

NSW  
Resources  
Regulator

COMPLIANCE AUDIT PROGRAM  
DECLARED SYDNEY CATCHMENT SPECIAL AREAS

# **Management of mining infrastructure in Special Areas**

Summary Report



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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (January 2019). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the NSW Department of Planning and Environment or the user's independent advisor.

## Executive summary

During April and May 2017, three separate incidents of oil spill from transformers occurred at isolated and disused mine ventilation shaft sites within the Sydney drinking water catchment Special Areas. Each of these incidents resulted in a moderate or minor spill of oil on mining land which was reported to WaterNSW and EPA. Monitoring and water sampling, overseen by WaterNSW, was undertaken to ensure Sydney's drinking water supply was not affected with this monitoring showing the incidents posed minimal risk to water supplies following containment and remedial actions.

These incidents led to a re-appraisal of risks posed by stored chemicals at mining sites, with a total of 29 separate mining infrastructure sites initially identified within the Special Areas across eight mining operations. From these sites, 12 individual sites across six mining operations were identified as being priority mine audit sites. A joint agency compliance audit program was developed and undertaken of these priority mining infrastructure sites within the Special Areas during late 2017 and early 2018.

The key objective of the audit program was to assess the status and management of mining infrastructure in the Special Areas, including all transformers. The focus of the assessment at each site was the management of infrastructure to minimise the risk of pollution events occurring that could impact the water quality within the Special Areas.

Agencies that participated in the joint audit program comprised:

- NSW Resources Regulator (RR)
- Division of Resources and Geoscience (DRG)
- WaterNSW
- Environment Protection Authority (EPA)
- Department of Planning and Environment – Compliance (DPE).

From the audit program, five non-compliances, 30 observations of concern and seven suggestions for improvement were identified. No significant issues threatening immediate environmental harm were identified, with most impacts identified during the audits being minor and localised in nature. Key issues of concern at each site were identified and recommendations were made to improve the management of mining infrastructure and reduce the potential for impacts within the Special Areas. Corrective action requests were provided with the audit reports for each mining operation. A corrective action plan was subsequently prepared by each company to address the audit findings in relation to its sites.

The corrective actions identified included:

- undertaking comprehensive risk assessments for the use, handling and storage of hazardous substances
- implementing appropriate risk controls and monitoring their effectiveness
- developing and implementing documented inspection regimes
- ensuring that all chemicals, fuels and oils are stored in appropriately bunded storages
- providing training for relevant personnel in the use, handling and storage of hazardous substances
- maintaining emergency response equipment in a serviceable condition

→ maintaining required safety signage to ensure it remains legible.

The follow-up actions have been incorporated into individual WaterNSW, EPA, DPE and RR work plans to ensure that all issues identified by the audits in action plans are being addressed by the mines to protect the Sydney drinking water catchment Special Areas. Evidence has since been provided to demonstrate that corrective actions have been implemented by most of the mines to address most of the issues raised, and the remainder are being actively monitored by the agencies responsible.

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## Introduction

During April and May 2017, three separate incidents of oil spill from transformers occurred at isolated and disused mine ventilation shaft sites within the Sydney drinking water catchment Special Areas. Each of these incidents resulted in a moderate or minor spill of oil on mining land which was reported to WaterNSW and EPA. Following containment and remedial actions, monitoring and water sampling was undertaken to ensure risks to Sydney's drinking water supply had been adequately addressed, with this monitoring showing the incidents posed minimal risk to water supplies.

WaterNSW held joint inter-agency meetings with Division of Resources and Geoscience (DRG), Resources Regulator (RR), Department of Planning and Environment (DPE) and the Environment Protection Authority (EPA) and it was agreed to develop and implement a joint agency audit program of priority mining infrastructure sites within the Special Areas.

A total of 29 separate mining infrastructure sites were initially identified within the Special Areas across eight mining operations. From these sites, 12 individual sites across six mining operations were identified as being priority mine audit sites. A joint agency compliance audit program was developed and undertaken of these priority mining infrastructure sites within the Special Areas during late 2017 and early 2018. The key objective of the audit program was to assess the status and management of mining infrastructure in the Special Areas, including all transformers. The focus of the assessment at each site was the management of infrastructure to minimise the risk of pollution events occurring that could impact the water quality within the Special Areas.

## Special Areas and coal mining

The *Water NSW Act 2014* provides for the establishment of Special Areas for the purposes of:

- protecting the quality of stored waters
- maintaining the ecological integrity of land including waters.

The Special Areas cover approximately 364,000 hectares of mostly unspoilt native bushland around the water storages and infrastructure that supply Sydney, the Illawarra, Blue Mountains, Southern Highlands and Shoalhaven regions. Public access and activities are restricted to protect water quality in these areas.

The Special Areas Strategic Plan of Management (SASPoM) is jointly implemented by WaterNSW and NPWS and provides the strategic framework for the planning, delivery and reporting of land management activities within the Special Areas.

The Water NSW Regulation 2013 prohibits certain conduct and activities in Special Areas to protect the quality and quantity of the water supply. WaterNSW can give its consent to carry out these activities in specific circumstances. The Special Areas are classified as either Schedule 1 where public access is generally prohibited and Schedule 2 where some public entry and activities are permitted.

WaterNSW has issued conditional consents to the three coal mining companies operating within the Metropolitan and Woronora Special Areas to enter and carry out specified activities. The specified

activities are those authorised by approvals issued pursuant to the *Environmental Planning and Assessment Act 1979*.

## Types of mining infrastructure in Special Areas

Mining infrastructure (e.g. redundant electrical transformers) within the Special Areas have been identified as a potential source of pollution by WaterNSW. There remains a significant number of mining infrastructure assets still being used and other assets which appear to be totally or largely redundant within the Metropolitan, Woronora and Warragamba Special Areas, primarily comprising ventilation shafts and pit-top facilities which have not been used for many years.

These sites are often in isolated locations with no personnel on site and limited security measures. WaterNSW has identified these sites to be a potential source of pollution and faces considerable risk and liability if companies don't remove these assets and appropriately rehabilitate sites. The Resources Regulator has the power to require this to occur under the Mining Act and conditions on leases.

### Ventilation shaft sites

In underground mines, good quality air must be maintained throughout the mine to ensure operations can be carried out safely. To provide this airflow, ventilation shafts are required. Ventilation shaft sites typically contain:

- one or more shafts (upcast or downcast shafts)
- one or more fans
- transformers and switchyards
- ancillary buildings.

The main fans which ventilate large underground coal mines are very large power consumers, usually requiring one or more large transformers to be sited with the fans. Oil is the major potential pollutant associated with the vent shaft sites, with transformers typically containing up to 3,000 litres of oil each.



Example of a ventilation shaft site within the Special Area



Example of a transformer yard associated with a large vent shaft site in the Special Area

## Pit top sites

Pit tops comprise the surface facilities that support underground mining. These are generally large areas of surface disturbance that may contain a range of potential pollutants. Typical facilities associated with pit top sites include:

- offices, crib rooms and bath houses
- workshop facilities
- refuelling facilities
- hardstand and storage areas
- coal processing and handling facilities such as stockpiles, coal loading bins.



Example of a pit top site in the Special Area



## Pump station sites

Within the Special Areas, pump stations are generally used to pump raw water from a water storage for use in mining operations. Pump station sites are typically smaller sites and may include power lines and transformers, electrical switching infrastructure, pumps and a water balance tank.



Example of a pump station site adjacent to Cataract Dam

## Coal loading bins

Coal loading bins are large structures used for the purposes of storing coal for loadout onto trucks for transport to customers or export.



Example of coal loading bins in the Special Area

## Joint audit program on Special Areas

Following the three separate incidents of oil spill which occurred as a result of vandalism at isolated and disused mine ventilation shaft sites within the Special Areas, WaterNSW held joint inter-agency meetings with DRG, RR, DPE and EPA and it was agreed to:

- develop a coordinated government response on identifying and reducing risks from chemical hazards in the Special Areas
- develop and implement a joint agency audit program of priority mining infrastructure sites within the Special Areas.

A joint agency compliance audit program was developed and undertaken of priority mining infrastructure sites within the Special Areas during late 2017 and early 2018. Agencies that participated in the joint audit program included:

- NSW Resources Regulator (RR)
- Division of Resources and Geoscience (DRG)
- WaterNSW
- Environment Protection Authority (EPA)
- Department of Planning and Environment – Compliance (DPE).

## Relevant legislation

### *Water NSW Act 2014*

The *Water NSW Act 2014* (Water NSW Act) establishes WaterNSW and specifies its objectives and functions. The functions include:

- capturing and storing water
- supplying water to customers including Sydney Water
- within the declared Sydney catchment area:
  - protecting and enhancing the quality and quantity of water
  - managing and protecting the catchment area and WaterNSW water management works.

The Water NSW Act provides for the declaration of declared catchment areas. Currently there is only one declared catchment area in NSW – the declared Sydney catchment area. The Sydney catchment area covers approximately 16,000 km<sup>2</sup> and includes the catchments of Warragamba Dam, Tallowa Dam, Woronora Dam, Cataract Dam, Cordeaux Dam, Avon Dam and Nepean Dam.

The Water NSW Act also provides for the establishment of Special Areas for the purposes of:

- protecting the quality of stored waters
- maintaining the ecological integrity of land including waters.

## *Mining Act 1992*

The *Mining Act 1992* (Mining Act) establishes the administrative framework for obtaining rights (titles) to minerals and incorporates provisions regarding royalties, land access and the protection of the environment, among other things.

Environmental impacts from exploration and mining are primarily regulated by issuing titles subject to environmental conditions. Failure to comply with environmental conditions is an offence and may result in the issue of a direction or a penalty infringement notice, suspension of operations, prosecution or cancellation of a title.

Poor environmental performance, such as the breach of environmental conditions, may also result in the refusal of an application for a new title or the renewal of an existing title.

In addition, every titleholder is required to satisfactorily rehabilitate their site and provide a security deposit to NSW Resources Regulator to cover the full cost of rehabilitation if the titleholder fails to fulfil their rehabilitation obligations. The amount of security is adjusted over time to ensure it reflects the full rehabilitation liability.

## *Protection of the Environment Operations Act 1997*

The *Protection of the Environment Operations Act 1997* (POEO Act) allocates responsibilities for pollution prevention and control to the Environment Protection Authority (EPA), local councils and other public authorities. The EPA is the appropriate regulatory authority for:

- regulating activities listed in Schedule 1 of the POEO Act
- ensuring compliance with environment protection licences
- regulating activities carried out by the state or a public authority.

Premises that undertake scheduled activities and meet the licensing threshold in the POEO Act are licensed and regulated by the EPA. Most mines undertake the scheduled activities of 'mining for coal', 'coal works', 'mining for minerals', 'mineral processing' and/or 'crushing, grinding or separating' as defined in Schedule 1 of the POEO Act. For a full list of scheduled activities and the classifications under them, refer to Schedule 1 of the POEO Act – see

[www.austlii.edu.au/au/legis/nsw/consol\\_act/poteoa1997455/sch1.html](http://www.austlii.edu.au/au/legis/nsw/consol_act/poteoa1997455/sch1.html).

Environment protection licences issued under the POEO Act set environmental performance requirements. Licences may specify a required performance outcome or a specific environmental management practice. Licence conditions consider factors such as the surrounding environmental conditions, the type of activity and the available technology. Pollution reduction programs and pollution studies are often attached to licences, requiring licensees to carry out work within a specified timeframe to comply with environmental requirements. Depending on the type of activity carried out, licensees may be required to undertake monitoring for water, noise or air pollution.

The POEO Act sets out a series of offences for actions that may pose a risk to the environment. These include water pollution (s.120), leaks and spills of substances (s.116) and air pollution (ss.124–132). These offences apply to industries and activities whether they are licensed or not.

Under the POEO Act, officers are authorised to exercise regulatory functions including:

- powers of entry and search
- powers to question and identify persons
- powers to issue notices.

The types of notices include:

- notices to provide information and records
- clean-up, prevention, prohibition, compliance cost and noise-control notices (see Chapter 4 of the POEO Act, 'Environment protection notices')
- penalty notices
- notices to vary environment protection licences including attaching pollution reduction programs.

## *Environmental Planning & Assessment Act 1979*

Mining, like other forms of development, requires development approval under the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Once a mining proposal or project application is approved, DPE issues a project approval under the EP&A Act.

The project approval will include specific conditions for managing and monitoring the performance of mining infrastructure, including remote vent shaft sites associated with the project.

Conditions on project approvals for mining projects address environmental management of impacts, and typically include the following requirements:

- obligations to implement best practice environmental management
- regular monitoring of environmental performance
- independent environmental and compliance auditing
- reviews of all management plans after incidents, annual reports and independent audits
- public reporting of environmental performance on mines' websites.

## Compliance

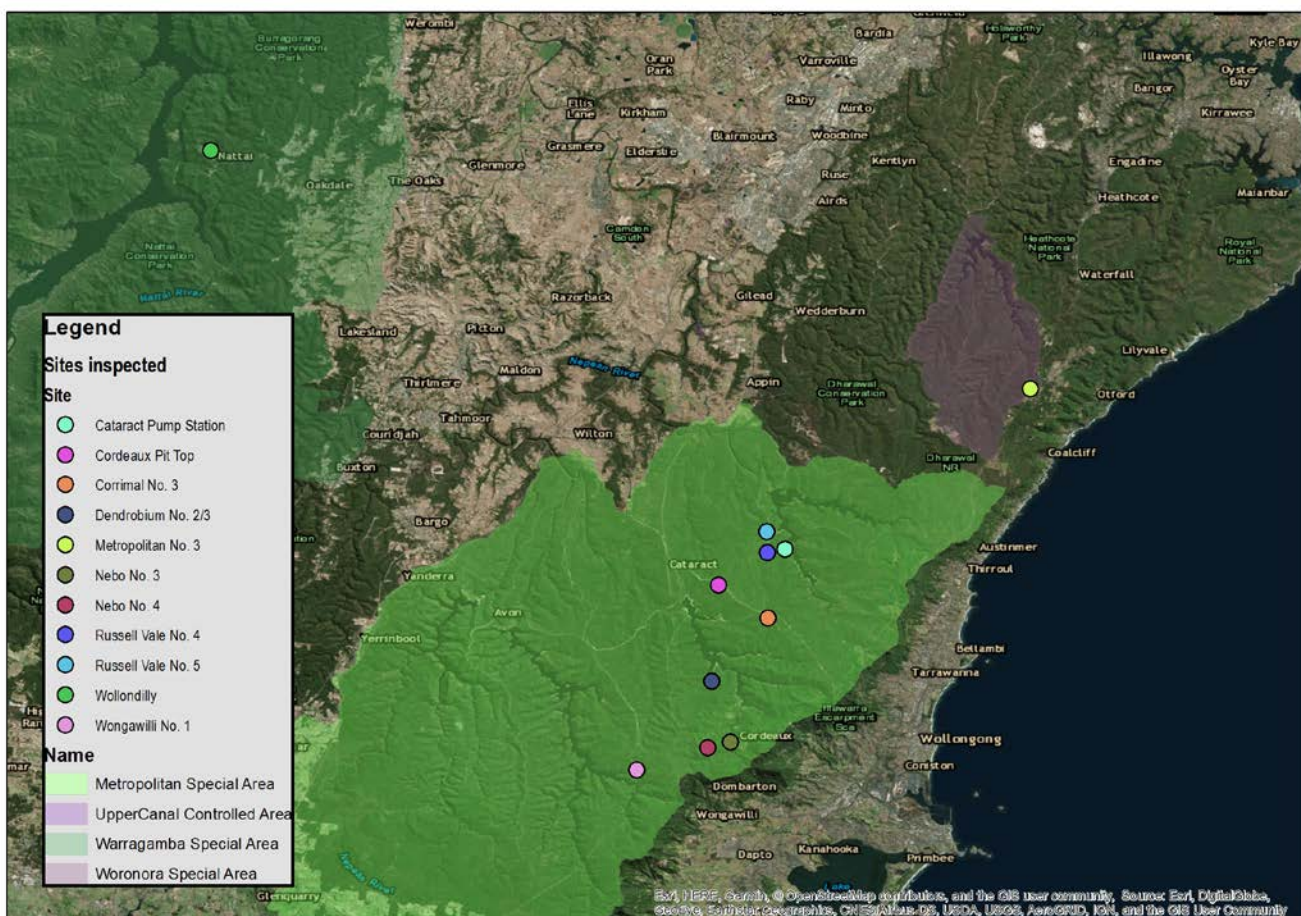
WaterNSW, the Resources Regulator (which now includes the former Environmental Sustainability Unit of DRG), the EPA and DPE expect compliance with the legislation discussed above. These public authorities strongly encourage mining companies to undertake voluntary audits of operations that review and assess the effectiveness of their environmental controls. Where a company is in breach of their environmental conditions, any enforcement action will be decided on a case-by-case basis with the relevant public authority consulting with other public authorities to ensure a consistent, effective regulatory approach.

# Audit Methodology

## Selecting sites for audit

A total of 29 separate mining infrastructure sites were initially identified within the Special Areas across eight mining operations. From these sites, 12 individual sites across six mining operations were identified as being priority mine audit sites as follows:

- Wollondilly Washery – Burrarorang Valley Coal Pty Ltd
- Russell Vale Colliery (Vent shafts 4 and 5 and Cataract Dam pump station) – Wollongong Coal Limited
- Wongawilli Colliery (Nebo shafts 3 and 4 and Wongawilli shaft No. 1) – Wongawilli Coal Pty Ltd
- Dendrobium Mine (Vent shafts 2 and 3) – Dendrobium Coal Pty Ltd
- Cordeaux Colliery (Pit top and Corrimal No. 3 shaft) - Illawarra Coal Holdings Pty Ltd
- Metropolitan Colliery (Vent shaft 3 site) – Metropolitan Collieries Pty Ltd.



## Objectives of the audit program

The key objective of the audit program was to assess the status and management of mining infrastructure in the Special Areas, including all transformers. The focus of the assessment at each site was the management of infrastructure to minimise the risk of pollution events occurring that could impact the water quality within the Special Areas. As a secondary objective, the audit aimed to identify actual or potential redundant infrastructure and land areas disturbed or impacted by mining that could be decommissioned and rehabilitated.

Where issues of concern were identified during the audit program, follow up compliance action such as the issue of directions or notices will be undertaken by the lead agency relevant to the issue of concern. Follow up inspections, directions and notifications will also be undertaken to monitor the progress of decommissioning and rehabilitation of any redundant mining infrastructure within the Special Areas.

## Scope of the audit program

The scope of the audit program included the identification of all known mining related infrastructure within the Special Areas at each colliery. This was achieved through mapping of known infrastructure and a review of each colliery's Mining Operations Plan (MOP). Document review and interagency consultation was used to identify the location of all known transformers within the Special Areas.

An inspection of all nominated sites with mining infrastructure or disturbance was undertaken by the audit team, focussing on the management of chemicals, fuels and other hazardous substances, and the identification of redundant infrastructure.

The audits were undertaken as a snapshot of the status and did not assess past compliance, except to inform potential focus areas of the audit (e.g. recent spill incidents at Wongawilli No 1 shaft and Nebo No 2 shaft).

The scope of the audit program excluded:

- exploration sites
- sites within the declared Sydney catchment area but outside Special Areas
- sites where rehabilitation has been signed off as complete and no surface infrastructure remained with potential for pollution.

## Compliance assessment criteria

Mining operations are subject to a range of compliance obligations which can include conditions of any approvals, leases or licences issued to them, such as mining leases, environment protection licences, development consents and WaterNSW access consents.

Compliance obligations are also contained in plans and documents prepared by the mining operator such as mining operations plans, pollution incident response management plans, hazardous substances management plans, and other operational management plan documents.

The performance of each mining operation subject to audit was assessed against the relevant compliance obligations applicable to it.

## Audit methods

The audit process involved interviews of mine personnel, a review of documentation and samples of records provided by each mine, and a site inspection of the operations to determine the level of compliance of the project and the status of the project's operational performance.

All information obtained during the audit process was verified by the audit team where possible. For example, statements made by site personnel were verified by viewing documentation and/or site inspections where possible.

# Audit program findings

## Summary of findings

The audits identified a total of:

- five non-compliances
- 30 observations of concern
- seven suggestions for improvement.

Three of the six mining operations audited recorded no non-compliances with a total of only six observations of concern between them. Generally, these mining operations had good management practices, systems and processes in place to identify and control the risks associated with mining infrastructure in the Special Areas. These sites were generally considered to pose no significant risk of environmental harm, providing the identified controls are maintained.

The five non-compliances included:

- no certificate of currency was sighted by the audit team as evidence to indicate that the mining operator maintains an adequate insurance policy detailing WaterNSW as an interested party with a liability equal to or greater than \$25,000,000 (one mine site).
- no evidence was sighted during the audit to demonstrate that the mine maintains a Special Area Key register which details the individuals that possess, access or maintain possession of assigned special area keys (two mine sites).
- it was noted that WaterNSW contact details were not provided on the emergency phone list in the site office (one mine site).
- it was observed that appropriate "Combustible Liquid" signage was not provided on either the top or bottom diesel storages at the mine site, as required by the WHS Regulation (Schedule 13, Clause 7) (one mine site).

Four of the five identified non-compliances related to WaterNSW access consent requirements. These non-compliances generally do not pose a significant risk of environmental harm but are required to be addressed by each of the mining companies for the sites at which these non-compliances were identified.

The fifth non-compliance relating to combustible liquid signage was not considered to pose any risk of environmental harm and was rectified by the mine immediately following the audit. Adequacy of risk assessment processes

All the mining operations audited had undertaken some form of risk assessment but few of these included the risks associated with the remote sites within the Special Areas. The failure to adequately identify and control these risks is evidenced by the three transformer oil spill incidents in 2017.

Of note, for two of the mining operations, the risk assessments were very general in nature with little consideration to the remote sites within the catchment. For example, site security is a key issue for the remote sites and vandalism had been identified as a potential failure mechanism, however, none of the existing risk reductions nor the proposed strategies identified in the risk assessment would be



considered suitable controls to address the site security risks. It was observed that the remote sites at these mining operations had minimal risk controls in place and consequently had been subject to vandalism. Given the incidents with the oil drained from the transformers on the remote sites, a review of the risk assessment and the effectiveness of the control measures would have been expected. However, there was no evidence sighted to suggest that such a review had taken place at these sites.

## Chemical storage

Chemical storage was well managed at four of the six mining operations audited, with appropriate bunded storages provided, and appropriate safety data sheet information readily available. For two mining operations, the storage practices were not well managed with many examples of poor housekeeping and chemical storage practices. Whilst these poor practices were not posing any significant risk of environmental harm, corrective actions were required to address the issues raised. Evidence has since been provided by the mines to indicate that most of these poor practices have been rectified.

Key observations in the storage of fuels, oils and other chemicals on sites inspected included:

### Observation

- ✓ Storage of small packaged substances in a purpose built hazardous goods cabinet – note the small spill kit adjacent to the cabinet.

### Example



Observation

Example

- ✓ Example of a self-bunded double skinned fuel tank for storage of bulk diesel at a site in the Special Area.



- ✓ Roofed bunded refuelling facility with provision for small packaged goods within the bunded area – note the yellow spill kit bin adjacent to the refuelling bowsers.



- ✓ Bulk chemicals stored in concrete bunds. The white PVC pipe attached to the front of the tank contains the relevant safety data sheets.



Observation

Example

- ✘ Poor storage practice - drums of fuels and oils with no spill protection in a workshop.



- ✘ Poor storage practice - drums of chemicals sitting on a bund wall where containment may not be provided if a leak or spill occurred.



- ✘ Poor storage practice - 1000 litre plastic bulk containers with an unknown substance stored in a non-bunded location with no protection from the weather. Consequently, the plastic drums had deteriorated to such an extent that release of any stored materials was possible.



### Observation

### Example

- ✘ Diesel piping with no impact protection in a vehicle refuelling area. A pipe rupture from vehicle impact may lead to diesel spillage in an uncontained area.



- ✘ Poor storage practice – oils and greases stored in an unbunded area where there are potential sources of ignition – the bench contains a range of batteries being charged.



For bunding to be effective in providing secondary containment, all containers must be located inside of the bunded facility. For smaller packaged materials, bunded spill pallets or hazardous goods cabinets may provide a suitable alternative for sites such as workshops where small quantities of chemicals, oils and greases are used often.

All chemical storages should ensure that chemicals remain stable and do not degrade or change state. Where containers are subject to deterioration from weather or other factors, roofing or enclosing of the storages should be considered.



## Containing spills and emergency response

Generally, most sites were observed to have adequate bunding or other spill containment infrastructure in place to contain spills and leaks. Emergency response equipment including standard spill kits, fire depots and spill control booms were observed at all sites. Inspection programs which included the

emergency response equipment were lacking at some sites, resulting in some of the emergency response equipment not being effectively maintained.

A good example of a well-managed emergency response was the transformer oil spill incident at Corrimal No. 3 vent shaft. The company activated its Pollution Incident Response Management Plan (PIRMP), including the notification of relevant government agencies. Oil spill response was put in place including oil booms and spill matting. The existing oil/water separator was upgraded and an investigation commenced to establish the areal extent of the oil contamination. The transformer yard at Corrimal No. 3 shaft has since been demolished and the site remediated, although monitoring will be ongoing for at least another 12 months.

Key observations in relation to containing spills and emergency response equipment on sites inspected included:

Observation	Example
<p>✓ Float switch installed in transformer bunds at a remote vent shaft site in the Special Area which provides an alarm back to the mine control room if the bund fills with fluid.</p>	
<p>✓ Transformers at an operating ventilation shaft site contained within a concrete bund which would provide containment in the event of a leak or spill.</p>	

Observation

Example

- ✓ Electrical transformer and associated infrastructure contained within a bunded locked building in a fenced and locked enclosure at an operating vent shaft site – note the site is remotely monitored by motion activated security cameras.



- ✓ A well stocked fire response shed at an operating vent shaft site with a range of emergency fire response equipment. A spill control station is located at the rear of the building.



- ✓ A well stocked spill response kit including spill response guide.



Observation

Example

- ✓ Spill control booms in place at Corrimal No. 3 vent shaft site following a transformer oil spill in 2017.



- ✗ Operating transformer with no bunding provided – note oil staining on ground underneath the transformer from previous leaks or spills.



- ✗ Absorbent spill control socks and booms at a remote operational vent shaft site not maintained in a ready state.



## Monitoring and review

As discussed earlier, all the sites had some form of risk assessment with controls to manage the risk identified. Following the transformer oil spill incidents, four of the six mining operations undertook a review of their risk assessments and initiated additional controls where existing controls were identified as ineffective or inadequate.

For example, the original risk controls identified for one mining operation included the site being monitored by motion activated cameras, transformers contained within concrete bunds in a locked compound, and the site being regularly visited by staff as part of daily and weekly operational checks. A review of the controls following the incidents at other sites resulted in additional controls being initiated including security patrols and removal of redundant transformers.



Example of a site where redundant transformers were removed following incidents at other sites

Removal of redundant transformers was also undertaken at a second mining operation where those transformers were identified as being surplus to requirements, thus reducing the risk of vandalism or other incidents that could release significant quantities of oil into the environment of the Special Areas.

At two mining operations, effective inspection and monitoring programs did not appear to be in place. There was no evidence provided during the audits at those sites that the risk controls identified in the risk assessment were effective. Transformer incidents occurring at these sites would suggest that the risk controls were not effective, and this may have been identified sooner had an effective inspection and monitoring program been in place. These two mining operations were requested to review their risk assessments, monitoring and inspection programs as part of the corrective action requests.

## Management of mining infrastructure in Special Areas

The MOP is the key management component required by the Regulator to manage mining infrastructure and operations. During the audit program, it was noted that maps and descriptions of the remote sites contained in the MOPs do not always align with what is observed on each site. For example, the fan



house transformer, the water tank and the concrete shed at one site were not clearly identified on the maps provided with the MOP and the separating lagoon shown on the map was not found on site.

During the audit site inspections, there were several sites identified where there was mining infrastructure that was no longer required and could be removed with the sites rehabilitated. For example, the Nebo Shaft No. 3 and Wongawilli Shaft No. 1 are sites in remote locations within the Special Areas that are not currently used, and which could be considered for removal and rehabilitation.



The redundant Nebo No. 3 Shaft

At one site, it was observed that the current drainage system around a vent shaft site allowed a flow of clean water through the site, which was adding to the volume of runoff that needed to be treated and controlled. The existing drains were noted to require repairs and possible modification to maintain the integrity of the clean water drainage system. Maintenance of drainage structures around mining infrastructure within the Special Areas is important in minimising the amount of potentially polluted runoff and capturing that runoff for treatment.

## WaterNSW access consent requirements

WaterNSW access consents are subject to a range of conditions including requirements for:

- completion of Notice of Intent to Enter forms
- maintaining a Special Area key register
- monitoring waste from on-site sewerage
- monitoring on-site stormwater systems
- incident reporting
- completing and submitting weekly reports
- providing evidence of an adequate insurance policy detailing WaterNSW as an interested party

- procedures for monitoring and closing access or ceasing activities during wet weather, total fire bans and any other significant events
- maintaining access roads
- maintaining an emergency contact list which includes WaterNSW contact numbers.

Generally, most sites were observed to have systems and processes in place, although maintenance of these systems and processes was identified as an issue at some sites. For example, three sites either did not have or had not maintained a Special Areas key register which details the personnel who have access to keys to the Special Areas.

At two sites, evidence could not be provided that on-site sewage management systems are adequately inspected and maintained. At one of these sites, it was observed that the greywater turbine was not operational. Whilst these issues were not found to be resulting in any actual environmental harm at the time of the audits, there is potential for impacts if the identified issues are not addressed. Inspection and maintenance of on-site sewage management infrastructure is critical to ensuring proper treatment of sewage wastes at sites within the Special Areas.

There were two sites where evidence could not be provided that the titleholder maintains an adequate insurance policy detailing WaterNSW as an interested party. This is a breach of the access consent requirements and evidence of the appropriate insurance is required to be submitted to WaterNSW.

Generally, all sites had emergency contact lists. However, it was noted that at some sites, these lists had not been maintained and were observed to contain incorrect contact details. Maintenance of emergency contact details should be undertaken on a regular basis as personnel change to ensure that emergency response can be provided in a timely manner.

# Summary and conclusions

## Audit summary

The joint audit program was successful in meeting the identified key objective to assess the status and management of mining infrastructure in Special Areas. For the 12 sites inspected within the Special Areas, five non-compliances, 30 observations of concern and seven suggestions for improvement were identified. No significant issues threatening immediate environmental harm were identified, with most impacts identified during the audits being minor and localised in nature. Key issues of concern were identified, and recommendations were made to improve the management of mining infrastructure and reduce the potential for impacts within the Special Areas.

In keeping with the secondary objective of the audit program, there were several sites identified during the site inspections where redundant infrastructure could be removed, and sites rehabilitated, to minimise the risks of pollution within the Special Areas.

## Follow up actions

Corrective action requests were provided with the audit reports for each mining operation. A corrective action plan was prepared by each company to address the audit findings in relation to its sites. Generally, evidence has since been provided to demonstrate that corrective actions have been implemented by the mines to address most of the issues raised.

WaterNSW, EPA, DPE and RR require any issues identified during the compliance audits to be dealt with by the mines to improve their environmental performance. This includes:

- undertaking comprehensive risk assessments for the use, handling and storage of hazardous substances
- implementing appropriate risk controls and monitoring their effectiveness
- developing and implementing documented inspection regimes
- ensuring that all chemicals, fuels and oils are stored in appropriately bunded storages
- providing training for relevant personnel in the use, handling and storage of hazardous substances
- maintaining emergency response equipment in a serviceable condition
- maintaining required safety signage to ensure it remains legible.

The follow-up actions have been incorporated into individual WaterNSW, EPA, DPE and RR work plans to ensure that all issues identified by the audits in action plans are being addressed by the mines. A lead agency for follow-up and verification has been identified for each issue to avoid duplication in reporting. Several mines are already addressing many of these issues because of the individual audit report process.

The mines within the catchments that were not audited in this program are encouraged to use this summary report and individual audit findings to inform their review of processes and procedures and improve their compliance and environmental performance.

# Appendices

## Appendix 1

### List of approvals

#### **Mining Leases (relevant to infrastructure in Special Areas)**

Dendrobium Mine – ML1566  
Cordeaux Colliery – CCL768  
Metropolitan Colliery – CCL703  
Wollondilly Washery – CCL740  
Russell Vale Colliery – CCL745, ML1575  
Wongawilli Colliery – ML1596

#### **WaterNSW Access Consents to enter and work in Special Areas**

Peabody Energy - Metropolitan Mine – Woronora Special Areas  
South32 Illawarra Coal - Dendrobium Mine – Metropolitan Special Areas  
Wollongong Coal Ltd – Russell Vale Colliery and Wongawilli Mine – Metropolitan Special Area

#### **Environment Protection Licences**

Dendrobium Mine – EPL3241  
Cordeaux Colliery – EPL611  
Metropolitan Colliery – EPL767  
Wollondilly Washery – EPL641  
Russell Vale Colliery – EPL12040  
Wongawilli Colliery –EPL1087

#### **Development consents/Planning approvals**

Dendrobium Mine – DA 60-03-2001  
Cordeaux Colliery – no relevant DPE approval  
Metropolitan Colliery – DA 08\_0149  
Wollondilly Washery – no relevant DPE approval  
Russell Vale Colliery – MP 10\_0046  
Wongawilli Colliery – DA 09\_1061