Field

MINERAL ECONOMIC CONTRIBUTION 2020–21

PRODUCTION

\$7.1b

Production value driving economic development¹



EXPLORATION

\$91.8m

Spent on exploration for new developments²



ROYALTIES

\$237m

Royalties for future state growth¹



EXPORTS

\$5.3b

Commodities exported to global trading partners²



EMPLOYMENT

12,746

Jobs in the mining sector³



1. Department for Energy and Mining 2021

2. Australian Bureau of Statistics 2021

3. FTE equivalent BDO EconSearch 2021

DEM'S RESPONSE TO COVID-19

DEM was well prepared to manage the response to the COVID-19 pandemic, relying on the SA Health pandemic response strategy. DEM continuously reviewed the infection containment response to remain consistent with updated government advice and policy and directions published by the state coordinator.

The mining sector was identified as a key industry whose continued operation was essential for the ongoing economic activity of the state. DEM supported businesses across the mining supply chain to continue operations as far as practical in the circumstances. Mineral exploration licence fees and annual petroleum and geothermal licence fees were deferred for 6 months until 31 December 2020.

In recognition of the restricted access to tenements during the initial statewide lockdown, DEM provided a 12-month waiver of committed expenditure for all

mineral exploration licence holders and an expansion of allowable expenditures towards minimum petroleum retention licence requirements. DEM liaised directly with mining stakeholders to understand their business continuity plans to avoid and minimise disruption to delivery of essential infrastructure and services to the South Australian community.

In keeping with public health advice about social distancing and restrictions on public gatherings, DEM moved swiftly to initiate electronic means of engagement within the agency and with our external stakeholders. Channels of communication were kept open through direct email updates and regularly updated web content.

DEM mobilised staff members as part of the public sector's pandemic response, received training so they could support SA Health, SAPOL and the Department of Treasury and Finance with contact tracing, State Emergency Call Centre service, and border and grant application processing.

REGULATORY FRAMEWORK

DEM delivers assessment, regulatory and compliance services to provide assurance to the government, industry and community stakeholders that mineral exploration, mining activities and statutory requirements are being adhered to. The principles behind South Australia's regulatory framework are set out in DEM's *Mining Act regulation, compliance and enforcement policy*.

The *Mining Act regulation, compliance and enforcement* policy details the state's regulatory stewardship and describes the compliance approach and principles for making regulatory and enforcement decisions.

Regulatory services are delivered by DEM staff in Adelaide, Port Augusta, Jamestown and Coober Pedy. Management of the responsibilities of closed mines is carried out by staff in Adelaide and at the Brukunga mine site in the Adelaide Hills. DEM also works closely with the

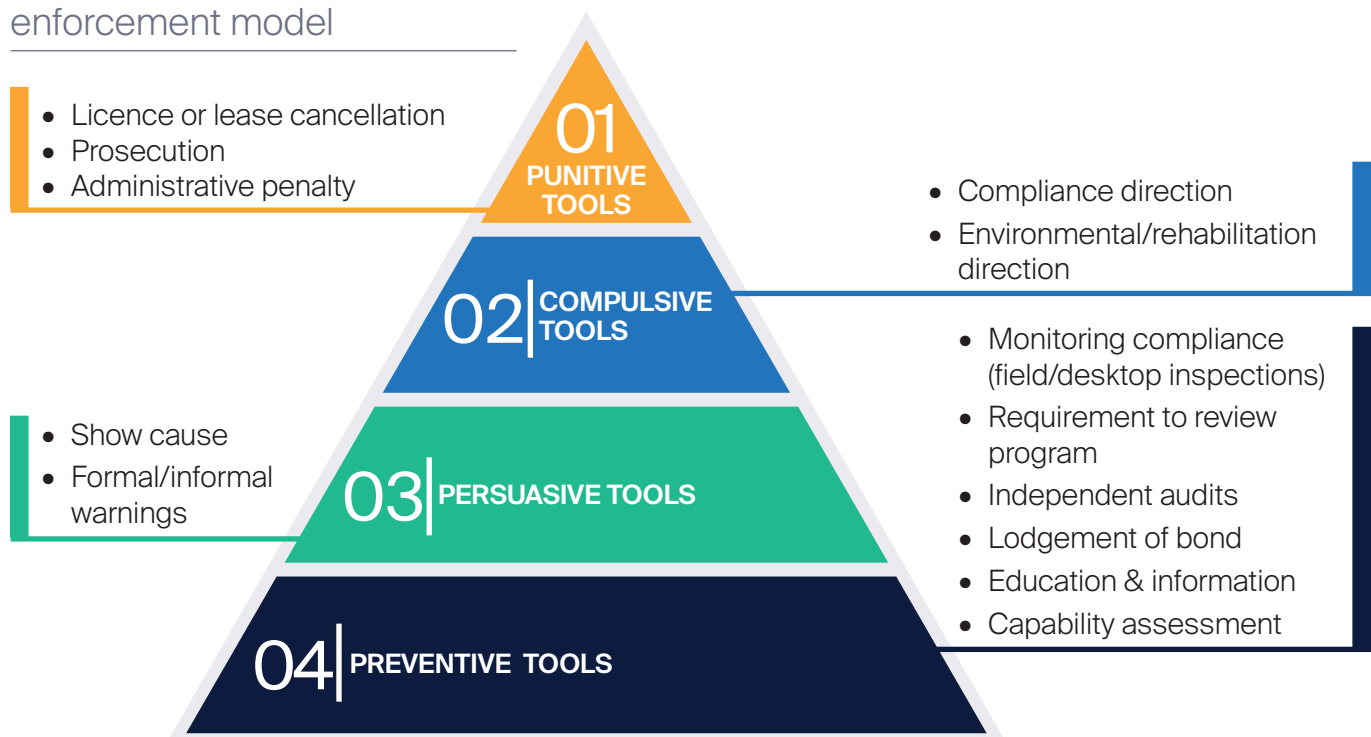
Environment Protection Authority, SafeWork SA, Department for Environment and Water, and the Australian Government to co-regulate the mining sector in South Australia.

COMPLIANCE MODEL

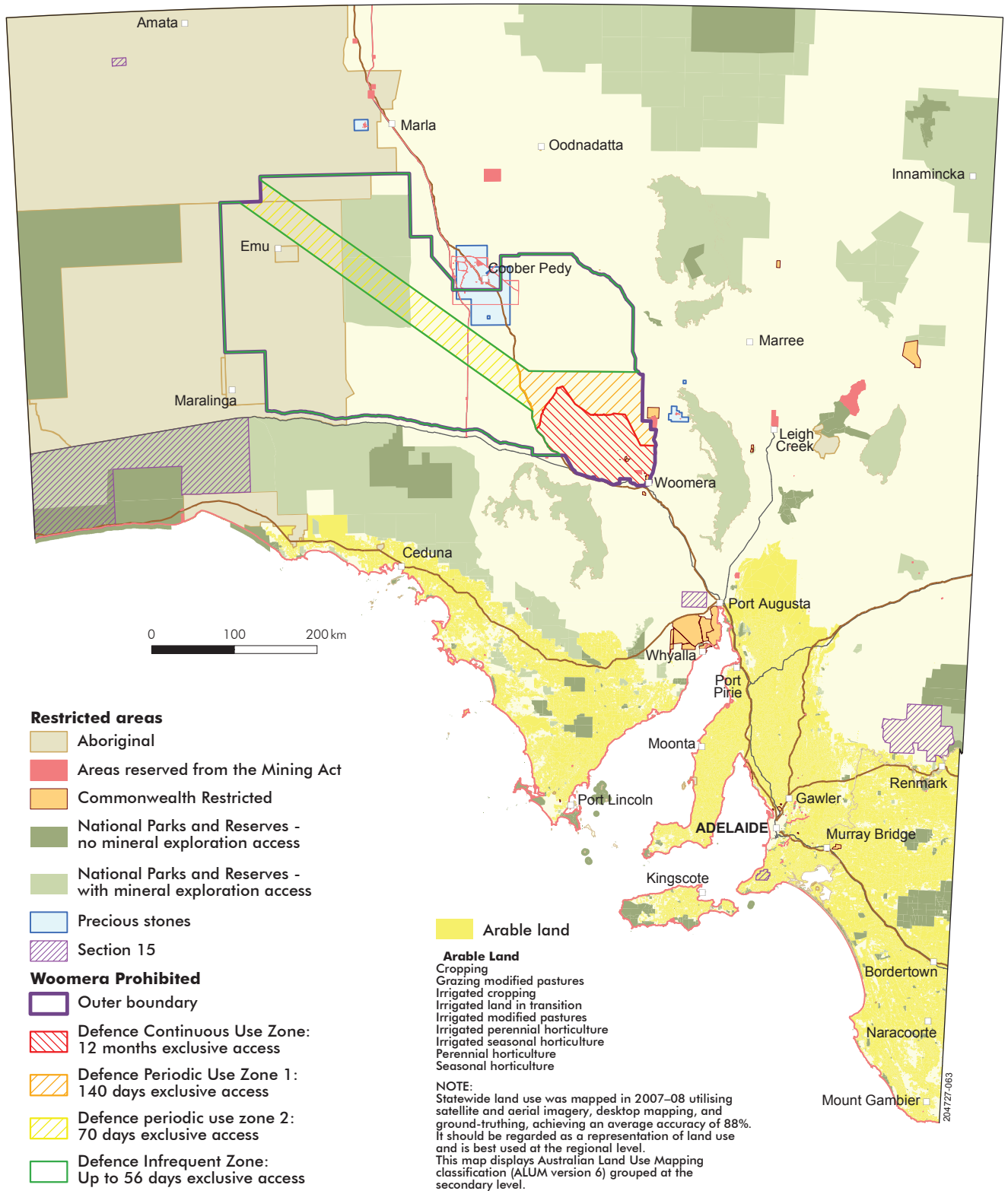
DEM's compliance pyramid summarises the tools available to DEM under the *Mining Act 1971* and other relevant legislation. The *Mining Act regulation, compliance and enforcement* policy provides a more detailed overview of this model.

DEM applies a risk-based approach to identify environmental, financial, technical and operational risks relating to the mining operation. DEM applies a performance-based regulatory approach, which focuses on what outcomes should be achieved, not how they should be achieved. Mineral exploration and mining companies must demonstrate risks have been mitigated and appropriate environmental outcomes are being met during their activities and operations.

Mining Act compliance and enforcement model



AREAS WITH RESTRICTED ACCESS FOR EXPLORATION AND MINING



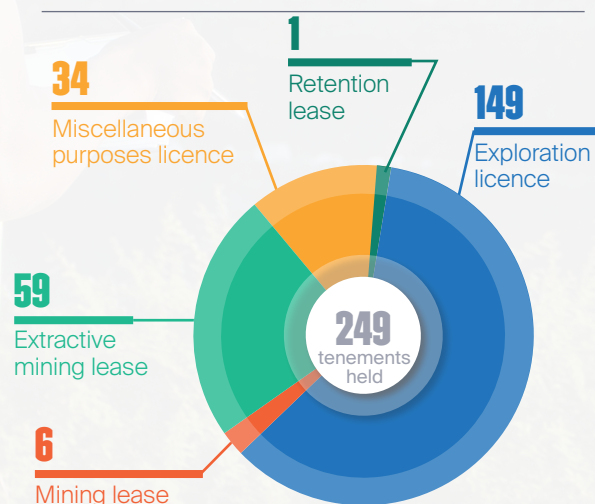
LAND ACCESS

DEM has developed policies and programs that support multiple land use and access to land for stakeholders in conjunction with the South Australian Government's regulatory framework.

WOOMERA PROHIBITED AREA

Since 2012 a formal arrangement has been in place in the Woomera Prohibited Area (WPA), managed by the Australian Government Department of Defence. Red, amber 1 and 2 and green zones have been determined within the WPA. On-ground access to these zones by explorers and miners is managed through a series of specified exclusion periods during which they are required to evacuate completely. The red zone is for continuous Defence use only. These exclusion periods do not apply to pastoralists, previously established mines and traditional owners. There were 249 active tenements held in the WPA at 30 June 2021.

Mineral tenements held within the Woomera Prohibited Area on 30 June 2021



STRONGER PARTNERS STRONGER FUTURES

The *Stronger Partners Stronger Futures* program was set up in response to concerns raised by native title groups and industry about the native title land access system for mineral exploration in South Australia.

A comprehensive consultation and feedback process sought people's views on how to improve the system in a way that addresses the rights and interests of all parties. The final report released in August 2020 discussed the results of the program, and regulatory reform introduced amendments to the low-impact exploration process were achieved via regulatory reform through the implementation of the Statutes Amendment (Mineral Resources) Act 2019 and regulations on 1 January 2021, and through associated policy change.

Improvements to aspects of the native title agreement making process will be addressed through a new initiative – Enhancing Land Access for Mineral Exploration. Starting consultation with parties operating in the Gawler Craton and Curnamona Province – the most prospective areas of the state for mineral exploration – this program will facilitate further engagement between native title groups, government and explorers on the process of agreement making to address native title holder's needs and aspirations, and provide clear and certain processes for explorers.

Copies of the reports and information about **Stronger Partners Stronger Futures** are available on the DEM website.

CASE STUDY

LEADING POLICY TO SUPPORT REGULATION

On 1 January 2021 the updated Mining Act and Mining Regulations 2020 commenced, introducing wide-ranging reforms that improve engagement, consultation and land access processes throughout the exploration and mining process.

The reforms provide stronger and more effective powers and tools for compliance and enforcement and more stringent, streamlined operating approvals processes.

Stakeholder engagement and consultation was a key element in the development and implementation of the new regulatory framework. Consultation on the draft mining regulations happened from 3 August to 11 September 2020. DEM received broad feedback from the South Australian public, industry and other interested parties, which was considered when finalising the regulations. DEM adapted its engagement and consultation approach to suit COVID-19 restrictions, offering a wide range of options for public and stakeholder engagement.

Following commencement of the legislation on 1 January 2021, focus shifted to policy development and establishing DEM's position relating to its objectives, functions and powers, as well as providing guidance on how to apply the updated regulatory framework.

New and updated policies released in 2021 included an overarching exploration and mining regulation policy as well as policies on compliance and enforcement, exploration expenditure, working conditions, and tailings regulation and standards. These policies highlighted and clarified new requirements for minimum expenditure commitments, strengthened powers and tools for actions on noncompliance, as well as increased focus on tenement holder responsibility and accountability for managing environmental impacts.

860 Landowner Information Service direct contacts with stakeholders from the agricultural and mining sectors, state MPs and local government organisations.

40+ Published policies, guidelines and information sheets related to the Mining Act.

20+ Ministerial determinations released.

60 Landowner Information Service current and ongoing clients.

7 Explainer videos produced.

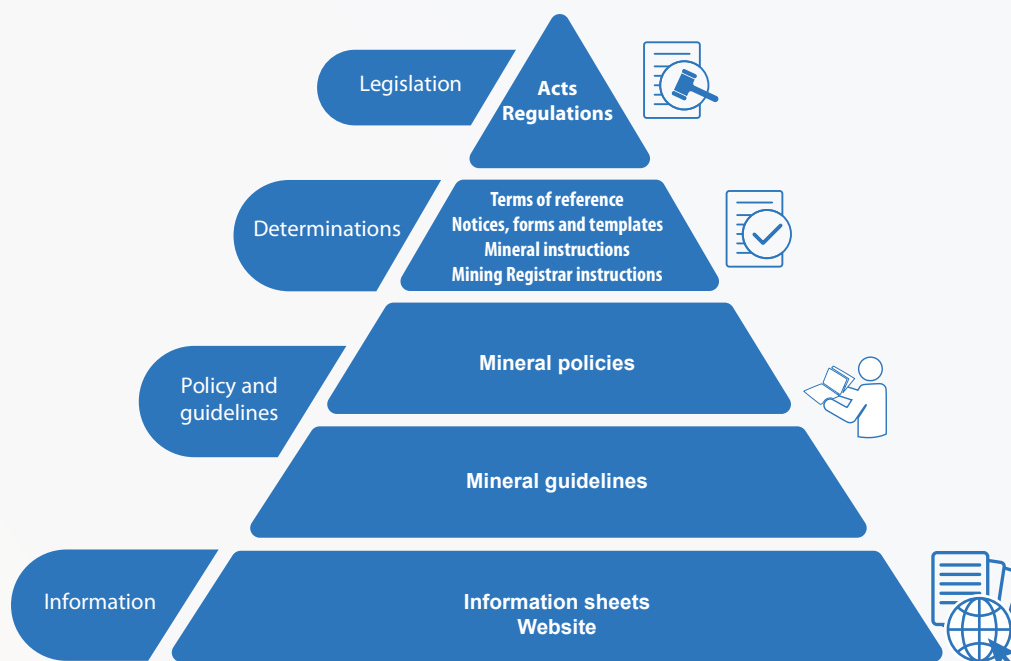
A revised Extractive Areas Rehabilitation Fund (EARF) policy clarified the circumstances for funding rehabilitation of extractive mineral operations projects.

DEM also implemented a communications project to improve the language and presentation of our information, and released a number of updated and new guidelines, information sheets and online application forms.

In support of changes in the regulatory framework, a new Landowner Information Service was piloted in 2020 to provide a free, factual and independent information service for South Australian landowners dealing with exploration activities, quarrying and mining regulation. In 2021 the government extended funding for the service until July 2025.

DEM proactively engaged with lead industry contacts and peak national bodies to develop and provide better regulatory guidance for the extractives industry and meet a key recommendation of the 2020 South Australian Productivity Commission Extractive Industry Review.

DEM also initiated a new Enhancing Land Access for Mineral Exploration initiative, funded from the Economic and Business Growth Fund. This is an ongoing project to develop DEM's policies around Indigenous engagement in prospective areas of the state and resolve ongoing challenges with the management of Aboriginal heritage in South Australia.



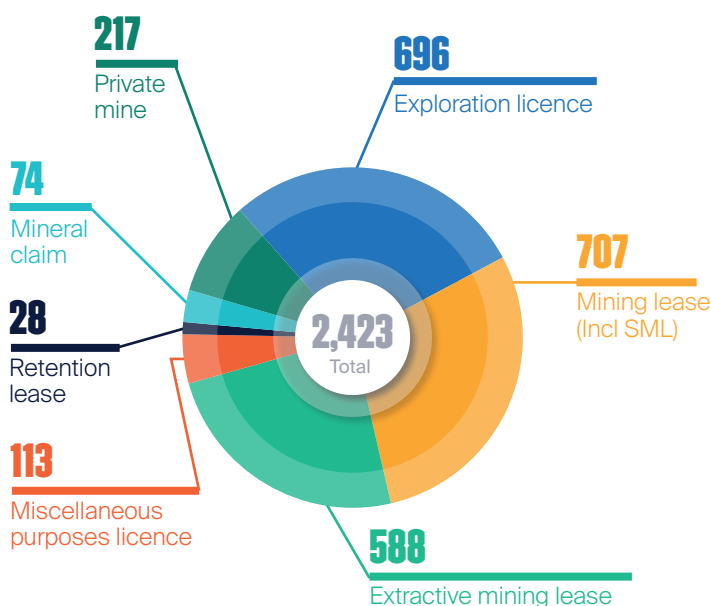
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MINERAL TENEMENT ADMINISTRATION

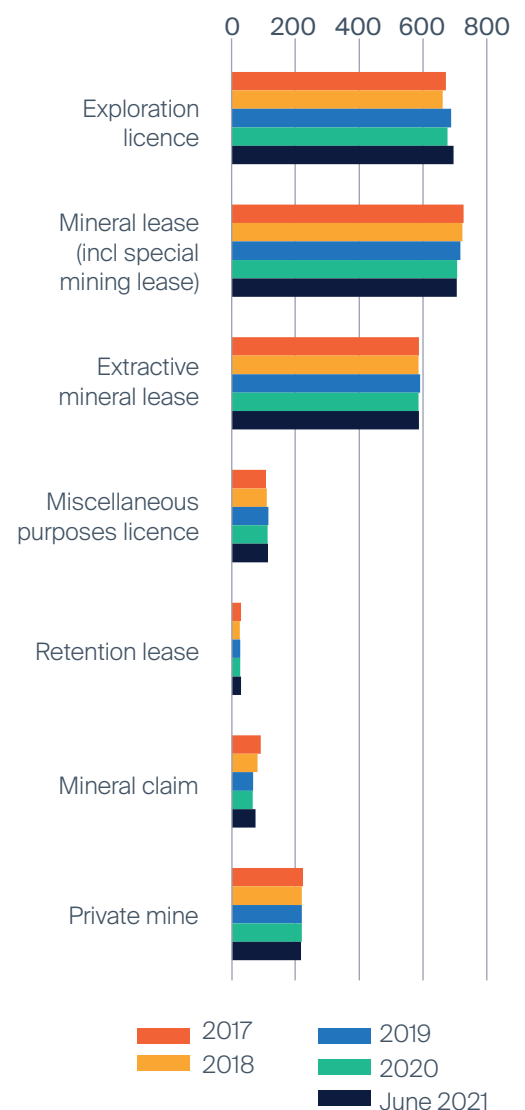
DEM's administration of mineral tenements in South Australia, includes:

- maintaining the Mining Register
- registration of mineral claims
- grant of exploration licences and miscellaneous purposes licences
- grant of mining and retention leases
- registration of instruments including transfers, joint venture agreements, caveats, surrenders etc.
- receipting fees, Crown rent and administering rent to landowners
- monitoring court matters
- management of private mines and native title mining agreement registrations.

Total exploration, mineral tenements claims and private mines 30 June 2021



Number of tenements and private mines (by year)



Receipt statistics for mineral tenement applications 2020–21

Application	Received	Granted/ registered	Total area granted (ha)	Withdrawn	Refused/ invalid	Outstanding*
Exploration						
Exploration licence	221	93	4,143,900	15	13	281
Mining						
Mineral claim	25	23	16,917	3	0	23
Miscellaneous purposes licence	2	2	15	0	0	3
Mining lease	6	4	3,930	1	0	12
Extractive mining lease	2	13	796	2	0	11
Retention lease	0	2	285	0	0	2
<i>Total mining</i>	35	44	21,941	6	0	51
Total (including exploration)	256	137	63,382	21	13	332

* Outstanding mineral tenement applications are those in progress as at 30/6/2021.

Tenement transactions processed and endorsed 2020–21

Application type	Exploration				Total Mining	Total
		<i>Mining leases</i>	<i>Extractive mining leases</i>	<i>Other lease types</i>		
Transfer instruments (full and partial)	14	6	5	3	14	28
Renewal	152	32	10	4	45	197
Renewal over reduced area*	24	0	0	0	0	24
Surrender	18	1	8	0	10	28
Partial surrender	34	0	7	0	7	41
Private mine revocations	0	0	0	2	2	2
Total	242	39	30	9	78	320

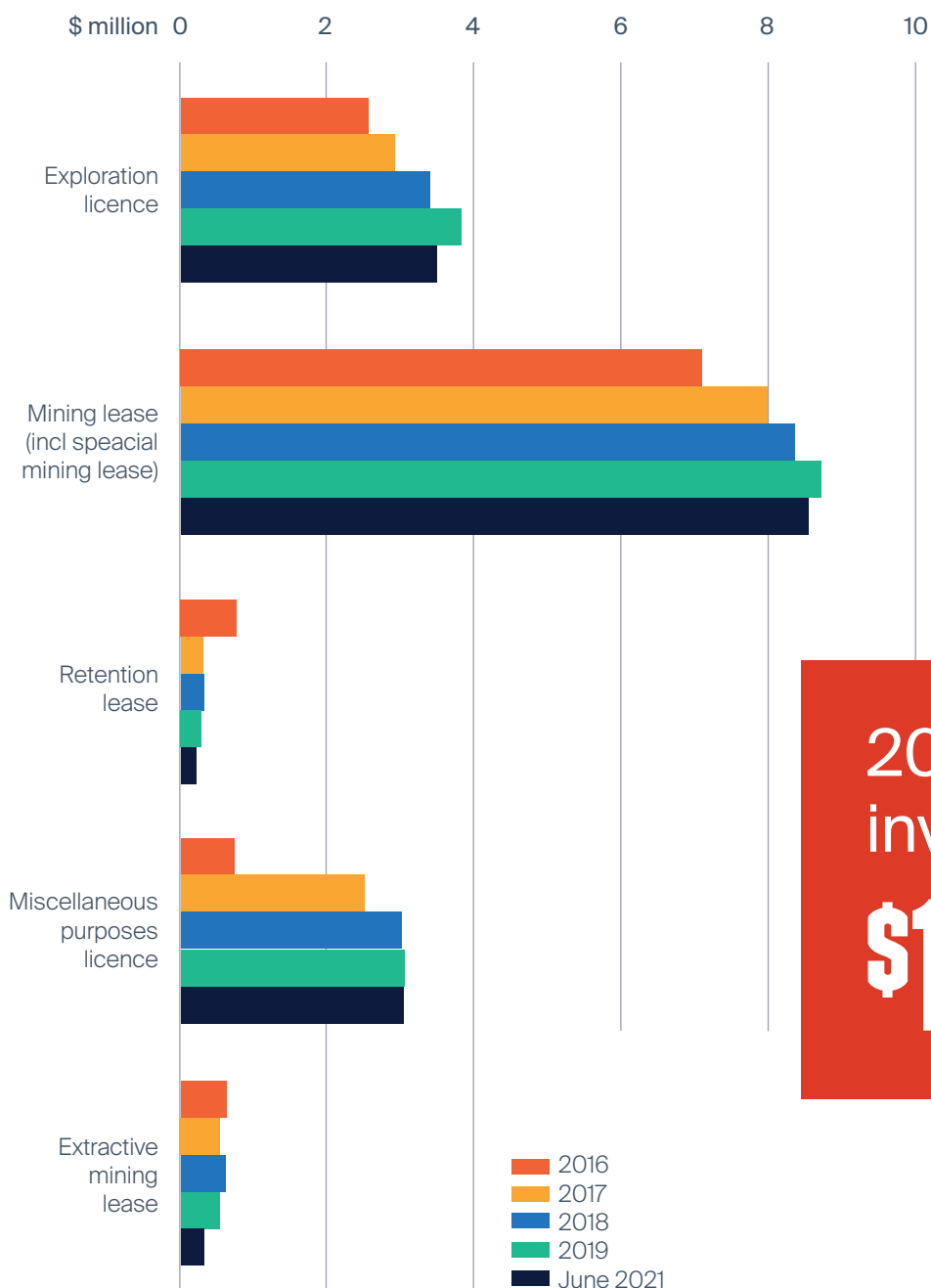
* Applies to exploration licences only.

Public notices published 2020–21

Application type	Number of applications advertised	Number of public notices*
Exploration licence	96	290
Mining lease	2	8
Extractive mining lease	10	39
Retention lease	0	0
Miscellaneous purposes licence	0	0

* Multiple notices are made per application.

Invoices raised across mineral tenements for rent and fees financial year 2016 to 30 June 2021



2020–2021
invoice value
\$15.6 m



INSTRUMENTS REGISTERED IN THE MINING REGISTER

In 2020–21, 435 instruments – transactions that impact the status of a tenement – were registered in the Mining Register against mineral tenements in South Australia.

MINING REGISTER SEARCHES

There were 891 online Mining Register searches looking for tenement information, raising \$7,723 in revenue. This became a free service from 1 January 2021 with the introduction of the new Mining Act.

COURT ACTIONS

Two court actions were instigated in 2020–21 at the Warden’s Court, one involving a private mine.

One court action was instigated at the Environment, Resources and Development Court.

ANNUAL RENT AND FEES

Under the Mining Act, where land is held in freehold title, DEM must distribute 95% of Crown rent paid for a mining lease, retention lease or miscellaneous purposes licence granted over the freehold land to the owners of the land. In 2020–21, \$2 million was dispersed to approximately 270 freehold owners. In 2019–20, there were around 500 distributions to 280 freehold land owners, totalling \$1.8 million.

MINERAL EXPLORATION REGULATION

DEM receives many applications for new exploration licences annually. The process for assessment and approval of exploration licence applications varies depending on the location of the licence and any additional approvals required under state legislation.

One of DEM's core functions is to assess new exploration applications, which provide a right to explore, and exploration programs for environment protection and rehabilitation (EPEPRs), which provide a framework for efficiently and effectively managing exploration activities.

Exploration licence statistics 2020–21

Applications received	221
Area (km ²)	60,644
Licences granted/registered	93
Area (km ²)	41,439
Licence relinquishments (full and partial)	94
Area (km ²)	17,795
Licences current*	716
Area (km ²)*	265,181
Percentage of state *	27%
Total licensees*	180
Applications current*	292
Area (km ²)*	195,425

*Figures as at 30 June 2021.

Exploration licence assessment times 2020–21

Assessment type	Number completed	Target timeframe (days)	Median timeframe* (days)	Percentage that achieved timeframe (%)	Number within target days
Exploration licence application	127	90 (3 months)	86	28	36
Exploration release areas (ERA)	1	60 (2 months)	94	0	0
Total	128				

Note: Exploration licence application assessment time includes DEM technical assessment plus external agency comment/approval.

* The median timeframe has been used as it better reflects typical assessment times, as compared to the average timeframe which is significantly skewed by rare but long duration assessments - eg those in APY Lands

EPEPR assessment times 2020–21

Prescribed EPEPR by land type	Number completed*	Target timeframe (days)	Average timeframe (days)	Percentage that achieved timeframe (%)
Freehold/pastoral/perpetual lease area	34	25	22	74
Prescribed wells and/or water resource area	13	35	33	69
Protected area under the River Murray Act	2	35	31	50
Jointly proclaimed national park or conservation park	3	85	74	66
Regional reserve	1	50	25	100
State heritage area/place	5	40	13	100
Vegetation heritage agreement	5	40	13	100
Total 12 month EPEPRs	63			

* Some applications may contain multiple area types.

Note: Timeframes are in business days. Assessment timeframes are calculated based on the area with the longest target timeframe.

Mineral exploration summary

358

ASSESSMENTS

LICENCE ASSESSMENTS

- 128** EL and exploration release area applications
- 114** EL renewals/amalgamated expenditure arrangements
- 22** EL dealings
- 94** EL relinquishments (full and partial)
- 0** EL forfeitures/cancellations

EL = exploration licence

59

APPROVALS

EPEPR APPROVALS

- 48** 12-month EPEPRs
- 11** ongoing EPEPRs
- 80%** assessment timeframes achieved

78

CHECKS

COMPLIANCE MONITORING

- 29** site inspections and audits
- 97** compliance reports received
- 49** compliance reports reviewed

1,129

REPORTS

EXPLORATION REPORTING

- 366** annual technical reports
- 41** surrender reports
- 55** partial surrender reports
- 667** annual expenditure reports

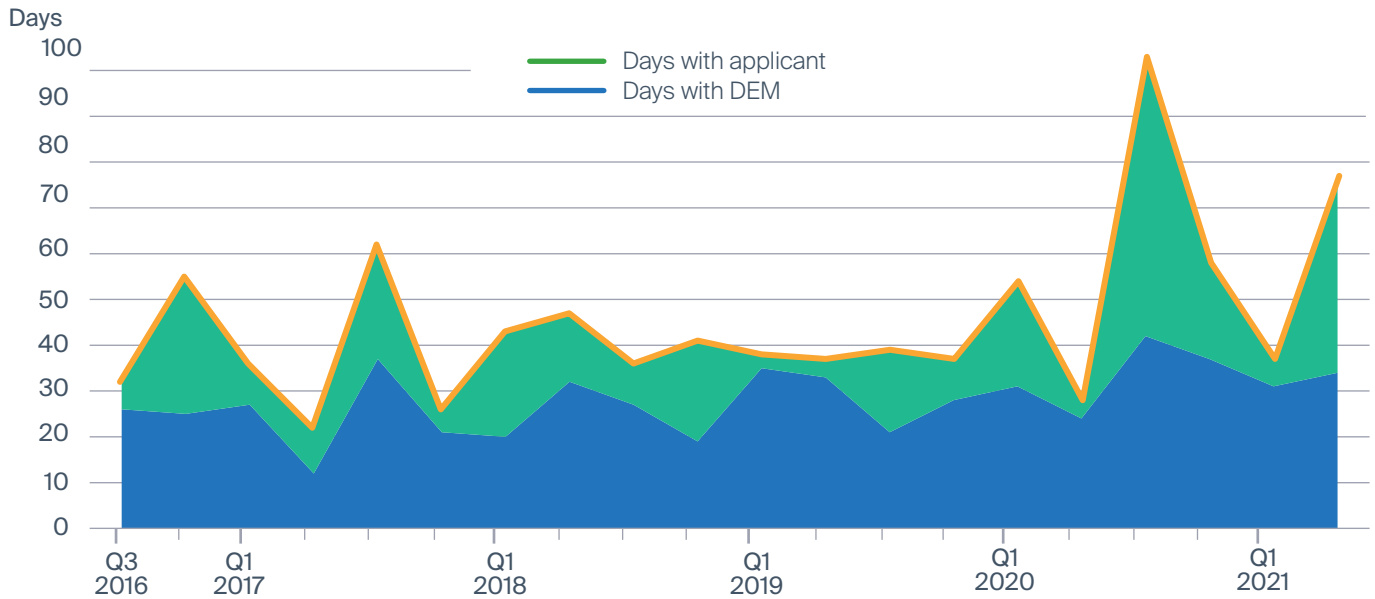
169

DATA RELEASES

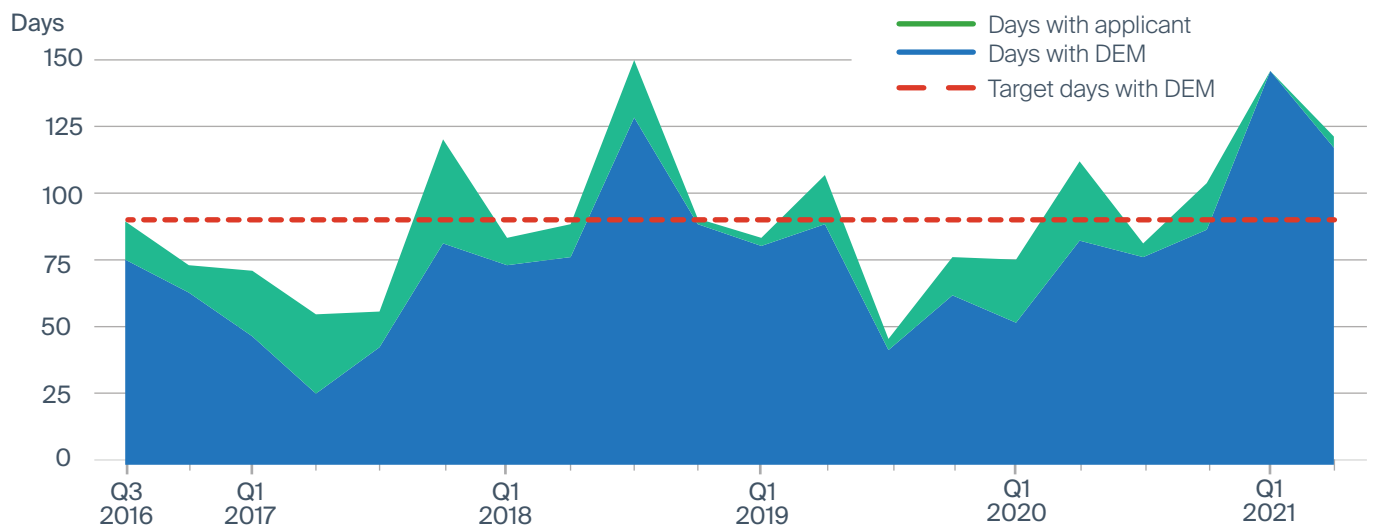
EXPLORATION DATA

- 115** surrender and partial surrender datasets
- 169** historical data releases comprising 379 exploration licences

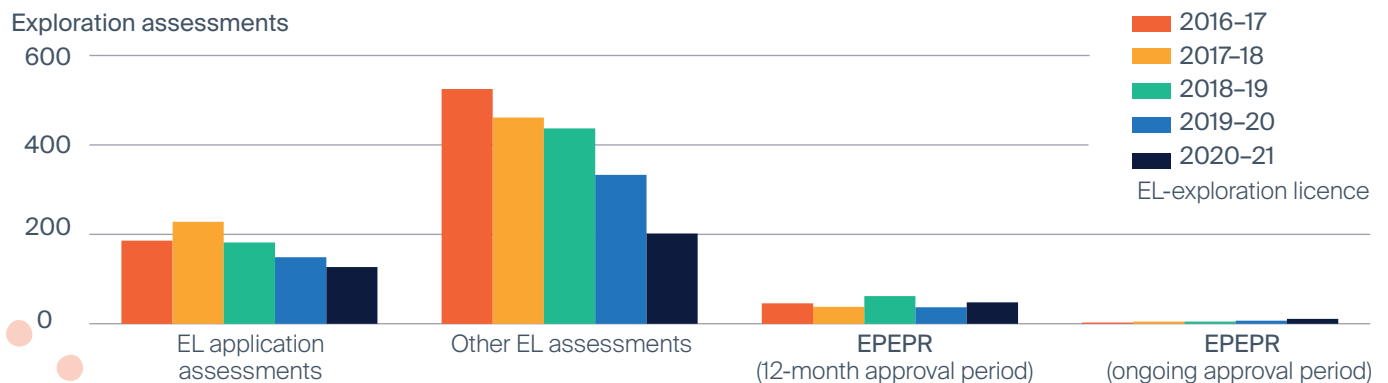
Average EPEPR assessment times shown by quarter 1 September 2016 to 30 June 2021



Average assessment times for exploration licence applications shown by quarter 1 September 2016 to 30 June 2021



Exploration licence, EPEPR and reporting assessments conducted 2016-17 to 2020-21





OPEN FILE RELEASE OF COMPANY EXPLORATION REPORTS AND ASSOCIATED DATA

Data was uploaded to DEM databases and publicly released via SARIG comprising:

85 surrender datasets

70 partial surrender datasets

SUNSET DATA RELEASE PROGRAM

In accordance with the Mining Act and mining regulations, information held by DEM for at least five years is publicly released.

2020–21

162 sunset data releases

379 comprising exploration licences

DEM releases to the public company mineral exploration data which was acquired more than five years ago.

Compliance-related activities for exploration operations 2020–21

Compliance activity	Exploration
Site inspection	29
Reported incident	3
Registered complaint	0
Formal letter issued	2
Formal direction issued	0
Unauthorised mining/exploration investigations	1
Compliance report received	97
Compliance report reviewed	49

Exploration reports reviewed 2020–21

Exploration reporting	Number reviewed
Exploration licence annual expenditure reports	307
Exploration licence annual technical reports	59
Joint annual technical reports*	41
Surrenders of exploration licences	55
Partial surrenders of exploration licences	667
Total	1,129

* Reports cover multiple exploration licences.

CASE STUDY

OPTICAL AIR QUALITY MONITORS

Using calibration models to improve reliability.

The Department for Energy and Mining has sponsored and worked with the University of South Australia's (UniSA's) nationally leading Mathematics Clinic program throughout 2021. The project was to develop sophisticated calibration models for optical air quality monitors.

Dust is often an environmental risk in mines and quarries, especially when they are close to residential properties. Dust makes up a large percentage of complaints received.

Optical monitors are significantly less expensive than the standard gravimetric monitors used for air quality monitoring in mining; however, they are often less accurate and can underestimate the levels of dust.

The department, in collaboration with members of South Australia's extractives industries, provided data from side-by-side optical and gravimetric monitors and current weather measurements. The Maths Clinic team explored a range of modelling techniques to calibrate data from the optical monitors to match as closely as possible with the more accurate gravitational monitors.

Members of the team, with the support of their academic coaches and departmental liaisons, have successfully developed models that improve the accuracy and usefulness of optical monitors for both regulatory and dust management purposes.

The final report was submitted to the department in late 2021. Once reviewed, the results will be passed on to industry.



ABOUT THE UNISA MATHEMATICS CLINIC

The only program of its kind in Australia, the clinic is modelled on the internationally recognised approach developed by the Harvey Mudd College (HMC) in California. To date, over 1,500 HMC Clinic projects sponsored by more than 450 organisations have been completed, including over 150 projects in mathematics. Past UniSA company projects have included the Department for Energy and Mining, Santos, BHP, logistics and energy companies, and more.

Air quality monitoring station, Kanmantoo Mine

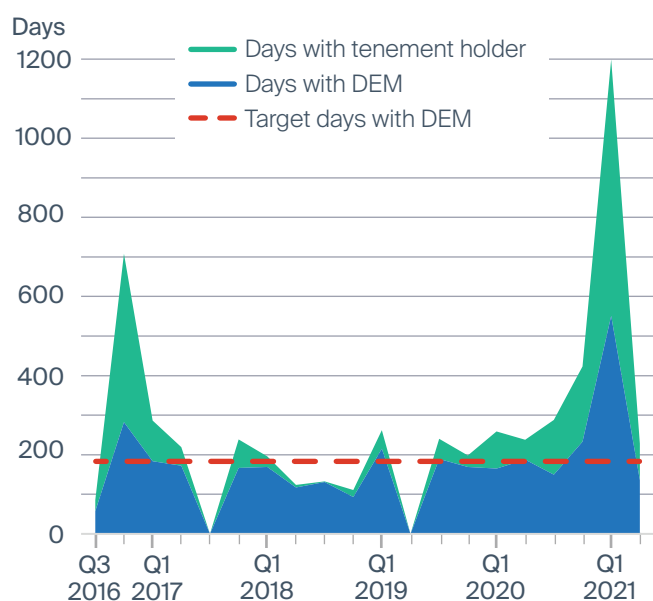
MINING REGULATION

DEM takes the lead role in managing and coordinating the state government assessment processes for all new and ongoing mining operations using a risk and outcomes based approach. DEM also requires stakeholder engagement to be undertaken by industry when preparing applications for mining tenements and PEPRs.

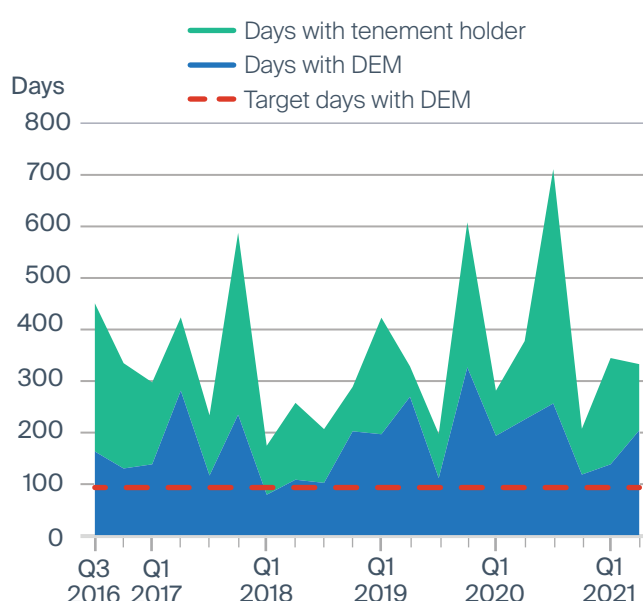
One of DEM's core functions is new mineral tenement applications which, if approved, provide a right to mine, as well as mining PEPRs, and mine operation plans (MOP) which provide a framework for the efficient and effective regulation of quarrying and mining activities on these tenements.

DEM has targets for mining assessment times that align with the national 'Mining approvals scorecard' for reporting assessment timeframes.

Average assessment times for mining tenement applications shown by 3rd quarter 2016 to 30 June 2021



Average assessment times for mining PEPRs and MOPs shown by 3rd quarter 2016 to 30 June 2021



Approval timeframes

The approval times for new quarrying and mining lease applications since 2016 on average are mostly below the target, noting a significant outlier in quarter 1 of 2021. During this quarter, 4 assessments were completed, 3 of which were complex historical assessments with unusually long assessment times.

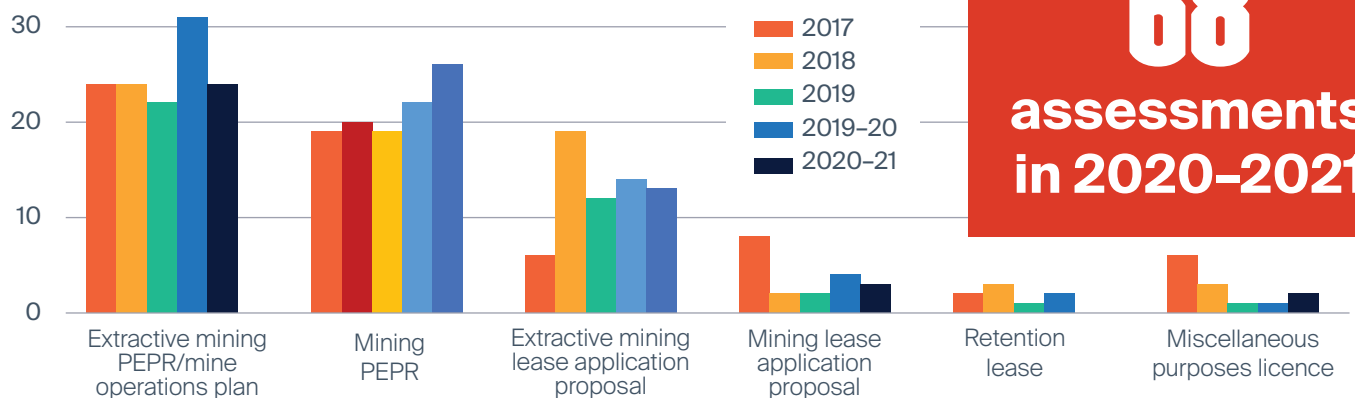
Approval times since 2015 for quarrying and mining PEPRs reflect consistent results and the time with DEM oscillates at or above the target in a regular manner. Average assessment times from quarter 3 of 2020 indicate an unusually high time spent with the tenement holder. As with mining lease applications, this can be attributed to the completion of 3 historical PEPR assessments during that quarter.

Mining assessment times 2020-21

Assessment type	Number completed	Target timeframe (days)	Average time with DEM (days)	Percentage that achieved target timeframe (%)
Extractive mining lease mining proposal	13	6 months (183 days)	219	55
Mining lease mining proposal	3	6 months (183 days)	580	50
Retention lease application	0	6 months (183 days)	N/A	N/A
Miscellaneous purposes licence	2	6 months (183 days)	357	50
Extractive mining PEPR/mine operations plan*	24	3 months (92 days)	175	50
Mining PEPR	26	3 months (92 days)	205	62
Total	68			

*Mine operations plan applies to private mines.

Mining assessments completed 2017 to 30 June 2021



DEVELOPMENT APPLICATION REFERRALS, STRATEGIC REFERRALS AND OTHER INQUIRIES

Seven development application assessments and 9 strategic assessments were referred by local government councils for assessment by DEM during 2020-21. Two were statutory referrals

under the development regulations. Five referrals requesting Crown sponsorship were also received and two planning enquiries were received.

NATIVE VEGETATION CLEARANCE AND REPORTING

A total of 184.81 ha of native vegetation across seven mining operations were authorised to be cleared under delegation to DEM from the Native Vegetation Council in 2020-21. Significant environmental benefit associated with the authorised clearance will be made by

a combination of land managed for biodiversity conservation and money paid into the Native Vegetation Fund, managed by the Department for Environment and Water, to be disbursed as grants for on-ground conservation of biodiversity.

Metallic, uranium, industrial and extractive mining summary

2,423* TENEMENTS HELD

Tenements at 30 June 2021 including:

707 mining leases

588 extractive mining leases

217 private mines

113 miscellaneous purposes licences

74 mineral claims

28 retention leases

* Total includes exploration licences

68 MINING ASSESSMENTS

Mining tenement application and programs approved

13 extractive mining lease mining proposals

3 mining lease mining proposals

2 miscellaneous purposes licences

24 extractive mining PEPR/mine operations plan

26 mining PEPR

65 COMPLIANCE ACTIVITIES

Office-based compliance related activities

23 formal letters issued

10 formal directions issued

32 compliance reports received and assessed

490 MINING INSPECTIONS AND COMMUNITY MEETINGS

234 inspections of extractive mining leases

107 inspections of mining leases

89 inspections of private mines

9 community meetings attended

10 illegal mining inspections received and assessed

67 MINING COMPLAINTS

31 dust complaints

12 noise complaints

6 drag out complaints

18 all other complaints (blasting, water quality, flora/fauna, physical integrity, spill, fire, visual amenity, traffic, other)

10 MINING INCIDENTS

3 dust incidents

2 WHS incidents*

5 all other incidents – (fire, physical integrity, water quality, spill, flora/fauna and non-compliance)

*referred to Safework SA

CASE STUDY

NEW REGULATION, COMPLIANCE AND ENFORCEMENT POLICY

The Mining Act regulation, compliance and enforcement policy was published in November 2021. The new policy aligns DEM's exploration and mining compliance framework to the updated Mining Act and regulations, incorporates modern regulatory principles and gives DEM strengthened tools and powers to make tenement holders responsible and accountable for their compliance.

It is the tenement holders responsibility to demonstrate their own compliance to their stakeholders through public reporting.

The policy helps the community, industry and other stakeholders understand how DEM will implement and ensure compliance with the Mining Act and regulations. It aligns with DEM's strategic direction to provide and enforce effective, efficient and transparent regulation of the mineral exploration, mining and quarrying sectors.

It includes a compliance and enforcement model which details a graduated model for enforcement. It prioritises prevention of potential risks as the foundation for compliance, with an increasing amount of direction at each level of the compliance and enforcement pyramid.

The policy also outlines DEM's tenement holder responsibilities, the main contraventions of the Mining Act and regulations, and the preventive, compulsive and punitive tools used by DEM.

CASE STUDY

LEAN REVIEW – DIGITAL TRANSFORMATION

In 2021 DEM looked at improving business processes for mining leases, exploration licence applications and PEPR assessments by undertaking a series of lean review workshops facilitated by the University of South Australia. The Lean project is aligned to the South Australian Government's Digital Transformation Strategy.

This initiative aims to reduce waste and improve efficiencies in existing government processes, improve customer interaction and streamline approval times for regulatory applications. Lean methodology is an approach to improving productivity by keeping stakeholders and customers front of mind.

These workshops have resulted in several innovative digital improvement projects, including a project aiming to reduce the administrative costs incurred by the mineral resources sector in South Australia. Work on this project will continue in 2021-22.



Participants of a LEAN review workshop

MINING COMPLIANCE

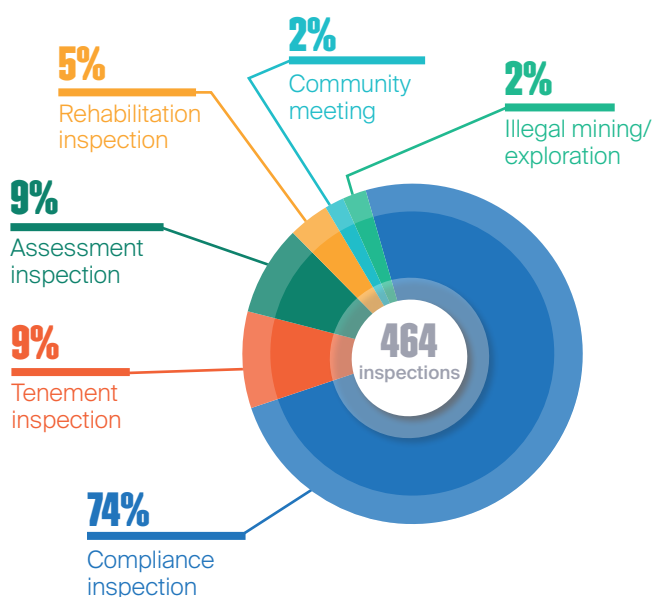
While it is the tenement holder's responsibility to monitor their own compliance and demonstrate compliance to their stakeholders through public reporting, DEM staff conduct compliance activities to provide assurance to the government, industry, community and other stakeholders that statutory requirements under the relevant Acts and regulations and conditions of approval are being adhered to and regularly monitored.

All major mines and other mining operations in South Australia are subject to regular scheduled and ad hoc site inspections. Since 2019 the number of inspections was impacted by COVID-19 related travel restrictions. In 2020-21 DEM officers conducted 464 mining inspections, including 9 community meetings or community consultation committee meetings.

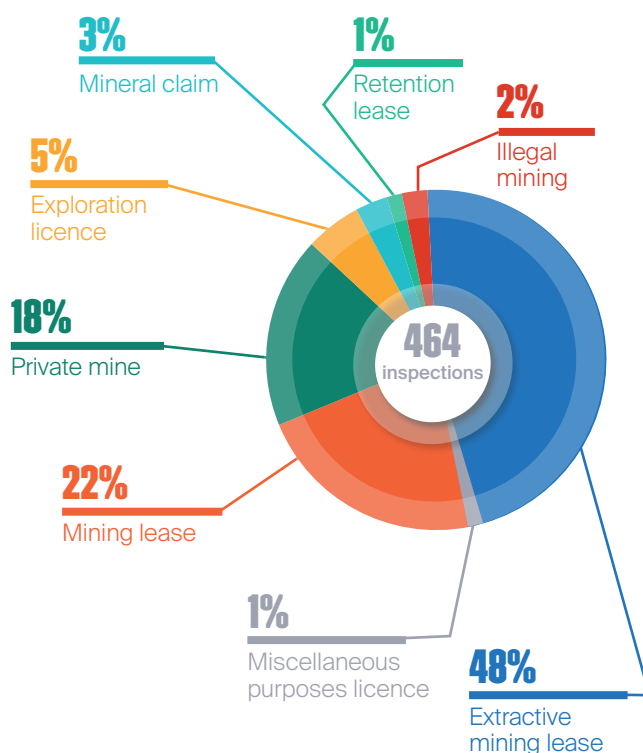
Number of inspections 2016-17 to 2020-21



Inspection by purpose 2020-21



Inspection by tenement type 2020-21



Compliance-related activities for mining operations 2020–21

Compliance activity	Mining
Site inspections	464
Reported incidents	10
Reportable uranium/radiation incidents	2
Registered complaints	67
Formal letter issued	23
Formal direction issued	10
Unauthorised mining investigations	10
Compliance report received	10
Compliance report assessed	9
Community meetings attended	9
Change to operations notifications	17

Summary of mineral tenements and operating mines 30 June 2021

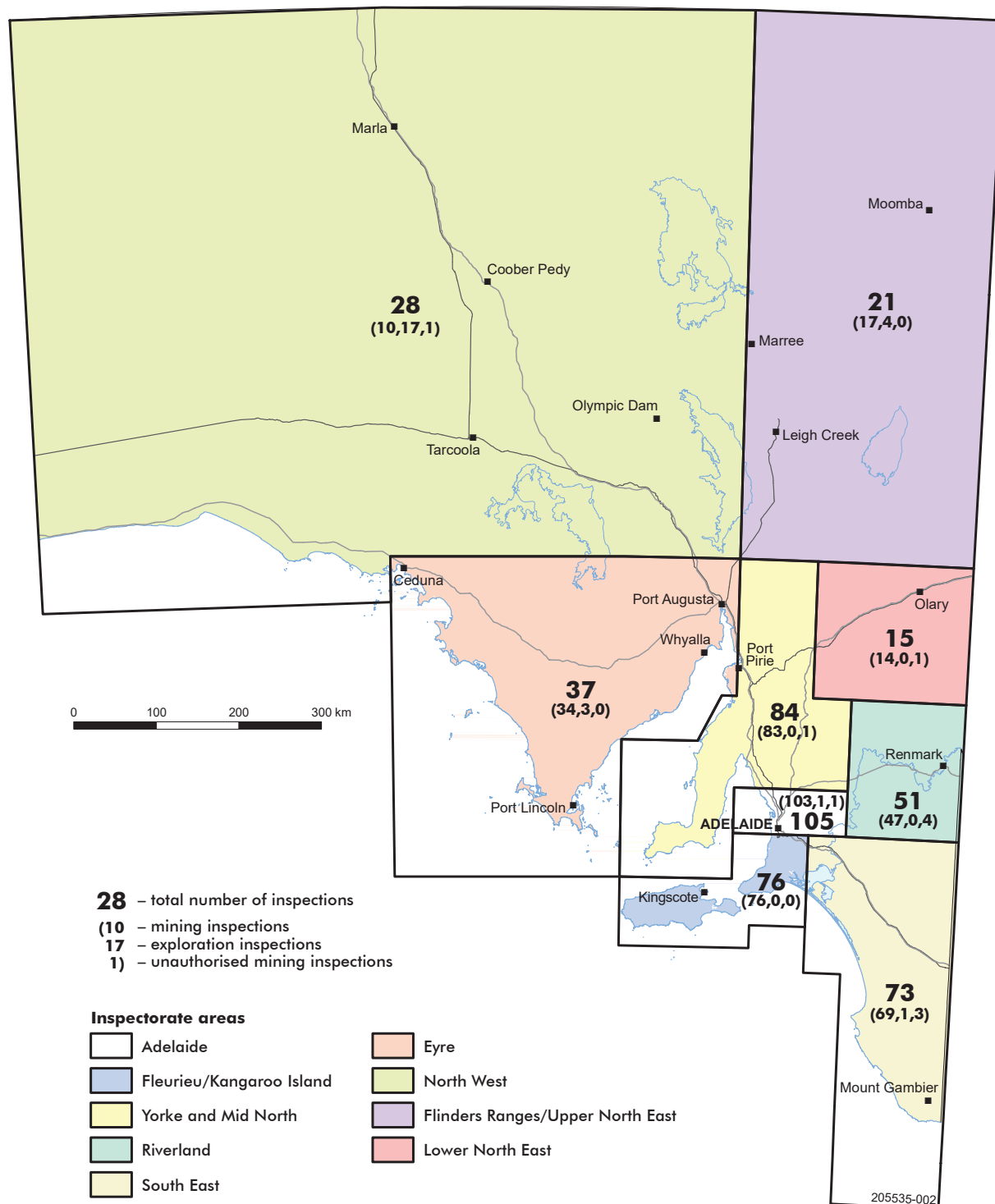
Tenement/mine	Number
Mining lease	707
Extractive mining lease	588
Miscellaneous purposes licence	113
Retention lease	28
Total mining leases	1,436
Mineral claim	74
Private mine	217
Total mining operations	533
Total producing operations*	385

* Defined as those mines for which a royalty return has been submitted to DEM in the past 3 years.
Note: These figures exclude opal mining tenements which are summarised separately.

OLYMPIC DAM REFERRALS/APPROVALS IN 2020–21

19 July 2020	Olympic Dam 2020 EPMP approved
12 November 2020	Secondary: TSF 6 (conditions – submission of supporting information)
9 March 2021	Evaporation Pond 6 Cell A (commission and operate)
25 June 2021	Tailings Storage Facility (TSF) 6 (commission and operate)
6 August 2021	3.5 Mtpa Electric Limestone Crusher (construct)
26 August 2021	Secondary: EP4/EP6 Booster Pump (commission and operate)
6 September 2021	Secondary: TSF 6 Feeder Line D (commission and operate).

DEM MINING AND EXPLORATION INSPECTIONS BY REGION 2020-21



MOST COMMON MINING COMPLAINT TYPES



Dust – 31



Drag out – 6



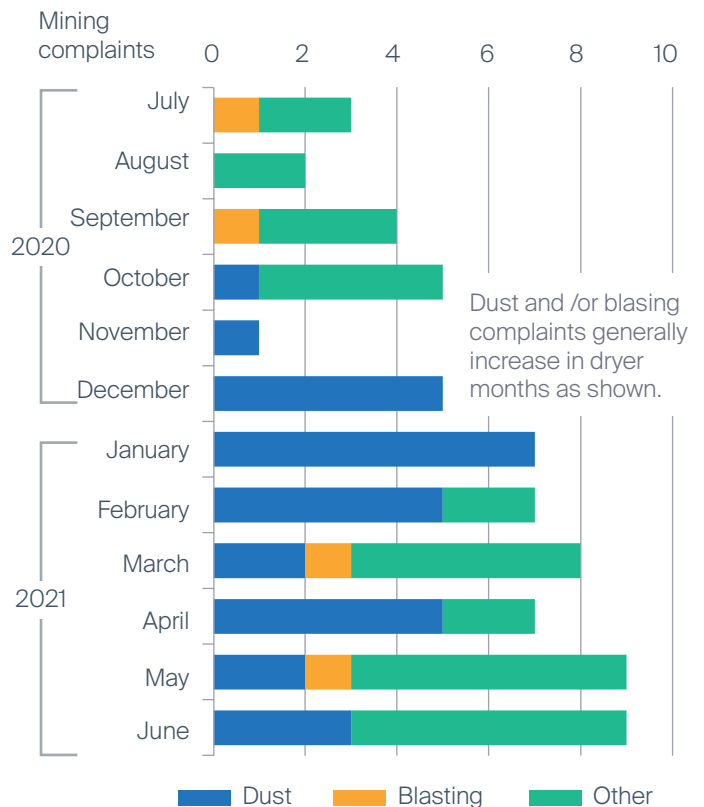
Noise – 12

Blasting and dust complaints are typically received from mining operations located adjacent to residential areas. These operations are expected to continuously focus on minimising external impacts, with many adopting real-time technologies to monitor blasting and dust events, trigger and response plans and transparent reporting systems. Many of these operations also have well-established community engagement programs to ensure local communities are informed of developments and regulatory performance.

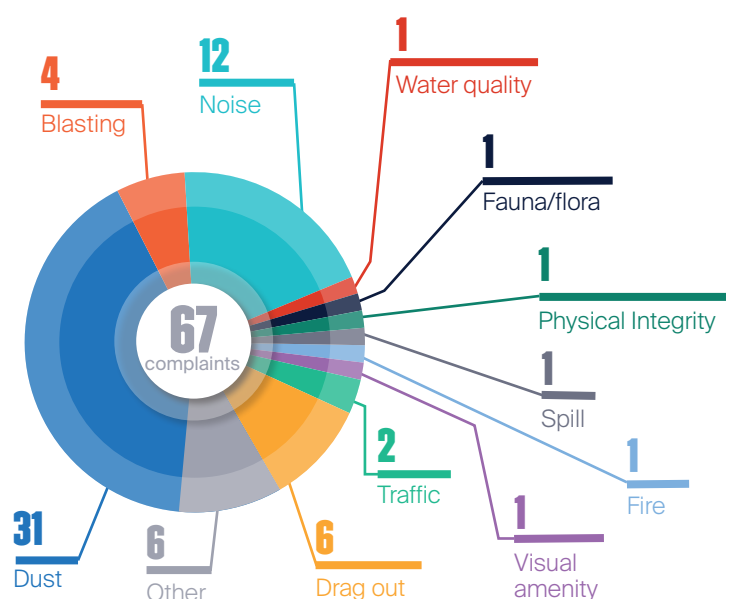
All reportable incidents under the Mining Act must be reported to DEM. Ten incidents were reported on mining tenements of which one was a uranium or radiation related incident.

COMPLAINTS AND INCIDENTS

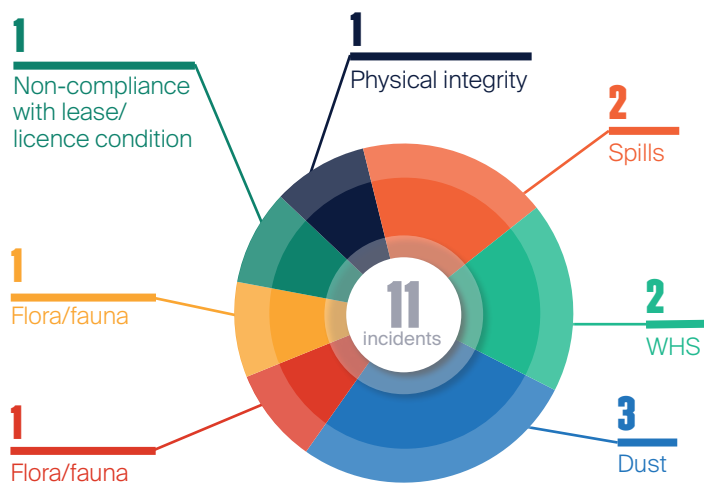
Mining complaints registered with DEM 2020–21



Categories of mining complaints 2020–21



Categories of exploration and mining incidents 2020-21



MOST COMMON INCIDENT TYPES



Dust – 3

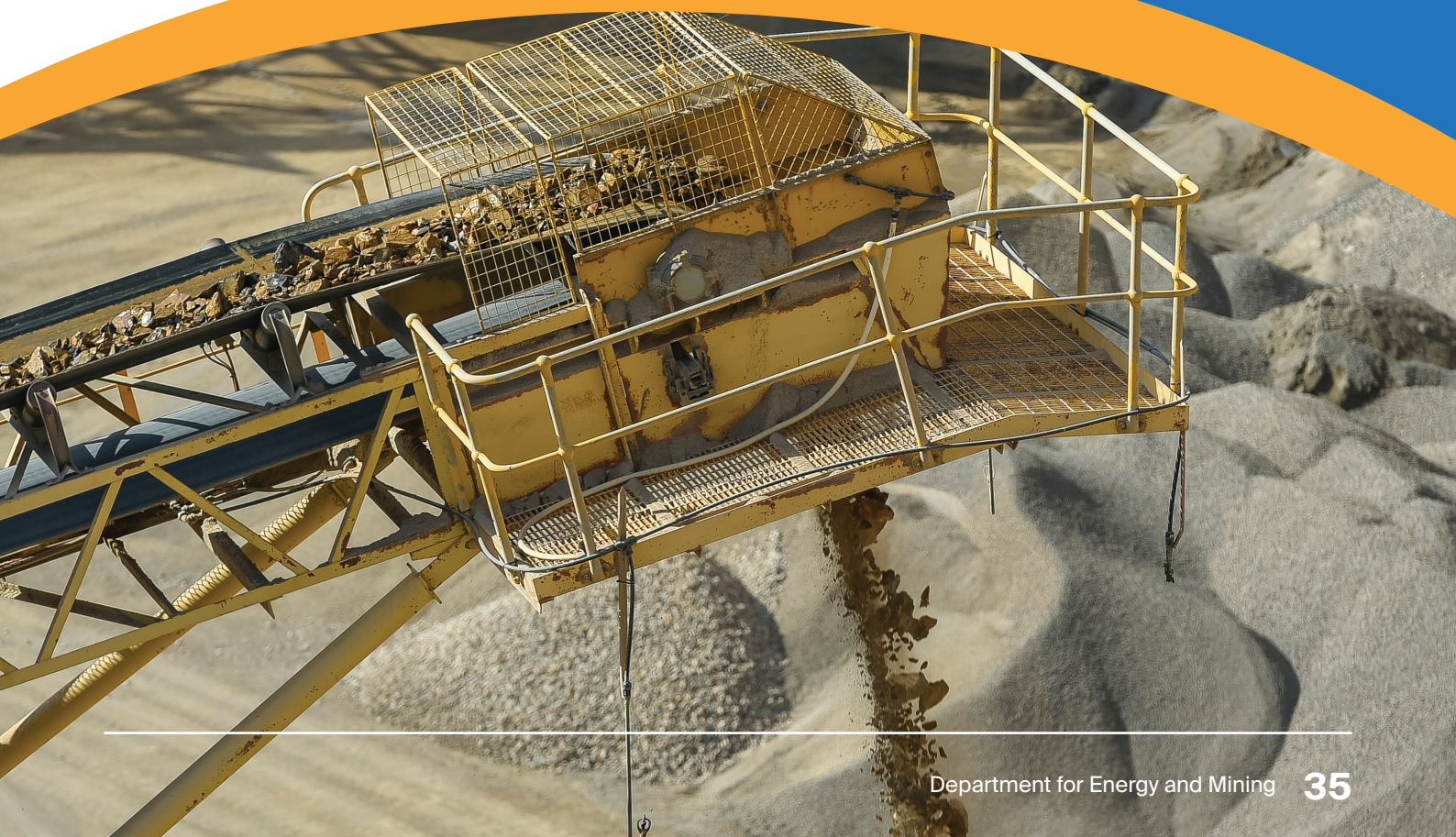


Spills – 2



WHS – 2

Reported spills were contained within disturbed areas and include processing solutions, fuels and raw water.



MINING OPERATIONS – ENFORCEMENT ACTIONS

Enforcement actions issued, outstanding or closed for mining operations 2020–21

Compliance instrument	Date issued	Tenement holder/ operator	Noncompliance	Outcome
Environmental direction	27/03/2013	One Steel Manufacturing Pty Limited (currently trading as SIMEC Mining)	Tailings storage facility impacted on native vegetation at Iron Duke mine.	Ongoing, long-term management plan
Rehabilitation direction	29/09/2017	Kym Simons	Removal of unauthorised waste from site.	Closed
Environmental direction	14/11/2017	Mark Hardy	Contamination to land resulting from hydrocarbon spills.	Closed
Compliance direction	14/11/2017	Mark Hardy	Unauthorised native vegetation clearance, operating outside of the tenement boundary and operating outside of the scope of the PEPR.	Ongoing rectification
Compliance direction	28/11/2019	Ian Filsell, Mark Filsell	Unauthorised mining (varied by court order).	Ongoing rectification
Prohibition order	7/03/2019	Australian Tailings Group Pty Ltd	Non-payment of bond.	Closed
Environmental direction	19/11/2020	Buckland Dry Creek Pty Ltd	Stop pumping brine in Section 2 ponds, Dry Creek.	Closed
Environmental direction	10/12/2020	Buckland Dry Creek Pty Ltd	Rectify brine seepage into the Little Para River.	Closed
Environmental direction	24/12/2020	Buckland Dry Creek Pty Ltd	Remove brine and stop new brine entering Section 2 ponds, Dry Creek.	Ongoing
Compliance order	9/12/2020	Kym Schubert	Offsite water discharge	Closed
Environmental direction	1/12/2020	John Hillam	Unauthorised mining/illegal clearance/environmental harm.	Ongoing rectification
Compliance direction	28/07/2020	Goldus Pty Ltd	Unauthorised mining.	Ongoing rectification
Rehabilitation direction	25/05/2020	Kerry Bowley, Tanya Hitchcock, (nee Bihiendbrodt)	Removal of unauthorised waste from site and clean up.	Ongoing rectification

Note: Includes outstanding directions issued prior to 30 June 2020 that were completed or remained outstanding at 30 June 2021.



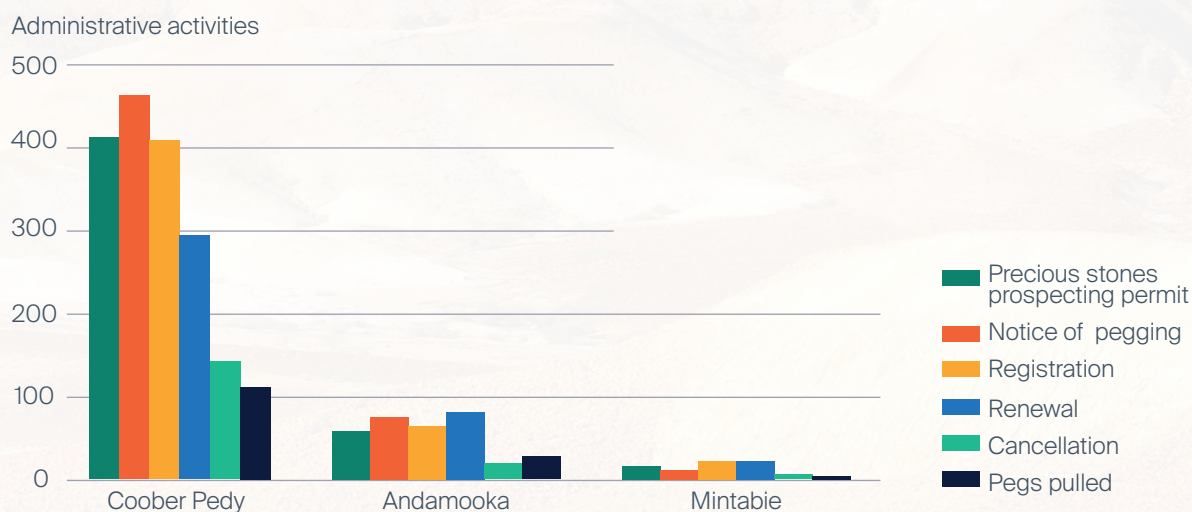
Underground workers at Carrapateena. Courtesy OZ Minerals

OPAL MINING

Opal mining in South Australia is administered by DEM in accordance with the Opal Mining Act. The DEM Opal Fields Program is based in Coober Pedy, with regional services provided to Andamooka and Mintabie.

DEM administers the Mintabie Town Lease and has delegations under the *Anangu Pitjantjatjara Yankunytjatjara Land Rights Act 1981* and Mintabie Township Lease Agreement.

Categories of opal field administrative activities 2020-21



REVENUE RAISED FROM OPAL MINING 2020-21

- Coober Pedy \$140,585
 - Andamooka \$33,842
 - Nil in Mintabie
- TOTAL \$174,426

SUMMARY OF COURT ACTIONS

Matters of noncompliance with the Opal Mining Regulations 2012 are handled by the Opal Mining Registrar who initiates Warden's Court actions.

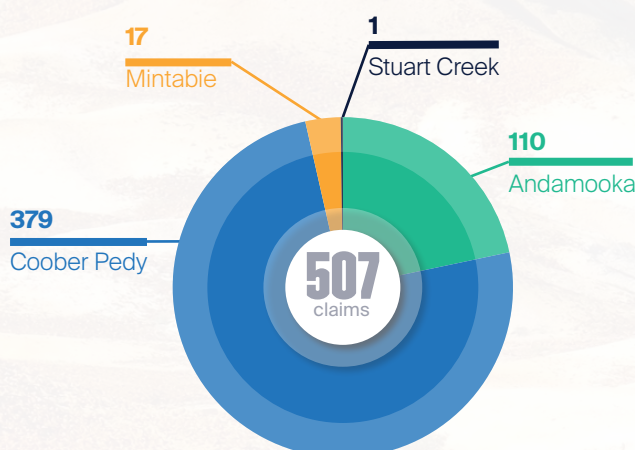
They are managed with weekly phone conferences and by sittings of the Warden's Court in Coober Pedy and Andamooka twice a year. Opal miners can also initiate their own actions in the Warden's Court. These matters usually relate to suspension of working conditions, amalgamation of tenements or partnership disputes.

In 2020–2021 DEM raised 20 court actions. Of these actions, 14 matters were dismissed, and six claims forfeited. DEM also attended 21 court hearings.

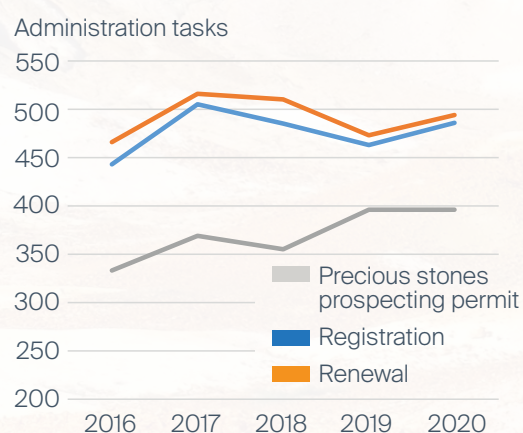
OPAL REGULATORY COMPLIANCE

DEM conducts compliance activities to provide assurance to the government, opal miners and community stakeholders that opal mining activities are complying with the appropriate Acts and regulations. Noncompliance identified through surveillance, complaints, incidents and alleged breaches was investigated for 507 claims.

Location of opal claims 30 June 2021



Opal administrative activities 2016 to 2020



COMPLIANCE SUMMARY FOR OPAL FIELD ACTIVITIES 2020–21

Inspection*	Coober Pedy	Mintabie	Lambina	Andamooka	Total
Compliant (1st round)	511	37	0	127	675
Noncompliant (1st round)	139	8	0	24	171
Compliant (2nd round)	92	3	0	13	108
Noncompliant (2nd round)	24	0	0	1	25
Total	766	48	0	165	979

*A first inspection is undertaken to check for compliance against the Opal Mining Act and opal mining regulations. A second inspection is carried out to ensure rectifications have been implemented if the first inspection deems the operation as noncompliant.

OPAL OCCURENCES



MINE REHABILITATION AND CLOSURE

REHABILITATION LIABILITY AND BONDS

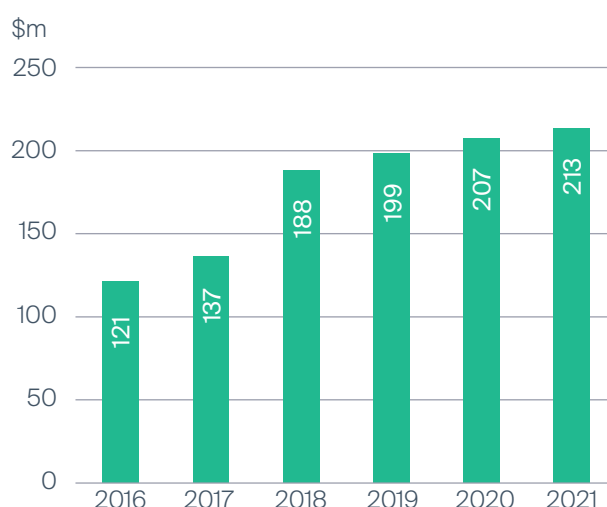
The South Australian mining industry is an important contributor to the economy. However, mining activities disturb the land and create a rehabilitation liability. Under the Mining Act, the holder of a mining tenement is responsible for rehabilitating the land disturbed by mining operations. DEM is responsible for ensuring financial liabilities from non-rehabilitated mining activities do not become the responsibility of the state.

The amount to be provided by the tenement holder is determined by DEM as the value of 100% of the estimated rehabilitation liability. The rehabilitation liability estimate is the maximum third party costs of undertaking the rehabilitation strategies covered by the approved PEPR and include costs for project management, inflation, normal project variation, and contingency provision for risk associated with the strategies and uncertainty in the cost estimates.

Summary of bond type and amount held by DEM for mineral tenements 30 June 2021

Bond type	Exploration (\$m)	Mining (\$m)
Bank guarantee	1.24	185.6
Currency	0.97	16.2
Other – deed poll		9.2
Total	2.21	211

Total bonds held at 30 June 2016 to 30 June 2021



EXTRACTIVE AREAS REHABILITATION FUND

EARF was established in 1971 to fund the rehabilitation of extractive mining operations and has supported more than 1,000 projects since its inception. The EARF is funded by the government's reallocation of royalty monies.

In the event an operator faces financial disruption through insolvency, administration, liquidation or bankruptcy, the EARF provides a royalty-financed scheme that protects the state. The EARF protects against operators who cannot meet their rehabilitation obligations due to voluntary administration or liquidation.

The EARF's benefit to industry is that extractive operations generally do not require a rehabilitation bond.

EARF provides funding to support regulatory officers who work on extractive minerals leases and extractive operations. The EARF is regularly reviewed by government to ensure adequate reserves are held to assure potential rehabilitation liabilities may be funded if required by government.

Closing balance of the EARF at 30 June 2021
\$30,941,000

Projects approved for funding from EARF 2020–21

Tenement	Applicant	Approved	Value (\$)
EML 5610	Alvanos Earthmoving P/L	17/12/2020	9,663
PM 253	DEM	16/12/2020	24,454
EML 5261	DEM	2/03/2021	33,595

PM private mine; EML extractive mineral lease

Status of EARF-funded projects 30 June 2021

Active projects/ tenement	Original approval	Original value (\$)	Project completed	Residual value 30 June 2020 (\$)
EML 3395, D Pitt	14/04/16	83,600	29/03/2021	0
PM 140, P Lines	14/09/16	372,989	Ongoing	339,081
Emerald Quarry*, District Council of Mount Barker	28/10/16	89,228	8/09/2021	0
PM 285, NL & JL Hahn	24/07/19	12,705	Ongoing	12,705
MPL 56, DEM	27/10/19	69,575	Ongoing	66,825
EML 5610, Alvanos	17/12/20	9,662.50	13/02/2021	0
PM 253, DEM	16/12/2020	24,454.10	Ongoing	24,454
EML 5261	20/03/2021	33,595.10	Ongoing	33,595
Total				476,660

PM private mine; EML extractive minerals lease, MPL miscellaneous purposes licence.

* No active tenement applies.

Note: Residual value remaining at end of project returned to EARF.

FORMER MINES

DEM administers a former mines program to identify and characterise hazardous sites, assess the associated safety and/or environmental risks and prioritise works with consideration of potential risk mitigation measures. A safety and environmental risk process was issued to catalogue the former mine site for hazards.

The program has developed an inventory of former mine sites in South Australia to understand the scope and magnitude of the problem.

This program identified and provided a safety rating for over 4,000 locations.

During 2020–21 over 299 sites were desktop reviewed and a further 97 were comprehensively reviewed including a site visit.

The expansion of this program has seen an increase in data generated. To streamline the data collection process the DEM closure team will design and publish a GIS-based form that allows for better collection of data into a format that can be more easily viewed and analysed.

BRUKUNGA PYRITE MINE

The Brukunga mine operated from 1955 to 1972, extracting iron sulfide (pyrite and pyrrhotite) from an open pit quarry near the township of Brukunga. The concentrated ore was converted to sulfuric acid and subsequently used in the manufacture of superphosphate fertiliser. The remaining minerals have been exposed to weathering, resulting in acid and metalliferous drainage release to a local watercourse. The state government took responsibility for the former mine in 1979. It is still managed by DEM.

The key work undertaken on site is the interception of acid seepage and water treatment with lime to prevent acid and metals from entering and polluting the local watercourse. The acid and metalliferous drainage is neutralised in a high density sludge plant to remove the soluble heavy metals before the treated clean water is released back to Dawesley Creek in accordance with Environment Protection Authority (EPA) requirements.

The water quality management and monitoring program, undertaken in accordance with an Environment Protection Authority licence, provides a measure of the success of the interception and treatment program.

Key works completed during 2020–21 included:

- Installation of a bushfire protection system for the plant.
- Completion of a report to review the design life of the plant and improve the preventive maintenance processes.

As a result of this review the following actions were completed:

- the thickener tank was inspected and repaired
- the tailings storage facility and seepage ponds were investigated, leading to an upgrade in piping and a cleaning out of the ponds
- the last 120 meters of the rising main was completed and a third party was commissioned to undertake a review of the plant.

RADIUM HILL URANIUM MINE

The Radium Hill former uranium mine is located 40 km southwest of Cockburn. Between 1952 and 1961 the principal uranium mining activities at the mine were undertaken by the state government.

During this campaign the ore was mined using underground methods and crushed onsite to produce a uranium ore concentrate. The concentrates were then sent via rail to Port Pirie for chemical extraction of the uranium.

Upon closure, the mine was decommissioned, access to mine workings were blocked and infrastructure was removed in accordance with

the environmental standards of the day. In 1981 the site was also established as a repository for low-level radioactive waste materials, primarily to facilitate the clean-up of contaminated soil held in Thebarton, in the Adelaide metropolitan area.

A radiation and environmental monitoring program ensures identified risks are minimised and managed at the former mine. DEM conducts radiation monitoring – including monitoring the integrity of the tailings impoundment, waste rock stockpiles, physical hazards and potential environmental impacts – during site inspections.

PORT PIRIE URANIUM AND RARE EARTH TREATMENT PLANT

The former Port Pirie uranium and rare earth treatment plant was part of the original Radium Hill project which was commissioned and operated by the state government. The plant site is immediately north of the city of Port Pirie, adjacent to the Nyrstar lead smelter.

The treatment plant operated from 1954 to 1962 for the recovery of uranium and rare earths. Following closure of the plant in 1962, a number of smaller companies have used the property for various operations including the further pursuit of rare earth elements.

Under the conditions of the site's Environment Protection Authority licence, DEM is required to provide an annual report to the authority addressing the requirements of the licence conditions. This includes a summary of the site's radiation monitoring results, including exposure to workers and members of the public, status of containment structures, materials held on site, and the surrounding environment.

Radiation monitoring of the Port Pirie site, including monitoring the integrity of the tailings dams, physical and chemical hazards and potential environmental impacts, is conducted during site inspections.

RESOURCE ROYALTIES

ROYALTY AUDITS

DEM administers policy, collection and reporting of all royalties sourced from South Australian producers for both mineral and petroleum resources.

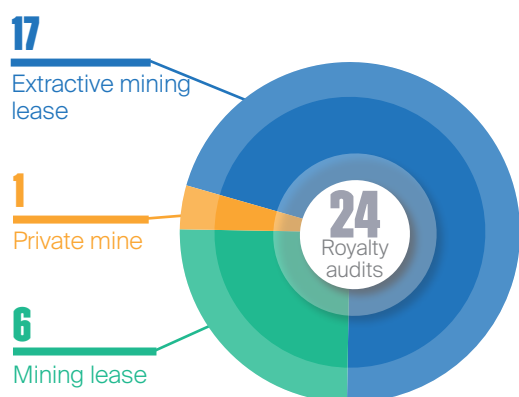
In 2020–21 the royalty audit compliance program:

- audited 98% of mineral royalty revenue
- subjected 24 mineral producers to a comprehensive audit
- recovered \$720,000 in mining royalty revenue.

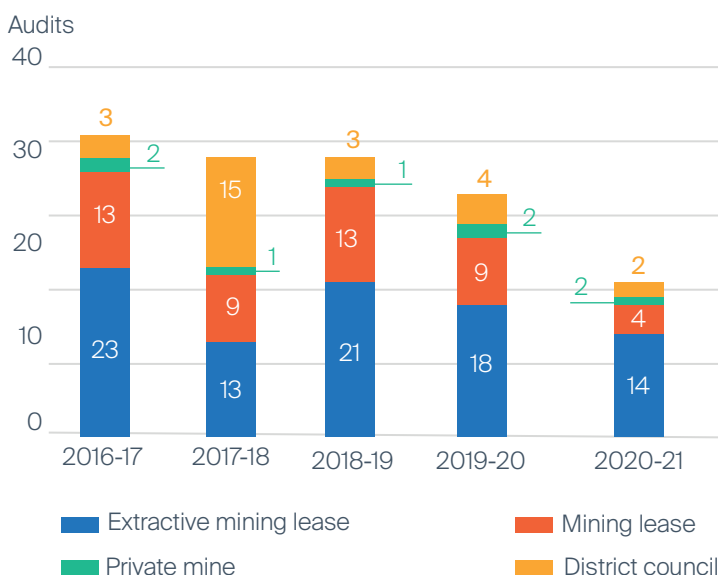
Reported mineral production 2020–21:

- focused on large high-risk mineral producers involving more complex audits
- utilised drone surveys to better assess extractive mineral production volumes recovered through mining operations.

Royalty audits completed 2020–21



Royalty audits 2016–17 to 2020–21



REPORTED MINERAL
PRODUCTION 2020–21

contributing
to mining
royalties

\$237m



LEGISLATION, REGULATORY POLICY INITIATIVES AND PROGRAMS

DEM is committed to the development and implementation of policies and legislation that ensure South Australia has a strategically focused, coordinated and transparent approach to mine regulation, land access and the impact of mining on land uses such as planning, conservation, Aboriginal heritage, native title, Defence, agriculture and renewable energy.

See [Legislation and guidance](#) on the DEM website for publications released as part of the Mining Act review.

GLOSSARY

Exploration. The term used to describe a wide range of activities aimed at searching for deposits of useful minerals, or determining the extent of a mineral discovery or deposit. The activities conducted as part of the exploration process range from office-based reviews and studies of new and existing geoscientific data, to airborne surveys, and various ground-based sampling and geoscientific data gathering programs.

The specific exploration activities employed will vary depending on a number of factors including the mineral being searched for, the amount of geoscientific data that already exists in an area, and the geology of the area.

Exploration licence. The principal title issued for exploration in South Australia and authorises the licensee, subject to the *Mining Act 1971*, Mining Regulations 2020 and conditions of the licence, to explore for all minerals and/or opal other than extractive minerals.

Mineral claim. Provides an exclusive right to prospect for minerals within the claim area for 12 months, and to apply for a mining lease over all or a portion of the claim.

Mining lease. Must be obtained before any production of minerals can commence. The mining lease gives the exclusive right to conduct mining operations and sell the minerals specified in conditions attached to the lease. There are 2 types of mining leases:

- Extractive minerals leases for most construction materials
- Mineral leases for other minerals (excluding precious stones).

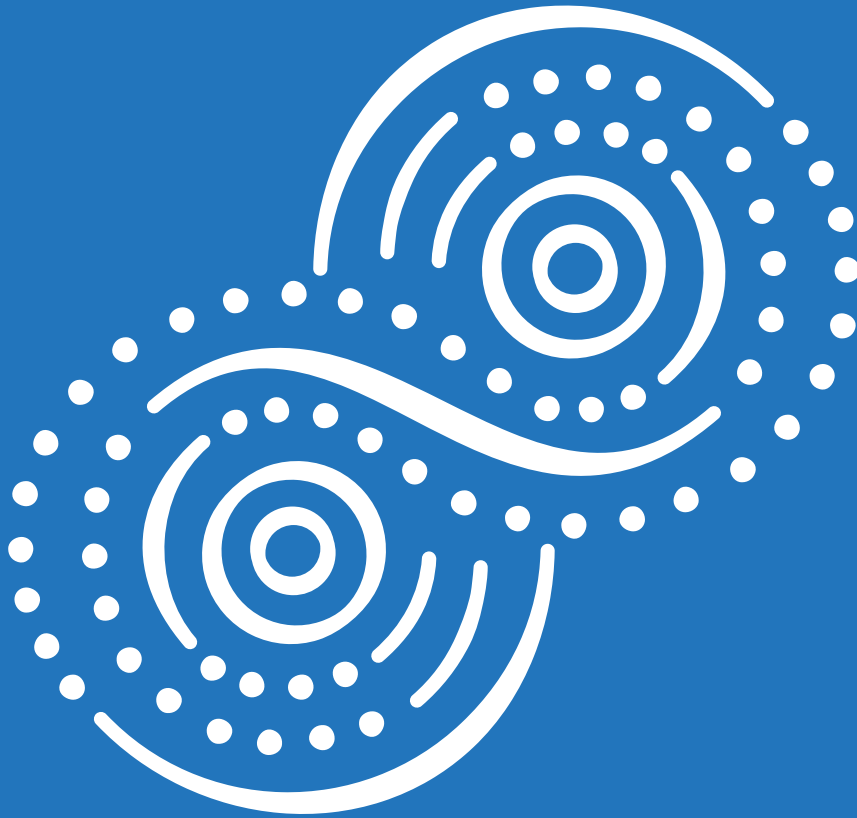
Minerals. These are the property of the Crown in South Australia and are managed on behalf of all South Australians. Minerals, as defined under the Mining Act, include any deposit of metal or metalliferous ore, precious stones, or any other mineral. Examples of minerals that are found in South Australia include iron ore, copper, gold, silver, zinc, uranium, nickel, graphite, sand, gravel, shell, stone, shale and clay.

Miscellaneous purposes licence. Can be granted as an auxiliary tenement to mining operations. Miscellaneous purposes licences are generally used for infrastructure corridors, roads, waste rock dumps, tailings storage facilities or power access.

Private mine. When the Mining Act came into effect in 1971, it provided a process whereby persons divested of the right to minerals could, under certain circumstances (and for a limited time), make an application to retain the rights to the minerals. If an application was successful, the Governor proclaimed the area to be a private mine.

Retention lease. May be granted for a period of up to 5 years to an applicant to carry out operations to support information required for a mining lease but not suited for a exploration licence, or for economic or other reason.

Significant environmental benefit. An action that results a positive impact on the environment that is over and above the negative impact of the vegetation clearance. It can be achieved through the establishment (revegetation), management and/or protection of an area of native vegetation or payment into the Native Vegetation Fund.



ACKNOWLEDGEMENT OF COUNTRY

The Department for Energy and Mining acknowledges Aboriginal people as the First Nations Peoples of South Australia. We recognise and respect the cultural connections as the traditional owners and occupants of the land and waters of South Australia, and that they continue to make a unique and irreplaceable contribution to the state.

FURTHER INFORMATION

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Department for
Energy and Mining