GUJARAT NRE COKING COAL LIMITED
A.B.N. 28 111 244 896
NRE No 1 Colliery

NRE No.1 Colliery
Wonga East – Longwalls 4 & 5 EP/SMP

LW5 PUBLIC SAFETY MANAGEMENT PLAN

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Document Version	Revision				Revision Notes
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GLOSSARY OF TERMS AND ABBREVIATIONS

Abbreviations	
DoP&I	Department of Planning & Infrastructure
DSC	Dam Safety Committee
Mtpa	Million tonnes per annum
NRE	Gujarat NRE Coking Coal Limited
RMS	Roads and Maritime Services
ROM	Run of Mine
SCA	Sydney Catchment Authority
SMP	Subsidence Management Plan
TC	Technical Committee established to assess impacts to RMS assets

Terms	
Project Approval	Pt3A Major Project approval MP10_0046 as modified

1 INTRODUCTION

1.1 Project Background

Gujarat NRE Coking Coal Ltd (NRE) operates the NRE No.1 Colliery in the Southern Coalfield of New South Wales (NSW). The mine is located at Russell Vale approximately 8 km north of Wollongong and 70 km south of Sydney, within the local government areas (LGAs) of Wollongong and Wollondilly in the Illawarra region of NSW.

On 13 October 2011, the Project Approval (MP 10_0046) for the No.1 Colliery Preliminary Works Project was granted by the Minister for Planning under Section 75(J) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This approval allows NRE to continue its operations at the mine including the extraction of coal up to 1 million tonnes per annum and upgrade of and improvements to surface facilities, in addition to first workings and transport of coal to the Port Kembla Coal Terminal for shipment as required.

NRE intends to expand its mining operations at No.1 Colliery and has submitted an application for a Underground Expansion Project (MP 09_0013) which is currently under assessment by the Department of Planning and Infrastructure (DoP&I). In order to ensure the ongoing viability of the mine while awaiting the necessary approvals, NRE lodged a concurrent Subsidence Management Plan (SMP) application for the extraction of Longwalls 4 and 5 to the Department of Trade and Investment, Division of Resources and Energy (referred to herein as DRE). The SMP approval for Longwall 4 was granted on 26 March 2012 by DRE, however, approval for Longwall 5 was not granted.

NRE lodged a section 75W (s75W) Modification Application to the Preliminary Works Project Approval (MP 10 0046) to modify MP 10_0046 to include:

- Amending the reference to the use of maingates (MGs) 4 and 5 from exploratory driveages to operational gateroads;
- The extraction of coal using longwall mining techniques from Longwall (LW) 4 in accordance with the approved SMP;
- The extraction of coal using longwall mining techniques from Longwall (LW) 5; and
- Development of maingates (MGs) 6, 7 and 8.

The proposed longwalls are wholly contained within the Sydney Catchment Authority (SCA) controlled Metropolitan Special Area, which is used to provide drinking water to Sydney and Wollongong. The longwalls lie outside the Dam Safety Committee Notification Area for Cataract reservoir, with the reservoir high water mark located approximately 600 m northwest of Longwall 5.

This Public Safety Management Plan (PSMP) has been prepared in support of an Extraction Plan, as required by **Condition 7/Schedule 3** of Project Approval (MP 10 0046).

1.2 Purpose and Scope

The purpose of this management plan is to document the potential risks to public safety from the extraction of Longwalls 4 & 5 in the Wonga East Domain, and detail any management or mitigation

measures to be put in place to mitigate these risks. Outcomes of implementing these management or mitigation measures are to ensure safety to the public.

The plan is applicable to all surface areas which may be affected by mine subsidence due to the extraction of Longwalls 4 & 5, defined as the Study Area in the Longwalls 4 & 5; MG 6, 7 & 8 Pt3A modification application and the 'Additional Subsidence Management Area' defined on Plan 2e attached in **Appendix B**.

1.3 Distribution

This Plan will be prepared in consultation with, and copies will be distributed to:

- Division of Resources and Energy (DRE)

In accordance with ***Condition 10/Schedule 5*** of the Project Approval, NRE will make this Plan publicly available on the NRE website and will be responsible for its maintenance. A hard copy will also be kept at the NRE No.1 Colliery, Bellambi Lane, Russell Vale..

Any revisions undertaken will be the responsibility of NRE and any notifications sent accordingly. NRE will not be responsible for maintaining uncontrolled copies beyond ensuring the most recent version is maintained on NRE's computer system, website, and hard copy at the NRE No.1 Colliery, Bellambi Lane, Russell Vale.

Surface Features Plan

RUSSEL VALE NSW

Legend

- Longwall 5
- Longwall 4 Goaf
- Broad Headed Snake Habitat
- Electricity Transmission Line (LPI)
- Fire Trails and Vehicle Tracks (LPI)
- Major Roads (LPI)
- Watercourses (LPI)
- Project Application Area
- Upland Swamps (Biosis Research 2012)
- Major Waterbodies (LPI)
- Cadastre (LPI, 2011)

Archaeological Sites (AHIMS)

- Axe Grinding Groove
- Axe Grinding Groove - AHIMS Location - Unrelocated
- Axe Grinding Groove - Monitoring Point
- Open Camp Site
- Shelter with Art

N W E S

FIGURE 1

1:12,500 Scale at A3

Metres

0 200 400 600 800

Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2012-12-06
Coordinate System: GDA 1994 MGA Zone 56
Project: 112069-02
Map: G2004_SurfaceFeaturesPlan.mxd 01

Aerial Imagery supplied by NearMap and associated third party suppliers (July 2012).

1.4 Report Structure

The remainder of this Management Plan is structured as follows:

Section 2: Outlines the statutory requirements applicable to the Plan.

Section 3: Outlines the baseline data and impact assessments undertaken which support this Plan.

Section 4: Details the performance measures and indicators that will be used to assess the Project.

Section 5: Describes the monitoring program.

Section 6: Describes the management, remediation and mitigation measures that will be implemented to reduce potential impacts as well as the Contingency Plan to manage any unpredicted impacts and their consequences.

Section 7: Describes the protocols for the handling of incidents, complaints and non-conformances

Section 8 Details how the Plan will be implemented, managed, reviewed and updated and managed.

Figure 2 shows this Plan's position within NRE's Environmental Management Structure.

Environmental Management Structure

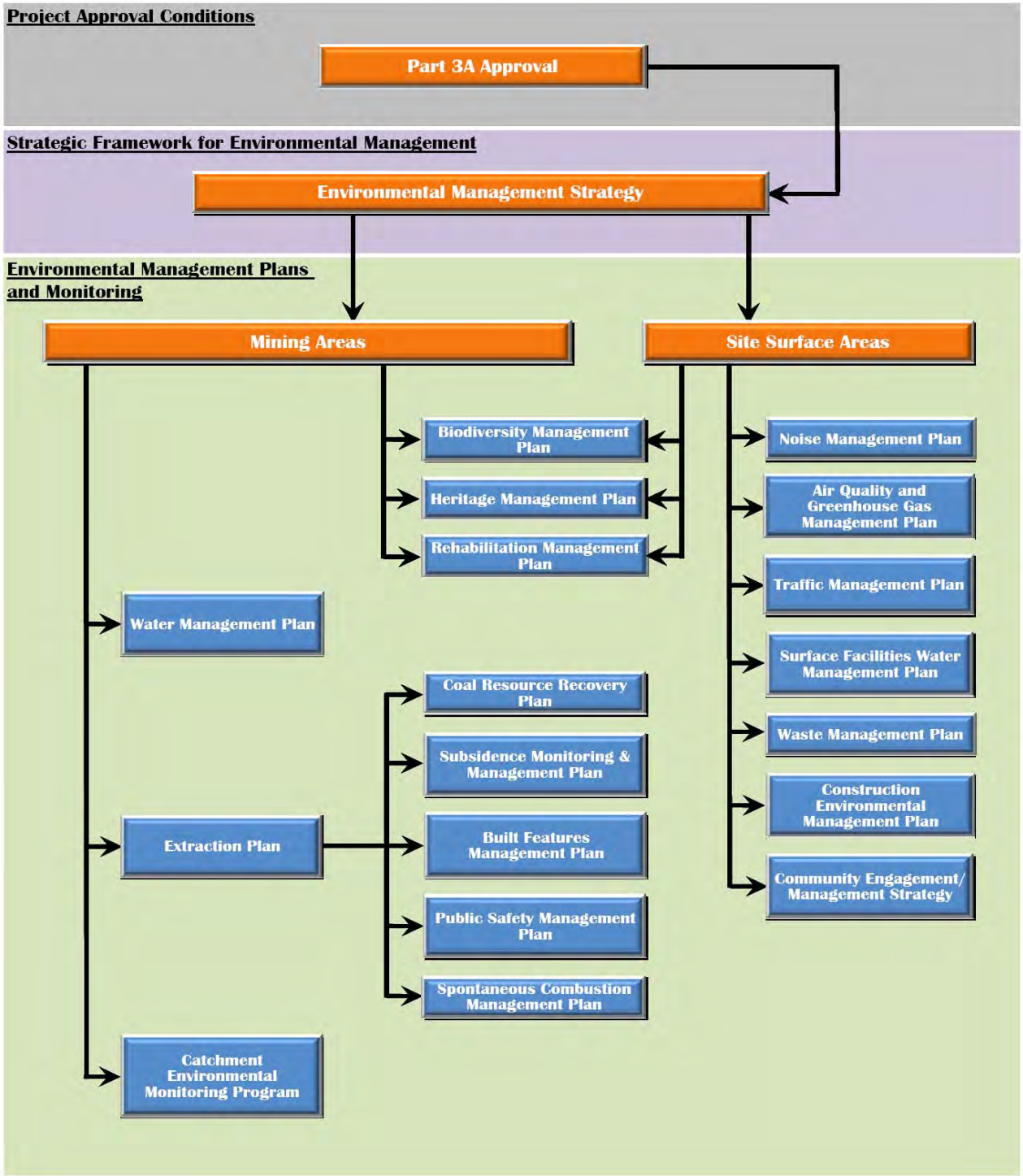

Figure 2 - Environmental Management Structure

2 STATUTORY REQUIREMENTS

2.1 Approval

Condition 7/Schedule 3 of the Project Approval requires the preparation of a Public Safety Management Plan as a component of an Extraction Plan for second workings. Approval condition 7(h) states:

> ***Extraction Plan***
>
> *7. The Proponent shall prepare and implement an Extraction Plan for all second workings on site to the satisfaction of the Director-General. This plan must:*
> *…*
> *(h) include the following to the satisfaction of DRE:*
> - *a Public Safety Management Plan to ensure public safety in the mining area;*

In addition, ***Condition 2/Schedule 5*** of the Project Approval outlines the requirements that are applicable to the preparation and performance of this Management Plan. **Table 2.1** indicates where each component of the condition is addressed within this Plan.

Table 2.1 - Management Plan Requirements

Project Approval Condition	Plan Section
Condition 2/Schedule 5	
2. The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:	
(a) detailed baseline data;	Section 3
(b) a description of:	
• the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Section 2
• any relevant limits or performance measures/criteria;	Section 4
• the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;	Section 4
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 6
(d) a program to monitor and report on the:	
• impacts and environmental performance of the project;	Section 5
• effectiveness of any management measures (see c above);	
(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 6.3
(f) a program to investigate and implement ways to improve the environmental performance of the project over time;	Sections 8
(g) a protocol for managing and reporting any:	

Project Approval Condition	Plan Section
• incidents; • complaints; • non-compliances with statutory requirements; and • exceedances of the impact assessment criteria and/or performance criteria; and	Section 7
(h) a protocol for periodic review of the plan.	Section 8

2.2 Licences and Leases

In addition to the requirements of the Project Approval, all activities at or in association with the Gujarat NRE No.1 Colliery will be undertaken in accordance with the following licences, permits and leases which have been issued or are pending.

Table 2.2 - Licences, Permits and Leases

Licence/Approval	Document No.	Issue Date/Expiry Date
Consolidated Coal Lease Renewal	745	27/12/1990 – 30/12/2023
Mining Purposes Lease	271	09/05/1991 – 09/05/2033
Mining Lease	1575	22/03/2012 – 22/03/2029
Pillar Extraction Approval T&W Mains	C90/0146(G) C91/0146(H) C01/009	31/10/2001 23/01/2002 28/06/2001
Approval to mine P&O Panels (first workings)	10.123.081	7/01/2005
DC for Thin Seam Mining P/L	D1096/01	19/09/2001
EPA Licence	12040	Current
EPA Approval for Storm Water Control Dam	90/6041 (280.021C/21)	10/08/1992
DC for Storm Water Control Dam and Water Treatment	D91/551	17/06/1992
Dangerous Goods Licence	NDG021269	14/11/2012 - 01/11/2013
SPCC Approval for Stage 3	90/4711 (280021C/20)	04/09/1992
DC for Russell Vale Waste Emplacement	D89/839	11/04/1990
DC for Demolition of Washery	D2004/32	14/12/2004
Mining operations Plan (MOP)		01/01/2008 – 31/12/2017
Water Extraction Licence	To be determined	Submitted to NoW in January 2009

2.3 Relevant Legislation and Guidelines

NRE will conduct the Project consistent with the Project Approval conditions and any other legislation that is applicable. The following Acts may be applicable to the conduct of the Project:

- *Mining Act, 1992*
- *Contaminated Land Management Act, 1997*
- *Dangerous Goods Act, 1975*
- *Mining Act, 1992*
- *Noxious Weeds Act, 1993*
- *Road and Rail Transport (Dangerous Goods) Act, 1997*
- *Roads Act, 1993*
- *Protection of the Environment Operations Act, 1997*
- *Threatened Species Conservation Act, 1995*
- *Sydney Water Catchment Management Act, 1998*
- *Coal Mine Health and Safety Act, 2002*
- *Crown Lands Act, 1989*
- *Dams Safety Act, 1978*
- *Energy and Utilities Administration Act, 1987*
- *Fisheries Management Act, 1994*
- *Water Act, 1912*
- *Water Management Act, 2000*
- *Work Health and Safety Act, 2011*

Relevant licences or approvals required under these Acts will be obtained as required.

Guidelines from the relevant infrastructure owners must also be followed when working on, or in the vicinity of their assets. Relevant approvals from these owners will also be obtained as required.

3 IMPACT ASSESSMENT

3.1 Baseline Data

The entire Study Area is located within the Metropolitan Special Area, which is closed to public access.

The surface and man-made features, listed below, were nominated for consideration and further assessment in terms of those that may experience predicted subsidence impacts or subsidence impacts that extend beyond the predicted footprint:

- Declared Special Metropolitan Catchment lands controlled and managed by SCA;
- Rivers and Creeks (Cataract Creek and Cataract River);
- Upland swamps;
- Threatened and protected species;
- Natural vegetation;
- Areas of indigenous archaeological interest;
- Mt Ousley Road;
- Other Roads (dirt roads and fire trails);
- Bridge (Picton Road);
- Electricity transmission lines (330kV and 33kV);
- Exploration boreholes; and
- Survey control marks.

The above features were included in Risk Assessments (as described in the Subsidence Monitoring Program – NRE EMS MP 002) and the outcomes reflect those features which require attention (refer to **Section 3.2**).

The Study Area is not in an MSB Subsidence Area and also falls outside the DSC notification area, therefore approval from the DSC is not required for the extraction of LW's 4 & 5.

There are no cliffs or steep slopes in the Study Area. However, as defined in the Built Features Management Plan – RMS (BFMP-RMS), specific cuttings and embankments associated with Mt Ousley Road will be inspected as part of the BFMP and will not form part of the monitoring requirements in this document.

Furthermore, as all of the land within the Study Area is within the Special Area there are no known Public Amenities; Farm Lands/Facilities; Industrial/Commercial/Business Establishments; or Residential establishments within the Study Area, and therefore these are not considered further within this document.

3.2 Potential Impacts

NRE has identified that subsidence to the following aspects may have an effect on public safety and below indicates where these aspects will be addressed:

- Mt Ousley Road & associated infrastructure – (BFMP-RMS);
- Bridge (Picton Road) - (BFMP-RMS);
- Other Roads (dirt roads and fire trails) – Public Safety Management Plan;
- Transmission Lines - Electricity Transmission Lines Management Plan; and
- Surface Areas - Subsidence Monitoring Plan, Public Safety Management Plan, BFMP_RMS.

A detailed assessment of the potential impacts to Mt Ousley Road and the Picton Road Bridge are provided in the Built Features Management Plan.

No specific management or mitigation measures are required for the Fire Road/s as this feature is located outside the predicted 20 mm subsidence zone and is not expected to be significantly impacted by the proposed mining. However notwithstanding this, and as a matter of precaution, the Fire Road/s have been included in this Public Safety Management Pan, as the plan relates to the management of these assets to ensure public safety across the Study Area.

Other hazards identified in relation to public access (including access to the catchment by NRE staff or contractors) that may arise from subsidence effects include:

- Damage to fire trails (e.g. cracks);
- Dislodgement of rocks onto fire trails or roads;
- Entrapment by fire caused by locked gates;
- Vehicle collision with monitoring equipment located near fire trails;
- Slips, trips and falls by visitors to the tributaries; and
- Snake bite, spider bite or other animal encounter.

4 PERFORMANCE MEASURES AND CRITERIA

Performance criteria for the management of public safety within the Study Area or the 'additional subsidence management area' are set out in Table 2 of ***Condition 4/Schedule 2*** of the Project Approval and are reproduced in Table 4.1 below.

NRE will also monitor if the recorded subsidence effects trigger the predicted and/or proposed levels. A summary of this monitoring is provided in **Appendix A**.

Table 4.1 provides the general expectations and Performance Criteria for the project.

Table 4.1 - Subsidence Impact Performance Criteria

Feature	Performance Indicators
Public Safety	No additional risk

The PSMP and the measures implemented to ensure public safety will also be undertaken in accordance with Extraction Plan requirements within the Study Area and the 'Additional Subsidence Management Area' defined on Plan 2e attached in **Appendix B**.

Environmental management will be undertaken in accordance with the process described in **Figure 3**.

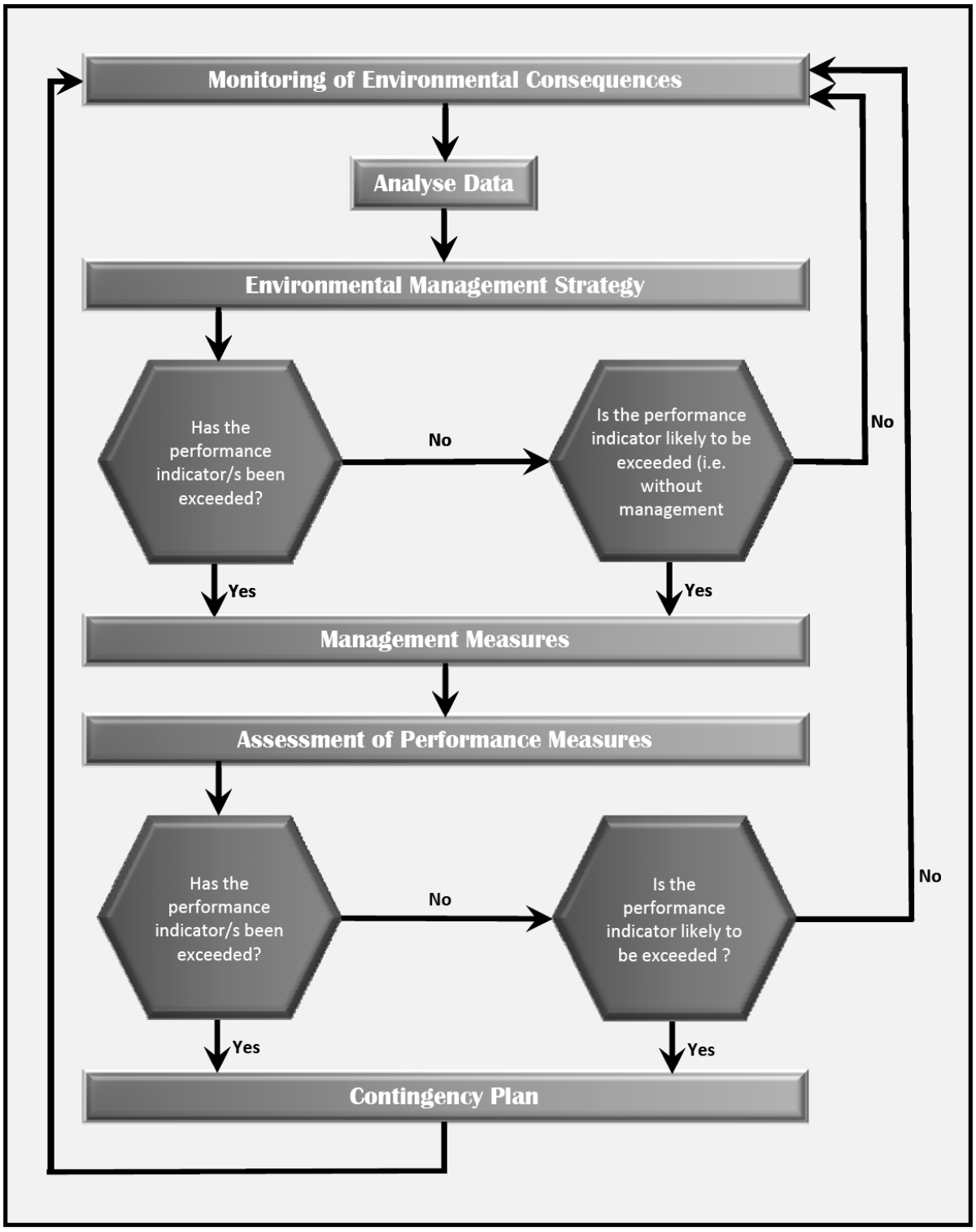

Figure 3 - Management Process

5 MONITORING AND REPORTING

5.1 Monitoring

The monitoring that will be undertaken to support appropriate measures and strategies to effectively manage safety to the public is outlined in this section. This monitoring regime will encompass the Study Area and the Additional Subsidence Management Area defined in Plan 2e (attached in **Appendix B**).

5.1.1 RMS Infrastructure

Monitoring of Mt Ousley Road and the associated infrastructure will be undertaken as described in detail within the **Built Features Management Plan - RMS**. This includes the monitoring of the pavement and other associated infrastructure, such as culverts, cuttings and embankments.

5.1.2 Other Unsealed Roads and Fire Trails

Based on the mining proposed, less than negligible impacts are expected on Fire Roads and/or 4WD tracks in the Study Area. However, in order to monitor un-anticipated impacts to these features that may possibly occur due to unconventional subsidence, a monitoring regime will be undertaken as outlined in the Public Safety Monitoring TARP (attached as **Appendix A**).

5.1.3 Electrical Transmission Lines

Monitoring of the Electrical Transmission Lines will be undertaken as described in detail within the **Electrical Transmission Lines Management Plan**. This includes the monitoring of the 330kV, 132kV and 33kV transmission lines that are owned by Transgrid and Endeavour Energy.

5.2 Reporting

Reporting will be made available in accordance with the requirements of ***Condition 7/Schedule 5*** of the Project Approval

Results of monitoring activities will be reported to NRE's E&C Department on a regular basis during active mining to ensure that any remedial actions can be taken as soon as possible after an impact is identified and confirmed which may affect public safety.

The results of regular monitoring will be provided to infrastructure and asset owners in accordance with the individual agreements between the owners and NRE. In some cases this may include regular reporting to steering and/or technical committees in addition to NREs regular reporting.

Progress against the requirements of this Plan will be reported regularly to the DoP&I and other relevant agencies as required by the Project Approval.

An annual report will also be prepared and provided to the DoP&I.

6 MITIGATION AND MANAGEMENT STRATEGIES

6.1 General

6.1.1 Access

As noted above the Study Area is mostly located in an area of restricted public access. The general public are not permitted in the SCA Special Area for any recreational or other purpose. The current maximum penalty is $11,000 for unauthorised access. Furthermore, a large proportion of the Additional Subsidence Management Area is located on land owned by Gujarat NRE and consequently the general public is also not permitted to undertake recreational or other purpose activities on this land. It is therefore expected that there will be less than significant risks to public safety in these areas.

Nevertheless, NRE will implement a number of public safety management measures to prevent, mitigate and promptly remediate hazards and safety risks within the Study Area and Additional Subsidence Management Area.

NRE staff and contractors will be required to access these restricted areas, similarly they may be accessed by SCA staff and other people with authorisation (e.g. asset owners such as TransGrid and Endeavour Energy). Therefore such persons may be at risk to subsidence related impacts.

All NRE staff and Contractors will have current NRE and SCA inductions, and trained in personal safety requirements before access to these lands is permitted.

NRE will abide by the SCA Standards Conditions and/or Entry and Access Agreements at all times whilst working in the Catchment. This includes:

- Abiding by speed restrictions (40 km/h);
- Driving only on designated access tracks;
- Locking all gates after entering and leaving the Catchment;
- Abiding by access restrictions (e.g. wet weather, total fire ban etc...);
- Provision of appropriate documentation to the SCA prior to the commencement of works (including obtaining all relevant approvals and inductions); and
- Provision of emergency contact numbers.

NRE will advise the SCA and other relevant parties as soon as practicable after a subsidence impact is noted that may pose a risk to public safety.

If mitigation work is required, (for example repairs to cracks in fire trails) it would be undertaken in consultation with the SCA and would be undertaken in accordance with the SCA track maintenance guidelines (including the Track Stabilisation and Control Manual).

6.1.2 Built Features

In the case that subsidence impacts on infrastructure items that may impact on public safety are detected, or at any time NRE or the asset owner considers that the integrity of the asset and/or public safety may be compromised, repair works and/or contingency measures will be implemented in accordance with the Built Features Management Plan and the Electricity Transmission Lines Management Plan or as otherwise agreed with the relevant asset owners at the time.

Management measures in relation to public safety may include:

- Traffic control;
- Temporary speed restrictions;
- Warning signs/lights;
- Restriction of public access;
- Erection of barriers;
- Implementation of security services; and
- Use of emergency services for public control.

6.1.3 Other Public Safety Management Measures

Management and mitigation strategies will be undertaken as appropriate, or required following the results of future monitoring and in consultation with the landowner as discussed in **Section 6.2**.

Controls that apply to the safety hazards that are described in **Section 3** are discussed below:

- Whilst cliffs have not been identified within the Assesment Area, signs shall be prominently displayed at any rockmass that has been identified as having possible susceptibility to failure. Signposts will warn specifically of the danger. Where they are to be installed on private or public property this will only be done with the agreement of the landholder or relevant authority.
- The location of all signs, fences, and other remedial or warning provisions established shall be marked on a Plan. This Plan shall be maintained as a record of any remedial measures instituted during mining.
- Any dangerous surface cracks identified due to mining induced subsidence, particularly within Catchment access roads, will be in-filled by NRE as soon as practicable. Relevant stakeholders such as the SCA will be notified within 24 hours in accordance with **Section 7**.
- SCA signage clearly defining restricted public access are located at entries to the SCA areas and therefore also the mining areas. NRE will abide by SCA restricted access conditions, including the locking of all gates after entering and exiting the Catchment, thereby restricting access by the public.
- Any unstable built structures or rockmass will be assessed and secured as soon as practicable. Methods used to secure unstable rockmass will be dependent on assessment of each individual incident, however may include rock bolting or grouting of rock fractures.

Methods for securing built structures will be developed in consultation with the relevant asset owner as discussed in **Section 6.2**.

- Provision of timely notification of proposed mining progress to the community and any other relevant stakeholders where management of public safety may be required, will be in accordance with the incidence reporting in **Section 7**.

6.2 Trigger Action Response Plan

The Trigger Action Response Plan (TARP), as presented in **Appendix A** has been designed specific for this Plan to illustrate how the various predicted subsidence impacts, monitoring components, performance measures, and responsibilities are structured to achieve compliance with the relevant statutory requirements, and the framework for management and contingency actions.

The TARP system provides a simple, transparent and useable reference of the monitoring of environmental performance and the implementation of management and/or contingency measures.

The TARP is designed with consideration of baseline conditions and predicted subsidence impacts and comprises the following:

- Trigger levels from monitoring to assess performance; and
- Triggers that flag implementation of contingency measures;

6.3 Contingency Plan

In the event that the observed parameters or impacts exceed or are considered likely to exceed the performance measures detailed in **Section 4** of this Plan, NRE will implement the following Contingency Plan:

- The observation will be reported to NRE's Environment and Community Manager within 24 hours.
- The observation will be recorded.
- NRE will report any exceedance of the performance measure to the DRE and other relevant stakeholder as soon as practicable after NRE becomes aware of the exceedance.
- NRE will assess the exceedances referred to in the TARP (outlined in **Section 6.2**) of this document) and where appropriate, implement safety measures in accordance with the appropriate Management Plan/s.
- The Environment and Community Manager will investigate any potential contributing factors and identify an appropriate action plan to manage the identified impact(s), in consultation with specialists and/or infrastructure owners and/or relevant agencies, if necessary.
- NRE will identify an appropriate action plan to manage the identified impact(s), in consultation with other specialists and/or key stakeholders.
- NRE will submit the proposed course of action to the DoP&I for approval.
- NRE will implement the approved course of action to the satisfaction of the DoP&I.
- NRE will continue to monitor performance with the new action plan in place and, if successful will formalise these actions as part of a revised Management Plan.

Contingency measures will be developed in consideration of the specific circumstances of the issue and the assessment of consequences.

If either, it is not reasonable or feasible to remediate the impact or remediation measures implemented by NRE have failed to satisfactorily remediate the impact, NRE will provide a suitable offset to compensate for the impact, to the satisfaction of the Director-General of DoP&I in accordance with ***Condition 3/ Schedule 3*** of the Project Approval.

7 INCIDENTS, COMPLAINTS AND NON-CONFORMANCES

7.1 Incident and Ongoing Management Reporting

The Project Approval defines an 'incident' to be "*a set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in this Approval*."

Incidents will be managed through established NRE procedures in as detailed the Environmental Management Strategy.

In accordance with ***Condition 6/Schedule 5*** NRE will notify the Director-General and any other relevant agencies of any incident:

- At the earliest opportunity if the incident has caused, or has the potential to cause significant risk of material harm to the environment.
- As soon as practicable in all other cases.

A detailed report of the incident shall be provided to DoP&I within 7 days of the incident occurring.

7.2 Complaints Handling

Complaints will be managed through established NRE procedures in as detailed the Environmental Management Strategy.

As required by ***Condition 10/Schedule 5*** of the Project Approval a copy of a complaints register (updated on a Monthly basis) will be kept on the NRE website. A summary of complaints will be available to regulatory authorities on request and provided in the Annual Environmental Management Reports (AEMRs).

7.3 Non-Conformance Protocol

NRE will manage and report non-compliances relevant against statutory requirements in accordance with an established protocol developed as a component of the Environmental Management Strategy.

Compliance with all approvals, plans and procedures will be the responsibility of all personnel (staff and contractors) employed on or in association with NRE No.1 Colliery, and will be promoted through direct consultation and direction of the Mine's Operations Manager.

Regular inspections and/or internal audits will be undertaken as required by suitably qualified personnel under the direction of the Environment and Community Manager, to identify any remediation/rectification work required, and areas of actual or potential non-compliance.

A Compliance Register ***Compliance Register (EMS RV APP 003 & EMS WW APP 003)*** will be established to monitor compliance against development consent criteria, mining leases etc. Non-compliances identified through the Compliance Register are to be reported, with corrective actions implemented.

A review of NRE's compliance with all conditions of the Project Approval, mining leases and all other approvals and licences will be undertaken prior to (and included within) each Annual Review. The Annual Review will be made publicly available on NRE's website.

8 PLAN ADMINISTRATION

8.1 Roles and Responsibilities

Environment and community management is regarded as part of the responsibilities of all Colliery personnel. The roles and function of the main personnel responsible for the implementation of environmental and community management including the plans, procedures and action plans contained in this EMS are outlined in ***NREG EMS PRO005 Environmental Roles and Responsibilities*****.**

8.2 Resources Required

In accordance with the ***NRE 001 NRE Environmental Policy*** Management shall ensure that the appropriate resources are made available to achieve the implementation of this Plan.

It is the role of the Environment and Community Manager to ensure that these requirements are communicated to NRE Management.

8.3 Training

All training and inductions conducted are to be undertaken as per the ***NRE 012 Training procedures*****.**

8.3.1 Staff Training

Staff training will be undertaken as detailed in the EMS. This consists of three levels of training applicable to different types of staff:

Level 1 – High level training on environmental requirement – Management
Level 2 – Operational level training – Project Managers, Supervisors, Surface Personnel
Level 3 – Basic environmental awareness – Underground staff

8.3.2 Inductions

All contractors and associated subcontractors will be required to participate in site induction prior to the commencement of work. As a minimum, the induction is to include:

- An overview of the Cardinal Rules, Environment Policy and EMS requirements.
- Environmental incident and community compliant reporting requirements.
- Environmental emergency contact details.

In the event that there are specific environmental management requirements relating to a contractor's work activities, details of these requirements are to be issued to the contractor in writing as a part of the induction.

Records, which detail the attendees, content of the induction/training as well as any additional information provided, will be maintained.

In addition to the induction program, training will be provided as deemed necessary to contractors to provide them with the knowledge, skills and awareness to minimise environmental impact. At a minimum this should include:

- Contractors whose activities are not directly supervised by Colliery personnel.
- Contractors whose activities are ongoing and have the potential to result in an environmental incident (e.g. stockpile contractors).

8.4 Record Keeping and Control

Environmental records are to be managed in accordance with the ***NRE 010 Document and Data Control procedure*****.**

All records of the EMS will be stored so that they are readily retrievable and suitably protected from deterioration or loss. Archiving will be managed in accordance with the ***NRE 010 Document and Data Control procedure*****.**

A master copy of each EMS document including all appendices and supporting information is to be held in the office of the E&C Department.

8.5 Plan Revision

8.5.1 Annual Review

In accordance with *Condition 3/Schedule 5* of the Project Approval, an Annual Review of the environmental performance of the Project will be undertaken and annually thereafter.

The Annual Review will:

- Describe the works carried out in the past year, and the works proposed to be carried out over the next year.
- Include a comprehensive review of the monitoring results and complaints records of the Project over the past year, including a comparison of these results against the:
    - relevant statutory requirements, limits or performance measures/criteria;
    - monitoring results of previous year/s; and
    - relevant predictions in the EA.
- Identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance.
- Identify any trends in the monitoring data over the life of the Project.
- Identify any discrepancies between the predicted and actual impacts of the Project, and analyse the potential cause of any significant discrepancies.
- Describe what measures will be implemented over the next year to improve the environmental performance of the Project.

8.5.2 Auditing

In accordance with ***Condition 8/ Schedule 5*** of the Project Approval an Independent Environmental Audit will be undertaken by a suitably qualified auditor and include experts in any field specified by the Director-General within 12 months of the approval and every three years after that.

This audit must:

- Be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General.
- Include consultation with the relevant agencies.
- Assess the environmental performance of the project and assess whether it is complying with the requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals).
- Review the adequacy of strategies, plans or programs required under the abovementioned approvals.
- Recommend measures or actions to improve the environmental performance of the project, and/or any strategy, plan or program required under these approvals.

8.5.3 Plan Revision

In accordance with ***Condition 4/ Schedule 5*** of Project Approval, this Plan will be reviewed within three months of the submission of:

- The submission of an annual review
- The submission of an incident report
- The submission of an audit
- Any modification to the conditions of approval (unless the conditions require otherwise)

The revision status of this plan is indicated on the title page of each copy. Revisions to any documents listed within this Plan will not necessarily constitute a revision of this document. The distribution of controlled copies is described in **Section 1.3**.

9 REFERENCES

SCA (1997) Track Stabilisation and Erosion Control Manual. Sydney Catchment Authority.

NRE (2012). NREN EMS MP003 Longwalls 4 & 5 Built Features Management Plan – RMS.

NRE (2012), NREN EMS MP007 Longwalls 4 & 5 Electrical Transmission Lines Management Plan

Appendix A - Trigger Action Response Plan

ASPECT	MO NITORING				TRIGGER			
	SITES	PARAMETERS	FREQUENCY	PURPOSE	LEVEL	ACTION / REPORTING	RESPONSIBILITY	TIMING
Public Safety	Rockmass identified as at risk to instability	Visual observation and opportunistic inspection of Fire Road surface	• Once prior to mining • Fortnightly during extraction • Monthly following mining for 6 months • To be reported in End of Panel Reports and/or Annual Environmental Management Reports.	To identify changes related to mining and enact management strategies to minimize impacts to public safety.	**No Change Observed** No cracking visible	• No further mitigation or management required • No notification required • Continue monitoring.	• NRE No.1 Colliery (E & C Manager) • NRE Environmental Monitoring Team	• To be reported in End of Panel Reports and/or Annual Environmental Management Reports
					Change in Site Condition Observed Within Performance Criteria: Minor cracking (<10mm) **If a change is observed but no threat to is identified then the monitoring program should continue.**	• Photographic Record • Continuing monitoring. • Undertake remediation measures where appropriate (e.g. grouting of rock cracks)	• NRE No.1 Colliery (E & C Manager) • NRE Environmental Monitoring Team	• To be reported in End of Panel Reports and/or Annual Environmental Management Reports
					Change in Site Condition Observed That Exceeds Performance Criteria: Major cracking and noticeable instability (>10mm)	• Photographic Record • Continuing monitoring • Undertake remediation measures as appropriate (e.g. rock bolting or grouting of rock cracks)	• NRE No.1 Colliery (E & C Manager) • NRE Environmental Monitoring Team	• Notify SCA 24 within hours of becoming aware of Impact • To be reported in End of Panel Reports and/or Annual Environmental Management Reports

ASPECT	MO NITORING				TRIGGER			
	SITES	PARAMETERS	FREQUENCY	PURPOSE	LEVEL	ACTION / REPORTING	RESPONSIBILITY	TIMING
Public Safety	Fire Trails/ 4WD Tracks	Visual observation and opportunistic inspection of Fire Road surface	• Once prior to mining • Fortnightly during extraction • Monthly following mining for 6 months • To be reported in End of Panel Reports and/or Annual Environmental Management Reports.	To identify changes related to mining and enact management strategies to minimize impacts to public safety.	**No Change Observed** No cracking visible	• No further mitigation or management required • No notification required • Continue monitoring.	• NRE No.1 Colliery (E & C Manager) • NRE Environmental Monitoring Team	• To be reported in End of Panel Reports and/or Annual Environmental Management Reports
					Change in Site Condition Observed Within Performance Criteria: Minor cracking (<10mm) **If a change is observed but no threat is identified then the monitoring program should continue.**	• Photographic Record • Notification to SCA within 24 hrs • Continuing monitoring • Undertake remediation measures as appropriate	• NRE No.1 Colliery (E & C Manager) • NRE Environmental Monitoring Team	• To be reported in End of Panel Reports and/or Annual Environmental Management Reports
					Change in Site Condition Observed That Exceeds Performance Criteria: Major cracking and noticeable instability or traffic impedance (>10mm)	• Notification to SCA immediately • Make area safe as soon as practicable • Proposal for rectification within 1 week • Completion of works following approval from SCA • Revise monitoing program and management plan • Undertake remediation measures as appropriate	• NRE No.1 Colliery (E & C Manager) • NRE Environmental Monitoring Team	• Commence preparation of mitigation/action plan within 1 week if required • Monthly updates of investigation progress, if required by SCA • To be reported in End of Panel Reports and/or Annual Environmental Management Reports

Appendix B - Plan

N6 198 000
N6 197 500
N6 197 000
N6 196 500
N6 196 000
N6 195 500
E 301 500
E 302 000
E 302 500
E 303 000
E 303 500
E 304 000
E 304 500
E 305 000
E 305 500

N

F.S.L. 10 289.92m AHD

CATARACT RESERVOIR

Notification Zone

Mount Ousley Road

Substation

33kV

330kV

132kV

Cataract

Longwall 8

Longwall 7

Longwall 5

Longwall 4

Maingate 8

Maingate 7

Maingate 6

Maingate 5

Maingate 4

Tailgate 4

Crhs

20m Barrier

20.12 M BARRIER (Bulli Seam Only)

TOP OF ESCARPMENT

ESCARPMENT

Mine Lease Boundary

South Bellambi Colliery
(Balgownie Seam)
C.C.L. 745

GUJARAT NRE COKING COAL LTD.
NRE No.1 COLLIERY

EXTRACTION PLAN
Plan 2e Additional Subsidence Management Area
Wongawilli Seam LW4, LW5, MG6, MG7
and MG8 Application

Signed: _____ Date _____ Signed: _____ Date _____
P Wakeford, Manager of Mining Engineering — G.Hamilton, Mine Surveyor

Plan No. : WE10227	Revision : 0
Date: 07/12/12	Scale_A0;1:4000
	Drawn:G.Hamilton

LEGEND
- Existing First Workings
- Proposed First Workings (88.3m)
- Mine Lease Boundary CCL745
- Application Area
- Corrimal Bulli Seam Workings
- Bulli Seam Workings
- Balgownie Seam Workings
- Dyke
- Fault
- Additional Subsidence Management Area
- Archeology Sites

Upland Swamps - Key
- Upland Swamps - Banksia Thicket
- Upland Swamps - Sedgeland-Heath Complex
- Upland Swamps - Tea Tree Thicket

GUJARAT NRE COKING COAL LIMITED
A.B.N. 28 111 244 896
NRE No 1 Colliery

NRE No.1 Colliery
Wonga East – Longwalls 4 & 5 EP/SMP

LW 5 ELECTRICITY TRANSMISSION LINES MANAGEMENT PLAN

GUJARAT NRE COKING COAL LIMITED
A.B.N. 28 111 244 896
NRE No 1 Colliery

Document Version	Revision				Revision Notes
	Date	Author	Checked	Release Date	
Rev 0	30/11/12	K. Prajapati	D. Clarkson	04/12/12	Final Draft
Rev 1	04/01/13	K.Prajapati	K.Prajapati	04/01/13	Minor Changes Incorporated

Authorised by: Name & Date Company/Position	Authorised by: Name & Date Company/Position

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GLOSSARY OF TERMS AND ABBREVIATIONS

Abbreviations	
AHD	Australian Height Datum
DoP&I	Department of Planning & Infrastructure
DSC	Dam Safety Committee
Mtpa	Million tonnes per annum
NRE	Gujarat NRE Coking Coal Limited
RMS	Roads and Maritime Services
ROM	Run of Mine
SCA	Sydney Catchment Authority
SMP	Subsidence Management Plan

Terms	
Project Approval	Pt3A Major Project approval MP10_0046 as modified

1 INTRODUCTION

1.1 Project Background

Gujarat NRE Coking Coal Ltd (NRE) operates the NRE No.1 Colliery in the Southern Coalfield of New South Wales (NSW). The mine is located at Russell Vale approximately 8 km north of Wollongong and 70 km south of Sydney, within the local government areas (LGAs) of Wollongong and Wollondilly in the Illawarra region of NSW.

On 13 October 2011, the Project Approval (MP 10_0046) for the No.1 Colliery Preliminary Works Project was granted by the Minister for Planning under Section 75(J) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This approval allows NRE to continue its operations at the mine including the extraction of coal up to 1 million tonnes per annum and upgrade of and improvements to surface facilities, in addition to first workings and transport of coal to the Port Kembla Coal Terminal for shipment as required.

NRE intends to expand its mining operations at No.1 Colliery and has submitted an application for a Underground Expansion Project (MP 09_0013) which is currently under assessment by the Department of Planning and Infrastructure (DoP&I). In order to ensure the ongoing viability of the mine while awaiting the necessary approvals, NRE lodged a concurrent Subsidence Management Plan (SMP) application for the extraction of Longwalls 4 and 5 to the Department of Trade and Investment, Division of Resources and Energy (referred to herein as DRE). The SMP approval for Longwall 4 was granted on 26 March 2012 by DRE, however, approval for Longwall 5 was not granted.

NRE lodged a section 75W (s75W) Modification Application to the Preliminary Works Project Approval (MP 10 0046) to modify MP 10_0046 to include:

- Amending the reference to the use of maingates (MGs) 4 and 5 from exploratory driveages to operational gateroads;
- The extraction of coal using longwall mining techniques from Longwall (LW) 4 in accordance with the approved SMP;
- The extraction of coal using longwall mining techniques from Longwall (LW) 5; and
- Development of maingates (MGs) 6, 7 and 8.

The proposed longwalls are wholly contained within the Sydney Catcment Authority (SCA) controlled Metropolitan Special Area, which is used to provide drinking water to Sydney and Wollongong. The longwalls lie outside the Dam Safety Committee (DSC) Notification Area for Cataract reservoir, with the reservoir high water mark located approximately 600 m northwest of Longwall 5.

This Electricity Transmission Lines Management Plan has been prepared in support of an Extraction Plan, as required by **Condition 7/Schedule 3** of Project Approval (MP 10 0046).

1.2 Purpose and Scope

The purpose of this management plan is to document the potential risks to electrical infrastructure, from the extraction of Longwalls 5 in the Wonga East Domain, and detail any management or mitigation measures to be put in place to mitigate these risks in consultation with the infrastructure owner. This infrastructure includes:

- 330kV Transmission Line and associated infrastructure, owned and maintained by **Transgrid**;
- 132kV Transmission Line and associated infrastructure owned and maintained by **Endeavour Energy**; and
- 33kV Transmission Line and associated infrastructure owned and maintained by **Endeavour Energy.**

The plan is applicable to all surface areas which may be affected by mine subsidence due to the extraction of Longwalls 5, defined as the Study Area in the Longwalls 4 & 5; Maingates 6, 7 & 8 Pt3A modification application and also within the 'Additional Subsidence Management Area' defined on **Plan 2e – Additional Subsidence Management Area** (attached as **Appendix B**).

Surface Features Plan

RUSSEL VALE NSW

Legend

- Longwall 5
- Longwall 4 Goaf
- Broad Headed Snake Habitat
- Electricity Transmission Line (LPI)
- Fire Trails and Vehicle Tracks (LPI)
- Major Roads (LPI)
- Watercourses (LPI)
- Project Application Area
- Upland Swamps (Biosis Research 2012)
- Major Waterbodies (LPI)
- Cadastre (LPI, 2011)

Archaeological Sites (AHIMS)

- Axe Grinding Groove
- Axe Grinding Groove - AHIMS Location - Unrelocated
- Axe Grinding Groove - Monitoring Point
- Open Camp Site
- Shelter with Art

N W E S

FIGURE 1

1:12,500 Scale at A3

Metres

0 200 400 600 800

Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2012-12-06
Coordinate System: GDA 1994 MGA Zone 56
Project: 112069-02
Map: G2004_SurfaceFeaturesPlan.mxd 01

Aerial Imagery supplied by NearMap and associated third party suppliers (July 2012).

1.3 Consultation and Distribution

This Plan has been prepared in consultation with, and copies will be distributed to:

- Department of Planning and Infrastructure (DoP&I);
- Division of Mineral Resources (DRE);
- Transgrid; and
- Endeavour Energy.

In accordance with ***Condition 10/Schedule 5*** of the Project Approval, NRE will make this Plan publicly available on the NRE website and will be responsible for its maintenance. A hard copy will also be kept at the NRE No.1 Colliery, Bellambi Lane, Russell Vale.

Any revisions undertaken will be the responsibility of NRE and any notifications will be sent accordingly. NRE will not be responsible for maintaining uncontrolled copies beyond ensuring the most recent version is maintained on NRE's computer system, website, and hard copy at the NRE No.1 Colliery, Bellambi Lane, Russell Vale.

1.4 Report Structure

The remainder of this Management Plan is structured as follows:

Section 2: Outlines the statutory requirements applicable to the Plan.

Section 3: Outlines the baseline data and impact assessments undertaken which support this Plan.

Section 4: Details the performance measures and indicators that will be used to assess the Project.

Section 5: Describes the monitoring program.

Section 6: Describes the management, remediation and mitigation measures that will be implemented to reduce potential impacts as well as the Contingency Plan to manage any unpredicted impacts and their consequences.

Section 7: Describes the protocols for the handling of incidents, complaints and non-conformances

Section 8 Details how the Plan will be implemented, managed, reviewed and updated and managed.

Figure 2 shows this Plan's position within NRE's Environmental Management Structure.

Environmental Management Structure

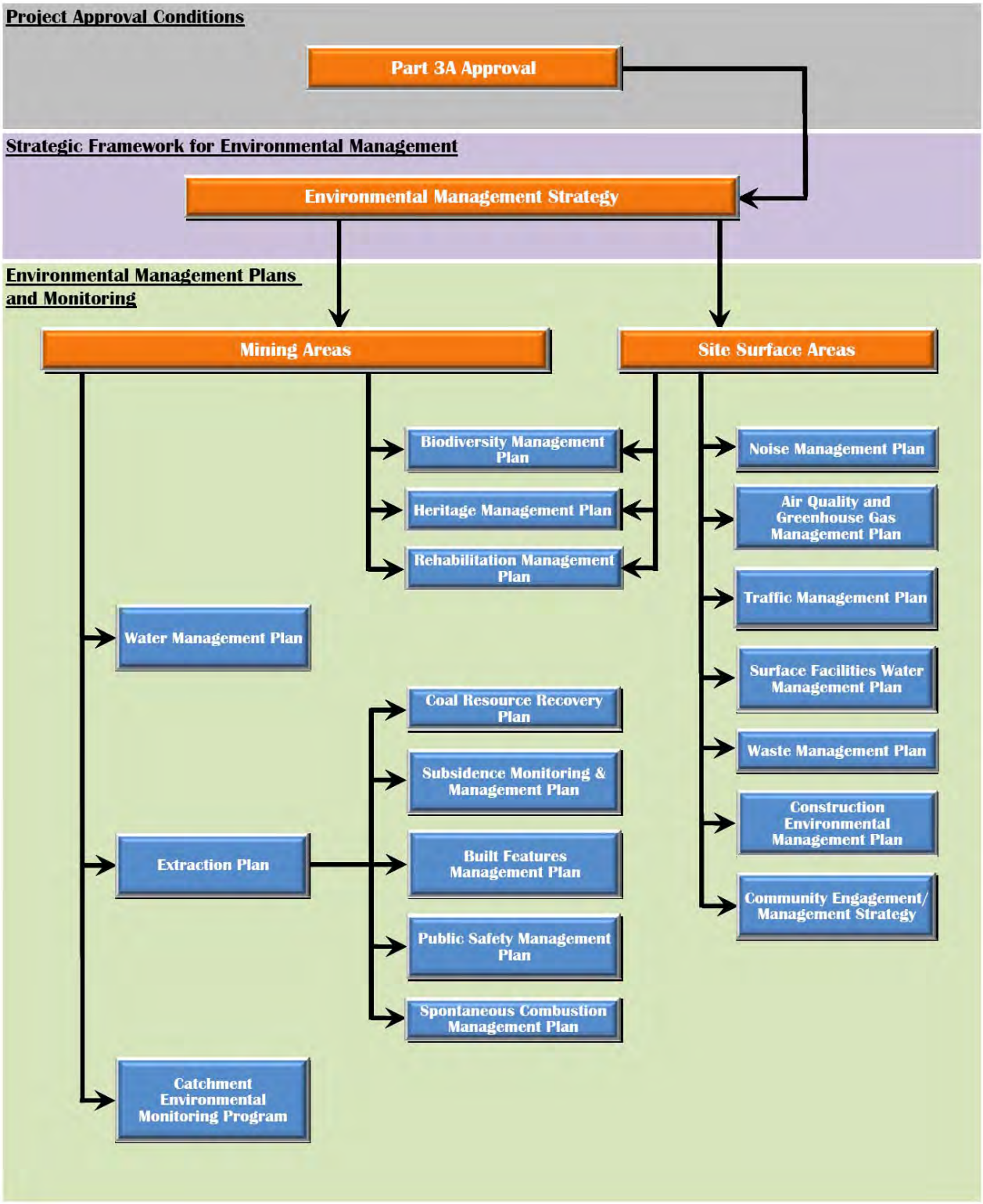

Figure 2 - Environmental Management Structure

2 STATUTORY REQUIREMENTS

2.1 Approval

Condition 7/Schedule 3 of the Project Approval requires the preparation of a Built Features Management Plan as a component of an Extraction Plan for second workings. Approval condition 7(h) states:

Extraction Plan

7. The Proponent shall prepare and implement an Extraction Plan for all second workings on site to the satisfaction of the Director-General. This plan must:
…
(h) include the following to the satisfaction of DRE:
…

- *a Built Features Management Plan to manage the potential subsidence impacts and/or environmental consequences of the proposed second workings, and which:*
  - *addresses in appropriate detail all items of public infrastructure and all classes of other built features; and*
  - *has been prepared following appropriate consultation with the owner/s of potentially affected feature/s;*

In addition, ***Condition 2/Schedule 5*** of the Project Approval outlines the requirements that are applicable to the preparation and performance of this Management Plan. **Table 2.1** indicates where each component of the condition is addressed within this Plan.

Table 2.1 - Management Plan Requirements

Project Approval Condition	Plan Section
Condition 2/Schedule 5	
The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:	
(a) detailed baseline data;	Section 3
(b) a description of:	
• the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Section 2
• any relevant limits or performance measures/criteria;	Section 4
• the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;	Section 4
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 6
(d) a program to monitor and report on the:	
• impacts and environmental performance of the project;	Section 5
• effectiveness of any management measures (see c above);	
(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 6.3

Project Approval Condition	Plan Section
(f) a program to investigate and implement ways to improve the environmental performance of the project over time; (g) a protocol for managing and reporting any: • incidents; • complaints; • non-compliances with statutory requirements; and • exceedances of the impact assessment criteria and/or performance criteria; and (h) a protocol for periodic review of the plan.	Sections 8 Section 7 Section 8

2.2 Licences and Leases

In addition to the requirements of the Project Approval, all activities at or in association with the Gujarat NRE No.1 Colliery will be undertaken in accordance with the following licences, permits and leases which have been issued or are pending.

Table 2.2 - Licences, Permits and Leases

Licence/Approval	Document No.	Issue Date/Expiry Date
Consolidated Coal Lease Renewal	745	27/12/1990 – 30/12/2023
Mining Purposes Lease	271	09/05/1991 – 09/05/2033
Mining Lease	1575	22/3/2012 – 22/3/2029
Pillar Extraction Approval T&W Mains	C90/0146(G) C91/0146(H) C01/009	31/10/2001 23/01/2002 28/06/2001
Approval to mine P&O Panels (first workings)	10.123.081	7/01/2005
DC for Thin Seam Mining P/L	D1096/01	19/09/2001
EPA Licence	12040	Current
EPA Approval for Storm Water Control Dam	90/6041 (280.021C/21)	10/08/1992
DC for Storm Water Control Dam and Water Treatment	D91/551	17/06/1992
Dangerous Goods Licence	NDG021269	14/11/2012 - 01/11/2013
SPCC Approval for Stage 3	90/4711 (280021C/20)	04/09/1992
DC for Russell Vale Waste Emplacement	D89/839	11/04/1990
DC for Demolition of Washery	D2004/32	14/12/2004
Mining operations Plan (MOP)		01/01/2008 – 31/12/2017
Water Extraction Licence	To be determined	Submitted to NoW in January 2009

2.3 Relevant Legislation and Guidelines

NRE will conduct the Project consistent with the Project Approval conditions and any other legislation that is applicable. The following Acts may be applicable to the conduct of the Project:

- *Contaminated Land Management Act, 1997*
- *Dangerous Goods Act, 1975*
- *Mining Act, 1992*
- *Noxious Weeds Act, 1993*
- *Road and Rail Transport (Dangerous Goods) Act, 1997*
- *Roads Act, 1993*
- *Protection of the Environment Operations Act, 1997*
- *Threatened Species Conservation Act, 1995*
- *Sydney Water Catchment Management Act, 1998*
- *Coal Mine Health and Safety Act, 2002*
- *Crown Lands Act, 1989*
- *Dams Safety Act, 1978*
- *Energy and Utilities Administration Act, 1987*
- *Fisheries Management Act, 1994*
- *Water Act, 1912*
- *Water Management Act, 2000.*

Relevant licences or approvals required under these Acts will be obtained as required.

3 IMPACT ASSESSMENT

3.1 Baseline Data

Details of the existing surface features within the Study Area are provided in the Longwalls 4 and 5 SMP (NRE, 2011), the Subsidence Impact Assessment (SGPL, 2011) and the Environmental Assessment for the LW 4& 5; Maingates 6, 7 & 8 Pt3A modification application.

Generally, the surface land overlying the proposed extraction area lies wholly within crown land, declared as a Special Area which is controlled by the SCA. However, the surface land that exists in an easterly direction from Mt Ousley Rd and that which specifically comprises the electrical transmission lines (i.e. 330kV, 132kV and 33kV) is owned by Gujarat NRE. The surface topography comprises of undulating land and dense bushland. All streams and drainage are directed towards Cataract Dam, via Cataract Creek, Cataract River and their tributaries. Surface elevations range from 31 m to 390 m AHD.

Known surface and man-made features in the Study Area which may experience subsidence effects or impacts (or outside the Study Area but which may experience far-field subsidence effects) are:

- Declared Special Metropolitan Catchment lands controlled and managed by SCA;
- Rivers and Creeks (Cataract Creek and Cataract River);
- Upland swamps;
- Threatened and protected species;
- Natural vegetation;
- Areas of indigenous archaeological interest;
- Mt Ousley Road;
- Other Roads (dirt roads and fire trails);
- Bridge (Picton Road);
- **Electricity transmission lines; and**
- Exploration boreholes.

The above features were included in Risk Assessments (as described in the Subsidence Monitoring Program – NRE EMS MP 002) and the outcomes reflect those features which require attention (refer to **Section 3.2**).

The Study Area is not in an MSB Subsidence Area. Furthermore, as all of the land is within the SCA Special Area and Gujarat NRE ownership, there are no known Public Amenities; Farm Lands/Facilities; Industrial/Commercial/Business Establishments; or Residential establishments within the Study Area.

3.2 Potential Impacts

The Subsidence Impact Assessment (SGPL, 2011) as updated as part of the Environmental Assessment for the LW 4& 5; Maingates 6, 7 & 8 Pt3A modification application also provides the predicted subsidence effects and subsidence impacts from the proposed mining on these features.

Former workings in the Bulli Seam and Balgownie Seam overlay the proposed workings in the Wongawilli East area. The Bulli workings date from early to mid last century, and the Balgownie workings, which were longwalls, were extracted between 1970 and 1982.

Because of the need to progressively validate model assumptions that underpin the prediction of subsidence with multiple seam extraction and the resultant subsidence impacts, engineering and administrative controls are proposed to manage the mining. These controls will need to be developed progressively as monitoring data are collected and prediction models refined (SGPL, 2011).

3.2.1 Risk Assessments

NRE has undertaken several Risk Assessments to determine key potential impacts from the extraction of Longwalls 4 & 5. The results of these assessments as relevant to the extraction of Longwalls 4 & 5 are presented below. The results of these Risk Assessments and supporting investigations by specialist consultants have informed the level of monitoring proposed in this Management Plan.

Olsen Environmental Consulting. November 2009. NRE No.1 Colliery Wongawilli East and West Mining Areas. Failure Mode and Effects Analysis Report.

This Assessment was undertaken using the Failure Mode and Risk and Effect Analysis (FMEA) which is a recognized methodology described in the NSW Department of Primary Industries document MDG 1010, "*Risk Management Handbook for the Mining Industry*".

Although this Olsen (2009) RA included an assessment for both the Wonga East and Wonga West areas some of the findings are applicable to Longwalls 4 & 5 in Wonga East. A summary of the results of this RA, being the identified effects with a risk above low is provided in **Table 3.1**.

Knjconsultants. NRE No. 1 Colliery – Pillar Run in the Bulli Seam associated with Wongawilli Seam LW4 & LW5 Extraction. 6 March 2012.

A risk assessment was conducted at NRE No. 1 Colliery on Friday 2 March 2012 to identify, analyse, evaluate and treat the risk of subsidence that may extend beyond the predicted footprint as a result of extraction of the Wongawilli Seam Longwalls 4 and 5. The primary source of the risk was nominated as an event known as "Pillar Run" that has the potential to occur in old Bulli Seam workings that overly the proposed LW4 and LW5 zone, once operations in that area commence.

The potential consequence of a Pillar Run event is impact to a range of surface features, both natural and man-made, as identified in **Table 3.2** below. The risk assessment was conducted using the Bow Tie methodology. The risk assessment team comprised of representatives from NRE No. 1 Colliery, Seedsman Geotechnics and Pells Consulting.

The anticipated extent of any pillar run, should it occur, was determined in the Risk Assessment to be limited by Barriers in the Bulli Seam Workings **Plan 2e – Additional Subsidence Management Area** (attached as **Appendix B**).).

Table 3.1 - LW's 4 & 5 Risk Assessment

Effect	Risk	Recommended Action (OEC, 2009)	Application to Longwalls 4 & 5	Longwalls 4 & 5 Risk
Adverse Impact on the habitat of the aquatic threatened species (Macquarie Perch) above Wongawilli East – Area 2 resulting in an interruption to/loss of spawning cycles.	Medium	Cardno Ecology Lab (CEL) to undertake necessary field work to determine whether Macquarie Perch is present in the Creek.	A number of Macquarie Perch were captured during electrofishing surveys in Cataract Creek, ~1.2 km downstream of Longwalls 4 & 5 (CEL, 2010). The extraction of coal from Longwalls 4 & 5 does not pose a significant risk to Cataract Creek or the Cataract River, and is unlikely to result in changes to stream flow, pond drainage and/or water quality (ERM 2011b). A Biodiversity Management Plan has been prepared to ensure the appropriate management of this item.	**Low**
Loss of maternity and roost sites for cave-roosting population of the threatened Eastern Bent-wing Bat.	Medium	Design monitoring activity to enable better prediction of the effects of mine subsidence on potential roost sites.	Although present in Wonga East, no habitat for Eastern Bent-wing Bat was identifies above Longwalls 4 & 5.	**Low**
Potential adverse subsidence effects on specific highly significant upland swamp and associated creek (Frog Swamp and Frog Creek) resulting in the loss of breeding habitat for the Giant Burrowing Frog (*Heleioperous australiacus*).	High	ERM to undertake field studies to ascertain extent and condition of species habitat.	The longwalls layout has been revised by NRE to minimise the impacts to swamps on significant above Longwalls 4 & 5. Additional studies have been undertaken (ERM, 2012) to reflect the revised impact on the swamps and these are now deemed to be negligible. A Water Management Plan has been prepared to ensure the appropriate management of this item.	**Low**
Disturbance to tributary standing pools	Medium	Implement appropriate monitoring	Not Applicable to Longwalls 4 & 5.	**N/A**

in tributaries to Wallondoola Creek above Wongawilli West Area 3. Adverse impacts are not likely.		program to confirm subsidence predictions. Mine plan has already been modified to minimise effects on major structures.		
Disturbance to tributary standing pools in 1st to 3rd order tributaries of Lizard Creek above Wongawilli West.	Medium	Ensure appropriate monitoring program is in place prior to mining in these areas.	Not Applicable to Longwalls 4 & 5.	**N/A**
Failure of Bald Hill Claystone due to mine subsidence leading to potential draining of Hawkesbury Sandstone aquifer through the Claystone and through underlying lithologies to workings.	Medium	Undertake appropriate monitoring to ascertain whether this type of failure has occurred. Will enhance future modelling predictions.	The layout of longwalls 4 & 5 has been specifically designed with narrow panels and large chain pillars and revised in length to minimise the impacts to the Hawkesbury Sandstone aquifer.	**Low**
Mine subsidence leading to potential draining of lower to middle Bulgo Sandstone aquifer and underlying aquifers through goaf to workings.	Medium	Undertake appropriate monitoring to ascertain whether this type of failure has occurred. Will enhance future modelling predictions.	The layout of longwalls 4 & 5 has been specifically designed with narrow panels and large chain pillars and revised in length to minimise the impacts to the lower to middle Bulgo Sandstone aquifer.	**Low**
Rock shelters without art – Wongawilli East – Area 2. Potential impacts Collapse of rock shelter, cracking, changed conditions relating to water exposure.	Medium	Detailed monitoring prior to mining in conjunction with improved subsidence monitoring base. Should failure be predicted, suitable response can be developed at the time eg physical support of overhang. Rating all sites for scientific significance and potential damage. Detailed monitoring prior to mining in conjunction with improved subsidence monitoring base. Should failure be predicted, suitable response can be developed at the time eg physical support of overhang.	Additional assessment Biosis (2012) found only a rock grinding groove in the Longwalls 4 & 5 Study Area. Potential risk of the complete destruction of this item was deemed to be low. A Heritage Management Plan has been prepared to ensure the appropriate management of this item.	Low
Mine subsidence resulting in collapse of rock shelter along major creeks and their tributaries (Lizard Creek and Wollondoola Creek) in Wongawilli West – Areas 3 and 4.	Medium	Detailed monitoring prior to mining in conjunction with improved subsidence monitoring base. Should failure be predicted, suitable response can be developed at the time eg physical support of overhang.	Not Applicable to Longwalls 4 & 5.	**N/A**

Table 3.2 - Pillar Run Risk Assessment (knj, 2012)

Description	Residual Risk Rating			
	OHS	Assets	Env	Rep
Damage to Mt Ousley Road Pavement	5E	1E	N/A	2E
Damage to Mt Ousley Road culvert at Cataract Creek	5E	1E	N/A	2E
Damage to Picton Road	Hazard does not exist with respect to this surface feature			
Damage to Mount Ousley Road Interchange & Bridge	Hazard does not exist with respect to this surface feature			
Damage to 330kV transmission line	5E	5E	N/A	5E
Damage to 132kV transmission line	5E	5E	N/A	5E
Damage to 4 x 33kV transmission lines	5E	5E	N/A	5E
Various Dirt Fire Roads/ Trail	Nil identified effects			
Stored waters of Cataract Dam	Hazard does not exist with respect to this surface feature			
Various microwave/ Radio transmitters	Hazard does not exist with respect to this surface feature			
Cataract Creek	5E	5E	4E	3E
Cataract River	Hazard does not exist with respect to this surface feature			
Swamps associated with Cataract & Bellambi Creeks and Cataract River	5E	5E	3E	3E
Illawarra Escarpment	Hazard does not exist with respect to this surface feature			
Archaeological Sites	Nil hazard identified			
Threatened species habitat	5E	5E	4E	3E

4 PERFORMANCE MEASURES AND CRITERIA

Performance criteria for the management of the 330kV and 132kV electrical transmission lines within the Study Area or the 'additional subsidence management area' are set out in Table 2 of ***Condition 4, Schedule 2*** of the Project Approval and are reproduced in Table 4.1 below..

NRE will also monitor if the recorded subsidence effects trigger the predicted and/or proposed levels. A summary of this monitoring is provided in **Appendix A**.

Table 4.1 provides the general expectations and Performance Criteria for the project.

Table 4.1 - Subsidence Impact Performance Criteria

Feature	Performance Indicators
330kV, 132kV Transmission Lines	• Always safe and serviceable. • Damage that does not affect safety or serviceability must be fully repairable, and must be fully repaired

Other specific performance criteria relating to surface infrastructure and/or environmental consequences are detailed in the appropriate Management Plan for that feature. In addition to this Management Plan, the following Management Plans have been prepared:

- Water Management Plan;
- Biodiversity Management Plan;
- Heritage Management Plan;
- Built Features Management Plan (RMS); and
- Public Safety Management Plan.

Environmental management will be undertaken in accordance with the process described in **Figure 2**.

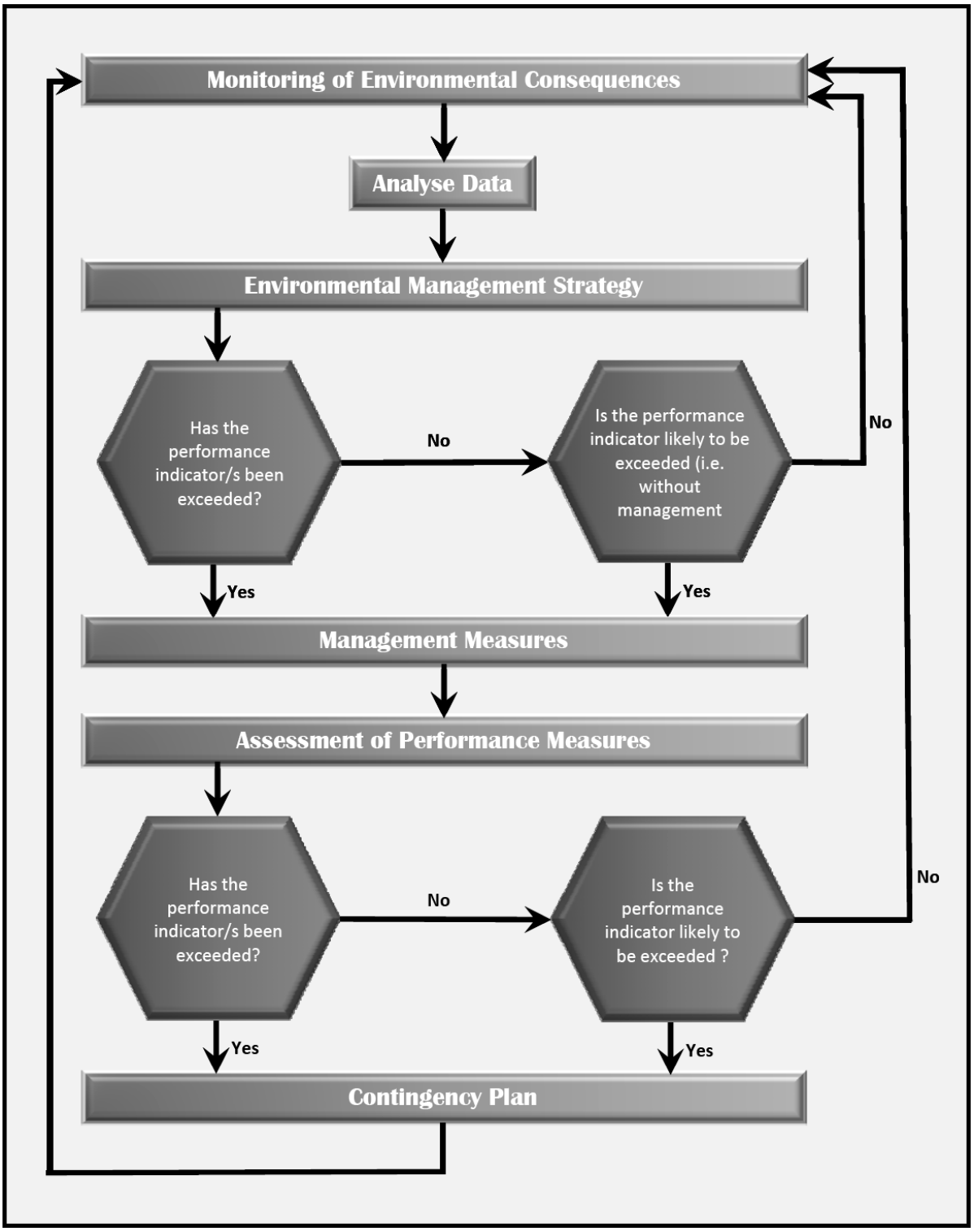

Figure 3 - Environmental Management Process

5 MONITORING AND REPORTING

5.1 Monitoring

Table 5.1 outlines the nature and frequency of monitoring and the actions proposed to manage impacts due to mining within the additional subsidence monitoring area as illustrated in **Appendix B**. A Monitoring Plan, in the form of a TARP, is attached as **Appendix A**. A Plan showing the monitoring locations is also provided in **Appendix B**.

Table 5.1 - Subsidence Effects Monitoring and Management

Management Period	Monitoring Proposed	Trigger	Response
Powerlines - 330kV and 132kV			
Baseline studies prior to mining	• 3D survey of towers; **once prior to mining** o 330kV – TL11/54 to TL11/58 o 132kV – Tower No. 63 – Tower No.69 • Earth Peaks Monitoring • Observational monitoring of 33kV line	• Documentation of pre-mining conditions	• Document and Report to: o NRE; and o Principal Subsidence Engineer – DRE within 48hrs following collection of data.
During mining	• 3D survey of towers undertaken at **Mid-Point of LW** o 330kV – TL11/54 to TL11/58 o 132kV - Tower No. 63 – Tower No.69 • Earth Peaks Monitoring	• No observable surface deformations • <5 mm separation between tower legs • 3D survey data within predictions	• Document and Report to: o NRE; o Principal Subsidence Engineer – DRE; o Transgrid; and o Endeavour Energy, within 48hrs following collection of data.
	• 3D survey of towers: o 330kV – TL11/54 to TL11/58; o 132kV - Tower No. 63 – Tower No.69 • Observational monitoring of	• Observable surface deformations; and/or • Separation between tower legs (5-10 mm);	• Notify the following Key Stakeholders, as appropriate, within 24hrs of becoming aware of the trigger/s: o NRE; o Electrical infrastructure owner/s; o Principal Subsidence Engineer - DRE; • Continue consultation with electrical owner/s (**Transgrid &**

Management Period	Monitoring Proposed	Trigger	Response
	33kV line.		**Endeavour Energy**) and develop specific action plans to be implemented should they be required (see trigger below); • Report monitoring data to Principal Subsidence Engineer - DRE within 48hrs following collection of data • Report any necessary actions to Key stakeholders within 7 days of becoming aware of the impact/s.
	• 3D survey of towers: o 330kV – TL11/54 to TL11/58; o 132kV - Tower No. 63 – Tower No.69 • Observational monitoring of 33kV line.	• Observable surface deformations; and/or • Separation between tower legs (>10mm); and/or • Tilts (> 4mm/m) as recorded on the tiltmeter/s	• Notify the following Key Stakeholders, as appropriate, immediately following awareness of the trigger/s being met: o NRE; o Electrical infrastructure owner/s; o Principal Subsidence Engineer – DRE • Undertake additional 3D survey and check against pre-mining monitoring data and review against predictions; • Undertake visual inspections accordingly; • Liaise with asset owner (**Transgrid & Endeavour Energy**) regarding any action/s required. • Report monitoring data to Principal Subsidence Engineer - DRE within 48hrs following collection of data • Report monitoring data and any necessary actions to Key stakeholders within 7 days of becoming aware of the impact/s. • Review Mining Options
Post mining	• 3D survey of towers, **at the completion of mining**: o 330kV – TL11/54 to TL11/58; o 132kV - Tower No. 63 – Tower No.69 • Earth Peaks Monitoring • Observational monitoring of 33kV line.	• Check against subsidence predictions and baseline survey	• Undertake 3D survey and review against predictions; • Document actual subsidence against predictions; • Report monitoring data to Principal Subsidence Engineer - DRE within 48hrs following collection of data • Report to Principal Subsidence Engineer – DRE, within four (4) months after completion of each longwall block.

Note: *Where impacts are identified, monitoring and mitigation will continue until determined unwarranted. Also, the Subsidence Management Status Report will be implemented to include the above subsidence monitoring data..*

5.1.1 Transmission Line Monitoring

A monitoring plan has been included in **Table 5.1** for the **330kV, 132kV** and **33kV** transmission lines located within the **Plan 2e- Additional Subsidence Management Area**. NRE is not predicting any impacts to this infrastructure by conventional subsidence. The planned monitoring however is being implemented, in the event that unconventional or non-systematic subsidence effects occur.

The towers supporting the transmission lines will be subject to observational inspections and a pre-mining, midway and end of mining 3D surveys, as well as earth peaks monitoring to inform the infrastructure owner, should any impacts occur.

5.2 Reporting

Reporting will be made available in accordance with the requirements of ***Condition 7/Schedule 5*** of the Project Approval.

6 MITIGATION AND MANAGEMENT STRATEGIES

6.1 General

Mitigation and management strategies to reduce subsidence effects, subsidence impacts and environmental consequences are detailed in the relevant and respective Management Plans.

These methods will be specific to the impact observed and developed in consultation with the appropriate stakeholders when and if impacts occur that have been definitively assessed as being directly related to the proposed mining of LW 5.

Specific mitigation measures for built features will be discussed and endorsed with the relevant asset owners (i.e. Transgrid and Endeavour Energy).

6.2 Trigger Action Response Plan

The Trigger Action Response Plan (TARP), as presented in **Appendix A** has been designed specific for this MP to illustrate how the various predicted subsidence impacts, monitoring components, performance measures, and responsibilities are structured to achieve compliance with the relevant statutory requirements, and the framework for management and contingency actions.

The TARP system provides a simple, transparent and useable reference of the monitoring of environmental performance and the implementation of management and/or contingency measures.

The TARP is designed with consideration of baseline conditions and predicted subsidence impacts and comprises the following:

- Trigger levels from monitoring to assess performance; and
- Triggers that flag implementation of contingency measures.

6.3 Contingency Plan

In the event that the observed parameters or impacts exceed or are considered likely to exceed the performance measures detailed in **Section 4** of this Plan, NRE will implement the following Contingency Plan:

- The observation will be reported to NRE's Environment and Community Manager within 24 hours.
- The observation will be recorded.
- NRE will report any exceedance of the performance measure to the Director General of DoP&I and relevant infrastructure owner as soon as practicable after NRE becomes aware of the exceedance.
- NRE will assess the exceedances referred to in the TARP (outlined in **Section 6.2**) of this document) and where appropriate, implement safety measures in accordance with the appropriate Management Plan/s.
- The infrastructure owner/s have indicated that the following measures may generally apply;
    - Up to 24 hours of power supply may be available in the event power might be disrupted ; and
    - The installation of roller sheaves may be available within 24 hours notification.

- The Environment and Community Manager will investigate any potential contributing factors and identify an appropriate action plan to manage the identified impact(s), in consultation with specialists and/or relevant agencies if necessary.
- NRE will identify an appropriate action plan to manage the identified impact(s), in consultation with other specialists and/or key stakeholders.
- NRE will submit the proposed course of action to the DoP&I for approval.
- NRE will implement the approved course of action to the satisfaction of the DoP&I.
- NRE will continue to monitor performance with the new action plan in place and, if successful will formalise these actions as part of a revised Management Plan.

Contingency measures will be developed in consideration of the specific circumstances of the issue and the assessment of consequences.

If either, it is not reasonable or feasible to remediate the impact or remediation measures implemented by NRE have failed to satisfactorily remediate the impact NRE will provide a suitable offset to compensate for the impact, to the satisfaction of the Director-General of DoP&I in accordance with ***Condition 3/Schedule 3*** of the Project Approval.

7 INCIDENTS, COMPLAINTS AND NON-CONFORMANCES

7.1 Incidents

The Project Approval defines an 'incident' to be "*a set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in this Approval*."

Incidents will be managed through established NRE procedures in as detailed the Environmental Management Strategy.

In accordance with ***Condition 6/Schedule 5*** NRE will notify the Director-General and any other relevant agencies of any incident:

- At the earliest opportunity if the incident has caused, or has the potential to cause significant risk of material harm to the environment.
- As soon as practicable in all other cases.

A detailed report of the incident shall be provided to DoP&I within 7 days of the incident occurring.

7.2 Complaints Handling

Complaints will be managed through established NRE procedures in as detailed the Environmental Management Strategy.

As required by ***Condition 10/Schedule 5*** of the Project Approval a copy of a complaints register (updated on a Monthly basis) will be kept on the NRE website. A summary of complaints will be available to regulatory authorities on request and provided in the Annual Environmental Management Reports (AEMRs).

7.3 Non-Conformance Protocol

NRE will manage and report non-compliances relevant against statutory requirements in accordance with an established protocol developed as a component of the Environmental Management Strategy.

Compliance with all approvals, plans and procedures will be the responsibility of all personnel (staff and contractors) employed on or in association with NRE No.1 Colliery, and will be promoted through direct consultation and direction of the Mine's Operations Manager.

Regular inspections and/or internal audits will be undertaken as required by suitably qualified personnel under the direction of the Environment and Community Manager, to identify any remediation/rectification work required, and areas of actual or potential non-compliance.

A Compliance Register ***Compliance Register (EMS RV APP 003 & EMS WW APP 003)*** will be established to monitor compliance against development consent criteria, mining leases etc. Non-compliances identified through the Compliance Register are to be reported, with corrective actions implemented.

A review of NRE's compliance with all conditions of the Project Approval, mining leases and all other approvals and licences will be undertaken prior to (and included within) each Annual Review. The Annual Review will be made publicly available on NRE's website.

8 PLAN ADMINISTRATION

8.1 Roles and Responsibilities

Environment and community management is regarded as part of the responsibilities of all Colliery personnel. The roles and function of the main personnel responsible for the implementation of environmental and community management including the plans, procedures and action plans contained in this EMS are outlined in ***NREG EMS PRO005 Environmental Roles and Responsibilities*****.**

8.2 Resources Required

In accordance with the ***NRE 001 NRE Environmental Policy*** Management shall ensure that the appropriate resources are made available to achieve the implementation of this Plan.

It is the role of the Environment and Community Manager to ensure that these requirements are communicated to NRE Management.

8.3 Training

All training and inductions conducted are to be undertaken as per the ***NRE 012 Training procedures*****.**

8.3.1 Staff Training

Staff training will be undertaken as detailed in the EMS. This consists of three levels of training applicable to different types of staff:

Level 1 – High level training on environmental requirement – Management
Level 2 – Operational level training – Project Managers, Supervisors, Surface Personnel
Level 3 – Basic environmental awareness – Underground staff

8.3.2 Inductions

All contractors and associated subcontractors will be required to participate in site induction prior to the commencement of work. As a minimum, the induction is to include:

- An overview of the Cardinal Rules, Environment Policy and EMS requirements.
- Environmental incident and community compliant reporting requirements.
- Environmental emergency contact details.

In the event that there are specific environmental management requirements relating to a contractor's work activities, details of these requirements are to be issued to the contractor in writing as a part of the induction.

Records, which detail the attendees, content of the induction/training as well as any additional information provided, will be maintained.

In addition to the induction program, training will be provided as deemed necessary to contractors to provide them with the knowledge, skills and awareness to minimise environmental impact. At a minimum this should include:

- Contractors whose activities are not directly supervised by Colliery personnel.

- Contractors whose activities are ongoing and have the potential to result in an environmental incident (e.g. stockpile contractors).

8.4 Record Keeping and Control

Environmental records are to be managed in accordance with the ***NRE 010 Document and Data Control procedure*****.**

All records of the EMS will be stored so that they are readily retrievable and suitably protected from deterioration or loss. Archiving will be managed in accordance with the ***NRE 010 Document and Data Control procedure*****.**

A master copy of each EMS document including all appendices and supporting information is to be held in the office of the E&C Department.

8.5 Plan Review

8.5.1 Annual Review

In accordance with ***Condition 3/Schedule 5*** of the Project Approval, an Annual Review of the environmental performance of the Project will be undertaken and annually thereafter.

The Annual Review will:

- Describe the works carried out in the past year, and the works proposed to be carried out over the next year.
- Include a comprehensive review of the monitoring results and complaints records of the Project over the past year, including a comparison of these results against the:
    - relevant statutory requirements, limits or performance measures/criteria;
    - monitoring results of previous year/s; and
    - relevant predictions in the EA.
- Identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance.
- Identify any trends in the monitoring data over the life of the Project.
- Identify any discrepancies between the predicted and actual impacts of the Project, and analyse the potential cause of any significant discrepancies.
- Describe what measures will be implemented over the next year to improve the environmental performance of the Project.

8.5.2 Auditing

In accordance with ***Condition 8/ Schedule 5*** of the Project Approval an Independent Environmental Audit will be undertaken by a suitably qualified auditor and include experts in any field specified by the Director-General within 12 months of the approval and every three years after that.

This audit must:

- Be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General.
- Include consultation with the relevant agencies.

- Assess the environmental performance of the project and assess whether it is complying with the requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals).
- Review the adequacy of strategies, plans or programs required under the abovementioned approvals.
- Recommend measures or actions to improve the environmental performance of the project, and/or any strategy, plan or program required under these approvals.

8.5.3 Plan Revision

In accordance with ***Condition 4/ Schedule 5*** of Project Approval, this Plan will be reviewed within three months of the submission of:

- The submission of an annual review
- The submission of an incident report
- The submission of an audit
- Any modification to the conditions of approval (unless the conditions require otherwise)

The revision status of this plan is indicated on the title page of each copy. Revisions to any documents listed within this Plan will not necessarily constitute a revision of this document. The distribution of controlled copies is described in **Section 1.3**.

9 REFERENCES

NRE (2011). NRE No.1 Colliery Longwalls 4 & 5 Subsidence Management Plan – Written Report. September 2011.

Seedsman Geotechnics Pty Ltd (2012). Management of Subsidence Risks associated with Wongawilli Seam Extraction with particular focus on Wongawilli East – Area 2. Report to Gujarat NRE Colliery. As included in Olsen Environmental Consulting, (2012). Review of Environmental Factors. NRE No. 1 Colliery Longwalls 4 & 5.

Seedsman Geotechnics Pty Ltd (2011) Gujarat NRE No1 Colliery: Management of Subsidence Risks associated with Wongawilli Seam Extraction. Report to Gujarat NRE Minerals. As included in NRE, (2011). Subsidence Management Plan for NRE No. 1 Colliery Russell Vale Longwall Panels 4 & 5 in 'Wonga East'.

Olsen Environmental Consulting (2009). NRE No.1 Colliery Wongawilli East and West Mining Areas. Failure Mode and Effects Analysis Report.

Knjconsultants (2012). NRE No. 1 Colliery – Pillar Run in the Bulli Seam associated with Wongawilli Seam LW4 & LW5 Extraction.

Appendix A - Trigger Action Response Plan (TARP)

Aspect	Sites	Parameters	Timing	Trigger	Action	Responsibility
Transmission Lines	• Transmission Line/s towers: - **330 kV** – TL11/54 to TL11/58 - **132 kV** - Tower No. 63 – Tower No.69 - **33kV**	• 3D Survey of towers • Observational monitoring • Earth Peaks Monitoring	• Baseline survey and inspection Prior to mining • Survey and inspection during mining undertaken at Mid-Point of LW (after 260m of retreat) or if triggered. • Survey and Inspection Post mining	• No observable surface deformations • < 5 mm separation between tower legs	• No notification required • Continue monitoring • Report in regular reporting (within 48 hrs to Endeavor Energy and Transgrid)	• NRE No.1 Colliery (E & C Manager) • NRE Environmental Monitoring Team • Contract Surveyor
				• Observable surface deformations; and/or • Separation between tower legs (5- 10mm)	• Notify the following Key Stakeholders, as appropriate, within 24hrs of becoming aware of the trigger: o NRE; o Electrical infrastructure owner/s (Endeavor Energy and Transgrid) ; o Principal Subsidence Engineer - DRE; • Continue consultation with electrical owner/s (Transgrid & Endeavour Energy) and develop specific action plans to be implemented should they be required (see trigger below); • Report monitoring data to Principal Subsidence Engineer - DRE within 48hrs following collection of data	
				• Observable surface deformations; and/or • Separation between tower legs (>10mm)	• Notify the following Key Stakeholders, as appropriate, immediately following awareness of trigger being met: o NRE; o Electrical infrastructure owner/s; (Transgrid & Endeavour Energy) o Principal Subsidence Engineer - DRE; • Undertake additional 3D survey and check other relevant monitoring data and review against predictions; • Undertake visual inspection accordingly • Liaise with asset owner (**Transgrid & Endeavour Energy**) regarding any action/s required. • Report monitoring data to Principal Subsidence Engineer - DRE within 48hrs following collection of data • Report monitoring data and any necessary actions to Key stakeholders within 7 days of becoming aware of the impact/s. • Develop monitoring program or implement CMAs if and as required in consultation with asset owner, • Review mining options	

Appendix B - Plan

N6 198 000
N6 197 500
N6 197 000
N6 196 500
N6 196 000
N6 195 500
E 301 500
E 302 000
E 302 500
E 303 000
E 303 500
E 304 000
E 304 500
E 305 000
E 305 500

N

F.S.L. 10 289.92m AHD

CATARACT RESERVOIR

Notification Zone

Mount Ousley Road

Substation

33kV

330kV

132kV

Cataract

Longwall 8

Longwall 7

Longwall 5

Longwall 4

Maingate 8

Maingate 7

Maingate 6

Maingate 5

Maingate 4

Tailgate 4

Crhs

20m Barrier

20.12 M BARRIER (Bulli Seam Only)

TOP OF ESCARPMENT

ESCARPMENT

Mine Lease Boundary

South Bellambi Colliery
(Balgownie Seam)
C.C.L. 745

GUJARAT NRE COKING COAL LTD.
NRE No.1 COLLIERY

EXTRACTION PLAN
Plan 2e Additional Subsidence Management Area
Wongawilli Seam LW4, LW5, MG6, MG7
and MG8 Application

Signed: _____ Date _____ Signed: _____ Date _____
P Wakeford, Manager of Mining Engineering — G.Hamilton, Mine Surveyor

Plan No. : WE10227	Revision : 0
Date: 07/12/12	Scale_A0;1:4000
	Drawn:G.Hamilton

LEGEND
- Existing First Workings
- Proposed First Workings (88.3m)
- Mine Lease Boundary CCL745
- Application Area
- Corrimal Bulli Seam Workings
- Bulli Seam Workings
- Balgownie Seam Workings
- Dyke
- Fault
- Additional Subsidence Management Area
- Archeology Sites

Upland Swamps - Key
- Upland Swamps - Banksia Thicket
- Upland Swamps - Sedgeland-Heath Complex
- Upland Swamps - Tea Tree Thicket