

Centennial Coal

Independent Environmental Compliance Audit

Ivanhoe North Rehabilitation Project

Prepared in accordance with Project Approval 05_0103, Schedule 4, Condition 5.

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CCC20-012



GSS ENVIRONMENTAL
Environmental, Land and Project
Management Consultants

Project Manager/
Auditor:



.....
Chris Jones

B. Env Sci

Senior Environmental Scientist

GSS Environmental
Level 1, 241 Denison Street
BROADMEADOW, NSW 2292
Tel: 02 4920 3031
Fax: 02 4961 3360

ISSUE AND AMENDMENT CONTROL HISTORY

Issue	Date	Description	Author	QA/QC
1	24.01.2013	First Draft Document	Chris Jones	Tim Deverell
2	29.01.2013	Final Document	Chris Jones	Tim Deverell

LIMITATIONS:

This document was prepared for the sole use of Ivanhoe Coal Pty Ltd and the regulatory agencies that are directly involved with this operation, the only intended beneficiaries of our work. No other party should rely on the information contained herein without the prior written consent of GSS Environmental. It has been prepared on the basis of information provided by Ivanhoe Coal Pty Ltd on 6 – 8 November 2012 or provided following further request for information.

EXECUTIVE SUMMARY

GSS Environmental (GSSE) was engaged by Ivanhoe Coal Pty Ltd to undertake an Independent Environmental Audit of the Ivanhoe North Rehabilitation Project (INRP). Ivanhoe Coal Pty Ltd (Centennial Ivanhoe) is a subsidiary of Centennial Coal.

Schedule 4 Condition 5 of the INRP Project Approval (PA05_0103) outlines the requirement for the completion of an Independent Environmental Audit of the INRP following the completion of mining at the site. The Department of Planning and Infrastructure (DP&I) advised (26 July 2012), that this audit would be required to assess only those strategies/plans/programs required under the Project Approval that continue to be relevant to the site. The Independent Environmental Audit was undertaken by GSSE in accordance with this directive from the DP&I.

This is the second Independent Environmental Audit to be carried out at the INRP, with the audit covering the period from 4 June 2010 to 6 November 2012. The previous audit was completed by URS Australia Pty Ltd (URS) covering the period of 1 May 2009 to 3 June 2010.

The methodology for undertaking the Independent Environmental Audit consisted of the following key steps:

- a) Preparation for the audit by reviewing any documentation provided by Centennial Ivanhoe prior to the audit;
- b) 'Opening' and 'closing' meetings with Centennial Ivanhoe personnel (**Appendix 4**);
- c) A site inspection (**Appendix 1**) and interviews with key personnel were undertaken during 6 to 8 November 2012;
- d) Review of additional relevant documentation either obtained while on site during the inspection or provided by Centennial Ivanhoe after the site visit; and
- e) Further review and refinement of the draft Audit report.

The Independent Environmental Audit which was undertaken by GSSE provided a compliance assessment of relevant approvals, licenses and management plans applicable to the INRP. **Table 1** outlines the compliance status of the INRP during the audit period of 4 June 2010 to 6 November 2012.

Table 1 – Compliance Assessment Audit Score

Approval	Percentage Complaint	Number of Non Compliances
Project Approval (PA05_0103)	95%	2
Environment Protection Licence (EPL 13063)	95%	3
Mining Lease (ML1627)	100%	0
Environmental Assessment (EA) Statement of Commitments (Relevant rehabilitation and water management conditions only)	100%	0

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1.0 INTRODUCTION

GSS Environmental (GSSE) was engaged by Ivanhoe Coal Pty Ltd to undertake an Independent Environmental Audit of the Ivanhoe North Rehabilitation Project (INRP). Ivanhoe Coal Pty Ltd (Centennial Ivanhoe) is a subsidiary of Centennial Coal.

Schedule 4 Condition 5 of Project Approval (PA05_0103) outlines the requirement for the completion of an Independent Environmental Audit of the INRP following the completion of mining at the site. Chris Jones from GSSE was endorsed by the Director General of the Department of Planning and Infrastructure (DP&I) on 26 July 2012 to undertake the Independent Environmental Audit following the completion of mining at the INRP. The DP&I advised (26 July 2012), that this audit would be required to assess only those strategies/plans/programs required under the Project Approval that continue to be relevant to the site. The Independent Environmental Audit was undertaken by GSSE in accordance with this directive.

This is the second Independent Environmental Audit to be carried out at the INRP, with the audit covering the period from 4 June 2010 to 6 November 2012. The previous audit was completed by URS Australia Pty Ltd (URS) covering the period of 1 May 2009 to 3 June 2010.

1.1 Scope of this Audit

The scope of this Environmental Audit was to conduct an independent assessment of the operations in accordance with PA05_0103. The Audit Team has focussed on assessing only those strategies/plans/programs required under the Project Approval that continues to be relevant to the site as per the directive from the DP&I. **Table 1.1** outlines the Project Approval conditions relating to the Independent Environmental Audit for the INRP.

Table 1.1 – Project Approval (PA05_0103) Conditions relating to the Independent Environmental Audit for the INRP

Condition Number	Condition
Schedule 4 Conditions 5,	<p>At the end of year 1 of the Project, and on completion of coal mining operations, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the Project. This audit must:</p> <ul style="list-style-type: none">a) be conducted by suitably qualified, experienced, and independent expert/s whose appointment has been endorsed by the Director-General;b) assess the various aspects of the environmental performance of the Project, and its effects on the surrounding environment;c) assess whether the Project is complying with the relevant standards, performance measures, and statutory requirements;d) assess whether the Project is complying with the works as described in the EA and conditions of approval;e) review the adequacy of any strategy/plan/program required under this approval; and, if necessary;f) recommend measures or actions to improve the environmental performance of the Project, and/or any strategy/plan/program required under this approval.
Schedule 4 Conditions 6	<p>Within 3 months of commissioning this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, with a response to any recommendations contained in the audit report.</p>

1.2 Structure of the Audit Report

The Audit report has been divided into the following sections:

- Section 1** Introduction – background on the purpose of the audit, including the scope of the audit and the audit methodology;
- Section 2** Project Description – outlines the history of the site, including the history of the approvals and modifications for the site;
- Section 3** Consultation undertaken as part of the audit process;
- Section 4** Discussion of the Environmental Audit Findings – summary of audit results for each condition within the approval showing either compliance or non-compliance as applicable;
- Section 5** Recommendations for Environmental Performance; and
- Section 6** References reviewed by the Audit Team.

1.3 Audit Team and Timing

The Independent Environmental Audit was conducted by suitably qualified, independent and experienced personnel, including:

- Chris Jones – Senior Environmental Scientist (GSSE); and
- Adam Koppers – Environmental Scientist (GSSE).

Chris was approved as the lead auditor from the DP&I in a letter dated 26 July, 2012. Chris has extensive site experience with multiple mining operations and has undertaken several internal and independent environmental audits. Chris has completed the Environmental Auditors Certification Workshop with Graham A Brown. Chris is an approved *Principal Environmental Auditor* through RABQSA.

The Audit Team was based at Lidsdale House (Centennial Coal's Western Office) from 6 to 8 November 2012, with a site inspection of the INRP completed on 6 November 2012. During the audit the following personnel were interviewed and assisted with providing documentation.

- Mr Neil Larcombe, Centennial Site Manager (INRP);
- Ms Kirsty Nielson, Contract Environmental Officer for INRP (International Environmental Consultancy); and
- Mr Rob Hunt, former Environment and Community Coordinator for INRP (Centennial Coal).

1.4 Methodology

The methodology for undertaking the Independent Environmental Audit consisted of the following key steps:

- a) Preparation for the audit by reviewing any documents provided by Centennial Ivanhoe prior to the audit;
- b) 'Opening' and 'Closing' meetings with Centennial Ivanhoe personnel (**Appendix 4**);
- c) A site inspection (**Appendix 1**) and interviews with key personnel were undertaken during 6 to 8 November 2012;

- d) Review of additional relevant documentation either obtained while on site during the inspection or provided by Centennial Ivanhoe after the site visit; and
- e) Further review and comment of the draft Audit report.

The following approvals were audited by GSSE (**Table 1.2**), as part of the Independent Environmental Audit.

Table 1.2 – Approvals Audited by GSSE

Approval	Authority
Project Approval (PA05_0103)	Department of Planning and Infrastructure (DP&I)
Environment Protection Licence 13063	Environment Protection Authority (EPA)
Mining Lease 1627	NSW Department of Trade and Investment Regional Infrastructure and Services (DTIRIS)

Along with these approvals, other documentation that was audited by GSSE included:

- Environmental Assessment (R.W. Corkery, 2006) Statement of Commitments; and
- Management Plans required under the conditions under PA05_0103 (including Site Water Management Plan and Rehabilitation and Mine Closure Plan).

1.4.1 Document Review

The following information was reviewed during the auditing process:

- Mining Lease (ML) No. 1627 (ML1627), including Consolidated Coal Leases (CCL);
- Mining Operations Plan (MOP) (R.W. Corkery, 2008);
- MOP (Centennial Ivanhoe, 2012);
- Project Approval (PA 05-0103) (NSW DP&I, 2009);
- Environmental Assessment (EA), including Statement of Commitments (R.W. Corkery, 2006);
- EA Modification for Continued Operations (2012);
- Management Plans required as a condition of the Project Approval;
- Environment Protection Licence (EPL) No. 13063 (EPL13063) (NSW OEH, 2009);
- INRP Environmental Management System (EMS) Framework;
- Standards, Procedures and any other documentation supporting the site EMS;
- Selected correspondence with relevant government agencies and stakeholders;
- Selected records of competency, induction and training;
- Environmental monitoring results;
- Production and transport records;
- Details of incident reports;
- Selected meeting minutes; and
- Evidence of monitoring and review.

A full list of documentation reviewed during the auditing process is outlined in **Section 6**.

1.5 Regulatory Approvals

Project Approval

The PA05_0103 was granted by the then Minister for Planning on 11 April 2007. A Modification to the PA05_0103 was granted by the delegate of the Minister for Planning and Infrastructure on 19 January 2012 under *Section 75W of the Environmental Planning and Assessment Act 1979 (EP&A Act)*. The modification allowed for the continuation of mining and trucking operations until May 2012.

Leases

Open Cut Mining is permissible in Mining Lease (ML) 1627, which incorporates Mining Purpose Lease (MPL) 79 in its entirety, creating a single mining tenure. MPL 79 is a previous Centennial Coal surface lease of 12.2 ha. ML 1627 was granted on 17 March 2009 and expires 17 March 2030. ML 1627 covers an area of 79.78 ha.

Mining Operations Plan

The Mining Operations Plan (MOP) for the INRP was updated in 2012 following the modification to PA05_0103. This updated MOP outlined details for mining (now ceased), rehabilitation and mine closure activities at the site. The updated MOP has been prepared to cover the period 17 March 2012 to 17 March 2019. The previous MOP period for the INRP finished on the 16 March 2012.

Licenses

Centennial Ivanhoe holds EPL 13063 under the *Protection of the Environment Operations Act 1997* (POEO Act). The EPL has an anniversary date of the 24th of April each year and allows for 3 surface water discharge points and 3 dust monitoring points.

Management Plans

The following management plans are approved and are in place for the INRP:

- Noise Monitoring Program;
- Air Quality Monitoring Program;
- Site Water Management Plan;
- Rehabilitation and Mine Closure Plan;
- Bushfire Management Plan;
- Traffic Management Plan;
- Environmental Management Strategy; and
- Environmental Monitoring Program.

2.0 PROJECT DESCRIPTION

2.1 History of Operations

The area within the Ben Bullen State Forest on which ML 1627 is located, has been the subject of previous coal mining, and mining related operations. This includes the Cullen Main West open cut mining operations completed in the years following World War II and more recently mine ventilation for Ivanhoe 2 Colliery and mine waste disposal for the Ivanhoe 2 and Invincible Collieries.

The Cullen Main West open cut was a contour mining operation which operated shortly after World War II. The open cut, which is situated immediately to the northwest of Ivanhoe Colliery's No.2 underground workings, was abandoned following the cessation of mining in the early 1950s. Centennial Coal has used approximately 20% (2.0 ha) of the abandoned open cut for mine ventilation for the Ivanhoe Colliery and placement of coarse reject generated by the Ivanhoe and Invincible Collieries. The ventilation fan was subsequently removed at the site.

Some rehabilitation works were completed at the Cullen Main West open cut during early 2000 by Coalpac Pty Ltd, holder of the underlying sections of MPL 79. The rehabilitation was undertaken for the purpose of reducing the safety risk associated with remnant high walls, in particular a section of the high wall was completely reshaped. The remainder of the abandoned open cut remains unrehabilitated, although there has been significant tree regrowth on parts of the open cut floor and "out-of-pit" spoil dumps.

2.2 Description of Operations During Mining

The Mining Operations Plan (MOP) (2012) described the operations at Ivanhoe North during mining. Mining ceased in March 2012, with the last of the coal hauled from site on 26 April 2012.

Centennial Ivanhoe were approved to complete the following activities, in accordance with PA 05_0103:

- Construction of all surface infrastructure including a site access road and intersection with the Castlereagh Highway, coal crushing area, facilities area and water management structures;
- Land preparation including vegetation clearing and soil stripping;
- Removal of overburden and interburden materials to expose the Irondale, Lidsdale and Lithgow Coal Seams;
- Mining of the exposed coal of the Irondale, Lidsdale and Lithgow Seams using truck and loader operations;
- Crushing of the mined coal;
- Progressive backfilling, profiling and rehabilitation of mined out sections of the open cut using the overburden and interburden removed; and
- Transportation of the crushed coal via the mine access road and Castlereagh Highway.

The following figures are attached to this report:

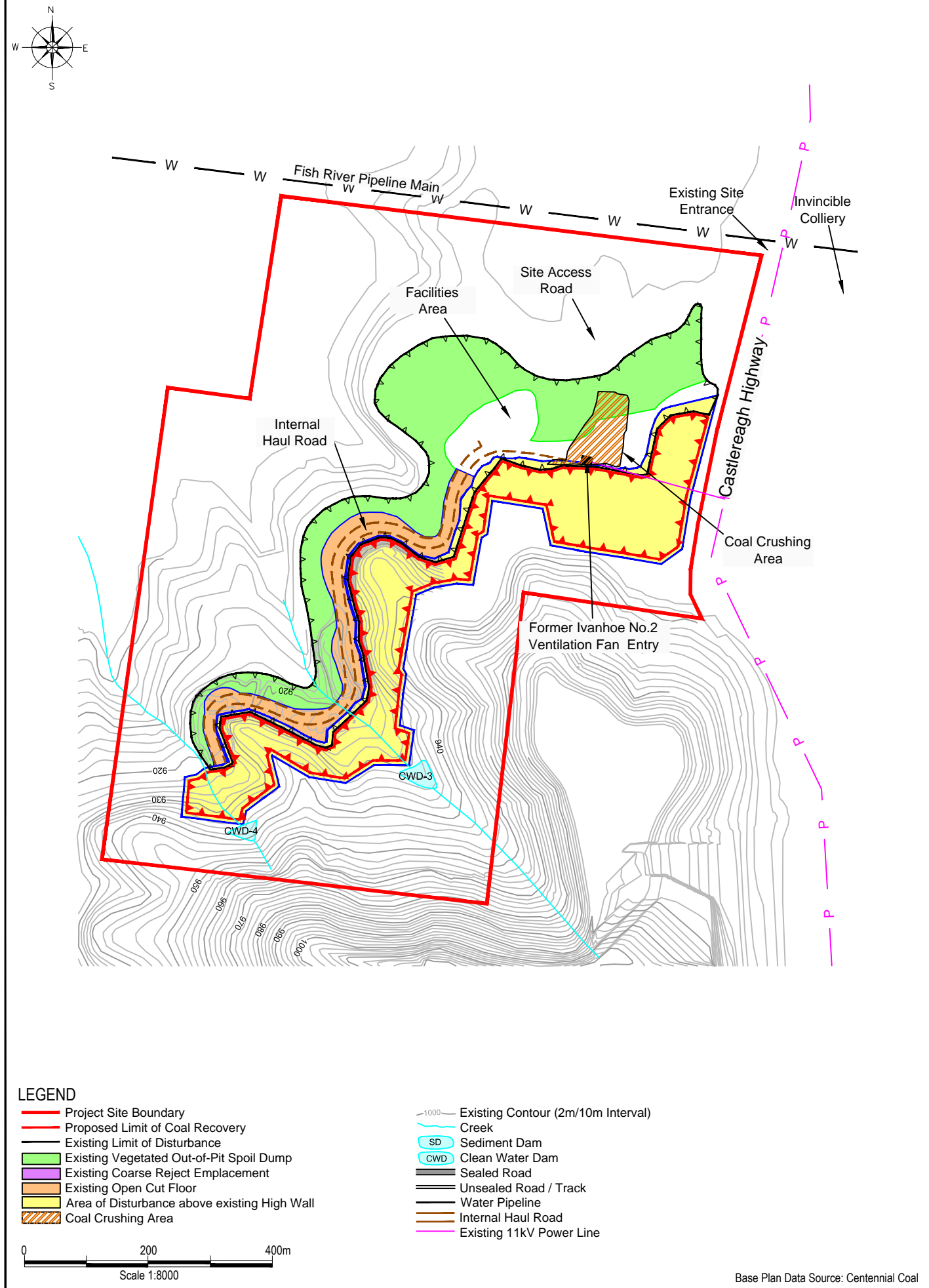
Figure 1: Locality;

Figure 2: Project Layout;

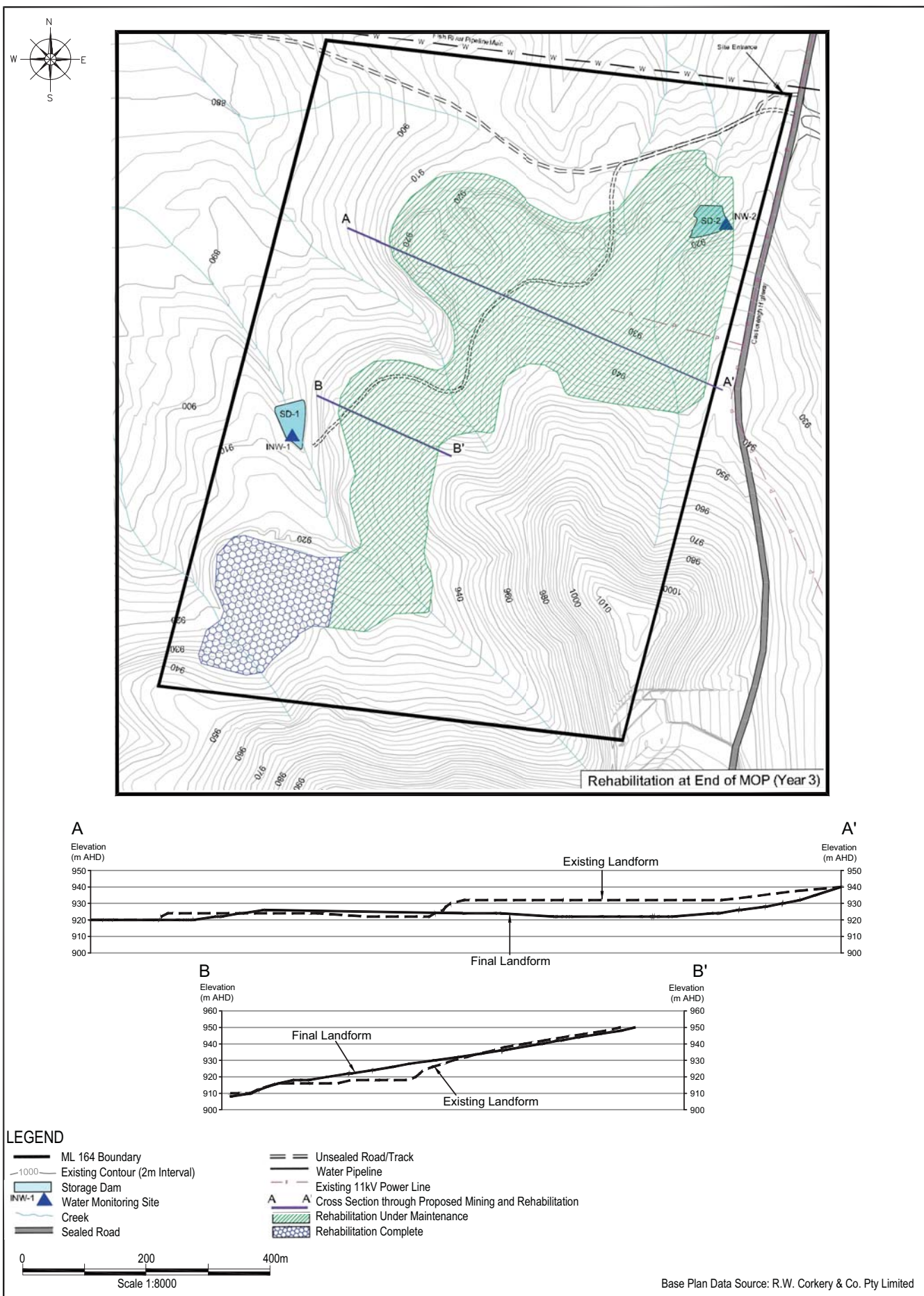
Figure 3: Final Landform; and

Figure 4: Revised Surface Water Management Plan Figure.

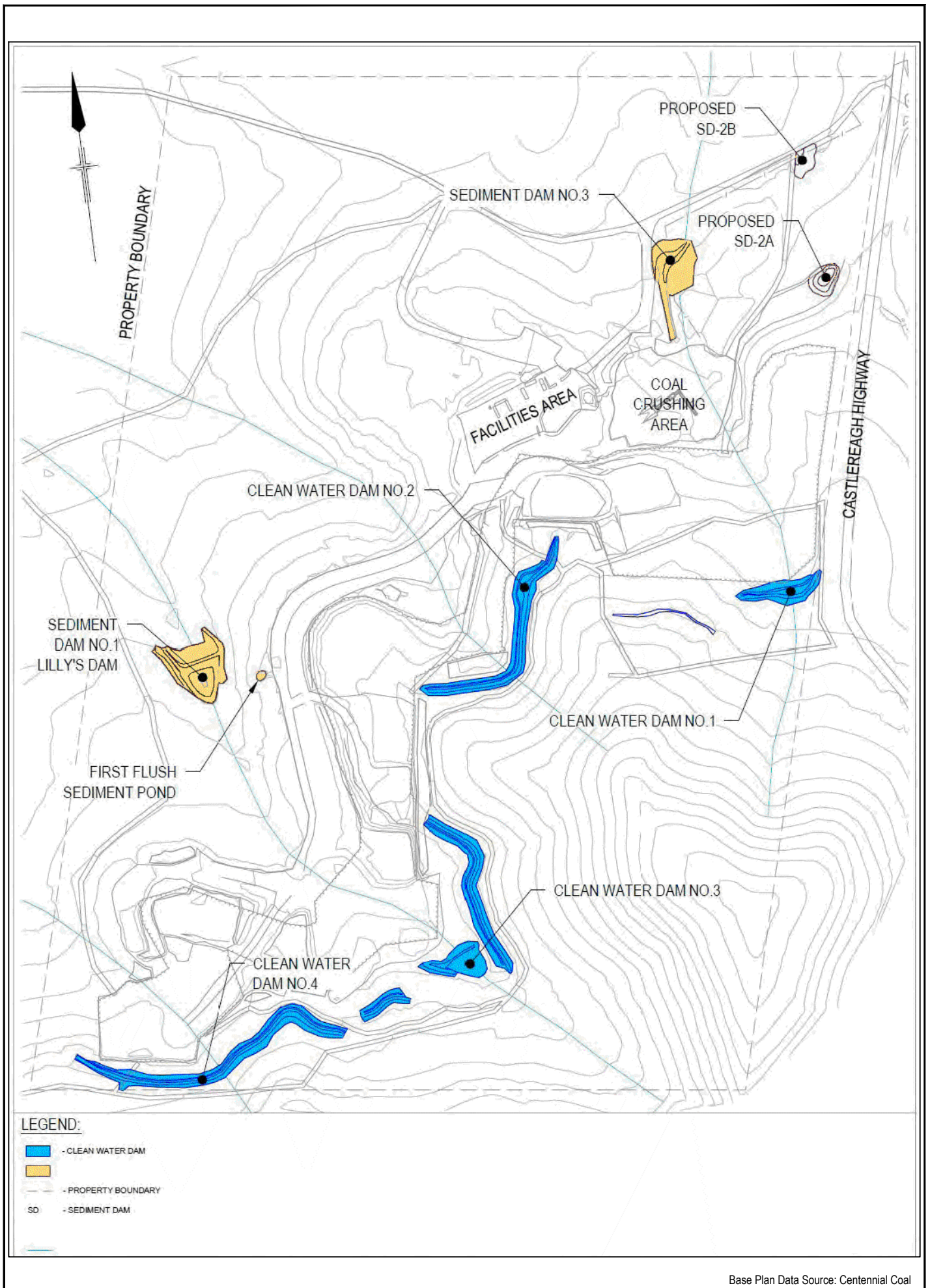




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2.2.1 Land Preparation

Land preparation refers to the sequential clearing of vegetation and stripping of soil prior to the removal of overburden and interburden, mining of the identified coal seams and progressive backfilling and rehabilitation of mined-out areas. For mine planning purposes, the areas that have been cleared (and ultimately mined and rehabilitated) were divided into three areas, namely the “Southern” (Sth), “Central” (Cen) and “Northern” (Nth) blocks. Each of these areas were further divided into operational blocks, eg. Block Sth03, Cen04 and Nth01. The INRP was developed in a generally south to north direction, ie. from Sth01 to Nth05, although mining first commenced in the 39 Block for the INRP instead of the 31 Block (approximately 200 metres to the East). The reasons for the change in sequencing included:

- The limited amount of material readily available to build the haul road and the required safety bunding from the crushing Area down to the Sth 01 Block.
- The narrow elongated geometry of the Project which resulted in:
 - Lack of pit room in the Sth 01 Block to safely operate a number of large pieces of machinery.
 - Insufficient in pit dump room in the S1 area, which would have necessitated construction of an out of pit dump thus increasing the environmental footprint.

The change to mining sequencing did not cause any additional environmental impact and did not affect the final landform.

Vegetation clearing, seed collection and topsoil management procedures were outlined in the MOP and the Rehabilitation and Mine Closure Plan (RMCP). When operational, the site used the services of a local seed collector for the collection of seed. The seed collection program was aimed at producing the maximum quantity and quality of seed incorporating the correct degree of maturity for maximum germination. Where trees are cleared for mining purposes, available seed was collected.

2.2.2 Mining Operations

Mining was completed during the audit period from 4 June 2010 to 6 November 2012. Conventional open cut mining methods were used at the INRP to progressively recover the coal remaining beyond the remnant highwall. Following the completion of land preparation activities within a mining block, overburden was removed by either:

- **Load and Haul:** The overburden is ripped by the mine bulldozer and loaded into 50 tonne haul trucks by a 992 front-end loader or 75 tonne excavator for delivery to an overburden stockpile (initially) or previously mined out blocks of the open cut (following completion of mining in southernmost blocks).
- **Bulldozer Push:** The ripped overburden is pushed directly into an adjacent mined-out block of the open cut.

Generally, a single active mining bench was operated within each mining block, however on some occasions, separate benches were developed. As enough coal was exposed on the bench, it was ripped, excavated and transported to a Run-of-Mine (ROM) stockpile within the coal crushing area. Once the coal was removed, the interburden material between the targeted coal seams was removed in the same manner as the overburden to create the lower mining bench. All materials at the INRP are sufficiently friable to enable the removal by ripping and loading. No blasting occurred at the mine by Centennial Ivanhoe or the Contract Miner “Big Rim”.

Transported ROM coal was unloaded and temporarily stockpiled on a ROM pad stockpile where it was then loaded by front-end loader into a crusher. All coal was crushed to produce a suitable product for sale, with no reject produced. The crushed coal was then directed by a stacker to the crushed product stockpiles. From here the coal was transported by road to Lidsdale Siding for export.

2.3 Description of Rehabilitation Activities

A Rehabilitation and Mine Closure Plan (RMCP) was completed in 2011, replacing the previous Rehabilitation Management Plan.

The INRP divided the site into a series of rehabilitation and closure domains (**Table 2.1**).

Table 2.1 – INRP Final Land Use for Domains

Domain Number	Domain Name	Agreed Final Land Use
1	Infrastructure Area and Product Stockpiles	Nature Conservation or Forestry (woodland)
2	Active Mining Area (Ivanhoe North Project)	Nature Conservation or Forestry (woodland)
3	Previously Disturbed Area (Cullen Main West Open Cut and other disturbance)	Nature Conservation or Forestry (woodland)
4	Water Management	Water Management (including removal of sedimentation dams)

2.3.1 Shaping and Rehabilitation

The formation of the final landform has ensured that large bulky material and rocks are kept well below the surface to prevent exposure and disturbance of the surface whilst the process of final surface preparation and revegetation is undertaken.

The final landform has been created through the replacement of mined overburden within the completed open cut. The landform incorporates the revegetated spoil dumps of the Cullen Main West open cut and recreates the natural slope of the land prior to mining related disturbance. The recreated final slopes vary from approximately 6 degrees at the southern end of the final landform to approximately 14 degrees at the northern end. Natural drainage lines that previously traversed the abandoned Cullen Main West open cut were reinstated and the entire site revegetated with native woodland species endemic to the local area. Where available the top layer of soil material was re-spread and deep ripped on the contour. The deep ripping has created a rough surface which encourages rainfall infiltration and reduces runoff and when completed effectively results in superior vegetation establishment and persistence.

The principal objective of the RMCP is to create a stable landform which will pose no long-term environmental hazard. The RMCP outlines Centennial Ivanhoe's objective to rehabilitate the INRP to a woodland environment, similar to the native vegetation surrounding the site. The goal is for the final landform to be self sustaining and require minimal maintenance requirements.

The following rehabilitation phases have been completed for the INRP:

- Previous Rehabilitation - Phase 1 (approximately 2 years old);
- Previous Rehabilitation - Phase 2 (approximately 1.5 years old); and
- New Rehabilitation - Phase 3 (Approximately four months old).

2.3.2 Closure Procedures

All infrastructure associated with the INRP has been removed or demolished following the cessation of coal mining. Infrastructure that has been removed includes:

- Mobile crushing facility;
- Transportable buildings;
- Fuel tanks;
- Generator – power supply; and
- Mobile mining equipment.

3.0 CONSULTATION

3.1 Consultation Sighted by Audit Team

The Audit Team sighted the following consultation during the audit:

- Annual Environmental Monitoring Report (AEMR) inspection letters;
- Management Plan approval letters;
- Consultation with land holders and neighbours; and
- General consultation with government agencies (DP&I, DTIRIS, EPA and Forests NSW).

3.2 Consultation completed for the Independent Environmental Audit

As part of the auditing process, Centennial Ivanhoe liaised with the EPA regarding the definition of condition M2.3, which referred to the requirement to monitor discharges from licensed discharge point (LDP) 1, 2 and 6, monthly during discharge.

The EPA (pers. comms Andrew Helmes) replied to Kirsty Nielson from International Environmental Consultancy (Contract Environmental Officer for INRP) on 20 November 2012 regarding the definition of this condition. The EPA advised:

“Technically the EPL requires one sample to be collected in a calendar month when there is a discharge. If you have three discharge events then you need only sample and report on one. If you have none – then clearly no sample is required”.

The EPA representative also provided some scenarios which would constitute a non compliance under EPL 5129, including:

“When a licensee uses a contractor to perform the sampling on a regular basis (on a set timetable)? What happens when there is no flow at the time of site visit but there is a discharge a week later? This would be a non-compliance with the EPL given that it is an administrative arrangement between licensee and contractor where the problem lies”.

“When a licensee takes more than one sample a month (for internal purposes) and one of the samples produces over-limit results? This result would need to be reported in the Annual Return”.

The EPA representative’s advice to Centennial Ivanhoe was to keep dam storage as low as possible, anticipate a rain event (through bureau of meteorology websites, etc) and have sampling equipment ready to go at short notice (i.e. not relying completely on a contractor).

Recommendations from the Audit Team for managing discharge events are outlined in **Section 4 and 5**.

4.0 DISCUSSION OF ENVIRONMENTAL AUDIT FINDINGS

4.1 Audit Scoring System

The audit scoring system has been prepared to definitively measure compliance status at the INRP.

If a condition was determined as a non – compliance by the Audit Team but was not relevant to the sites current operation, then the compliance status was recorded but no additional recommendations were made by the Audit Team. The Audit Team adopted this approach to ensure consistency with the DP&I letter requesting the Audit Team to only assess those strategies/plans/programs required under this Project Approval that continues to be relevant to the site. The Audit Team determined compliance through the review of documentation, discussions with site personnel and implementation of documentation (field inspection).

For general reference, the terms used in the Audit report for the assessment of compliance are outlined in **Table 4.1** below.

Table 4.1 – Audit Scoring System

Status	Definition
Compliance (C)	Adequacy and appropriateness of implementation against current Approval or Conditions, or compliance with commitments made.
Non Compliance (NC)	Not in compliance with part or all of condition.
Not Triggered	The condition was not triggered at the time of the assessment.
Indeterminate	It was not possible to determine compliance.
Not Applicable (NA)	Not Applicable to the audit

4.2 Project Approval Compliance Assessment

The Independent Environmental Audit identified 47 conditions of PA05_0103. Each condition of PA05_0103 was individually reviewed and assessed for compliance. The full compliance audit of PA05_0103 is attached as **Appendix 2**, with notes on compliance status, evidence and recommended actions. There were two identified non compliances within PA05_0103, which equates to an audit score of 95% compliance. **Table 4.2** below outlines the non compliances relating to PA05_0103.

Table 4.2 – Summary of PA05_0103 – Non Compliant Conditions

Condition Number	Condition	Evidence from Audit	Recommended Actions
Schedule 3 Condition 11	<p>The Surface Water Monitoring Plan must include:</p> <ul style="list-style-type: none"> a) surface water impact assessment criteria; b) a program to monitor the volume and quality of any off-site water discharges; c) a program to monitor surface water flows and quality in local watercourses; d) a protocol for the investigation, notification, and mitigation of identified exceedances of the surface water assessment criteria. 	<p>Discharge monitoring of volume is completed in accordance with the PA and EPL (weir monitors discharge volumes at dams) but water quality sampling is not completed for all discharge events. There is not a requirement to sample all discharge events, but there is a requirement under the EPL to monitor only one discharge event per month (when discharge occurs).</p> <p>As a minimum, the site must monitor monthly during discharge (EPL requirement and commitment in Site Water Monitoring Program). Therefore the site must monitor at least one discharge event per month when discharge occurs.</p> <p>The site did not monitor monthly during discharge in March 2011. Discharges occurred from LDP001 on 21 and 22 March 2011, but no sample was taken during this month.</p> <p>There has been no monitoring of surface water flows and quality in local watercourses as per the requirement in sub condition c).</p> <p>See Appendix 3 for more details.</p>	<p>There is no program in place to monitor surface water flows and quality in local watercourses. It is recommended that Centennial Ivanhoe review the requirement to monitor local watercourses and liaise with DP&I and OEH regarding the relevance of this condition.</p> <p>The site currently collects water samples during discharge events from licensed discharge points via automated samplers but are only occasionally getting these samples tested. If samples are collected, testing should be completed.</p> <p>As a minimum the site must monitor monthly during discharge (EPL requirement and commitment in Site Water Monitoring Program).</p>
Schedule 4	Within 3 months of commissioning this audit, or as	The previous audit by URS was completed on	No recommended action.

Condition Number	Condition	Evidence from Audit	Recommended Actions
Condition 6	otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, with a response to any recommendations contained in the audit report.	2 nd and 3 rd of June 2010 and was submitted to DP&I on 14 September 2010. This falls outside the three month period. The site did contact DP&I to inform them that the Audit report would be late.	

4.3 EPL 13063 Compliance Assessment

The Independent Environmental Audit identified 55 conditions of EPL 13063. Each condition of EPL 13063 was individually reviewed and assessed for compliance. The full compliance audit of EPL 13063 is attached as **Appendix 2**, with notes on compliance status, evidence and recommended actions. There were three identified non compliances within EPL 13063, which equates to an audit score of 95% compliance. **Table 4.3** below outlines the non compliances relating to EPL 13063.

Table 4.3 – Summary of EPL 13063 – Non Compliances

Condition Number	Condition	Evidence from Audit	Recommended Actions
L2.1	For each monitoring/discharge point or utilisation area specified in the table/s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.	<p>Water monitoring data provided showed discharges exceeding concentration limits in L2.4.</p> <p>The site did not meet this condition on 17 December 2010, 6 January 2011, 24 November 2011, 20 December 2011 and 22 May 2012 as water samples were above or below the EPL concentration limits.</p> <p>Example: 17 Dec 2010 - SD1 Discharge: TSS = 6,570 mg/L and pH = 5.66.</p> <p>The site contacted the EPA following non compliances relating to discharge events and completed incident reports. Surface water non compliances were recorded in the Annual Return. The EPA completed several inspections of the site during the audit period.</p> <p>See Appendix 3 for Discharge Monitoring Summary at the INRP.</p>	<p>Continue water monitoring. Continue the use of Water Treatment Services to improve water quality.</p> <p>Continue to use water from dams on rehabilitation areas.</p> <p>Only complete controlled discharges when water quality is within the range of the EPL criteria.</p>
L2.2	Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.	<p>100% of samples must be within concentration limit during discharge sampling events for pH. Water monitoring data provided illustrated the site was non compliant with the condition.</p>	<p>To ensure compliance, collect a sample from every discharge (automated samplers are installed) and that at least the first discharge sample of each month is analysed.</p> <p>As a matter of best practice, it is also</p>

Condition Number	Condition	Evidence from Audit	Recommended Actions																																								
		<p>The site contacted the EPA following non compliances relating to discharge events and completed incident reports. Surface water non compliances were recorded in the Annual Return. The EPA completed several inspections of the site during the audit period.</p> <p>See Appendix 3 for Discharge Monitoring Summary at the INRP.</p>	<p>recommended that every discharge event sample is analysed.</p> <p>Continue water monitoring. Continue the use of Water Treatment Services to improve water quality.</p>																																								
M2.3	<p>Water and/or Land Concentration Requirements</p> <p>POINT 1,2</p> <table> <tr> <th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr> <tr> <td>Conductivity</td><td>microsiemens per centimetre</td><td>Monthly during discharge</td><td>Probe</td></tr> <tr> <td>Oil and Grease</td><td>milligrams per litre</td><td>Monthly during discharge</td><td>Grab sample</td></tr> <tr> <td>pH</td><td>pH</td><td>Monthly during discharge</td><td>Probe</td></tr> <tr> <td>Total suspended solids</td><td>milligrams per litre</td><td>Monthly during discharge</td><td>Grab sample</td></tr> </table> <p>POINT 6</p> <table> <tr> <th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr> <tr> <td>Conductivity</td><td>microsiemens per centimetre</td><td>Monthly during discharge</td><td>Probe</td></tr> <tr> <td>Oil and Grease</td><td>milligrams per litre</td><td>Monthly during discharge</td><td>Grab sample</td></tr> <tr> <td>pH</td><td>pH</td><td>Monthly during discharge</td><td>Probe</td></tr> <tr> <td>Total suspended solids</td><td>milligrams per litre</td><td>Monthly during discharge</td><td>Grab sample</td></tr> </table>	Pollutant	Units of measure	Frequency	Sampling Method	Conductivity	microsiemens per centimetre	Monthly during discharge	Probe	Oil and Grease	milligrams per litre	Monthly during discharge	Grab sample	pH	pH	Monthly during discharge	Probe	Total suspended solids	milligrams per litre	Monthly during discharge	Grab sample	Pollutant	Units of measure	Frequency	Sampling Method	Conductivity	microsiemens per centimetre	Monthly during discharge	Probe	Oil and Grease	milligrams per litre	Monthly during discharge	Grab sample	pH	pH	Monthly during discharge	Probe	Total suspended solids	milligrams per litre	Monthly during discharge	Grab sample	<p>Monitoring results from Australian Laboratory Services (ALS) indicate appropriate sampling was performed to AS/NZS 5667/1 1998.</p> <p>Monthly during discharge frequency of monitoring was not met on one occasion during the audit period.</p> <p>As a minimum, the site must monitor monthly during discharge (EPL requirement and commitment in Site Water Monitoring Program). Therefore the site must monitor one discharge event per month when discharge occurs.</p> <p>The site did not monitor monthly during discharge in March 2011. Discharges occurred from LDP001 on 21 and 22 March 2011, but no sample was taken during this month. Water Treatment Services were engaged in early 2012 to ensure that testing of controlled discharges is undertaken.</p> <p>See Appendix 3 for more details.</p>	<p>To ensure compliance, collect a sample from every discharge (automated samplers are installed) and that as a minimum the first discharge sample of each month is analysed. If the first discharge event of the month is sampled and analysed, this meets the requirement to monitor monthly during discharge.</p> <p>As a matter of best practice, it is also recommended that every discharge event sample is analysed.</p> <p>Continue current dam monitoring schedule. Ensure dam levels are kept low to minimise the risk of discharge.</p> <p>Where a non compliance occurs, liaise with the EPA and report the non compliance.</p>
Pollutant	Units of measure	Frequency	Sampling Method																																								
Conductivity	microsiemens per centimetre	Monthly during discharge	Probe																																								
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4.4 Mining Lease 1627 Compliance Assessment

The Independent Environmental Audit identified 31 conditions (including sub conditions) of ML 1627. Each condition of ML 1627 was individually reviewed and assessed for compliance. The full compliance audit of ML 1627 is attached at **Appendix 2**, with notes on compliance status, evidence and recommended actions. There were no identified non compliances within ML 1627, which equates to an audit score of 100% compliance. Despite there being no non compliances identified with ML 1627, the Audit Team has still recommended some actions which are summarised in **Section 5** and **Appendix 2**.

4.5 Environmental Assessment Statement of Commitments - Compliance Assessment

The Independent Environmental Audit assessed relevant rehabilitation and surface water management conditions relating to the EA Statement of Commitments. Only commitments which were relevant to ongoing operations were assessed by the Audit Team.

There was no identified non compliance from the nine conditions assessed regarding rehabilitation and surface water management. This equates to a score of 100% compliance. Despite there being no non compliances identified with the relevant EA Statement of Commitments, the Audit Team has still recommended some actions which are summarised in **Section 5** and **Appendix 2**.

4.6 Assessment of Management Plans

The following management plans were reviewed as part of the Independent Environmental Audit. The Audit Team has focussed on assessing only those strategies/plans/programs required under the Project Approval that continues to be relevant to the site as per the instructions from DP&I. Some recommendations which would have been valid during the operation of the site are now redundant. **Table 4.6** summarises the adequacy of management plans for the INRP.

Table 4.6 – Summary and Adequacy of Management Plans

Management Plan	Condition	Summary of Management Plans
Noise Monitoring Program	Schedule 3 Condition 1	Noise monitoring has been implemented in accordance with the <i>Noise Monitoring Program</i> . With mining activities completed (rehabilitation activities continuing), the Audit Team recommends liaising with DP&I and NSW OEH to discontinue noise monitoring activities.
Air Quality Monitoring Program	Schedule 3 Condition 5	The <i>Air Quality Monitoring Program</i> was assessed as compliant. Air quality monitoring should continue in 2013. Recommendations for streamlining environmental monitoring are outlined in Section 5 of this report.
Site Water Management Plan	Schedule 3 Condition 11	The Site Water Management. Plan (SWMP) was completed and approved by DP&I in 16.03.2009. The Revised SWMP was sent to the Office of Environment and Heritage (OEH) (31.08.2010) and DP&I (15.10.2010). There was no response from these departments. There were times during the audit period when monitoring of surface water discharge events were not in compliance with the Environmental Monitoring Program and EPL 13063. Recommendations for improvements regarding the monitoring of surface water discharge events are outlined in Section 5 . See Appendix 3 for Discharge Monitoring Summary at the INRP.
Rehabilitation and Mine Closure Plan (RMCP)	Schedule 3 Condition 12	Progressive rehabilitation was completed as part of the INRP. Generally rehabilitation and landform shaping was completed in accordance with the RMCP, but the results of vegetation cover varied across rehabilitation areas. An inspection of rehabilitation completed over the past two years illustrates the quality of rehabilitation ranges from average to poor. In some sections the woodland seed mix has not established. Limited soil and topsoil material has been used in some parts which has correlated with average rehabilitation results. Soil testing has been completed with recent rehabilitation using gypsum and lime to improve soil quality. Recommendations for improvements to rehabilitation and closure activities are outlined in Section 5 .
Bushfire Management Plan	Schedule 3 Condition 18	A Bushfire Management Plan was prepared to the satisfaction of Forest NSW Macquarie Region (approved via email, dated 15/10/2009). Bushfire management will continue to be a key management issue

Management Plan	Condition	Summary of Management Plans
		at site following the cessation of mining.
Traffic Management Plan	Schedule 3 Condition 21	<p>The approved Traffic Management Plan includes details of transportation of coal to Lidsdale Siding and interactions with Invincible Colliery.</p> <p>Traffic management is now a low risk issue as mining operations have ceased. The site is occasionally accessed for inspections and additional rehabilitation work.</p>
Environmental Management Strategy	Schedule 4 Condition 1	<p>The EMS document has been prepared in accordance with this condition.</p> <p>Review date scheduled for EMS has lapsed. Review EMS document.</p> <p>There were commitments in the EMS regarding rehabilitation performance. Further rehabilitation works will be required to meet the rehabilitation criteria.</p> <p>Recommendations for improvements to rehabilitation and closure activities are outlined in Section 5.</p>
Environmental Monitoring Program	Schedule 4 Condition 2	<p>Monitoring has generally been completed in accordance with the Environmental Monitoring Program.</p> <p>Recommendations for improvements when monitoring surface water discharge events are outlined in Section 5.</p> <p>There is a potential to streamline the Environmental Monitoring Program at the INRP since mining operations have ceased. Centennial Ivanhoe should consult with the relevant government authorities regarding streamlining some aspects of the environmental monitoring program.</p>

5.0 RECOMMENDATIONS AND COMPLIANCE STATUS

5.1 Compliance Status

The Independent Environmental Audit which was undertaken by GSSE provided a compliance assessment of relevant approvals, licenses and management plans applicable to the INRP. As outlined earlier, the directive of the DP&I was that the audit will be required to assess only those strategies/plans/programs required under the Project Approval that continue to be relevant to the site. **Table 5.1** outlines the compliance status of the INRP during the audit period of 4 June 2010 to 6 November 2012.

Table 5.1 – Compliance Assessment Audit Score

Approval	Percentage Complaint	Number of Non Compliances
Project Approval (PA05_0103)	95%	2
Environment Protection Licence (EPL 13063)	95%	3
Mining Lease (ML1627)	100%	0
EA Statement of Commitments (Relevant rehabilitation and water management conditions only)	100%	0

5.2 Recommendations from Audit

Rehabilitation and Mine Closure

During the inspection of the site, the Audit Team noted the defined phases of rehabilitation at the INRP (approximately 2 years old, 1.5 years old and 4 months old). **Appendix 1** outlines several photographs of the rehabilitation stages at Ivanhoe North. It is recommended that further rehabilitation work be undertaken to achieve the rehabilitation completion criteria.

The following is recommended to improve rehabilitation results for the INRP:

- Review seed mix used at site for existing rehabilitation areas. Ensure the mix is consistent with RMCP and contains a mix of grassland and woodland species;
- Continuation of soil testing;
- Seeding or tube stock planting of additional woodland species in areas where limited success of woodland species;
- Consider the use of different organic matter/ameliorants in rehabilitation trials;
- Continue rehabilitation monitoring using the EFA method; and
- Section 8.1 of the RMCP states that an internal audit and review of the document will be completed following the completion of mining. GSSE recommends that this review be completed as further rehabilitation works are required for the site.

Compost material was used in a rehabilitation trial recently at the nearby Ivanhoe No. 2 Colliery. Early results indicate that the compost material has aided in rehabilitation which has resulted in excellent ground cover in areas where the compost was spread. Centennial Ivanhoe should consider using this compost material at Ivanhoe North.

Water Management

Section 3.1.2 outlines the advice from the EPA regarding condition M2.3 of EPL 5129.

During a review of the EPL 5129, there were discussions between the GSSE Audit Team and the Centennial Ivanhoe personnel regarding the definition of condition M2.3, which referred to the requirement to monitor discharges from licensed discharge point (LDP) 1, 2 and 6, monthly during discharge. Centennial Ivanhoe contacted the EPA for further clarification regarding this condition.

The Audit Team recommends the following for managing discharges from the site:

- Continue to monitor discharge volume at licensed discharge points;
- As a minimum, the site must monitor the surface water quality monthly during discharge (EPL requirement and commitment in Site Water Monitoring Program). Therefore for each licensed discharge point, the site must monitor at least one discharge event per month when discharge occurs. To reduce the risk of not meeting this condition, Centennial Ivanhoe should ensure that at least the first discharge event per month is sampled and analysed.
- As a matter of best practice, it is also recommended that every discharge event sample is analysed. Ensure samples collected from the automated samplers at licensed discharge points are analysed;
- Continue the current dam monitoring schedule. Ensure dam levels are kept low to minimise the risk of discharge. When the site releases water from the dams to reduce water level, sampling of discharge volume and water quality need to be undertaken to ensure compliance with the EPL;
- Continue the use of a contractor (Water Treatment Services) to treat water quality prior to controlled discharge events; and
- Ensure discharge non compliances against the EPL are reported to EPA.

During the site inspection the Audit Team noted some disturbance of a section of Stream 3 which appears to be associated with historical disturbance (not the INRP). The section which has eroded is shown in Photo 18 (**Appendix 1**) and is located between the reconstructed Stream 3 and Sediment Dam 1. The Audit Team recommends the following to manage erosion in this area:

- Complete a photo monitoring record of areas of the drainage line between the restored Stream 3 and Sediment Dam 1. Complete the photo monitoring of the drainage line every 6 months and after 50mm of rainfall within 24 hours; and
- Repair sections which have signs of significant erosion which will not naturally stabilise.

Subsection c) in Schedule 3 Condition 11 of PA05_0103 states the *Surface Water Monitoring Plan* must outline the requirement to monitor surface water flows and quality in local watercourses. There is currently no program in place to monitor surface water flows and quality in local watercourses. The Audit Team recommends Centennial Ivanhoe to liaise with the DP&I and EPA regarding the relevance of monitoring flows and water quality at nearby (offsite) watercourses.

Environmental Monitoring

With mining operations ceased for the INRP, there is an opportunity to streamline the environmental monitoring program. The Audit Team recommends the following in regards to environmental monitoring:

- Continuation of surface water monitoring in accordance with the EPL;
- Once rehabilitation improves Centennial Ivanhoe should liaise with the EPA and DP&I regarding the long term requirement to undertake dust monitoring. Dust monitoring results during mining operations and post closure illustrate the site is well below the dust criteria;
- With mining activities completed (rehabilitation activities continuing) GSSE recommends liaising with DP&I and EPA regarding discontinuing noise monitoring activities; and
- Review and update the environmental monitoring program accordingly.

Management Plans

The review date on the EMS has lapsed. Several other management plans need to be reviewed in 2013 according to management plan revision dates. With mining operations ceased, there is an opportunity to streamline the management plans for the INRP. GSSE recommends liaising with the relevant government departments when updating management plans.

The only management plan for the INRP that is on the Centennial website is the Pollution Incident Response Management Plan (PIRMP). Other relevant management plans such as the RMCP and SWMP should be placed on the website.

6.0 REFERENCES

- Barnson Pty Ltd (2009)*, Ivanhoe North Rehabilitation Project Traffic Management Plan.
- Centennial Ivanhoe (2008)*, Ivanhoe North Rehabilitation Project - Environmental Monitoring Program.
- Centennial Ivanhoe (2009)*, Ivanhoe North Rehabilitation Project - Air Quality Monitoring Program.
- Centennial Ivanhoe (2009)*, Ivanhoe North Rehabilitation Project - Bushfire Management Plan (Rev 1009).
- Centennial Ivanhoe (2009)*, Ivanhoe North Rehabilitation Project - Environmental Management Strategy.
- Centennial Ivanhoe (2009)*, Ivanhoe North Rehabilitation Project - Noise Monitoring Program.
- Centennial Ivanhoe (2009)*, Ivanhoe North Rehabilitation Project - Site Water Management Plan.
- Centennial Ivanhoe (2010)*, Ivanhoe North Rehabilitation Project - Rehabilitation Scope of Works.
- Centennial Ivanhoe (2010)*, Ivanhoe North Rehabilitation Project - 2009 Annual Environmental Management Report.
- Centennial Ivanhoe (2010)*, Ivanhoe North Rehabilitation Project - Waste Management Plan.
- Centennial Ivanhoe (2010)*, Ivanhoe North Rehabilitation Project (Project No. 05_0103) Revised Site Water Management Plan submission for approval to Department of Environment, Climate Change and Water.
- Centennial Ivanhoe (2010)*, Ivanhoe North Rehabilitation Project (Project No. 05_0103) Revised Site Water Management Plan submission for approval to Department of Planning.
- Centennial Ivanhoe (2010)*, Ivanhoe North Rehabilitation Project Approved Management Plans for Lithgow City Council.
- Centennial Ivanhoe (2012)*, Ivanhoe North Rehabilitation Project - 2011 Annual Environmental Management Report.
- Centennial Ivanhoe (2011)*, Ivanhoe North Rehabilitation Project - 2010 Annual Environmental Management Report.
- Centennial Ivanhoe (2011)*, Ivanhoe North Rehabilitation Project (Project No. 05_0103) Revised Rehabilitation and Mine Closure Plan submission for approval to Department of Industry and Investment.
- Centennial Ivanhoe (2011)*, Ivanhoe North Rehabilitation Project (Project No. 05_0103) Revised Rehabilitation and Mine Closure Plan submission for approval to Department of Environment, Climate Change and Water.
- Centennial Ivanhoe (2011)*, Ivanhoe North Rehabilitation Project (Project No. 05_0103) Revised Rehabilitation and Mine Closure Plan submission for approval to Department of Planning.
- Centennial Ivanhoe (2012)*, Ivanhoe North Open Cut Mining Operations Plan.
- Centennial Ivanhoe (2012)*, Ivanhoe North Rehabilitation Project - Pollution Incident Response Management Plan.
- Craven Elliston & Hayes (Lithgow) Pty Limited (2010)*, Ivanhoe North Mass Balance/Volumes Remaining – Blocks C5 to N5.
- GHD (2010)*, Ivanhoe North Rehabilitation Project Revised Site Water Management Plan (Revision 3).

GSS Environmental (2009), Ivanhoe North Rehabilitation Project Stream 3 Restoration Management Plan.

GSS Environmental (2011), Ivanhoe North Rehabilitation Project Rehabilitation and Mine Closure Plan.

NSW Department of Environment & Climate Change (2009), Environment Protection Licence No. 13063.

NSW Department of Environment and Climate Change (2008), Response to Ivanhoe North Rehabilitation Project Proposed Site Water Management Plan and Rehabilitation Management Plan.

NSW Department of Environment, Climate Change & Water (2010), Licence Anniversary Notice (Licence No. 13063).

NSW Department of Environment, Climate Change & Water (2011), Annual Return (Licence No. 13063).

NSW Department of Environment, Climate Change & Water (2012), Annual Return (Licence No. 13063).

NSW Department of Industry and Investment (2010), 2009 Ivanhoe North Rehabilitation Project Annual Environmental Management Report Acceptance Letter (File No. 10/1915).

NSW Department of Planning (2007), Ivanhoe North Rehabilitation Project - Project Approval 05_0103.

NSW Department of Planning & Infrastructure (2012), Ivanhoe North Rehabilitation Project (05_0103) Rehabilitation Management and Mine Closure Plan acceptance letter.

NSW Department of Planning (2009), Ivanhoe North Rehabilitation Project - Post Consent Approvals.

NSW Department of Planning (2010), Ivanhoe North Rehabilitation Project 2009 Annual Environmental Management Report Acceptance Letter.

NSW Department of Primary Industries (2009), Mining Lease Applications No's. 271 and 278 Approval.

NSW Department of Resources and Energy (2011), 2010 Ivanhoe North Rehabilitation Project Annual Environmental Management Report Acceptance Letter (File No. 10/1915).

NSW Department of Trade & Investment – Resources and Energy (2012), Ivanhoe North Rehabilitation Project Annual Environmental Management Report 2011 Acceptance Letter (File No.MCV12/76).

NSW Office of Water (2011), Ivanhoe North Rehabilitation Project Stream 3 Restoration Management Plan signed approval letter.

R.W. Corkery & Co. (2006), Ivanhoe North Rehabilitation Project, Updated Statement of Commitments.

R.W. Corkery & Co. (2010), Ivanhoe North Rehabilitation Project Environmental Monitoring Program.

Soil Conservation Service (2012), Ivanhoe North 2 Rehabilitation Works – Quotation

Strategic Environmental & Engineering Consulting (SEEC) (2012), Ivanhoe No. 2 Preliminary Sediment Basin Sizing.

URS (2010), Ivanhoe North Rehabilitation Project, Independent Environmental Audit.

Photographs from the Site Inspection





Photo 1: Overview of the Ivanhoe North Rehabilitation Project (Looking South to North)



Photo 2: A successful clean water system showing no signs of erosion



Photo 3: An example of Phase 1 rehabilitation (Approximately 2 years old) exhibiting patches of grass and some established woodland species



Photo 4: A comparison of Phase 1 (Approximately 2 years old) and Phase 3 (Approximately 4 months old) rehabilitation



Photo 5: An example of Phase 1 rehabilitation exhibiting patches of grass and some woodland species

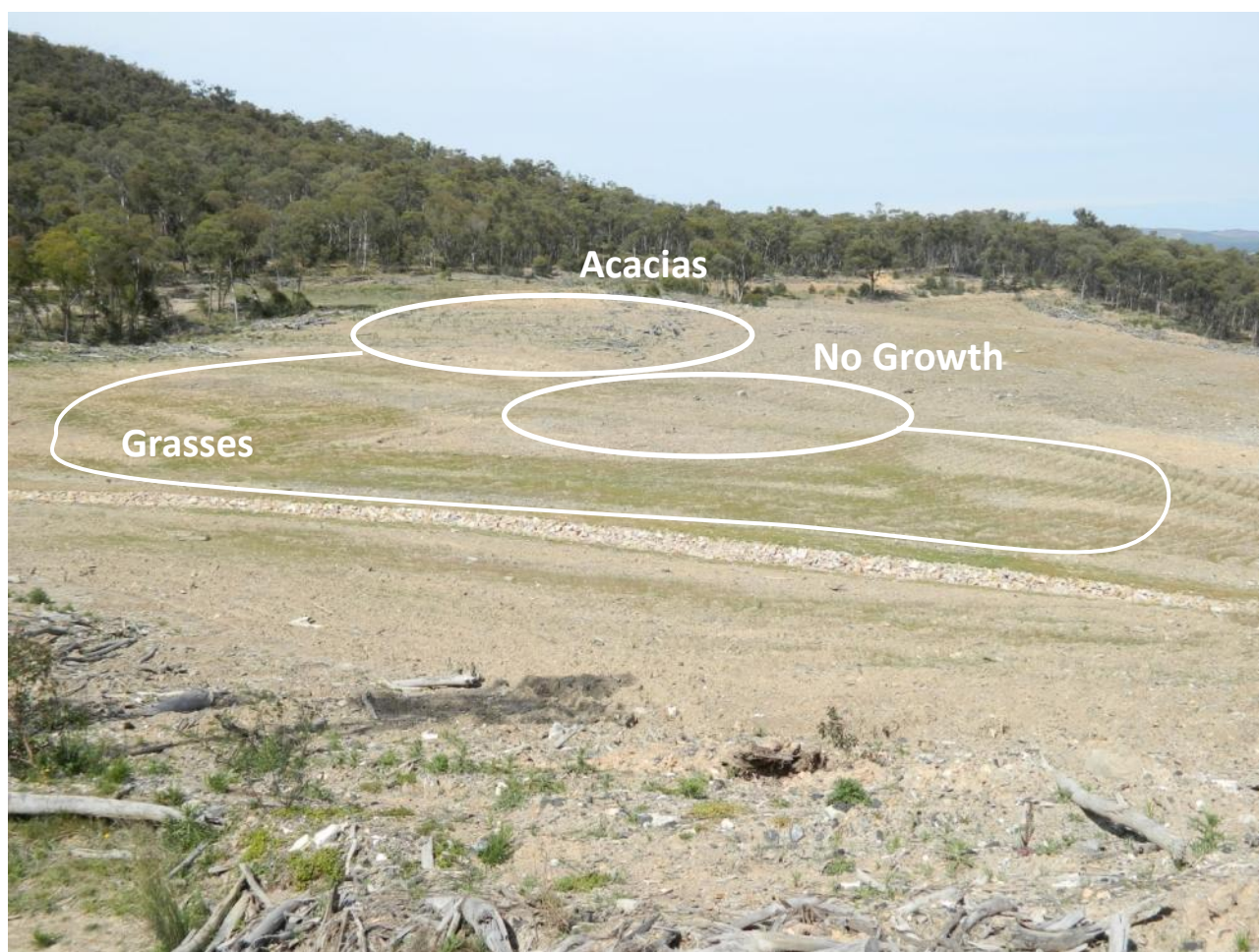


Photo 6: Phase 1 rehabilitation (approximately 2 years old)



Photo 7: Acacias established as part of Phase 1 rehabilitation. Minimal grasses were present in this area at the time of the inspection



Photo 8: There are some areas where further works will be required to achieve ground cover



Photo 9: Established grasses in Phase 1 rehabilitation area



Photo 10: New rehabilitation (Phase 3) exhibiting short term solid growth of cover crop



Photo 11: A comparison of newly rehabilitated areas (approximately 4 months old) reflecting inconsistent success at present



Photo 12: Examples of a well designed and well implemented erosion and sediment control structure in place at Stream 3



Photo 13: Newly seeded land (Phase 1)



Photo 14: Recently rehabilitated land (Phase 1) showing good cover growth



Photo 15: A clean water dam on-site. This will be removed during final rehabilitation



Photo 16: Stan Taylors Dam. Water from Sediment Dam 1 (LDP001) runs into this dam



Photo 17: Erosion present along Steam 3 leading into Sediment Dam 1



Photo 18: Sediment Dam 1 showing signs of minor erosion



Photo 17: Spoil Area near Sediment Dam 1 should be rehabilitated



Photo 18: Felled timber has been stockpiled at the top of rehabilitation areas



Photo 19: Minor erosion present at the end of Stream 3 sediment control structure



Photo 20: Examples of minor improvements to site water and sediment control



Photo 23: Erosion and sediment fencing was recently installed



Photo 24: Hay bales were recently installed

Full Compliance Audit



APPENDIX 2

Project Approval PA05-0103

Proponent Ivanhoe Coal Pty Limited

Date of Approval: 11 April 2007

Authority Department of Planning and Infrastructure

Condition Number	Condition	Compliance Status (C/O/NC/NA)	Evidence	Recommended Action
Administrative Conditions				
Obligation to Minimise Harm to the Environment				
1	The Proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the Project.	C	Ivanhoe North have measures in place to prevent/minimise harm to the environment. Rehabilitation shaping is excellent but rehabilitation quality varies.	Review rehabilitation program to improve rehabilitation (see Schedule 3 Condition 14 recommendations)
Terms of Approval				
2	The Proponent shall carry out the Project generally in accordance with the: (a) Project Application 05_0103; (b) Proposed Ivanhoe North Rehabilitation Project - Environmental Assessment, dated May 2006, and prepared by RW Corkery & Co; (c) Ivanhoe North Rehabilitation Project - Updated Statement of Commitments, dated September 2006, compiled by RW Corkery & Co; (d) the modification application MOD 1 and document entitled Environmental Assessment: Proposed Extension to Mining and Trucking, Ivanhoe North Rehabilitation Project, dated November 2011; and (e) conditions of this approval.	C	Project generally carried in accordance with the project approval, EA and EA modification. There was some changes to the mining sequencing due to safety issues and requirement to source material for the haul road. Despite the change to mine sequencing the final landform shaping has been completed in accordance with the EA and Rehabilitation and Mine Closure Plan.	No action
3	If there is any inconsistency between the above documents, the latter document shall prevail over the former to the extent of the inconsistency. However, the conditions of this approval shall prevail over all other documents to the extent of any inconsistency.	C	No inconsistencies found between documentation.	No action
4	The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of: (a) any reports, plans, programs or correspondence that are submitted in accordance with this approval; and (b) the implementation of any actions or measures contained in these reports, plans, programs or correspondence.	C	Correspondence from Department of Planning and Infrastructure (DP&I) for EA Modification, AEMR's and management plans. Management Plans have been implemented	No action
Limits on Approval				
5	The Proponent may carry out mining operations on site until 2 May 2012. Note: Under this approval, the Proponent is required to rehabilitate the site and carry out additional undertakings to the satisfaction of both the Director-General. Consequently, this approval will continue to apply in all other respects other than the right to conduct mining operations until the rehabilitation of the site and those additional undertakings have been carried out satisfactorily.	C	Haulage docket records and excel spreadsheet show last coal was removed from site on 26/4/2012. This was 27 loads of coal.	No action
6	The Proponent shall not extract more than 300,000 tonnes of ROM coal a year from the site.	C	AEMR 2011 states the INRP extracted approximately 179,837 tonnes of ROM coal. This is well below the limit.	No action

7	<p>The Proponent shall comply with the operating hours in Table 1:</p> <p>Table 1: Operating hours</p> <table><tr><th>Activity</th><th>Days of the Week</th><th>Time</th></tr><tr><td>Coal recovery</td><td>Monday to Saturday (inclusive)</td><td>7 am to 6 pm</td></tr><tr><td>Coal processing</td><td>Sunday and public holidays</td><td>No work at any time</td></tr><tr><td>Rehabilitation activities</td><td>Monday to Saturday (inclusive)</td><td>7 am to 6 pm</td></tr><tr><td>Coal transportation</td><td>Sunday and public holidays</td><td>No work at any time</td></tr><tr><td>Minor maintenance works on plant and machinery</td><td>7 days a week and public holidays</td><td>Any time</td></tr></table>	Activity	Days of the Week	Time	Coal recovery	Monday to Saturday (inclusive)	7 am to 6 pm	Coal processing	Sunday and public holidays	No work at any time	Rehabilitation activities	Monday to Saturday (inclusive)	7 am to 6 pm	Coal transportation	Sunday and public holidays	No work at any time	Minor maintenance works on plant and machinery	7 days a week and public holidays	Any time	C	<p>Transport records show operations were completed during the approved operating hours.</p> <p>Rehabilitation activities to continue.</p>	No action
Activity	Days of the Week	Time																				
Coal recovery	Monday to Saturday (inclusive)	7 am to 6 pm																				
Coal processing	Sunday and public holidays	No work at any time																				
Rehabilitation activities	Monday to Saturday (inclusive)	7 am to 6 pm																				
Coal transportation	Sunday and public holidays	No work at any time																				
Minor maintenance works on plant and machinery	7 days a week and public holidays	Any time																				
Demolition																						
8	<p>The Proponent shall ensure that all demolition work is carried out in accordance with Australian Standard AS 2601-2001: The Demolition of Structures, or its latest version.</p>	C	<p>No demolition activities required on site. All temporary buildings have since been removed.</p>	No action																		
Structural Adequacy																						
9	<p>The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.</p> <p>Notes:</p> <ul style="list-style-type: none">• Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works.• Part 8 of the EP&A Regulation sets out the requirements for the certification of the Project.	C	<p>No permanent buildings were constructed during the operation of the site. All temporary buildings have since been removed.</p>	No action																		
Operation of Plant and Equipment																						
10	<p>The Proponent shall ensure that all plant and equipment used at the site is:</p> <p>(a) maintained in a proper and efficient condition; and</p> <p>(b) operated in a proper and efficient manner.</p>	C	<p>No current plant and equipment used on site apart from those brought to site for rehabilitation activities and maintenance.</p>	No action																		
Community Enhancement Contribution																						
11	<p>Within 6 months of this approval, the Proponent shall contribute \$15,000 to Lithgow City Council for the provision of community facilities in the Cullen Bullen area. Any monies not expended on such facilities within 2 years of their receipt shall be returned to the proponent by the Council.</p>	C	<p>Official receipt from LCC dated 11/10/2007 for \$15,000 (receipt no. 170498)</p>	No action																		
Schedule 3 Specific Environmental Conditions																						
NOISE																						
Noise Impact Assessment Criteria																						

1	<p>The Proponent shall ensure that the noise generated by the Project does not exceed the noise impact assessment criteria in Table 2 for any privately owned residence.</p> <p>Table 2: Noise impact assessment criteria dB(A)</p> <p><i>Table 2: Noise impact assessment criteria dB(A)</i></p> <table><tr><th><i>L_{Aeq}(15 minute)</i></th><th><i>Land Reference and Owner</i></th></tr><tr><td>36</td><td>K (Muenzer)</td></tr><tr><td>35</td><td>All other residences</td></tr></table> <p><i>Notes:</i> a) Noise from the Project is to be measured at the most affected point or within the re</p> <p>Notes: a) Noise from the Project is to be measured at the most affected point or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary, to determine compliance with the LAeq(15 minute) noise limits in the above table. The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable. b) Where it can be demonstrated that direct measurement of noise from the Project is impractical, the DEC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). c) The noise emission limits identified in the above table apply under meteorological conditions of: • wind speeds of up to 3 m/s at 10 metres above ground level; or • temperature inversion conditions of up to 3°C/100m, and wind speeds of d) The locations of residences in Table 2 are shown in Appendix 2 of this</p>	<i>L_{Aeq}(15 minute)</i>	<i>Land Reference and Owner</i>	36	K (Muenzer)	35	All other residences	C	<p>Most recent noise monitoring completed in June 2012 (mining had ceased).</p> <p>Results indicate compliance with noise conditions.</p> <p>The last noise monitoring which was completed during mining activities was completed in March 2012. These results indicate that the site was meeting the noise criteria.</p> <p>In the 2011 AEMR continuous noise from vehicles on the Castlereagh Highway dominated ambient noise levels during noise monitoring.</p>	<p>With mining activities completed (rehabilitation activities continuing) GSSE recommends liaising with DP&I and NSW OEH regarding discontinuing noise monitoring activities.</p>
<i>L_{Aeq}(15 minute)</i>	<i>Land Reference and Owner</i>									
36	K (Muenzer)									
35	All other residences									
Continuous Improvement										
2	<p>The Proponent shall: (a) implement all reasonable and feasible noise mitigation measures; (b) investigate ways to reduce the noise generated by the Project; and (c) report on these investigations and the implementation and effectiveness of these measures in the AEMR, to the satisfaction of the Director-General.</p>	C	<p>Completed noise monitoring program.</p> <p>Specialists reports have no recommendations for further noise mitigation.</p> <p>Mining has ceased at site.</p>	<p>Same recommendation as Schedule 3 Condition 1</p>						
Monitoring										
3	<p>Prior to the commencement of mining and/or rehabilitation activities, the Proponent shall prepare (and following approval implement) a Noise Monitoring Program for the Project, to the satisfaction of the Director-General. This Program must include attended monitoring at residences C, G, and K, and include a noise monitoring protocol for evaluating compliance with the noise impact assessment criteria in this approval.</p>	C	<p>Noise Monitoring Program was prepared in February 2009 and was approved by NSW OEH on 16.03.2009.</p> <p>Noise monitoring completed</p>	<p>Same recommendation as Schedule 3 Condition 1</p>						
Additional Noise Mitigation Measures										
4	<p>Upon receiving a written request from the owner of any privately owned residence where subsequent noise monitoring shows the noise generated by the Project is greater than, or equal to, LAeq(15 minute) 38 dB(A), the Proponent shall implement additional noise mitigation measures such as double glazing, insulation and/or air conditioning at any residence on the land in consultation with the landowner. These additional mitigation measures must be reasonable and feasible. If within 3 months of receiving this request from the landowner, the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.</p>	C	<p>No written requests from land owners regarding noise monitoring/mitigation.</p>	<p>Same recommendation as Schedule 3 Condition 1</p>						

AIR QUALITY																											
Impact Assessment Criteria																											
5	<p>The Proponent shall ensure that the dust emissions generated from the Project do not cause exceedances of the air quality impact assessment criteria listed in Tables 4, 5 and 6 at any residence on any privately owned land.</p> <p>Table 4: Long term impact assessment criteria for particulate matter</p> <table><tr><th>Pollutant</th><th>Averaging period</th><th>Criterion</th></tr><tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>90 µg/m³</td></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>Annual</td><td>30 µg/m³</td></tr></table> <p>Table 5: Short term impact assessment criterion for particulate matter</p> <table><tr><th>Pollutant</th><th>Averaging period</th><th>Criterion</th></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>24 hour</td><td>50 µg/m³</td></tr></table> <p>Table 6: Long term impact assessment criteria for deposited dust</p> <table><tr><th>Pollutant</th><th>Averaging period</th><th>Maximum increase in deposited dust level</th><th>Maximum total deposited dust level</th></tr><tr><td>Deposited dust</td><td>Annual</td><td>2 g/m²/month</td><td>4 g/m²/month</td></tr></table> <p>Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 2003, AS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.</p>	Pollutant	Averaging period	Criterion	Total suspended particulate (TSP) matter	Annual	90 µg/m³	Particulate matter < 10 µm (PM ₁₀)	Annual	30 µg/m³	Pollutant	Averaging period	Criterion	Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m³	Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level	Deposited dust	Annual	2 g/m²/month	4 g/m²/month	C	<p>AEMR 2011 and 2010 outline results for INDD C, G, K and H which were well below the dust depositional gauge criteria.</p> <p>PM10 and TSP monitoring were below criteria for the AEMR's 2010 and 2011.</p> <p>Mining has ceased but there is still a considerable amount of disturbed land (rehabilitation in progress).</p>	<p>Continuation of rehabilitation program to reduce exposed surfaces.</p> <p>Continuation of air quality monitoring in 2013. Centennial to liaise with DP&I and OEH once rehabilitation improves regarding the longterm requirement to monitor air quality.</p>
Pollutant	Averaging period	Criterion																									
Total suspended particulate (TSP) matter	Annual	90 µg/m³																									
Particulate matter < 10 µm (PM ₁₀)	Annual	30 µg/m³																									
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Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level																								
Deposited dust	Annual	2 g/m²/month	4 g/m²/month																								
Continuous Improvement																											
6	<p>The Proponent shall:</p> <p>(a) implement all reasonable and feasible air quality impact mitigation measures;</p> <p>(b) investigate ways to reduce the air quality impacts generated by the Project;</p> <p>(c) ensure any visible air pollution generated by the Project is assessed regularly; and</p> <p>(d) report on these assessments and investigations and the implementation and effectiveness of these measures in the AEMR, to the satisfaction of the Director-General.</p>	C	<p>Rehabilitation has been completed at site, but further works are required to improve the standard of rehabilitation.</p> <p>Air quality monitoring continues with results indicating the site is well below EPL criteria.</p> <p>Reporting of air quality results and management in the AEMR.</p>	No action																							
SURFACE WATER																											
Discharge Limits																											
7	<p>Except as may be expressly provided by a EPA Environment Protection Licence, the Proponent shall not discharge any water from the site or to underground mine workings.</p>	C	<p>The site inspection illustrated three licensed discharge points:</p> <p>* LDP001 (SD1)</p> <p>* LDP002 (SD2)</p> <p>* LDP006 (SD3)</p> <p>with surface water being directed to these discharge points.</p>	No action																							
Site Water Management Plan																											
8	<p>Prior to the commencement of works, the Proponent shall prepare (and following approval implement) a Site Water Management Plan for the Project, in consultation with the EPA, and to the satisfaction of the Director-General. This plan must include:</p> <p>(a) a Site Water Balance;</p> <p>(b) an Erosion and Sediment Control Plan; and</p> <p>(c) a Surface Water Monitoring Program.</p>	C	<p>Site Water Management. Plan completed and approved by DP&I on 16.03.2009.</p> <p>Letter from EPA dated June 2008 with no issues raised.</p> <p>RSWMP sent to DECCW (31.08.2010) and DP&I (15.10.2010). No response from departments. No review date on SWMP.</p>	Follow up with OEH and DP&I to obtain letter of approval for RSWMP.																							
Site Water Balance																											

9	The Site Water Balance must: (a) include details of all water extracted, dewatered, transferred, used and/or discharged by the Project; and (b) provide for the annual re-calculation of the water balance and its reporting in the AEMR.	C	Site Water Balance updated for RSWMP (see section 11). Meets requirements of condition. Section 2.8 of the AEMR meets this requirement for the recalculation of the water balance.	No action
Erosion and Sediment Control Plan				
10	The Erosion and Sediment Control Plan must: (a) be consistent with the requirements of the Department of Housing's Managing Urban Stormwater: Soils and Construction manual; (b) identify activities that could cause soil erosion and generate sediment; (c) describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters; (d) describe the location, function, and capacity of erosion and sediment control structures; and (e) describe what measures would be implemented to maintain the structures over time.	<u>Plan Preparation Compliance</u> C	Section 12 of RSWMP outlines erosion and sediment control as per the requirements of the condition. Water treatment services are developing a flocculation procedure in consultation with Centennial.	No action
		<u>Plan Implementation Compliance</u> C	Field inspection indicates erosion and sediment control at the site is generally of a high standard. Minor erosion on rehabilitation. Some areas of stream 3 (below stream 3 restoration area and before SD1) show disturbance through erosion and cutting. This area has not been directly disturbed by the site, but runoff from rehabilitation activities go into the stream. Some minor erosion found near some dams which can be repaired.	Complete photo monitoring record of areas of the drainage line between the restored stream 3 and SD1. Monitor 6 monthly or after 50mm of rainfall within 24 hours. Consider repairing sections which have signs of significant erosion and will not naturally stabilise.
Surface Water Monitoring Plan				
11	The Surface Water Monitoring Plan must include: (a) surface water impact assessment criteria; (b) a program to monitor the volume and quality of any off-site water discharges; (c) a program to monitor surface water flows and quality in local watercourses; (d) a protocol for the investigation, notification, and mitigation of identified exceedances of the surface water assessment criteria.	<u>Plan Preparation Compliance</u> C	a) Provides EPL criteria in App G. Criteria should be referenced in main document. B) Section 8 c) All streams running through the site are ephemeral. No nearby watercourses that are monitored D) Section 9 responsibilities outlines these requirements.	No action
		<u>Plan Implementation Compliance</u> NC	Discharge monitoring of volume is completed in accordance with the PA and EPL (weir monitors discharge volumes at dams) but water quality sampling is not completed for all discharge events. There is not a requirement to sample all discharge events, but there is a requirement under the EPL to monitor only one discharge event per month (when discharge occurs). As a minimum, the site must monitor monthly during discharge (EPL requirement and commitment in Site Water Monitoring Program). Therefore the site must monitor at least one discharge event per month when discharge occurs. The site did not monitor monthly during discharge in March 2011. Discharges occurred from LDP001 on 21 and 22 March 2011, but no sample was taken during this month. The site contacted the EPA following non compliances relating to discharge events and completed incident reports. Surface water non compliances were recorded in the Annual Return. The EPA completed several inspections of the site during the audit period. See Appendix 3 for more details	No program in place to monitor surface water flows and quality in local watercourses. Centennial Ivanhoe to review requirement to monitor local watercourses and liaise with DP&I and OEH regarding the relevance of this condition. The site currently collects water samples during discharge events from licensed discharge points via automated samplers, but are only occasionally getting these samples tested. If samples are collected, testing should be completed. As a minimum the site must monitor monthly during discharge (EPL requirement and commitment in Site Water Monitoring Program).
REHABILITATION MANAGEMENT				

12	Prior to commencement of mining and/or rehabilitation activities, the Proponent shall prepare (and following approval implement) a Rehabilitation Management Plan for the mine, in consultation with NOW, EPA and DRE, and to the satisfaction of the Director-General.	C	Rehabilitation Management Plan was completed by RW Corkery. Plan was approved by DP&I on 16.03.2012. This plan was replaced by a Rehabilitation Mine Closure Plan submitted to DP&I in May 2011 and approved on 01.03.2012. Evidence of consultation letters with government departments listed in this condition.	No action
13	The Proponent shall progressively rehabilitate the site in a manner that is generally consistent with the final landform in the Rehabilitation Management Plan, to the satisfaction of the Director-General.	C	Rehabilitation Management Pla was completed by RW Corkery. Plan was approved by DP&I on 16.03.2012. This plan was replaced by a Rehabilitation Mine Closure Plan submitted to DP&I in May 2011 and approved on 01.03.2012. Evidence of consultation letters with government departments listed in this condition. Progressive rehabilitation was completed during the course of the project. Shaping was completed in accordance with the RMCP. Rehabilitation quality currently ranges from average to poor.	No action
14	The Rehabilitation Management Plan must include: (a) the rehabilitation objectives for the site; (b) a description of the short, medium, and long term measures that would be implemented to: • rehabilitate the site; and • manage the remnant vegetation and habitat on the site; (c) a detailed completion criteria for the rehabilitation of the site; (d) a detailed description of how the performance of the rehabilitation of the mine would be monitored over time to achieve the stated objectives; (e) a detailed description of what measures would be implemented to rehabilitate and manage the landscape of the site including the procedures to be implemented for: • collecting and propagating seed for rehabilitation works; • the provision of adequate propagation stock for each rehabilitation area; • progressively rehabilitating areas disturbed by mining; • how operational works and rehabilitation works will be phased so as to ensure that sufficient viable seed and propagations stock is available • implementing revegetation and regeneration; • rehabilitating watercourses on the site; • managing impacts on fauna; • conserving and reusing topsoil.	<u>Plan Preparation Compliance</u> C	Table 1.1 of RMCP provides a checklist of these features. All features listed in this condition are outlined in the RMCP	Section 8.1 of the RMCP outlines an internal audit and review of the Rehabilitation and Mine Closure Plan will be completed following the completion of mining. Complete a review of the RMCP as further rehabilitation works are proposed.

		Plan Implementation Compliance C	<p>An inspection of rehabilitation completed over the past two years illustrates the quality of rehabilitation ranges from average to poor. The plan has generally been fully implemented but site representatives acknowledge that the rehabilitation can be improved.</p> <p>Evidence of seed mix used for seeding has been sighted (Soil Con quote - 24.12.2012) for recent rehabilitation in September 2012.</p> <p>In large sections limited woodland seed mix has germinated.</p> <p>Limited soil and topsoil material used in large parts of the rehabilitation. Lack of soil has correlated with poor rehabilitation results. Soil testing has been completed with recent rehabilitation using gypsum and lime to improve soil quality.</p> <p>Rehabilitation shaping has been completed in accordance with the RMCP and MOP.</p>	<p>Review seed mix used at site. Ensure mix is consistent with RMCP and contains a mix of grassland and woodland species.</p> <p>Continuation of soil testing and develop strategy to improve existing rehabilitation.</p> <p>Seeding or tube stock planting of additional woodland species in areas where there has been limited success of woodland species.</p> <p>Consider the use of different organic matter/ameliorants in rehab trials.</p> <p>Consider incorporating stockpiled felled trees in the rehabilitation.</p> <p>Continue rehabilitation monitoring</p> <p>Update RMCP if necessary.</p>
15	Following the completion of mining activities, the Proponent must remove and rehabilitate the Retained Water Storage (as shown on Figure 2.7 of the EA), to the satisfaction of the Director-General, except with the agreement of the Director-General.	C	Plan to remove and rehabilitate the storage dams once the site has become stabilised.	Liaise with DTIRIS and DP&I when Ivanhoe North is ready to decommission dams. Shaping of water management structures should be completed as per the RMCP.
16	Prior to the commencement of stream rehabilitation works for "Stream 3" (as shown in Figure 3.4 of the EA), the Proponent must prepare (and following approval implement) a design for the stream rehabilitation works, to the satisfaction of the NOW.	C	Stream 3 Restoration MP was completed in September 2009. It was approved by NOW in March 2011. Stream 3 restoration works have been completed in accordance with the MP.	<p>Complete photo monitoring record of areas of the drainage line between the restored stream 3 and SD1.</p> <p>Monitor 6 monthly or after 50mm of rainfall within 24 hours.</p> <p>If required repair sections which have signs of significant erosion and will not naturally stabilise.</p>
BEN BULLEN STATE FOREST				
17	Prior to the removal of any commercially viable timber within Ben Bullen State Forest, the Proponent shall consult with the Macquarie Region Office of Forests NSW.	C	No timber was deemed commercially viable following inspection with Forests NSW.	No action
18	Prior to the commencement of mining and/or rehabilitation operations within Ben Bullen State Forest, the Proponent shall prepare a Bush Fire Management Plan, to the satisfaction of the Macquarie Region office of Forests NSW.	C	<p>Bushfire MP completed. Not dated.</p> <p>Email from Dan Kirby at Forests NSW - Macquarie Region approving the Plan on 15.10.2012</p>	No action
TRAFFIC AND TRANSPORT				
Monitoring of Coal Transport				
19	The Proponent must not despatch more than 50 truck loads of coal from the site on any day.	C	<p>Truck haulage records show no haulage greater than 50 trucks since previous audit was completed in 05.06.2010.</p> <p>Haulage has ceased.</p>	No action
20	<p>The Proponent shall:</p> <p>(a) keep records of the:</p> <ul style="list-style-type: none"> • amount of coal transported from the site each year; • number of truck loads generated by the Project (on a daily basis) • departure times of trucks; and <p>(b) include these records in the AEMR.</p>	C	<p>Haulage records kept on site. All details recorded.</p> <p>A CD copy of the haulage records was given to DP&I with the AEMR.</p>	No action
Traffic Management				

21	Prior to the transport of any coal from the site by road, the Proponent shall obtain a written agreement from the Invincible Colliery to allow the use of its site entrance and internal roads by trucks hauling coal from the Project.	C	Sighted access agreement between Iv Nth and Invincible dated 06.08.2009.	No action
22	Prior to commencement of mining and/or rehabilitation operations, the Proponent shall prepare a Traffic Management Plan, as detailed in the EA, in consultation with the RMS and to the satisfaction of the Director-General. This plan must include: (a) details of how coal transport from both the Project site and the Invincible Colliery would be coordinated; (b) identify how coal transport from the Project site will be managed to minimise inconvenience to other road users and operate safely on public roads; and (c) identify how the implementation and effectiveness of the plan will be monitored and reported.	C	Traffic MP completed. Traffic MP meets this condition. Approved by RTA 21.07.2009	No action
23	Prior to the transport of any coal from the site by road, the Proponent shall re-design and re-construct: (a) the site access road-Castlereagh Highway intersection; and (b) the Western Main Colliery-Castlereagh Highway intersection, to the satisfaction of the RMS.	C	Designs and approvals sighted by the audit team.	
24	The Proponent shall ensure that all coal trucks exiting from the site access road do not enter the southbound lane of the Castlereagh Highway.	C	Outlined in the Traffic MP. No reason to determine non compliance.	No action
VISUAL IMPACT				
25	Prior to commencement of mining in operational blocks Nth04 and Nth05, the Proponent must construct a 4 metre high bund wall along the eastern perimeter of those blocks in accordance with the specifications included in the EA for construction and revegetation.	C	Letter from DP&I on 21.09.2010 illustrates permission to replace the existing requested earthen bund with a green shade cloth. This has since been removed as mining has ceased. The shade cloth was installed to reduce visual disturbance from the operation.	No action
Lighting Emissions				
26	The Proponent shall: (a) take all practicable measures to mitigate off-site lighting impacts from the Project; and (b) ensure that all external lighting associated with the Project complies with Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting, to the satisfaction of the Director-General.	C	Activities completed during required hours of operation. Screening. No longer applicable as mining has ceased.	No action
GREENHOUSE GASES				
27	The Proponent shall: (a) estimate the greenhouse gas emissions generated by the Project; (b) investigate ways to reduce greenhouse gas emissions generated by the Project; and (c) report on greenhouse gas estimation and abatement measures in the AEMR, to the satisfaction of the Director-General.	C	Section 3.4 of AEMRs 2010 and 2011 refer to GHG management. This section of the AEMR covers this condition	No action
WASTE MINIMISATION				
28	The Proponent shall: (a) monitor the amount of waste generated by the Project; (b) investigate ways to minimise waste generated by the Project; (c) implement reasonable and feasible measures to minimise waste generated by the Project; (d) ensure any irrigation of treated wastewater is undertaken in accordance with DEC's Environmental Guideline for the Utilisation of Treated Effluent; and (e) report on waste management and minimisation in the AEMR, to the satisfaction of the Director-General.	C	All waste has been removed from site except for a small amount of scrap steel from previous mining operations. All sewage was stored in a special wastewater unit and has since been removed from site. Waste reported in AEMR.	No action
Schedule 4 Environmental Management, Monitoring, Auditing and Reporting				
ENVIRONMENTAL MANAGEMENT STRATEGY				

1	<p>Prior to carrying out any mining and/or rehabilitation activities, the Proponent shall prepare and implement an Environmental Management Strategy for the Project to the satisfaction of the Director-General. This strategy must:</p> <p>(a) provide the strategic context for environmental management of the Project;</p> <p>(b) identify the statutory requirements that apply to the Project;</p> <p>(c) describe in general how the environmental performance of the Project would be monitored and managed during the Project;</p> <p>(d) describe the procedures that would be implemented to:</p> <ul style="list-style-type: none"> • keep the local community and relevant agencies informed about the operation and environmental performance of the Project; • receive, handle, respond to, and record complaints; • resolve any disputes that may arise during the course of the Project; • respond to any non-compliance; • manage cumulative impacts; and • respond to emergencies; and <p>(e) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the Project.</p>	<p><u>Plan Preparation Compliance</u></p> <p>C</p>	<p>The EMS document meets the requirement of this condition.</p> <p>EMS approval on 16.03.09 by DP&I.</p>	<p>Review date scheduled for EMS has lapsed. Assess review required.</p>
		<p><u>Plan Implementation Compliance</u></p> <p>C</p>	<p>Review date scheduled for EMS has lapsed. The EMS states that it "will only be updated where inadequacies are identified."</p> <p>Section 5 outlines Environmental Performance and Monitoring. There are some conditions relating to the quality of rehabilitation which will not be met unless further rehabilitation works are undertaken.</p>	<p>Review date scheduled for EMS has lapsed. Review required.</p> <p>Comments for rehabilitation management. as per Schedule 3 Condition 14.</p>
ENVIRONMENTAL MONITORING PROGRAM				
2	<p>Prior to commencement of mining and/or rehabilitation activities, the Proponent shall prepare an Environmental Monitoring Program for the Project in consultation with relevant agencies, and to the satisfaction of the Director-General. This program must consolidate the various monitoring requirements in Schedule 3 of this approval into a single document.</p>	C	<p>Environmental Monitoring Program approval on 16.03.09 by DP&I. Sighted management plan.</p>	<p>Liaise with OEH and DP&I to streamline environmental monitoring now that mining has ceased (in particular noise). Look at long term requirement to complete dust monitoring.</p> <p>Review and update the environmental monitoring program.</p>
INCIDENT REPORTING				
3	<p>Within 7 days of detecting an exceedance of the limits/performance criteria in this approval, the Proponent shall report the exceedance to the Department, and any relevant agency. The report must:</p> <p>(a) describe the date, time, and nature of the exceedance;</p> <p>(b) identify the cause or likely cause of the exceedance;</p> <p>(c) describe what action has been taken to date; and</p> <p>(d) describe the proposed measures to address the exceedance.</p>	C	<p>Noise and dust criteria are recorded in the DA. No exceedances, therefore no requirement to report.</p> <p>No exceedances of PA criteria since previous audit (5.10.2012).</p>	No action
ANNUAL REPORTING				

4	<p>The Proponent shall prepare and submit an AEMR to the Director-General and other relevant agencies.</p> <p>This report must:</p> <p>(a) identify the standards and performance measures that apply to the Project;</p> <p>(b) describe the works carried out in the last 12 months;</p> <p>(c) describe the works that will be carried out in the next 12 months;</p> <p>(d) include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;</p> <p>(e) include a summary of the monitoring results for the Project during the past year;</p> <p>(f) include an analysis of these monitoring results against the relevant:</p> <ul style="list-style-type: none"> • impact assessment criteria; • monitoring results from previous years; and • predictions in the EA; <p>(g) identify any trends in the monitoring results over the life of the Project;</p> <p>(h) identify any non-compliance during the previous year; and</p> <p>(i) describe what actions were, or are being, taken to ensure compliance.</p>	C	<p>AEMR 2010 and 2011 sighted.</p> <p>AEMR records the details outlined in this condition.</p> <p>Sighted approval letter from DTIRIS on 11.07.2012 stating no further recommendations.</p>	No action
INDEPENDENT ENVIRONMENTAL AUDIT				
5	<p>At the end of year 1 of the Project, and on completion of coal mining operations, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the Project. This audit must:</p> <p>(a) be conducted by suitably qualified, experienced, and independent expert/s whose appointment has been endorsed by the Director-General;</p> <p>(b) assess the various aspects of the environmental performance of the Project, and its effects on the surrounding environment;</p> <p>(c) assess whether the Project is complying with the relevant standards, performance measures, and statutory requirements;</p> <p>(d) assess whether the Project is complying with the works as described in the EA and conditions of approval;</p> <p>(e) review the adequacy of any strategy/plan/program required under this approval; and, if necessary,</p> <p>(f) recommend measures or actions to improve the environmental performance of the Project, and/or any strategy/plan/program required under this approval.</p>	C	<p>Independent Audit completed by URS at the end of Year 1 of operations in June 2010.</p> <p>This audit completed by GSSE has been prepared at the end of mining.</p>	No action
6	<p>Within 3 months of commissioning this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, with a response to any recommendations contained in the audit report.</p>	NC	<p>The previous audit by URS was completed on 2nd and 3rd of June 2010 and was submitted to DP&I on 14 September 2010. This falls outside the three month period.</p> <p>The site did contact DP&I to inform them that the Audit report would be late.</p>	No action
ACCESS TO INFORMATION				
7	<p>Within 3 months of the approval of any plan/strategy/program required under this approval (or any subsequent revision of these plans/strategies/programs), the completion of the Independent Environmental Audits required under this approval, or the completion of the AEMR, the Proponent shall:</p> <p>(a) provide a copy of the relevant document/s to the Council and relevant agencies;</p> <p>(b) ensure that a copy of the relevant document/s is made publicly available; and</p> <p>(c) put a copy of the relevant document/s on the Proponent's website; to the satisfaction of the Director-General.</p>	C	<p>Copies of letters illustrates AEMR's are sent to Council and other government departments.</p> <p>Recommendations from URS audit regarding then update to site management plans.</p>	<p>Only management plan on website is the Pollution Incident Response Management Plan. Other relevant management plans such as the Rehabilitation and Mine Closure Plan and Site Water Management Plan should be placed on the website.</p>

8	During the life of the Project, the Proponent shall: (a) make a summary of monitoring results required under this approval publicly available on its website; and (b) update these results on a regular basis (at least every 6 months), to the satisfaction of the Director-General.	C	AEMR published on website. Monthly reports published on website.	No action
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EPL13063

Anniversary Date: 24 April
Authority Office of Environment and Heritage

Condition Number	Condition	Compliance Status (C/O/NC/NA)	Evidence	Recommended Action																				
1. Administrative Conditions																								
A1	What the licence authorises and regulates																							
A1.1	<p>This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.</p> <p>Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.</p> <table><tr><td colspan="2">Scheduled Activity</td></tr><tr><td colspan="2">Mining for coal</td></tr><tr><td colspan="2">Coal works</td></tr><tr><td colspan="2"> </td></tr><tr><td>Fee Based Activity</td><td>Scale</td></tr><tr><td>Mining for coal</td><td>0 - 500000 T produced</td></tr><tr><td>Coal works</td><td>0 - 2000000 T loaded</td></tr></table>	Scheduled Activity		Mining for coal		Coal works				Fee Based Activity	Scale	Mining for coal	0 - 500000 T produced	Coal works	0 - 2000000 T loaded	C	<p>Less than 500,000 tonnes of coal produced at end of 2009, 2010 and 2011 (Source Annual Environmental Monitoring Reports - AEMRs).</p> <p>Haulage docket records from 26/4/2012 and Excel spreadsheet show last coal was removed from site on 26/4/2012. This was 27 loads of coal.</p>	No action						
Scheduled Activity																								
Mining for coal																								
Coal works																								
Fee Based Activity	Scale																							
Mining for coal	0 - 500000 T produced																							
Coal works	0 - 2000000 T loaded																							
A2	Premises to which this licence applies																							
A2.1	<p>The licence applies to the following premises:</p> <table><tr><td colspan="2">Premises Details</td></tr><tr><td colspan="2">IVANHOE NORTH REHABILITATION PROJECT</td></tr><tr><td colspan="2">CASTLEREAGH HIGHWAY</td></tr><tr><td colspan="2">CULLEN BULLEN</td></tr><tr><td colspan="2">NSW 2790</td></tr><tr><td colspan="2"> </td></tr><tr><td colspan="2">ML 164 (PART OF BEN BULLEN STATE FOREST, ADJACENT TO CASTLEREAGH HIGHWAY, APPROXIMATELY 3KM SOUTH OF THE VILLAGE OF CULLEN BULLEN)</td></tr></table>	Premises Details		IVANHOE NORTH REHABILITATION PROJECT		CASTLEREAGH HIGHWAY		CULLEN BULLEN		NSW 2790				ML 164 (PART OF BEN BULLEN STATE FOREST, ADJACENT TO CASTLEREAGH HIGHWAY, APPROXIMATELY 3KM SOUTH OF THE VILLAGE OF CULLEN BULLEN)		C	Premises details are correct.	No action						
Premises Details																								
IVANHOE NORTH REHABILITATION PROJECT																								
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CULLEN BULLEN																								
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ML 164 (PART OF BEN BULLEN STATE FOREST, ADJACENT TO CASTLEREAGH HIGHWAY, APPROXIMATELY 3KM SOUTH OF THE VILLAGE OF CULLEN BULLEN)																								
A3	Information supplied to the EPA																							
A3.1	<p>Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.</p> <p>In this condition the reference to "the licence application" includes a reference to:</p> <p>(a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and</p> <p>(b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.</p>	C	Works generally carried out in accordance with licence.	No action																				
2. Discharges to Air and Water and Applications to Land																								
P1	Location of monitoring/discharge points and areas																							
	<p>The following points referred to in the table are identified in this license for the purposes of the monitoring and/or the setting of limits for emissions of pollutants to air from the point.</p> <table><tr><td colspan="4">Air</td></tr><tr><td>EPA Identification no.</td><td>Type of Monitoring Point</td><td>Type of Discharge Point</td><td>Location Description</td></tr><tr><td>3</td><td>Dust monitoring</td><td></td><td>Dust deposition gauge "INDO-C" as shown on plan "EPL Monitoring Locations - Ivanhoe North Rehabilitation Project" attached to licence application 5/03/09 (DOCD9/11339)</td></tr><tr><td>4</td><td>Dust monitoring</td><td></td><td>Dust deposition gauge "INDO-G" as shown on plan "EPL Monitoring Locations - Ivanhoe North Rehabilitation Project" attached to licence application 5/03/09 (DOCD9/11339)</td></tr><tr><td>5</td><td>Dust monitoring</td><td></td><td>Dust deposition gauge "INDO-K" as shown on plan "EPL Monitoring Locations - Ivanhoe North Rehabilitation Project" attached to licence application 5/03/09 (DOCD9/11339)</td></tr></table>	Air				EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description	3	Dust monitoring		Dust deposition gauge "INDO-C" as shown on plan "EPL Monitoring Locations - Ivanhoe North Rehabilitation Project" attached to licence application 5/03/09 (DOCD9/11339)	4	Dust monitoring		Dust deposition gauge "INDO-G" as shown on plan "EPL Monitoring Locations - Ivanhoe North Rehabilitation Project" attached to licence application 5/03/09 (DOCD9/11339)	5	Dust monitoring		Dust deposition gauge "INDO-K" as shown on plan "EPL Monitoring Locations - Ivanhoe North Rehabilitation Project" attached to licence application 5/03/09 (DOCD9/11339)	C	<p>Monitoring locations outlined in Air Quality Monitoring Program.</p> <p>Monthly dust spreadsheets illustrate monitoring at these locations by Australian Laboratory Services (ALS).</p> <p>AEMR 2010, 2011 describes dust monitoring site at appropriate location.</p>	<p>Continuation of rehabilitation program to reduce exposed surfaces.</p> <p>Continuation of air quality monitoring in 2013. Centennial to liaise with DP&I and OEH once rehabilitation improves regarding the longterm requirement to monitor air quality.</p>
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P1.2	The following points referred to in the table are identified in this license for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.	C	LDP001, 002 and LDP006 are located at the site.	No action																				
P1.3	<div>The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.</div> <table><tr><th colspan="4">Water and land</th></tr><tr><th>EPA Identification no.</th><th>Type of Monitoring Point</th><th>Type of Discharge Point</th><th>Location Description</th></tr><tr><td>1</td><td>Discharge to waters Discharge quality monitoring</td><td>Discharge to waters Discharge quality monitoring</td><td>Overflow from Sediment Dam No. 1 (SD-1) as described in Revised Site Water Management Plan (Rev 3) June 2010</td></tr><tr><td>2</td><td>Discharge to waters Discharge quality monitoring</td><td>Discharge to waters Discharge quality monitoring</td><td>Overflow from Sediment Dam No. 2B (incorporates overflow from SD-2A) as described in Revised Site Water Management Plan (Rev 3) June 2010</td></tr><tr><td>6</td><td>Discharge to waters Discharge quality monitoring</td><td>Discharge to waters Discharge quality monitoring</td><td>Overflow from Sediment Dam No. 3 (SD-3) as described in Revised Site Water Management Plan (Rev 3) June 2010</td></tr></table>	Water and land				EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description	1	Discharge to waters Discharge quality monitoring	Discharge to waters Discharge quality monitoring	Overflow from Sediment Dam No. 1 (SD-1) as described in Revised Site Water Management Plan (Rev 3) June 2010	2	Discharge to waters Discharge quality monitoring	Discharge to waters Discharge quality monitoring	Overflow from Sediment Dam No. 2B (incorporates overflow from SD-2A) as described in Revised Site Water Management Plan (Rev 3) June 2010	6	Discharge to waters Discharge quality monitoring	Discharge to waters Discharge quality monitoring	Overflow from Sediment Dam No. 3 (SD-3) as described in Revised Site Water Management Plan (Rev 3) June 2010	C	<div>LDP001, 002 and LDP006 are located at the site. Automated samplers and flow monitoring (weir) have been set up at each licensed discharge point.</div> <div>Water quality monitoring is completed monthly as a minimum.</div> <div>Discharge volumes are being recorded via the flow monitors but water samples collected during discharge events are only occasionally sampled.</div>	No action
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3. Limit Conditions																								
L1	Pollution of waters																							
L1.1	Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the <i>Protection of the Environment Operations Act 1997</i> .	C	None	No action																				
L2	Concentration Limits																							
L2.1	For each monitoring/discharge point or utilisation area specified in the table\ s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.	NC	<div>Water monitoring data provided showed discharges exceeding concentration limits in L2.4.</div> <div>The site did not meet this condition on 17 December 2010, 6 January 2011, 24 November 2011, 20 December 2011 and 22 May 2012 as water samples were above or below the EPL concentration limits.</div> <div>Example: 17 Dec 2010 - SD1 Discharge: TSS = 6,570 mg/L and pH = 5.66.</div> <div>The site contacted the EPA following non compliances relating to discharge events and completed incident reports. Surface water non compliances were recorded in the Annual Return. The EPA completed several inspections of the site during the audit period.</div> <div>See Appendix 3 for Discharge Monitoring Summary at the INRP.</div>	<div>Continue water monitoring. Continue the use of Water Treatment Services to improve water quality.</div> <div>Only complete controlled discharges when water quality is within the range of the EPL criteria.</div>																				
L2.2	Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.	NC	<div>100% of samples must be within concentration limit during discharge sampling events. Water monitoring data provided showed non-compliance, see example in L2.1.</div> <div>The site contacted the EPA following non compliances relating to discharge events and completed incident reports. Surface water non compliances were recorded in the Annual Return. The EPA completed several inspections of the site during the audit period.</div> <div>See Appendix 3 for more details</div>	<div>To ensure compliance, collect a sample from every discharge (automated samplers are installed) and that at least the first discharge sample of each month is analysed.</div> <div>As a matter of best practice, it is also recommended that every discharge event sample is analysed.</div> <div>Continue water monitoring. Continue the use of Water Treatment Services to improve water quality.</div>																				
L2.3	To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\ s.	NA	None	No action																				

L2.4	<div>Water and/or Land Concentration Limits</div> <div><table><tr><th colspan="6">POINT 1.2</th></tr><tr><th>Pollutant</th><th>Units of Measure</th><th>50 percentile concentration limit</th><th>90 percentile concentration limit</th><th>3DGM concentration limit</th><th>100 percentile concentration limit</th></tr><tr><td>Oil and Grease</td><td>milligrams per litre</td><td></td><td></td><td></td><td>10</td></tr><tr><td>pH</td><td>pH</td><td></td><td></td><td></td><td>6.5-8.5</td></tr><tr><td>Total suspended solids</td><td>milligrams per litre</td><td></td><td></td><td></td><td>30</td></tr></table><table><tr><th colspan="6">POINT 6</th></tr><tr><th>Pollutant</th><th>Units of Measure</th><th>50 percentile concentration limit</th><th>90 percentile concentration limit</th><th>3DGM concentration limit</th><th>100 percentile concentration limit</th></tr><tr><td>Oil and Grease</td><td>milligrams per litre</td><td></td><td></td><td></td><td>10</td></tr><tr><td>pH</td><td>pH</td><td></td><td></td><td></td><td>6.5-8.5</td></tr><tr><td>Total suspended solids</td><td>milligrams per litre</td><td></td><td></td><td></td><td>30</td></tr></table></div>	POINT 1.2						Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit	Oil and Grease	milligrams per litre				10	pH	pH				6.5-8.5	Total suspended solids	milligrams per litre				30	POINT 6						Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit	Oil and Grease	milligrams per litre				10	pH	pH				6.5-8.5	Total suspended solids	milligrams per litre				30	See L2.1		
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L3	Waste																																																															
L3.1	<div>The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled “Waste” and meeting the definition, if any, in the column titled “Description” in the table below.</div> <div>Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled “Activity” in the table below.</div> <div>Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled “Other Limits” in the table below.</div> <div>This condition does not limit any other conditions in this licence.</div> <div><table><tr><th>Code</th><th>Waste</th><th>Description</th><th>Activity</th><th>Other Limits</th></tr><tr><td>NA</td><td>General or Specific exempted waste</td><td>Waste that meets all the conditions of a resource recovery exemption under Clause 51A of the Protection of the Environment Operations (Waste) Regulation 2005</td><td>As specified in each particular resource recovery exemption</td><td>NA</td></tr></table></div>	Code	Waste	Description	Activity	Other Limits	NA	General or Specific exempted waste	Waste that meets all the conditions of a resource recovery exemption under Clause 51A of the Protection of the Environment Operations (Waste) Regulation 2005	As specified in each particular resource recovery exemption	NA	C	<div>No waste reported to have been received at premises.</div> <div>Site has a Waste Management Plan to minimise waste generation.</div> <div>With closure completed all waste has been removed from the site.</div>	No action																																																		
Code	Waste	Description	Activity	Other Limits																																																												
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L4	Noise Limits																																																															
L4.1	<div>Noise from the premises must not exceed:</div> <div>a) 36 dB(A) Laeq (15 minute) at any time at the properties known as "Hillview" and "Billabong"; and</div> <div>b) 35 dB(A) Laeq (15 minute) at any time at any other privately owned residence.</div> <div>Note: The above noise limits do not apply at properties where the licensee has a written agreement with the landowner regarding the applicable noise limit.</div>	C	<div>Quarterly Noise Monitoring reports up to end of March 2012 indicated that during operations, noise levels from operations did not exceed limits specified in this condition.</div> <div>No noise generated from site since closure.</div>	Consult with OEH & DP&I to cease requirement for noise monitoring as no noise emitted from the site, and noise limits not recordable over Castlereagh Highway traffic noise.																																																												
L4.2	<div>Noise limits set out in condition L4.1 apply under all meteorological conditions except for the following:</div> <div>a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or</div> <div>b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or</div> <div>c) Stability category G temperature inversion conditions.</div>	C	Meteorological data was taken into account where appropriate according to noise monitoring reports.	No action																																																												
L4.3	<div>For the purposes of condition L4.2:</div> <div>a) Data recorded by the meteorological station located within Pine Dale Mine must be used to determine meteorological conditions; and</div> <div>b) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the NSW Industrial Noise Policy.</div>	C	Sighted meteorological data from Pinedale meteorological station.	No action																																																												

L4.4	<p>To determine compliance:</p> <p>a) with the Leq(15 minute) noise limits in condition L4.1, the noise measurement equipment must be located:</p> <p>i) approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or</p> <p>ii) within 30 metres of a dwelling facade, but not closer than 3 metres where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable</p> <p>iii) within approximately 50 metres of the boundary of a National Park or Nature Reserve.</p>	C	<p>All noise monitoring reports describe appropriate monitoring locations.</p> <p>Monitoring completed in accordance with this condition.</p>	No action
L4.5	<p>A non-compliance of condition L4.1 will still occur where noise generated from the premises in excess of the appropriate limit is measured:</p> <p>a) at a location other than an area prescribed by condition L4.4(a); and/or</p> <p>b) at a point other than the most affected point at a location.</p>	C	<p>No noise monitoring reports outside the locations stipulated in L4.1 were recorded.</p> <p>All monitoring at prescribed noise monitoring locations was within EPL noise criteria.</p>	No action
L4.6	For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.	C	Modification factors in Section 4 of the NSW Industrial Noise Policy were applied according to the noise monitoring reports	No action
4. Operating Conditions				
O1	Activities must be carried out in a competent manner			
O1.1	<p>Licensed activities must be carried out in a competent manner. This includes:</p> <p>(a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and</p> <p>(b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.</p>	C	<p>Operations no longer occurring on site. Condition of site and the available management plans indicate activities on site were generally carried out in a competent manner.</p> <p>No storage of materials used to carry out the former activity. All waste removed from site</p>	No action
O2	Maintenance of plant and equipment			
O2.1	<p>All plant and equipment installed at the premises or used in connection with the licensed activity:</p> <p>(a) must be maintained in a proper and efficient condition; and</p> <p>(b) must be operated in a proper and efficient manner.</p>	C	All equipment has been decommissioned and removed. Maintenance records kept at site.	No action
O3	Dust			
O3.1	The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.	C	Air quality monitoring plan sighted. Dust monitoring results have traditionally been low at site.	<p>Continuation of rehabilitation program to reduce exposed surfaces.</p> <p>Continuation of air quality monitoring in 2013. Centennial to liaise with DP&I and OEH once rehabilitation improves regarding the longterm requirement to monitor air quality.</p>
O4	Other operating conditions			
O4.1	There must be no incineration or open burning of any material(s) on the premises, except specifically authorised by the EPA.	C	No evidence of incineration or open burning on site inspection.	No action
5. Monitoring and Recording Conditions				
M1	Monitoring Records			
M1.1	The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.	NA	See Below	No action
M1.2	<p>All records required to be kept by this licence must be:</p> <p>(a) in a legible form, or in a form that can readily be reduced to a legible form;</p> <p>(b) kept for at least 4 years after the monitoring or event to which they relate took place; and</p> <p>(c) produced in a legible form to any authorised officer of the EPA who asks to see them.</p>	C	All dust, noise and water monitoring data is kept, and available in a legible form.	No action

M1.3	The following records must be kept in respect of any samples required to be collected for the purposes of this licence: (a) the date(s) on which the sample was taken; (b) the time(s) at which the sample was collected; (c) the point at which the sample was taken; and (d) the name of the person who collected the sample.	C	All monitoring data was appropriately recorded listing the details in this condition.	No action																																								
M2	Requirement to monitor concentration of pollutants discharged																																											
M2.1	For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:	NA	See Below	No action																																								
M2.2	Air Monitoring Requirements POINT 3,4,5 <table><tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>Particulates - Deposited Matter</td><td>grams per square metre per month</td><td>Monthly</td><td>Australian Standard 3580.10 1-2003</td></tr></table>	Pollutant	Units of measure	Frequency	Sampling Method	Particulates - Deposited Matter	grams per square metre per month	Monthly	Australian Standard 3580.10 1-2003	C	Air quality monitoring plan and monitoring results from ALS reference AS 385010.1-2003 as sampling method used. Monthly data is available.	No action																																
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M3	Testing methods - concentration limits																																											
M3.1	Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with: a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place. Note: The Protection of the Environment Operations (Clean Air) Regulation 2010 requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".	C	Air quality monitoring plan and monitoring results from ALS reference AS 385010.1-2003 as sampling method used.	No action																																								
M3.2	Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.	C	All monitoring was performed according to this licence.	No action																																								
M4	Recording of pollution complaints																																											

M4.1	The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.	Not Triggered	Sighted complaints procedure. No complaints have been made during the audit period.	No action
M4.2	The record must include details of the following: (a) the date and time of the complaint; (b) the method by which the complaint was made; (c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect; (d) the nature of the complaint; (e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and (f) if no action was taken by the licensee, the reasons why no action was taken.	Not Triggered	No complaints were received during the audit period	No action
M4.3	The record of a complaint must be kept for at least 4 years after the complaint was made.	Not Triggered	No complaints were received during the audit period	No action
M4.4	The record must be produced to any authorised officer of the EPA who asks to see them.	Not Triggered	Complaints register is available.	No action
M5	Telephone complaints line			
M5.1	The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.	C	Sighted promotional 'flyer', phone number in White Pages and on Centennial website.	No action
M5.2	The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.	C	Flyer is advertised quarterly	No action
M5.3	The preceding two conditions do not apply until 3 months after: a) the date of the issue of this licence or b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.	Not Triggered	None	No action
6. Reporting Conditions				
R1	Annual return documents			
R1.1	The licensee must complete and supply to the EPA an Annual Return in the approved form comprising: a) a Statement of Compliance; and b) a Monitoring and Complaints Summary. At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.	C	Signed Annual Return documents sighted for each applicable year.	No action
R1.2	An Annual Return must be prepared in respect of each reporting period, except as provided below. Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.		Contents of Annual Return meet the requirements of this condition.	
R1.3	Where this licence is transferred from the licensee to a new licensee: a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period. Note: An application to transfer a licence must be made in the approved form for this purpose.	Not Triggered	Licence has not been transferred.	No action

R1.4	Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on: a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.	Not Triggered	Licence has not been suspended or revoked.	No action
R1.5	The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').	C	All Annual returns were sighted and signed/dated within 60 days.	No action
R1.6	The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.	C	All applicable Annual Returns for the previous 4 years have been sighted.	No action
R1.7	Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by: a) the licence holder; or b) by a person approved in writing by the EPA to sign on behalf of the licence holder.	C	All Annual returns included appropriate information regarding compliance and complaints summary.	No action
R1.8	A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.	C	Annual Returns signed by the appropriate persons.	No action
R2	Notification of environmental harm			
Note: The licensee or its employees must notify the EPA of incidents causing or				
R2.1	Notifications must be made by telephoning the Environment Line service on 131 555.	C	Procedures were sighted indicating that appropriate response/notification measures were in place. Pollution Incident Response Management Plan (PIRMP).	No action
R2.2	The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.	C	Incidents were reported to the EPA outside the 7 days period, however these incidents do not satisfy the current definition of 'Environmental Harm' under the POEO Act. Incidents reported in the Centennial Environment and Community Database (ECD).	No action
R3	Written Report			
R3.1	Where an authorised officer of the EPA suspects on reasonable grounds that: (a) where this licence applies to premises, an event has occurred at the premises; or (b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.			
R3.2	The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.			

R3.3	The request may require a report which includes any or all of the following information: (a) the cause, time and duration of the event; (b) the type, volume and concentration of every pollutant discharged as a result of the event; (c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event; (d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort; (e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants; (f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and (g) any other relevant matters.	Not Triggered	It was reported that the EPA has not requested a written report during the audit period	No action
R3.4	The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.			
7. General Conditions				
G1	Copy of licence kept at the premises			
G1.1	A copy of this licence must be kept at the premises to which the licence applies.	C	Office no longer located on site due to mine decommissioning and rehabilitation. Employees are located at Centennial Coal 'Lidsdale House' Office. Licence was made available upon request. Licence available from OEH website.	No action
G1.2	The licence must be produced to any authorised officer of the EPA who asks to see it.			
G1.3	The licence must be available for inspection by any employee or agent of the licensee working at the premises.			
8. Special Conditions				
E1	Recommendation of mining activities			
Note: The EPA understands that the licensee is about to cease coal mining activities				
E1.1	The licensee must notify the EPA's Manager, Bathurst Region in writing prior to the recommencement of mining for coal or handling of coal on the premises.	C	No evidence of mining on inspection. Site undergoing rehabilitation.	No action

ML 1627**Date:** 11 February 2009

Authority DTIRIS

Condition Number	Condition	Compliance Status (C/O/NC/NA)	Evidence	Recommended Action
1	Notice to Landholders			
	<p>Within a period of three months from the date of grant/renewal of this lease or within such further time as the Minister may allow, the lease holder must serve on each landholder of the land a notice in writing indicating that this lease has been granted/renewed and whether the lease includes the surface. An adequate plan and description of the lease area must accompany the notice.</p> <p>If there are ten or more landholders affected, the lease holder may serve the notice by publication in a newspaper circulating in the region where the lease area is situated . The notice must indicate that this lease has been granted/renewed; state whether the lease includes the surface and must contain an adequate plan and description of the lease area.</p>	NA	Outside audit period. Previous audit noted compliance.	No action
2	Environmental Harm			
	The proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation or rehabilitation of the development.	C	<p>Site is considered to have met compliance to prevent/or minimise harm to the environment.</p> <p>No complaints or mandatory incidents reported to the EPA during the reporting period.</p> <p>Sighted Mining Operations Plan (MOP) and appropriate Management Plans (Surface Water, Air Quality) and EMS.</p>	See actions in other conditions (PA05-0103, EPL 13063) regarding improvements to water management and rehabilitation.
3	Mining Operations Plan			
3 (a)	<p>Mining operations must not be carried out otherwise than in accordance with:</p> <p>Mining Operations Plan (MOP) which has been approved by the Director General of the Department of Primary Industries.</p>	C	<p>MOP updated on 5th July 2012 was sighted.</p> <p>Activities completed generally in accordance with the MOP.</p> <p>MOP has not yet been approved by DTIRIS. Sighted letter to DTIRIS.</p>	Liaise with DTIRIS for approval letter.

3 (b)	<p>The MOP must:</p> <ul style="list-style-type: none"> i) identify areas that will be disturbed by mining operations; ii) detail the staging of specific mining operations; iii) identify how the mine will be managed to allow mine closure; iv) identify how mining operations will be carried out on site in order to prevent and or minimise harm to the environment; v) reflect the conditions of approval under: <ul style="list-style-type: none"> - the <i>Environmental Planning and Assessment Act 1979</i> - the <i>Protection of the Environment Operations Act 1997</i> - and any other approvals relevant to the development including the conditions of this lease; and vi) have regard to any relevant guidelines adopted by the Director-General. 	C	The MOP updated on 5th July 2012 included the required information.	Liaise with DTIRIS for approval letter.
3 (c)	The titleholder may apply to the Director-General to amend an approved MOP at any time.	C	MOP Amendment was completed during the audit period.	No action
3 (d)	<p>It is not a breach of this condition if:</p> <ul style="list-style-type: none"> i) the operations constituting the breach were necessary to comply with a lawful order or direction given under the Mining Act 1992, the Environmental Planning and Assessment Act 1979, Protection of the Environment Operations Act 1997 or the Occupational Health and Safety Act 2000; and ii) the Director-General had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out. 	Not Triggered	NA.	No action
3 (e)	A MOP ceases to have affect 7 years after date of approval or other such period as identified by the Director-General. An approved amendment to the MOP under condition 5 does not constitute an approval for the purpose of this paragraph unless otherwise identified by the Director-General.	Not Triggered	N/A	No action
4	Environmental Management Reporting			
	The lease holder must lodge Environmental Management Reports (EMR) with the Director- General annually or at dates otherwise directed by the Director-General.	C	AEMR and acceptance letter from the Director General were sighted for 2009, 2010, 2011.	No action
5	The EMR must:			
5 (a)	report against compliance with the MOP;	C	AEMRs (2009-2011) all reported compliance with MOP and other regulatory requirements and commented on current mining/rehabilitation progress and future planning.	No action
5 (b)	report on progress in respect of rehabilitation completion criteria;			
5 (c)	report on the extent of compliance with regulatory requirements; and			
5 (d)	have regard to any relevant guidelines adopted by the Director-General;			
6	Additional environmental reports may be required on specific surface disturbing operations or environmental incidents from time to time as directed in writing by the Director-General and must be lodged as instructed.	Not Triggered	Reported that no environmental reports have been requested.	No action
7	Rehabilitation			

	Disturbed land must be rehabilitated to a sustainable/agreed end land use to the satisfaction of the Director-General.	Not Triggered	<p>Rehabilitation activities are currently being completed. From the site inspection, rehabilitation quality ranges from average to poor quality.</p> <p>To achieve the final land use of creating a woodland habitat, further rehabilitation works need to be completed on existing rehabilitation areas.</p>	<p>Review seed mix used at site for existing poor rehabilitation areas. Ensure mix is consistent with the Rehabilitation and Mine Closure Plan (RMCP) and contains a mix of grassland and woodland species.</p> <p>Continuation of soil testing and develop strategy to improve existing rehabilitation.</p> <p>Seeding or tube stock planting of additional woodland species in areas where no woodland mix has been used or where limited success of woodland species.</p> <p>Consider the use of different organic matter/ameliorants in rehabilitation trials.</p> <p>Consider incorporating stockpiled felled trees in the rehabilitation.</p> <p>Continue rehabilitation monitoring.</p> <p>Update RMCP if necessary.</p>
8	Subsidence Management			
8 (a)	The lease holder shall prepare a Subsidence Management Plan prior to commencing any underground mining operations which will potentially lead to subsidence of the land surface.	Not Triggered	No underground mining completed by Ivanhoe North.	No action
8 (b)	Underground mining operations which will potentially lead to subsidence include secondary extraction panels such as longwalls or miniwalls, associated first workings (gateroads, installation roads and associated main headings, etc), and pillar extractions, and are otherwise defined by the Applications for Subsidence Management Approvals guidelines (EDG 17).			
8 (c)	The lease holder must not commence or undertake underground mining operations that will potentially lead to subsidence other than in accordance with a Subsidence Management Plan approved by the Director-General, an approval under the Coal Mine Health and Safety Act 2002, or the document New Subsidence Management Plan Approval Process - Transitional Provisions (EOP09).			
8 (d)	Subsidence Management Plans are to be prepared in accordance with the Guideline for Applications for Subsidence Management Approvals.			
8 (e)	Subsidence Management Plans as approved shall form part of the Mining Operations Plan required under Condition 2 and will be subject to the Annual Environmental Management Report process as set out under Condition 3. The SMP is also subject to the requirements for subsidence monitoring and reporting set out in the document New Approval Process for Management of Coal Mining Subsidence - Policy.			
9	Working Requirement			

	<p>The lease holder must:</p> <p>(a) ensure that at least 4 competent people are efficiently employed on the lease area on each week day except Sunday or any week day that is a public holiday, OR (b) expend on operations carried out in the course of prospecting or mining the lease area, an amount of not less than \$70,000.00 per annum whilst the lease is in force.</p>	C	<p>Due to decommissioning of the site to rehabilitation, no persons currently employed on a daily basis on lease area.</p> <p>Evidence of Centennial Coal expending greater than \$70,000 per annum from multiple invoices sighted for each year.</p>	No action
10	Control of Operations			
10 (a)	<p>If an Environmental Officer of the Department believes that the lease holder is not complying with any provision of the Act or any condition of this lease relating to the working of the lease, he may direct the lease holder to:-</p> <p>(i) cease working the lease; or</p> <p>(ii) cease that part of the operation not complying with the Act or conditions; until in the opinion of the Environmental Officer the situation is rectified.</p>	C	Was reported that no direction to cease any operations by the Department had been given.	No action
10 (b)	The lease holder must comply with any direction given. The Director-General may confirm, vary or revoke any such direction.			
10 (c)	A direction referred to in this condition may be served on the Mine Manager.			
11	Reports			
	<p>The lease holder must provide an exploration report, within a period of twenty-eight days after each anniversary of the date this lease has effect or at such other date as the Director-General may stipulate, of each year. The report must be to the satisfaction of the Director-General and contain the following:</p> <p>(a) Full particulars, including results, interpretation and conclusions, of all exploration conducted during the twelve months period;</p> <p>(b) Details of expenditure incurred in conducting that exploration;</p> <p>(c) A summary of all geological findings acquired through mining or development evaluation activities;</p> <p>(d) Particulars of exploration proposed to be conducted in the next twelve months period;</p> <p>(e) All plans, maps, sections and other data necessary to satisfactorily interpret the report.</p>	Not Triggered	No exploration completed by Ivanhoe North.	No action
12	Licence to Use Reports			
12 (a)	The lease holder grants to the Minister, by way of a non-exclusive licence, the right in copyright to publish, print, adapt and reproduce all exploration reports lodged in any form and for the full duration of copyright.	Not Triggered	No exploration completed by Ivanhoe North.	No action
12 (b)	The non-exclusive licence will operate as a consent for the purposes of section 365 of the Mining Act 1992.			
13	Confidentiality			
13 (a)	<p>All exploration reports submitted in accordance with the conditions of this lease will be kept confidential while the lease is in force, except in cases where:</p> <p>(i) the lease holder has agreed that specified reports may be made nonconfidential.</p> <p>(ii) reports deal with exploration conducted exclusively on areas that have ceased to be part of the lease.</p>	Not Triggered	None.	No action

13 (b)	Confidentiality will be continued beyond the termination of a lease where an application for a flow-on title was lodged during the currency of the lease. The confidentiality will last until that flow-on title or any subsequent flow-on title, has terminated.			
13 (c)	The Director-General may extend the period of confidentiality.			
14	Terms of the non-exclusive licence			
	<p>The terms of the non-exclusive copyright licence granted under condition 12 are:</p> <p>(a) the Minister may sub-licence others to publish, print, adapt and reproduce but not on-licence reports.</p> <p>(b) the Minister and any sub- licensee will acknowledge the lease holder's and any identifiable consultant's ownership of copyright in any reproduction of the reports, including storage of reports onto an electronic database.</p> <p>(c) the lease holder does not warrant ownership of all copyright works in any report and , the lease holder will use best endeavours to identify those parts of the report for which the lease holder owns the copyright.</p> <p>(d) there is no royalty payable by the Minister for the licence.</p> <p>(e) if the lease holder has reasonable grounds to believe that the Minister has exercised his rights under the non-exclusive copyright licence in a manner which adversely affects the operations of the lease holder, that licence is revocable on the giving of a period of not less than three months notice.</p>	Not Triggered	None.	No action
15	Blasting			
15 (a) Ground Vibration	The lease holder must ensure that the ground vibration peak particle velocity generated by any blasting within the lease area does not exceed 1 0 mm/second and does not exceed 5 mm/second in more than 5% of the total number of blasts over a period of 12 months at any dwelling or occupied premises as the case may be, unless determined otherwise by the Department of Environment and Climate Change.	Not Triggered	No blasting completed by Ivanhoe North.	No action
15 (b) Blast Overpressu re	The lease holder must ensure that the blast overpressure noise level generated by any blasting within the lease area does not exceed 120 dB (linear) and does not exceed 115 dB (linear) in more than 5% of the total number of blasts over a period of 12 months, at any dwelling or occupied premises, as the case may be, unless determined otherwise by the Department of Environment and Climate Change.			
15 (c) Notification	Contact is to be made with Forests NSW, Macquarie Region during the fire danger period.			
16	Safety			
	Operations must be carried out in a manner that ensures the safety of persons or stock in the vicinity of the operations. All drill holes shafts and excavations must be appropriately protected, to the satisfaction of the Director-General, to ensure that access to them by persons and stock is restricted. Abandoned shafts and excavations opened up or used by the lease holder must be filled in or otherwise rendered safe to a standard acceptable to the Director-General.	C	<p>Currently well secured fencing and gates surrounding site on inspection.</p> <p>Evidence of safety procedures during operations.</p> <p>Regular inspections. Security service.</p>	No action
17	Exploratory Drilling			

17 (a)	At least twenty eight days prior to commencement of drilling operations the lease holder must notify the relevant Department of Water and Energy Regional Hydrologist of the intention to drill exploratory drill holes together with information on the location of the proposed holes			
17 (b)	<p>If the lease holder drills exploratory drill holes he must satisfy the Director-General that:-</p> <p>(i) all cored holes are accurately surveyed and permanently marked in accordance with Departmental guidelines so that their location can be easily established ;</p> <p>(ii) all holes cored or otherwise are sealed to prevent the col lapse of the surrounding surface;</p> <p>(iii) all drill holes are permanently sealed with cement plugs to prevent surface discharge of groundwaters;</p> <p>(iv) if any drill hole meets natural or noxious gases it is plugged or sealed to prevent their escape;</p> <p>(v) if any drill hole meets an artesian or sub-artesian flow it is effectively sealed to prevent contamination of aquifers;</p> <p>(vi) once any drill hole ceases to be used the hole must be sealed in accordance with Departmental guidelines. Alternatively, the hole must be sealed as instructed by the Director-General;</p> <p>(vii) once any drill hole ceases to be used the land and its immediate vicinity is left in a clean, tidy and stable condition; and</p> <p>viii) at least twenty eight (2) days prior to commencement of drilling the lease holder must notify Forests NSW Regional Manager, Macquarie Reg</p>	Not Triggered	No drilling was completed at Ivanhoe North.	No action
18	Prevention of Soil Erosion and Pollution			
	Operations must be carried out in a manner that does not cause or aggravate air pollution, water pollution (including sedimentation) or soil contamination or erosion, unless otherwise authorised by a relevant approval, and in accordance with an accepted Mining Operations Plan. For the purpose of this condition, water shall be taken to include any watercourse, waterbody or groundwaters. The lease holder must observe and perform any instructions given by the Director-General in this regard.	C	<p>Site was considered to generally have good prevention of soil erosion and pollution control, and implemented their current Site Water Management Plan.</p> <p>Existing rehabilitation activities could be improved.</p> <p>No complaints recorded with regards to pollution.</p>	See condition 7 regarding Rehabilitation Management.
19	Transmission lines, Communication lines and Pipelines			
	Operations must not interfere with or impair the stability or efficiency of any transmission line, communication line, pipeline or any other utility on the lease area without the prior written approval of the Director-General and subject to any conditions he may stipulate.	C	No transmission lines etc. were present on the site. Electricity was provided by generators.	No action
20	Fences and Gates			
20 (a)	Activities on the lease must not interfere with or damage fences without the prior written approval of the owner thereof or the Minister and subject to any conditions the Minister may stipulate.	C	Fences and entrance gates were installed and surrounded the site and were generally in good condition. Some minor damage was found on fences during inspection.	Include fences and gates in monthly inspection to ensure and damage is quickly repaired.
20 (b)	Gates within the lease area must be closed or left open in accordance with the requirements of the landholder.			
21	Roads and Tracks			

21 (a)	Operations must not affect any road unless in accordance with an accepted Mining Operations Plan or with the prior written approval of the Director-General and subject to any conditions he may stipulate.	C	(a) Was reported that Roads and Traffic Authority (RTA) (now Roads and Maritime Service (RMS)) directed site to improve intersection and signage at mine entrance, as noted in Traffic Management Plan (TMP). No invoice of work done was sighted, but inspection noted an appropriate turning lane and signage requested in TMP.	No action
21 (b)	The lease holder must pay to the designated authority in control of the road (generally the local council or the Roads and Traffic Authority) the cost incurred in fixing any damage to roads caused by operations carried out under the lease, less any amount paid or payable from the Mine Subsidence Compensation Fund .			
22	Access tracks must be kept to a minimum and be positioned so that they do not cause any unnecessary damage to the land. Temporary access tracks must be ripped, topsoiled and revegetated as soon as possible after they are no longer required for mining operations. The design and construction of access tracks must be in accordance with specifications fixed by the Department of Environment and Climate Change and Forests NSW.	C	Use of existing access tracks from previous mining were utilised. Tracks were of appropriate size, no evidence or erosion and therefore not causing unnecessary damage to the land. The main access track will remain as requested by the landholder, Forests NSW. Other minor tracks will be rehabilitated,	No action
23	Trees and Timber			
23 a)	The lease holder must not fell trees, strip bark or cut timber on the lease without the consent of the landholder who is entitled to the use of the timber, or if such a landholder refuses consent or attaches unreasonable conditions to the consent, without the approval of a warden .	C	(a) Land holder inspection completed by Forests NSW (b) On inspection, clearing of timber and vegetation only occurred within areas of mining and operations. C) N/A	No action
23 b)	The lease holder must not cut, destroy, ringbark or remove any timber or other vegetative cover on the lease area except such as directly obstructs or prevents the carrying on of operations. Any clearing not authorised under the Mining Act 1992 must comply with the provisions of the Forestry Act 1916 and any conditions specified by Forests NSW Regional Manager, Macquarie Region.			
23 c)	The lease holder must obtain all necessary approvals or licences before using timber from any Crown land within the lease area.			
25	Resource Recovery			
25 (a)	Notwithstanding any description of mining methods and their sequence or of proposed resource recovery contained within the Mining Operations Plan, if at any time the Director-General is of the opinion that minerals which the lease entitles the lease holder to mine and which are economically recoverable at the time are not being recovered from the lease area, or that any such minerals which are being recovered are not being recovered to the extent which should be economically possible or which for environmental reasons are necessary to be recovered, he may give notice in writing to the lease holder requiring the holder to recover such minerals.	Not Triggered	No evidence of any requests related to Condition 25.	No action
25 (b)	The notice shall specify the minerals to be recovered and the extent to which they are to be recovered, or the objectives in regard to resource recovery, but shall not specify the processes the lease holder shall use to achieve the specified recovery.			
25 (c)	The lease holder must, when requested by the Director-General, provide such information as the Director-General may specify about the recovery of the mineral resources of the lease area.			

25 (d)	The Director-General shall issue no such notice unless the matter has firstly been thoroughly discussed with and a report to the Director-General has incorporated the views of the lease holder.			
25 (e)	The lease holder may object to the requirements of any notice issued under this condition and on receipt of such an objection the Minister shall refer it to a Warden for inquiry and report under Section 334 of the Mining Act, 1992.			
25 (f)	After considering the Warden's report the Minister shall decide whether to withdraw, modify or maintain the requirements specified in the original notice and shall give the lease holder written notice of the decision. The lease holder must comply with the requirements of this notice.			
26	Indemnity			
	The lease holder must indemnify and keep indemnified the Crown from and against all actions, suits, claims and demands of whatsoever nature and all costs, charges and expenses which may be brought against the lease holder or which the lease holder may incur in respect of any accident or injury to any person or property which may arise out of the construction, maintenance or working of any workings now existing or to be made by the lease holder within the lease area or in connection with any of the operations notwithstanding that all other conditions of this lease shall in all respects have been observed by the lease holder or that any such accident or injury shall arise from any act or thing which the lease holder may be licensed or compelled to do.	C	Centennial Coal has indemnity insurance for all operations.	No action
28	Single Security (extended)			
28 (a)	The single security given and maintained with the Minister by the lease holder for the purpose of ensuring the fulfilment by the lease holder of obligations under Consolidated Coal Lease No 712 and Mining Purposes Lease No 348 (Act 1973) and Mining Lease No 1301 (Act 1992) is extended to apply to this lease.	C	Security deposit (Close Now) are reviewed annually and submitted to DTIRIS as part of AEMR.	No action
28 (b)	If the lease holder fails to fulfil any one or more of the obligations under this lease, then the security held may be applied at the discretion of the Minister towards the cost of fulfilling such obligations. For the purpose of this clause the lease holder shall be deemed to have failed to fulfil the obligations of the lease if the lease holder fails to comply with any condition or provision hereof, any provision of the Act or regulations made thereunder or any condition or direction imposed or given pursuant to a condition or provision hereof or of any provision of the Act or regulations made thereunder.	Not Triggered	None	No action
30	Suspension of Mining Operations			
	The holder of a consolidated mining lease may not suspend mining operations in the mining area other than in accordance with the consent of the Minister.	C	Mining has ceased in accordance with approval (PA05-0103)	No action
31	Co-operation Agreement			

	<p>The licence holder must make every reasonable attempt, and be able to demonstrate their attempts, to enter into a cooperation agreement with the holder(s) of any overlapping coal I petroleum title(s) (as appropriate). The cooperation agreement should address but not be limited to issues such as:</p> <ul style="list-style-type: none">• access arrangements• operational interaction procedures• dispute resolution• information exchange• well location• timing of drilling• potential resource extraction conflicts and• rehabilitation issues .	C	<p>No evidence of overlapping petroleum titles.</p> <p>Demonstrated that Ivanhoe North and Invincible entered co-operation access agreement.</p>	No action
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EA Statement of Commitments (rehabilitation/water management related only to continuing operations)

Objective	Commitment	Compliance Status	Evidence	Recommended Action
3 Water Resources and Rehabilitation				
Reduce the potential for erosion and sedimentation from profiled sections of the final landform	Topsoil is to be spread to a minimum depth of 100mm on 3:1 (V:H) or steeper slopes and to a minimum depth of 50mm on flatter slopes.	C	In large areas of rehabilitation, no or minimal topsoil has been used. In areas where no or minimal topsoil was used, rehabilitation quality was generally poor. Based on the available topsoil pre mining, it was not possible to meet these depths in this condition. The site did manage all available topsoil/top layer material as per the	Review seed mix used at site for existing poor rehabilitation areas. Ensure mix is consistent with RMCP and contains a mix of grassland and woodland species. Continuation of soil testing and develop strategy to improve existing rehabilitation. Seeding or tube stock planting of additional woodland species in areas where no woodland mix has been used or where limited success of woodland species. Consider the use of different organic matter/ameliorants in rehabilitation trials. Consider incorporating stockpiled felled trees in the rehabilitation. Continue rehabilitation monitoring Update RMCP if necessary.
	Topsoil is to be spread along the contour of replaced overburden to minimise erosion by dumping at the top of slopes and grading downwards and across the contour.	C	Where available topsoil has been respread along the contour of replaced overburden to minimise erosion by dumping at the top of slopes and grading downwards and across the contour.	No action
	Re-spread topsoil is to be levelled to achieve an even surface, avoiding a compacted or an over-smooth finish.	C	Topsoil has been levelled.	No action
	Ripping is to be undertaken on the contour and rip lines directed to the four stabilised drains.	C	Most of the rehabilitation areas have been ripped. Small sections were not ripped at the time of rehabilitation due to wet	No action
	Contour banks are to be constructed where ripping in the above manner is insufficient to prevent erosion and contour bank directed to the four stabilised drains.	C	Contour banks have been constructed in rehabilitation areas. In an email from Jack Cotterill on 15.08.2012 (Forests NSW), Forests NSW were impressed with the landform shaping	No action
	All topsoiled areas is to be contour ripped (after topsoil spreading) to create a “key” between the soil and the overburden.	C	All areas at Ivanhoe North have been topsoil ripped.	No action
	Vehicle traffic is to be prevented from entering the rehabilitated areas.	C	Vehicle traffic has been prevented from entering areas. Rehabilitation of tracks has been completed.	No action
Water captured within disturbed areas of the Project Site will be directed to internal erosion controls and water	All sediment basins and erosion control structures are to be designed and constructed in accordance with DoH (2004).	C	All water on site is directed to the three sediment dams. SD1 may be undersized, but there are plans to remove sediment dams for final closure.	No action
Temporary Containment of ‘Clean’ Water in Ephemeral Drainage Lines / Prevention of flow, over the active operational	Once overburden and soil replacement in the block is complete, and the final landform is satisfactorily established and stabilised, the flow is to be restored to its original flow path and the CWD is to be removed.	Not Triggered	Although rehabilitation has been completed, there is still some work required to before rehabilitation is stable. Therefore clean water diversions remain	No action

Detailed Water Management Review



APPENDIX 3

APPENDIX 3 – SUMMARY OF DISCHARGE MONITORING AT INRP

This Appendix has been prepared to summarise the discharge monitoring results for licensed discharge points at the INRP for the audit period (4 June 2010 – 6 November 2012).

Surface Water EPL 13063 Conditions

L2 Concentration Limits

L2.1 For each monitoring/discharge point or utilisation area specified in the table\’s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L2.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

L2.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\’s.

L2.4 Water and/or Land Concentration Limits for **LDP 001, 002 and 006**:

Pollutant	Units of Measure	100 percentile concentration limit
Oil and Grease	Milligrams per litre	10
pH	pH	6.5-8.5
TSS	Milligrams per litre	30

M2 Requirement to monitor concentration of pollutants discharged

M2.3 Water and/or Land Monitoring Requirements for **LDP 001, 002 and 006**:

Pollutant	Units of Measure	Frequency	Sampling Method
Conductivity	Microsiemens per centimetre	Monthly during discharge	Probe
Oil and Grease	Milligrams per litre	Monthly during discharge	Grab Sample
pH	pH	Monthly during discharge	Probe
TSS	Milligrams per litre	Monthly during discharge	Grab Sample

Email correspondence from Andrew Helmes at OEH (20/11/2012) stated that one sample to be collected in a calendar month when there is a discharge. If you have three discharge events then you need only sample and report on one. If you have none – then clearly no sample is required.

M3.2 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

Discharge Summary at LDP001:

Licensed Discharge Point	Discharge date	Discharge Volume (kL)	Summary of Monitoring Results (ph, EC, TSS Oil and Grease)				Were any results outside EPL criteria? (parameters)	Comments
			pH	EC	TSS	Oil& Grease		
LDP001	1 Dec 2010	1718						
LDP001	2 Dec 2010	21						
LDP001	3 Dec 2010	3765						
LDP001	4 Dec 2010	8535						
LDP001	5 Dec 2010	225						
LDP001	6 Dec 2010	5						
LDP001	16 Dec 2010	1700						
LDP001	17 Dec 2010	27	5.7	65	6570	<5	pH, TSS	
LDP001	19 Dec 2010	6						
LDP001	20 Dec 2010	74						
LDP001	21 Dec 2010	78						
LDP001	22 Dec 2010	553						
LDP001	23 Dec 2010	433						
LDP001	24 Dec 2010	457						
LDP001	25 Dec 2010	26						
LDP001	26 Dec 2010	583						
LDP001	27 Dec 2010	36						
LDP001	29 Dec 2010	49						
LDP001	30 Dec 2010	88						
LDP001	31 Dec 2010	16						
LDP001	2 Jan 2011	994						
LDP001	3 Jan 2011	58						
LDP001	4 Jan 2011	411						
LDP001	5 Jan 2011	571						
LDP001	6 Jan 2011	715	5.96	220	332	<5	pH, TSS	
LDP001	7 Jan 2011	389						
LDP001	8 Jan 2011	3						
LDP001	21 Mar 2011	342						
LDP001	22 Mar 2011	5						

Licensed Discharge Point	Discharge date	Discharge Volume (kL)	Summary of Monitoring Results (ph, EC, TSS Oil and Grease)				Were any results outside EPL criteria? (parameters)	Comments
			pH	EC	TSS	Oil& Grease		
LDP001	23 Nov 2011	69						
LDP001	24 Nov 2011	166	5.92	88	1158	<5	pH, TSS	
LDP001	25 Nov 2011	199						
LDP001	26 Nov 2011	2335						
LDP001	19 Dec 2011	3087						
LDP001	20 Dec 2011	1368	5.56	99	5		pH, no testing for oil and grease	
LDP001	10 May 2012	20	6.71	645	20		No testing for oil and grease	After treatment WTS discharged
LDP001	16 May 2012	750						Estimate of discharge volume after WTS treatment and then siphoned
LDP001	22 May 2012	750	6.2	118	>2000		TSS no testing for oil and grease	Estimate after WTS treatment and then siphoned

Summary of Compliance:

Month	Did a Discharge Event Occur during this month? If so, dates? What LDP?	Was At least 1 water quality sample taken during Discharge?
June 2010	No	
July 2010	No	
August 2010	No	
September 2010	No	
October 2010	No	
November 2010	No	
December 2010	Yes LDP001 (1, 2, 3, 4, 5, 6, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31)	Yes (17 Dec)
Jan 2011	Yes LDP001 (2, 3, 4, 5, 6, 7, 8)	Yes (6 Jan)
Feb 2011	No	
March 2011	Yes (21, 22)	No
April 2011	No	
May 2011	No	
June 2011	No	
July 2011	No	
August 2011	No	
September 2011	No	
October 2011	No	
November 2011	Yes LDP001 (23, 24, 25, 25, 26)	Yes (Nov 24)
December 2011	Yes LDP001 (19, 20)	Yes (Dec 20)
Jan 2012	No	
Feb 2012	No	
March 2012	No	
April 2012	No	
May 2012	Yes LDP001 (10, 16, 22)	Yes (May 10 and 22)
June 2012	No	
July 2012	No	
August 2012	No	
September 2012	No	
October 2012	No	
November 2012	No	

In Summary:

The site did not meet EPL condition (M2.3) in March 2011 regarding monitoring monthly during discharge. Discharges occurred from LDP001 during this month, but no samples of discharges were taken.

The site did not meet EPL condition (L2.4) on 17 December 2010, 6 January 2011, 24 November 2011, 20 December 2011 and 22 May 2012 as water samples were above or below the EPL concentration limits.

Opening and Closing Meeting Minutes



APPENDIX 4



Ivanhoe North Rehabilitation Project – Independent Environmental Audit

Opening Meeting Minutes – 6th November 2012

Present:

- Neil Larcombe (Centennial Ivanhoe – Site Manager)
- Kirsty Nielson (International Environmental Consultants – Contractor Environment and Community Officer)
- Chris Jones (GSSE)
- Adam Koppers (GSSE)

Introduction

Opening meeting contained a general introduction to Ivanhoe North site including previous operations, and current state of rehabilitation. Major points of discussion are listed below.

Operations

- Mining has been completed at site.
- All infrastructures have been removed from site (excluding monitoring sites).

Water and Erosion

- All dams are currently pumped to lowest water levels possible. Automated water discharge collection equipment has been installed on each licensed discharge point (LDP001, 002 and 006).
- Stream 3 has recently finished undergoing restoration.
- Dirty water overflow from SD1 currently runs into neighbouring property dam, owned by Stan Taylor.
- Sediment structures have been installed between SD1 and Stan Taylors Dam.

Rehabilitation

- The entire site has been re-shaped and undergone re-seeding. No final void has been left.
- Progressive rehabilitation has been completed since 2010, and therefore parts of the site will be in different phases of rehabilitation.

Monitoring

- Air quality, water and noise monitoring is still being undertaken due to licence conditions.
- AECOM is currently undertaking the rehabilitation monitoring.
- Internal meetings / inspections of Ivanhoe North rehabilitation occur regularly but also dependent on specific weather events

Post-Rehabilitation

- Forest NSW is current landholder for Ivanhoe North, and a number of agreements have been made regarding the site post-rehabilitation. They have requested that the current access tracks remain, all dams to be filled and the man proof fencing to be replaced by a cattle fence (final task).
- Stan Taylor, current lease holder, will use the site for sheep and cattle grazing upon completion of rehabilitation.



Ivanhoe North Rehabilitation Project – Independent Environmental Audit

Closing Meeting Minutes – 8th November 2012

Present:

- Neil Larcombe (Centennial Ivanhoe – Site Manager)
- Kirsty Nielson (International Environmental Consultants – Contractor Environment and Community Officer)
- Chris Jones (GSSE)
- Adam Koppers (GSSE)

Clean Water Dam System

There was some discussion regarding the future use of the clean water management system at Ivanhoe North. Neil Larcombe agreed with the audit team that they are useful component of the water management system, and mentioned that the current lease holder Stan Taylor would also like them left following rehabilitation. The landholder, Forests NSW, has requested the dams be removed due to public liability.

Previous Rehabilitation - Phase 1 (approximately 2 years old)

GSSE raised the issue of inconsistent rehabilitation from Phase 1. Areas are displaying some tree growth and limited grass, or grass only or no growth at all.

Neil Larcombe commented that the area of no re-growth highlighted in final meeting was due to tractor bogging issues at the time. Was possibly hand-seeded instead, however, no attempt at further seeding or rehabilitation was not completed. Neil Larcombe acknowledged that further rehabilitation work is required.

There was no cover crop used in this mix.

Previous Rehabilitation - Phase 2 (approximately 1.5 years old)

GSSE noted that parts of the Phase 2 rehabilitation have a decent grass cover, however, no tree growth.

New Rehabilitation - Phase 3 (Approximately four months old)

GSSE noted that Lime and Gypsum were used in latest rehabilitation; Neil Larcombe confirmed this was done following advice from soil testing. There is a cover crop growing well in some areas, however, too early to assess the success of rehabilitation.

Overall Rehabilitation Discussion

GSSE commented that the overall shaping of the rehabilitation was excellent, and that only a few minor erosion areas were found across the site. GSSE commented that due to the quality of the topdressing soil, the rehabilitation in general may be improved by some organic matter ameliorants.

The possibility of mulching some of the felled timber on site was discussed, however, Neil Larcombe highlighted this would likely be a cost ineffective method of providing organic material to the soil. Compost and biosolids were listed as the most probable best options. Neil Larcombe acknowledged that further work on existing rehabilitation areas would be required.

Stream 3 Restoration

GSSE commented on the successful restoration of Stream 3. GSSE noted the trees were stockpiled at end of Stream 3, Neil Larcombe confirmed they were placed after minor erosion occurred. Chris Jones recommended some hand seeding to the area.

The restoration of 'downstream' Stream 3 was raised by GSSE, with regard to the possible responsibility of Ivanhoe North regarding its rehabilitation and/or maintenance. Neil Larcombe did not believe it was a Centennial responsibility as it is beyond the Ivanhoe North disturbance footprint, and was due to previous mining in the area. GSSE mentioned there will be further investigation by audit team to check commitments regarding rehabilitation of areas outside disturbance footprint in Environmental Assessment etc.

Neil Larcombe agreed with GSSE that some minor erosion and sediment control improvements could be made, particularly around the end of Stream 3.

Liaison with the OEH

GSSE recommended there was benefit to liaise with OEH regarding removal of some commitments for licenses i.e noise monitoring now that site is decommissioned. Neil Larcombe agreed and commented that discussion with OEH regarding this matter had already begun.