



**NEW HOPE**  
GROUP

**J.17 Aviation Hazard Management Plan**



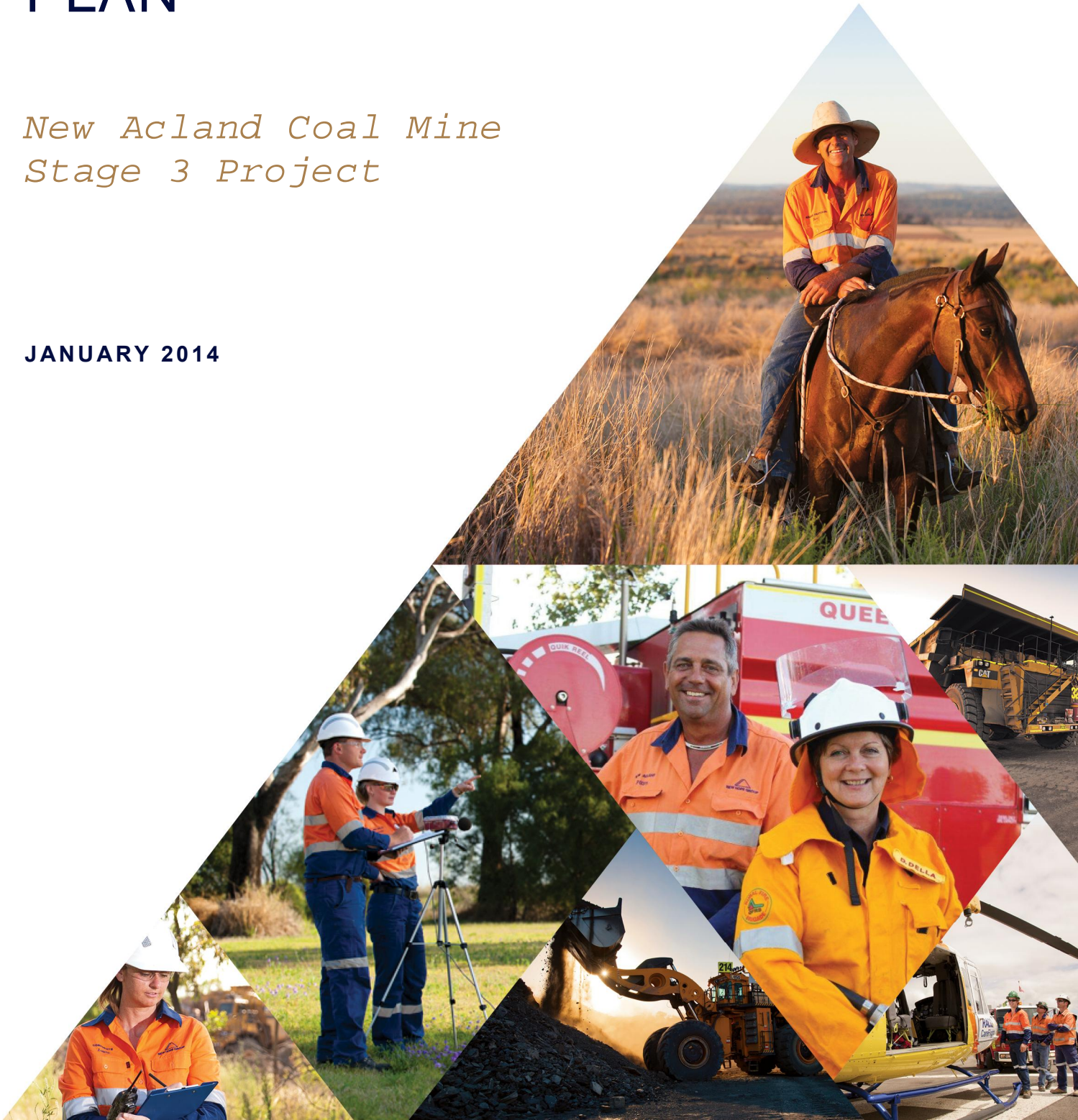


**NEW HOPE**  
GROUP

# AVIATION HAZARD MANAGEMENT PLAN

*New Acland Coal Mine  
Stage 3 Project*

**JANUARY 2014**



## Contents

1.	Introduction	1
1.1.	Background	1
1.2.	References	1
1.3.	Terms and Abbreviations	1
1.4.	Disclaimer	1
2.	Context	2
2.1.	General	2
2.2.	Flying Training Schedule	2
2.3.	Flying Training Areas	2
2.4.	Overview of Potential Hazards Identified	2
3.	Hazard Assessment Methodology	4
3.1.	Likelihood	4
3.2.	Severity of Impact on Risk Criteria - Consequence	4
3.3.	Assessing Hazards – Risk Score	5
3.4.	Risk Score and Required Action	6
4.	Hazard Treatment	7
4.1.	Assumptions	7
4.2.	Control Measures	7
4.3.	Action Strategy	8
4.4.	Fallback Plan	8
4.5.	Monitoring Effectiveness and Review	9
4.6.	Reporting	9
5.	Roles and Responsibilities	11
6.	Identified Hazards and Action Strategies	13
6.1.	NH-2011-001: Circuit Area Flying Restrictions	13
6.2.	NH-2011-002: Northern Training Area Transit Route Flying Restrictions	14
6.3.	NH-2011-003: Increased Light Pollution	15
6.4.	NH-2011-004: Increased Dust Levels	16
6.5.	NH-2011-005: Damage to the Air Traffic Radar	21
6.6.	NH-2011-006: Restricted Use of the Instrument Approaches and Outer Marker	22
7.	Identified Hazards – Residual Risk Scores	24
8.	Communication	26
8.1.	On-going Liaison with Stakeholders	26
8.2.	New Hope Community Liaison Officer – Oakey	26
8.3.	Army/Department of Defence	26
8.4.	RAAF and DMO	27
9.	Appendices	28
Appendix A.	References	29

Appendix B.	Terms and Abbreviations	30
Appendix C.	Stakeholders	33
Appendix D.	Army Aviation Operations Map, Oakey Special AUSPEC0015, Edition 10-DIGO (Extract)	35
Appendix E.	New Acland Stage 3 Aviation Hazard Assessment Matrix Internal new Hope Group Document	36

# **1. Introduction**

## **1.1. Background**

The New Acland Coal Mine Stage 3 Project (the Project) is the proposed third stage of New Hope Coal's New Acland Coal Mine, with its southern-most boundary located approximately 3.5 kilometres from Army Airfield Oakey. The New Acland Coal Mine currently produces 4.8 million tonnes per annum (Mtpa) of saleable thermal coal. The proposed Project will increase production to 7.5 Mtpa by the progressive development of three new resource areas, located at Manning Vale, Willeroo and Sabine.

This AHMP has been developed in accordance with references C through G and will be managed within New Hope Coal's Risk Management System (RMS) throughout the duration of the New Acland Coal Mine Stage 3 Project.

## **1.2. References**

References used within this plan are detailed at Appendix A.

## **1.3. Terms and Abbreviations**

Terms and abbreviations used in this plan are defined at Appendix B.

## **1.4. Disclaimer**

Nova Systems has developed this plan in accordance with the terms and conditions included in the contract with New Hope Group.

## 2. Context

### 2.1. General

This AHMP has been developed to mitigate Defence concerns related to the potential impact of the proposed Project of the New Acland Coal Mine on Army aviation operations at Oakey. Annex C details the stakeholders engaged during the development of this AHMP.

The Army Airfield at Oakey is the primary training facility for Army Aviation in Australia. The Airfield conducts a combination of basic helicopter training for student pilots and type conversions for already qualified pilots changing from one helicopter type to another. The Airfield currently supports operations for all Army aircraft types ranging from the small single-engine Kiowa basic trainer through to the larger and more sophisticated multi-engine, "glass cockpit" Tiger Armed Reconnaissance Helicopter (ARH), MRH-90, S-70A-9 Black Hawk and CH-47 Chinook aircraft. The Airfield also hosts a Republic of Singapore Air Force (RSAF) Super Puma Squadron.

### 2.2. Flying Training Schedule

Operations at the Airfield are conducted day and night over a programmed 48 weeks of flying training per year. This 48 week program includes four (4) nights per week scheduled for night flying. The heavy emphasis on Night Vision Goggle (NVG) training is a predominant driver for the significant night flying component as this activity can only be conducted at night. Additionally, the introduction of MRH-90 training requires night flying activities to extend from dusk until approximately 0200 hours (02:00am).

### 2.3. Flying Training Areas

The primary training areas for helicopter training are to the north of the Airfield. Brymaroo in particular is one of the outfields used extensively for training. The Oakey Special [reference G], an extract of which is at annex D, shows the position of the northern training areas and also a large and growing number of noise sensitive areas (blue areas) over which Army aircraft are not permitted to fly.

Noise sensitive areas to the south of the Airfield associated with horse studs means that Army is unable to effectively use these areas for training. Areas to the west of the Airfield, though used for some training, are considered by Army to be too flat and featureless for effective training, particularly for NVG training. Army is therefore limited to areas north of the Airfield for the bulk of flying training.

NVG training requires a relatively low light environment to be effective. Therefore, areas close to significant sources of ambient and reflected light such as the main population centres of Toowoomba and Highfields are not suitable. Army avoids the current New Acland Mine processing plant during NVG training because of the high level of light it produces.

### 2.4. Overview of Potential Hazards Identified

The following six (6) Hazards have been identified relating to the potential impact of the proposed Project of the New Acland Coal Mine on Army aviation operations at Oakey:

- a) NH-2011-001: Circuit Area Flying Restrictions;
- b) NH-2011-002: Northern Training Area Transit Route Flying Restrictions;
- c) NH-2011-003: Increased Light Pollution;

- d) NH-2011-004: Increased Dust Levels;
- e) NH-2011-005: Damage to the Air Traffic Radar; and
- f) NH-2011-006: Restricted Use of the Instrument Approaches and Outer Marker.

The Hazard Assessment Matrix at annex E provides a complete analysis and assessment of each of the identified Hazards, including the following:

- a) Description;
- b) Cause(s);
- c) Consequence(s);
- d) Current Controls and Effectiveness;
- e) Pre-Mitigation Risk Rating;
- f) Comments and/or Assumptions;
- g) Action Strategy;
- h) Fallback Plan;
- i) Treatment Actions;
- j) Residual Risk Rating;
- k) Residual Comments and/or Assumptions; and
- l) Risk Outcome(s).

### 3. Hazard Assessment Methodology

#### 3.1. Likelihood

Likelihood can be described as the probability or chance of an outcome or event occurring. In the context of this AHMP, Table 3-1 describes the Likelihood Rating used in the assessment of the identified Hazards.

Table 3-1 Likelihood Rating

Level	Description
A	ALMOST CERTAIN – to happen.
B	LIKELY – to happen at some point.
C	MODERATE – possible, heard of so it might happen.
D	UNLIKELY – not likely to happen.
E	RARE – practically impossible.

#### 3.2. Severity of Impact on Risk Criteria - Consequence

Risks shall be rated as a result of their likelihood of occurrence combined with the severity of their impact on the following Risk Criteria:

- a) [P] People. Related to the safety and/or well-being of personnel. Ranges from no injury or health affect (1 – Insignificant) to multiple fatalities (5 - Severe).
- b) [A] Asset or Equipment. Related to the direct monetary value of damage or loss of assets and/or equipment. Ranges from damage or loss to a value less than \$10,000 (1 – Insignificant) to a value greater than \$10 million (5 - Severe).
- c) [T] Time, Output, Cost, Quality. Related to direct and/or indirect cost associated with impact on schedule and performance with respect to output and quality of output. Ranges from associated delays and direct and/or indirect costs to a value less than \$10,000 (1 – Insignificant) to a value greater than \$10 million (5 – Severe).
- d) [R] Reputation. Related to the extent of damage to the reputation of New Hope Coal and whether negative publicity or attention is contained locally or more widespread. Ranges from no adverse publicity or attention (1 - Insignificant) to serious international media or public outcry (5 - Severe).
- e) [E] Environmental. Related to the extent of long- or short-term environmental impact and/or damage and the ability and requirement to rectify such damage. Ranges from no adverse impact on environment (1 - Insignificant) to major environmental impact causing loss of company credibility with stakeholders and the public and resulting in likely prosecution.

The level of severity assessed against each of the above Risk Criteria is used to establish the Risk Consequence Rating. In the context of this AHMP, Table 3-2 describes the Consequence Rating used in the assessment of the identified Hazards.



Table 3-2 Consequence Rating

	<b>[P] People</b>	<b>[A] Asset or Equipment</b>	<b>[T] Time, Output, Cost, Quality</b>	<b>[R] Reputation</b>	<b>[E] Environment al</b>
<b>Insignificant (1)</b>	No injury or health affect.	Damage or loss < \$10,000	Associated cost < \$10,000	No adverse publicity or attention.	No adverse impact on the environment.
<b>Minor (2)</b>	First-aid injury or minor temporary health affect.	Damage or loss \$10k - \$100k	Associated cost \$10k - \$100k	Minor adverse local media or public attention.	Temporary and minor affect on environment – non-reportable.
<b>Moderate (3)</b>	Medical treatment, long-term illness, permanent partial disability or health affect.	Damage or loss \$100k - \$1.0m	Associated cost \$100k - \$1.0m	Adverse attention from state media or raised public concern.	Serious temporary or minor permanent damage – reportable incident with local attention.
<b>Major (4)</b>	Single fatality or permanent total disability.	Damage or loss \$1.0m - \$10.0m	Associated cost \$1.0m - \$10.0m	Significant adverse attention from national media or public.	Significant environmental harm – reportable incident with adverse national publicity.
<b>Severe (5)</b>	Multiple fatalities.	Damage or loss > \$10.0m	Associated cost > \$10.0m	Serious international media or public outcry.	Major event causing loss of company credibility with stakeholders and the public and resulting in likely prosecution.

### 3.3. Assessing Hazards – Risk Score

The Consequence Rating in conjunction with the Likelihood Rating determines the overall Risk Score for each of the identified Hazards, as shown in Table 3-3. This Risk Score is initially assessed in consideration of the current controls and their effectiveness, prior to considering any additional mitigating actions (Pre-Mitigation Risk Score). The Risk Score for each identified Hazard is re-assessed following the development and assumed implementation of an action strategy, fallback plan and treatment actions (Residual Risk Score). The Residual Risk Score is subject to periodic review in accordance with New Hope's risk management framework and will be impacted by the implementation of the Action Strategy and Fallback Plan for each identified Hazard and the effectiveness of each mitigating action (overall treatment).

Table 3-3 Risk Score

Likelihood Rating		Consequence Rating				
		Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Severe (5)
A	Almost Certain	Medium	High	Extreme	Extreme	Extreme
B	Likely	Medium	Medium	High	Extreme	Extreme
C	Moderate	Low	Medium	High	Extreme	Extreme
D	Unlikely	Low	Low	Medium	High	Extreme
E	Rare	Low	Low	Low	Medium	High

### 3.4. Risk Score and Required Action

Depending on the assessed Risk Score for each identified Hazard, the required action will be in accordance with Table 3-4 below.

Table 3-4 Risk Score and Required Action

Risk Score	Required Action
Extreme	Work may only proceed if: likelihood is tolerable; personnel are competent; risks are adequately assessed; legal and mandatory requirements are met; Principal Hazard Management Plans (PHMP) and Standard Operating Procedures (SOP) are complied with; and risk controls are monitored and reviewed for effectiveness.
High	Same as Extreme Risk Score.
Medium	Acceptable. Apply adequate safeguards and review for effectiveness. Monitor for changes which may cause escalation of the risk level.
Low	Acceptable. Apply safeguards as considered necessary. Monitor for changes which may cause escalation of the risk level.

## 4. Hazard Treatment

### 4.1. Assumptions

Prior to formulating an Action Strategy to treat an identified hazard and subsequently the development of additional control measures as required, assumptions relevant to the hazard should be considered. For example, these assumptions may pertain to: existing controls and their current or anticipated effectiveness; factors or circumstances that may be relevant to the development of the Action Strategy and priority assigned to individual treatment actions; specific data relevant to the hazard (i.e. operational parameters, tempo or restrictions etc.); and the scope under which the hazard has been analysed and assessed.

Assumptions are an important input to the development of the Action Strategy to treat the hazard. Therefore, any subsequent changes to the assumptions made need to be considered in terms of flow-on impact on the Action Strategy and/or individual treatment actions. Review of the assumptions is crucial to the on-going management of the identified hazards.

### 4.2. Control Measures

Where the assessed Risk Score is to be lowered or managed, appropriate control measures (to reduce the Likelihood Rating) and recovery measures (to minimise the Consequence Rating) will be determined, implemented and/or maintained. Control measures will be identified based on the Risk Score and can be grouped into two categories, as follows:

- a) controls currently in place (“Current Controls”); and
- b) additional controls that are identified as necessary to reduce the Risk Score to “As Low As Reasonably Achievable” (ALARA).

The following is a list of typical methods for controlling the assessed Risk Score for identified hazards, in order of effectiveness (from greatest to least).

- a) **Elimination.** Removing the hazard. Elimination can be difficult to achieve and, where possible, it often involves an engineering solution. For example, if a lift box was required to raise a maintenance person to change light bulbs on a tower, could the tower be pivoted to permit the task being undertaken from the ground thereby eliminating the risks associated with working at height?
- b) **Substitution.** Replacing one or more of the causes of the hazard. If electricians use a cleaning solvent that contains a known carcinogen, seek an alternative product that is less harmful to personnel health.
- c) **Isolation.** Removing or isolating personnel from the hazard. For example implementing an energy isolation procedure, i.e. removing/controlling the energy source or using physical barriers or time to separate personnel from the hazard.
- d) **Engineering Controls.** Adding additional measures to reduce the Likelihood Rating of the hazard. For example, if personnel are required to use a portable ladder to access a valve, a fixed platform could be installed to minimise the likelihood of a person falling off a potentially unstable ladder.
- e) **Administrative Controls.** Examples of administrative controls include mandatory work procedures, personnel training, and task rotation to minimise exposure time (reducing the Likelihood Rating of the hazard).

- f) Personal Protective Equipment (PPE). PPE such as eye, face, skin, foot, head, respiratory, hearing and fall protection. Other forms of control should also be considered in conjunction with the use of PPE.
- g) Human Behaviour. Influencing human behaviour through positive reinforcement (reward programs/initiatives), negative reinforcement (punishment or penalty programs) or situational awareness/alertness and compliance with rules and/or procedures/instructions.

The control measures for treating each individual hazard need to reflect the significance of the hazard (with high Risk Scores quite often requiring multiple controls), the expected effectiveness of the controls, and their cost-effectiveness. It is common to accept and monitor hazards with low Risk Scores. For higher Risk Score hazards action strategies and fallback plans, where applicable, are needed to be developed and implemented, including the allocation of ownership of specific actions (resources) to mitigate the hazard to an acceptable level.

### **4.3. Action Strategy**

Once appropriate additional control measures have been considered, an Action Strategy is developed for each hazard to implement these control measures and determine the effectiveness of the controls in managing the Risk Score. The Risk Score and the degree to which it is required to be managed will influence the degree and priority for implementation of the control measures. Implementation may involve the installation or modification of equipment or a process, application of procedures or communication and training of personnel.

The Action Strategy is used to generate a list of discrete Mitigation type Treatment Actions which, when completed (in the context of any assumptions made), should collectively meet the intent of the Action Strategy in managing the Risk Score. Each Mitigation Action is:

- a) clearly described;
- b) assigned an Action Owner who is accountable for its completion;
- c) assigned a Status which is monitored and reported by the Action Owner;
- d) allocated a Start/End date which will reflect the agreed timeframe for completion of the Action based on its priority (in the context of the overall Action Strategy); and
- e) summarised in a narrative validating the current Status of the Mitigation Action and/or detailing the outcome/s and effectiveness of the Action upon its completion.

The Action Strategy will be periodically reviewed as part of the New Acland Mine hazard and risk management framework. As a result of this review the Action Strategy may evolve based on any changes to assumptions made and/or the effectiveness of the Mitigation Actions implemented.

### **4.4. Fallback Plan**

The Action Strategy should also consider a Fallback Plan and associated actions, particularly for significant risks, to be implemented where Mitigation Actions have not been successful in treating the risk. As with Mitigation Actions, Fallback Actions are clearly described; assigned Ownership, status and agreed timeframe for completion; and summarised in a narrative detailing current status or outcome/s on completion. Fallback Actions, once implemented, should be monitored and reviewed where necessary to assure their effectiveness.

#### 4.5. Monitoring Effectiveness and Review

As the Action Strategy is implemented, the identified Hazards will be periodically re-assessed with consideration to the combination of existing (current) and additional controls (Mitigation Actions), to establish their combined effectiveness in reducing the Risk Score to an acceptable level. Risk mitigation itself can introduce risk. A significant risk can be the failure or ineffectiveness of the Mitigation Actions. Monitoring needs to be an integral part of the risk mitigation plan to give assurance that the actions remain effective.

The Hazard Assessment Matrix at annex E will become part of the New Acland Mine site Risk Register. The Risk Register provides the basis for on-going development and review of the site Safety, Health and Environment Management System (SHMS), including Principal Hazard Management Plans and Standard Operating Procedures. A review of the Risk Register shall be undertaken annually or in the event of a significant change or incident.

Section 5 details the New Hope personnel responsible for implementing and maintaining the risk management process. As mentioned, each identified Hazard is assigned an Owner who is responsible ensuring Action Strategies and Treatment Actions are developed and implemented through to completion. The Owner may delegate responsibility for tracking, reviewing and reporting on individual Treatment Actions and their effectiveness. However the Owner is responsible for the overall management of the Hazard including monitoring the effectiveness and review of the Action Strategy and associated Treatment Actions, and reporting status to the Senior Site Executive (SSE). The SSE will provide independent oversight of the progress and success of Hazard treatments and provide status updates to the Audit Committee and Senior Executive Team (SET). Hazards/risks that are eliminated will be transferred to a closed risk register for recording purposes.

#### 4.6. Reporting

**Routine Reporting.** The timeframe for reporting by the Owner will be determined by the SSE. As a minimum, a risk profile status report is to be submitted to the SSE on a quarterly basis in the months of June, September, December and March of each year. This is to enable the preparation of a consolidated risk profile report for submission to the Audit Committee. The quarterly risk profile report is to include the following:

- a) Total Number of hazards/risks – Summary for Current Quarter (Prior Year);
- b) Risk Profile - Summary for Current Quarter (Prior Year);
- c) Key changes to risk profile since the last reporting period (eg, new hazards/risks, modified Risk Scores and/or control evaluation, eliminated hazards/risks);
- d) Status of the risk management program (eg, internal audits or reviews completed, external audits or reviews completed, management reviews completed, risk assessments completed by the business unit, risk action plans initiated and/or completed, training sessions completed, etc);
- e) Highest Residual Risks Score hazards/risks (ie, Extreme and High);
- f) Summary of risk action plans in progress (for Highest Residual Risk Score hazards only); and
- g) Recent material incidents/events.

**Preparation for Business Management Group (BMG) Meetings.** The BMG represents the leadership team of New Hope and is a business and information sharing forum. Membership of the BMG includes the Managing Director, Chief Operating Officer

(COO), Chief Financial Officer (CFO), Company Secretary and business unit managers. One month prior to the BMG Meeting, a Business Unit Manager will be advised on the requirements for reporting by the MRMIA. This will be rotational with the following items to be reported on:

- a) An update of the business unit's hazards/risks, including actions completed and any changes to the risk profile
- b) Update on hazard/risk status, including the addition or deletion of any hazards/risks to the Strategic and Corporate risk register.

## 5. Roles and Responsibilities

The following New Hope parties are responsible for implementing and maintaining the risk management process.

Table 5-1 Hazard and Risk Management - Roles and Responsibilities

Role	Responsibility
Board of Directors	<p>The Board of Directors are responsible for:</p> <ul style="list-style-type: none"> <li>• Monitoring and reviewing Audit Committee Reports, New Hope's Corporate Risk Management Plan, and ongoing Risk Reports.</li> <li>• Approve and communicate New Hope's risk appetite.</li> <li>• Oversee the implementation of the risk management framework.</li> <li>• Reviewing the progress and effectiveness of implemented treatment plans regularly through board meetings or as delegated to the Audit Committee and otherwise when required.</li> </ul>
Audit Committee	<p>The Audit Committee is responsible for:</p> <ul style="list-style-type: none"> <li>• Approving and periodically reviewing New Hope's risk profile and Strategic and Corporate Risk Management Framework.</li> <li>• Oversight of material risks and controls.</li> <li>• Appointing a Manager – Risk Management &amp; Internal Audit (MRMIA).</li> <li>• Reviewing and monitoring the Corporate Risk Management Plans and Risk Reports from the MRMIA and Executive Management Team.</li> <li>• Providing an advisory role to the MRMIA to ensure appropriate mitigation strategies are implemented by the individual business units and operational groups. This includes compliance with the risk appetite as set by the Board.</li> <li>• Monitoring and reviewing reports prepared by the MRMIA and Internal Audit group.</li> </ul>
Senior Executive Team (SET)	<p>The Senior Executive Team is responsible for:</p> <ul style="list-style-type: none"> <li>• Establishing the context for risk management within New Hope including scope, goals and objectives. This also involves developing a risk appetite for board approval.</li> <li>• Ensuring all key risk exposures have been identified and are actively managed over the given business unit using appropriate risk management activities and tools.</li> <li>• Reviewing and approving Corporate Risk Management Plans prior to presentation to the Audit Committee and Board of Directors.</li> <li>• Reviewing and approving a Consolidated Strategic and Corporate Risk Register prepared by the MRMIA.</li> <li>• Sign off of all risk reports, plans and registers prior to presentation to the Audit Committee and Board of Directors.</li> <li>• Approving treatment plans for those risks with an 'Extreme and 'High' risk rating.</li> <li>• Supporting the MRMIA role when required.</li> </ul>

Role	Responsibility
<p>Manager – Risk Management &amp; Internal Audit (MRMIA)</p>	<p>The MRMIA is responsible for:</p> <ul style="list-style-type: none"> <li>• Independent monitoring and reporting of risk activities for New Hope.</li> <li>• Reporting on the risk profiles and the progress of the risk treatment plans in regular risk reports.</li> <li>• Supporting the preparation of Risk Management Plans for each business unit and SET using the Risk Registers for the basis of their development.</li> <li>• Developing a central risk register ('Consolidated Strategic and Corporate Risk Register') which records all the business unit risks and consolidating them under the corporate risks.</li> <li>• Presenting the Consolidated Strategic and Corporate Risk Register to the SET for approval.</li> <li>• Recommending and facilitating education and training of risk practices and processes across the organisation.</li> <li>• Ongoing maintenance and improvement of the Strategic and Corporate Risk Management Framework.</li> <li>• Coordinating and facilitating Risk Workshops with all business units, operational groups and the SET.</li> </ul> <p>The MRMIA ensures:</p> <ul style="list-style-type: none"> <li>• Policies clearly document the methodology for allocating risk ratings and tolerable levels (risk appetite).</li> <li>• The risk management process and risk criteria are updated and maintained.</li> <li>• Risk utilisation is monitored regularly against risk appetite.</li> </ul>
<p>Risk Owners and Line Managers</p>	<p>The Risk Owners (usually relevant line managers or above) are responsible for:</p> <ul style="list-style-type: none"> <li>• Ensuring the risk management processes are established in their business units and operating effectively.</li> <li>• Reporting risk events in accordance with the reporting process included in the framework.</li> <li>• Managing and maintaining a register of risks for the business unit.</li> <li>• Implementing measures to appropriately resolve risk issues as they are identified, within their respective lines.</li> <li>• Assisting the facilitation of Risk Workshops.</li> <li>• Risk owners must be given specific authority to undertake any risk mitigation actions they have been delegated.</li> </ul>
<p>All New Hope Employees</p>	<p>All New Hope employees are responsible for observing New Hope's policies, procedures and delegations and managing risks under their control.</p> <p>This responsibility extends to identifying business and operational risks. Where they identify a potential risk they must inform the business unit's line manager for possible inclusion in the business unit's risk register.</p>



## 6. Identified Hazards and Action Strategies

### 6.1. NH-2011-001: Circuit Area Flying Restrictions

The Circuit Area is that area in the immediate vicinity of the Airfield over which aircraft fly at low level for the conduct of approaches and landings and for the initial training of student pilots. The size of the Circuit Area varies depending on the aircraft type, with larger helicopters requiring a larger Circuit Area for the conduct of circuit based training.

Army has advised that the proposed Project will encroach upon the northern Circuit Area and could therefore restrict circuit training (day and night), unless it is permissible for helicopters to overfly the Mine site at low level. The altitude above ground level (AGL) of operations within the Circuit Area varies depending on the nature of the training, typically 500-1000ft AGL. However, due to Army helicopter flying training requirements, low level flights down to 200ft AGL are conducted within the Circuit Area on occasion.

Army is concerned that it will not be able to overfly, at the required minimum altitudes, the areas of the Mine site that will be within the Circuit Area, particularly the active pits. This concern is exacerbated by the potential increase in frequency and/or duration of blasting operations in the active pits that will be within the Circuit Area.

Action Strategy. The following Action Strategy has been developed to mitigate Hazard NH-2011-001:

- a) Investigate the acceptability for Army aircraft to overfly the areas of the Mine site, including active pit areas, that encroach upon the Circuit Area at heights down to 200ft AGL (day and night).
- b) Identify the minimum allowable overfly height over areas of the Mine site, including active pit areas, that encroach the Circuit Area if greater than 200ft AGL (day and night).
- c) Investigate acceptability to Army of restricting flying over areas of the Mine site that encroach the Circuit Area to the identified minimum allowable overfly height.
- d) Review current procedures and protocol for the issue of Notices to Airmen (NOTAMs) for Oakey (timings, area of restricted operations etc.).
- e) Establish a single New Hope point-of-contact (POC) at Oakey – Community Liaison position.

Overfly Heights. New Hope has investigated the minimum allowable overfly height over the areas of the Mine site, including the active pits, that encroach upon the Circuit Area. During periods of no blasting, New Hope has proposed a minimum overfly height of 500ft AGL (day and night) for all Army aircraft types in airspace above the active pit areas. Further, there are no minimum altitude restrictions (day and night) outside of the active pit areas. The only caveat is that New Hope has requested that the active pit areas not be illuminated by aircraft "white" searchlights as this would present a potential hazard for mine operators at night. It should be noted that aircraft electromagnetic transmissions associated with High Frequency (HF), Very High Frequency (VHF), Ultra-High Frequency (UHF), Lightweight Doppler Navigation System (LDNS) and Radar Altimeter (RADALT) systems are not a concern to New Hope Coal in determining the minimum acceptable over-fly heights.

Issue of NOTAMs. Currently, during blasting activities NOTAMs are issued that restrict overfly of the entire Mine site Lease to 3500ft above mean sea level (AMSL). New Hope is investigating the issue of more "targeted" NOTAMs that could reduce the area of overfly restriction imposed to (possibly) a 500m radius of the blasting location. This should

minimise Circuit Area flying restrictions during blasting events since the prohibited areas will be significantly more localised/confined.

New Hope Community Liaison Officer. The New Acland Mine Environmental Officer will remain the POC for all operational issues that need immediate action. However, the *Community Liaison Officer* will be the facilitator between New Hope Coal and Army Aviation to ensure all concerns, such as those detailed within this AHMP, are being addressed and regular reviews are held with Army. A candidate for the Community Liaison Officer position has been selected and commenced in the role on 29 February 2012. This position will also provide a single POC to the general community.

## **6.2. NH-2011-002: Northern Training Area Transit Route Flying Restrictions**

Army has advised that the location of the proposed Project will encroach upon the transit routes to the northern training areas. Further, Army advised that there are no alternate suitable training areas available since the profile of the land to the North of Oakey represented the only hilly terrain with sufficiently low light levels within reasonable range of the Airfield. The areas to the West are not a suitable alternative as these areas are too flat and featureless. There are a limited number of training areas to the South however the location of several horse studs now prohibits helicopter operations in these areas.

Army has not quantified the potential increase in transit time and cost that would result from having to fly to the East and/or West of the Mine extension to reach the northern training areas, but has indicated that at present the flying program was such that they believed an increase of as little as 10 minutes to each transit flight would result in training courses no longer being able to meet required completion dates.

An exacerbating factor to the northern transit concern is that land owners are demanding increasing restrictions on Army flying operations due to perceived unacceptable noise levels. These growing restrictions are continuing to reduce the areas available to Army for flying operations. Army expressed concern that the Mine extension would limit flying operations to within a very narrow corridor that would result in land owners demanding that helicopter operations be prohibited or highly restricted within these areas.

Action Strategy. Similar to the Hazard NH-2011-001 Circuit Area Flying Restrictions, the following action strategy has been developed to mitigate Hazard NH-2011-002:

- a) Investigate the acceptability to overfly the areas of the Mine site, including active pit areas, that encroach upon the current transit routes to the northern training areas at heights down to 200ft AGL (day and night).
- b) Identify the minimum allowable overfly height over areas of the Mine site, including active pit areas, that encroach upon the current transit routes to the northern training areas if greater than 200ft AGL (day and night).
- c) Investigate acceptability to Army of restricting flying over areas of the Mine site that encroach upon the current transit routes to the northern training areas to the identified minimum allowable overfly height.
- d) Review current procedures and protocol for the issue of NOTAMs for Oakey (timings, area of restricted operations etc.).
- e) Establish a single New Hope POC at Oakey – Community Liaison position.

As per Hazard NH-2011-001 Circuit Area Flying Restrictions, the proposed Mine site minimum allowable overfly heights and the issue of more “targeted” NOTAMS should minimise the flying restrictions on the northern training area transit routes.

### **6.3. NH-2011-003: Increased Light Pollution**

Army is concerned about the increase in ambient and reflected light that is likely to be produced by the Project and its adverse impact on night operations, particularly when using Night Vision Goggles (NVGs). They had not quantified the impact of the current New Acland mining operations on night flying but the light levels were such that they currently avoid night flying in the area.

Army also noted that the majority of NVG operations involved basic NVG training for students learning to fly on NVG for the first time. High levels of ambient and reflected light within certain electromagnetic spectral range can be hazardous when operating on NVGs and Army indicated that the associated risk was far greater for students with minimal NVG experience. They expressed concern that simply constraining the direction of light sources would probably not resolve the issue because of the impact of reflected light. Also, aircraft can approach the area from any direction and therefore it is unlikely that lights could be directed in such a way as to account for all operations. As stated, due to the encroachment of the Project, additional light pollution could adversely impact Circuit Area and transit flight operations at night.

**Action Strategy.** The following Action Strategy has been developed to mitigate Hazard NH-2011-003:

- a) Conduct an independent lighting assessment of the existing New Acland Mine site to baseline the compatibility of current infrastructure lighting with Gen III NVG and inform possible lighting modifications for the Project (particularly the processing plant and active pit area).
- b) Investigate current NVG compatible infrastructure lighting technologies for use in the design of the Project (limiting spectral emissions to (frequency removed)).
- c) Solicit Army interest in testing possible NVG compatible infrastructure lighting solutions.

**Independent Lighting Assessment.** Nova Systems was contracted by New Hope Coal to perform an independent NVG lighting assessment of the existing New Acland Mine site. The assessment was conducted during a test flight on 06 Feb 12 in accordance with the associated Nova Systems Test Plan. As detailed in Nova Systems’ subsequent report [reference I], the assessment was conducted using an NVG modified Bell 206L LongRanger aircraft and Noga NL-94-AU NVGs. The assessment, in particular, looked at halo effect, blooming of the NVGs and a qualitative assessment of the level of visual acuity degradation resulting from the Mine site light sources. The existing Mine site has three primary sources of lighting: the active pit area and associated vehicles; the processing plant; and the administration buildings. It was assessed that the intensity of the non-NVG compatible lights at the Mine site and the associated halo effect was not significant and did not adversely affect the pilot’s ability to safely manoeuvre the aircraft in the vicinity of, or directly above, the Mine site at and above 500ft AGL. The reference I report concluded that non-NVG compatible lighting at the Mine site does impact the performance of NVGs but not to the extent of adversely affecting the safe operation of the aircraft when flying in the vicinity of, or over-flying, the Mine site. Notwithstanding, the report added that the primary source of adverse lighting was found to be the mobile wash-light towers located in the active pit area and, should NVG compatible infrastructure lighting be considered for the Project, then these light sources should be the first to be replaced.

NVG Compatible Lighting Solutions. NVG compatible lighting technologies currently used in Defence and Commercial aviation applications are being investigated by Nova Systems, New Hope Coal and DLP&SI for possible inclusion in the design of the Stage 3 infrastructure lighting. Limiting Mine site infrastructure lighting sources, particularly the mobile wash-lights, to those with spectral emissions below (frequency removed) should reduce the impact of the Project on Gen III NVG operations. Army will be invited to participate in the testing of potential NVG compatible infrastructure lighting solutions once they have been acquired by New Hope Coal.

#### **6.4. NH-2011-004: Increased Dust Levels**

Army has expressed concern about the possible adverse impact of fine particle dust on aircraft engine performance and the conduct of maintenance activities. This concern is of a general nature and has not been substantiated by any specific technical data (such as helicopter engine performance parameters or sensitive equipment data). Army is uncertain of the levels of dust likely to be encountered by aircraft flying in the vicinity and passing over the airfield and this uncertainty results in concern. It is known that dust has an adverse effect on flying operations, in terms of visibility and also wear of engine components. The presence of dust can also adversely affect aircraft and equipment maintenance activities and in the case of highly sensitive equipment can prevent maintenance activities from being conducted.

Army has recognised the considerable work that New Hope Coal has done with respect to analysing and modelling the impact on air quality and dust deposition as a result of the Project. Army acknowledged that, ideally, it needs to quantify the acceptable limits for dust in terms of helicopter flying operations and specific maintenance activities. However, Army has indicated that it is likely to be difficult to establish acceptable limits in some cases since definitive related data may not be readily available from equipment manufacturers, particularly data and limits associated with maintenance activities.

**Air Quality Guidelines.** Dust is a generic term used to describe fine particles that are suspended in the atmosphere. Dust comes from a variety of sources including soil, vegetation (pollens and fungi), sea salt, fossil fuel combustion, the burning of biomass, and industrial activities. It is formed when fine particles are taken up into the atmosphere by the action of wind or other physical disturbances or through the release of particulate-rich gaseous emissions. Dust is typically classified according to its particle size, as follows:

- a) TSP – Total Suspended Particulates (refers to all airborne particulate matter);
- b) PM10 – particulate matter with a diameter less than 10 µm (0.01 mm);
- c) PM2.5 – particulate matter with a diameter less than 2.5 µm (0.0025 mm); and
- d) Deposited – particulate matter that falls out of suspension in the atmosphere (Dust Deposition).

The *Environmental Protection Act 1994* provides for the management of the air environment in Queensland. Air quality guidelines are specified by the Department of Environment and Resource Management (DERM) in the Queensland *Environmental Protection (Air) Policy 2008* (EPP (Air)). The air quality objectives in the EPP (Air) considered relevant to the Project are detailed in Table 6-1.

Table 6-1 Air Quality Objectives in EPP (Air)

Pollutant	Air Quality Objective	Averaging Period	Allowable Exceedances
Total Suspended Particulates (TSP)	90 µg/m <sup>3</sup>	Annual	-
PM <sub>10</sub>	50 µg/m <sup>3</sup>	24 hours	5 per year

The air quality goals for PM<sub>2.5</sub> in the EPP (Air) have not been adopted for the Project because dust monitoring around open-cut coal mining activities has shown that coarse particles (greater than 2.5 µm) dominate the particulate size distribution, with PM<sub>2.5</sub> making up only 2 to 5 percent of total emissions [reference J]. Studies in the Sydney, Newcastle, Wollongong and Hunter Valley regions have shown that the bulk of very fine particles in the atmosphere are typically derived from sources such as agriculture and various combustion processes. Also, no formal criteria for Dust Deposition exists within Queensland however the DERM (2003) recommends a nuisance guideline of 120 mg/m<sup>2</sup>/day averaged over one month.

**Workplace Health and Safety Goals.** The exposure standards in these regulations for respirable dust, quartz and inspirable dust are expressed as time-weighted average exposure limits and are shown in Table 6-2. The exposure standards detailed refer to airborne concentrations of substances in the breathing zone of the worker, determined by "personal sampling". Exposure standards do not represent "no-effect" levels, which guarantee protection to every worker.

The inspirable fraction, comprising airborne particles of dust that can be taken in through the nose or mouth during breathing, is related to airborne particles with equivalent aerodynamic diameters less than approximately 100 µg (similar to TSP). The respirable fraction relates to particles less than approximately 10 µg (or PM<sub>10</sub>).

Table 6-2 Relevant Time-Weighted Average Exposure Limits

Pollutant	Time-Weighted Average Exposure (8 hour working day / 5 day working week)
Particulate Matter – Inspirable Fraction (similar to TSP) (National Occupational Health and Safety Council (NOHSC) exposure limits (NOHSC 1995))	10 mg/m <sup>3</sup> (or 10,000 µg/m <sup>3</sup> )
Particulate Matter – Respirable Fraction (PM <sub>10</sub> ) (Value noted by the ACGIH 2005 (American Conference of Industrial Hygienists) has been referenced in absence of specific goals in Australia)	3 mg/m <sup>3</sup> (or 3,000 µg/m <sup>3</sup> )

A comparison of Tables 6 and 7 clearly shows that the air quality objectives described in the EPP (Air) are significantly more stringent than the workplace exposure limits. For this reason the dust emissions from the New Acland Mine have been assessed against the EPP (Air) air quality objectives.

**Action Strategy.** The following Action Strategy has been developed to mitigate Hazard NH-2011-004:

- a) Continue to employ dust mitigation measures to achieve the following Project air quality goals:
  - 1)  $PM_{10} < 50 \mu\text{g}/\text{m}^3$  (24 hour average)
  - 2)  $TSP < 90 \mu\text{g}/\text{m}^3$  (annual average)
  - 3) Dust Deposition  $< 120 \text{mg}/\text{m}^2/\text{day}$
- b) Expand the dust modelling to include Oakey Airfield (Ground Level, 200ft AGL and 500ft AGL), the area directly above the active pit(s) (200ft AGL and 500ft AGL), the northern Circuit Area (200ft AGL and 500ft AGL), and the northern area of the New Acland Lease (200ft AGL and 500ft AGL).
- c) Expand the dust modelling to produce a high fidelity Time Series Plot showing a blasting event and the subsequent dissipation of associated dust over a period of several hours.
- d) Establish the acceptability of expanded dust modelling results to Army.

Air Quality Monitoring and Modelling. The reference J Memo details the results from air quality monitoring conducted by New Hope Coal at sensitive receptors around the New Acland Mine site; and the expanded dust modelling and blasting time series plots. This modelling assessment was undertaken by:

- a) Generating a meteorological dataset generated from The Air Pollution Model (TAPM Version 4.0.3) – a prognostic model developed by CSIRO;
- b) Estimating dust emissions from mining activities based on emissions factors published by the Australian National Pollutant Inventory (NPI) and United States Environmental Protection Agency (USEPA) AP-42 (Compilation of Air Pollutant Emission Factors); and
- c) Air dispersion modelling performed using the DERM and USEPA approved CALPUFF (Version 7.12) modelling package.

The reference J modelling of dust emissions are for mining operations at different stages of the mine development. Also, current air quality monitoring has shown that previous modelling results have been conservative in that actual dust levels, particularly at ground level, have been consistently below those predicted by the model. It is expected that the dust modelling produced for the Project will also be conservative.

Air Quality Monitoring Results. Current air quality in the vicinity of the New Acland Mine site is influenced by several factors:

- a) Mining activity from the Mine;
- b) Agricultural activity or dust from cultivation and harvesting;
- c) Motor vehicle emissions from nearby roads;
- d) Occasional bushfires and control burns; and
- e) Windblown dust from dry inland areas.

New Hope Coal has been periodically monitoring  $PM_{10}$  concentrations at seven sensitive receptors around the New Acland Mine site for the past eight years. The results from this monitoring are shown in Figure 1. The average of all 24 hour  $PM_{10}$  concentrations is  $14 \mu\text{g}/\text{m}^3$  with a maximum 24 hour  $PM_{10}$  concentration of  $45 \mu\text{g}/\text{m}^3$  recorded in November 2003. The 70<sup>th</sup> percentile of all 24 hour average  $PM_{10}$  concentrations recorded around the Mine is  $15 \mu\text{g}/\text{m}^3$ . As shown, all  $PM_{10}$  concentrations recorded during the period March 2003 through

July 2011 are less than the EPP (Air) air quality goal of  $50 \mu\text{g}/\text{m}^3$  with no exceedances (5 per year are allowable).

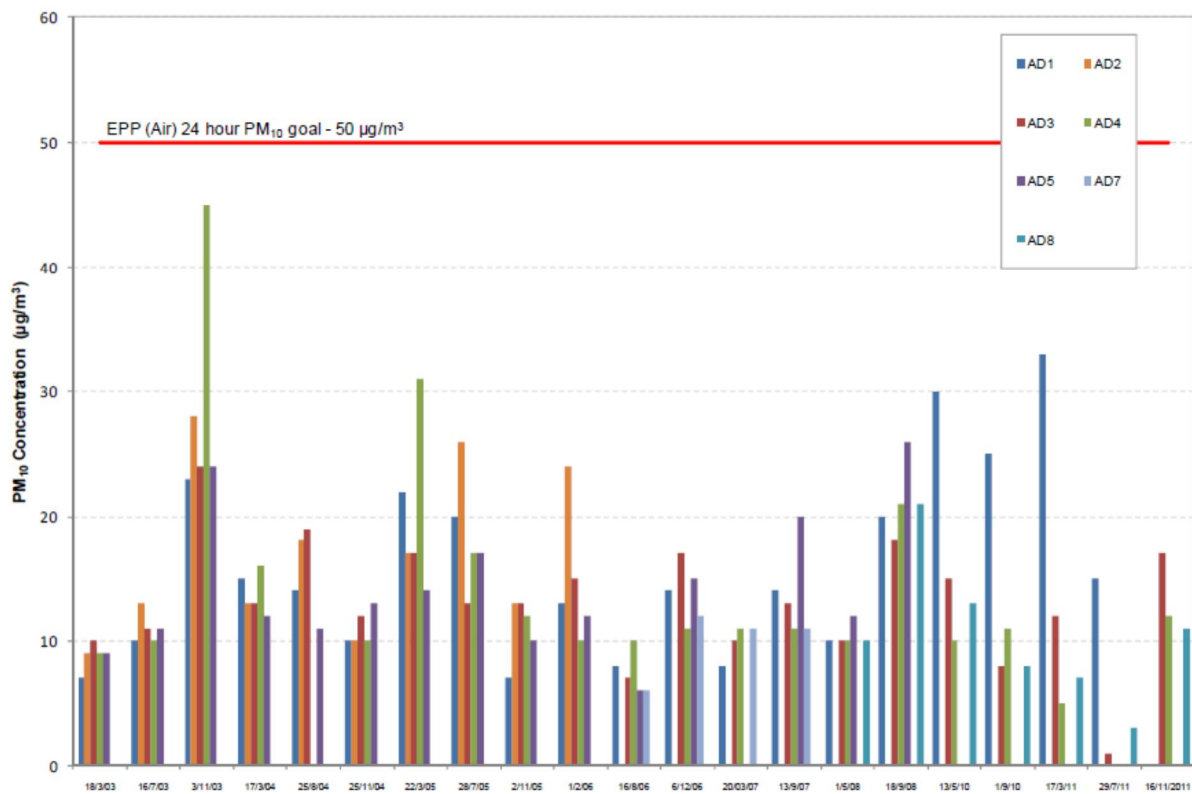


Figure 6–1 PM<sub>10</sub> Concentrations at Sensitive Receptors around the New Acland Mine

Air Quality Modelling Results – Time Series and Contour Plots. As mentioned, the reference J Memo details the results from the expanded dust modelling and blasting Time Series and Contour Plots at five specified locations. Figure 2 shows the five specified locations for the Time Series and Contour Plots.

Reference K details the following outcomes of the PM<sub>10</sub> concentration modelling (including the 70<sup>th</sup> percentile background of  $15 \mu\text{g}/\text{m}^3$ ):

a) Time Series Plots:

- 1) The predicted PM<sub>10</sub> concentrations at all five specified locations (at Ground Level, 200ft AGL and 500ft AGL) are expected to comply with the EPP (Air) air quality goal of  $50 \mu\text{g}/\text{m}^3$ .

b) Contour Plots:

- 1) The predicted maximum 24 hour PM<sub>10</sub> concentrations at all five specified locations (at Ground Level, 200ft AGL and 500ft AGL) are expected to comply with the EPP (Air) air quality goal of  $50 \mu\text{g}/\text{m}^3$ .
- 2) The predicted annual average 24 hour PM<sub>10</sub> concentrations at all five specified locations (at Ground Level, 200ft AGL and 500ft AGL) are expected to comply with the EPP (Air) air quality goal of  $50 \mu\text{g}/\text{m}^3$ .

c) Blasting Time Series Plots:

- 1) A one hour blasting scenario was modelled to predict the dispersion of atmospheric dust particles under different meteorological conditions (no formal guidelines in Queensland have been established to assess the impact of dust particles in the atmosphere on visibility).
- 2) Modelling was conducted for a typical summer and winters day. The summer blast scenario occurs on a hot day with high winds (> 8 m/s) and the winter blast (worst case scenario) occurs on a cool day with very low winds (1 m/s).
- 3) The winter blast is predicted to disperse at 200 ft AGL after approximately 1 hour from the blast occurring, whereas the summer blast is predicted to disperse after 10 minutes from the blast occurring.

It should be noted that there are no scientific reports assessing the correlation between dust concentrations from blasting and the impact on visibility. A Commonwealth Scientific and Industrial Research Organisation (CSIRO) study (Attalla et.al 2008) on blasting emissions in the Hunter Valley, New South Wales found that the plume was no longer visible to the eye after approximately six minutes.



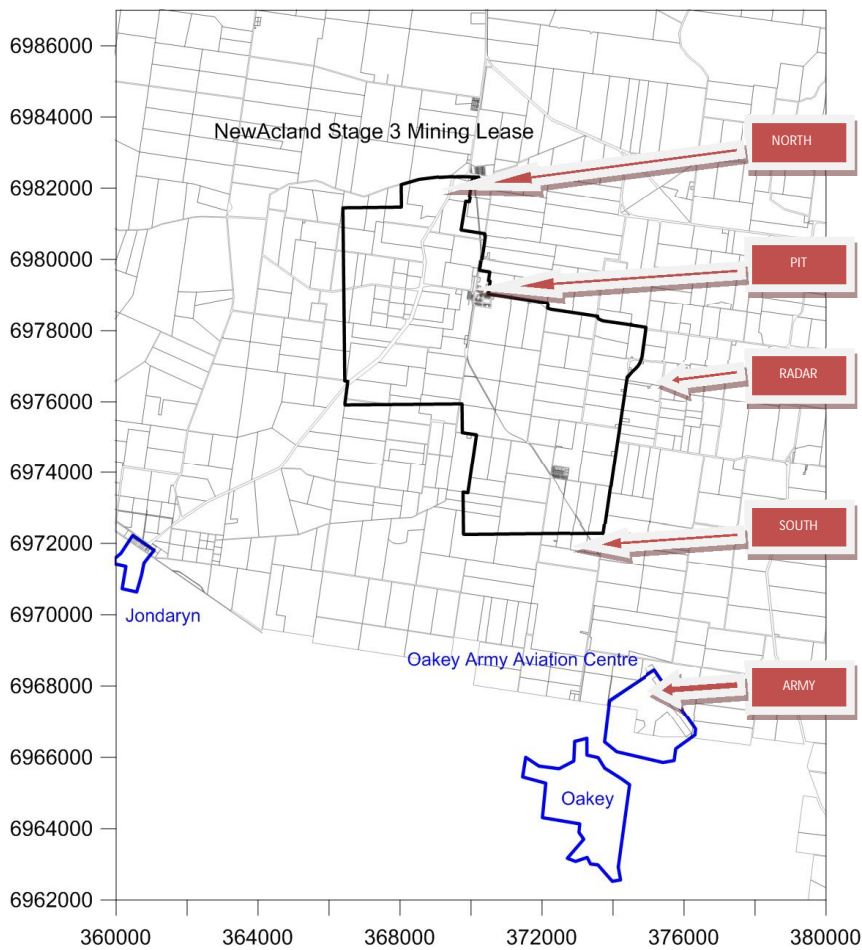


Figure 6–2 Time Series Plot Specified Locations (Ground Level, 200ft AGL and 500ft AGL)

### 6.5. NH-2011-005: Damage to the Air Traffic Radar

The potential adverse impact of dust and blasting on the Air Traffic Radar (ATR) located at Turkey Hill has been raised by Army as a concern. The ATR site is located along the Oakey–Cooyar Road and would be on the boundary of the proposed Project. ATRs are sensitive to both dust and vibration and therefore it is important that the potential impact of changes in air quality and shock waves generated by blasting activities be investigated.

**Action Strategy.** Similar to the Hazard NH-2011-004 Increased Dust Levels, the following Action Strategy has been developed to mitigate Hazard NH-2011-005:

- a) Continue to employ dust mitigation measures to achieve the following Project air quality goals:
  - 1)  $PM_{10} < 50 \mu\text{g}/\text{m}^3$  (24 hour average)
  - 2)  $TSP < 90 \mu\text{g}/\text{m}^3$  (annual average)
  - 3) Dust Deposition  $< 120 \text{ mg}/\text{m}^2/\text{day}$

- b) Continue to employ vibration mitigation measure to achieve the maximum vibration level of 10 mm/sec specified by Australian Standard AS2187.2-2006, Explosives – Storage and Use (Part 2, Use of Explosives).
- c) Expand the dust modelling to include the Turkey Hill ATR site.
- d) Conduct modelling and worst-case shock wave analysis for the Turkey Hill ATR site.
- e) Provide the dust and vibration/shock wave modelling and analysis to Army, Royal Australian Air Force's (RAAF's) Number 44 Wing (44WG) and the Defence Materiel Organisation's (DMO's) Ground Telecommunications Equipment System Program Office (GTESPO).

Vibration. The current mining operations at the New Acland Mine are achieving maximum vibration levels of 2 mm/sec measured at the Lease boundary (the Lease condition is 5 mm/sec). The reference K analysis of blast induced vibration indicates that a *maximum* vibration level of 5.3 mm/sec should be experienced at the Turkey Hill ATR based on a blast site no less than 871m from the ATR (this is the distance of the ATR from the closest point of planned mining under the Project). Vibration levels of less than 5 mm/sec should be achieved under normal blasting operations. Therefore, both the current and predicted maximum vibration levels fall well below the 10 mm/sec specified by AS2187.2-2006 (ie. exceeds the Australian Standard requirements). The Australian Coal Association Research Program (ACARP) Project C14057 "Effect of Blasting on Infrastructure", published in October 2008 [reference L] also details analysis supporting the specified safe vibration levels for structures. Further, site based studies from a Hunter Valley Coal Mine indicate that the expected maximum vibration level at the Turkey Hill ATR may be as low as 3.2mm/sec. It should also be noted that the reference K analysis is conservative, using worst case parameters such as a blast hole diameter of 250mm (largest) and an explosive density of 1.2g/cm<sup>3</sup> (highest).

Dust/Air Quality. Current air quality monitoring and the reference J modelling results indicate that the Project should not increase dust levels at the ATR above the EPP (Air) air quality goal of 50 µg/m<sup>3</sup>. Specific technical data detailing dust exposure and vibration limits and associated impact on the ATR serviceability/ operational reliability is not currently available (and is unlikely to become available).

#### **6.6. NH-2011-006: Restricted Use of the Instrument Approaches and Outer Marker**

There are a number of Instrument Approaches used by aircraft arriving at Oakey Airfield in adverse weather conditions. These Approaches, including Instrument Landing System (ILS), VHF Omnidirectional Range (VOR), Non-Directional radio Beacon (NDB) and soon to be added Global Navigation Satellite System (GNSS), all require very specific clearances from obstacles throughout the conduct of the approach. Many of these Approaches will require over-flying the Mine site and therefore the maximum height of obstacles at the Mine site must remain within the allowable limits for each of the Approaches.

In addition to the clearance requirements for the Instrument Approaches, the Oakey ILS currently has a marker beacon (Outer Marker) located in the vicinity of the proposed Project. The Outer Marker is used by pilots when conducting an ILS approach to verify the accuracy of their altimeter. The relocation of the Outer Marker is being considered under a separate activity. Notwithstanding, any potential impact of the Project on the Outer Marker needs to be considered as part of this AHMP.

Action Strategy. The following Action Strategy has been developed to mitigate Hazard NH-2011-006:

- a) Assess location and height of Project "obstacles" (infrastructure and out-of-pit spoil dumps) against the clearance requirements for each Instrument Approach at Army Airfield Oakey.
- b) Review current procedures and protocol for the issue of NOTAMs for Oakey (timings, area of restricted operations etc.).
- c) Establish a single New Hope POC at Oakey – Community Liaison position.

Obstacle Heights. Considering the Instrument Approach profile heights, the Project "obstacles" (infrastructure and out-of-pit spoil dumps) will have maximum heights of approximately 45m AGL (485m AMSL) and therefore should not adversely affect Army Aviation operations at Oakey.

NOTAMs. The issuing of more "targeted" NOTAMs, as described in Hazards NH-2011-1 and -2 should also minimise the impact of blasting events on the use of the Instrument Approaches and Outer Marker.

Community Liaison Officer. As mentioned, the New Acland Mine Environmental Officer will remain the POC for all operational issues that need immediate action. The *Community Liaison Officer* will be the facilitator between New Hope Coal and Army Aviation to ensure all concerns, such as those detailed within this AHMP, are being addressed and regular reviews are held with Army.

Planned Future of the Outer Marker – AFM1010. GTESPO advised that an emerging Air Force Minor Project pertaining to the Outer Marker is currently progressing through the "two pass" Minor approvals process. AFM1010 "Instrument Landing System (ILS) Replacement" has been proposed to address the Life-of-Type (LOT) of the current ILS by *acquiring and sustaining replacement ILSs at selected ADF facilities*. The ILS Outer Marker located on the New Acland Mine Lease is expected to be replaced during 2015-2016. Relocation of the Outer Marker is within the scope of AFM1010. The Project would not impact the current Outer Marker location. On-going communication between New Hope Coal, DLP&SI and the DMO (GTESPO) regarding the progress of AFM1010 will be maintained through to its completion.

## 7. Identified Hazards – Residual Risk Scores

As mentioned, the Hazard Assessment Matrix at annex E provides a complete analysis and assessment of each of the identified Hazards detailed in Section 6. Table 7-1 shows the Residual Risk Score for each of the identified Hazards following re-assessment in consideration of the described action strategies. The Residual Risk Scores will be subject to review in accordance with the New Acland Mine hazard and risk management framework.

Table 7-1 Population and proximity of nearby towns

Hazard No.	Residual Risk Score	Comments	Risk Outcome
NH-2011-001	Low	Awaiting Army confirmation of acceptability of proposed minimum allowable overfly heights for the areas of the Mine site that encroach the Circuit Area.	Negligible impact on Army Aviation Operations at Oakey.
NH-2011-002	Low	Awaiting Army confirmation of acceptability of proposed minimum allowable overfly heights for the areas of the Mine site that encroach upon the transit routes to the northern training areas.	Negligible impact on Army Aviation Operations at Oakey.
NH-2011-003	Medium	Independent NVG lighting assessment of the existing New Acland Mine site concluded that non-NVG compatible lighting at the Mine site does impact the performance of NVGs but not to the extent of adversely affecting the safe operation of the aircraft when flying in the vicinity of, or over-flying, the Mine site. NVG compatible lighting technology being investigated for possible use in the design of the Project infrastructure, particularly the mobile wash-light towers located in the active pit area.	Minor impact on Army Aviation Operations at Oakey. On-going monitoring required.
NH-2011-004	Low	Expanded modelling results indicate that there should be very minor impact on Army's operations (especially given that the modelling results are conservative).	Negligible impact on Army Aviation Operations at Oakey.
NH-2011-005	Low	Expanded modelling results indicate that there should be negligible impact on Army's operations.	Negligible impact on Army Aviation Operations at Oakey.

Hazard No.	Residual Risk Score	Comments	Risk Outcome
NH-2011-006	Low	Awaiting confirmation that Stage 3 infrastructure and out-of-pit spoil dump heights do not exceed obstacle clearance requirements for each of the ILS Approaches at Oakey. Emerging Air Force Project AFM1010 has been proposed to replace selected ADF ILS during the next five years. The proposed Project will not impact the location of the Outer Marker until the year 2021 by which time it should have been replaced/relocated. There should be negligible impact on Army Aviation operations at Oakey.	Negligible impact on Army Aviation Operations at Oakey.

## **8. Communication**

### **8.1. On-going Liaison with Stakeholders**

Effective hazard management is dependent on clear communication and consultation with key external and internal stakeholders to promote the flow of information from decision makers to the relevant groups. For New Hope Coal, this will involve the ongoing communication of:

- a) Hazard/risk management expectations, objectives and emerging trends from the SET and MRMIA; and
- b) Key risks, sources of risk, potential consequences and the progress mitigation strategies top-down and bottom-up through the organisation.

In addition to implementing clear paths of risk communication, New Hope Coal will consult with key stakeholders regularly to drive accountability and ownership, and facilitate the exchange of accurate and relevant risk related information. Risk communication and consultation, although formalised through quarterly reporting requirements, should be frequent and dynamic in response to changing risk profiles and emerging trends both internally and externally.

### **8.2. New Hope Community Liaison Officer – Oakey**

The New Acland Mine Environmental Officer will remain the POC for all operational issues that need immediate action (such as complaints, safety issues etc.).

The New Hope Community Liaison position has been established at Oakey. This position will facilitate, through a single POC, the timely communication of all mining events at the New Acland Mine site that are of relevance to Army stakeholders and aviation operations at Oakey. This position will also provide a single POC to the general community.

The New Hope Community Liaison Officer will be a central POC for all on-going liaisons with key stakeholders throughout the duration of the Project. This role will provide an effective conduit for the two-way flow of information between New Hope Coal and key stakeholders with respect to providing:

- a) updates to this AHMP and associated Hazard Assessment Matrix, particularly changes and/or updates to action strategies, status of treatment actions, and changes to Residual Risk Scores;
- b) feedback on the effectiveness of the action strategies and associated treatment actions; and
- c) any information relevant to the on-going management of the identified Hazards.

### **8.3. Army/Department of Defence**

Army and the Defence Support Group (DSG) are major stakeholders with respect to the Project and play a significant role in the on-going monitoring and management of the identified Hazards. On-going close liaison with Army will be maintained throughout the duration of the Project to ensure that all of the identified Hazards are being acceptably managed and any potential opportunities identified where proactive interaction may benefit all stakeholders with respect to timely favourable project outcomes. As mentioned, the New Hope Community Liaison Officer will be the primary interface between New Hope Coal and Army/DSG to facilitate dialogue pertaining to the management of the identified Hazards.

#### **8.4. RAAF and DMO**

On-going liaison with RAAF (44WG) and DMO (GTESPO) will be maintained throughout the life of the Project with respect to the ATR at Turkey Hill. As detailed, the expanded air quality and vibration analysis and modelling indicates that the mining operations associated with the Project should have a negligible effect on the operation and serviceability of the ATR. However, in addition to providing this data to 44WG and GTESPO for review, on-going communication with New Hope Coal will be maintained to facilitate periodic feedback of operational monitoring results as necessary, allowing comparative analysis/validation against the predictive modelling results to be performed if required.

## 9. Appendices

- a) References
- b) Terms and Abbreviations
- c) Stakeholders
- d) Army Aviation Operations Map for the Army Airfield at Oakey, Oakey Special AUSPEC0015, Edition 10-DIGO (Extract)
- e) New Acland Stage 3 Aviation Hazard Assessment Matrix



## APPENDIX A. REFERENCES

Table A-1 References

Reference	Title
A	LPSI/OUT/2010/21 "New Acland Coal Mine Environmental Impact Statement", dated 3 February 2010
B	Nova Systems Document NOVA-IPS-1000 NCHE-0685 BRF-001 v1.0 "New Acland Coal Mine Project, Potential Impact on Aviation Operations at Army Airfield Oakey", dated 01 November 2011
C	Nova Systems Proposal NQ 11-261 "Development of an Aviation Hazard Management Plan for the New Acland Project Environmental Impact Statement", dated 27 January 2012
D	AS/NZS ISO 31000:2009, Risk Management – Principles and Guidelines
E	New Hope Corporation Limited Procedure No. PROC 0132 "Strategic and Corporate Risk Management Framework", dated 01 September 2010
F	New Acland Coal Safety and Health Standard "Element - 02 11 Hazard Management", dated 06 January 2011
G	New Acland Coal Safety and Health Standard "Element - 02 00 Risk Management", dated 28 June 2010
H	Army Aviation Operations Map for the Army Airfield at Oakey, Oakey Special AUSPEC0015, Edition 10-DIGO
I	Nova Systems Report Acland Mine NVG RPT-001 v1.0 "New Acland Mine NVG Lighting Assessment", dated 14 February 2012
J	SKM Memo "Air Quality Impacts above New Acland Coal Mine", dated 14 March 2012
K	Kilmorie Consulting Pty Ltd Report "Blast Vibration Analysis Prepared for New Acland Coal", dated 14 March 2012
L	ACARP Project C14057 "Effect of Blasting on Infrastructure", published 20 October 2008 [Alan Richards and Adrian Moore, Terrock Consulting Engineers]

## APPENDIX B. TERMS AND ABBREVIATIONS

Table B-1 Terms and Abbreviations

Abbreviation	Definition
44WG	No. 44 Wing, Royal Australian Air Force
AAC	Army Aviation Centre
ACARP	Australian Coal Association Research Program
ADF	Australian Defence Force
AGL	Above Ground Level
AHMP	Aviation Hazard Management Plan
ALARA	As Low As Reasonably Achievable
AMSL	Above Mean Sea Level
ARH	Armed Reconnaissance Helicopter
AS	Australian Standard
ATR	Air Traffic Radar
BMG	Business Management Group
CFO	Chief Financial Officer
COO	Chief Operations Officer
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DERM	Department of Environment and Resource Management
DLP&SI	Department of Defence's Director of Land Planning & Spatial Information
DMO	Defence Materiel Organisation
DSG	Defence Support Group
EPP (Air)	Environmental Protection (Air) Policy 2008
GNSS	Global Navigation Satellite System
GTESPO	Ground Telecommunications Systems Program Office
HF	High Frequency
ILS	Instrument Landing System
LDNS	Lightweight Doppler Navigation System
LOT	Life-of-Type
m	Metre

Abbreviation	Definition
mg	Milligrams
mm	Millimetre
µm	Micrometre (10 <sup>-6</sup> m)
MRMIA	Manager – Risk Management & Internal Audit
Mtpa	Million Tonnes per Annum
NDB	Non-Directional Beacon
NOHSC	National Occupational Health and Safety Commission (Australia)
NOTAM	Notice to Airmen
NPI	National Pollutant Inventory
NVG	Night Vision Goggles (Aviation/Generation III)
nm	Nanometres
PHMP	Principal Hazard Management Plans
PM10	Particulate Material – 10 microns
PM2.5	Particulate Material – 2.5 microns
POC	Point of Contact
PPE	Personal Protective Equipment
RAAF	Royal Australian Air Force
RADALT	Radar Altimeter
RAN	Royal Australian Navy
RMS	Risk Management System
RSAF	Republic of Singapore Air Force
SEIS	Supplemental Environmental Impact Study
SET	Senior Executive Team
SOP	Standard Operating Procedures
SQNLDR	Squadron Leader
SSE	Senior Site Executive
TSP	Total Suspended Particulates
USEPA	United States Environmental Protection Agency
UHF	Ultra High Frequency
µg	Micrograms

Abbreviation	Definition
VHF	Very High Frequency
VOR	VHF Omnidirectional Range
WGCDR	Wing Commander

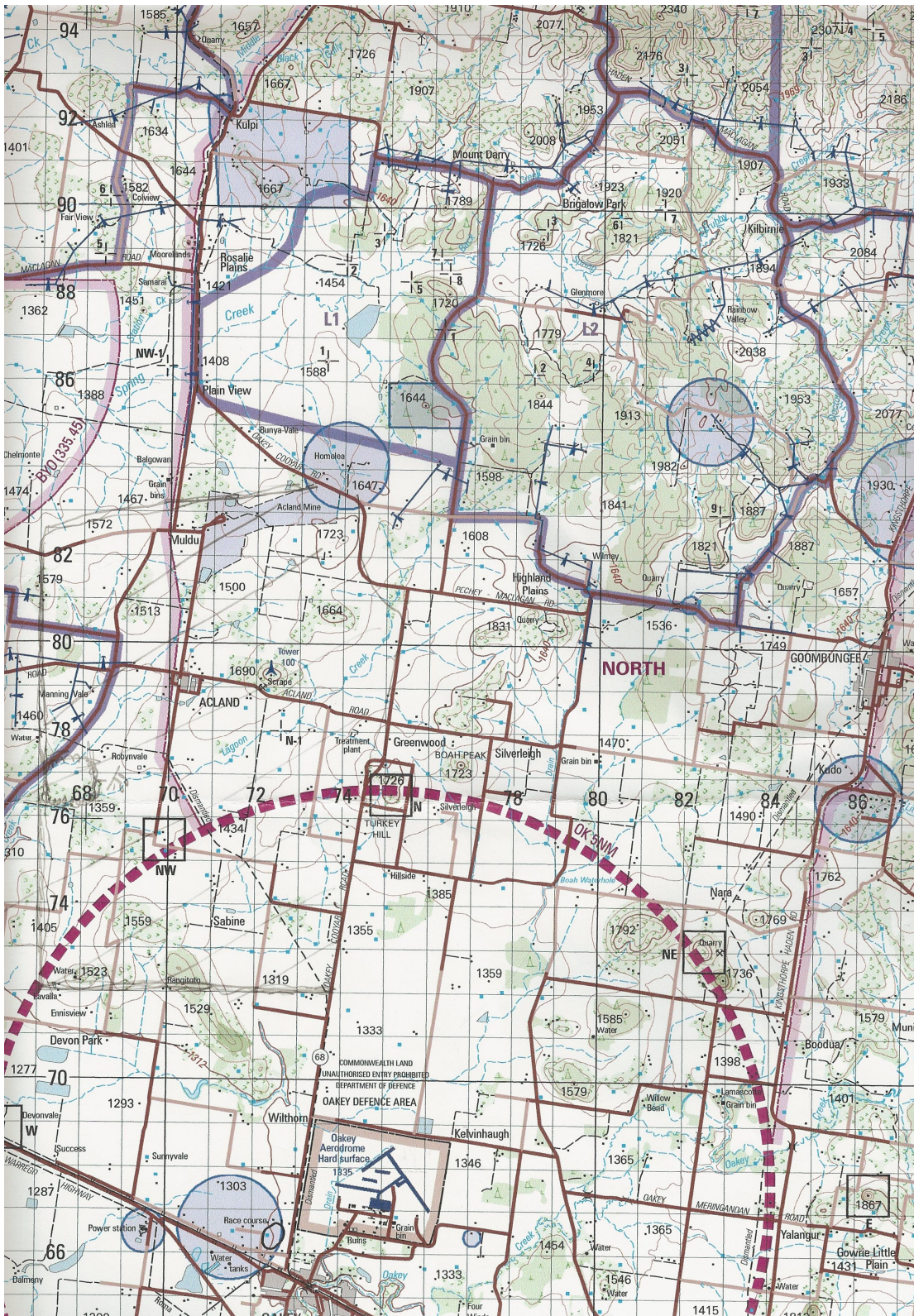
## APPENDIX C. STAKEHOLDERS

Table C-1 Stakeholders

Organisation	Appointment / Role	Name	E-mail
New Hope Coal	Project Manager – New Acland Project	André du Preez	adupreez@newhopecoal.com.au
New Hope Coal	Principal Environmental Advisor	David Genn	dgenn@newhopecoal.com.au
New Hope Coal	Project Superintendent Acland Operations	Greg King	gking@newhopecoal.com.au
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### APPENDIX D. ARMY AVIATION OPERATIONS MAP, OAKEY SPECIAL AUSPEC0015, EDITION 10-DIGO (EXTRACT)



**APPENDIX E. NEW ACLAND STAGE 3 AVIATION HAZARD  
ASSESSMENT MATRIX INTERNAL NEW HOPE GROUP  
DOCUMENT**