



Sydney Catchment Authority

Principles for Managing Mining and Coal Seam Gas Impacts

The Sydney Catchment Authority (SCA) was established to provide a safe and reliable supply of raw water suitable for treatment to drinking water standards. To meet this objective the SCA manages its land, the drinking water catchments and infrastructure including water storages to protect water quality and quantity.

Mining and coal seam gas activities can impact on catchments, water quantity, water quality and water supply infrastructure. Mining is likely to continue until at least 2050 with large areas of the Sydney drinking water catchment subject to mining production titles. Eighty three percent of Special Area land close to the water storages is under a mining production or exploration title. There are active mines in the Special Areas and close to the SCA's water supply infrastructure works. They can damage infrastructure including dams, water storages, the canals and pipelines.

The NSW Department of Planning and Infrastructure, Planning Assessment Commission and the Department of Trade and Investment, Regional Infrastructure and Services are responsible for assessing and approving mining and coal seam gas activities. The SCA is involved in the assessment process for mining and coal seam gas activities because of its obligations to protect water quality and quantity, and its infrastructure. The SCA has regulatory powers to control access to Special Area land and also the powers that are granted to all owners of land where mining occurs. These powers allow the SCA to place obligations on third parties to conduct their operations to protect water quality and quantity and to maintain ecological integrity.

The SCA has established a comprehensive governance framework with a number of mining companies proposing and carrying out significant underground coal mining in the Southern Coalfield. The framework establishes a formal consultative relationship between the parties, commercial and administrative arrangements, processes to protect water supply infrastructure and access conditions for mining activities in the Special Areas.

The set of principles detailed below underpin SCA decision making in relation to mining and coal seam gas activities located within the Sydney drinking water catchment or otherwise potentially affecting the SCA's water supply infrastructure. Monitoring and reporting is integral to each principle. The SCA expects to be compensated for any costs or economic loss resulting from the impacts of mining and coal seam gas activities on water supply infrastructure, catchment yield or loss of stored waters.

1

Protection of water quantity

The principles establish the outcomes the SCA considers essential to protect the drinking water supplies to the four and half million people of Sydney, Illawarra, Blue Mountains, Southern Highlands and the Shoalhaven.

The SCA has a primary objective to protect the water supply yield of the catchments and water storages. Mining and coal seam gas activities can affect the quantity of water that flows from the catchment to the water storages, and the integrity of water supply infrastructure and catchment land.

Mining and coal seam gas activities under or near to water storages can create pathways for stored water to enter mines or move below and away from the base of the storage and out of the catchment. The SCA opposes any mining or coal seam gas activities under or near its water storages, unless it can be demonstrated that there is an acceptable and very low risk of water being lost through these activities.

Mining companies operating in the drinking water catchment must demonstrate a very low risk of water loss from catchment streams or storages and that appropriate safeguards are in place to prevent or minimise any loss.

Mining and coal seam gas activities must not result in a reduction in the quantity of surface and groundwater inflows to storages or loss of water from storages or their catchments.

2

Protection of water quality

Mining and coal seam gas activities can affect water quality in watercourses, groundwater systems and water storages. The SCA considers that all mining and coal seam gas activities should have a neutral or beneficial effect on water quality during exploration, extraction/production and rehabilitation phases.

Mining-induced subsidence can increase connectivity between surface water and groundwater. Water-rock interaction between freshly recharged surface water and newly opened fractures and bedding planes enhances chemical reactions and can release elements and metals from the sandstone rock mass into the water. Some of this groundwater, rich in elements and metals, may be discharged further downstream or into the water storage, polluting drinking water and increasing risks to human health with respect to water quality.

The surface facilities associated with mining and coal seam gas activities must be managed to either contain any pollutants on the site or transfer them offsite for appropriate treatment and disposal.

Mining and coal seam gas activities must not result in a reduction in the quality of surface and ground water inflows to storages.

3

Protection of human health

Impacts on water quality from mining and coal seam gas activities can increase risks to human health. The SCA must ensure that raw water supplied to customers meets agreed quantities and standards and can be treated to meet Australian Drinking Water Guidelines.

A comprehensive human health risk assessment should be undertaken for proposed exploration and extraction activities. Should an exploration activity be changed to an extraction activity, the human health risk assessment must be repeated to account for a change in potential impacts.

4 Protection of water supply infrastructure

Cumulative impacts from mining or other contaminating source activities must also be considered. The human health risk assessment must include modelled off-site impacts for both surface and ground water contamination. Appropriate hydrological and hydrogeological expertise is expected to have contributed to each environmental and human health risk assessment.

There will be an expectation of both on-site and off-site monitoring for impacts including at sensitive receptors, as described in Principle 6. A comprehensive management plan must be prepared to protect human health, in particular ensuring ground and surface water contamination is maintained below levels identified in the environmental or human health risk assessment.

Mining and coal seam gas activities must not pose increased risks to human health as a result of using water from the drinking water catchments.

The SCA's water supply infrastructure is extensive and includes dams, associated storages, a 64 kilometre system of open canals and tunnels (the upper Canal) and the Warragamba to Prospect pipelines.

The SCA opposes mining (first or second workings) under any of its prescribed dams. Subsidence from mining and coal seam gas activities can impact on, and destabilise, water supply infrastructure. Mining and coal seam gas activities can also affect the integrity of monitoring sites that are critical for the SCA's water resource assessment and operational management.

The SCA's water supply infrastructure must always be safe and serviceable. This will require comprehensive plans that include monitoring, modelling, preventative measures, contingency plans and rehabilitation measures (if needed).

The integrity of the SCA's water supply infrastructure must not be compromised.

5 Protection of ecological integrity

Much of the land around Sydney's water storages is classified as Schedule One Special Area. The Special Areas are mostly unspoilt bushland with significant ecological values and they play a vital role to protect water quality. Mining activities including exploration have had an impact on the ecological integrity of the Special Areas.

The SCA expects mining and coal seam gas companies to plan, construct, operate and rehabilitate all existing and future activities to maintain and protect ecological integrity. If impacts cannot be avoided, offsets may be necessary to ensure the overall ecological integrity of the Special Areas is not compromised.

The ecological integrity of the Special Areas must be maintained and protected.

6 Sound and robust evidence regarding environmental impacts

Sound decisions about mining and coal seam gas proposals rely on a robust environmental impact assessment process. In particular, there must be adequate and reliable data and information on the potential impacts on water quantity and quality. This is necessary to ensure appropriate selection of measures to prevent, minimise, mitigate and offset impacts.

Integrated monitoring program of surface and groundwater and modelling must be scientifically valid, and designed and implemented to provide suitable data for environmental assessments (at least two years baseline data is required). Data must also be suitable to calibrate and validate predictive models, to set reliable triggers, to confirm predictions and assess cumulative impacts. Monitoring must continue for a period after mining and coal seam gas activities stop to assess performance of rehabilitation/remediation measures.

Monitoring and modelling programs must meet the needs of the SCA. The requirements for monitoring programs have been developed for mining and coal seam gas operations in the SCA's Special Areas. The document *The Design of a Hydrological and Hydrogeological Monitoring Program to Assess the Impact of Longwall Mining in SCA's Special Areas* describes the monitoring program that mining companies must design and implement in the SCA's Special Areas before, during and after mining.

Major mining and coal seam gas projects may involve several components – exploration drilling, building underground access roads and ventilation shafts, extracting, processing and transporting coal or gas. The environmental planning assessment should be undertaken for the entire project holistically, not stage by stage.

Proponents of mining or coal seam gas activities that submit exploration proposals should include information about the proposed development that would follow if the exploration is successful. This should include information about the broad environmental impacts likely from the subsequent development and information on the general approach to managing these impacts.

The environmental planning assessment of major mining and coal seam gas projects should consider cumulative impacts, including impacts of past activities, the proposed project, and reasonably foreseeable projects in the area. The cumulative impact assessment should focus on other mining and coal seam gas activities in the area but also have regard for other major activities that impact on the drinking water catchment and water supply infrastructure.

Information provided by proponents, including environmental impact assessments for proposed mining and coal seam gas activities, must be detailed, thorough, scientifically robust and holistic. The potential cumulative impacts must be comprehensively addressed.