

SOUTH AUSTRALIA

Energy Resources Act 2000 compliance report



2024

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This report is also available on the [department's website](#).



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Contents

SHORTENED FORMS.....	4
HIGHLIGHTS 2024.....	5
SUMMARY	6
1 INTRODUCTION	12
2 REGULATED ACTIVITIES	13
3 COMPLIANCE AND ENFORCEMENT PHILOSOPHY	16
4 PREVENTIVE MEASURES.....	17
4.1 Statement of environmental objectives reviews and approvals in 2024.....	17
4.2 Significant environmental benefit contributions	19
4.3 High- and low-level official surveillance classification.....	19
4.4 Process safety and environmental management system framework	20
4.4.1 Process safety and environmental management system maturity self-assessment.....	20
4.5 Energy Regulation Branch field surveillance activities.....	20
4.5.1 Produced formation water disposal facility surveillance.....	23
4.5.2 Wellsite and access track restoration surveillance.....	25
4.6 Quarterly compliance meetings	26
4.7 Annual reports.....	26
4.8 Data compliance	27
4.9 Fitness-for-purpose reviews.....	28
4.10 Process safety and environmental management inspections	28
4.10.1 Wells update	31
4.11 Emergency response exercises	32
4.12 Resource royalties	33
4.13 Co-produced water	35
4.14 ER Act Environmental Liability Management Policy	36
5 COMPLIANCE STATISTICS	38
5.1 Reportable incidents.....	38
5.1.1 Pipeline encroachment and pipeline contact.....	39
5.2 Loss of containment incidents.....	41
5.3 Root cause analysis.....	46
6 IMMEDIATELY REPORTABLE INCIDENTS	49
6.1 Update on Legacy Contamination Assessment Plan reported previously	50
6.2 Yappala Cultural Heritage Impact Investigation	50
7 PERSUASIVE MEASURES	52
8 COMPULSIVE OR PUNITIVE MEASURES	55

Shortened forms

AS	Australian Standard
DEM	Department for Energy and Mining
EIR	Environmental Impact Report
ER Act	<i>Energy Resources Act 2000</i>
EPA	Environment Protection Authority (South Australia)
FFP	fitness for purpose
FNPWA	Far North Prescribed Wells Area
GAS	goal attainment scaling
LOC	loss of containment
NVC	Native Vegetation Council
PSEMS	process safety and environmental management systems
PTW	permit to work
SCADA	supervisory control and data acquisition
SEB	significant environmental benefit (native vegetation)
SEO	statement of environmental objectives

HIGHLIGHTS 2024

Petroleum & Geothermal Compliance



247

Activity notifications received



14

Environmental issues identified during site inspections



4

Statements of environmental objectives gazetted



94

Site inspections



3

Step 2 cases requiring persuasive measures



1

Step 3 cases requiring compulsive measures



\$107.1
million

Petroleum royalties collected in 2023-24



100%

Regulatory services funded by licensing & regulatory fees

SUMMARY

The Department for Energy and Mining's Energy Regulation Branch (DEM) is responsible for administering the [Energy Resources Act 2000](#) (ER Act) and associated Regulations on behalf of the Minister for Energy and Mining. The ER Act is amended legislation that superseded the Petroleum and Geothermal Act 2000 and Petroleum and Geothermal Energy Regulations 2013, effective 11 April 2024. The ER Act enables and regulates the exploration, development, production and processing of regulated petroleum, geologic gas storage and geothermal energy resources, and the construction, maintenance and operation of transmission pipelines, for the benefit of South Australians.

Since 2006, DEM has prepared an annual compliance report on activities conducted under the ER Act. This covers both the activities of DEM in administering the ER Act and an overview of ER Act licensees' regulated activities and incident statistics. DEM's compliance policy emphasises the importance of preventive measures to educate and facilitate a compliant industry, with escalation to persuasive and compulsive measures where necessary (see Figure 3 for the DEM compliance and enforcement pyramid).

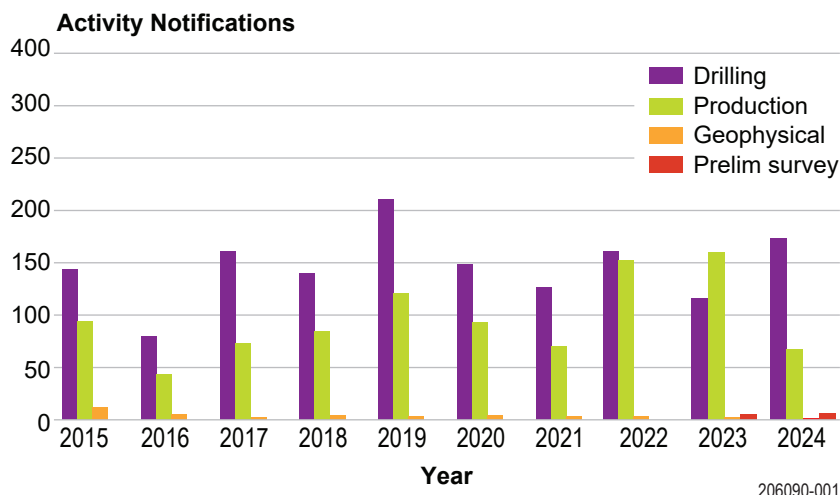
Compliance monitoring and regulatory assessments occur through the life of a regulated activity including:

- at licence issue and during audits of licence annual reports for work program and licence requirements
- at the assessment and approval of relevant statements of environmental objectives (SEO) stage
- at the review and approval stage of individual exploration and production activities, facilities and pipelines
- during field-based and office-based surveillance and inspections of regulated activities
- regulatory surveillance activities associated with licensee management systems
- audits of licensee royalty returns
- investigations and relevant enforcement actions following incidents
- the adequacy of site rehabilitation and fulfilment of requirements prior to licence relinquishment.

The key regulatory outcomes and activities undertaken during 2024 are summarised here and provide direction for where to find further detail in the body of this report.

Activities

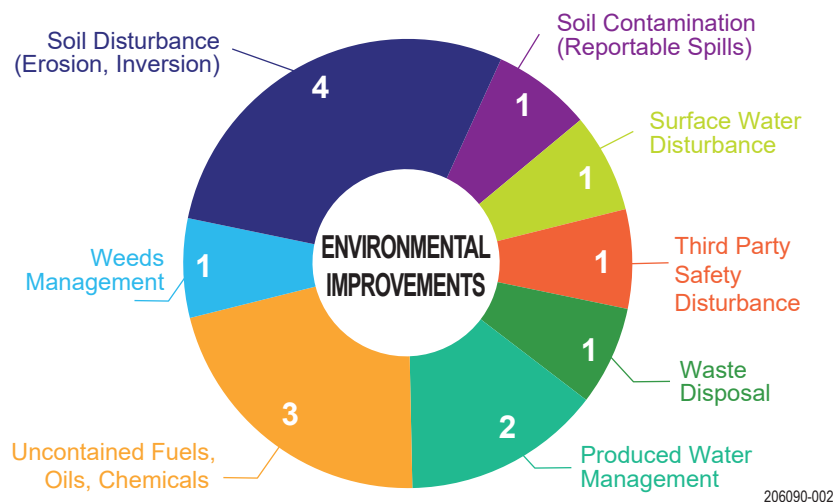
Activity notifications are provided to the Minister prior to the proposed commencement of any regulated activities. A notification may cover one or multiple activities and provide a good indication of the level of industry activity as shown in the adjacent chart for 2015 to 2024. In 2024 there were 247 activity notifications received by DEM. See Section 2 for further details.



Activity notifications submitted to ERD, 2015 to 2024.

Field inspections

Field surveillance trips were conducted across the Cooper-Eromanga, Murray Basin, Stansbury and Telford basins, together with other sites. From 94 individual inspections of wellsites, pipelines, production facilities and other associated infrastructure conducted, 14 instances were identified where environmental improvements were required by the licensee to avoid potential breaches of relevant SEOs. Categories of these potential breaches are illustrated in the adjacent chart and discussed in Section 4.5.



Observed environmental improvements against relevant SEOs in 2024

Fitness-for-purpose assessment

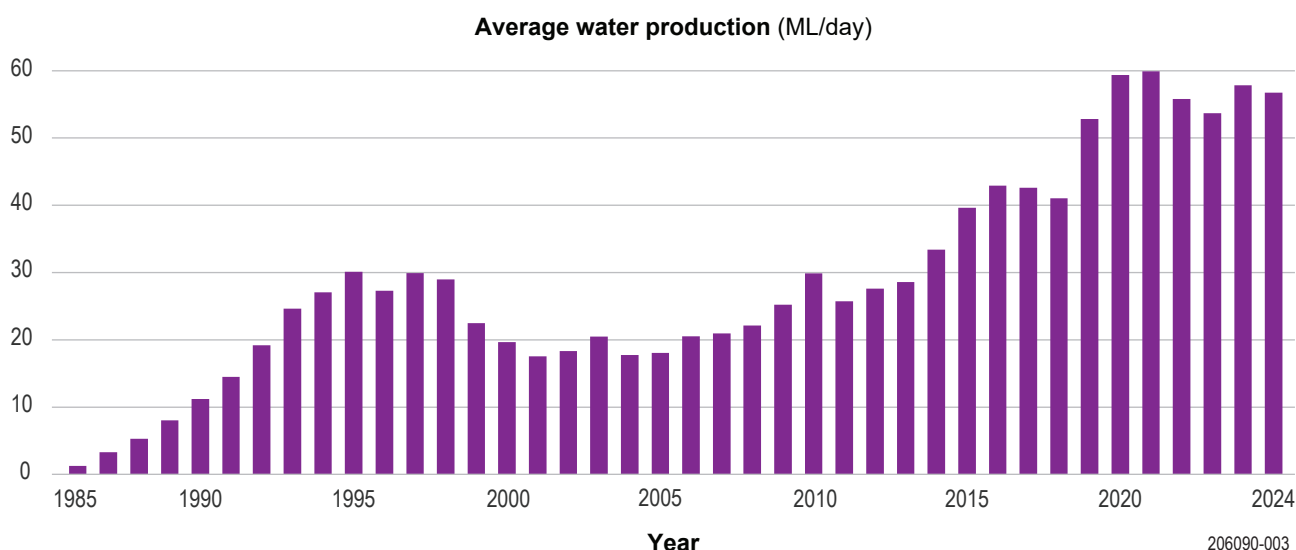
Section 86A of the ER Act requires a fitness-for-purpose (FFP) assessment to be carried out for prescribed licences every 5 years in accordance with the Regulations. The FFP assessments and reviews that were underway or completed in 2024 in relation to facilities, pipelines and wells are tabulated in Section 4.9.

Process safety management inspections

In its ongoing assessment for the FFP of the operation of facilities and pipelines, DEM has adopted a process safety management philosophy with a strong focus on demonstrable performance of critical hardware and system controls. A summary of DEM's process safety inspections is provided in Section 4.10.

Co-produced water monitoring

The Minister has been assigned a water allocation of 21,900 ML per annum, under the water allocation plan for the Far North Prescribed Wells Area. As part of this assignment, DEM collects, monitors and publishes the average daily volumes of water that are co-produced with regulated resources to ensure that the allocation is not exceeded. As can be seen in the adjacent chart, the average daily co-produced water production has been reported above 50 ML/d since 2018 and in 2024 was reported at 56.49 ML/d, as such DEM is monitoring this closely and working with the Department for Environment and Water to consider its forward management. See Section 4.13.



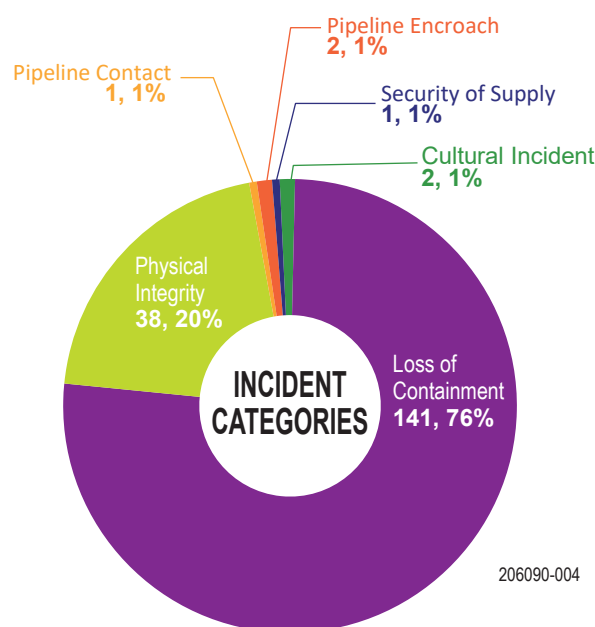
Average co-produced water production (ML/d) in the Cooper and Eromanga basins, 1985 to 2024

Significant environmental benefit contributions

As a delegate for the South Australian Native Vegetation Council (NVC) under the Native Vegetation Act 1991, DEM enforces the significant environmental benefit (SEB) obligations on licensees relating to vegetation clearances. The Native Vegetation Regulations 2017 and related SEB guideline have replaced the prior Native Vegetation Regulations 2003, with reporting now in SEB points as opposed to hectares. As discussed in Section 4.2, a total of 310.7 ha of native vegetation was cleared for the 2023–24 financial year. To fulfil their SEB obligations, operators either purchased SEB offset credits in the NVC-approved Gidgealpa Station on-ground offset area managed by the Nature Foundation on behalf of Santos or made payment into the NVC Fund.

Incidents

The ER Act includes objectives pertaining to public safety, security of gas supply, and the protection of the natural environment and of the interests of other land users and landowners. An incident that may impact on compliance with these objectives, or those defined in a specific SEO, which an activity is conducted under, must be reported to DEM. The below chart gives a breakdown of all reportable and serious incidents reported to DEM for the year 2024, categorised by incident type. More information on incidents and some discussion of potential root causes is in Section 5.

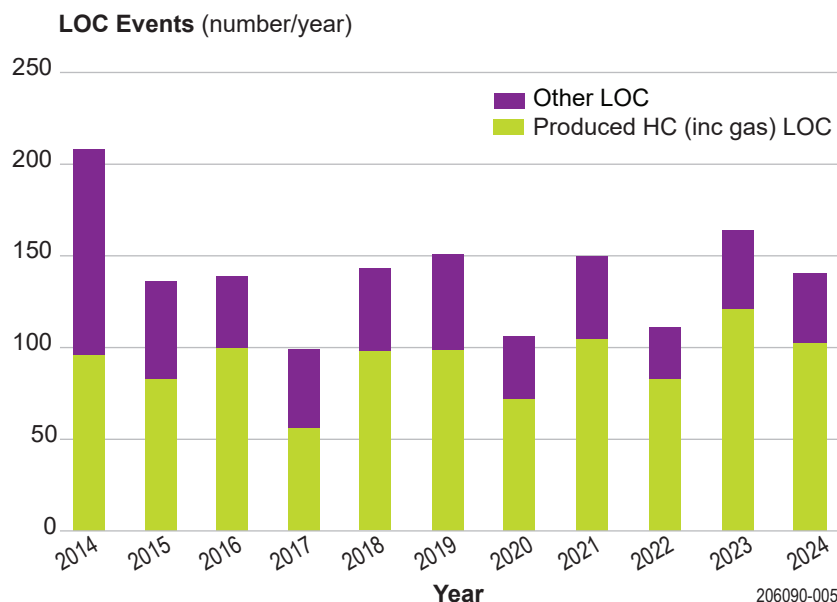


Categories of incidents during 2024

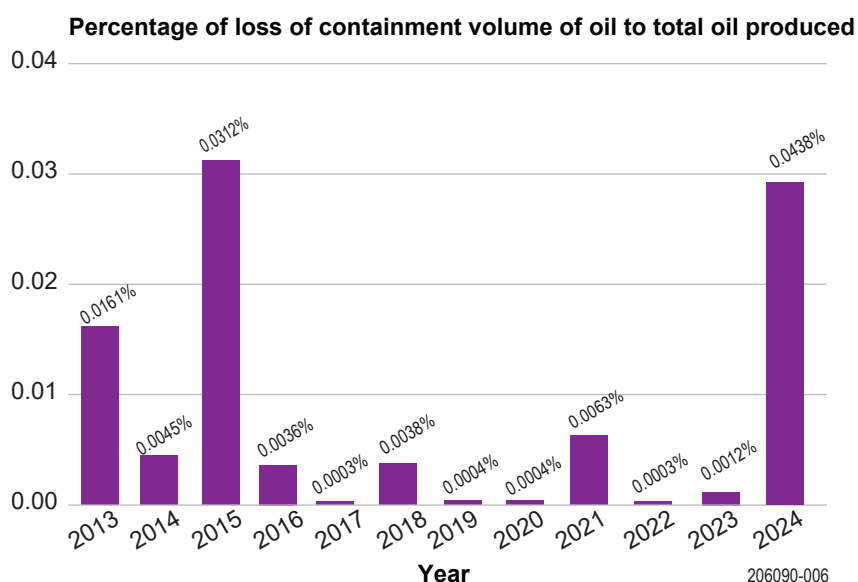
Loss of containment incidents

The number of produced hydrocarbon and other loss of containment (LOC) events are shown in the adjacent chart. As shown above, LOC events comprise the largest category of incidents (76% by number of incidents). In terms of the volume released during the incident events, the total LOC volume of oil to total oil produced shows that this amounted to 0.0438% of total oil produced. While the majority of LOC events are of small or negligible volume, which can be immediately contained and removed, thereby reducing the potential consequence to the environment, the spike in 2024 was due to 2 individual LOC events contributing 283 m³ (85%) of the total produced hydrocarbon released.

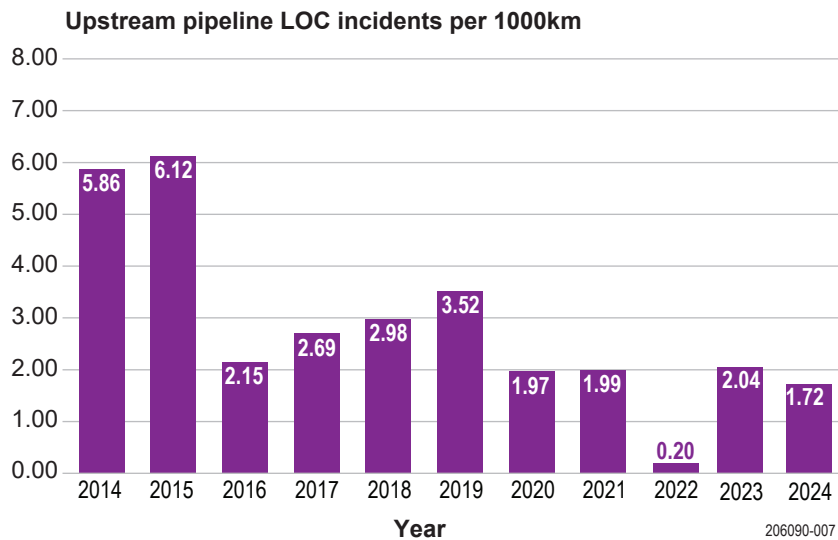
The upstream pipeline (excluding transmission pipeline) LOC incident rates per 1,000 km per year are shown in the adjacent chart for 2013 to 2024. The number of upstream pipeline incidents show a significant improvement from 2013 levels, due to a large number of abandonments or replacements of higher risk flowlines and significant progress targeting legacy infrastructure. Section 5.2 discusses these LOC incidents in more detail.



Number of produced hydrocarbon and other LOC incidents from 2014 to 2024.



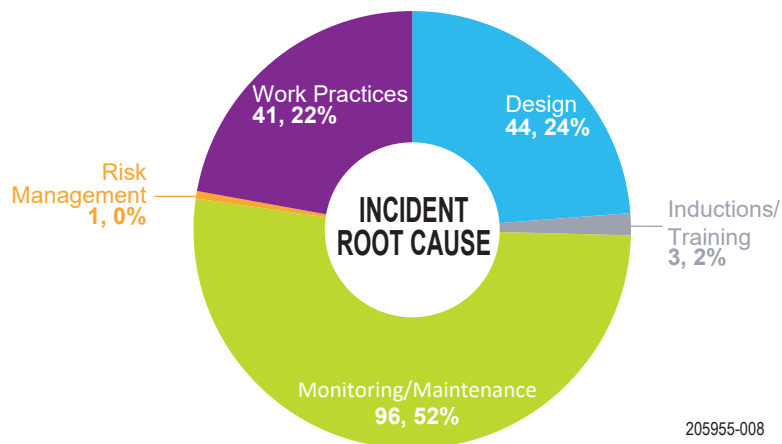
Percentage of LOC volume of oil to total oil produced, 2013 to 2023.



Upstream pipeline LOC incidents per 1,000 km, 2014 to 2024

Root causes of incidents

Inadequate monitoring and inadequate maintenance are consistently the most common determined root causes of incidents reported to DEM. This statistic also highlights the legacy factors confronting the South Australian onshore petroleum industry and, in turn, one of the key regulatory priorities in the short to medium term for DEM. More detailed discussion is provided in Section 5.3. Furthermore, a number of these root causes have become the focus of DEM's process safety inspections as detailed under Section 4.10.



Summary of root causes of incidents (number and %) in 2024.

1 INTRODUCTION

DEM's responsibilities include the management and regulation of South Australia's energy and mineral sectors. A key focus is affordable reliable and secure energy supply and responsibly unlocking the value and opportunities of South Australia's mineral and energy resources.

DEM is the lead agency in regulating petroleum and geothermal activities in the state. DEM is responsible for administering the ER Act and Regulations on behalf of the Minister for Energy and Mining and for:

- Establishment of a co-regulatory regime focused on achieving environmental, public safety and resource management objectives, and reduced compliance costs;
- Licence allocation and management mechanisms to facilitate competition in line with competition policy principles;
- Rights of third party access to licenced pipelines (where not covered by the national access regime), to depleted reservoirs (for gas storage purposes), and to pipeline easements;
- Greater security of tenure for licences through improved registration procedures;
- Public consultation processes with regard to establishment of environmental objectives;
- Ensuring energy resource industry activities are carried out safely and in an ecologically sustainable manner through reducing environmental damage and limiting the risk of long term environmental damage;
- Reduced risk to government for liabilities arising from the activities of the industry;
- A fee structure designed to encourage the industry to adopt management systems to undertake activities;
- And inclusion of an effective and expeditious regulatory and approvals framework applicable to geothermal and gas storage activities.

DEM works collaboratively with co-regulators and, as the lead regulator for petroleum and geothermal energy resources, conducts regulatory surveillance of all licensee operations. Key co-regulatory agencies administering legislation that may also apply to ER Act licensees include the Department for Environment and Water (DEW), the Environment Protection Authority South Australia (EPA), the Department for Infrastructure and Transport (DIT), the Aboriginal Affairs and Reconciliation (AAR) and SafeWork SA.

The ER Act is designed as an effective, efficient and flexible regulatory system for all exploration and production activities for regulated substances, gas storage and geothermal resources onshore in South Australia, as well as the construction, operation and technical regulation of high-pressure transmission pipelines.

In accordance with the ER Act and in line with the principles of openness and transparency, the annual ER Act compliance report provides a summary of the regulatory performance of the industries covered by the ER Act, and DEM's regulatory activities conducted in administering the ER Act.

2 REGULATED ACTIVITIES

In accordance with regulations 18 and 19, licensees are required to notify DEM prior to commencing any regulated activity within a licence area. For low-level official surveillance operators, 21 days' notice is required. For high-level official surveillance operators, 35 days' notice is required and additionally licensees are required to apply for approval in accordance with regulation 19 and cannot commence activities until this approval is granted. Approval is granted based on the licensees' demonstrated capability against regulation 16 operator assessment factors. Activity notifications contain specific environmental assessments for the proposed site and activity and details of the relevant statement of environmental objectives (SEO).

There were 247 activity notifications received by DEM for geophysical, drilling and production operations in 2024 (Figure 1). These notifications included:

- 1 for geophysical activities (1 for high-level official surveillance)
- 6 for preliminary survey activities (2 for high-level official surveillance)
- 173 for drilling activities (5 for high-level official surveillance)
- 67 for production activities (5 for high-level official surveillance).

The number of activity notifications received in 2024 was generally consistent with the number received in previous years.

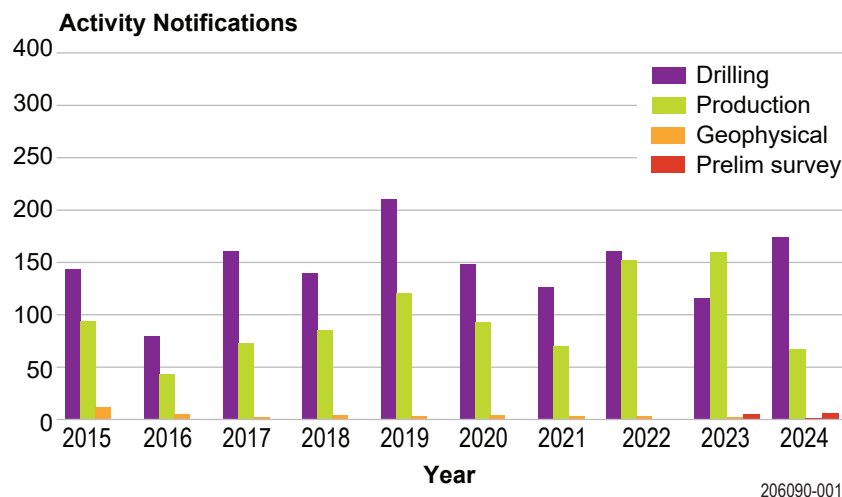


Figure 1 Activity notifications submitted to DEM, 2015 to 2024

In 2024, 94 wells were spudded under the ER Act bringing the total number of petroleum, geothermal and gas storage wells in South Australia to 3,396. Out of the wells drilled in 2024, there were 79 development wells, 14 exploration/appraisal wells and 1 carbon dioxide injector well. Figure 2 shows the number of wells drilled historically per annum.

In addition, more than 1,300 wells have been fracture stimulated in the South Australian Cooper and Eromanga basins from 1969 to 2024. Fracture stimulation targets are predominantly deep and tight gas reservoirs in the Cooper Basin.

Any proposed new fracture stimulation activities are supplemented by detailed geological risk assessments to prevent undesired cross-flow between geologic units. These assessments included a detailed geological review, well construction history, verification of barriers in place, geomechanical assessments and fracture stimulation modelling.

The ER Act also covers the construction and operation of associated facilities, flowlines and transmission pipelines. There are over 5,000 km of upstream pipelines and over 3,500 km

of licensed transmission pipelines operated under the ER Act. The Australian Standard (AS) for transmission pipelines, AS 2885 Pipelines – Gas and Liquid Petroleum, is called up under the ER Regulations and DEM is an active participant in committees charged with the continual review and improvement of this stringent and risk-based standard.

Activity notifications for all activities, whether classified as requiring high- or low-level official surveillance, are required to include, or be accompanied by, information and material specific to the proposed activity pursuant to various sections of the ER Act and associated Regulations. The majority of these requirements are set out in regulation 20.

Under regulation 20, licensees are required to assess and ensure that any facility, equipment and management system used in undertaking drilling, production or pipeline activities are fit for the purpose of ensuring compliance with the requirements under the ER Act. Assessments are undertaken by the licensee and must be reported to DEM prior to the commencement of any activity as part of the activity notification process.

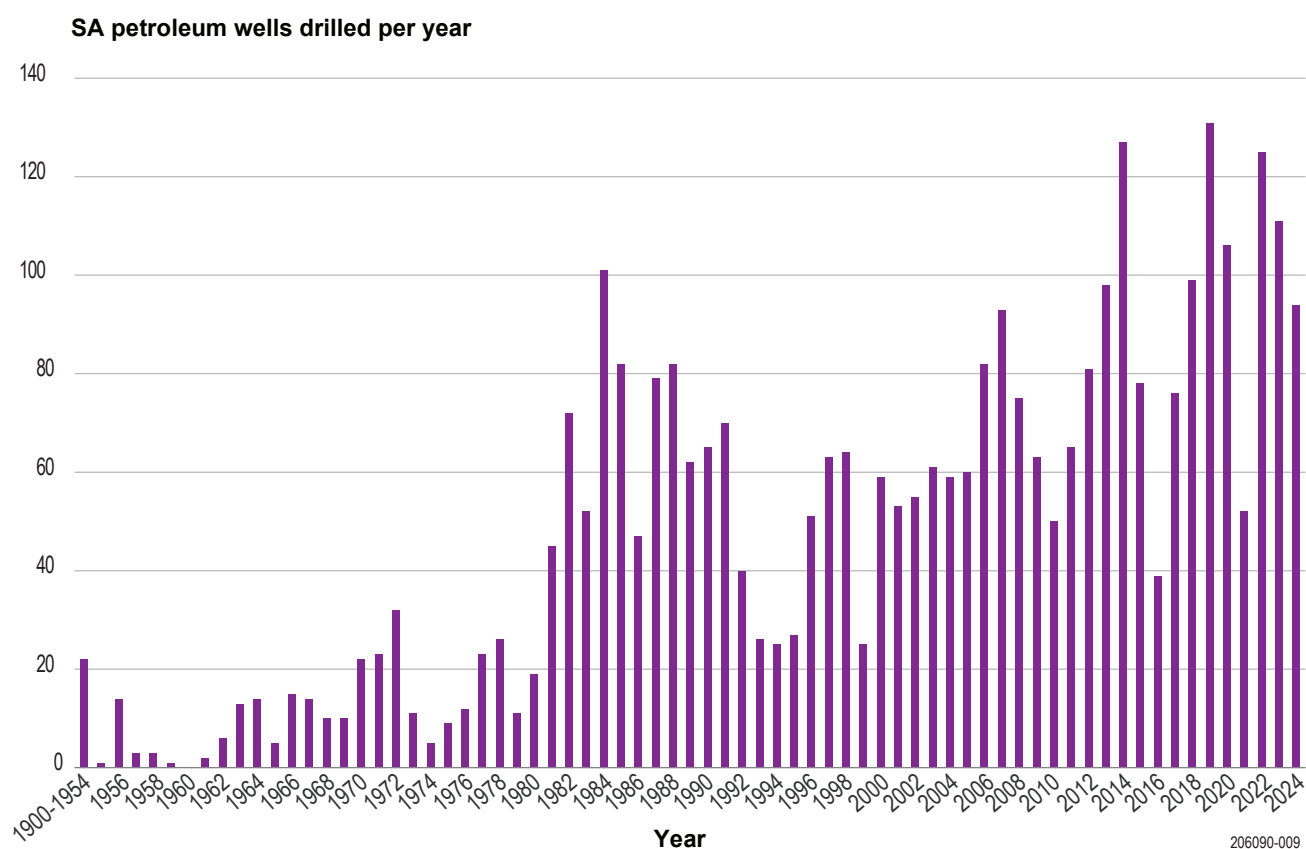


Figure 2 South Australian petroleum wells spudded per year, 1910 to 2023.

3 COMPLIANCE AND ENFORCEMENT PHILOSOPHY

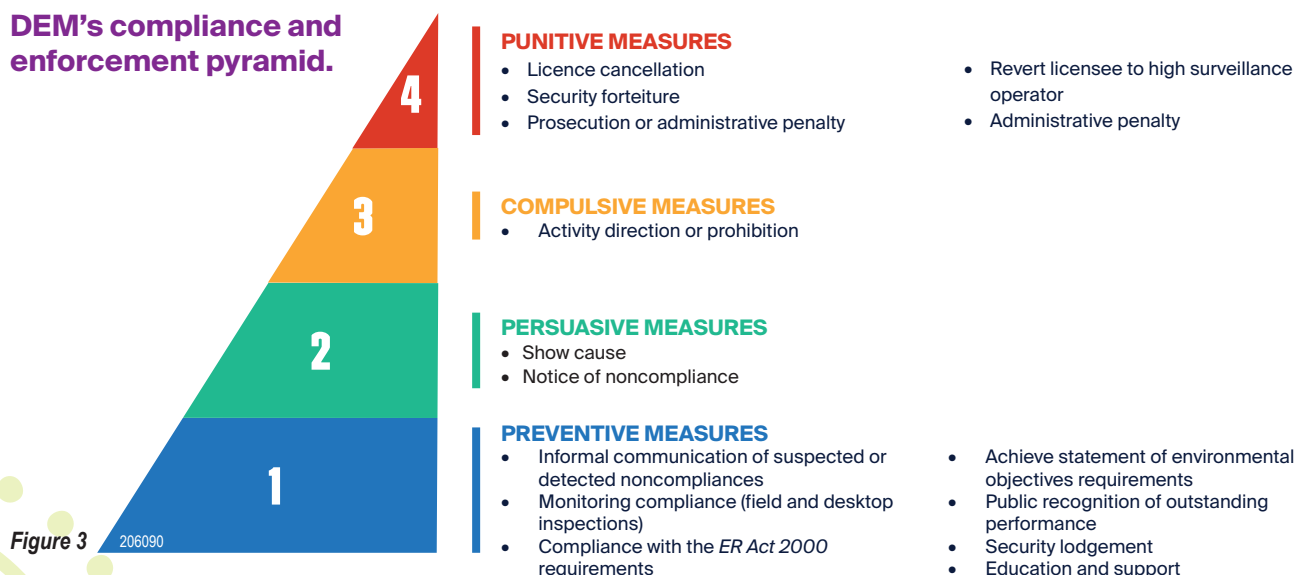
DEM represents the regulatory framework under the ER Act in the form of a compliance and enforcement pyramid (Figure 3) which details the series of steps and measures available to DEM for facilitating, monitoring and, where necessary, enforcing compliance. The pyramid structure illustrates the frequency of use and severity of enforcement measures, moving from the foundation or base of the pyramid to its peak. The majority of activities are preventive measures, monitoring, guiding and advising a compliant industry, with the ability to move up the levels as and if appropriate to escalating severity, but hopefully low frequency of use, punitive measures at the peak.

The [Energy and Resources Act compliance policy](#) is available on the department's website. The policy will be pursued to ensure

compliance with various key requirements of the Energy Resources Act 2000, the Energy Resources Regulations 2013, licence conditions and Statement of Environmental Objectives (SEOs). Further, the policy is subject to review, to confirm it remains appropriate and that compliance activities are conducted in line with the policy intentions and the ER Act philosophy.

The structure of this report follows the structure of the compliance pyramid, covering DEM and licensee activities that can be categorised as preventive, persuasive, compulsive and punitive measures. The majority of regulatory activities are conducted within the 'Step 1 – Preventive measures' sphere, and as such the following section covering preventive measures is the most comprehensive.

DEM's compliance and enforcement pyramid.



4 PREVENTIVE MEASURES

Preventive measures conducted by DEM to achieve licensee compliance with the ER Act include:

- Maintaining an effective and efficient regulatory framework through modern legislation and one-window for government co-regulation pursuant to relevant South Australian Acts (e.g. Environment Protection Act 1993) and Commonwealth Acts (e.g. Native Title Act 1993). Combined with continuous review of the ER Act, this is done through the process of consultatively determining the objectives to be met under the SEO for an activity (Section 4.1). In doing so, the objectives of all other applicable legislation may be described, and compliance managed and enforced by DEM.
- Administering the approval and compliance requirements of the ER Act.
- Monitoring regulatory compliance through audits (undertaken by both licensees and DEM) and inspections (both field and desktop).
- Working collaboratively with licensees, industry, landowners and stakeholders to advise and clarify regulatory requirements and expectations.
- Addressing stakeholder interests and requirements through the SEOs to ensure stakeholder satisfaction in the future conduct of activities, and to establish and maintain stakeholder trust.

The range of activities conducted as preventive measures by DEM and industry during 2024 are reported in this section.

4.1 Statement of environmental objectives reviews and approvals in 2024

Effective preventive measures can only be established if the regulatory objectives for regulated activities are relevant to the impacts and risks associated with such activities and satisfy stakeholders' interests and concerns. This is achieved under the ER Act via the development and approval of SEOs through open and transparent stakeholder consultation. Under the ER Act, no regulated activities can be undertaken unless covered by an approved SEO. The objectives and assessment criteria are developed on the basis of an

environmental impact report (EIR) that must identify and address the potential impacts of the specific activity on the environment and outline the extent to which these impacts controlled and or managed. The EIR and SEO are critical components of the regulatory framework under the ER Act. Approved SEOs effectively become project-specific regulations that are gazetted and made publicly available on the [department's website](#).

To year-end 2024 there were 34 active SEOs on the [Environmental Register](#) across all upstream petroleum and geothermal related activities; these cover preliminary surveys, seismic surveys, drilling- and production-related operations, underground coal gasification, geothermal operations, carbon dioxide storage and transmission pipelines.

SEOs are also a means of enabling DEM to operate as the one-window to government for ER Act licensees on behalf of co-regulatory agencies. Embedding the objectives and standards of co-regulatory regimes in SEOs is both effective and efficient and fosters mutual trust between government agencies charged with the co-regulation of upstream energy exploration and production operations. Formal memorandums of understanding and administrative arrangements between co-regulatory agencies can explicate mutual expectations and underpin both the efficiency and effectiveness of co-regulation. Administrative arrangements and memorandums of understanding established between DEM and key co-regulatory agencies including the DEW, the EPA, DIT, and SafeWork SA are available on the [department's website](#).

During 2024, 4 SEOs were gazetted, and the review process for 6 SEOs continued or commenced in accordance with regulations 13, whereby an approved SEO must be reviewed at least once every 5 years (Table 1).

Whilst approval of the SEO is a significant step within the approvals process, this still does not provide rights to licensees to begin on-ground activities. To do this, licensees will need to proceed to the third and final approval stage. This entails submission of an activity notification to DEM for evaluation and assessment, and for high official surveillance operators, application for approval, including submission of all relevant technical and engineering designs relating to the activity. This information provides a demonstration that the planned activity, and the design and intended construction and monitoring of all infrastructure are in accordance with recognised industry standards and fit for the purpose of achieving the requirements of the final approved SEO and conditions.

Table 1 SEOs submitted, gazetted and currently under review/assessment in 2024

Company	Activity	Location	Date gazetted
Beach Energy	Petroleum Production Operations	Cooper Basin	March 2024
Gold Hydrogen	Low Impact On-road Geophysical Activities	Stansbury Basin, Yorke Peninsula	May 2024
Banjo Energy	Geophysical Operations in PEL 182	Cooper Basin	July 2024
APA Group	PL 06 & 11 Angaston to Berri Transmission Pipeline	Various	July 2024
Santos	PL 2 Moomba to Port Bonython Liquids	Pipeline Licence 2	Under Review*
Santos	Cooper Basin Petroleum Production and Processing Operations	Cooper Basin	Under Review*
Bass Oil	Cooper Basin Production Operations SEO	Cooper Basin	Under Review*
Torrens Energy	Monitoring, Maintenance, Rehabilitation and Decommissioning Activities - Geothermal Exploration Licences	Arrowie/Stansbury Basin	Under Review*
Beach Energy	Onshore Otway Petroleum Production Operations	Otway Basin, South East	Under Review*
Beach Energy	Drilling, Completions and well Production Testing	Otway Basin, South East	Under Review

* SEO is being reviewed under the transitional provisions, pursuant to s138(4) of the *Energy Resources Act 2000*.

4.2 Significant environmental benefit contributions

The Native Vegetation Act 1991 and associated Native Vegetation Regulations 2017 provide for the clearance of native vegetation by the upstream petroleum industry as long as a significant environmental benefit (SEB) offset is fulfilled.

DEM has delegation under the Native Vegetation Act from the South Australian Native Vegetation Council (NVC), to administer SEB requirements for exploration and production activities under the ER Act in accordance with the [Guide for a significant environmental benefit for the clearance of native vegetation associated with the minerals and petroleum industry](#).

A total of 310.7ha of native vegetation was cleared between Santos and Beach Energy, which equates to 22,682 SEB points for the 2023-24 financial year. The total area of native vegetation cleared was approximately double from previous reporting, with 281.1 ha and

422.3 ha cleared in the 2021-22 and 2022-23 financial years respectively.

To fulfil their SEB obligations, Beach Energy made a contribution to the NVC fund which is expected to be used toward the establishment or regeneration of native vegetation projects within the South Australian Arid Lands Landscapes Region where possible. Santos purchased SEB offset credits in the NVC-approved Gidgealpa Offset Project area, which is managed through the Nature Foundation on behalf of Santos.

The Nature Foundation commenced management of the Gidgealpa Offset Project in 2020 to improve the biodiversity across a 20,000 ha area located on Santos' Gidgealpa Pastoral Lease. The project site includes a significant area inside the Coongie Lakes RAMSAR Reserve which is part of the complex and extensive freshwater wetland system in an arid zone. The Nature Foundation will continue to manage the project over a 10 year period.

4.3 High- and low-level official surveillance classification

Section 74 of the ER Act requires a mandatory licence condition, which divides regulated activities carried out under a licence into those requiring 'high-level official surveillance' by the regulator and those requiring 'low-level official surveillance'. The key difference between a high- and low-level official surveillance activity is the extent of regulatory scrutiny given by the regulator in the activity assessment and approval process and the surveillance level required whilst monitoring the activities as they are undertaken by the licensees.

All licensees are classified as conducting high-level official surveillance activities unless they have demonstrated through a rigorous audit and assessment process the competence to be specifically classified as a low-level official surveillance activity operator by the Minister. Those operators classified as undertaking activities requiring low-level official surveillance are listed on the [Environmental Register](#) on the department's website, where notices of the gazetted classification for specific activities are published.

4.4 Process safety and environmental management system framework

In 2021 after consultation with operators and independent experts DEM developed a Process Safety Environmental Management System framework (PSEMS), consisting of 15 elements. The key objective of this framework is to assist DEM to prioritise and plan their surveillance activities. More information on these activities can be found in the following sections, specifically Section 4.10.

DEM also encourages licensees to complete a self-assessment against this framework in alternating years, where each of the 15 elements is assessed against a defined 1 to 5 scale. More specific details on how this PSEMS assessment framework is applied are provided in the [self-assessment framework document](#) published on the department's website.

4.4.1 Process safety and environmental management system maturity self-assessment

DEM seeks PSEMS self-assessments in alternating years in order to allow time for operators to implement actions or programs identified between assessments. Following the request in 2023, DEM will again requested a self-assessment in late 2025 covering the intervening two years.

Please refer to [Petroleum and Geothermal Energy Act 2000 compliance report 2023](#) for a report of the most recent results.

Being a self-assessment process, results are disclosed to DEM on the understanding that self-assessments are to be used as a basis for monitoring progress against continuous improvement of company systems and not as a basis for regulatory enforcement or punitive action.

4.5 Regulation Branch field surveillance activities

DEM undertakes field surveillance activities throughout the year as part of an ongoing field surveillance program to monitor licensee compliance with the ER Act, Regulations, SEOs and site-specific activity approval conditions across South Australia. Field surveillance activities are planned and carried out in accordance with DEM's compliance monitoring strategy and encompass all phases of regulated activities. Typically, this includes construction, operation and restoration activities associated with geophysical surveys, wellsite drilling and fracture stimulation,

production and water disposal facilities, pipelines and other associated infrastructure.

During 2024 field surveillance activities covered areas of the Cooper-Eromanga, Telford, Stansbury, Murray basins and other sites (Figure 4). A total of 94 individual sites were inspected comprising, production facilities, wellsites, pipelines, other associated infrastructure, seismic survey and a camp (Figure 5). Sites labelled as 'other' consisted of logistics hubs, and a significant environmental benefit offset area. DEM plans inspections

annually in line with the compliance monitoring strategy, predominantly auditing SEO compliance, but also including site-specific surveillance for geophysical surveys, production facilities, pipelines and drilling activities.

Of the 94 individual sites inspected, environmental improvements were required by the licensee in 14 instances to avoid potential breaches of the relevant SEO. The issues identified in 2024 related to soil disturbance (4 instances), uncontained fuels oils or chemicals (3 instances), produced water management (2 instances) and third party safety, soil contamination, surface water disturbance, waste disposal and weeds management (1 instance each) (Figure 6).

In cases where required improvements are identified, it is communicated through an inspection report to the licensee which is considered informal correspondence in line

with Step 1 of DEM's compliance policy (Figure 3). Licensees are provided with the opportunity to respond and rectify the issues identified in the inspection report prior to DEM enforcing further persuasive measures to ensure compliance.

In 2024 there were no cases requiring any further persuasive measures to address issues identified during field surveillance activities. All licensees took appropriate corrective action within suitable timeframes in response to inspection reports to ensure compliance with relevant SEOs.

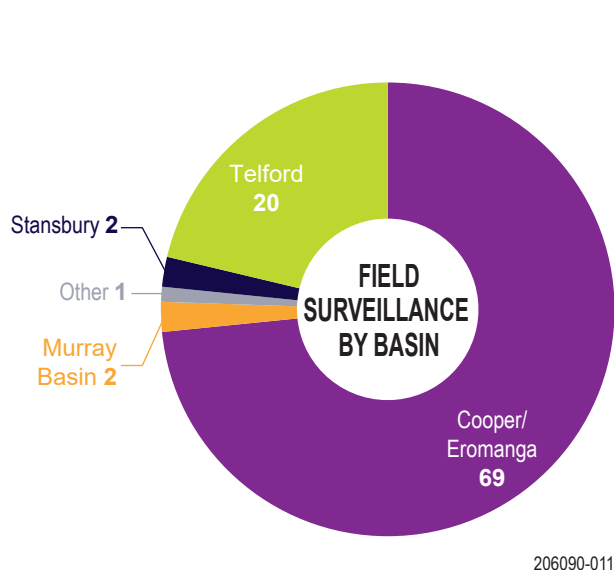


Figure 4 Field surveillance by basin within South Australia in 2024, totalling 94 site inspections.

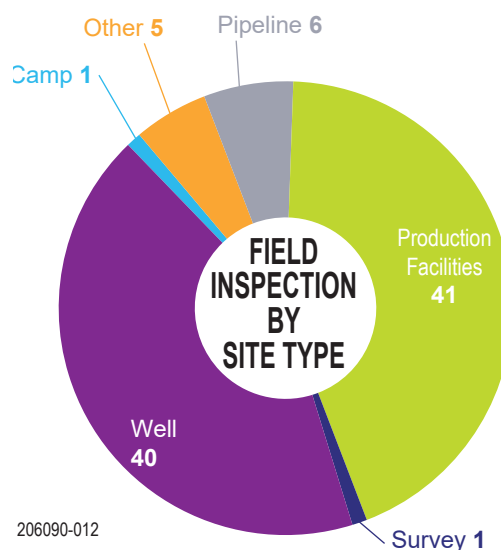


Figure 5 Field surveillance by site type in 2024.

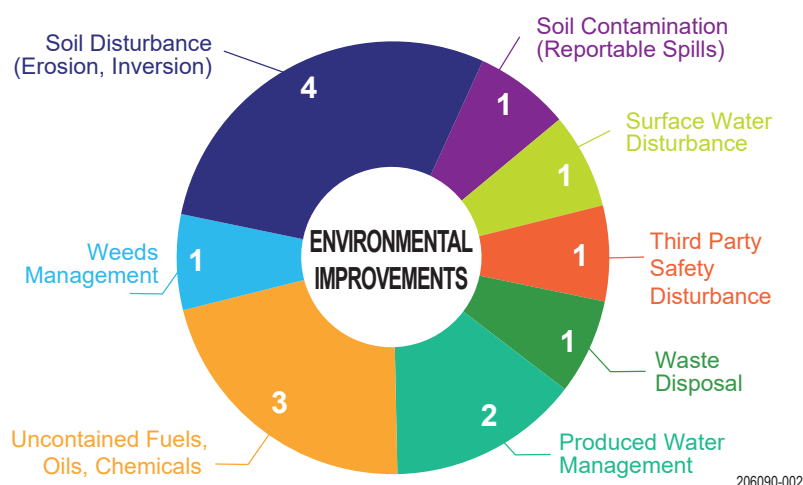


Figure 6 Observed environmental improvements against relevant SEOs in 2024.

Inspections related to well operations continued to remain predominantly office and desktop-based, with field-based inspections focussing on new licensees and novel industries. Utilising a data-based strategy informed by regulatory information submissions, operational reports and incident information, DEM concluded that an acceptable level of compliance was achieved. In line with the broader compliance strategy, well-related inspections were augmented by inspection reports from DEM's environmental compliance team, as well as input from DEM geologists, fellow co-regulatory agencies and data submitted by licensees.

The inspections completed adhered to DEM's PSEMS framework and addressed both key operational themes and process safety elements, such as continuous improvement processes, incident identification and themes, incident corrective actions, barrier design and verification, decommissioning operational design, scheduling and activity management, demonstration of ALARP (As Low As Reasonably Practicable), document and records management, post-operational monitoring and reporting, competency management, and well integrity management.

Through these diverse inspection and assessment methods, satisfactory responses and demonstrations were obtained in most cases with some follow-up regulatory activities required. Daily reporting requirements under the Act and Regulations were continually reviewed and challenged, and DEM's surveillance activities confirmed a satisfactory level of compliance.

DEM also undertook a number of process safety management inspections of pipelines and facilities, which involved a combination of field inspection and interrogation of operator's systems. More detail on these inspections is provided in Section 4.10.

Field inspections form an integral part of the DEM surveillance strategy. While inspection efforts aim to examine licensee behaviour and high-risk activities, and where required rectify noncompliance, the identification of minor infractions also contributes towards preventing significant mishaps. Figure 7 shows that the number of sites inspected in 2024 was lower than previous two years which was due to a combination of factors including rainfall restricting access in the Cooper Basin and the implementation of the ER Act requiring

additional office based resources. The number of environmental issues identified as a percentage of total sites inspected in 2024 was 15%, which is relatively consistent with previous years.

In addition to routine field surveillance activities, as with previous years, DEM collaborated with other government agencies to conduct joint field inspections. The government agencies involved in joint field inspections with DEM in 2024 was the South Australian Environment Protection Authority, Department of Environment and Water – Native Vegetation Branch and SafeWork South Australia.

4.5.1 Produced formation water disposal facility surveillance

In the South Australian sector of the Cooper and Eromanga basins, produced formation water (co-produced water) is most often disposed of through evaporation, with a small amount recycled for other purposes. Each year, DEM undertakes targeted inspections to assess the performance of produced formation water disposal facilities against goal attainment scaling (GAS) criteria. The criteria used for visual assessment of these ponds are detailed in specific production SEOs available on the [department's website](#).

For water disposal ponds, GAS scores of –2 and –1 represent unacceptable levels of visible hydrocarbon within the water disposal ponds as observed and assessed against the criteria, whereas scores of 0, +1 and +2 represent acceptable levels.

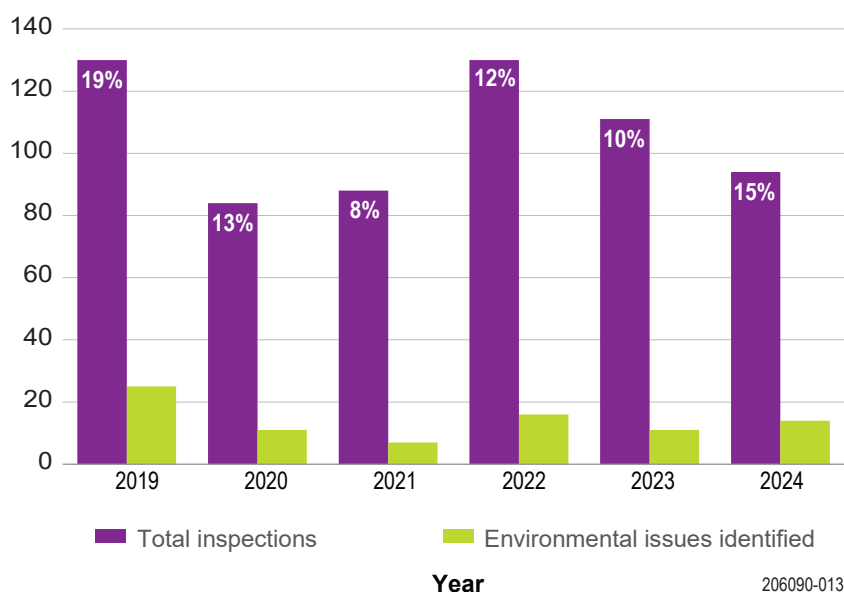


Figure 7 Comparison of inspection effort and environmental issues identified against relevant SEOs with environmental issues also as a percentage of inspection effort from 2019 to 2024

A total of 22 produced formation water disposal facilities were inspected in 2024. 20 of these facilities were assessed as acceptable and compliant with the relevant SEO and two disposal facilities were deemed unacceptable, both with a GAS score of -1 (minor shortfall) and therefore requiring improvements in their management. Each case related to inadequate pond skimming and/or insufficient residence time within the produced formation water system reducing the effectiveness of the separation process. In response, the respective licensees improved monitoring processes and implemented additional procedural controls to increase the effectiveness of the skimming and separation process.

Figure 8 captures GAS scores for all produced water disposal facilities over the last 10 years in terms of number of sites assessed as acceptable or compliant compared with noncompliant. Over this time, 82% of water disposal facilities were assessed as compliant with GAS criteria and hence the relevant SEO.

As with previous years, DEM worked with licensees to encourage improvements in produced formation water management and disposal to minimise impacts to the environment. Throughout 2024 industry continued to investigate and introduce new technologies aimed at improving the efficacy of produced water management and disposal infrastructure. Some examples included:

- Improvements to remote sensing capabilities – such as incorporation of reverse emulsion breaker pump performance in SCADA (supervisory control and data acquisition) and automated level sensing and CCTV at produced water facilities.
- Trialling new technologies to assist with hydrocarbon separation – such as air sparging and hydro-cyclone technologies.

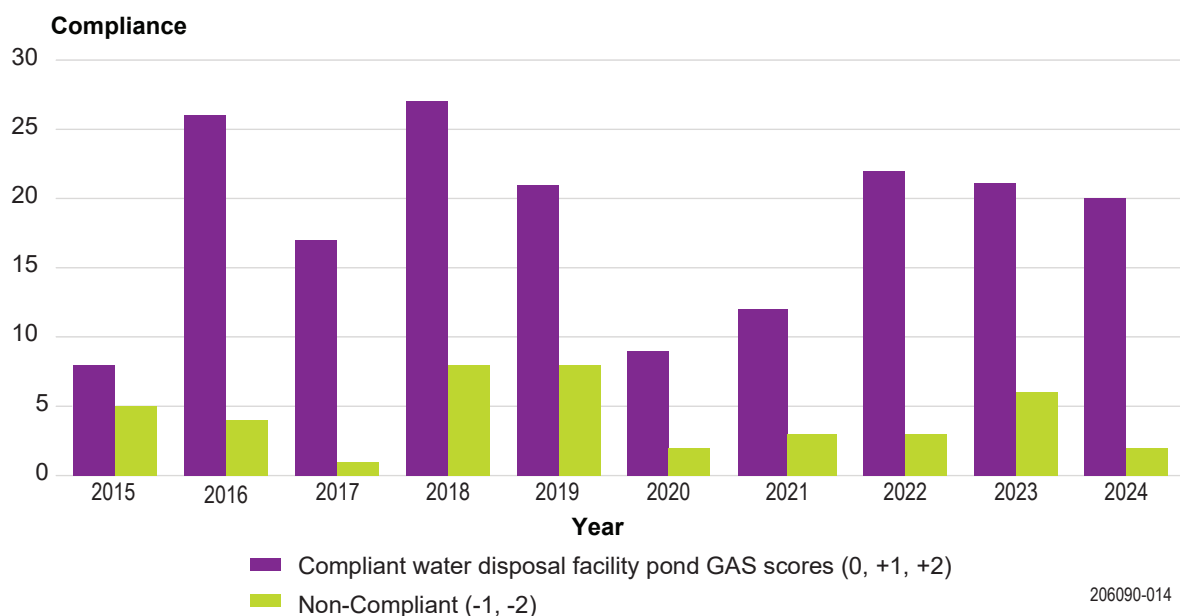


Figure 8 Compliance of water disposal facility ponds in the Cooper and Eromanga basins for 2015 to 2024

4.5.2 Wellsite and access track restoration surveillance

In 2024 DEM conducted two inspections of restored well sites within the Cooper/Eromanga Basin. All well sites were found to have met the criteria to fulfil the rehabilitation objectives.

The criteria used to assess against these objectives are detailed in the [DEM Field guide for the environmental assessment of decommissioned petroleum wellsites in the Cooper Basin, South Australia](#).

Historical compliance data for wellsite inspections over the last 15 years shows that across 2011 restored wellsites, 96% of sites were assessed as having reached acceptable outcomes with respect to minimising visual impacts and revegetation of indigenous species as demonstrated in Figure 9. Licensees are required to restore all wellsites and access tracks to attain a 0, +1 or +2 GAS score prior to licence relinquishment.



Figure 9 Compliance of wellsite restoration showing GAS scores since 2010

4.6 Quarterly compliance meetings

DEM strives to work in a cooperative and educative manner with licensees to proactively facilitate regulatory compliance. Key activities of this strategy are quarterly compliance meetings between DEM and individual licensees, where regulatory and compliance issues including integrity management and the adequacy of management systems are discussed, reviewed and monitored. In the case of drilling operations, DEM also meets periodically with individual drilling contractors to discuss compliance issues specific to drilling operations and obtain additional views on industry performance from a front-line perspective. In 2024 DEM continued to

meet quarterly with Santos, Beach Energy, APA Group, APT O&M Services (part of the APA Group), Epic Energy, Bass Oil, Vintage Energy and SEA Gas. DEM continually works with licensees to ensure that the structure of the quarterly compliance meetings facilitates transparent discussion of upcoming projects, challenges and initiatives to improve and maintain compliance with the ER Act.

Where relevant, co-regulatory agencies also attend quarterly compliance meetings to reduce potential regulatory overlap and duplication between agencies.

4.7 Annual reports

Under regulation 33, licensees are required to submit annual reports summarising the year's activities and declaring their level of compliance with the ER Act and any relevant SEOs. The main purpose is to ensure licensees assess and review their performance regularly, and through this process proactively take corrective actions when required to rectify any identified deficiencies and improve their performance on a continuous basis. DEM cross-references information in licensee annual reports against other reports and information submitted and obtained to assess the reliability of information provided.

DEM assesses annual reports for any areas of deficiency (i.e. not adequately addressing regulation 33, lacking essential information and detail, or inappropriate content). In these cases DEM may request a resubmission of the report, an addendum to the report, clarification on the report's content, or seek to invoke other enforcement action in accordance with the

[Energy Resources Act Compliance Policy](#). DEM continues to make such requests until satisfied with the detail and accuracy of the content, pursuant to the appropriate regulation.

All annual reports submitted to DEM under the ER Act are made publicly available on the [department's website](#). By making company performance a matter of public record it is anticipated that appropriate compliant behaviour will be encouraged, as poor performance is subject to public scrutiny. During 2024, 105 annual reports (for single or multiple licences) were received by DEM. Of the annual reports received during 2024, 102 were compliant with submission timeframe requirements of regulation 33 of the ER Act and 3 were submitted outside the submission timeframe. 7 reports remain outstanding for 2024.

Table 2 Summary of the annual reports submission to ERD during 2024

Type of report	Submitted by due date	Submitted after due date	Still under review	Not submitted
Petroleum exploration licence				
Petroleum production licence				
Petroleum retention licence				
Geothermal exploration licence	78	2	80	6
Geothermal retention licence				
Gas storage exploration licence				
Gas storage retention licence				
Gas storage licence				
Pipeline licence	14	0	14	0
Preliminary survey licence				
Special facilities licence	10	1	11	1
Totals	102	3	105	7

Licensees who fail to submit an annual report within the timeframe specified by regulation 33(1) are followed up in accordance with the

DEM enforcement policy for annual reports as detailed under section 4.4 of its ER Act [Compliance Policy](#).

4.8 Data compliance

The ER Act requires licensees to provide DEM with geotechnical and ancillary data relevant to their operations. These data become a future asset for the state and, once the relevant confidentiality period has expired, these data are published to assist future explorers to identify investment opportunities. The data submission requirements are specified in the Regulations and, in addition, guidelines for the format, timing and content of the data are available on the [department's website](#) to assist licensees to comply with these requirements.

DEM provides considerable assistance to licensees to ensure compliance and the quality of data submissions.

This assists in developing capacity to comply in the future, as well as facilitating the collation of statewide data assets for future use.

DEM continually reviews all geological, seismic and engineering data submissions by licensees. In this way, DEM ensures all licensees are compliant with data submission requirements under the ER Act and Regulations for the regulated activities they have undertaken.

DEM continues to review historical data submission compliance and to collect further historical data identified through the review of data compliance activities.

4.9 Fitness-for-purpose reviews

In accordance with the preventive focus of Step 1 in the compliance and enforcement pyramid (Figure 3), the ER Act requires licensees to ensure that the fitness for purpose (FFP) of their facilities is maintained. In line with good practice regulatory requirements, the focus is on identifying and eliminating any risks or, where it is not possible to eliminate a risk, to minimise these risks to an acceptable level.

Under section 86A of the ER Act and in accordance with the requirements of regulation 30, licensees are required to conduct a comprehensive assessment on the ongoing FFP of their respective facilities at least every 5 years and report the results to DEM. These assessments are required to address the physical condition of the facilities, and the effectiveness of the management systems utilised for operating and maintaining them. The FFP assessment is one of the key tools that DEM uses to inform their surveillance strategy for a specific asset or operator.

Table 3 FFP reviews carried out in 2024

Licence	Operator (licensee)	Facility	Date report submitted	Status
PL 6 & 11, SFL 12	APA Group	Riverland & Berri to Mildura Pipeline, Virginia Gate Station	22 September 2023	Closed Out 20 May 2024
Various	Santos	SA Cooper Basin	16 November 2023	Closed Out 23 April 2024
Various	Beach	SA Cooper/Otway Basins	30 April 2024	Under Review
PL 3 & 4	Epic	South East Pipeline System	30 April 2024	Closed Out 4 December 2024
PL 2	Santos	Moomba to Port Bonython Liquids Line	30 September 2024	Under Review

PL pipeline licence; SFL special facilities licence

4.10 Process safety and environmental management inspections

DEM's ongoing assessment process for the FFP of the operation of facilities and pipelines focuses on a process safety management philosophy utilising bowtie analysis, diagrammatically represented as follows with a strong focus on ensuring demonstrable effectiveness of critical hardware and system controls (Figure 10). This philosophy is explained in DEM's guidance note, the [Process safety management framework for assessing compliance](#) under the ER Act.

Of particular interest to DEM is to ensure a clear line of sight between:

- the threat being controlled
- relevant safety critical elements or barriers installed to prevent or avoid an ultimate major accident event or hazardous event such as a major loss of containment (LOC)
- in a major accident event, the safety critical element or barrier installed to recover the accident or to mitigate the severity of the potential consequences of such an accident.

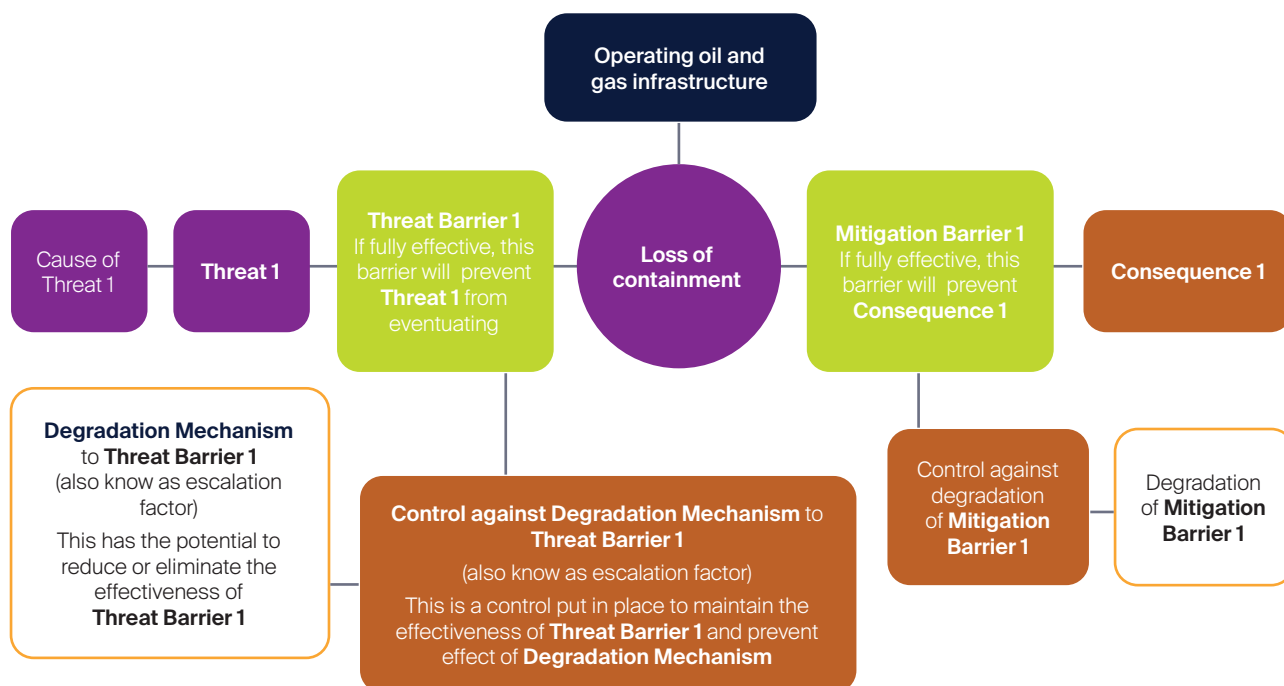


Figure 10 Simple bowtie illustration

A process safety management focus also enables a proactive analysis of any potential systemic or latent root causes that can undermine the effectiveness of preventive measures in place to mitigate against LOC incidents. In addition to traditional process safety incidents, DEM also focuses on other incidents which would, or very nearly have the potential to, result in failure to achieve regulatory objectives. This includes harm to the public, environmental damage, loss of natural gas supply, reasonable stakeholder complaints or other breaches of the relevant SEO.

In 2024 the process safety management surveillance activities that DEM undertook were underpinned by the elements of the PSEMS framework. Inspections, investigations, and other activities undertaken were framed within the scope of the PSEMS.

Figure 11 plots out the PSEMS surveillance activities undertaken in 2024 by which element they relate to, noting some activities covered multiple elements. All elements of the PSEMS are covered to a degree in the course of routine surveillance activities and ongoing surveillance as they are intrinsically related. The focus of these particular inspections is to observe and seek demonstrable evidence of the licensee systems and processes (i.e. management system elements) for verifying and maintaining the effectiveness of the specific controls in place.

A key area of focus of DEMs surveillance activities was Asset and Integrity Management and Critical equipment management as discussed in section 4.4, in particular these field-based inspections focused on these elements in the context of onsite implementation and the validity of controls as identified on the left-hand side of the bowties, as the format of field inspections lends itself to this methodology.



Figure 11 2024 PSEMS surveillance activities by element.

In 2024 DEM continued to observe an increasing focus amongst operators on safety critical equipment and controls in particular defining and meeting the differing performance requirements of critical equipment and non - critical operational equipment. The 2022 revision of AS 2885.3 introduced new requirements for defining and maintaining safety critical equipment on pipelines, in 2024 DEM had a continuing focus on the implementation of this element addressing these new requirements.

In addition to the field-based onsite control focused inspections, DEM has also undertaken a program of office-based surveillance activities – conducted in cooperation with licensees – which focused on specific PSEMS elements. In this regard in 2024, DEM had a focus on Hazard Identification and Risk Assessment leveraging several projects by Licences to revalidate and modernise historical risk assessment. DEM also had a focus Identification and Compliance with Legislation and Industry Standards, inspecting the supporting systems for the identification and compliance of applicable requirements.

4.10.1 Wells update

Throughout 2024, Six different drilling rigs operated in South Australia, with all rigs operating in the Cooper and Eromanga basins. Of these, several operated in South Australia for approximately 6 months, before moving to or returning from other projects. On average it can be concluded that approximately five rigs operated continuously in South Australia throughout 2024. The companies providing drilling services in 2024 were Ensign Energy, Schlumberger Land Rigs and Silver City Drilling.

Silver City Drilling entered the South Australian Cooper and Eromanga Basin to provide drilling services to the South Australian market. A comprehensive fitness-for-purpose assessment was undertaken by the Licensee following DEM guidelines and included detailed assessments of a number of key areas, including personnel competency, electrical compliance, critical equipment certifications, operating and management system gap analysis, supported by independent third party assurance audits.

There were four different workover rigs operating in South Australia in 2024 at various times throughout the year, with three operating in the State for the majority of the year. Most activities occurred in the Cooper and Eromanga Basins, with some activities completed in the Stansbury Basin. These rigs continued to be involved in a variety of well intervention activities, including workovers, completions, pre-fracture stimulation preparation and well decommissioning activities.

In addition to the abovementioned well construction and intervention activities completed by various rigs, there were also generally high levels of other activities completed in the basin including slickline, e-line, fracture stimulation, well servicing and maintenance, and other well-related activities.

Well decommissioning activities continued both in cased hole and open hole scenarios. DEM's Environmental Liability Management Policy related activity continued and wells continued to be decommissioned or made-safe. Prioritisation of decommissioning activities revolved around integrity risk reduction, site access constraints and longer-term license management objectives. Detailed assessments were completed prior to each proposed well decommissioning activity

to ensure wells were decommissioned in alignment with the requirements of the relevant SEO, industry standards and good industry practice. Campaigns to remove remaining well infrastructure following successful decommissioning activities in preceding years were completed, ready for surface rehabilitation activities to be undertaken. Well

decommissioning activities continue to contain inherent uncertainty, with processes updated and lessons learned carried into ongoing decommissioning operations to improve performance and optimising the manner in which acceptable compliance outcomes are achieved.

4.11 Emergency response exercises

Another key preventive measure under the ER Act is to ensure appropriate plans are in place to manage and reduce the impact of emergency incidents. Under the ER Act, measures must focus on the prevention of environmental, public safety and security of gas supply incidents. Regulation 31 requires that licensees maintain effective emergency response procedures to be followed in the event of such incidents. It also requires that these procedures be tested for effectiveness by conducting a practice drill at least once every 2 years, with a report into the findings of the exercise prepared and provided to DEM. These reports are assessed by DEM against the requirements of regulation 31, and further information is requested if necessary, before the report is closed out.

A number of emergency response drills reported under regulation 31 were carried out

in 2024, including drills by APA Group, Epic Energy, Santos and Heathgate Resources (Table 4). Emergency response exercises are also periodically conducted on rigs and range from small-scale drills to larger scale exercises. Field inspections verified a comprehensive series of emergency response exercises are routinely conducted on various rigs operating in South Australia with detailed monitoring by both service providers and licensees underpinning emergency response exercises.

Overall, DEM was satisfied that the emergency response exercises carried out by licensees during 2024 were of a sufficient standard to address the effectiveness of the relevant emergency response procedures.

Table 4 Emergency response exercises conducted, or reports submitted in 2024

Licence	Operator (licensee)	Date exercise conducted	Date report submitted	Status
PL 6 & 11, SFL 12	APA Group	24 January 2024	21 March 2024	Closed out 2 May 2024
PL 18	APA Group	17 April 2024	10 May 2024	Closed out 31 May 2024
PL 1	Epic Energy	1 May 2024	2 July 2024	Closed out 30 July 2024
PL 3 & 4	Epic Energy	23 May 2024	5 July 2024	Closed out 25 July 2024
PL 12	Heathgate Resources	28 October 2024	11 December 2024	Closed out 16 December 2024
PL 2	Santos	29 October 2024	18 December 2024	Open

PL pipeline licence; SFL special facilities licence

4.12 Resource royalties

DEM's Resource Royalties and Commercial Team's role within the department is to ensure the effective and efficient administration of the state's royalty regime for minerals and petroleum.

The team's primary objective is to ensure that royalties are paid in accordance with the Mining Act 1971 (Mining Act), the Energy Resources Act 2000 (ER Act) and [Guidelines for the payment of royalty and provision of information](#) and to both assist and educate licence holders about their royalty obligations.

Petroleum royalty payments to the state in financial year 2023-24 were \$107.1 million (cf. \$92.2 million for 2022-23), with total product sales of \$1.46 billion. This brings cumulative petroleum royalty revenue since 1970 to \$4.51 billion (2023-24 dollars) and cumulative sales to an estimated \$72.32 billion (2023-24 dollars). Since 1991 the average royalty paid equals

6.84% of the sales value. Figure 12 illustrates the royalty revenue receipts from financial years 2014-15 to 2024-25 (forecast).

The DEM auditing of royalty payments provides assurance to the South Australian community that licence holders are correctly self-assessing their royalty liabilities.

The approach used is consistent with DEM's compliance philosophy of:

- obtaining a maximum level of voluntary compliance
- operators having a clear understanding of their obligations
- identifying risk areas for proactive investigation
- applying the appropriate treatment to address noncompliance
- treating operators in a fair and equitable manner.

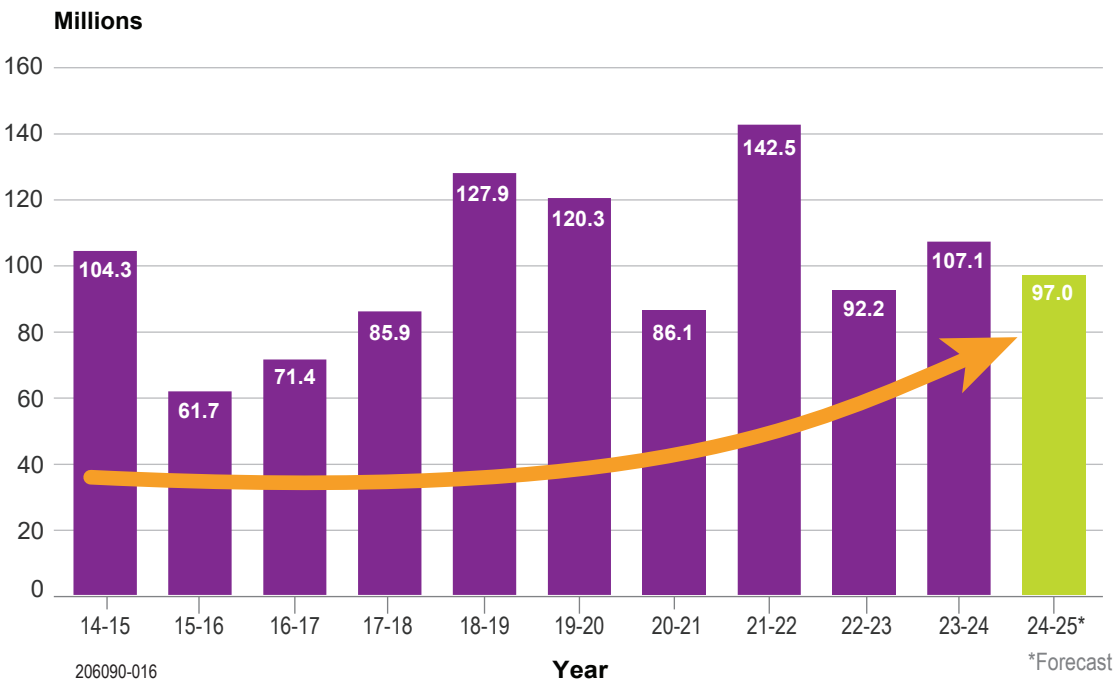


Figure 12 South Australian petroleum royalty revenue receipts (\$m) for financial years 2014-15 to 2024-25.

The ER Act requires returns be provided by licensees on a monthly basis accompanied with a payment of the applicable calculated royalty. DEM has established management systems to monitor royalty returns to identify potential noncompliance at the earliest stage possible.

Licensees are required to submit an annual reconciliation of their royalty calculations for each financial year. An audit certificate, prepared by an independent auditor appointed by the licensee, provides assurance that the annual reconciliation calculations were prepared in accordance with Part 4(d) of the Guidelines for payment of royalty and provision of information and section 43 of the ER Act and are free of material misstatement.

All licence holders that pay royalty are subject to DEM royalty audits. Royalty audits are conducted by authorised officers appointed pursuant to section 119 of the ER Act. DEM's royalty investigators conduct interviews with relevant staff, sample supporting records and make relevant inquiries to establish compliance with the legislation and guidelines.

In 2024, two petroleum producers were subjected to comprehensive audits of their royalty returns by DEM royalty investigators. All petroleum producers were subjected to desktop royalty audit reviews throughout the year. In the 11-year period that the team has been operating, \$7.9 million in royalty has been recovered (less than 1% of total petroleum royalty revenues) from petroleum licence holders through audits by DEM and the independent auditing of petroleum royalty calculations.

In addition to auditing and revenue forecasting functions, the Resource Royalties and Commercial Team provides advice and guidance on all matters relating to royalties, including addressing interpretation issues that arise from time to time. Advice provided is done in a consultative manner and based on a 'good faith' approach.

Planned actions in 2025 are to conduct royalty audits of major petroleum producers based on risk, and follow-up royalty calculation exceptions and outliers requiring further investigation.

4.13 Co-produced water

On 30 December 2010 the Minister for Environment and Conservation, pursuant to section 146(1) of the *Natural Resources Management Act 2004* (now *Landscapes South Australia Act 2019*), granted a water licence to the Minister for Mineral Resources Development for the taking and use of underground water for petroleum production activities. The licence for 21,900 ML per annum is in accordance with the water allocation plan for the Far North Prescribed Wells Area (FNPWA).

Assignment of this allocation to the Minister's delegate instead of individual petroleum licensees is administered pursuant to the licence grant and operational approval provisions of the ER Act. This arrangement delivers both administrative efficiency for government and industry and maintains

one-window to government for licensing and compliance monitoring for industry within DEM.

A key responsibility of the Minister's delegate in administering this allocation for all co-produced water within the FNPWA is to collect, monitor and publish volumes of co-produced water to ensure that the 60 ML/d allocation is adhered to and that petroleum licensees are managing this water production in accordance with the relevant SEO requirements. Figure 13 illustrates the level of water co-produced within the Cooper and Eromanga basins since 1985. The average daily co-produced water production decreased marginally in 2024, to 56.5 ML/d. DEM continues to monitor this closely and consults with the DEW on the forward management of co-produced water.

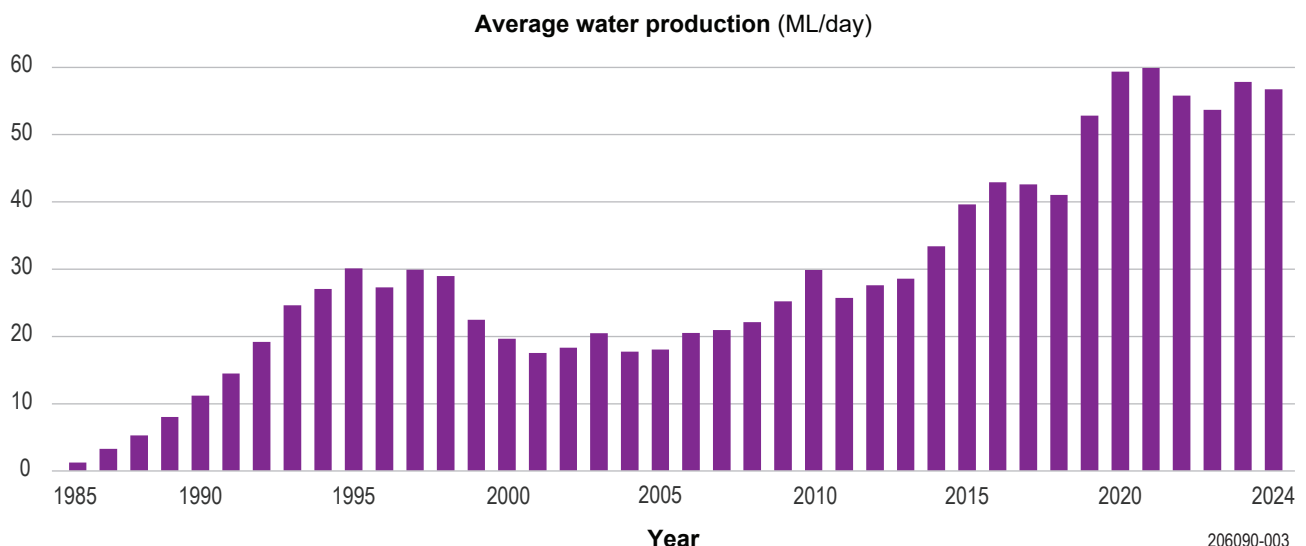


Figure 13 Average co-produced water production (ML/d) in the Cooper and Eromanga basins, 1985 to 2024

4.14 ER Act Environmental Liability Management Policy

DEM implemented its policy for managing the environmental liabilities from regulated activities under the ER Act to be more holistic, risk and evidenced based.

The approach to managing liabilities set out in this policy aims to (i) ensure an adequate level of financial security, and (ii) reduce the proportion of expired wells.

Environmental liability management encompasses all regulated activities including wells, seismic lines and infrastructure such as pipelines, flowlines, facilities and access roads.

The Environmental Liability Management Policy consists of 4 elements:

1. **Financial security.** A risk-based level of financial security, which considers deemed assets and financial performance, is to be held by the Minister, under sections 66(2) and 76 of the ER Act.
2. **Well activity status.** Each licensee is required to prepare an activity status report detailing all regulated activities and declaring the status of suspended wells as active, inactive or expired.
3. **Inactive well management.** Licensees will need to demonstrate a bona fide future use of a well that has not been in use for over 24 months, by satisfactorily proving a future use in applying for it to be declared 'inactive'. An annual inactive well fee will apply based on the age of the well.
4. **Expired well management.** Licensees are required to prepare an expired well rehabilitation plan and to decommission a minimum proportion of expired wells each year to progressively reduce the number of expired wells that have no bona fide future use.

In 2024 a total of 13 suspended wells were decommissioned in South Australia. The Policy encourages strategic decommissioning of higher integrity risk assets, reducing the overall risk profile of the State, however additional considerations also factored into selecting decommissioning candidates. Site access challenges due to wet weather events resulted in changes to the decommissioning candidate list, and a reduction in achieved well decommissioning volumes with deferrals into subsequent years observed. Well decommissioning activities were supplemented by proactive 'make-safe' or 'phase 1' decommissioning activities, which have not been reflected in the data, with additional decommissioning activities completed on surface infrastructure including flowlines and other surface facilities to support acceptable ELMP outcomes.

Figure 14 shows the number of wells decommissioned over the last 10 years. A notable increase in decommissioning activity can clearly be seen since the implementation of the [Environmental Liability Management Policy](#) in 2020. DEM intends to review the ELMP in 2025 in consideration of learnings, feedback received and maintaining a fit-for-purpose, modern Policy.

Further details are provided on the [department's website](#).



Figure 14 *Number of wells decommissioned each year from 2014 to 2024*

5 COMPLIANCE STATISTICS

The following sections and graphs provide a snapshot of the upstream petroleum and geothermal industries' performance in terms of incidents (both reportable and serious) and the findings of the root cause analysis into these incidents.

5.1 Reportable incidents

The ER Act includes objectives pertaining to public safety, security of gas supply and the protection of interests of other land users and landowners. Therefore, any incident that may threaten compliance with these objectives must be reported to DEM. Criteria for reportable incidents are specific to the activity being undertaken and are detailed in the applicable SEO.

Figure 15 gives a breakdown of all incidents reported to DEM for the year 2024 (including immediately reportable incidents), separated into the various categories, each discussed separately below. Figure 16 compares the various categories of incidents since 2020. Descriptions of each category are included in Table 5.

At a high level, Figure 16 shows that the number of incidents which have occurred year on year has been reasonably consistent over the past 5 years.

As has been the case in other years, the majority of incidents which occurred in 2024 related to LOC of oil and other substances including gas (76%), with the number of these incidents comparable to previous 5 years.

Over the last 5 years, there has been a noticeable increasing trend in the relative number of physical integrity incidents reported, with the relative number of physical integrity incidents increasing from 18% in 2020 to 21% in 2024. This is a positive indicator – reflecting an improvement in reporting culture within operating companies, in that safety critical failures are detected before the loss of containment or safety consequence event can occur.

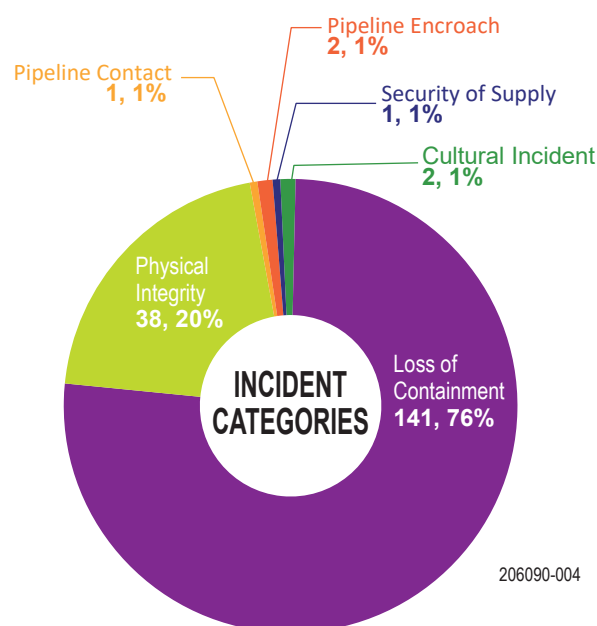


Figure 15 Categories of incidents in 2024.

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Table 5 Incident category descriptions

Incident category	Description
Loss of containment	An escape of petroleum (in a gaseous, liquid or solid state), processed substance, a chemical or a fuel that affects an area that has not been specifically designed to contain such an escape. The majority of LOC events are of negligible volume of liquid and/or gas and can be immediately contained and cleaned up, with no adverse impact to the environment. Notwithstanding this, for those cases where a similar event could result in the spill of a larger volume or within sensitive areas, whereby potential consequences to the environment are more significant, the corrective and preventive measures identified through incident root cause investigation are addressed on a case-by-case basis with the respective licensees, and/or through DEM's FFP validation activities detailed in Section 4.9 as appropriate. As this category accounts for the largest proportion of incidents, it is the subject of further analysis in Section 5.2.
Release that activates emergency response	A situation where an uncontrolled gas release occurs, resulting in the activation of emergency response, evacuation procedures and/or fire or explosion.
Physical integrity	An event that has the potential to compromise the physical integrity of an asset or facility. Physical integrity incidents capture data reported by licensees relating to failures of critical controls (system or physical) that do not result in another type of incident, such as a LOC. This category includes partial through-wall defects identified on pressure-containing equipment that require a repair action, safety critical equipment failures that have not resulted in another type of incident, failure of critical procedural controls or incidents where well-barriers have failed to respond as designed, leading to an excursion outside of a planned operating window but remaining within the physical limitations of the equipment. This category of incident not only allows DEM to capture important information relating to the physical condition of pipelines, facilities and wells, but also the effectiveness of the licensee's systems used to manage the integrity of their assets and operations.
Security of supply	Security of natural gas supply is prejudiced or an imminent risk of prejudice to security of natural gas supply arises.
Cultural heritage	Cultural heritage incidents relate to events where an excursion outside a culturally cleared area has occurred, or the conditions of a work area clearance have not been complied with. In these cases, the licensee must report, investigate and remediate the incident in consultation with the relevant native title parties and in accordance with any applicable native title agreement.
Pipeline encroachment and pipeline contact	Unauthorised activities on a licensed pipeline easement with equipment or vehicles that could pose a threat to the integrity of the pipeline are required to be reported to DEM as pipeline encroachment incidents. Where the pipeline has been physically contacted but no repair action is required, the incident is also considered reportable. Further breakdown of pipeline encroachment and contact is included in Section 5.11.
Work health and safety	WHS incidents are reported to DEM in accordance with incident definitions under the ER Act and relevant SEO. Such incidents are strictly WHS legislation incidents administered by SafeWork SA . However, DEM, through an agreement with SafeWork SA, is also provided such incident reports by licensees to assist in close working cooperation with SafeWork SA to maintain and promote the one-window to government for the industry.

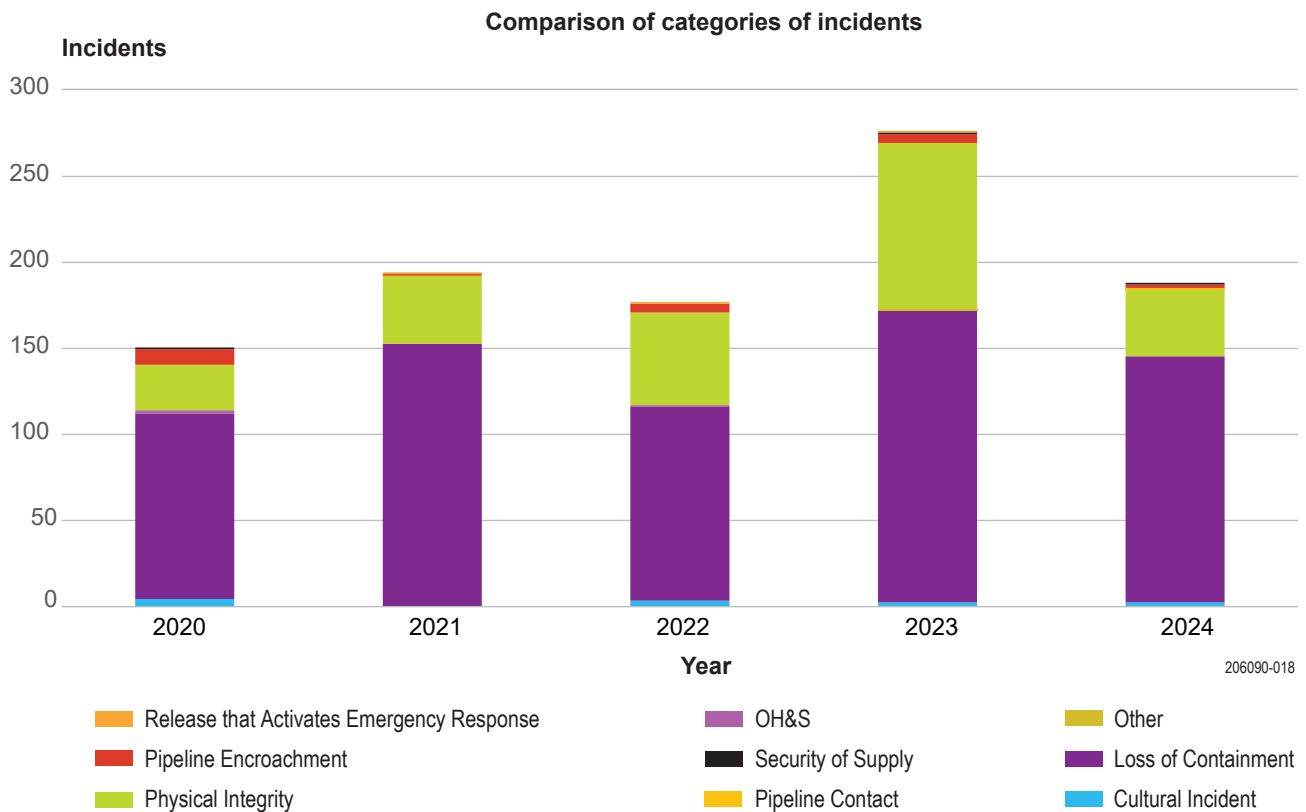


Figure 16 Comparison of categories of incidents, 2020 to 2024.

5.1.1 Pipeline encroachment and pipeline contact

The need to avoid unauthorised activities in the vicinity of a pipeline is of paramount importance to safeguard against any potential threats to its integrity and hence the extent of any unauthorised activity needs to be monitored and mitigated accordingly. Pipeline companies seek to achieve this through various initiatives such as landowner liaison programs, easement access agreements, warning signs along the pipeline easement, regular pipeline awareness programs, the use of the 'Dial Before You Dig' service, and pipeline patrols that detect and, in some cases, prevent further unauthorised activity.

Figure 17 displays the number of encroachment and contact incidents that have been reported in South Australia each year from 2020 to 2024.

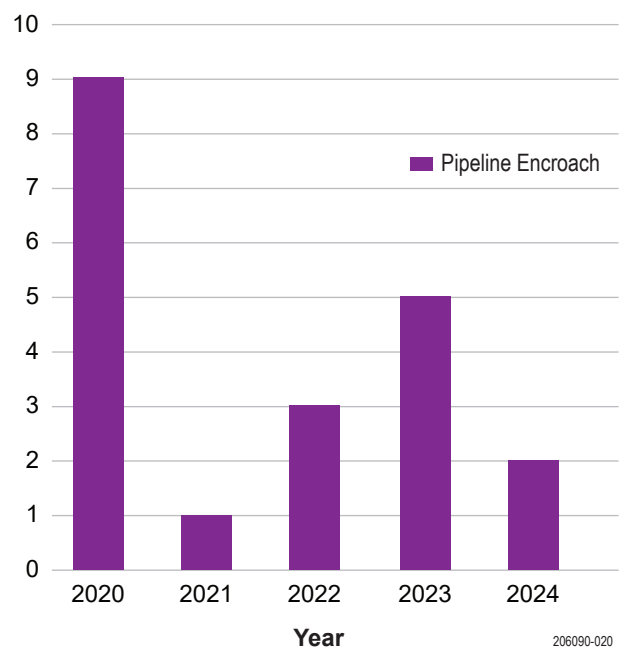


Figure 17 Transmission pipeline external interference events each year from 2020 to 2024. (No transmission pipeline contact incidents from 2020-2024)

There was a decrease in the number of encroachment incidents in 2024 compared to the previous years, 2022 and 2023, down on the high in 2020 following the completion of a major project in the vicinity of one of the high-pressure gas transmission pipelines north of Adelaide. Of the two encroachments in 2024, one was related to unauthorised activities at an above ground in-line station and the other

was due to the installation of fencing over the buried Pipelines.

As external interference is one of the leading threats to pipeline integrity, and hence public safety and security of gas supply, DEM will continue its surveillance of licensees' proactive activities in this area.

5.2 Loss of containment incidents

All incidents involving the uncontrolled release of hydrocarbon or other contaminants (including produced water) into or on to an area not designed for the specific purpose of containing such a release are deemed reportable LOC events, regardless of the volume released. Where a spill occurs within an area designed to contain it, for example where a tank containing oil ruptures and the contents released are contained inside the impervious bunded area surrounding the tank (installed to prevent environmental damage), this is not deemed a LOC event and hence is not required to be reported as a spill under the ER Act. It would instead be captured as a physical integrity incident. On the other hand, in the case of a similar incident where a portion of the oil (or other liquid) overflows the bund, then this is deemed a LOC event and must be reported in accordance with the regulatory requirements. LOC incidents have the potential to cause environmental impacts, such as contamination of water and soil, the degradation of vegetation and/or the productive capacity of the land. These events are also of particular interest to DEM where they are the result of a facility failure that indicates insufficient integrity management by a licensee.

Figure 18 illustrates the number of LOC incidents reported since 2014 to the end of 2024 for the onshore petroleum and geothermal industries in South Australia and indicates the portion of these releases that were produced hydrocarbon (including gas) as opposed to other substances such as produced water, wastewater, fuel (diesel) and chemicals. Note where a single release event involved both hydrocarbon and another substance, e.g. produced water, the release incident has been counted as a 'hydrocarbon' LOC.

Since a peak of LOC incidents in 2014, the number of LOC incidents reported have remained relatively consistent through to 2024.

When comparing the volume of liquid spills (split into hydrocarbon, water and other spills) over the past eight years in Figure 19 with the number of releases in Figure 20, there is little correlation. As seen in Figure 19, the total volumes released have predominantly consisted of water. DEM considers each LOC incident reported in terms of the impact of the release and the potential for escalation, in addition to the root cause as described in Section 5.3, when determining the action to be taken with the licensee.

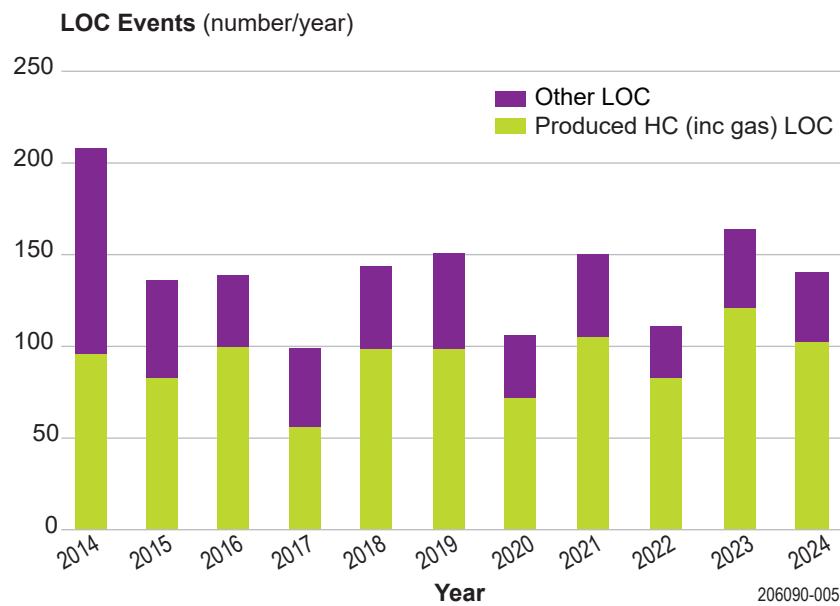


Figure 18 Number of produced hydrocarbon and other LOC incidents from 2014 to 2024.

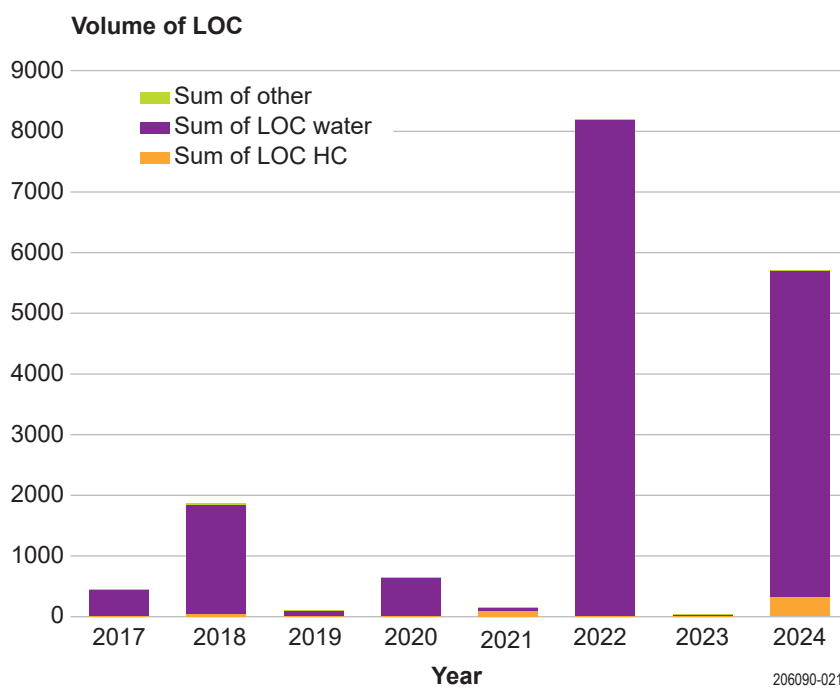


Figure 19 Annual liquid LOC incidents by volume (m3), 2017 to 2024.

The majority of the releases which occurred in 2024 were only small loss of containment events, with only a small number of events contributing to the relatively large overall total volume released which consisted of 5,398.8 m3 water, 331.6 m3 produced hydrocarbon and 5.8 m3 other substances (including chemical and fuel). Two events where an evaporation pond wall eroded due to intense rainfall contributed 4740 m3 (88%) of the total water released and 2 individual LOC events contributed 283 m3 (85%) of the total produced hydrocarbon released. In all cases, the operator was able to immediately contain, assess and remediate the releases to prevent impacts from causing or threatening any serious environmental damage as defined in the relevant SEO. This incident response generally involves removal of any fluids via vac truck, assessment of the extent of impact and excavation of impacted soil which is then transported to an EPA endorsed bioremediation treatment facility (land farm). The excavation is then backfilled and recontoured to pre-existing conditions. Details of the assessment and clean-up are reported to DEM for review in consultation with the EPA.

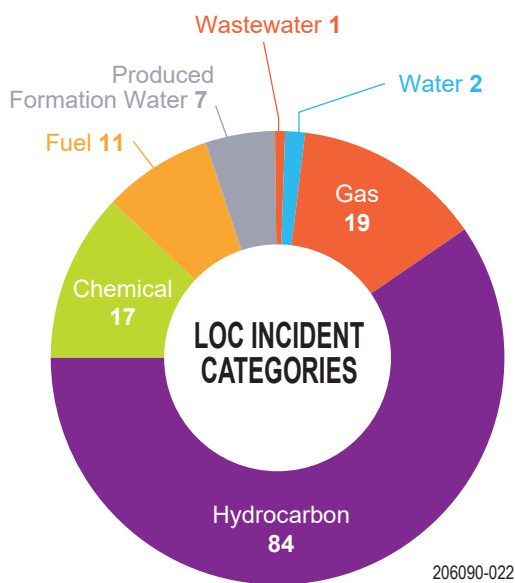


Figure 20 Categories of regulated substance LOC incidents by number of incidents in 2024.

Figure 20 provides a breakdown of the LOC events which occurred during 2024 by substance and number of incidents, while Figure 21 shows the relative volumes by substance in 2024. 60% of LOC incidents in 2024 (by number of incident events) related to the release of produced hydrocarbon liquid (oil and condensate). Again, note where an incident involved the release of both produced hydrocarbon and water, as is the case with most flowline incidents, the incident type has been counted as a produced hydrocarbon LOC.

The number of incidents shown in Figure 18 needs to be considered in the context of the severity (in terms of environmental consequence, as well as the volume of produced hydrocarbon).

Figure 21 shows that the LOC volume of produced hydrocarbon (oil and condensate combined) in 2024 was 331.6 m3 which made up less than 6% of the total volume of fluid released. As noted above, all releases were appropriately remediated by the operator in accordance with the SEO to prevent impacts from causing or threatening any serious environmental damage.

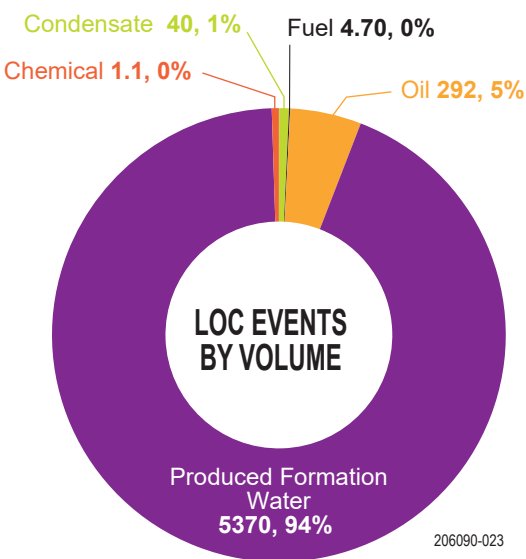


Figure 21 Categories of regulated substance LOC events by volume (m3) in 2024.

Figure 22 shows that the LOC volume for oil expressed as a percentage of total oil production is less than 0.05% since 2012 (0.0438% in 2024). The spike in 2015 was due to a major pipeline leak of approximately 300 m³. The spike in 2024 was due to 2 individual LOC events contributing 283 m³ (85%) of the total produced hydrocarbon released.

Figure 23 displays the number of upstream pipeline LOC incidents per 1,000 km of pipeline over the period from 2014 to 2024. The incident data used for these figures includes LOC events of both hydrocarbon fluid and gas on any cross-country pipeline or longer buried pipeline within a facility, regardless of the volume lost. Releases from pressure safety valves or from end of-line facilities have not been included, except where the LOC has occurred on or at an isolating valve or pigging facility.

The number of LOC incidents on upstream pipelines in 2024, while a slight improvement on 2023, was generally in line with the trend since 2020.

Figure 23 clearly depicts the impact of a number of programs in place in recent years to decrease the number of loss of containment incidents on upstream pipelines, showing a significant improvement from 2015 levels. As pipelines near end of life the risk of LoC due to integrity failures increases. There are a number of initiatives to correspondingly reduce this risk to ALARP.

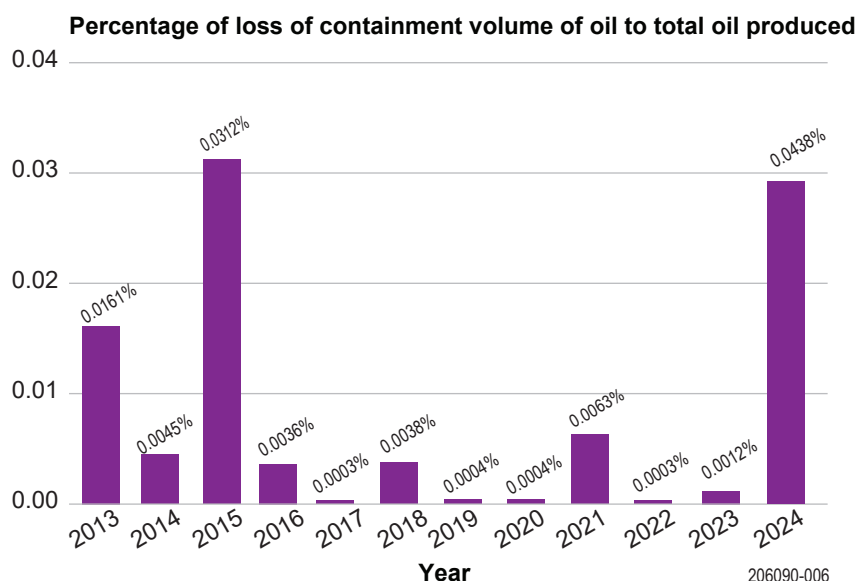


Figure 22 Percentage of LOC volume of oil to total oil produced, 2014 to 2023.

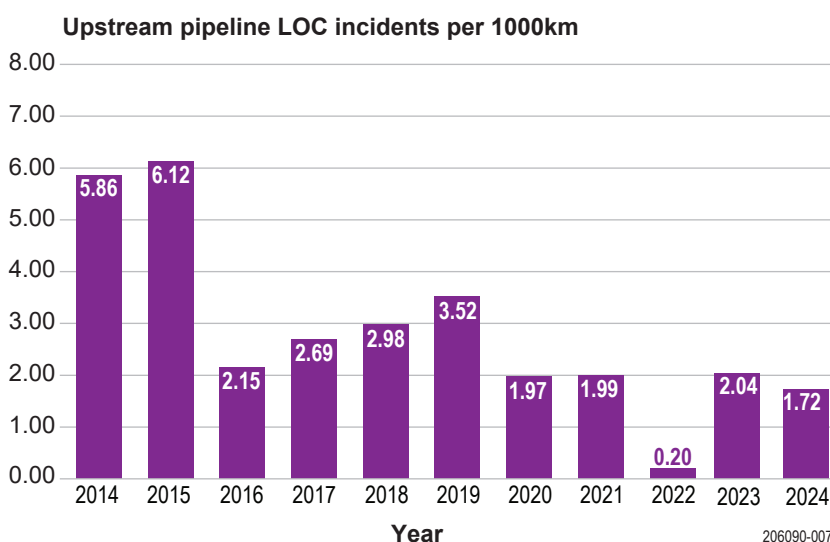


Figure 23 Upstream pipeline LOC incidents per 1,000 km, 2014 to 2024

Key programs in the last five years which have contributed to this improvement include but are not limited to:

- Santos' Suspend, Mothball and Abandonment of Pipelines program which identifies low-flow pipelines, and reduces the risk of LOC by suspension, mothballing or abandoning. Over 220 flowlines have been formally abandoned as part of this program.
- Improvements in the Microbiologically Influenced Corrosion (MIC) sampling strategy to more accurately identify at risk pipelines and subsequently inform the inhibitor dosing. Historically MIC had been one of the biggest causes of pipeline LOCs in the Cooper Basin.
- A continuation of the year-on-year increase in In-Line-Inspections (ILI), including the utilisation of both Magnetic Flux Leakage (MFL) and Electromagnetic Acoustic Transducer (EMAT) tools to accurately obtain data on the integrity of pipelines.
- In conjunction with the ILI there has been an improvement in other routine inspections including Direct Current Voltage Gradient (DCVG) coating surveys and Close interval potential surveys (CIPS) Cathodic Protection system inspections.
- Subsequent to the ILI, DCVG and CIPS in 2024 and continuing into 2025 there are campaigns of direct inspection utilising non-destructive testing (NDT) techniques such as Magnetic Particle Inspections (MPI) and Phased Array Ultra Sonic (PAUT) to provide detailed insight into pipeline integrity.

DEM will continue to monitor these initiatives their results and impacts as part of continuing regulatory surveillance.

The consequence of the LOC (due to size of release, and threat to environment, public safety and security of supply) must be considered when assessing the severity of the incidents, and this cannot be interpreted from the data in Figure 23.

As there have been so few LOC events on transmission pipelines in South Australia, these have been excluded from the data used to produce Figure 23. There have only been two loss of containment events on a transmission pipeline in South Australia in the past 10 years.

Typically published pipeline incident rates focus on transmission pipelines rather than smaller upstream pipelines. This means that the rates in Figure 23 are higher than most industry data available.

5.3 Root cause analysis

Under the ER Act the regulatory focus is very much a process safety management philosophy, mitigating and preventing major accident events associated with the oil and gas industry. As a result, the key focus of incident reporting requirements is on root causes. This is a very important aspect of major hazardous industries like most oil and gas drilling and production operations. A focus on occupational health and safety type incidents such as slips, trips and falls and lost time injuries in major hazardous industries, notwithstanding their great importance and need to be monitored and appropriately mitigated, can inadvertently divert the greater focus required on regulating against the advent of major accident events. In South Australia, Safe Work SA has responsibility for all occupational health safety and welfare requirements of the oil and gas industry through the administration of the state's WHS legislation. DEM's administrative arrangement with Safe Work SA clearly enunciates this responsibility and the regulatory interaction between the 2 agencies to appropriately manage such regulatory overlap.

As outlined clearly in the Regulations, the root cause analysis must include an assessment of the effectiveness of the design, procedures and management systems that were in place to prevent the incident occurring. The analysis should also take into consideration whether previous incidents of this type have occurred, near misses or relevant operating excursions, and whether there are themes, repeated failures or previous inadequate assessments that have led to the incident occurrence.

There are many established techniques that may be used to investigate the root cause of an incident, and the selected technique and level of complexity will need to be appropriate to the type of incident. The ER Act

and Regulations do not mandate a specific investigation method but require that the investigation identify particular information. It is the licensee's responsibility to select a method appropriate to the level of investigation required for a particular circumstance. To assist licensees and clarify expectations for incident reporting under the ER Act and associated root cause analysis, DEM has prepared an [incident reporting guidance note](#).

To aid licensees in the identification of the root cause, and to ensure consistent information is submitted for monitoring trends across the industry, DEM also recommended to its licensees the following definitions of root cause categories:

- **Design.** Lack of suitable and fit-for-purpose equipment utilised in the activity.
- **Monitoring/maintenance.** Inadequate monitoring of, and preventive maintenance on, the equipment utilised in the activity.
- **Work practices.** Unclear, incorrectly used, or the absence altogether of, written procedures.
- **Communication.** Absence or error in communication between personnel performing the activity.
- **Supervision.** Absence or inadequate support, oversight or supervision of those carrying out the activity by the person in charge (supervisor).
- **Risk management.** Inadequacy of the risk review or assessment of the activity (e.g. job hazard analysis, permit to work, hazard analysis, hazard and operability studies) carried out prior to the activity.
- **Induction/training/fit for work.** Inadequate training, skills and/or induction of the people carrying out the activity, physical/mental impairment to carry out task and responsibilities.

The outcome of these root cause analysis findings continues to influence DEM's inspection and surveillance activities, in particular DEM's scrutiny of licensee FFP reviews and audits.

The breakdown in Figure 24 shows that the majority of incidents in 2024, like in previous years, continue to be as a result of deficiencies in the monitoring and maintenance of equipment, and as such integrity management continues to be a focus of DEM's surveillance activities. However, as illustrated in Figure 24, the percentage of hydrocarbon spills against total production resulting from these integrity management issues remains relatively low at 0.044%. Notwithstanding this, DEM continues its compliance focus on LOC incidents from operations it regulates. To this end, as discussed in Section 4.10, DEM continued its process safety management system assurance surveillance strategy in 2024 and will continue to refine it over the coming year.

Insufficient monitoring or maintenance has consistently been identified as the most common root cause of incidents, followed by design and inadequate work practices,

as can be seen in Figure 25. DEM invests significant resources in investigating licensees' capabilities and effectiveness of integrity management systems. A key consideration for DEM is demonstration that licensees have in place appropriately constructed and implemented integrity management plans that identify the relevant threats, management measures, inspection techniques and frequencies, and repair techniques as well the competencies of the people undertaking the required work. Effective implementation and monitoring of these plans through appropriately constituted metrics are crucial to their performance. DEM investigates licensee's effectiveness in managing these issues through quarterly meetings, the FFP assessment process and associated process safety inspections, described in Sections 4.9 and 4.10.

DEM will continue working with licensees through its surveillance focus on company management systems to maintain continued improvement in these areas.

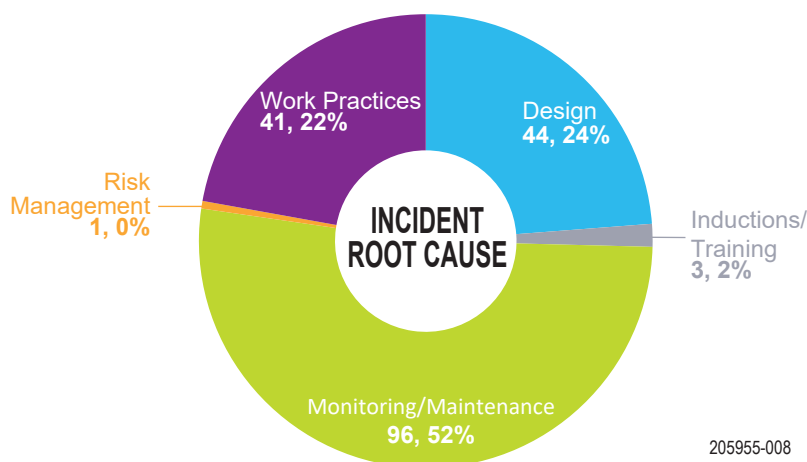
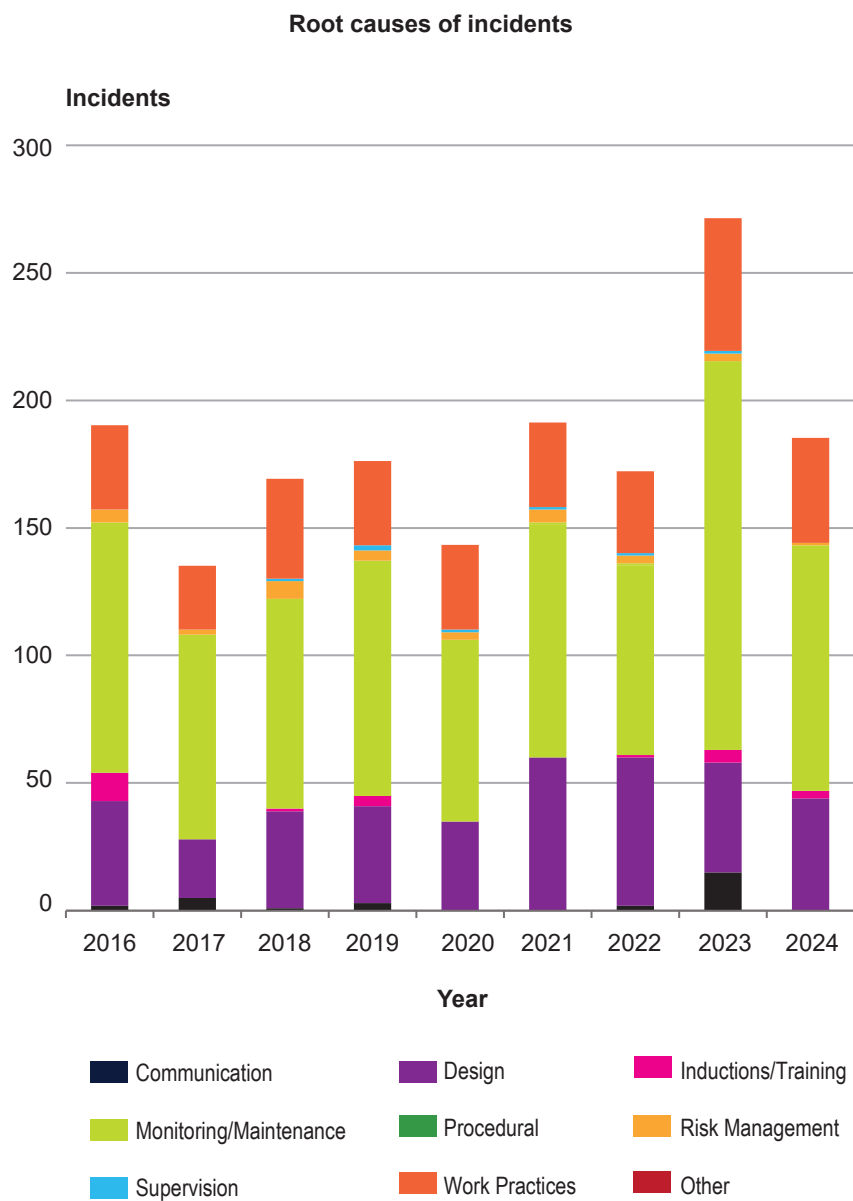


Figure 24 Summary of root causes of incidents (number and %) in 2024.



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Figure 25 Comparison of root causes of incidents, 2016 to 2024.

6 IMMEDIATELY REPORTABLE INCIDENTS

Section 85 of the ER Act defines an immediately reportable incident as an incident arising from activities conducted under a licence specified in the relevant statement of environmental objectives to be an immediately reportable incident.

Any immediately reportable incident must be reported to DEM initially within 24 hours of becoming aware of the incident and then followed up by a comprehensive report. Comprehensive immediately reportable incident reports explain investigation into the root cause, any environmental damage that has occurred as a result including steps taken or proposed to remediate and corrective actions taken to prevent its recurrence. The ER Act requires licensees to take appropriate action to ensure that any long-term damage is avoided (i.e. breach to relevant SEO) and adequate corrective action is taken to

minimise the likelihood of the recurrence of such an incident. Therefore, one of the purposes of requiring licensees to prepare and submit comprehensive reports, is to ascertain whether a breach has occurred and warrants further enforcement action.

Details of immediately reportable incidents are published in a manner that is intended to encourage continued complete and prompt reporting of these types of incidents to the regulator. DEM avoids naming and shaming licensees where the incident does not necessarily lead to a breach of the relevant SEO and is therefore considered to result in no significant adverse consequence to the environment as defined under the ER Act.

There were six immediately reportable incidents reported to DEM in 2024 as summarised in Table 6.

Table 6 List of serious incidents reported to DEM during 2024

Basin/Region	Incident date	Incident category	Incident description	Root cause
Cooper-Eromanga	5 February 2024	Loss of Containment	Gas/Condensate Glass Reinforced Epoxy Flowline Failure due to intense rainfall event	Design
Cooper-Eromanga	6 February 2024	Loss of Containment	PFW Pond wall breach due to intense rainfall event	Design
Cooper-Eromanga	6 February 2024	Loss of Containment	PFW Pond wall breach due to intense rainfall event	Design
Cooper-Eromanga	24 April 2024	Pipeline Contact	Live gas pipeline contacted during excavation activity	Work practices
Other	22 May 2024	Cultural Heritage	Potential disturbance to cultural heritage	Work Practices
Cooper-Eromanga	27 August 2024	Release that Activates Emergency Response	Fire during well site operations	Design

6.1 Update on Legacy Contamination Assessment Plan reported previously

As discussed in previous ER Act compliance reports, sites have been identified by Santos with impacts to groundwater which occurred as a result of outdated but previously accepted practices.

A Legacy Contamination Assessment Plan was developed by Santos to address identified contamination resulting from legacy practices in the Cooper and Eromanga basins. It consists of 2 major stages:

- Stage 1 – conceptual site model
- Stage 2 – site-specific human health and ecological risk assessment.

Following completion of Stage 1, Santos derived a number of risk-based screening levels to form the basis for development of a conceptual exposure model to inform the site-specific human health and ecological risk assessment to be undertaken as part of Stage 2.

Following consultation with the EPA and engagement of an independent subject matter expert, DEM endorsed the risk-based screening levels in early 2021 on the basis that the values and their proposed application are appropriate and protective.

Santos then developed and submitted a draft Stage 2 report in late 2021 which included the conceptual exposure model and risk-based screening level assessment/development reports as well as details on the application of the assessment and management framework.

Santos continued to refine the Stage 2 report to address feedback provided by DEM with the finalised report including the management framework submitted in May 2024.

At time of reporting, DEM was continuing with its detailed review of the submitted documents and will seek technical advice from co-regulatory agencies on the finalised report.

6.2 Yappala Cultural Heritage Impact Investigation

An authorised investigation pursuant to section 119 of the ER Act was commenced in relation to a complaint made on 23 May 2024 on behalf of the Viliwarinha Yura Aboriginal Corporation that Epic Energy, as contractor to Santos, undertook maintenance works resulting in damage to Indigenous heritage sites and objects. Santos is the licence holder for the Moomba to Port Bonython Liquids Line Right of Way, owned and operated by Santos under the ER Act. The event was considered an immediately reportable incident (Table 6) whereby DEM received a formal incident notification from the Licensee on 7 June 2024.

The investigation into Santos is with respect to the allegation of a breach of Objective 5 of the Statement of Environmental Objectives (therefore a breach of section 77 of the ER Act) is still being finalised at the time of writing.

There have been several meetings facilitated between DEM and Santos with the Viliwarinha Yura Aboriginal Corporation (“VYAC” as the Traditional Owners and custodians) over the last twelve months to allow access to the area for maintenance following this incident. These meetings have been observed to be successful with Santos working closely to

review their systems and processes and rebuild trust with the VYAC. The relevant SEO is also under review including Objective 5 relating to cultural heritage impact. The investigation has been undertaken in conjunction with the Department for Aboriginal Affairs and Reconciliation with consideration for any offences under the Aboriginal Heritage Act.

The investigation will be finalised with details published in the next year's report.

7 PERSUASIVE MEASURES

In the case of noncompliance with the ER Act or where reportable incidents are not responded to appropriately by the licensee, Step 2 persuasive measures on the compliance and enforcement pyramid (Figure 3) are triggered. The purpose is to instigate corrective action from the licensee

through formal expression of concern from the regulator regarding the licensee's compliance and the threat of more punitive action.

In 2024 there were three Step 2 cases requiring persuasive measures to be taken to instigate corrective actions of compliance.

Case 1 – Activity without Notification - Direct Inspections on PL 6

On Wednesday the 22 of May 2024 and in subsequent correspondence 28 May 2024, APA group reported to the Department of Energy and Mining that it had in 2024 excavated and conducted three direct inspections on the Riverland Pipeline, Licenced to Australian Gas Networks (SA) Ltd under Pipeline Licence (PL) 6 and operated by APA Group - without Notice of Activity.

On 30 May 2024, DEM issued APA Group with a Notice of Non – Compliance for breach of section 74(3)(b) of the Petroleum and Geothermal Energy Act (now Energy Resources Act) and requested that APA Group investigate the cause of the non-compliance and implement actions to prevent any recurrence.

In response to this non-compliance APA Group undertook the investigation into the failures of

its management systems which lead to this breach and presented the findings to DEM on the 10 July 2024. The root cause of this failure was identified as a lack of formalised communication and workflow process between APA Group internal stakeholders which resulted in miscommunication of responsibilities under the Act. APA Group undertook several actions to prevent recurrence, including the development and implementation of systemised workflows and hold points for regulated activities within its licenses.

Based on the findings of the investigation and the actions APA Group have undertaken, no further enforcement action was necessary, and DEM closed out the non-compliance.

Case 2 – Butlers Airstrip - Cultural Heritage Breach

On 29 September 2023, Beach Energy (Beach) notified DEM of an incident where a Work Area Clearance (WAC) crew identified recent earthworks that had been undertaken in an area outside the existing WAC boundary at the northern end of the Butlers airstrip within Associated Activities License 157 (AAL 157).

The report prepared by a specialist archaeologist and anthropologist, confirmed that damage to cultural heritage may have occurred as a result of the earthworks. The external report confirms that the WAC team did not identify any areas of significance associated with the earthworks and found no evidence of significant cultural heritage materials being damaged or destroyed. However, it does note that some level of impact did occur. Specifically, four stone artefacts have potentially been dislodged, disturbed, or damaged by the earthworks.

On 20 March 2024, Beach was issued with a notice of non-compliance for a breach of Objective 9 of the Beach Energy Cooper Basin Production Operations Statement of Environmental Objectives (SEO) which is 'to adequately protect areas of cultural and heritage significance and values during operations and maintenance'. Specifically, the relevant assessment criteria states 'Damage, disturbance or interference to any Aboriginal sites, objects and remains (all as defined under the Aboriginal Heritage Act 1988) is avoided unless authorisation has been obtained under the Aboriginal Heritage Act 1988'

As a result of the non-compliance, Beach was required to undertake a comprehensive review of the design, procedures and management systems relating to cultural heritage protection and demonstrate that appropriate steps have been taken to prevent a recurrence of such incidents. This included demonstrated implementation and effectiveness of all the corrective and preventative actions identified and committed to by Beach through the incident investigation for a previous occurrence of cultural heritage disturbance.

In response, Beach satisfied this requirement providing adequate demonstration that a comprehensive review in consultation with the relevant Aboriginal Corporation was undertaken which identified a number of recommendations and corrective actions that had been or were planned to be implemented to prevent a re-occurrence of such incidents.

No further enforcement action was deemed necessary, and DEM closed the non-compliance on the basis that it would continue to receive updates on the implementation and effectiveness of the corrective actions through quarterly compliance meetings.

Case 3 – Activity without notification - Lake Brooks CCS discharge

On 22 November 2024, Santos notified DEM that as of the 6th of October 2024, Santos had been discharging wastewater from the CCS plant via Moomba Plant Wash Water Tank 2 (WWTK2) directly to the Evaporation Pond Moomba East (Lake Brooks) instead of the approved Western Evaporation Ponds.

DEM was not notified of this discharge point in the relevant Notice of Activity submitted 30 June 2022 - *Activity for: Carbon Capture & Storage Project, Moomba*, South Australia or in any of the subsequently provided supporting information, including the Process Design Basis CCS.

Santos was issued with a notice of non-compliance on 19 December 2024 for a breach of section 74(3)(b) of the ER Act, that being failure to submit a compliant Notice of Activity to DEM prior to diverting the CCS wastewater stream to discharge directly to Lake Brooks.

The non-compliance required Santos to retrospectively submit a Notice of Activity acceptable to DEM allowing discharge as a contingency to manage levels in the Western Evaporation Ponds or cease discharge of water from WWTK2 into Lake Brooks. Weekly water quality monitoring reports of the waste stream were also required to be provided by Santos in the interim.

Santos complied with the advice issued by DEM and provided weekly water monitoring results and a compliant Notice of Activity within the required timeframe including sufficient environmental assessment demonstrating that the contingent discharge does not pose any unacceptable risk to the environment in accordance with the requirements of the relevant SEO. The non-compliance was therefore closed with no further enforcement action taken.

8 COMPULSIVE OR PUNITIVE MEASURES

In the case where Step 2 persuasive measures fail to deliver the required compliant behaviour, or where it is decided the offence is serious enough to warrant proceeding to Step 3 compulsive measures immediately, ministerial

directions or prohibitions under the ER Act are available.

There was one case requiring compulsive or punitive measures to be enforced by DEM in 2024.

Case 1 – Direction to resubmit PCD Closure Report

On 11 December 2024, pursuant to section 88 of the ER Act, NeuRizer was issued a Direction regarding the resubmission and information required to be included in the In-situ Gasification Demonstration Plant (also referred to as pre-commercial demonstration (PCD) plant) closure report (PCD closure report).

This Direction followed DEM correspondence dated 12 March 2024, formally requesting that NeuRizer submit the PCD closure report by no later than 30 May 2024 and subsequent submission of the closure report by NRZ in June 2024, after an agreed extension of time.

On review of the submitted closure report, DEM considered that NeuRizer had not adequately met the objectives of the In-situ Gasification Demonstration Plant (April 2018) Statement of Environmental Objectives (SEO), where the SEO (Section 3.2) states that NeuRizer (formerly LCK) will provide a closure report to DEM summarising

performance of the demonstration including syngas composition, flowrates, temperature and pressures, and environmental monitoring including air quality, groundwater, surface water, soil and soil vapour.

As the closure report is to be made publicly available, DEM also did not consider the closure report to meet the necessary requirements whereby submissions for public release should present clear and supported comments, relevant to both the scope of the document and within the context of the relevant SEO/EIR. The closure report contained many speculative and unsupported statements, including references to documents that are not publicly available and some that have not been submitted to DEM at all.

Given the time that had lapsed since decommissioning of the PCD in 2019 and the expectation that the closure report would be submitted within a reasonable time after 3 years post decommissioning,

NeuRizer was directed as a step 3 compulsive measure, to initiate scopes of work to address the numerous shortcomings identified in order to resubmit a suitable closure report at its earliest opportunity. This required a written commitment of timing to DEM's satisfaction by 19th December 2024, for the review and re-submission of the final closure report.

NRZ responded on 19 December 2024 proposing to engage a consultant to review and restructure the closure report with the finalised version re-submitted by 30 June 2025. DEM responded to NRZ requesting that a meeting be scheduled to discuss the matter in January 2025. Further details on this enforcement case including the outcomes will be provided in the 2025 Annual Compliance Report.

ACKNOWLEDGEMENT OF COUNTRY

As guests on Aboriginal land, the Department for Energy and Mining (DEM) acknowledges everything this department does impacts on Aboriginal country, the sea, the sky, its people, and the spiritual and cultural connections which have existed since the first sunrise. Our responsibility is to share our collective knowledge, recognise a difficult history, respect the relationships made over time, and create a stronger future.

We are ready to walk, learn and work together.

FURTHER INFORMATION

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