Chapter 33

Health and Safety

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Figures

33. HEALTH AND SAFETY

33.1 Introduction

This chapter describes the existing health and safety values of the community, the project workforce, project suppliers and other stakeholders, in terms of the environmental factors that can potentially affect human health, public safety and quality of life. In addition this chapter details potential health and safety impacts for these stakeholders associated with the project.

Objectives and practical measures for protecting or enhancing community health and safety values are described, including the means by which these objectives and measures are to be achieved and regimes to monitor their performance.

Potential cumulative effects on public health and safety values as well as occupational health and safety impacts on the community and workforce associated with project operations and emissions are presented. Monitoring regimes to assess potential impacts have also been recommended.

Management of driver fatigue for workers and families travelling to and from regional centres and key destinations is described.

Health and safety impacts on the workers are not described in detail. The health and safety of workers will be managed by the proponent in accordance with all relevant legislation and codes of practice.

33.2 Method

A desktop review was undertaken to identify potential health and safety impacts of the project. Specialist studies undertaken and reported in this EIS were reviewed to identify existing health and safety values, potential health and safety impacts, as well as appropriate mitigation measures and monitoring regimes.

Further detail is included in the following chapters:

- Water Management – **Chapter 8**
- Surface Water Quality – **Chapter 15**
- Hydrology and Hydraulics – **Chapter 16**
- Air Quality – **Chapter 22**
- Noise and Vibration – **Chapter 24**
- Landscape and Visual Amenity – **Chapter 25**
- Traffic and Transport – **Chapter 27**
- Social Impacts – **Chapter 31**
- Hazard and Risk – **Chapter 32**

33.3 Description of Public Health and Safety Community Values

The existing land use within the project area is cattle grazing and residential. The closest population centres and corresponding population numbers (ABS, 2012) are outlined below:

- Glenden, approximately 20 km to the east (population 1,308)
- Collinsville, approximately 57 km to the north (population 4,044)

- Moranbah, approximately 70 km to the south (population 8,965).

The health and safety values of the community, workforce, suppliers and other stakeholders (in terms of environmental factors) that are potentially affected by the project, include surface water quality, air quality, traffic related issues, noise and lighting. These are discussed in the below sections. Social and community values are described in **Chapter 31, Section 31.2**.

33.3.1 Water

Surface water usage is primarily used to support cattle grazing. As described in **Chapter 15** - **Surface Water Quality**, drinking water has been cited in the Burdekin Catchment Environmental Values for the Upper Suttor River Sub-Catchment as a potential use however there are no urban areas or towns located downstream of the project area within the sub-catchment. Furthermore the very small population is widely scattered on pastoral holdings.

See **Chapter 15** for further detail.

33.3.2 Air

During the wet summer season the soil moisture content increases and there is increased grass ground cover. This results in lower dust emissions from most activities, including from local roads and grazing lands. During the dry winter season the soil moisture content and grass cover reduces, with dust emissions from all non-mining activities becoming more prevalent during this period. This is also the period when grass fires (including permitted fires) are likely to occur. These types of fires release significant quantities of smoke and ash into the lower atmosphere.

Potential sources of particulate emissions from the surrounding environment primarily comprise:

- farming and grazing activities
- existing commercial operations
- unsealed roads, and
- smoke and ash from grass/bush fires (permitted or otherwise).

Air quality objectives are specified in the *Environmental Protection (Air) Policy 2008* – EPP (Air).

See **Chapter 22** for further detail.

33.3.3 Noise

The project is located in a rural environment where there are existing coal mines within 15 km of the project boundary.

Qualities of the acoustic environment that are conducive to human health and wellbeing allow for individuals to sleep; study or learn; be involved in recreation, including relaxation and conversation; and conducive to protecting the amenity of the community. Noise quality objectives are specified in the *Environmental Protection (Noise) Policy 2008* – EPP (Noise).

See **Chapter 24** for further detail.

33.3.4 Visual

The project is located in a regional rural area that is quite remote with a small, sparse population. There are no identified sensitive receptors within a 5 km radius of the project footprint (i.e. project activities) and within the viewshed, as there are no occupied houses within the zone.

The existing night time visual environment in the region is already affected by mining projects with sky glow noticeable.

See **Chapter 25** for further detail.

33.3.5 Traffic

The transport of goods and personnel will, for the major part, be on the State controlled road network, namely Peak Downs Highway, Suttor Developmental Road, Collinsville-Elphinstone Road and Bowen Developmental Road. Small sections of the local road network would only be used occasionally to provide a connection to the State controlled road network.

See **Chapter 27** for further detail.

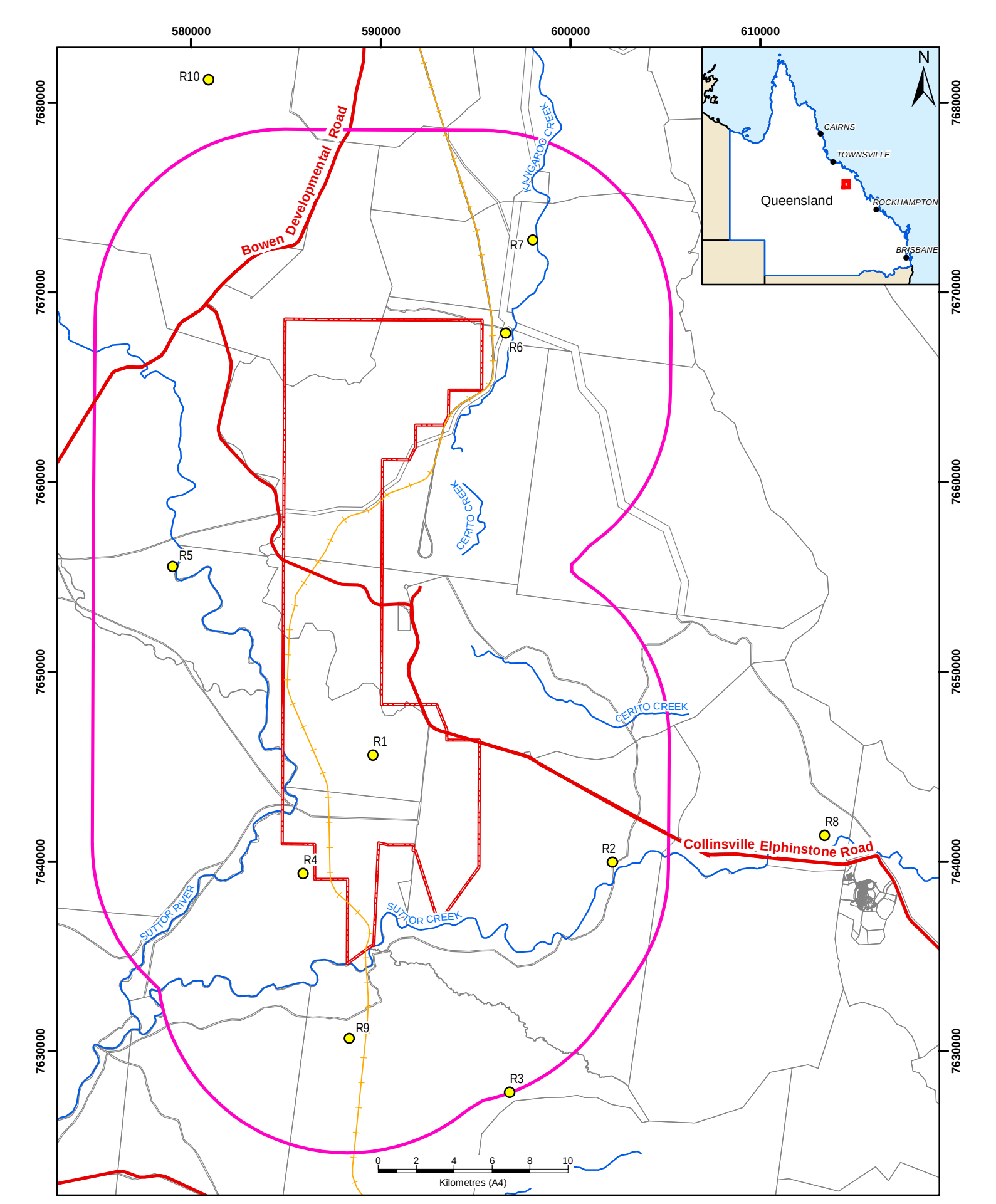
33.3.6 Sensitive Receptors

Sensitive receptors were identified through aerial imagery searches and knowledge of the proponent (refer **Figure 33-1**). Potential receptors were selected on the basis of being a dwelling, potential dwelling or other infrastructure used for community or social purposes; and

- being within 10 km of the boundary of the project tenements (the project area) or
- containing a dwelling greater than 10 km from the boundary of the project tenements but that is on a property intersected by the project tenements or
- within 5 km of the road linking Glenden to the project tenements.

The following receptors were not considered for the health and safety assessment for the reasons described below:

- Receptor 1 comprises a house on a property that is owned by wholly owned a subsidiary of the proponent and will not be occupied during mining activities.
- Receptor 4 comprises an unoccupied property and will remain unoccupied for the life of the project.
- Receptor 9 comprises two sheds, with no dwelling.



Legend

- Project Area
- Cadastre
- 10km Buffer
- Sensitive Receptors
- GAP Rail line
- Major Watercourses
- Main Road

Properties and Dwellings		QCOAL GROUP
Figure 33-1	**Byerwen Coal Project**	elp environmental and licensing professionals pty ltd
Date: *12/02/2013*	**Author:** samuel.ferguson	
	Map Scale: 1:250,000	
Revision: R1	**Coordinate System:** GDA 1994 MGA Zone 55	
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33.4 Potential Impact and Mitigation Measures

This section outlines the potential impacts and mitigation measures relevant to health and safety of the community.

33.4.1 Water

Water will be imported to site from the SunWater Burdekin to Moranbah pipeline, which delivers water from the Gorge Weir on the Burdekin River to customers along the pipeline route to Moranbah. This is considered to be a reliable source to meet process water demand, as well as for use as dust suppression and vehicle washdown where required, and for potable water.

Potable water for the construction workforce will be imported by road tanker from Glenden or an alternative municipal source and stored in appropriate sealed containers until such time as a water treatment plant is commissioned. Raw water supplied by SunWater will be treated on site at a water treatment plant to potable standard.

It is not expected that water allocation to the project will have any impact to the supply of potable water to local populations.

According to the information presented in **Chapter 16**, the flooding impact assessment concludes that flood protection measures can be designed to protect pit and final void from 1 in 1,000 year flood events. It is very unlikely that any flooding will create additional health and safety impacts arising from the project activities.

33.4.2 Air

33.4.2.1 Dust

Dust emissions from coal mines in Australia have the potential to cause nuisance, such as build-up of particulates on property, as well as effects in nearby communities where elevated dust levels occur. Health impacts could theoretically occur if concentrations of dust were elevated for prolonged periods, however, the experience of existing coal mines both regionally and in the local area around the project, is that dust emissions can be effectively managed to avoid such impacts.

Particulate matter is the major air pollutant emitted from coal mining activities such as excavating open pits, handling and loading the product, hauling along dirt roads, earthworks during construction, blasting and machinery operations. Finer particulates can be present from burning fuel and vehicle emissions however the emissions of fine particulates are relatively low, with minimal risk to the health of the community.

The EPP (Air) specifies air quality indicators and objectives for the air environment of Queensland and have been derived based on the protection of human health. Therefore compliance with the EPP (Air) objectives adequately protects against adverse health impacts of generic dust.

Potential dust impacts from the project were assessed for compliance with the air quality objectives for the project, based on the EPP (Air) (refer **Chapter 22**). With the implementation of standard mitigation measures such as watering of haul roads, it was found that there was potential for exceedances of PM_{10} (24 hour) 5th highest concentrations at sensitive receptor R5. A dust management plan will be developed and implemented to prevent exceedances of air quality objectives. A range of mitigation measures will be considered which will include chemical dust suppressants on haul roads, reducing the drop height of the dragline and reducing the level of activity in various pits (individually or simultaneously). Modelling demonstrates that with the implementation of these additional mitigation measures, air quality objectives can be achieved at all receptors. Dust monitoring will be established to inform the selection of mitigation measures at any particular time across the site, at sensitive receptors and particularly at R5.

Due to the distance separating the project from community receptors, it is very unlikely that dust will adversely affect the health and safety of the community or individuals in the region. Standard health and safety practices will be implemented to address the health and safety risks relevant to the workforce in line with legislation and codes of practice.

33.4.2.2 Coal Dust Emissions

The World Health Organisation has identified the main health effect of coal dust to be coal workers' pneumoconiosis and restrictive lung disease. In Australia, there has not been a new case of coal workers' pneumoconiosis in the last 10 years due to strict enforcement of occupational exposure standards and compulsory review of all workers (Katestone Environmental, 2012).

Therefore it is very unlikely that coal dust emissions from the project will adversely affect the health and safety of the community or individuals in the region. Standard health and safety practices will be implemented to address the health and safety risks relevant to the workforce in line with legislation and codes of practice, including the *Coal Mine Health and Safety Act 1999* (CMHS Act) that regulates air contaminants that may occur on a coal mine.

The proponent has committed to compliance with Aurizon's Coal Dust Management Plan (CDMP) and the requirements of the Transfer Facilities Licence regarding dust mitigation measures including veneering and load profiling (refer **Chapter 22**).

33.4.2.3 Odour

The hazard and risk assessment found that there were no significant sources of odour within the project that would impact sensitive receptors. Due to the separation distance between the project and sensitive receptors, it is very unlikely that any odours generated by the project will affect the health and safety of the community.

Any odours generated by the project are also very unlikely to affect site workers undertaking normal on-site day-to-day activities during construction and operation of the project. Any odour-related hazards are well addressed in CMHS legislation and relevant standards and will be complied with at all times during the construction, operation and decommissioning of the project.

Further details are provided in **Chapter 32**.

33.4.3 Noise and Vibration

The noise assessment undertaken demonstrated that the noise limits established for the project, based on the EPP (Noise) acoustic quality objectives to protect human health and wellbeing and the EPP (Noise) sleep disturbance goals, are met at all locations. The calculated noise levels at all off-site sensitive receptors comply with the noise level goals to avoid background creep for all time periods.

It is unlikely that noise emissions generated from the project will adversely affect the health and safety of the community. Standard health and safety practices will be implemented to address the health and safety risks relating to noise and vibration relevant to the workforce in line with legislation and codes of practice.

There are no residents along the Collinsville-Elphinstone Road that will experience noise levels above project limits. QR noise level goals for railways will readily be complied with due to the large distance between the project's train loading facilities and sensitive receptors.

Further details are provided in **Chapter 24**.

33.4.4 Visual

There are no identified sensitive receptors within a 5 km radius of the project footprint and within the viewshed, as there are no occupied houses within the zone. Overall the visual amenity impact to any

viewpoint in the long term would be no greater than a low to moderate impact following rehabilitation measures. Although the project would cause landscape change, the potential level of impact is notably tempered by its location in a rural area that is quite remote and with a low, sparse population. The visual and landscape study concluded that there would be insignificant visual amenity impacts to sensitive receptors surrounding the project area.

The existing night time visual environment in the region already contains some sky glow from existing mining projects. The visual amenity assessment indicated that from all viewpoints within 5 km radius of the active mine area, a sky glow may be noticeable. There are no sensitive receptors of any concern (i.e. private, occupied houses) within this 5 km area and hence impacts to community health are not expected. From some locations along the Collinsville-Elphinstone Road, lights would be seen, particularly those of the southern MIA and CHPP, which would be located approximately 1 km from that road. Vegetation buffers would be retained where practicable and impacts to community safety are not expected.

Further details are provided in **Chapter 25**.

33.4.5 Traffic

The traffic and transport study, reported in **Chapter 27**, identified that the additional traffic generated by the project is minimal when compared to the background traffic volumes.

The hazard and risk assessment, detailed in **Chapter 32**, has identified the potential for traffic accidents. Mitigation measures proposed include: speed limits, traffic management plan, compliance with relevant standards, training and Emergency Management Plan.

As detailed in **Chapter 27 Traffic and Transport**, standard operating procedures, roster control and fatigue management guidelines will be developed in accordance with the CMHS Act to address the risk of driver fatigue. These will be in addition to the statutory guidelines set by TMR for Queensland. Driver fatigue management procedures will be implemented for all workers travelling to and from regional centres. In order to minimise the number of project personnel driving to and from regional centres, the proponent will provide bus transport. Workers, excluding administration workers, will be transported between the project site and Glenden via bus. Information will be made available to all workers outlining risks associated with driver fatigue which can be implemented by workers' families travelling to and from regional centres.

33.4.6 Cumulative Impact

Potential health and safety impacts associated with the project activities have been identified and assessed, with mitigation measures proposed. Cumulative impacts were assessed for all potential health and safety impacts identified and detailed in **Chapter 34**. It is expected that with the adoption of proposed mitigation measures for the Byerwen project and similar measures at other projects, cumulative health and safety impacts will be minor.

33.5 Conclusion

Potential health and safety impacts have been identified and mitigation measures for protecting or enhancing health and safety community values are described. Objectives relating to water, air, noise, visual and traffic are included in the relevant chapters in this EIS, including the means by which these objectives and measures are to be achieved and monitoring regimes to be implemented. These objectives will form part of an overall Environmental Management Plan that will be monitored, audited and reviewed.

The project is not expected to adversely impact the health and safety of the community and workforce with the implementation of proposed mitigation measures and compliance with all relevant legislation and codes of practice governing health and safety.